



---

# Sequel™ SMRT® Link Web Services API v3.2.0

**Pacific Biosciences**

August 08, 2016

|          |   |           |
|----------|---|-----------|
| <b>1</b> | <b>Introduction</b>                     | <b>1</b>  |
| 1.1      | Authentication                          | 1         |
| <b>2</b> | <b>SMRT Link Service API</b>            | <b>3</b>  |
| 2.1      | Run Design Service                      | 3         |
| 2.1.1    | Overview of Run Design Service          | 3         |
| 2.1.2    | List All Run Designs                    | 3         |
| 2.1.3    | Create Run Design                       | 9         |
| 2.1.4    | Search Run Designs                      | 14        |
| 2.1.5    | Retrieve Run Design Details             | 18        |
| 2.1.6    | Update Run Design                       | 22        |
| 2.2      | Registry Service                        | 26        |
| 2.2.1    | Overview of Registry Service            | 26        |
| 2.2.2    | List All Resources                      | 27        |
| 2.2.3    | Create Resource                         | 31        |
| 2.2.4    | Fetch Resource by Id                    | 35        |
| 2.2.5    | Fetch Resource by UUID                  | 38        |
| 2.2.6    | Redirect Request to Resource            | 41        |
| 2.2.7    | Update Resource                         | 47        |
| 2.2.8    | Delete Resource                         | 51        |
| <b>3</b> | <b>SMRT Analysis Service API</b>        | <b>55</b> |
| 3.1      | Dataset Service                         | 55        |
| 3.1.1    | Overview of Dataset Service             | 55        |
| 3.1.2    | List All Dataset Types                  | 56        |
| 3.1.3    | List All Datasets by Type               | 59        |
| 3.1.4    | Get Dataset Schema by Type              | 70        |
| 3.1.5    | Retrieve Dataset by Type and Id         | 103       |
| 3.1.6    | Retrieve Dataset Details by Type and Id | 116       |
| 3.2      | Jobs Service                            | 136       |
| 3.2.1    | Overview of Jobs Service                | 136       |
| 3.2.2    | List All Job Types                      | 138       |
| 3.2.3    | List All Jobs by Type                   | 140       |
| 3.2.4    | Create Job by Type                      | 147       |
| 3.2.5    | Fetch Job by Type and Id                | 162       |
| 3.2.6    | Fetch Job Datastore                     | 166       |
| 3.2.7    | Fetch Job Reports                       | 173       |
| 3.2.8    | Fetch Job Specific Report               | 177       |
| 3.2.9    | Fetch Job Events                        | 189       |
| 3.3      | Project Service                         | 194       |
| 3.3.1    | Overview of Project Service             | 194       |

|          |                                       |            |
|----------|---------------------------------------|------------|
| 3.3.2    | List All Projects . . . . .           | 195        |
| 3.3.3    | Create Project . . . . .              | 198        |
| 3.3.4    | Fetch Project by Id . . . . .         | 206        |
| 3.3.5    | Update Project Datasets . . . . .     | 216        |
| 3.3.6    | Update Project Members . . . . .      | 225        |
| <b>4</b> | <b>SMRT Base Service API</b>          | <b>235</b> |
| 4.1      | Core Service . . . . .                | 235        |
| 4.1.1    | Overview of Core Service . . . . .    | 235        |
| 4.1.2    | Get System Status . . . . .           | 235        |
| 4.1.3    | Get System Configuration . . . . .    | 238        |
| 4.1.4    | Get System Components . . . . .       | 245        |
| 4.2      | Health Service . . . . .              | 247        |
| 4.2.1    | Overview of Health Service . . . . .  | 247        |
| 4.2.2    | List All Health Gauges . . . . .      | 248        |
| 4.2.3    | Create Health Gauge . . . . .         | 251        |
| 4.2.4    | Fetch Health Gauge by Id . . . . .    | 254        |
| 4.2.5    | Create Health Gauge Message . . . . . | 257        |
| 4.2.6    | Fetch Health Gauge Messages . . . . . | 261        |
| 4.3      | User Service . . . . .                | 264        |
| 4.3.1    | Overview of User Service . . . . .    | 264        |
| 4.3.2    | Fetch User Information . . . . .      | 264        |
| 4.3.3    | Obtain User Token . . . . .           | 267        |

## INTRODUCTION

This document describes the SMRT Link Web Services API provided by Pacific Biosciences. The API allows developers to design and QC instrument runs, query new data from the instrument, and start analyses on the data.

The Web Services support RESTful access from web clients, and can be used from the command line with wget or curl, from scripting languages such as PHP, Python, PERL, and from programming languages such as Java, C++, and C#.

The API includes functions for:

- Managing run designs;
- Managing resources, such as instruments;
- Managing Data Sets;
- Managing jobs;
- Monitoring health status of the system.

The Web Services APIs:

- Run in or under a standard Linux/Apache environment, and can be accessed from Windows, Mac OS or Linux operating systems.
- Are installed as part of the Secondary Analysis system, and require a one-time configuration.

### 1.1 Authentication

If authentication is required, perform the following steps:

1. Obtain a token with use of the following command:

```
curl -user <username> http://<host>:<port>/smrt-base/user/<username>/token
```

Enter the password when prompted.

---

**Note:** <username> is the network login name as it is defined in LDAP.

---

For example:

```
curl -user jdoe http://smrtlink-alpha.nanofluidics.com:8081/smrt-base/user/jdoe/token
```

---

**Note:** The token will expire after a certain configurable time interval (one hour by default).

---

2. Use the obtained token in the 'Authorization' request header as follows:

*Authorization: Bearer <token>*

For example, the request headers may look as follows:

*Accept: application/json*

*Content-Type: application/json*

*Authorization: Bearer*

*eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9.eyJpZCI6ImJmZlYzYmLTUyODYtNDcwMy...*

## SMRT LINK SERVICE API

### 2.1 Run Design Service

#### 2.1.1 Overview of Run Design Service

##### Use Cases

The Run Design Service enables creating, editing and viewing run designs.

##### Key Concepts

**Run Design** provides the functionality for users to define runs.

A **run** is defined as a set of one or more data collections to be acquired in sequence on an instrument.

A run specifies:

- Samples, sample wells, and SMRT Cells to include in the sequencing run;
- Collection parameters and analysis automation to use for each sample within the run.

#### 2.1.2 List All Run Designs

Get the list of all run designs available on the system.

##### Request

| Method | URI                                 |
|--------|-------------------------------------|
| GET    | http://<host>:<port>/smrt-link/runs |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Get the list of all run designs available on the system:

GET <http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/runs>

### Response

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request. Note: If there are no run designs defined on the server, then the response still will be 200 OK, with an empty array of run designs in the response body. |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml   |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Mon, 25 Jan 2016 17:25:27 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 3215                            |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema                      |
|------------------|--|
| application/json | See <a href="#">List all run designs - response schema</a> |

### Sample Response

See [List all run designs - response sample](#)

### Additional Information

| Authentication   | Technical Support  |
|------------------|--|
| See Introduction | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

## Change Log

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Link 3.0 | New service endpoint.  | N/A                 |

## List all run designs - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.rundesigns.list",
  "version" : "0.1.0",
  "title" : "Run Designs List",
  "description" : "Array of Run Design objects",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "reserved" : {
        "title" : "Reserved State",
        "description" : "Reserved state of this run design",
        "type" : "boolean"
      },
      "name" : {
        "title" : "Run Design Name",
        "description" : "Name of this run design",
        "type" : "string"
      },
      "id" : {
        "title" : "Run Design Id",
        "description" : "Identifier of this run design",
        "type" : "integer"
      },
      "createdAt" : {
        "title" : "Created at",
        "description" : "Time when this run design was created",
        "type" : "string",
        "format" : "date-time"
      },
      "createdBy" : {
        "title" : "Created by",
        "description" : "Login name of the user who created this run design",
        "type" : "string"
      },
      "summary" : {
        "title" : "Summary",
        "description" : "Summary description of this run design",
        "type" : "string"
      }
    }
  },
  "required" : [
    "reserved",
    "name",
    "id",
    "createdAt",
    "createdBy",

```



```
    "summary"
  ]
},
"additionalItems" : false
}
```

### List all run designs - response sample

```
[{
  "reserved" : true,
  "name" : "Run_201511190522",
  "id" : 51,
  "createdAt" : "2015-11-18T21:22:55.379",
  "createdBy" : "root",
  "summary" : "Dry_Run_111815"
}, {
  "reserved" : false,
  "name" : "Run_201511141831",
  "id" : 12,
  "createdAt" : "2015-11-14T10:31:48.577",
  "createdBy" : "root",
  "summary" : "run4"
}, {
  "reserved" : false,
  "name" : "Run_20151119_54016",
  "id" : 57,
  "createdAt" : "2015-11-19T08:02:02.292",
  "createdBy" : "root",
  "summary" : "lambdaNEB"
}, {
  "reserved" : false,
  "name" : "Run_201511172028",
  "id" : 35,
  "createdAt" : "2015-11-17T12:28:39.236",
  "createdBy" : "root",
  "summary" : "2 cells and inventory for 2 cells"
}, {
  "reserved" : true,
  "name" : "Run_201511141828_as",
  "id" : 10,
  "createdAt" : "2015-11-14T10:29:42.280",
  "createdBy" : "root",
  "summary" : ""
}, {
  "reserved" : true,
  "name" : "Run_201511170000_A8",
  "id" : 31,
  "createdAt" : "2015-11-16T16:02:07.433",
  "createdBy" : "root",
  "summary" : "lambdaNEB"
}, {
  "reserved" : true,
  "name" : "Run_201511162349",
  "id" : 29,
  "createdAt" : "2015-11-16T15:49:27.291",
  "createdBy" : "root",
  "summary" : "DryRunning"
}
```

```
}, {
  "reserved" : true,
  "name" : "Run_201511181921_A11",
  "id" : 44,
  "createdAt" : "2015-11-18T11:46:45.527",
  "createdBy" : "root",
  "summary" : "lambdaNEB"
}, {
  "reserved" : true,
  "name" : "Run_201511180034_A7",
  "id" : 41,
  "createdAt" : "2015-11-17T16:37:59.382",
  "createdBy" : "root",
  "summary" : "NoHP_V1_01_circular_89x_150552"
}, {
  "reserved" : false,
  "name" : "Run_201511141841",
  "id" : 20,
  "createdAt" : "2015-11-14T10:42:11.764",
  "createdBy" : "root",
  "summary" : "run12"
}, {
  "reserved" : true,
  "name" : "Run_201511180030_A12",
  "id" : 40,
  "createdAt" : "2015-11-17T16:30:52.743",
  "createdBy" : "root",
  "summary" : "lambdaNEB"
}, {
  "reserved" : true,
  "name" : "Run_201511180113",
  "id" : 43,
  "createdAt" : "2015-11-17T17:14:21.040",
  "createdBy" : "root",
  "summary" : "NoHP_V1_01_circular_89x_150552"
}, {
  "reserved" : true,
  "name" : "Run_201511182001_A12",
  "id" : 45,
  "createdAt" : "2015-11-18T12:01:52.923",
  "createdBy" : "root",
  "summary" : "lambdaNEB"
}, {
  "reserved" : true,
  "name" : "Run_201511190048_A11",
  "id" : 47,
  "createdAt" : "2015-11-18T17:35:27.825",
  "createdBy" : "root",
  "summary" : "lambdaNEB"
}, {
  "reserved" : true,
  "name" : "Run_201511190125_A12",
  "id" : 48,
  "createdAt" : "2015-11-18T17:38:49.910",
  "createdBy" : "root",
  "summary" : "lambdaNEB"
}, {
  "reserved" : false,
```

```
"name" : "Run_201511141832",
"id" : 13,
"createdAt" : "2015-11-14T10:32:49.548",
"createdBy" : "root",
"summary" : "run5"
}, {
  "reserved" : true,
  "name" : "Run_201511170019_A8",
  "id" : 32,
  "createdAt" : "2015-11-16T16:20:10.316",
  "createdBy" : "root",
  "summary" : "lambdaNEB"
}, {
  "reserved" : true,
  "name" : "Run_201511172355_A11",
  "id" : 39,
  "createdAt" : "2015-11-17T16:03:20.024",
  "createdBy" : "root",
  "summary" : "lambdaNEB"
}, {
  "reserved" : true,
  "name" : "Run_201511190444",
  "id" : 50,
  "createdAt" : "2015-11-18T20:45:02.447",
  "createdBy" : "root",
  "summary" : "54103"
}, {
  "reserved" : true,
  "name" : "Run_201511172336_A11",
  "id" : 38,
  "createdAt" : "2015-11-17T15:37:06.870",
  "createdBy" : "root",
  "summary" : "lambdaNEB"
}, {
  "reserved" : true,
  "name" : "Run_20151119_54016",
  "id" : 59,
  "createdAt" : "2015-11-19T08:41:22.458",
  "createdBy" : "root",
  "summary" : "Run_20151119_54016"
}, {
  "reserved" : false,
  "name" : "Run_201511141956",
  "id" : 25,
  "createdAt" : "2015-11-14T11:57:05.588",
  "createdBy" : "root",
  "summary" : "abortRun1"
}, {
  "reserved" : true,
  "name" : "Run_201511182015",
  "id" : 46,
  "createdAt" : "2015-11-18T12:26:41.229",
  "createdBy" : "root",
  "summary" : "54013_1Cell_2Hr_11182015_ReleaseReagents"
}
]
```

### 2.1.3 Create Run Design

Create a new run design.

#### Request

| Method | URI   |
|--------|---|
| POST   | <a href="http://&lt;host&gt;:&lt;port&gt;/smrt-link/runs">http://&lt;host&gt;:&lt;port&gt;/smrt-link/runs</a> |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Content-Type    | The MIME type of the content in the request.        | Yes      | application/json |
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema          |
|------------------|---|
| application/json | See <i>Create run design - request schema</i> |

#### Sample Request

See *Create run design - request sample*

#### Response

| HTTP Status Code           | Error Message  | Description   |
|----------------------------|--|---|
| 201 Created                | None   | Successful completion of the request. The newly created run design object in a summary form will be returned in the response body.              |
| 415 Unsupported Media Type | There was a problem with the request's Content-Type: Expected 'application/json' | Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded |
| 422: Unprocessable Entity  | XML did not conform to schema: An error occurred unmarshalling the document      | Occurs when the serialized XML file that was passed in the "runDataModel" field does not conform to the PacBioDataModel.xsd schema.             |

| Response Headers            | Description  | Re-quired | Sample Value                    |
|-----------------------------|--|-----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes       | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes       | Tue, 26 Jan 2016 01:13:12 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes       | 176                             |
| Content-Type                | The MIME type of this content.   | Yes       | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes       | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema          |
|------------------|--|
| application/json | See <i>Create run design - response schema</i> |

### Sample Response

See *Create run design - response sample*

### Additional Information

| Authentication   | Technical Support        |
|------------------|--------------------------|
| See Introduction | E-mail: support@pacb.com |

### Change Log

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Link 3.0 | New service endpoint.  | N/A                 |

### Create run design - request schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.rundesign.new",
  "version" : "0.1.0",
  "title" : "New Run Design",
  "description" : "A subset of Run Design object required to create a new run design",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Run Design Name",
      "description" : "Name of this run design",
      "type" : "string"
    },
    "runDataModel" : {
      "title" : "Run Data Model",
      "description" : "Serialized XML file specifying metadata of this run design",
      "type" : "string"
    }
  }
}
```

```

"summary" : {
  "title" : "Summary",
  "description" : "Summary description of this run design",
  "type" : "string"
},
"required" : [
  "name",
  "runDataModel",
  "summary"
],
"additionalProperties" : false
}

```

**Note:** The “runDataModel” field is specified according to the PacBioDataModel.xsd schema.

### Create run design - request sample

Create a new run design:

POST <http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/runs>

```

{
  "runDataModel" : "<serialized Run Design XML file, as in the example below>",
  "name" : "Run_201601220309_D15",
  "summary" : "tkb_C5_circular_23x_I92782"
}

```

**Note:** The value of the “name” field passed in the request body does not have to be unique. If a run design object with the same “name” already exists, the new run design object still will be created successfully, with a new “id” allocated for it by the server.

**Note:** The “runDataModel” field contains a serialized Run Design XML file, as in the example below:

```

<?xml version='1.0' encoding='utf-8'?>
<PacBioDataModel xmlns='http://pacificbiosciences.com/PacBioDataModel.xsd'>
  <ExperimentContainer Name='1_CellWorkflow' ExperimentId='685' CreatedAt='2015-07-09T09:30:47'>
    <InvestigatorName>PacBio</InvestigatorName>
    <CreatedDate>2015-04-13</CreatedDate>
    <Runs>
      <Run Name='Run_138' UniqueId='c824e1ca-a244-4b73-94d7-cb8701dce243' Status='Ready'>
        <Outputs>
          <SubreadSets>
            <SubreadSet TimeStampedName='1-Subread-2015-07-09T09:30:47' MetaType='SubreadSetCollection'>
              <ExternalResources xmlns='http://pacificbiosciences.com/PacBioBaseDataModel.xsd'>
                <ExternalResource MetaType='ExternalResource' UniqueId='e9000a03-9c36-4c77-bc8f-22a1ef678c6a'>
                </ExternalResource>
              </ExternalResources>
            <DataSetMetadata>

```

```

<TotalLength>0</TotalLength>
<NumRecords>0</NumRecords>
<Collections xmlns='http://pacificbiosciences.com/PacBioCollectionMetadata.xsd'>
  <CollectionMetadata MetaType='CollectionMetadata' UniqueId='bb89dcfa-7bf2-428c-ac59-bc34e2b'>
    <InstCtrlVer>String</InstCtrlVer>
    <SigProcVer>String</SigProcVer>
    <RunDetails>
      <TimeStampedName>DefaultTimeStampedRunName</TimeStampedName>
      <Name>Run_2015101511138</Name>
      <CreatedBy>String</CreatedBy>
      <WhenCreated>0001-01-01T00:00:00</WhenCreated>
      <WhenStarted>0001-01-01T00:00:00</WhenStarted>
    </RunDetails>
    <WellSample Name='Sample_138' CreatedAt='0001-01-01T00:00:00'>
      <WellName>A01</WellName>
      <Concentration>0</Concentration>
      <InsertSize>10000</InsertSize>
      <SampleReuseEnabled>>false</SampleReuseEnabled>
      <StageHotstartEnabled>>true</StageHotstartEnabled>
      <SizeSelectionEnabled>>true</SizeSelectionEnabled>
      <UseCount>0</UseCount>
      <DNAControlComplex>DNA Internal Control Complex SQ v1</DNAControlComplex>
    </WellSample>
    <Automation Name='Workflow_Magbead.py'>
      <AutomationParameters xmlns='http://pacificbiosciences.com/PacBioBaseDataModel.xsd'>
        <AutomationParameter Name='Exposure' ValueDataType='Double' SimpleValue='0.0125'>/>
        <AutomationParameter Name='LeftLaserPower' ValueDataType='Double' SimpleValue='10'>/>
        <AutomationParameter Name='RightLaserPower' ValueDataType='Double' SimpleValue='10'>/>
        <AutomationParameter Name='MovieLength' ValueDataType='Double' SimpleValue='120'>/>
        <AutomationParameter Name='seqPixelROI' ValueDataType='JSON' SimpleValue='[[0,0,10,19]]'>/>
        <AutomationParameter Name='UseStageHotStart' ValueDataType='String' SimpleValue='true'>/>
        <AutomationParameter Name='CollectionNumber' ValueDataType='Int32' SimpleValue='0'>/>
        <AutomationParameter Name='CellReuseIndex' ValueDataType='Int32' SimpleValue='0'>/>
      </AutomationParameters>
    </Automation>
    <CollectionNumber>0</CollectionNumber>
    <CellIndex>0</CellIndex>
    <TemplatePrepKit Name='SMRTbell™ Template Prep Kit' Version='3' PartNumber='100-259-300'>
      <LeftAdaptorSequence>ATCTCTCTctttcctcctccggttggttggtGAGAGAGAT</LeftAdaptorSequence>
      <LeftPrimerSequence>aacggaggaggagga</LeftPrimerSequence>
      <RightAdaptorSequence>ATCTCTCTctttcctcctccggttggttggtGAGAGAGAT</RightAdaptorSequence>
      <RightPrimerSequence>aacggaggaggagga</RightPrimerSequence>
    </TemplatePrepKit>
    <BindingKit Name='Sequel Binding Kit v1' PartNumber='100619300'>/>
    <SequencingKitPlate Name='Sequel Sequencing Kit v1' PartNumber='100620000'>/>
    <Primary>
      <AutomationName>DefaultPrimaryAutomationName</AutomationName>
      <ConfigFileName>DefaultPrimaryConfigFileName</ConfigFileName>
      <SequencingCondition>FAKE</SequencingCondition>
      <OutputOptions>
        <ResultsFolder>Analysis_Results</ResultsFolder>
        <CollectionPathUri>DefaultCollectionPathUri</CollectionPathUri>
        <CopyFiles>
          <CollectionFileCopy>Movie</CollectionFileCopy>
          <CollectionFileCopy>Trace</CollectionFileCopy>
          <CollectionFileCopy>Pulse</CollectionFileCopy>
          <CollectionFileCopy>Base</CollectionFileCopy>
          <CollectionFileCopy>Fasta</CollectionFileCopy>
        </CopyFiles>
      </OutputOptions>
    </Primary>
  </CollectionMetadata>
</Collections>

```

```

    <CollectionFileCopy>Bam</CollectionFileCopy>
    <CollectionFileCopy>Baz</CollectionFileCopy>
  </CopyFiles>
  <Readout>Bases</Readout>
  <MetricsVerbosity>High</MetricsVerbosity>
</OutputOptions>
</Primary>
<Secondary>
  <AutomationName>DefaultSecondaryAutomationName</AutomationName>
  <AutomationParameters>
    <AutomationParameter Name='Reference' ValueDataType='String' SimpleValue='lambdaNEB' />
  </AutomationParameters>
  <CellCountInJob>0</CellCountInJob>
</Secondary>
<UserDefinedFields>
  <DataEntities Name='LIMS_IMPORT' ValueDataType='String' SimpleValue='UserDefinedLIMS' />
</UserDefinedFields>
</CollectionMetadata>
</Collections>
</DataSetMetadata>
</SubreadSet>
</SubreadSets>
</Outputs>
</Run>
</Runs>
</ExperimentContainer>
</PacBioDataModel>

```

### Create run design - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.rundesign.summary",
  "version" : "0.1.0",
  "title" : "Run Design Summary",
  "description" : "Run Design object in summary form",
  "type" : "object",
  "properties" : {
    "reserved" : {
      "title" : "Reserved State",
      "description" : "Reserved state of this run design",
      "type" : "boolean"
    },
    "name" : {
      "title" : "Run Design Name",
      "description" : "Name of this run design",
      "type" : "string"
    },
    "id" : {
      "title" : "Run Design Id",
      "description" : "Identifier of this run design",
      "type" : "integer"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this run design was created",

```



```

        "type" : "string",
        "format" : "date-time"
    },
    "createdBy" : {
        "title" : "Created by",
        "description" : "Login name of the user who created this run design",
        "type" : "string"
    },
    "summary" : {
        "title" : "Summary",
        "description" : "Summary description of this run design",
        "type" : "string"
    }
},
"required" : [
    "reserved",
    "name",
    "id",
    "createdAt",
    "createdBy",
    "summary"
],
"additionalProperties" : false
}

```

**Create run design - response sample**

```

{
  "reserved" : false,
  "name" : "Run_201601220309_D15",
  "id" : 3,
  "createdAt" : "2016-01-22T15:00:44.581",
  "createdBy" : "root",
  "summary" : "tkb_C5_circular_23x_I92782"
}

```

**Note:** The “createdBy” and “createdAt” fields are automatically populated using the authenticated user’s login and the current system time correspondingly. The initial “reserved” state is false.

**2.1.4 Search Run Designs**

Search for run designs, filtering by reserved state, creator, and/or summary substring.

**Request**

| Method | URI   |
|--------|---|
| GET    | http://<host>:<port>/smrt-link/runs?reserved={RESERVED_STATE}&createdBy={CREATOR}&substring={SUMMARY_SUBSTRING} |

| Query Parameters | Data Type | Description                   | Re-quired | Multi-valued | Default Value | Possible Values      |
|------------------|-----------|-------------------------------|-----------|--------------|---------------|----------------------|
| reserved         | boolean   | Reserved state of run design  | No        | No           | false         | false, true          |
| createdBy        | string    | User login as defined in LDAP | No        | No           | N/A           | jdoe, tcruise        |
| substring        | string    | Run design summary substring  | No        | No           | N/A           | resequencing, lambda |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Find all run designs which are reserved, created by user 'root', and have substring 'lambda' in summary:

GET <http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/runs?reserved=true&createdBy=root&substring=lambda>

### Response

| HTTP Status Code | Error Message   | Description  |
|------------------|---|--|
| 200 OK           | None  | Successful completion of the request. Note: If there are no run designs corresponding to the filtering criteria, then the response still will be 200 OK, with an empty array of run designs in the response body.                            |
| 400 Bad Request  | The query parameter 'reserved' was malformed: 'kuku' is not a valid Boolean value | Occurs when invalid values of query parameters were passed, for example: GET <a href="http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/runs?reserved=kuku">http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/runs?reserved=kuku</a> |

| Response Headers            | Description  | Re-quired | Sample Value                    |
|-----------------------------|--|-----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes       | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes       | Fri, 20 Nov 2015 03:11:19 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes       | 2728                            |
| Content-Type                | The MIME type of this content.   | Yes       | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes       | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema           |
|------------------|---|
| application/json | See <i>Search run designs - response schema</i> |

### Sample Response

See *Search run designs - response sample*

### Additional Information

| Authentication   | Technical Support        |
|------------------|--------------------------|
| See Introduction | E-mail: support@pacb.com |

### Change Log

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Link 3.0 | New service endpoint.  | N/A                 |

### Search run designs - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.rundesigns.list",
  "version" : "0.1.0",
  "title" : "Run Designs List",
  "description" : "Array of Run Design objects",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "reserved" : {
        "title" : "Reserved State",
        "description" : "Reserved state of this run design",
        "type" : "boolean"
      },
      "name" : {
        "title" : "Run Design Name",
```

```

    "description" : "Name of this run design",
    "type" : "string"
  },
  "id" : {
    "title" : "Run Design Id",
    "description" : "Identifier of this run design",
    "type" : "integer"
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when this run design was created",
    "type" : "string",
    "format" : "date-time"
  },
  "createdBy" : {
    "title" : "Created by",
    "description" : "Login name of the user who created this run design",
    "type" : "string"
  },
  "summary" : {
    "title" : "Summary",
    "description" : "Summary description of this run design",
    "type" : "string"
  }
},
"required" : [
  "reserved",
  "name",
  "id",
  "createdAt",
  "createdBy",
  "summary"
]
},
"additionalItems" : false
}

```

### Search run designs - response sample

```

[ {
  "reserved" : true,
  "name" : "Run_201511170000_A8",
  "id" : 31,
  "createdAt" : "2015-11-16T16:02:07.433",
  "createdBy" : "root",
  "summary" : "lambdaNEB"
}, {
  "reserved" : true,
  "name" : "Run_201511181921_A11",
  "id" : 44,
  "createdAt" : "2015-11-18T11:46:45.527",
  "createdBy" : "root",
  "summary" : "lambdaNEB"
}, {
  "reserved" : true,
  "name" : "Run_201511180030_A12",

```

```

    "id" : 40,
    "createdAt" : "2015-11-17T16:30:52.743",
    "createdBy" : "root",
    "summary" : "lambdaNEB"
  }, {
    "reserved" : true,
    "name" : "Run_201511182001_A12",
    "id" : 45,
    "createdAt" : "2015-11-18T12:01:52.923",
    "createdBy" : "root",
    "summary" : "lambdaNEB"
  }, {
    "reserved" : true,
    "name" : "Run_201511190048_A11",
    "id" : 47,
    "createdAt" : "2015-11-18T17:35:27.825",
    "createdBy" : "root",
    "summary" : "lambdaNEB"
  }, {
    "reserved" : true,
    "name" : "Run_201511190125_A12",
    "id" : 48,
    "createdAt" : "2015-11-18T17:38:49.910",
    "createdBy" : "root",
    "summary" : "lambdaNEB"
  }, {
    "reserved" : true,
    "name" : "Run_201511170019_A8",
    "id" : 32,
    "createdAt" : "2015-11-16T16:20:10.316",
    "createdBy" : "root",
    "summary" : "lambdaNEB"
  }, {
    "reserved" : true,
    "name" : "Run_201511172355_A11",
    "id" : 39,
    "createdAt" : "2015-11-17T16:03:20.024",
    "createdBy" : "root",
    "summary" : "lambdaNEB"
  }, {
    "reserved" : true,
    "name" : "Run_201511172336_A11",
    "id" : 38,
    "createdAt" : "2015-11-17T15:37:06.870",
    "createdBy" : "root",
    "summary" : "lambdaNEB"
  }
]

```

## 2.1.5 Retrieve Run Design Details

Retrieve the complete record of a run design by ID.

## Request

| Method | URI                                      |
|--------|--|
| GET    | http://<host>:<port>/smrt-link/runs/{id} |

| Path Parameters | Parameters | Data Type | Description                         | Required | Multi-valued | Sample Value |
|-----------------|------------|-----------|-------------------------------------|----------|--------------|--------------|
| id              |            | integer   | Unique identifier of the run design | Yes      | No           | 5<br>17      |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

## Sample Request

Retrieve the complete record of the run design with ID=9:

GET <http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/runs/9>

## Response

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request.   |
| 404 Not Found      | Unable to find resource <run design id>   | Occurs when a non-existing run design id was passed in the request.   |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Mon, 25 Jan 2016 19:44:23 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 18173                           |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema                    |
|------------------|--|
| application/json | See <i>Retrieve run design details - response schema</i> |

### Sample Response

See *Retrieve run design details - response sample*

### Additional Information

| Authentication   | Technical Support        |
|------------------|--------------------------|
| See Introduction | E-mail: support@pacb.com |

### Change Log

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Link 3.0 | New service endpoint.  | N/A                 |

### Retrieve run design details - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.rundesign.details",
  "version" : "0.1.0",
  "title" : "Run Design Details",
  "description" : "Complete record of Run Design object",
  "type" : "object",
  "properties" : {
    "reserved" : {
      "title" : "Reserved State",
      "description" : "Reserved state of this run design",
      "type" : "boolean"
    },
    "name" : {
      "title" : "Run Design Name",
      "description" : "Name of this run design",
      "type" : "string"
    }
  }
}
```

```

"runDataModel" : {
  "title" : "Run Data Model",
  "description" : "Serialized XML file specifying metadata of this run design",
  "type" : "string"
},
"id" : {
  "title" : "Run Design Id",
  "description" : "Identifier of this run design",
  "type" : "integer"
},
"createdAt" : {
  "title" : "Created at",
  "description" : "Time when this run design was created",
  "type" : "string",
  "format" : "date-time"
},
"createdBy" : {
  "title" : "Created by",
  "description" : "Login name of the user who created this run design",
  "type" : "string"
},
"summary" : {
  "title" : "Summary",
  "description" : "Summary description of this run design",
  "type" : "string"
}
},
"required" : [
  "reserved",
  "name",
  "runDataModel",
  "id",
  "createdAt",
  "createdBy",
  "summary"
],
"additionalProperties" : false
}

```

**Note:** The “runDataModel” field is specified according to the PacBioDataModel.xsd schema.

### Retrieve run design details - response sample

```

{
  "reserved" : true,
  "name" : "Run_20160123_A12_10kEcoli_v2",
  "runDataModel" : "<serialized Run Design XML file - see Note below>",
  "id" : 9,
  "createdAt" : "2016-01-22T17:15:51.420",
  "createdBy" : "root",
  "summary" : "ecoliK12_pbi_March2013"
}

```

**Note:** The “runDataModel” field contains a serialized Run Design XML file; see an example of the Run Design XML



file in the [Create Run Design](#), section “Create run design - request sample”.

---

## 2.1.6 Update Run Design

Update the record of a run design by ID.

### Request

| Method | URI   |
|--------|---|
| POST   | <a href="http://&lt;host&gt;:&lt;port&gt;/smrt-link/runs/{id}">http://&lt;host&gt;:&lt;port&gt;/smrt-link/runs/{id}</a> |

| Path | Parameters | Data Type | Description                         | Required | Multi-valued | Sample Value |
|------|------------|-----------|-------------------------------------|----------|--------------|--------------|
| id   |            | integer   | Unique identifier of the run design | Yes      | No           | 5<br>17      |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Content-Type    | The MIME type of the content in the request.        | Yes      | application/json |
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema          |
|------------------|---|
| application/json | See <i>Update run design - request schema</i> |

### Sample Request

See *Update run design - request sample*

**Response**

| HTTP Status Code           | Error Message  | Description   |
|----------------------------|--|---|
| 200 OK                     | None   | Successful completion of the request. The updated run design object in a summary form will be returned in the response body.                    |
| 415 Unsupported Media Type | There was a problem with the request's Content-Type: Expected 'application/json' | Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded |
| 422: Unprocessable Entity  | XML did not conform to schema: An error occurred unmarshalling the document      | Occurs when the serialized XML file that was passed in the "runDataModel" field does not conform to the PacBioDataModel.xsd schema.             |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Tue, 26 Jan 2016 17:24:02 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 175                             |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema          |
|------------------|--|
| application/json | See <i>Update run design - response schema</i> |

**Sample Response**

See *Update run design - response sample*

**Additional Information**

| Authentication          | Technical Support  |
|-------------------------|--|
| See <i>Introduction</i> | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

**Change Log**

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Link 3.0 | New service endpoint.  | N/A                 |

### Update run design - request schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.rundesign.update",
  "version" : "0.1.0",
  "title" : "Run Design Update",
  "description" : "A subset of Run Design object intended for updating a run design",
  "type" : "object",
  "properties" : {
    "reserved" : {
      "title" : "Reserved State",
      "description" : "Reserved state of this run design",
      "type" : "boolean"
    },
    "name" : {
      "title" : "Run Design Name",
      "description" : "Name of this run design",
      "type" : "string"
    },
    "runDataModel" : {
      "title" : "Run Data Model",
      "description" : "Serialized XML file specifying metadata of this run design",
      "type" : "string"
    },
    "summary" : {
      "title" : "Summary",
      "description" : "Summary description of this run design",
      "type" : "string"
    }
  },
  "optional" : [
    "reserved",
    "name",
    "runDataModel",
    "summary"
  ],
  "additionalProperties" : false
}
```

---

**Note:** The “runDataModel” field is specified according to the PacBioDataModel.xsd schema.

---

### Update run design - request sample

Update the record of the run design with ID=1:

POST <http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/runs/1>

```
{
  "runDataModel" : "<serialized Run Design XML file - see Note below>",
  "name" : "Run_201601220309_D15",
}
```

```

"summary" : "tkb_C5_circular_23x_I92782",
"reserved" : true
}

```

**Note:** Each of the fields in the request object is optional, and any fields that are present will be updated.

**Note:** The “runDataModel” field contains a serialized Run Design XML file; see an example of the Run Design XML file in [Create Run Design](#), section “Create run design - request sample”.

### Update run design - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.rundesign.summary",
  "version" : "0.1.0",
  "title" : "Run Design Summary",
  "description" : "Run Design object in summary form",
  "type" : "object",
  "properties" : {
    "reserved" : {
      "title" : "Reserved State",
      "description" : "Reserved state of this run design",
      "type" : "boolean"
    },
    "name" : {
      "title" : "Run Design Name",
      "description" : "Name of this run design",
      "type" : "string"
    },
    "id" : {
      "title" : "Run Design Id",
      "description" : "Identifier of this run design",
      "type" : "integer"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this run design was created",
      "type" : "string",
      "format" : "date-time"
    },
    "createdBy" : {
      "title" : "Created by",
      "description" : "Login name of the user who created this run design",
      "type" : "string"
    },
    "summary" : {
      "title" : "Summary",
      "description" : "Summary description of this run design",
      "type" : "string"
    }
  },
  "required" : [
    "reserved",

```

```
"name",
"id",
"createdAt",
"createdBy",
"summary"
],
"additionalProperties" : false
}
```

### Update run design - response sample

```
{
  "reserved" : true,
  "name" : "Run_201601220309_D15",
  "id" : 1,
  "createdAt" : "2016-01-22T14:00:59.064",
  "createdBy" : "root",
  "summary" : "tkb_C5_circular_23x_I92782"
}
```

## 2.2 Registry Service

### 2.2.1 Overview of Registry Service

#### Use Cases

The Registry Service enables registering instruments with SMRT Link, editing instrument settings, viewing the instruments registered with SMRT Link, redirecting requests to specific instruments, and unregistering the instruments.

The main use case will be getting the list of all instruments registered with SMRT Link.

#### Key Concepts

The Registry Service uses a generic concept of *resource*.

**Resource** in its specific meaning is an instrument registered with SMRT Link.

The Registry Service provides a generic set of operations over resources, which can be translated into their specific meanings as follows:

- Create a resource: Register an instrument with SMRT link
- Update a resource: Edit settings of an instrument registered with SMRT link
- List all resources: Get the list of all instruments registered with SMRT Link
- Fetch a resource by its user-defined Id: View settings of a specific instrument identified by User Id
- Fetch a resource by its server-provided UUID: View settings of a specific instrument identified by Server UUID
- Redirect a request to a resource: Forward request to a specific instrument registered with SMRT link
- Delete a resource: Unregister an instrument with SMRT link

## 2.2.2 List All Resources

Get the list of all resources available on the system.

**Note:** Resource in its specific meaning is an instrument registered with SMRT Link. Hence, use this endpoint to get the list of all instruments registered with SMRT Link.

### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/smrt-link/registry-service/resources">http://&lt;host&gt;:&lt;port&gt;/smrt-link/registry-service/resources</a> |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Get the list of all resources available on the system:

GET <http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/registry-service/resources>

### Response

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request.   |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Thu, 25 Feb 2016 01:35:47 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 2990                            |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema           |
|------------------|---|
| application/json | See <i>List all resources - response schema</i> |

### Sample Response

See *List all resources - response sample*

### Additional Information

| Authentication   | Technical Support        |
|------------------|--------------------------|
| See Introduction | E-mail: support@pacb.com |

### Change Log

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Link 3.0 | New service endpoint.  | N/A                 |

### List all resources - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.resources.list",
  "version" : "0.1.0",
  "title" : "Resources List",
  "description" : "Array of Resource objects",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "resourceId" : {
        "title" : "Resource Id",
        "description" : "User-defined identifier of this resource",
        "type" : "string"
      },
      "uuid" : {
        "title" : "Resource UUID",
```

```

    "description" : "Server-generated UUID of this resource",
    "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "host" : {
    "title" : "Host",
    "description" : "Host name assigned to this resource",
    "type" : "string",
    "format" : "hostname"
  },
  "port" : {
    "title" : "Port",
    "description" : "Port number assigned to this resource",
    "type" : "integer"
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when this resource was created",
    "type" : "string",
    "format" : "date-time"
  },
  "updatedAt" : {
    "title" : "Updated at",
    "description" : "Time when this resource was updated",
    "type" : "string",
    "format" : "date-time"
  }
},
"required" : [
  "resourceId",
  "uuid",
  "host",
  "port",
  "createdAt",
  "updatedAt"
]
},
"additionalItems" : false
}

```

### List all resources - response sample

```

[ {
  "resourceId" : "54033",
  "updatedAt" : "2016-02-23T09:42:24.538",
  "uuid" : "93a2d3f6-9837-4efc-86b4-e6644a4ed389",
  "host" : "icc-54033.nanofluidics.com",
  "port" : 8888,
  "createdAt" : "2016-02-23T09:42:24.538"
}, {
  "resourceId" : "54003",
  "updatedAt" : "2016-02-24T01:06:56.273",
  "uuid" : "0dc7a9a7-6a60-4f42-b209-f11f648e3774",
  "host" : "icc-alpha3",
  "port" : 8888,

```



```
"createdAt" : "2016-02-24T01:06:56.273"
}, {
  "resourceId" : "54011",
  "updatedAt" : "2016-02-23T10:33:10.748",
  "uuid" : "0e373f9c-830b-46b5-ae3e-a04b3cd24ef5",
  "host" : "icc-alpha11",
  "port" : 8888,
  "createdAt" : "2016-02-23T10:33:10.748"
}, {
  "resourceId" : "54031",
  "updatedAt" : "2016-02-23T18:07:39.531",
  "uuid" : "63b1a4c7-156c-473c-b9c1-1be2bdd3a829",
  "host" : "icc-54031.nanofluidics.com",
  "port" : 8888,
  "createdAt" : "2016-02-23T18:07:39.531"
}, {
  "resourceId" : "54004",
  "updatedAt" : "2016-02-23T13:34:57.751",
  "uuid" : "0f2e935f-22f4-444b-b822-f1a28b1842fa",
  "host" : "icc-alpha4",
  "port" : 8888,
  "createdAt" : "2016-02-23T13:34:57.751"
}, {
  "resourceId" : "54029",
  "updatedAt" : "2016-02-23T17:26:09.732",
  "uuid" : "7afeb98b-b63b-4d27-9d51-0d40744b3bbd",
  "host" : "icc-54029.nanofluidics.com",
  "port" : 8888,
  "createdAt" : "2016-02-23T17:26:09.732"
}, {
  "resourceId" : "54012",
  "updatedAt" : "2016-02-23T10:37:16.592",
  "uuid" : "d147e089-7e9b-4824-a56d-c08e4bae11fd",
  "host" : "icc-alpha12",
  "port" : 8888,
  "createdAt" : "2016-02-23T10:37:16.592"
}, {
  "resourceId" : "54036",
  "updatedAt" : "2016-02-23T14:15:16.163",
  "uuid" : "1281c476-0e66-472f-971d-1268f18fc82e",
  "host" : "icc-54036.nanofluidics.com",
  "port" : 8888,
  "createdAt" : "2016-02-23T14:15:16.163"
}, {
  "resourceId" : "54006",
  "updatedAt" : "2016-02-23T14:32:23.879",
  "uuid" : "98fea91e-1174-4a1e-8c60-693504c2750f",
  "host" : "icc-alpha6.nanofluidics.com",
  "port" : 8888,
  "createdAt" : "2016-02-23T14:32:23.879"
}, {
  "resourceId" : "54034",
  "updatedAt" : "2016-02-23T14:43:14.180",
  "uuid" : "f4b54605-832a-4d8b-82ce-e2b5fe18feb7",
  "host" : "icc-54034.nanofluidics.com",
  "port" : 8888,
  "createdAt" : "2016-02-23T14:43:14.180"
}, {
```

```

    "resourceId" : "54009",
    "updatedAt" : "2016-02-24T13:52:06.194",
    "uuid" : "22344b7d-3892-4205-8c1b-5829320536b2",
    "host" : "icc-alpha9.nanofluidics.com",
    "port" : 8888,
    "createdAt" : "2016-02-24T13:52:06.194"
  }, {
    "resourceId" : "54008",
    "updatedAt" : "2016-02-23T10:28:51.605",
    "uuid" : "b2d20fa6-15c3-4442-b985-edc1e3ca8dcf",
    "host" : "icc-alpha8",
    "port" : 8888,
    "createdAt" : "2016-02-23T10:28:51.605"
  }, {
    "resourceId" : "54007",
    "updatedAt" : "2016-02-23T14:36:25.147",
    "uuid" : "8ce7cb8d-5493-4ab6-95fe-98cb8f1922cb",
    "host" : "icc-alpha7.nanofluidics.com",
    "port" : 8888,
    "createdAt" : "2016-02-23T14:36:25.147"
  }, {
    "resourceId" : "54002i",
    "updatedAt" : "2016-02-23T15:22:10.123",
    "uuid" : "d480e5f6-b11e-4fcc-bd3a-d07ffa28ad82",
    "host" : "alpha2i.nanofluidics.com",
    "port" : 8888,
    "createdAt" : "2016-02-23T15:22:10.123"
  }
]

```

### 2.2.3 Create Resource

Create a new resource.

#### Request

| Method | URI   |
|--------|---|
| POST   | <a href="http://&lt;host&gt;:&lt;port&gt;/smrt-link/registry-service/resources">http://&lt;host&gt;:&lt;port&gt;/smrt-link/registry-service/resources</a> |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Content-Type    | The MIME type of the content in the request.        | Yes      | application/json |
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema        |
|------------------|---|
| application/json | See <i>Create resource - request schema</i> |

**Sample Request**

See *Create resource - request sample*

**Response**

| HTTP Status Code           | Error Message   | Description   |
|----------------------------|---|---|
| 201 Created                | None  | Successful completion of the request. The newly created resource object will be returned in the response body.  |
| 400 Bad Request            | The request content was malformed: Object is missing required member 'resourceId'.                  | Occurs when the "resourceId" field was omitted or misspelled in the request body, for example the "resourceIdentifier" field was passed instead.  |
| 406 Not Acceptable         | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml   |
| 415 Unsupported Media Type | There was a problem with the request's Content-Type: Expected 'application/json'                    | Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded   |
| 422: Unprocessable Entity  | Resource with id 54031 already exists   | Occurs when a resource object with "resourceId" value passed in the request already exists. Note: Resource Id values that are already in use can be found in "resourceId" fields of objects returned by <a href="#">List All Resources</a> request. |

| Response Headers            | Description  | Re-quired | Sample Value                    |
|-----------------------------|--|-----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes       | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes       | Fri, 26 Feb 2016 18:21:36 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes       | 217                             |
| Content-Type                | The MIME type of this content.   | Yes       | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes       | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema        |
|------------------|--|
| application/json | See <i>Create resource - response schema</i> |

**Sample Response**

See *Create resource - response sample*

## Additional Information

| Authentication   | Technical Support  |
|------------------|--|
| See Introduction | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

## Change Log

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Link 3.0 | New service endpoint.  | N/A                 |

## Create resource - request schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.resource.new",
  "version" : "0.1.0",
  "title" : "New Resource",
  "description" : "A subset of Resource object required to create a new resource",
  "type" : "object",
  "properties" : {
    "resourceId" : {
      "title" : "Resource Id",
      "description" : "User-defined identifier of this resource",
      "type" : "string"
    },
    "host" : {
      "title" : "Host",
      "description" : "Host name to be assigned to this resource",
      "type" : "string",
      "format" : "hostname"
    },
    "port" : {
      "title" : "Port",
      "description" : "Port number to be assigned to this resource",
      "type" : "integer"
    }
  },
  "required" : [
    "resourceId",
    "host",
    "port"
  ],
  "additionalProperties" : false
}
```

## Create resource - request sample

Create a new resource:

POST <http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/registry-service/resources>

```
{
  "resourceId" : "54031",
  "host" : "icc-54031.nanofluidics.com",
  "port" : 8888
}
```

**Note:** A user-defined resource Id passed in the request body must be unique. Resource Id values that are already in use can be found in “resourceId” fields of objects returned by [List All Resources](#) request.

---

### Create resource - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.resource.object",
  "version" : "0.1.0",
  "title" : "Resource Object",
  "description" : "Resource object schema",
  "type" : "object",
  "properties" : {
    "resourceId" : {
      "title" : "Resource Id",
      "description" : "User-defined identifier of this resource",
      "type" : "string"
    },
    "uuid" : {
      "title" : "Resource UUID",
      "description" : "Server-generated UUID of this resource",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "host" : {
      "title" : "Host",
      "description" : "Host name assigned to this resource",
      "type" : "string",
      "format" : "hostname"
    },
    "port" : {
      "title" : "Port",
      "description" : "Port number assigned to this resource",
      "type" : "integer"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this resource was created",
      "type" : "string",
      "format" : "date-time"
    },
    "updatedAt" : {
      "title" : "Updated at",
      "description" : "Time when this resource was updated",
      "type" : "string",
      "format" : "date-time"
    }
  }
},
```

```

"required" : [
  "resourceId",
  "uuid",
  "host",
  "port",
  "createdAt",
  "updatedAt"
],
"additionalProperties" : false
}

```

### Create resource - response sample

```

{
  "resourceId" : "54031",
  "updatedAt" : "2016-02-26T10:21:36.550",
  "uuid" : "d0321f1f-b2e5-4bab-81cb-bf932774362d",
  "host" : "icc-54031.nanofluidics.com",
  "port" : 8888,
  "createdAt" : "2016-02-26T10:21:36.550"
}

```

**Note:** The “uuid” field in the newly-created resource object will be automatically populated by a server-generated UUID, while “createdAt” and “updatedAt” fields will be automatically populated by the current system time.

## 2.2.4 Fetch Resource by Id

Fetch the record of a resource object by its user-defined resource Id.

**Note:** Valid resource Id values can be found in “resourceId” fields of objects returned by [List All Resources](#) request.

### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/smrt-link/registry-service/resources?resourceId={ID}">http://&lt;host&gt;:&lt;port&gt;/smrt-link/registry-service/resources?resourceId={ID}</a> |

| Query Parameters | Data Type | Description              | Re-quired | Multi-valued | Default Value | Possible Values      |
|------------------|-----------|--------------------------|-----------|--------------|---------------|----------------------|
| resourceId       | string    | User-defined resource Id | Yes       | No           | N/A           | my_resource_1, 54033 |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Fetch the record of a resource object with user-defined resource Id = 5433:

GET <http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/registry-service/resources?resourceId=54033>

### Response

| HTTP Status Code   | Error Message   | Description  |
|--------------------|---|--|
| 200 OK             | None  | Successful completion of the request. Note: If there are no resources corresponding to the resource Id value passed in the request, then the response still will be 200 OK, with an empty array of resources in the response body. Valid resource Id values can be found in “resourceId” fields of objects returned by <a href="#">List All Resources</a> request. |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml  |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Thu, 25 Feb 2016 22:52:35 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 219                             |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema             |
|------------------|---|
| application/json | See <i>Fetch resource by id - response schema</i> |

## Sample Response

See *Fetch resource by id - response sample*

## Additional Information

| Authentication   | Technical Support        |
|------------------|--------------------------|
| See Introduction | E-mail: support@pacb.com |

## Change Log

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Link 3.0 | New service endpoint.  | N/A                 |

## Fetch resource by id - response schema

**Note:** The response will be resource array with one or zero elements.

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.resource.one_element_array",
  "version" : "0.1.0",
  "title" : "One-Element Resource Array",
  "description" : "Resource array containing one or zero elements",
  "type" : "array",
  "minItems" : 0,
  "maxItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "resourceId" : {
        "title" : "Resource Id",
        "description" : "User-defined identifier of this resource",
        "type" : "string"
      },
      "uuid" : {
        "title" : "Resource UUID",
        "description" : "Server-generated UUID of this resource",
        "type" : "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
      },
      "host" : {
        "title" : "Host",
        "description" : "Host name assigned to this resource",
        "type" : "string",
        "format" : "hostname"
      },
      "port" : {
        "title" : "Port",
        "description" : "Port number assigned to this resource",

```



```
    "type" : "integer"
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when this resource was created",
    "type" : "string",
    "format" : "date-time"
  },
  "updatedAt" : {
    "title" : "Updated at",
    "description" : "Time when this resource was updated",
    "type" : "string",
    "format" : "date-time"
  }
},
"required" : [
  "resourceId",
  "uuid",
  "host",
  "port",
  "createdAt",
  "updatedAt"
]
},
"additionalItems" : false
}
```

### Fetch resource by id - response sample

```
[{
  "resourceId" : "54033",
  "updatedAt" : "2016-02-25T14:06:18.281",
  "uuid" : "5eece0a5-e992-4b14-9216-fb2be4919ae5",
  "host" : "icc-54033.nanofluidics.com",
  "port" : 8888,
  "createdAt" : "2016-02-25T14:06:18.281"
}]
```

## 2.2.5 Fetch Resource by UUID

Fetch the record of a resource object by its server-provided UUID.

---

**Note:** Valid UUID values can be found in “uuid” fields of objects returned by [List All Resources](#) request.

---

### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/smrt-link/registry-service/resources/{uuid}">http://&lt;host&gt;:&lt;port&gt;/smrt-link/registry-service/resources/{uuid}</a> |

| Path Parameters | Data Type | Description  | Required | Multi-valued | Possible Values  |
|-----------------|-----------|--|----------|--------------|--|
| uuid            | string    | Server-provided UUID; valid UUID values can be found in “uuid” fields of objects returned by <a href="#">List All Resources</a> request. | Yes      | No           | 7afeb98b-b63b-4d27-9d51-0d40744b3bbd<br>1281c476-0e66-472f-971d-1268f18fc82e |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Fetch the record of a resource object with server-provided UUID = d3928320-2ba2-4486-ba5d-9737d7e44f18:  
 GET <http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/registry-service/resources/d3928320-2ba2-4486-ba5d-9737d7e44f18>

### Response

| HTTP Status Code   | Error Message   | Description  |
|--------------------|---|--|
| 200 OK             | None  | Successful completion of the request.  |
| 404 Not Found      | Unable to find resource d3928320-2ba2-4486-ba5d-9737d7e44f19  | There are no resources corresponding to UUID value passed in the request. Note: Valid UUID values can be found in “uuid” fields of objects returned by <a href="#">List All Resources</a> request. |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml  |

| Response Headers            | Description  | Re-quired | Sample Value                    |
|-----------------------------|--|-----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes       | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes       | Fri, 26 Feb 2016 02:58:01 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes       | 217                             |
| Content-Type                | The MIME type of this content.   | Yes       | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes       | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema               |
|------------------|---|
| application/json | See <i>Fetch resource by uuid - response schema</i> |

### Sample Response

See *Fetch resource by uuid - response sample*

### Additional Information

| Authentication   | Technical Support        |
|------------------|--------------------------|
| See Introduction | E-mail: support@pacb.com |

### Change Log

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Link 3.0 | New service endpoint.  | N/A                 |

### Fetch resource by uuid - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.resource.object",
  "version" : "0.1.0",
  "title" : "Resource Object",
  "description" : "Resource object schema",
  "type" : "object",
  "properties" : {
    "resourceId" : {
      "title" : "Resource Id",
      "description" : "User-defined identifier of this resource",
      "type" : "string"
    },
    "uuid" : {
      "title" : "Resource UUID",
      "description" : "Server-generated UUID of this resource",
      "type" : "string",
      "format" : "uuid",

```

```

    "pattern" : "^([a-zA-Z0-9]{8})-([a-zA-Z0-9]{4})-([a-zA-Z0-9]{4})-([a-zA-Z0-9]{4})-([a-zA-Z0-9]{12})$"
  },
  "host" : {
    "title" : "Host",
    "description" : "Host name assigned to this resource",
    "type" : "string",
    "format" : "hostname"
  },
  "port" : {
    "title" : "Port",
    "description" : "Port number assigned to this resource",
    "type" : "integer"
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when this resource was created",
    "type" : "string",
    "format" : "date-time"
  },
  "updatedAt" : {
    "title" : "Updated at",
    "description" : "Time when this resource was updated",
    "type" : "string",
    "format" : "date-time"
  }
},
"required" : [
  "resourceId",
  "uuid",
  "host",
  "port",
  "createdAt",
  "updatedAt"
],
"additionalProperties" : false
}

```

### Fetch resource by uuid - response sample

```

{
  "resourceId" : "54031",
  "updatedAt" : "2016-02-25T15:20:07.675",
  "uuid" : "d3928320-2ba2-4486-ba5d-9737d7e44f18",
  "host" : "icc-54031.nanofluidics.com",
  "port" : 8888,
  "createdAt" : "2016-02-25T15:20:07.675"
}

```

## 2.2.6 Redirect Request to Resource

Send a proxy request to a resource identified by its server-provided UUID.

**Note:** Valid UUID values can be found in “uuid” fields of objects returned by List All Resources request.

## Request

| Method                | URI  |
|-----------------------|--|
| GET<br>POST<br>DELETE | <code>http://&lt;host&gt;:&lt;port&gt;/smrt-link/registry-service/resources/{uuid}/proxy/&lt;path_to_resource&gt;</code> |

## Explanation

Given a resource like that:

```
{  
  "resourceId" : "54002i",  
  "updatedAt" : "2016-02-29T10:06:55.165",  
  "uuid" : "f9772193-21b9-4250-bbc8-9630086a2ba8",  
  "host" : "alpha2i.nanofluidics.com",  
  "port" : 8888,  
  "createdAt" : "2016-02-29T10:06:55.165"  
}
```

any request sent to the endpoint:

`/smrt-link/registry-service/resources/f9772193-21b9-4250-bbc8-9630086a2ba8/proxy`

will be forwarded to this URL:

`http://alpha2i.nanofluidics.com:8888/`

What is supported in proxy requests:

- All HTTP methods are supported, including POST with data.
- Also, path and query parameters may be attached to the request.
- Any headers, including authentication, will also be forwarded.

For example:

`/smrt-link/registry-service/resources/f9772193-21b9-4250-bbc8-9630086a2ba8/proxy/path/to/resource?param=val`

will be forwarded to

`http://alpha2i.nanofluidics.com:8888/path/to/resource?param=val`

---

**Note:** As a resource is an instrument registered with SMRT Link, hence the request will be redirected to host:port of an instrument, which supports Instrument Web Services APIs. The list of supported endpoints is provided in *ICS API Table* below.

---

## Path Parameters and Query Parameters

Required path parameter is the resource's server-provided UUID, described in the table below.

Other path parameters and/or query parameters depend on the request being redirected, and will be forwarded as they are.

| Path Parameters | Data Type | Description  | Required | Multi-valued | Possible Values  |
|-----------------|-----------|--|----------|--------------|--|
| uuid            | string    | Server-provided UUID; valid UUID values can be found in “uuid” fields of objects returned by <a href="#">List All Resources</a> request. | Yes      | No           | 7afeb98b-b63b-4d27-9d51-0d40744b3bbd<br>1281c476-0e66-472f-971d-1268f18fc82e |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Content-Type    | The MIME type of the content in the request.        | Yes      | application/json |
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema     |
|------------------|--|
| application/json | Depends on the request being redirected. |

### Sample Request

See *Redirect request to resource - requests and responses samples*

### Response

| HTTP Status Code           | Error Message   | Description  |
|----------------------------|---|--|
| 200 OK                     | None  | Successful completion of the request.  |
| 404 Not Found              | Unable to find resource d3928320-2ba2-4486-ba5d-9737d7e44f19  | There are no resources corresponding to UUID value passed in the request. Note: Valid UUID values can be found in “uuid” fields of objects returned by <a href="#">List All Resources</a> request. |
| 404 Not Found              | Response does not contain any data  | Occurs when resource <path_to_resource> specified in the proxy request was not found.  |
| 406 Not Acceptable         | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml  |
| 415 Unsupported Media Type | There was a problem with the request’s Content-Type: Expected ‘application/json’                    | Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded  |

**Note:** Other response status codes are possible, and they will be specific to the request being redirected.

| Response Headers             | Description  | Re-quired | Sample Value                    |
|------------------------------|--|-----------|---------------------------------|
| Access-Control-Allow-Headers | Specifying which HTTP headers are supported.                                 | Yes       | Origin, Content-Type, Accept    |
| Access-Control-Allow-Methods | Specifying which HTTP methods are supported.                                 | Yes       | GET, PUT, POST, DELETE, OPTIONS |
| Access-Control-Allow-Origin  | Specifying which web sites can participate in cross-origin resource sharing. | Yes       | *                               |
| Date                         | The date and time that the message was sent.                                 | Yes       | Mon, 29 Feb 2016 20:41:41 GMT   |
| Content-Length               | The length of the response body in octets.                                   | Yes       | 15018                           |
| Content-Type                 | The MIME type of this content.   | Yes       | application/octet-stream        |
| Server                       | A name for the server.   | Yes       | spray-can/1.3.2                 |
| Keep-Alive                   | Control options for the current connection.                                  | Yes       | timeout=15,max=100              |

| Media Type       | Response Body Representation / Schema    |
|------------------|--|
| application/json | Depends on the request being redirected. |

### Sample Response

See *Redirect request to resource - requests and responses samples*

### Additional Information

| Authentication                   | Technical Support  |
|----------------------------------|--|
| See <a href="#">Introduction</a> | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

### Change Log

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Link 3.0 | New service endpoint.  | N/A                 |

## ICS API Table

| URI                           | Method | Description  |
|-------------------------------|--------|--|
| barcode/bindingkit            | POST   | provides a binding kit given a barcode                                       |
| barcode/prepkit               | POST   | provides a template prep kit given a barcode                                 |
| barcode/sequencekit           | POST   | provides a sequencing kit given a barcode                                    |
| instrument/configuration      | GET    | returns the instrument configuration data                                    |
| instrument/configuration/name | GET    | returns the instrument name (customer provided)                              |
| instrument/configuration/name | POST   | sets the instrument name (customer provided)                                 |
| instrument/door/unlock        | POST   | unlocks the instrument door  |
| instrument/failedtransfers    | GET    | returns array of acquisition ids that failed transfer                        |
| instrument/powerdown          | POST   | commands the instrument to power down  |
| instrument/retrytransfers     | POST   | resubmits collections that failed transfer                                   |
| instrument/state              | GET    | returns the fundamental instrument state                                     |
| instrument/sysalarms          | GET    | returns the instrument's current system alarms                               |
| inventory                     | GET    | returns the instrument's inventory (triggers an inventory scan)              |
| run                           | GET    | returns the serialized run design for the currently loaded run               |
| run                           | POST   | loads the provided run design  |
| run                           | DELETE | unloads the currently loaded run   |
| run/data                      | GET    | returns the run data for the currently loaded run                            |
| run/rqmts                     | GET    | returns the run requirements for the currently loaded run                    |
| run/stop                      | POST   | stops the current run  |
| run/template                  | POST   | creates a run from the provide template                                      |
| runs                          | GET    | returns the list of available run designs                                    |
| runs/{id}                     | GET    | returns the run design for the provided id                                   |
| runs/{id}/load                | POST   | loads the run for the provided id on the instrument and returns the run data |

## Redirect request to resource - requests and responses samples

Sample 1 - get the instrument's run:

GET <http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/registry-service/resources/f9772193-21b9-4250-bbc8-9630086a2ba8/proxy/run>

Response:

```
{
  "createdAt" : null,
  "createdBy" : null,
  "id" : -1,
  "name" : "410_5151_All5mer_270pM_diffusion",
  "reserved" : false,
  "runDataModel" : "<?xml version='1.0' encoding='utf-8'?><PacBioDataModel>...</PacBioDataModel>",
  "summary" : "All5Mers_V2_01_bc_01_circular_22x_150600"
}
```

**Note:** The “runDataModel” field contains a serialized Run Design XML file, which defines run design metadata according to the PacBioDataModel.xsd schema.

Sample 2 - get the instrument's run data:



GET <http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/registry-service/resources/f9772193-21b9-4250-bbc8-9630086a2ba8/proxy/run/data>

Response:

```
{
  "collections" : [{
    "dnaControlComplex" : null,
    "hasMagbead" : false,
    "hasSizeSelection" : false,
    "hasStageStart" : false,
    "insertSize" : 0,
    "movieMinutes" : 28.8,
    "sampleName" : "\"410_5152_All5mer_30pM_diffusion\"",
    "state" : 3,
    "summaryStats" : null,
    "well" : "A01"
  }
],
  "completedAt" : null,
  "estimatedSecondsRemaining" : 2480,
  "name" : "410_5152_All5mer_30pM_diffusion",
  "startedAt" : "2016-02-29T22:26:28.577Z",
  "state" : 4,
  "timestamp" : "2016-02-29T22:30:39.450Z"
}
```

Sample 3 - get the instrument's configuration:

GET <http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/registry-service/resources/f9772193-21b9-4250-bbc8-9630086a2ba8/proxy/instrument/configuration>

Response:

```
{
  "automations" : [],
  "icsVersion" : "3.0.3.170900",
  "name" : "Sequel",
  "paVersion" : "3.0.16",
  "serialNumber" : "54002i",
  "smrtLinkHostAddress" : {
    "domain" : "http://smrtlink-beta",
    "port" : 8081
  },
  "smrtLinkVersion" : "0.50.6-SNAPSHOT"
}
```

Sample 4 - get the instrument's system alarms:

GET <http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/registry-service/resources/f9772193-21b9-4250-bbc8-9630086a2ba8/proxy/instrument/sysalarms>

Response:

```
{
  "alarms" : [],
  "timestamp" : "2016-02-29T22:23:33.642Z"
}
```

## 2.2.7 Update Resource

Update a resource object, identified by its server-provided UUID, with the new host and/or port values.

**Note:** Resource UUID values can be found in “uuid” fields of objects returned by [List All Resources](#) request.

### Request

| Method | URI   |
|--------|---|
| POST   | <a href="http://&lt;host&gt;:&lt;port&gt;/smrt-link/registry-service/resources/{uuid}/update">http://&lt;host&gt;:&lt;port&gt;/smrt-link/registry-service/resources/{uuid}/update</a> |

| Path Parameters | Data Type | Description  | Required | Multi-valued | Possible Values  |
|-----------------|-----------|--|----------|--------------|--|
| uuid            | string    | Server-provided UUID; valid UUID values can be found in “uuid” fields of objects returned by <a href="#">List All Resources</a> request. | Yes      | No           | 7afeb98b-b63b-4d27-9d51-0d40744b3bbd<br>1281c476-0e66-472f-971d-1268f18fc82e |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Content-Type    | The MIME type of the content in the request.        | Yes      | application/json |
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema                 |
|------------------|--|
| application/json | See <a href="#">Update resource - request schema</a> |

### Sample Request

See [Update resource - request sample](#)

**Response**

| HTTP Status Code            | Error Message   | Description  |
|-----------------------------|---|--|
| 200 OK                      | None  | Successful completion of the request. The updated resource object will be returned in the response body.   |
| 400 Bad Request             | Request entity expected but not supplied  | Occurs when no request body was passed in the request. Note: passing an empty request body, i.e. {} only, is valid, but no request body is invalid.          |
| 400 Bad Request             | The request content was malformed: Expected Int as JsNumber, but got "8889"                         | Occurs when an invalid data type was passed for a field in the request body, for example: passed "port" : "8889" (string), when port value shall be integer. |
| 406 Not Acceptable          | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml  |
| 415 Un-supported Media Type | There was a problem with the request's Content-Type: Expected 'application/json'                    | Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded              |

| Response Headers            | Description  | Re-quired | Sample Value                    |
|-----------------------------|--|-----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes       | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes       | Fri, 26 Feb 2016 22:19:18 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes       | 217                             |
| Content-Type                | The MIME type of this content.   | Yes       | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes       | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema                 |
|------------------|---|
| application/json | See <a href="#">Update resource - response schema</a> |

**Sample Response**

See [Update resource - response sample](#)

**Additional Information**

| Authentication                   | Technical Support  |
|----------------------------------|--|
| See <a href="#">Introduction</a> | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

## Change Log

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Link 3.0 | New service endpoint.  | N/A                 |

## Update resource - request schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.resource.update",
  "version" : "0.1.0",
  "title" : "Resource Update",
  "description" : "A subset of Resource object intended for updating a resource",
  "type" : "object",
  "properties" : {
    "host" : {
      "title" : "Host",
      "description" : "Host name to be assigned to this resource",
      "type" : "string",
      "format" : "hostname"
    },
    "port" : {
      "title" : "Port",
      "description" : "Port number to be assigned to this resource",
      "type" : "integer"
    }
  },
  "optional" : [
    "host",
    "port"
  ],
  "additionalProperties" : false
}
```

## Update resource - request sample

Update host and port values for the resource with UUID = 'be0f98db-85ce-48b4-bae4-0c60404b7498':

POST <http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/registry-service/resources/be0f98db-85ce-48b4-bae4-0c60404b7498/update>

```
{
  "host" : "icc-54032.nanofluidics.com",
  "port" : 8889
}
```

**Note:** The host and port values are both optional.

### Update resource - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.resource.object",
  "version" : "0.1.0",
  "title" : "Resource Object",
  "description" : "Resource object schema",
  "type" : "object",
  "properties" : {
    "resourceId" : {
      "title" : "Resource Id",
      "description" : "User-defined identifier of this resource",
      "type" : "string"
    },
    "uuid" : {
      "title" : "Resource UUID",
      "description" : "Server-generated UUID of this resource",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "host" : {
      "title" : "Host",
      "description" : "Host name assigned to this resource",
      "type" : "string",
      "format" : "hostname"
    },
    "port" : {
      "title" : "Port",
      "description" : "Port number assigned to this resource",
      "type" : "integer"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this resource was created",
      "type" : "string",
      "format" : "date-time"
    },
    "updatedAt" : {
      "title" : "Updated at",
      "description" : "Time when this resource was updated",
      "type" : "string",
      "format" : "date-time"
    }
  },
  "required" : [
    "resourceId",
    "uuid",
    "host",
    "port",
    "createdAt",
    "updatedAt"
  ],
  "additionalProperties" : false
}
```

**Update resource - response sample**

```
{
  "resourceId" : "54032",
  "updatedAt" : "2016-02-26T14:19:18.061",
  "uuid" : "be0f98db-85ce-48b4-bae4-0c60404b7498",
  "host" : "icc-54032.nanofluidics.com",
  "port" : 8889,
  "createdAt" : "2016-02-26T11:21:03.746"
}
```

**Note:** The “updatedAt” field in the updated resource object will be set to the current system time.

**2.2.8 Delete Resource**

Delete a resource object identified by its server-provided UUID.

**Note:** Valid UUID values can be found in “uuid” fields of objects returned by [List All Resources](#) request.

**Request**

| Method | URI  |
|--------|--|
| DELETE | http://<host>:<port>/smrt-link/registry-service/resources/{uuid} |

| Path Parameters | Data Type | Description  | Required | Multi-valued | Possible Values  |
|-----------------|-----------|--|----------|--------------|--|
| uuid            | string    | Server-provided UUID; valid UUID values can be found in “uuid” fields of objects returned by <a href="#">List All Resources</a> request. | Yes      | No           | 7afeb98b-b63b-4d27-9d51-0d40744b3bbd<br>1281c476-0e66-472f-971d-1268f18fc82e |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema              |
|------------------|---|
| application/json | Request schema is N/A, as this is DELETE request. |

### Sample Request

Delete the resource object with server-provided UUID = be0f98db-85ce-48b4-bae4-0c60404b7498:  
 DELETE http://smrtlink-alpha.nanofluidics.com:8081/smrt-link/registry-service/resources/be0f98db-85ce-48b4-bae4-0c60404b7498

### Response

| HTTP Status Code   | Error Message   | Description  |
|--------------------|---|--|
| 200 OK             | None  | Successful completion of the request.  |
| 404 Not Found      | Unable to find resource be0f98db-85ce-48b4-bae4-0c60404b7498  | There are no resources corresponding to UUID value passed in the request. Note: Valid UUID values can be found in “uuid” fields of objects returned by <a href="#">List All Resources</a> request. Note: If DELETE request was sent twice for the same resource UUID, then the second time the response is 404 Not Found, as the object doesn’t exist anymore. |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml  |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Sat, 27 Feb 2016 01:23:38 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 66                              |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema              |
|------------------|--|
| application/json | Response schema is N/A, as this is DELETE request. |

### Additional Information

| Authentication                   | Technical Support  |
|----------------------------------|--|
| See <a href="#">Introduction</a> | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

**Change Log**

| <b>Release</b> | <b>Description of changes</b> | <b>Backward-compatible</b> |
|----------------|-------------------------------|----------------------------|
| SMRT Link 3.0  | New service endpoint.         | N/A                        |





## SMRT ANALYSIS SERVICE API

### 3.1 Dataset Service

#### 3.1.1 Overview of Dataset Service

##### Use Cases

The Dataset Service enables accessing datasets.

The Dataset Service provides an API for retrieving datasets.

The Dataset Service does not provide an API for creating datasets, as datasets get created through the Jobs Service, where users may create new datasets from scratch using the import-dataset job type, or may create datasets from other datasets using various analysis jobs.

The Dataset Service does not provide an API for updating datasets, as datasets are supposed to be immutable.

##### Key Concepts

A **DataSet** is defined as a set of a fundamental data type (e.g. subreads) that for some analyses can be processed in the same way (same pipeline, same parameters). A common example would be a group of reads which correspond to a DNA sample.

Definition of a dataset depends on the exact data type being manipulated. For example, defining SubreadSet (a DataSet of subreads) would require the following information:

- The location of cells and optionally portions of cells (e.g. cells + barcode) to include in the dataset;
- Data metadata, such as sample name, comments, owner, permissions.

##### Dataset Types

Dataset Types list:

- alignments
- barcodes
- contigs
- ccsalignments
- ccsreads
- hdfsubreads

- references
- subreads

### 3.1.2 List All Dataset Types

Get the list of all dataset types.

#### Request

| Method | URI   |
|--------|---|
| GET    | http://<host>:<port>/secondary-analysis/dataset-types |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

#### Sample Request

Get the list of all dataset types:

GET http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/dataset-types

#### Response

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request.   |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Wed, 27 Jan 2016 23:01:45 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 2240                            |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema               |
|------------------|---|
| application/json | See <i>List all dataset types - response schema</i> |

### Sample Response

See *List all dataset types - response sample*

### Additional Information

| Authentication   | Technical Support        |
|------------------|--------------------------|
| See Introduction | E-mail: support@pacb.com |

### Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.0 | New service endpoint.  | N/A                 |

### List all dataset types - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.types.list",
  "version" : "0.1.0",
  "title" : "Dataset Types List",
  "description" : "Array of objects describing Dataset Types",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "name" : {
        "title" : "Dataset Type Display Name",
        "description" : "Display name of this dataset type",
        "type" : "string"
      },
      "updatedAt" : {
        "title" : "Updated at",

```

```

    "description" : "Time when this dataset type was updated",
    "type" : "string",
    "format" : "date-time"
  },
  "description" : {
    "title" : "Dataset Type Description",
    "description" : "Description of this dataset type",
    "type" : "string"
  },
  "id" : {
    "title" : "Dataset Type Id",
    "description" : "Identifier of this dataset type",
    "type" : "string"
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when this dataset type was created",
    "type" : "string",
    "format" : "date-time"
  },
  "shortName" : {
    "title" : "Dataset Type Short Name",
    "description" : "Short name of this dataset type",
    "type" : "string"
  }
},
"required" : [
  "name",
  "updatedAt",
  "description",
  "id",
  "createdAt",
  "shortName"
]
"additionalItems" : false
}

```

### List all dataset types - response sample

```

[
  {
    "name" : "Display name for PacBio.DataSet.HdfSubreadSet",
    "updatedAt" : "2015-11-12T23:37:21.411",
    "description" : "Description for PacBio.DataSet.HdfSubreadSet",
    "id" : "PacBio.DataSet.HdfSubreadSet",
    "createdAt" : "2015-11-12T23:37:21.411",
    "shortName" : "hdfsubreads"
  },
  {
    "name" : "Display name for PacBio.DataSet.ConsensusAlignmentSet",
    "updatedAt" : "2015-11-12T23:37:21.411",
    "description" : "Description for PacBio.DataSet.ConsensusAlignmentSet",
    "id" : "PacBio.DataSet.ConsensusAlignmentSet",
    "createdAt" : "2015-11-12T23:37:21.411",
    "shortName" : "ccsalignments"
  },
  {
    "name" : "Display name for PacBio.DataSet.ConsensusReadSet",

```

```

    "updatedAt" : "2015-11-12T23:37:21.411",
    "description" : "Description for PacBio.DataSet.ConsensusReadSet",
    "id" : "PacBio.DataSet.ConsensusReadSet",
    "createdAt" : "2015-11-12T23:37:21.411",
    "shortName" : "ccsreads"
  }, {
    "name" : "Display name for PacBio.DataSet.ReferenceSet",
    "updatedAt" : "2015-11-12T23:37:21.411",
    "description" : "Description for PacBio.DataSet.ReferenceSet",
    "id" : "PacBio.DataSet.ReferenceSet",
    "createdAt" : "2015-11-12T23:37:21.411",
    "shortName" : "references"
  }, {
    "name" : "Display name for PacBio.DataSet.SubreadSet",
    "updatedAt" : "2015-11-12T23:37:21.411",
    "description" : "Description for PacBio.DataSet.SubreadSet",
    "id" : "PacBio.DataSet.SubreadSet",
    "createdAt" : "2015-11-12T23:37:21.411",
    "shortName" : "subreads"
  }, {
    "name" : "Display name for PacBio.DataSet.AlignmentSet",
    "updatedAt" : "2015-11-12T23:37:21.411",
    "description" : "Description for PacBio.DataSet.AlignmentSet",
    "id" : "PacBio.DataSet.AlignmentSet",
    "createdAt" : "2015-11-12T23:37:21.411",
    "shortName" : "alignments"
  }, {
    "name" : "Display name for PacBio.DataSet.BarcodeSet",
    "updatedAt" : "2015-11-12T23:37:21.411",
    "description" : "Description for PacBio.DataSet.BarcodeSet",
    "id" : "PacBio.DataSet.BarcodeSet",
    "createdAt" : "2015-11-12T23:37:21.411",
    "shortName" : "barcodes"
  }, {
    "name" : "Display name for PacBio.DataSet.ContigSet",
    "updatedAt" : "2015-11-12T23:37:21.411",
    "description" : "Description for PacBio.DataSet.ContigSet",
    "id" : "PacBio.DataSet.ContigSet",
    "createdAt" : "2015-11-12T23:37:21.410",
    "shortName" : "contigs"
  }
]

```

### 3.1.3 List All Datasets by Type

Get the list of all dataset objects of a specific type available on the system.

**Note:** A dataset type is specified by its short name; the short names of dataset types are available in the response to List All Dataset Types request.

#### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/datasets/{shortName}">http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/datasets/{shortName}</a> |

| Path Parameters | Data Type | Description   | Required | Multi-valued | Possible Values   |
|-----------------|-----------|---|----------|--------------|---|
| shortName       | string    | Short name of a dataset type; list of all possible dataset types with their short names may be obtained through <a href="#">List All Dataset Types</a> request; use values from “shortName” fields of Dataset Type objects. | Yes      | No           | alignments<br>barcodes<br>contigs<br>ccsalignments<br>ccsreads<br>hdfsubreads<br>references<br>subreads |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Get the list of all datasets of type ‘alignments’ available on the system:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/alignments>

Get the list of all datasets of type ‘hdfsubreads’ available on the system:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/hdfsubreads>

## Response

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request. Note: If there are no datasets corresponding to dataset type specified in {shortName}, then the response still will be 200 OK, with an empty datasets array in the response body. |
| 404 Not Found      | The requested resource could not be found.  | Occurs when an invalid value of shortName (non-existing dataset type) is passed in the request. Note: in order to get the list of valid shortName values, use <a href="#">List All Dataset Types</a> request.           |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml   |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Tue, 26 Jan 2016 19:26:28 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 784856                          |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema                           |
|------------------|---|
| application/json | See <a href="#">List all datasets by type - response schema</a> |

## Sample Response

See [List all datasets by type - response sample](#)

## Additional Information

| Authentication                   | Technical Support  |
|----------------------------------|--|
| See <a href="#">Introduction</a> | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

## Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.0 | New service endpoint.  | N/A                 |



### List all datasets by type - response schema

Generic definition: Schema for the list of all dataset objects of 'shortName' type:

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.<shortName>.list",
  "version" : "0.1.0",
  "title" : "Datasets List",
  "description" : "Array of Dataset objects of specific type",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "pacbio.secondary.schemas.datasets.<shortName>"
  },
  "additionalItems" : false
}
```

---

**Note:** Schema definition of the datasets array's element ("pacbio.secondary.schemas.datasets.<shortName>") may be obtained through [Get Dataset Schema by Type](#) request.

---

Example 1: Schema for the list of all dataset objects of 'alignments' type:

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.alignments.list",
  "version" : "0.1.0",
  "title" : "Alignments Datasets List",
  "description" : "Array of Dataset objects of type alignments",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "pacbio.secondary.schemas.datasets.alignments"
  },
  "additionalItems" : false
}
```

---

**Note:** Schema definition of the datasets array's element ("pacbio.secondary.schemas.datasets.alignments") may be obtained through [Get Dataset Schema by Type](#) request.

---

Example 2: Schema for the list of all dataset objects of 'hdfsubreads' type:

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.hdfsubreads.list",
  "version" : "0.1.0",
  "title" : "Hdfsubreads Datasets List",
  "description" : "Array of Dataset objects of type hdfsubreads",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "pacbio.secondary.schemas.datasets.hdfsubreads"
  },
  "additionalItems" : false
}
```

**Note:** Schema definition of the datasets array's element ("pacbio.secondary.schemas.datasets.hdfsubreads") may be obtained through Get Dataset Schema by Type request.

### List all datasets by type - response sample

Sample 1 - get the list of all datasets of type 'alignments':

```
[{
  "name" : "",
  "updatedAt" : "2015-11-13T11:58:38.164",
  "path" : "/pbi/jobs/03/tasks/pbsmrtpipe.tasks.gather_alignmentset-1/file.alignmentset.xml",
  "tags" : "",
  "uuid" : "1ec874f7-3295-8969-0db1-e482382aba98",
  "totalLength" : 13760292,
  "projectId" : 1,
  "numRecords" : 17871,
  "version" : "3.0.1",
  "id" : 4,
  "md5" : "66f9ed362e2bafb92e880d24c4435015",
  "jobId" : 3,
  "createdAt" : "2015-11-13T11:58:38.164",
  "userId" : 1,
  "comments" : "alignment dataset converted"
}, {
  "name" : "",
  "updatedAt" : "2015-11-13T12:00:00.935",
  "path" : "/pbi/jobs/03/tasks/pbalign.tasks consolidate_bam-0/final.alignmentset.xml",
  "tags" : "",
  "uuid" : "1ec874f7-3295-8969-0db1-e482382aba98",
  "totalLength" : 13760292,
  "projectId" : 1,
  "numRecords" : 17871,
  "version" : "3.0.1",
  "id" : 5,
  "md5" : "66f9ed362e2bafb92e880d24c4435015",
  "jobId" : 3,
  "createdAt" : "2015-11-13T12:00:00.935",
  "userId" : 1,
```

```

    "comments" : "alignment dataset converted"
  }, {
    "name" : "",
    "updatedAt" : "2015-11-13T12:02:17.083",
    "path" : "/pbi/jobs/06/tasks/pbsmrtpipe.tasks.gather_alignmentset-1/file.alignmentset.xml",
    "tags" : "",
    "uuid" : "fdbde359-abcb-d203-f319-8002e0db4119",
    "totalLength" : 13757327,
    "projectId" : 1,
    "numRecords" : 17869,
    "version" : "3.0.1",
    "id" : 6,
    "md5" : "c405d75ed70c7bcc5c6c896b7e48c111",
    "jobId" : 6,
    "createdAt" : "2015-11-13T12:02:17.083",
    "userId" : 1,
    "comments" : "alignment dataset converted"
  }, {
    "name" : "",
    "updatedAt" : "2015-11-13T12:02:49.670",
    "path" : "/pbi/jobs/06/tasks/pbaligned.tasks consolidate_bam-0/final.alignmentset.xml",
    "tags" : "",
    "uuid" : "fdbde359-abcb-d203-f319-8002e0db4119",
    "totalLength" : 13757327,
    "projectId" : 1,
    "numRecords" : 17869,
    "version" : "3.0.1",
    "id" : 7,
    "md5" : "c405d75ed70c7bcc5c6c896b7e48c111",
    "jobId" : 6,
    "createdAt" : "2015-11-13T12:02:49.670",
    "userId" : 1,
    "comments" : "alignment dataset converted"
  }, {
    "name" : "",
    "updatedAt" : "2015-11-13T12:10:41.748",
    "path" : "/pbi/jobs/06/tasks/pbaligned.tasks consolidate_bam-0/final.alignmentset.xml",
    "tags" : "",
    "uuid" : "fdbde359-abcb-d203-f319-8002e0db4119",
    "totalLength" : 13757327,
    "projectId" : 1,
    "numRecords" : 17869,
    "version" : "3.0.1",
    "id" : 8,
    "md5" : "c405d75ed70c7bcc5c6c896b7e48c111",
    "jobId" : 6,
    "createdAt" : "2015-11-13T12:10:41.748",
    "userId" : 1,
    "comments" : "alignment dataset converted"
  }, {
    "name" : "",
    "updatedAt" : "2015-11-13T13:49:48.751",
    "path" : "/pbi/jobs/07/tasks/pbsmrtpipe.tasks.gather_alignmentset-1/file.alignmentset.xml",
    "tags" : "",
    "uuid" : "e075c95f-86a7-345f-5ab5-e71bcd94b384",
    "totalLength" : 13757186,
    "projectId" : 1,
    "numRecords" : 17875,

```

```

"version" : "3.0.1",
"id" : 9,
"md5" : "398b90d64561bf0ef978b86cb0f6d20d",
"jobId" : 7,
"createdAt" : "2015-11-13T13:49:48.751",
"userId" : 1,
"comments" : "alignment dataset converted"
}, {
  "name" : "",
  "updatedAt" : "2015-11-13T13:50:41.894",
  "path" : "/pbi/jobs/07/tasks/pbalign.tasks consolidate_bam-0/final.alignmentset.xml",
  "tags" : "",
  "uuid" : "e075c95f-86a7-345f-5ab5-e71bcd94b384",
  "totalLength" : 13757186,
  "projectId" : 1,
  "numRecords" : 17875,
  "version" : "3.0.1",
  "id" : 10,
  "md5" : "398b90d64561bf0ef978b86cb0f6d20d",
  "jobId" : 7,
  "createdAt" : "2015-11-13T13:50:41.894",
  "userId" : 1,
  "comments" : "alignment dataset converted"
}, {
  "name" : "",
  "updatedAt" : "2015-11-13T13:54:48.566",
  "path" : "/pbi/jobs/07/tasks/pbalign.tasks consolidate_bam-0/final.alignmentset.xml",
  "tags" : "",
  "uuid" : "e075c95f-86a7-345f-5ab5-e71bcd94b384",
  "totalLength" : 13757186,
  "projectId" : 1,
  "numRecords" : 17875,
  "version" : "3.0.1",
  "id" : 11,
  "md5" : "398b90d64561bf0ef978b86cb0f6d20d",
  "jobId" : 7,
  "createdAt" : "2015-11-13T13:54:48.566",
  "userId" : 1,
  "comments" : "alignment dataset converted"
}, {
  "name" : "",
  "updatedAt" : "2015-11-16T12:37:52.998",
  "path" : "/pbi/jobs/10/tasks/pbsmrtpipe.tasks.gather_alignmentset-1/file.alignmentset.xml",
  "tags" : "",
  "uuid" : "1211fad8-8671-69f9-9936-264d46f44cc7",
  "totalLength" : -1,
  "projectId" : 1,
  "numRecords" : -1,
  "version" : "3.0.1",
  "id" : 14,
  "md5" : "7e679526f68170c23d35cfb3ba53b62a",
  "jobId" : 10,
  "createdAt" : "2015-11-16T12:37:52.998",
  "userId" : 1,
  "comments" : "alignment dataset converted"
}, {
  "name" : "",
  "updatedAt" : "2015-11-16T12:38:19.767",

```

```

"path" : "/pbi/jobs/10/tasks/pbalign.tasks consolidate_bam-0/final.alignmentset.xml",
"tags" : "",
"uuid" : "1211fad8-8671-69f9-9936-264d46f44cc7",
"totalLength" : -1,
"projectId" : 1,
"numRecords" : -1,
"version" : "3.0.1",
"id" : 15,
"md5" : "7e679526f68170c23d35cfb3ba53b62a",
"jobId" : 10,
"createdAt" : "2015-11-16T12:38:19.767",
"userId" : 1,
"comments" : "alignment dataset converted"
}, {
"name" : "",
"updatedAt" : "2015-11-16T14:52:28.745",
"path" : "/pbi/jobs/13/tasks/pbsmrtpipe.tasks.gather_alignmentset-1/file.alignmentset.xml",
"tags" : "",
"uuid" : "183d6fc7-85b5-a086-fd96-da8d88bb8191",
"totalLength" : 7537372,
"projectId" : 1,
"numRecords" : 18523,
"version" : "3.0.1",
"id" : 18,
"md5" : "32d13ff353f0bb7acc4a96932dfec890",
"jobId" : 13,
"createdAt" : "2015-11-16T14:52:28.745",
"userId" : 1,
"comments" : "alignment dataset converted"
}, {
"name" : "",
"updatedAt" : "2015-11-16T14:53:20.865",
"path" : "/pbi/jobs/13/tasks/pbalign.tasks consolidate_bam-0/final.alignmentset.xml",
"tags" : "",
"uuid" : "183d6fc7-85b5-a086-fd96-da8d88bb8191",
"totalLength" : 7537372,
"projectId" : 1,
"numRecords" : 18523,
"version" : "3.0.1",
"id" : 19,
"md5" : "32d13ff353f0bb7acc4a96932dfec890",
"jobId" : 13,
"createdAt" : "2015-11-16T14:53:20.865",
"userId" : 1,
"comments" : "alignment dataset converted"
}
]

```

Sample 2 - get the list of all datasets of type 'hdfsubreads':

```

[ {
  "name" : "Convert-movie",
  "updatedAt" : "2015-11-20T10:23:16.916",

```

```

"path" : "/dataset/m150417_054245_42142_c1007614325501823161607221560_s1_p0.hdfsubreadset.xml",
"tags" : "pacbio.secondary.instrument=RS",
"instrumentName" : "42142",
"uuid" : "d2f0ef10-1040-4839-b94b-c8b068edffb2",
"totalLength" : 50000000,
"projectId" : 1,
"numRecords" : 150000,
"wellSampleName" : "Hummingbird 17kb cut_125 pM",
"bioSampleName" : "Hummingbird 17kb cut_125 pM",
"version" : "3.0.1",
"id" : 133,
"md5" : "9145450a4ed8fc74bfaafa5285d98aa4",
"jobId" : 94,
"createdAt" : "2015-11-20T10:23:16.916",
"wellName" : "G01",
"cellIndex" : 0,
"userId" : 1,
"metadataContextId" : "m150417_054245_42142_c1007614325501823161607221560_s1_p0",
"runName" : "2015-04-14_42142_1131__Hummingbird_17kb_plate",
"comments" : ""
}, {
"name" : "Convert-movie",
"updatedAt" : "2015-11-20T10:23:32.040",
"path" : "/dataset/m150407_133846_sherri_c1007120825501823142104221563_s1_p0.hdfsubreadset.xml",
"tags" : "pacbio.secondary.instrument=RS",
"instrumentName" : "sherri",
"uuid" : "b16e0b26-4c84-4e85-a42f-bdbc3958969f",
"totalLength" : 50000000,
"projectId" : 1,
"numRecords" : 150000,
"wellSampleName" : "Hummingbird 17kb cut_100 pM",
"bioSampleName" : "Hummingbird 17kb cut_100 pM",
"version" : "3.0.1",
"id" : 134,
"md5" : "9da639ec470b6830eeb900fb2f114a6e",
"jobId" : 95,
"createdAt" : "2015-11-20T10:23:32.040",
"wellName" : "D01",
"cellIndex" : 3,
"userId" : 1,
"metadataContextId" : "m150407_133846_sherri_c1007120825501823142104221563_s1_p0",
"runName" : "2015-04-06_sherri_1114__Barcoded_Library_6ple",
"comments" : ""
}, {
"name" : "Convert-movie",
"updatedAt" : "2015-11-20T10:24:37.711",
"path" : "/dataset/m150417_054245_42142_c1007614325501823161607221560_s1_p0.hdfsubreadset.xml",
"tags" : "pacbio.secondary.instrument=RS",
"instrumentName" : "42142",
"uuid" : "8acb38f0-262d-4704-9147-83491d80b15c",
"totalLength" : 50000000,
"projectId" : 1,
"numRecords" : 150000,
"wellSampleName" : "Hummingbird 17kb cut_125 pM",
"bioSampleName" : "Hummingbird 17kb cut_125 pM",
"version" : "3.0.1",
"id" : 135,
"md5" : "129c38f61c65deed61af27e5c99a5373",

```

```

"jobId" : 96,
"createdAt" : "2015-11-20T10:24:37.711",
"wellName" : "G01",
"cellIndex" : 0,
"userId" : 1,
"metadataContextId" : "m150417_054245_42142_c1007614325501823161607221560_s1_p0",
"runName" : "2015-04-14_42142_1131__Hummingbird_17kb_plate",
"comments" : ""
}, {
  "name" : "Convert-movie",
  "updatedAt" : "2015-11-20T10:24:52.188",
  "path" : "/dataset/m150407_133846_sherri_c1007120825501823142104221563_s1_p0.hdfsubreadset.xml",
  "tags" : "pacbio.secondary.instrument=RS",
  "instrumentName" : "sherri",
  "uuid" : "fbb872ed-4e2a-43e9-bce0-767e31861604",
  "totalLength" : 50000000,
  "projectId" : 1,
  "numRecords" : 150000,
  "wellSampleName" : "Hummingbird 17kb cut_100 pM",
  "bioSampleName" : "Hummingbird 17kb cut_100 pM",
  "version" : "3.0.1",
  "id" : 136,
  "md5" : "d08f6daa93804fe7339c4478ee02973f",
  "jobId" : 97,
  "createdAt" : "2015-11-20T10:24:52.188",
  "wellName" : "D01",
  "cellIndex" : 3,
  "userId" : 1,
  "metadataContextId" : "m150407_133846_sherri_c1007120825501823142104221563_s1_p0",
  "runName" : "2015-04-06_sherri_1114__Barcoded_Library_6ple",
  "comments" : ""
}, {
  "name" : "Convert-movie",
  "updatedAt" : "2015-11-20T10:25:19.255",
  "path" : "/dataset/m150409_034551_42142_c1007598225501823163407221540_s1_p0.hdfsubreadset.xml",
  "tags" : "pacbio.secondary.instrument=RS",
  "instrumentName" : "42142",
  "uuid" : "c036f09c-1be4-4e1a-b0c2-ad39acb74679",
  "totalLength" : 50000000,
  "projectId" : 1,
  "numRecords" : 150000,
  "wellSampleName" : "Hummingbird 17kb cut_125 pM",
  "bioSampleName" : "Hummingbird 17kb cut_125 pM",
  "version" : "3.0.1",
  "id" : 137,
  "md5" : "a561beaacc9884b7a34c87ec8344efc8",
  "jobId" : 98,
  "createdAt" : "2015-11-20T10:25:19.255",
  "wellName" : "A01",
  "cellIndex" : 0,
  "userId" : 1,
  "metadataContextId" : "m150409_034551_42142_c1007598225501823163407221540_s1_p0",
  "runName" : "2015-04-08_42142_1121__BUP_QC_Hummingbird_17k",
  "comments" : ""
}, {
  "name" : "RH_finch_subreads_67cells",
  "updatedAt" : "2016-01-08T10:14:22.207",
  "path" : "/dataset/RH_finch_subreads_67cells.hdfsubreadset.xml",

```

```

"tags" : "",
"instrumentName" : "unknown",
"uuid" : "02c8b470-1f86-507c-9909-76fc2fb9f6a4",
"totalLength" : 57970867280,
"projectId" : 1,
"numRecords" : 4782972,
"wellSampleName" : "unknown",
"bioSampleName" : "unknown",
"version" : "3.0.1",
"id" : 1958,
"md5" : "aee711e5fb6b1980af36d0181ecadb95",
"jobId" : 1276,
"createdAt" : "2016-01-08T10:14:22.207",
"wellName" : "unknown",
"cellIndex" : -1,
"userId" : 1,
"metadataContextId" : "unknown",
"runName" : "unknown",
"comments" : ""
}, {
"name" : "Convert-movie",
"updatedAt" : "2016-01-18T10:30:55.835",
"path" : "/dataset/m151218_151443_42171_c1009394725501823218506101616_s1_p0.hdfsubreadset.xml",
"tags" : "pacbio.secondary.instrument=RS",
"instrumentName" : "42171",
"uuid" : "5e7b2933-a68e-4e1f-b250-c47a46478aa3",
"totalLength" : 50000000,
"projectId" : 1,
"numRecords" : 150000,
"wellSampleName" : "Amplikon-1 I.I",
"bioSampleName" : "Amplikon-1 I.I",
"version" : "3.0.1",
"id" : 2275,
"md5" : "d8d6619b6ed1c39361a3ebd89b0b7d9e",
"jobId" : 1556,
"createdAt" : "2016-01-18T10:30:55.835",
"wellName" : "A04",
"cellIndex" : 6,
"userId" : 1,
"metadataContextId" : "m151218_151443_42171_c1009394725501823218506101616_s1_p0",
"runName" : "2015.12.18 Amplikon-1 _ 9x Myxo _ 2x Clost _ ",
"comments" : ""
}, {
"name" : "RH_platypus",
"updatedAt" : "2016-01-19T10:32:11.706",
"path" : "/dataset/093539/RH_platypus.hdfsubreadset.xml",
"tags" : "",
"instrumentName" : "unknown",
"uuid" : "752d6393-0164-34b3-5819-6f849c9066fd",
"totalLength" : 145856544341,
"projectId" : 1,
"numRecords" : 9547411,
"wellSampleName" : "unknown",
"bioSampleName" : "unknown",
"version" : "3.0.1",
"id" : 2316,
"md5" : "5b2ae7c495c84ce7065827f55167d542",
"jobId" : 1598,

```



```

    "createdAt" : "2016-01-19T10:32:11.706",
    "wellName" : "unknown",
    "cellIndex" : -1,
    "userId" : 1,
    "metadataContextId" : "unknown",
    "runName" : "unknown",
    "comments" : " "
  }
]

```

### 3.1.4 Get Dataset Schema by Type

Get schema definition of a specific dataset type.

**Note:** A dataset type is specified by its short name; the short names of dataset types are available in the response to [List All Dataset Types](#) request.

#### Request

| Method | URI  |
|--------|--|
| GET    | http://<host>:<port>/secondary-analysis/datasets/{shortName}/_schema |

| Path Parameters | Data Type | Description   | Required | Multi-valued | Possible Values   |
|-----------------|-----------|---|----------|--------------|---|
| shortName       | string    | Short name of a dataset type; list of all possible dataset types with their short names may be obtained through <a href="#">List All Dataset Types</a> request; use values from “shortName” fields of Dataset Type objects. | Yes      | No           | alignments<br>barcodes<br>contigs<br>ccsalignments<br>ccsreads<br>hdfsubreads<br>references<br>subreads |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Get schema definition of type 'alignments':

GET [http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/alignments/\\_schema](http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/alignments/_schema)

Get schema definition of type 'barcodes':

GET [http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/barcodes/\\_schema](http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/barcodes/_schema)

Get schema definition of type 'contigs':

GET [http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/contigs/\\_schema](http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/contigs/_schema)

Get schema definition of type 'ccsalignments':

GET [http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/ccsalignments/\\_schema](http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/ccsalignments/_schema)

Get schema definition of type 'ccsreads':

GET [http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/ccsreads/\\_schema](http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/ccsreads/_schema)

Get schema definition of type 'hdfsubreads':

GET [http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/hdfsubreads/\\_schema](http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/hdfsubreads/_schema)

Get schema definition of type 'references':

GET [http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/references/\\_schema](http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/references/_schema)

Get schema definition of type 'subreads':

GET [http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/subreads/\\_schema](http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/subreads/_schema)

### Response

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request.   |
| 404 Not Found      | The requested resource could not be found.  | Occurs when an invalid value of shortName (non-existing dataset type) is passed in the request. Note: in order to get the list of valid shortName values, use <a href="#">List All Dataset Types</a> request. |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml   |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Wed, 27 Jan 2016 18:04:24 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 5188                            |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema   |
|------------------|---|
| application/json | The response is JSON schema of a specific dataset type; see <i>Get dataset schema by type - response sample</i> for examples. |

### Sample Response

See *Get dataset schema by type - response sample*

### Additional Information

| Authentication   | Technical Support        |
|------------------|--------------------------|
| See Introduction | E-mail: support@pacb.com |

### Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.0 | New service endpoint.  | N/A                 |

### Get dataset schema by type - response sample

Sample 1 - dataset schema of type 'alignments':

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.alignments",
  "version" : "1.0.0",
  "title" : "Alignment",
  "description" : "Alignment DataSet Schema",
  "type" : "object",
  "properties" : {
```

```

"id" : {
  "title" : "UUID",
  "description" : "UUID of the Alignment DataSet XML",
  "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
},
"name" : {
  "title" : "Alignment",
  "description" : "Display name of this Alignment",
  "type" : "string",
  "minLength" : 1
},
"createdAt" : {
  "title" : "Created at",
  "description" : "Time when the DataSet XML was created",
  "type" : "string",
  "format" : "date-time"
},
"version" : {
  "title" : "Version",
  "description" : "Version of this DataSet XML",
  "type" : "string",
  "format" : "sem-ver",
  "minLength" : 5
},
"numRecords" : {
  "title" : "Num records",
  "description" : "Number of alignments in this DataSet",
  "type" : "integer",
  "minimum" : 0
},
"totalLength" : {
  "title" : "Total length",
  "description" : "Total length of alignments (in aligned query bp) in this DataSet",
  "type" : "integer",
  "minimum" : 0
},
"tags" : {
  "title" : "DataSet tags",
  "description" : "Tags assigned to the DataSet upon creation.",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"parentReferenceId" : {
  "title" : "Parent Reference Id",
  "description" : "UUID for the Reference DataSet for the alignments",
  "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
},
"path" : {
  "title" : "DataSet path",

```

```

    "description" : "Path to alignment DataSet XML",
    "type" : "string",
    "format" : "uri"
  },
  "description" : {
    "title" : "Comments",
    "description" : "User description and comments",
    "type" : "string"
  },
  "importedAt" : {
    "title" : "Imported at",
    "description" : "Time when DataSet was imported",
    "type" : "string",
    "format" : "date-time"
  },
  "modifiedAt" : {
    "title" : "Updated at",
    "description" : "Time when DataSet metadata was last updated",
    "type" : "string",
    "format" : "date-time"
  },
  "status" : {
    "title" : "DataSet Status",
    "description" : "Status of DataSet (New, Pending, Complete, Error)",
    "type" : "string",
    "enum" : ["New", "Pending", "Complete", "Error"]
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of the Dataset XML file",
    "type" : "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-9]{32}$"
  },
  "parentAnalysisJobId" : {
    "title" : "Parent Job Id",
    "description" : "Id of job that generated this DataSet",
    "type" : "integer",
    "minimum" : 0
  },
  "userId" : {
    "title" : "User Id",
    "description" : "User Id that imported the DataSet",
    "type" : "string",
    "minLength" : 1
  },
  "smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Install Id",
    "description" : "SMRT Analysis Install that the DataSet belongs to",
    "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet belongs to",
    "type" : "string",
    "format" : "uuid",
  }

```

```

    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services level",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  }
},

"required" : [
  "id",
  "name",
  "createdAt",
  "version",
  "numRecords",
  "totalLength",
  "tags",

  "parentReferenceId",

  "path",
  "description",
  "importedAt",
  "modifiedAt",
  "status",
  "md5",
  "parentAnalysisJobId",
  "userId",
  "smrtanalysisInstallId",
  "projectId",
  "serviceTags"
],

"additionalProperties" : false
}

```

Sample 2 - dataset schema of type 'barcodes':

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.barcodes",
  "version" : "1.0.0",
  "title" : "Barcode",
  "description" : "Barcode DataSet Schema",
  "type" : "object",
  "properties" : {
    "id" : {
      "title" : "UUID",
      "description" : "UUID of the DataSet XML",

```

```

    "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "name" : {
    "title" : "Barcode",
    "description" : "Name of this DataSet XML",
    "type" : "string",
    "minLength" : 1
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when the DataSet XML was created",
    "type" : "string",
    "format" : "date-time"
  },
  "version" : {
    "title" : "Version",
    "description" : "Version of this DataSet XML",
    "type" : "string",
    "format" : "sem-ver",
    "minLength" : 5
  },
  "numRecords" : {
    "title" : "Num records",
    "description" : "Number of barcodes in this DataSet",
    "type" : "integer"
  },
  "totalLength" : {
    "title" : "Total length",
    "description" : "Total length of Barcodes (in bp) in this DataSet",
    "type" : "integer",
    "minimum" : 0
  },
  "tags" : {
    "title" : "DataSet tags",
    "description" : "Tags assigned to the DataSet upon creation.",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  },
  "barcodeConstruction" : {
    "title" : "Barcode construction",
    "description" : "of barcode (paired, unpaired).",
    "type" : "string",
    "enum" : ["paired", "unpaired"]
  },
  "path" : {
    "title" : "DataSet path",
    "description" : "Path to Barcode DataSet XML",
    "type" : "string",
    "format" : "uri"
  },
  "description" : {

```

```

    "title" : "Comments",
    "description" : "User description and comments",
    "type" : "string"
  },
  "importedAt" : {
    "title" : "Imported at",
    "description" : "Time when DataSet was imported",
    "type" : "string",
    "format" : "date-time"
  },
  "modifiedAt" : {
    "title" : "Updated at",
    "description" : "Time when DataSet metadata was last updated",
    "type" : "string",
    "format" : "date-time"
  },
  "status" : {
    "title" : "DataSet Status",
    "description" : "Status of DataSet (New, Pending, Complete, Error)",
    "type" : "string",
    "enum" : ["New", "Pending", "Complete", "Error"]
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of the Dataset XML file",
    "type" : "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-9]{32}$"
  },
  "parentAnalysisJobId" : {
    "title" : "Parent Job Id",
    "description" : "Id of job that generated this DataSet",
    "type" : "integer",
    "minimum" : 0
  },
  "userId" : {
    "title" : "User Id",
    "description" : "User Id that imported the DataSet",
    "type" : "string",
    "minLength" : 1
  },
  "smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Install Id",
    "description" : "SMRT Analysis Install that the DataSet belongs to",
    "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet belongs to",
    "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services level",

```



```
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  }
},
"required" : [
  "id",
  "name",
  "createdAt",
  "version",
  "numRecords",
  "totalLength",
  "tags",

  "barcodeConstruction",

  "path",
  "description",
  "importedAt",
  "modifiedAt",
  "status",
  "md5",
  "parentAnalysisJobId",
  "userId",
  "smrtanalysisInstallId",
  "projectId",
  "serviceTags"
],
"additionalProperties" : false
}
```

Sample 3 - dataset schema of type 'contigs':

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.contigs",
  "version" : "0.1.0",
  "title" : "Contig DataSet Schema",
  "description" : "Contig DataSet Schema",
  "type" : "object",
  "properties" : {
    "id" : {
      "title" : "DataSet id",
      "description" : "UUID of the DataSet XML",
      "type" : "string",
      "format" : "uuid"
    },
    "name" : {
      "title" : "DataSet name",
```

```

    "description" : "Name of this DataSet XML",
    "type" : "string"
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when the DataSet XML was created",
    "type" : "string",
    "format" : "date-time"
  },
  "version" : {
    "title" : "Version",
    "description" : "Version of this DataSet XML",
    "type" : "string"
  },
  "numRecords" : {
    "title" : "Num records",
    "description" : "Number of contigs in this DataSet",
    "type" : "integer"
  },
  "totalLength" : {
    "title" : "Total length",
    "description" : "Total length of contigs in bp in this DataSet",
    "type" : "integer"
  },
  "tags" : {
    "title" : "DataSet tags",
    "description" : "Tags assigned to the DataSet upon creation.",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  },
  "path" : {
    "title" : "DataSet path",
    "description" : "Path to Contig DataSet XML",
    "type" : "string"
  },
  "description" : {
    "title" : "Comments",
    "description" : "User description and comments",
    "type" : "string"
  },
  "importedAt" : {
    "title" : "Imported at",
    "description" : "Time when DataSet was imported",
    "type" : "string",
    "format" : "date-time"
  },
  "modifiedAt" : {
    "title" : "Updated at",
    "description" : "Time when DataSet metadata was last updated",
    "type" : "string",
    "format" : "date-time"
  },
  "status" : {
    "title" : "DataSet Status",

```

```

    "description" : "Status of DataSet (New, Pending, Complete, Error)",
    "type" : "string"
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of the Dataset XML file",
    "type" : "string",
    "format" : "md5"
  },
  "parentAnalysisJobId" : {
    "title" : "Parent Job Id",
    "description" : "Id of job that generated this DataSet",
    "type" : "integer"
  },
  "userId" : {
    "title" : "User Id",
    "description" : "User Id that imported the DataSet",
    "type" : "string"
  },
  "smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Install Id",
    "description" : "SMRT Analysis Install that the DataSet belongs to",
    "type" : "string"
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet belongs to",
    "type" : "string"
  },
  "serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services level",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  }
},

"required" : [
  "id",
  "name",
  "createdAt",
  "version",
  "numRecords",
  "totalLength",
  "tags",

  "path",
  "description",
  "importedAt",
  "modifiedAt",
  "status",
  "md5",
  "parentAnalysisJobId",
  "userId",
  "smrtanalysisInstallId",

```

```

    "projectId",
    "serviceTags"
  ],
  "additionalProperties" : false
}

```

Sample 4 - dataset schema of type 'ccsalignments':

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.alignments",
  "version" : "0.1.0",
  "title" : "CCS Alignment DataSet Schema",
  "description" : "CCS Alignment DataSet Schema",
  "type" : "object",
  "properties" : {
    "id" : {
      "title" : "DataSet id",
      "description" : "UUID of the DataSet XML",
      "type" : "string",
      "format" : "uuid"
    },
    "name" : {
      "title" : "DataSet name",
      "description" : "Display name of the DataSet XML",
      "type" : "string"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when the DataSet XML was created",
      "type" : "string",
      "format" : "date-time"
    },
    "version" : {
      "title" : "Version",
      "description" : "Version of this DataSet XML",
      "type" : "string"
    },
    "numRecords" : {
      "title" : "Num records",
      "description" : "Number of alignments in this DataSet",
      "type" : "integer"
    },
    "totalLength" : {
      "title" : "Total length",
      "description" : "Total length of alignments (in aligned query bp) in this DataSet",
      "type" : "integer"
    },
    "tags" : {
      "title" : "DataSet tags",
      "description" : "Tags assigned to the DataSet upon creation.",
      "type" : "array",

```

```
"items" : {
  "type" : "string"
},
"uniqueItems" : true
},

"parentReferenceId" : {
  "title" : "Parent Reference Id",
  "description" : "UUID for the Reference DataSet for the alignments",
  "type" : "string"
},

"path" : {
  "title" : "DataSet path",
  "description" : "Path to alignment DataSet XML",
  "type" : "string"
},

"description" : {
  "title" : "Comments",
  "description" : "User description and comments",
  "type" : "string"
},

"importedAt" : {
  "title" : "Imported at",
  "description" : "Time when DataSet was imported",
  "type" : "string",
  "format" : "date-time"
},

"modifiedAt" : {
  "title" : "Updated at",
  "description" : "Time when DataSet metadata was last updated",
  "type" : "string",
  "format" : "date-time"
},

"status" : {
  "title" : "DataSet Status",
  "description" : "Status of DataSet (New, Pending, Complete, Error)",
  "type" : "string"
},

"md5" : {
  "title" : "md5",
  "description" : "md5 checksum of the Dataset XML file",
  "type" : "string",
  "format" : "md5"
},

"parentAnalysisJobId" : {
  "title" : "Parent Job Id",
  "description" : "Id of job that generated this DataSet",
  "type" : "integer"
},

"userId" : {
  "title" : "User Id",
  "description" : "User Id that imported the DataSet",
  "type" : "string"
},

"smrtanalysisInstallId" : {
  "title" : "SMRT Analysis Install Id",
  "description" : "SMRT Analysis Install that the DataSet belongs to",
```

```

    "type" : "string"
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet belongs to",
    "type" : "string"
  },
  "serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services level",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  }
},

"required" : [
  "id",
  "name",
  "createdAt",
  "version",
  "numRecords",
  "totalLength",
  "tags",

  "parentReferenceId",

  "path",
  "description",
  "importedAt",
  "modifiedAt",
  "status",
  "md5",
  "parentAnalysisJobId",
  "userId",
  "smrtanalysisInstallId",
  "projectId",
  "serviceTags"
],

"additionalProperties" : false
}

```

Sample 5 - dataset schema of type 'ccsreads':

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.ccsreads",
  "version" : "0.1.0",
  "title" : "CCS Reads DataSet Schema",
  "description" : "CCS Reads DataSet Schema",
  "type" : "object",

```

```
"properties" : {
  "id" : {
    "title" : "DataSet id",
    "description" : "UUID of the DataSet XML",
    "type" : "string",
    "format" : "uuid"
  },
  "name" : {
    "title" : "DataSet name",
    "description" : "Name of this DataSet XML",
    "type" : "string"
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when the DataSet XML was created",
    "type" : "string",
    "format" : "date-time"
  },
  "version" : {
    "title" : "Version",
    "description" : "Version of this DataSet",
    "type" : "string"
  },
  "numRecords" : {
    "title" : "Num records",
    "description" : "Number of CCS reads in this DataSet",
    "type" : "integer"
  },
  "totalLength" : {
    "title" : "Total length",
    "description" : "Total length in bp of CCS reads in this DataSet",
    "type" : "integer"
  },
  "tags" : {
    "title" : "DataSet tags",
    "description" : "Tags assigned to the DataSet upon creation",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  },
  "cellPacBarcodes" : {
    "title" : "Cell Pac Barcodes",
    "description" : "Cell Pac Barcodes (aka SMRT Cell Ids)",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  },
  "collectionMetadataContexts" : {
    "title" : "Contexts",
    "description" : "Collection metadata contexts (aka Movie Names)",
    "type" : "array",
    "items" : {
```

```

    "type" : "string"
  },
  "uniqueItems" : true
},
"wellNames" : {
  "title" : "Well Names",
  "description" : "Well names of the samples sequenced",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"wellSampleNames" : {
  "title" : "Well Sample Names",
  "description" : "Well sample names",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"bioSampleNames" : {
  "title" : "Biological Sample Name",
  "description" : "Names from biological sample(s)",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"plateIds" : {
  "title" : "Plate Ids",
  "description" : "Sample plate ids",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"instrumentIds" : {
  "title" : "Instrument ids",
  "description" : "Instrument ids (assigned by Instrument Control)",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"instrumentNames" : {
  "title" : "Instrument Names",
  "description" : "Customer assigned instrument name(s)",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
},

```



```
"runIds" : {
  "title" : "Run id",
  "description" : "Pacbio run id (assigned by Run Control). RunDetails/RunId",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"runNames" : {
  "title" : "Run Name",
  "description" : "Pacbio Run Name. RunDetails/Name",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"instrumentControlVersions" : {
  "title" : "Instrument Control Versions",
  "description" : "Version of the instrument control software",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"automationNames" : {
  "title" : "Collection protocol",
  "description" : "Instrument automation protocol names (aka Collection Protocols)",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"primaryVersions" : {
  "title" : "Primary Version",
  "description" : "Primary Version",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"primaryAutomationNames" : {
  "title" : "Primary Automation Names",
  "description" : "Automation Primary Protocols",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"path" : {
  "title" : "DataSet path",
  "description" : "Path to CCS reads DataSet XML",
```

```

    "type" : "string"
  },
  "description" : {
    "title" : "Description",
    "description" : "User description and comments",
    "type" : "string"
  },
  "importedAt" : {
    "title" : "Imported at",
    "description" : "Time when DataSet was imported",
    "type" : "string",
    "format" : "date-time"
  },
  "modifiedAt" : {
    "title" : "Modified at",
    "description" : "Time when DataSet metadata was last modified",
    "type" : "string",
    "format" : "date-time"
  },
  "status" : {
    "title" : "DataSet Status",
    "description" : "Status of DataSet (New, Pending, Complete, Error)",
    "type" : "string"
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of the Dataset XML file",
    "type" : "string",
    "format" : "md5"
  },
  "parentAnalysisJobId" : {
    "title" : "Parent Job Id",
    "description" : "Id of job that generated this DataSet",
    "type" : "integer"
  },
  "userId" : {
    "title" : "User Id",
    "description" : "User Id that imported the DataSet",
    "type" : "string"
  },
  "smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Install Id",
    "description" : "SMRT Analysis Install that the DataSet belongs to",
    "type" : "string"
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet belongs to",
    "type" : "string"
  },
  "serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services level",
    "type" : "array",
    "items" : {
      "type" : "string"
    }
  },
  "uniqueItems" : true

```

```

    }
  },
  "required" : [
    "id",
    "name",
    "createdAt",
    "version",
    "numRecords",
    "totalLength",
    "tags",

    "cellPacBarcodes",
    "collectionMetadataContexts",
    "wellNames",
    "wellSampleNames",
    "bioSampleNames",
    "plateIds",
    "instrumentIds",
    "instrumentNames",
    "runIds",
    "runNames",
    "instrumentControlVersions",
    "automationNames",
    "primaryVersions",
    "primaryAutomationNames",

    "path",
    "description",
    "importedAt",
    "modifiedAt",
    "status",
    "md5",
    "parentAnalysisJobId",
    "userId",
    "smrtanalysisInstallId",
    "projectId",
    "serviceTags"
  ],
  "additionalProperties" : false
}

```

Sample 6 - dataset schema of type 'hdfsubreads':

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.subreads",
  "version" : "1.0.0",
  "title" : "Subread",
  "description" : "Subread DataSet Schema",
  "type" : "object",
  "properties" : {

```

```

"id" : {
  "title" : "UUID",
  "description" : "UUID of the Subread DataSet XML",
  "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
  "readOnly" : true
},
"name" : {
  "title" : "Subread",
  "description" : "Name of this Subread",
  "type" : "string",
  "minLength" : 1,
  "readOnly" : true
},
"createdAt" : {
  "title" : "Created at",
  "description" : "Time when the DataSet XML was created",
  "type" : "string",
  "format" : "date-time",
  "readOnly" : true
},
"version" : {
  "title" : "Version",
  "description" : "Version of this DataSet",
  "type" : "string",
  "format" : "sem-ver",
  "minLength" : 5,
  "readOnly" : true
},
"numRecords" : {
  "title" : "Num records",
  "description" : "Number of subreads in this DataSet",
  "type" : "integer",
  "minimum" : 0,
  "readOnly" : true
},
"totalLength" : {
  "title" : "Total length",
  "description" : "Total length (in bp) of Subreads in this DataSet",
  "type" : "integer",
  "minimum" : 0,
  "readOnly" : true
},
"tags" : {
  "title" : "DataSet tags",
  "description" : "Tags assigned to the DataSet upon creation",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"cellPacBarcodes" : {
  "title" : "Cell Pac Barcodes",
  "description" : "Cell Pac Barcodes (aka SMRT Cell Ids)",

```

```

    "type" : "array",
    "items" : {
      "type" : "string",
      "pattern" : "^[0-9]{32}$",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "collectionMetadataContexts" : {
    "title" : "Contexts",
    "description" : "Collection metadata contexts",
    "type" : "array",
    "items" : {
      "type" : "string",
      "pattern" : "^[mcspl_0-9]{61}$",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "wellNames" : {
    "title" : "Well Names",
    "description" : "Well names of the samples sequenced",
    "type" : "array",
    "items" : {
      "type" : "string",
      "pattern" : "^[A-H][0-1][0-9]$",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "wellSampleNames" : {
    "title" : "Well Sample Names",
    "description" : "Well sample name(s)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "bioSampleNames" : {
    "title" : "Biological Sample Name",
    "description" : "Names from biological sample(s)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "plateIds" : {
    "title" : "Plate Ids",
    "description" : "Sample plate ids",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
  },

```

```

    "uniqueItems" : true
  },
  "instrumentIds" : {
    "title" : "Instrument ids",
    "description" : "Instrument ids (assigned by Instrument Control)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "instrumentNames" : {
    "title" : "Instrument Names",
    "description" : "Customer assigned instrument name(s)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "runIds" : {
    "title" : "Run id",
    "description" : "Pacbio run id (assigned by Run Control). RunDetails/RunId",
    "type" : "array",
    "items" : {
      "type" : "string",
      "format" : "uuid",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "runNames" : {
    "title" : "Run Name",
    "description" : "Pacbio Run Name. RunDetails/Name",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "instrumentControlVersions" : {
    "title" : "Instrument Control Versions",
    "description" : "Version of the instrument control software",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "automationNames" : {
    "title" : "Collection protocol",
    "description" : "Instrument automation protocol names (aka Collection Protocols)",
    "type" : "array",
    "items" : {

```

```

    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"primaryVersions" : {
  "title" : "Primary Version",
  "description" : "Primary Version",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"primaryAutomationNames" : {
  "title" : "Primary Automation Names",
  "description" : "Automation Primary Protocols",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"path" : {
  "title" : "DataSet path",
  "description" : "Path to Subreads DataSet XML",
  "type" : "string",
  "format" : "uri",
  "readOnly" : true
},
"description" : {
  "title" : "Description",
  "description" : "User description and comments",
  "type" : "string"
},
"importedAt" : {
  "title" : "Imported at",
  "description" : "Time when DataSet was imported",
  "type" : "string",
  "format" : "date-time",
  "readOnly" : true
},
"modifiedAt" : {
  "title" : "Modified at",
  "description" : "Time when DataSet metadata was last modified",
  "type" : "string",
  "format" : "date-time",
  "readOnly" : true
},
"status" : {
  "title" : "DataSet Status",
  "description" : "Status of DataSet (New, Pending, Complete, Error)",
  "type" : "string",
  "enum" : ["New", "Pending", "Complete", "Error"],
  "readOnly" : true
}

```

```

},
"md5" : {
  "title" : "md5",
  "description" : "md5 checksum of the Dataset XML file",
  "type" : "string",
  "format" : "md5",
  "pattern" : "^[a-fA-F0-9]{32}$",
  "readOnly" : true
},
"parentAnalysisJobId" : {
  "title" : "Parent Job Id",
  "description" : "Id of job that generated this DataSet",
  "type" : "integer",
  "minimum" : 0,
  "readOnly" : true
},
"userId" : {
  "title" : "User Id",
  "description" : "User Id that imported the DataSet",
  "type" : "string",
  "minLength" : 1,
  "readOnly" : true
},
"smrtanalysisInstallId" : {
  "title" : "SMRT Analysis Install Id",
  "description" : "SMRT Analysis Install that the DataSet belongs to",
  "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
  "readOnly" : true
},
"projectId" : {
  "title" : "Project Id",
  "description" : "Project that the DataSet belongs to",
  "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
  "readOnly" : true
},
"serviceTags" : {
  "title" : "User defined tags",
  "description" : "Tags defined and set at the services level",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
}
},
"required" : [
  "id",
  "name",
  "createdAt",
  "version",
  "numRecords",
  "totalLength",
  "tags",

```



```

    "cellPacBarcodes",
    "collectionMetadataContexts",
    "wellNames",
    "wellSampleNames",
    "bioSampleNames",
    "plateIds",
    "instrumentIds",
    "instrumentNames",
    "runIds",
    "runNames",
    "instrumentControlVersions",
    "automationNames",
    "primaryVersions",
    "primaryAutomationNames",

    "path",
    "description",
    "importedAt",
    "modifiedAt",
    "status",
    "md5",
    "parentAnalysisJobId",
    "userId",
    "smrtanalysisInstallId",
    "projectId",
    "serviceTags"
  ],
  "additionalProperties" : false
}

```

Sample 7 - dataset schema of type 'references':

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.references",
  "version" : "1.0.0",
  "title" : "Reference",
  "description" : "Reference DataSet Schema",
  "type" : "object",
  "properties" : {
    "id" : {
      "title" : "UUID",
      "description" : "UUID of the Reference DataSet XML",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
      "readOnly" : true
    },
    "name" : {
      "title" : "Reference",
      "description" : "Name of this Reference",
      "type" : "string",

```

```

    "minLength" : 1,
    "readOnly" : true
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when the DataSet XML was created",
    "type" : "string",
    "format" : "date-time",
    "readOnly" : true
  },
  "version" : {
    "title" : "Version",
    "description" : "Version of this DataSet XML",
    "type" : "string",
    "format" : "sem-ver",
    "minLength" : 5,
    "readOnly" : true
  },
  "numRecords" : {
    "title" : "Num records",
    "description" : "Number of references in this DataSet",
    "type" : "integer",
    "minimum" : 0,
    "readOnly" : true
  },
  "totalLength" : {
    "title" : "Total length",
    "description" : "Total length of references (in bp) in this DataSet",
    "type" : "integer",
    "minimum" : 0,
    "readOnly" : true
  },
  "tags" : {
    "title" : "DataSet tags",
    "description" : "Tags assigned to the DataSet upon creation.",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "organism" : {
    "title" : "Organism",
    "description" : "Scientific name of the organism for this reference",
    "type" : "string",
    "readOnly" : true
  },
  "ploidy" : {
    "title" : "Ploidy",
    "description" : "Ploidy (1 if unknown) of this reference",
    "type" : "integer",
    "enum" : [0, 1, 2],
    "readOnly" : true
  },
  "path" : {

```

```

    "title" : "DataSet path",
    "description" : "Path to Reference DataSet XML",
    "type" : "string",
    "format" : "uri",
    "readOnly" : true
  },
  "description" : {
    "title" : "Comments",
    "description" : "User description and comments",
    "type" : "string"
  },
  "importedAt" : {
    "title" : "Imported at",
    "description" : "Time when DataSet was imported",
    "type" : "string",
    "format" : "date-time",
    "readOnly" : true
  },
  "modifiedAt" : {
    "title" : "Updated at",
    "description" : "Time when DataSet metadata was last updated",
    "type" : "string",
    "format" : "date-time",
    "readOnly" : true
  },
  "status" : {
    "title" : "DataSet Status",
    "description" : "Status of DataSet (New, Pending, Complete, Error)",
    "type" : "string",
    "enum" : ["New", "Pending", "Complete", "Error"],
    "readOnly" : true
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of the Dataset XML file",
    "type" : "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-9]{32}$",
    "readOnly" : true
  },
  "parentAnalysisJobId" : {
    "title" : "Parent Job Id",
    "description" : "Id of job that generated this DataSet",
    "type" : "integer",
    "minimum" : 0,
    "readOnly" : true
  },
  "userId" : {
    "title" : "User Id",
    "description" : "User Id that imported the DataSet",
    "type" : "string",
    "minLength" : 1,
    "readOnly" : true
  },
  "smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Installation Id",
    "description" : "Installation that the DataSet belongs to",
    "type" : "string",

```

```

    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
    "readOnly" : true
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet belongs to",
    "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
    "readOnly" : true
  },
  "serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services level",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  }
},

"required" : [
  "id",
  "name",
  "createdAt",
  "version",
  "numRecords",
  "totalLength",
  "tags",

  "organism",
  "ploidy",

  "path",
  "description",
  "importedAt",
  "modifiedAt",
  "status",
  "md5",
  "parentAnalysisJobId",
  "userId",
  "smrtanalysisInstallId",
  "projectId",
  "serviceTags"
],

"additionalProperties" : false
}

```

Sample 8 - dataset schema of type 'subreads':

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacb.io.secondary.schemas.datasets.subreads",
  "version" : "1.0.0",
  "title" : "Subread",
  "description" : "Subread DataSet Schema",
  "type" : "object",
  "properties" : {
    "id" : {
      "title" : "UUID",
      "description" : "UUID of the Subread DataSet XML",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
      "readOnly" : true
    },
    "name" : {
      "title" : "Subread",
      "description" : "Name of this Subread",
      "type" : "string",
      "minLength" : 1,
      "readOnly" : true
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when the DataSet XML was created",
      "type" : "string",
      "format" : "date-time",
      "readOnly" : true
    },
    "version" : {
      "title" : "Version",
      "description" : "Version of this DataSet",
      "type" : "string",
      "format" : "sem-ver",
      "minLength" : 5,
      "readOnly" : true
    },
    "numRecords" : {
      "title" : "Num records",
      "description" : "Number of subreads in this DataSet",
      "type" : "integer",
      "minimum" : 0,
      "readOnly" : true
    },
    "totalLength" : {
      "title" : "Total length",
      "description" : "Total length (in bp) of Subreads in this DataSet",
      "type" : "integer",
      "minimum" : 0,
      "readOnly" : true
    },
    "tags" : {
      "title" : "DataSet tags",
      "description" : "Tags assigned to the DataSet upon creation",
      "type" : "array",
      "items" : {

```

```

    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"cellPacBarcodes" : {
  "title" : "Cell Pac Barcodes",
  "description" : "Cell Pac Barcodes (aka SMRT Cell Ids)",
  "type" : "array",
  "items" : {
    "type" : "string",
    "pattern" : "^[0-9]{32}$",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"collectionMetadataContexts" : {
  "title" : "Contexts",
  "description" : "Collection metadata contexts",
  "type" : "array",
  "items" : {
    "type" : "string",
    "pattern" : "^[mcs*_0-9]{61}$",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"wellNames" : {
  "title" : "Well Names",
  "description" : "Well names of the samples sequenced",
  "type" : "array",
  "items" : {
    "type" : "string",
    "pattern" : "^[A-H][0-1][0-9]$",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"wellSampleNames" : {
  "title" : "Well Sample Names",
  "description" : "Well sample name(s)",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"bioSampleNames" : {
  "title" : "Biological Sample Name",
  "description" : "Names from biological sample(s)",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
}

```

```

},
"plateIds" : {
  "title" : "Plate Ids",
  "description" : "Sample plate ids",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"instrumentIds" : {
  "title" : "Instrument ids",
  "description" : "Instrument ids (assigned by Instrument Control)",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"instrumentNames" : {
  "title" : "Instrument Names",
  "description" : "Customer assigned instrument name(s)",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"runIds" : {
  "title" : "Run id",
  "description" : "Pacbio run id (assigned by Run Control). RunDetails/RunId",
  "type" : "array",
  "items" : {
    "type" : "string",
    "format" : "uuid",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"runNames" : {
  "title" : "Run Name",
  "description" : "Pacbio Run Name. RunDetails/Name",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"instrumentControlVersions" : {
  "title" : "Instrument Control Versions",
  "description" : "Version of the instrument control software",
  "type" : "array",
  "items" : {
    "type" : "string",

```

```

    "readOnly" : true
  },
  "uniqueItems" : true
},
"automationNames" : {
  "title" : "Collection protocol",
  "description" : "Instrument automation protocol names (aka Collection Protocols)",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"primaryVersions" : {
  "title" : "Primary Version",
  "description" : "Primary Version",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"primaryAutomationNames" : {
  "title" : "Primary Automation Names",
  "description" : "Automation Primary Protocols",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"path" : {
  "title" : "DataSet path",
  "description" : "Path to Subreads DataSet XML",
  "type" : "string",
  "format" : "uri",
  "readOnly" : true
},
"description" : {
  "title" : "Description",
  "description" : "User description and comments",
  "type" : "string"
},
"importedAt" : {
  "title" : "Imported at",
  "description" : "Time when DataSet was imported",
  "type" : "string",
  "format" : "date-time",
  "readOnly" : true
},
"modifiedAt" : {
  "title" : "Modified at",
  "description" : "Time when DataSet metadata was last modified",
  "type" : "string",

```



```

    "format" : "date-time",
    "readOnly" : true
  },
  "status" : {
    "title" : "DataSet Status",
    "description" : "Status of DataSet (New, Pending, Complete, Error)",
    "type" : "string",
    "enum" : ["New", "Pending", "Complete", "Error"],
    "readOnly" : true
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of the Dataset XML file",
    "type" : "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-9]{32}$",
    "readOnly" : true
  },
  "parentAnalysisJobId" : {
    "title" : "Parent Job Id",
    "description" : "Id of job that generated this DataSet",
    "type" : "integer",
    "minimum" : 0,
    "readOnly" : true
  },
  "userId" : {
    "title" : "User Id",
    "description" : "User Id that imported the DataSet",
    "type" : "string",
    "minLength" : 1,
    "readOnly" : true
  },
  "smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Install Id",
    "description" : "SMRT Analysis Install that the DataSet belongs to",
    "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
    "readOnly" : true
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet belongs to",
    "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
    "readOnly" : true
  },
  "serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services level",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  }
},

```

```

"required" : [
  "id",
  "name",
  "createdAt",
  "version",
  "numRecords",
  "totalLength",
  "tags",

  "cellPacBarcodes",
  "collectionMetadataContexts",
  "wellNames",
  "wellSampleNames",
  "bioSampleNames",
  "plateIds",
  "instrumentIds",
  "instrumentNames",
  "runIds",
  "runNames",
  "instrumentControlVersions",
  "automationNames",
  "primaryVersions",
  "primaryAutomationNames",

  "path",
  "description",
  "importedAt",
  "modifiedAt",
  "status",
  "md5",
  "parentAnalysisJobId",
  "userId",
  "smrtanalysisInstallId",
  "projectId",
  "serviceTags"
],
"additionalProperties" : false
}

```

### 3.1.5 Retrieve Dataset by Type and Id

Retrieve the record of a dataset object by its ID within its dataset type.

**Note:** A dataset type is specified by its short name; the short names of dataset types are available in the response to List All Dataset Types request.

#### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/datasets/{shortName}/{id}">http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/datasets/{shortName}/{id}</a> |

| Path Parameters | Data Type | Description   | Required | Multi-valued | Possible Values   |
|-----------------|-----------|---|----------|--------------|---|
| shortName       | string    | Short name of a dataset type; list of all possible dataset types with their short names may be obtained through <a href="#">List All Dataset Types</a> request; use values from “shortName” fields of Dataset Type objects. | Yes      | No           | alignments<br>barcodes<br>contigs<br>ccsalignments<br>ccsreads<br>hdfsubreads<br>references<br>subreads |
| id              | integer   | Unique identifier of a dataset within its dataset type; valid values can be found in “id” fields of objects returned by <a href="#">List All Datasets by Type</a> request   | Yes      | No           | 4<br>12<br>17<br>133  |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Retrieve the record of the dataset object of type ‘references’ with ID=12:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/references/12>

Retrieve the record of the dataset object of type ‘subreads’ with ID=17:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/subreads/17>

## Response

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request.   |
| 404 Not Found      | The requested resource could not be found.  | Occurs when an invalid value of shortName (non-existing dataset type) is passed in the request. Note: To get the list of valid shortName values, use <a href="#">List All Dataset Types</a> request.                    |
| 404 Not Found      | Unable to find reference dataset '122'.   | Occurs when an invalid value of ID (non-existing dataset identifier within its dataset type) is passed in the request. Note: To get the list of valid ID values, use <a href="#">List All Datasets by Type</a> request. |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml   |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Thu, 28 Jan 2016 00:15:32 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 727                             |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema                                 |
|------------------|---|
| application/json | See <a href="#">Retrieve dataset by type and id - response schema</a> |

## Sample Response

See [Retrieve dataset by type and id - response sample](#)

## Additional Information

| Authentication                   | Technical Support  |
|----------------------------------|--|
| See <a href="#">Introduction</a> | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

## Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.0 | New service endpoint.  | N/A                 |

### Retrieve dataset by type and id - response schema

---

**Note:** Schema definition for dataset object of a specific type may be obtained through [Get Dataset Schema by Type](#) request.

---

Example 1: Schema for dataset object of 'references' type:

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.references",
  "version" : "1.0.0",
  "title" : "Reference",
  "description" : "Reference DataSet Schema",
  "type" : "object",
  "properties" : {
    "id" : {
      "title" : "UUID",
      "description" : "UUID of the Reference DataSet XML",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
      "readOnly" : true
    },
    "name" : {
      "title" : "Reference",
      "description" : "Name of this Reference",
      "type" : "string",
      "minLength" : 1,
      "readOnly" : true
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when the DataSet XML was created",
      "type" : "string",
      "format" : "date-time",
      "readOnly" : true
    },
    "version" : {
      "title" : "Version",
      "description" : "Version of this DataSet XML",
      "type" : "string",
      "format" : "sem-ver",
      "minLength" : 5,
      "readOnly" : true
    },
    "numRecords" : {
      "title" : "Num records",
      "description" : "Number of references in this DataSet",
      "type" : "integer",
      "minimum" : 0,
      "readOnly" : true
    }
  }
}
```

```

},
"totalLength" : {
  "title" : "Total length",
  "description" : "Total length of references (in bp) in this DataSet",
  "type" : "integer",
  "minimum" : 0,
  "readOnly" : true
},
"tags" : {
  "title" : "DataSet tags",
  "description" : "Tags assigned to the DataSet upon creation.",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"organism" : {
  "title" : "Organism",
  "description" : "Scientific name of the organism for this reference",
  "type" : "string",
  "readOnly" : true
},
"ploidy" : {
  "title" : "Ploidy",
  "description" : "Ploidy (1 if unknown) of this reference",
  "type" : "integer",
  "enum" : [0, 1, 2],
  "readOnly" : true
},
"path" : {
  "title" : "DataSet path",
  "description" : "Path to Reference DataSet XML",
  "type" : "string",
  "format" : "uri",
  "readOnly" : true
},
"description" : {
  "title" : "Comments",
  "description" : "User description and comments",
  "type" : "string"
},
"importedAt" : {
  "title" : "Imported at",
  "description" : "Time when DataSet was imported",
  "type" : "string",
  "format" : "date-time",
  "readOnly" : true
},
"modifiedAt" : {
  "title" : "Updated at",
  "description" : "Time when DataSet metadata was last updated",
  "type" : "string",
  "format" : "date-time",
  "readOnly" : true
}

```

```

},
"status" : {
  "title" : "DataSet Status",
  "description" : "Status of DataSet (New, Pending, Complete, Error)",
  "type" : "string",
  "enum" : ["New", "Pending", "Complete", "Error"],
  "readOnly" : true
},
"md5" : {
  "title" : "md5",
  "description" : "md5 checksum of the Dataset XML file",
  "type" : "string",
  "format" : "md5",
  "pattern" : "^[a-fA-F0-9]{32}$",
  "readOnly" : true
},
"parentAnalysisJobId" : {
  "title" : "Parent Job Id",
  "description" : "Id of job that generated this DataSet",
  "type" : "integer",
  "minimum" : 0,
  "readOnly" : true
},
"userId" : {
  "title" : "User Id",
  "description" : "User Id that imported the DataSet",
  "type" : "string",
  "minLength" : 1,
  "readOnly" : true
},
"smrtanalysisInstallId" : {
  "title" : "SMRT Analysis Installation Id",
  "description" : "Installation that the DataSet belongs to",
  "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
  "readOnly" : true
},
"projectId" : {
  "title" : "Project Id",
  "description" : "Project that the DataSet belongs to",
  "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
  "readOnly" : true
},
"serviceTags" : {
  "title" : "User defined tags",
  "description" : "Tags defined and set at the services level",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
}
},
"required" : [

```

```

    "id",
    "name",
    "createdAt",
    "version",
    "numRecords",
    "totalLength",
    "tags",

    "organism",
    "ploidy",

    "path",
    "description",
    "importedAt",
    "modifiedAt",
    "status",
    "md5",
    "parentAnalysisJobId",
    "userId",
    "smrtanalysisInstallId",
    "projectId",
    "serviceTags"
  ],
  "additionalProperties" : false
}

```

Example 2: Schema for dataset object of 'subreads' type:

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.subreads",
  "version" : "1.0.0",
  "title" : "Subread",
  "description" : "Subread DataSet Schema",
  "type" : "object",
  "properties" : {
    "id" : {
      "title" : "UUID",
      "description" : "UUID of the Subread DataSet XML",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
      "readOnly" : true
    },
    "name" : {
      "title" : "Subread",
      "description" : "Name of this Subread",
      "type" : "string",
      "minLength" : 1,
      "readOnly" : true
    },
    "createdAt" : {

```



```

    "title" : "Created at",
    "description" : "Time when the DataSet XML was created",
    "type" : "string",
    "format" : "date-time",
    "readOnly" : true
  },
  "version" : {
    "title" : "Version",
    "description" : "Version of this DataSet",
    "type" : "string",
    "format" : "sem-ver",
    "minLength" : 5,
    "readOnly" : true
  },
  "numRecords" : {
    "title" : "Num records",
    "description" : "Number of subreads in this DataSet",
    "type" : "integer",
    "minimum" : 0,
    "readOnly" : true
  },
  "totalLength" : {
    "title" : "Total length",
    "description" : "Total length (in bp) of Subreads in this DataSet",
    "type" : "integer",
    "minimum" : 0,
    "readOnly" : true
  },
  "tags" : {
    "title" : "DataSet tags",
    "description" : "Tags assigned to the DataSet upon creation",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "cellPacBarcodes" : {
    "title" : "Cell Pac Barcodes",
    "description" : "Cell Pac Barcodes (aka SMRT Cell Ids)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "pattern" : "^[0-9]{32}$",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "collectionMetadataContexts" : {
    "title" : "Contexts",
    "description" : "Collection metadata contexts",
    "type" : "array",
    "items" : {
      "type" : "string",
      "pattern" : "^[mcsp_0-9]{61}$",
      "readOnly" : true
    }
  }
}

```

```

    },
    "uniqueItems" : true
  },
  "wellNames" : {
    "title" : "Well Names",
    "description" : "Well names of the samples sequenced",
    "type" : "array",
    "items" : {
      "type" : "string",
      "pattern" : "^[A-H][0-1][0-9]$",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "wellSampleNames" : {
    "title" : "Well Sample Names",
    "description" : "Well sample name(s)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "bioSampleNames" : {
    "title" : "Biological Sample Name",
    "description" : "Names from biological sample(s)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "plateIds" : {
    "title" : "Plate Ids",
    "description" : "Sample plate ids",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "instrumentIds" : {
    "title" : "Instrument ids",
    "description" : "Instrument ids (assigned by Instrument Control)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "instrumentNames" : {
    "title" : "Instrument Names",
    "description" : "Customer assigned instrument name(s)",
    "type" : "array",

```

```

    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "runIds" : {
    "title" : "Run id",
    "description" : "Pacbio run id (assigned by Run Control). RunDetails/RunId",
    "type" : "array",
    "items" : {
      "type" : "string",
      "format" : "uuid",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "runNames" : {
    "title" : "Run Name",
    "description" : "Pacbio Run Name. RunDetails/Name",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "instrumentControlVersions" : {
    "title" : "Instrument Control Versions",
    "description" : "Version of the instrument control software",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "automationNames" : {
    "title" : "Collection protocol",
    "description" : "Instrument automation protocol names (aka Collection Protocols)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "primaryVersions" : {
    "title" : "Primary Version",
    "description" : "Primary Version",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "primaryAutomationNames" : {

```

```

    "title" : "Primary Automation Names",
    "description" : "Automation Primary Protocols",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "path" : {
    "title" : "DataSet path",
    "description" : "Path to Subreads DataSet XML",
    "type" : "string",
    "format" : "uri",
    "readOnly" : true
  },
  "description" : {
    "title" : "Description",
    "description" : "User description and comments",
    "type" : "string"
  },
  "importedAt" : {
    "title" : "Imported at",
    "description" : "Time when DataSet was imported",
    "type" : "string",
    "format" : "date-time",
    "readOnly" : true
  },
  "modifiedAt" : {
    "title" : "Modified at",
    "description" : "Time when DataSet metadata was last modified",
    "type" : "string",
    "format" : "date-time",
    "readOnly" : true
  },
  "status" : {
    "title" : "DataSet Status",
    "description" : "Status of DataSet (New, Pending, Complete, Error)",
    "type" : "string",
    "enum" : ["New", "Pending", "Complete", "Error"],
    "readOnly" : true
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of the Dataset XML file",
    "type" : "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-9]{32}$",
    "readOnly" : true
  },
  "parentAnalysisJobId" : {
    "title" : "Parent Job Id",
    "description" : "Id of job that generated this DataSet",
    "type" : "integer",
    "minimum" : 0,
    "readOnly" : true
  },

```

```

"userId" : {
  "title" : "User Id",
  "description" : "User Id that imported the DataSet",
  "type" : "string",
  "minLength" : 1,
  "readOnly" : true
},
"smrtanalysisInstallId" : {
  "title" : "SMRT Analysis Install Id",
  "description" : "SMRT Analysis Install that the DataSet belongs to",
  "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
  "readOnly" : true
},
"projectId" : {
  "title" : "Project Id",
  "description" : "Project that the DataSet belongs to",
  "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
  "readOnly" : true
},
"serviceTags" : {
  "title" : "User defined tags",
  "description" : "Tags defined and set at the services level",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
}
},

"required" : [
  "id",
  "name",
  "createdAt",
  "version",
  "numRecords",
  "totalLength",
  "tags",

  "cellPacBarcodes",
  "collectionMetadataContexts",
  "wellNames",
  "wellSampleNames",
  "bioSampleNames",
  "plateIds",
  "instrumentIds",
  "instrumentNames",
  "runIds",
  "runNames",
  "instrumentControlVersions",
  "automationNames",
  "primaryVersions",
  "primaryAutomationNames",

```

```

    "path",
    "description",
    "importedAt",
    "modifiedAt",
    "status",
    "md5",
    "parentAnalysisJobId",
    "userId",
    "smrtanalysisInstallId",
    "projectId",
    "serviceTags"
  ],
  "additionalProperties" : false
}

```

### Retrieve dataset by type and id - response sample

Sample 1 - retrieve the record of the dataset object of type 'references' with ID=12:

```

{
  "name" : "All4mer_V2_44_circular_72x_150256",
  "updatedAt" : "2015-11-16T11:16:54.574",
  "path" : "/pbi/jobs/08/pacbio-reference/All4mer_V2_44_circular_72x_150256/referenceset.xml",
  "ploidy" : "haploid",
  "tags" : "",
  "uuid" : "83495502-6233-4379-9e06-fd43fb0738c4",
  "totalLength" : 50256,
  "projectId" : 1,
  "numRecords" : 1,
  "version" : "3.0.1",
  "id" : 12,
  "md5" : "0cd0c08209ba807c4f53ce9b18049168",
  "jobId" : 8,
  "createdAt" : "2015-11-16T11:16:54.574",
  "organism" : "All4mer_V2_44_circular_72x_150256",
  "userId" : 1,
  "comments" : "reference dataset comments"
}

```

Sample 2 - retrieve the record of the dataset object of type 'subreads' with ID=17:

```

{
  "name" : "SubreadSetFromMetadata",
  "updatedAt" : "2015-11-16T14:21:50.017",
  "path" : "/pbi/collections/313/r54004_20151116_214425/1_A01/m54004_151116_214433.subreadset.xml",
  "tags" : "subreadset",
  "instrumentName" : "Inst54004",
}

```

```
"uuid" : "c8d700d8-f159-408e-bfb9-31253bc58c22",
"totalLength" : 840213826,
"projectId" : 1,
"numRecords" : 1036808,
"wellSampleName" : "\"TestSample\"",
"bioSampleName" : "unknown",
"version" : "3.0.0",
"id" : 17,
"md5" : "78049092e54b6e7b520547fc484f7b89",
"jobId" : 12,
"createdAt" : "2015-11-16T14:21:50.017",
"wellName" : "SamplePlate-1-A-1",
"cellIndex" : 0,
"userId" : 1,
"metadataContextId" : "m54004_151116_214433",
"runName" : "unknown",
"comments" : " "
}
```

### 3.1.6 Retrieve Dataset Details by Type and Id

Fetch the dataset's XML by its ID within its dataset type, and deserialize the raw XML into JSON.

---

**Note:** A dataset type is specified by its short name; the short names of dataset types are available in the response to [List All Dataset Types](#) request.

---

#### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/datasets/{shortName}/{id}/details">http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/datasets/{shortName}/{id}/details</a> |

| Path Parameters | Data Type | Description   | Required | Multi-valued | Possible Values   |
|-----------------|-----------|---|----------|--------------|---|
| shortName       | string    | Short name of a dataset type; list of all possible dataset types with their short names may be obtained through <a href="#">List All Dataset Types</a> request; use values from “shortName” fields of Dataset Type objects. | Yes      | No           | alignments<br>barcodes<br>contigs<br>ccsalignments<br>ccsreads<br>hdfsubreads<br>references<br>subreads |
| id              | integer   | Unique identifier of a dataset within its dataset type; valid values can be found in “id” fields of objects returned by <a href="#">List All Datasets by Type</a> request   | Yes      | No           | 4<br>12<br>17<br>133  |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Retrieve the deserialized XML of the dataset object of type ‘references’ with ID=12:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/references/12/details>

Retrieve the deserialized XML of the dataset object of type ‘subreads’ with ID=17:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/datasets/subreads/17/details>



## Response

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request.   |
| 404 Not Found      | The requested resource could not be found.  | Occurs when an invalid value of shortName (non-existing dataset type) is passed in the request. Note: To get the list of valid shortName values, use <a href="#">List All Dataset Types</a> request.                    |
| 404 Not Found      | Unable to find reference details dataset '122'.   | Occurs when an invalid value of ID (non-existing dataset identifier within its dataset type) is passed in the request. Note: To get the list of valid ID values, use <a href="#">List All Datasets by Type</a> request. |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml   |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Thu, 28 Jan 2016 00:23:26 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 10958                           |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema   |
|------------------|---|
| application/json | See <a href="#">Retrieve dataset details by type and id - response schema</a> |

## Sample Response

See [Retrieve dataset details by type and id - response sample](#)

## Additional Information

| Authentication                   | Technical Support  |
|----------------------------------|--|
| See <a href="#">Introduction</a> | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

## Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.0 | New service endpoint.  | N/A                 |

## Retrieve dataset details by type and id - response schema

**Note:** The following schema definition is a JSON translation of the generic PacBioDataModel.xsd schema.

Example 1: Schema for dataset details for an object of 'references' type:

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.references.details",
  "version" : "0.1.0",
  "title" : "Reference Dataset Details",
  "description" : "The raw XML of Reference DataSet de-serialized into JSON",
  "type" : "object",
  "properties" : {
    "Name" : {
      "title" : "Dataset Name",
      "description" : "Name of this dataset",
      "type" : "string"
    },
    "Version" : {
      "title" : "Dataset Version",
      "description" : "Software version corresponding to this dataset",
      "type" : "string"
    },
    "CreatedAt" : {
      "title" : "Created at",
      "description" : "Time when the dataset XML was created",
      "type" : "string",
      "format" : "date-time"
    },
    "UniqueId" : {
      "title" : "Dataset UUID",
      "description" : "UUID of the dataset XML",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "MetaType" : {
      "title" : "Dataset MetaType",
      "description" : "MetaType of this dataset, e.g. PacBio.DataSet.ReferenceSet",
      "type" : "string"
    },
    "TimeStampedName" : {
      "title" : "Time-stamped Dataset Name",
      "description" : "Time-stamped name of the dataset XML, e.g. referenceset_150304_231155",
      "type" : "string"
    },
    "ExternalResources" : {
      "title" : "Dataset External Resources",
      "description" : "External resources of this dataset",
      "type" : "object",
      "properties" : {
```

```

"ExternalResource" : {
  "title" : "Dataset External Resource",
  "description" : "External resource of this dataset",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "Name" : {
        "title" : "External Resource Name",
        "description" : "Name of this external resource",
        "type" : "string"
      },
      "Description" : {
        "title" : "External Resource Description",
        "description" : "Description of this external resource",
        "type" : "string"
      },
      "Tags" : {
        "title" : "External Resource Tags",
        "description" : "Tags of this external resource",
        "type" : "string"
      },
      "ResourceId" : {
        "title" : "External Resource ID",
        "description" : "ID of this external resource, in form of file path",
        "type" : "string"
      },
      "UniqueId" : {
        "title" : "External Resource UUID",
        "description" : "UUID of this external resource",
        "type" : "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}$"
      },
      "MetaType" : {
        "title" : "External Resource MetaType",
        "description" : "Resource metatype, e.g. PacBio.References.ReferenceFastaFile",
        "type" : "string"
      },
      "TimeStampedName" : {
        "title" : "Time-stamped External Resource Name",
        "description" : "Time-stamped name of this external resource",
        "type" : "string"
      },
      "FileIndices" : {
        "title" : "File Indices of External Resource",
        "description" : "File indices of this external resource",
        "type" : "object",
        "properties" : {
          "FileIndex" : {
            "title" : "File Index of External Resource",
            "description" : "File index of this external resource",
            "type" : "array",
            "minItems" : 1,
            "items" : {
              "type" : "object",
              "properties" : {

```

```

    "ResourceId" : {
      "title" : "File Index Resource ID",
      "description" : "Resource ID of this file index, in form of file path",
      "type" : "string"
    }
    "UniqueId" : {
      "title" : "File Index UUID",
      "description" : "UUID of this file index",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-"
    },
    "MetaType" : {
      "title" : "File Index MetaType",
      "description" : "File index metatype, e.g. PacBio.Index.FastaContigIndex",
      "type" : "string"
    },
    "TimeStampedName" : {
      "title" : "Time-stamped File Index Name",
      "description" : "Time-stamped name of this file index",
      "type" : "string"
    }
  }
}
}
}
}
}
}
}
}
}
}
},
"DataSetMetadata" : {
  "title" : "Dataset Metadata",
  "description" : "Metadata of this dataset",
  "type" : "object",
  "properties" : {
    "TotalLength" : {
      "title" : "Dataset Total Length",
      "description" : "Total length of this dataset",
      "type" : "integer"
    },
    "NumRecords" : {
      "title" : "Number of Records",
      "description" : "Number of records in this dataset",
      "type" : "integer"
    },
    "Organism" : {
      "title" : "Organism",
      "description" : "Organism corresponding to this dataset",
      "type" : "string"
    },
    "Ploidy" : {
      "title" : "Ploidy",
      "description" : "Ploidy corresponding to this dataset",
      "type" : "string"
    },
    "Contigs" : {

```

```

    "title" : "Dataset Contigs",
    "description" : "Contigs for this dataset",
    "type" : "object"
    "properties" : {
      "Contig" : {
        "title" : "Dataset Contig",
        "description" : "Contig of this dataset",
        "type" : "array",
        "minItems" : 1,
        "items" : {
          "type" : "object",
          "properties" : {
            "Name" : {
              "title" : "Contig Name",
              "description" : "Name of this contig",
              "type" : "string"
            },
            "Description" : {
              "title" : "Contig Description",
              "description" : "Description of this contig",
              "type" : "string"
            },
            "Length" : {
              "title" : "Contig Length",
              "description" : "Length of this contig",
              "type" : "integer"
            },
            "Digest" : {
              "title" : "Contig Digest",
              "description" : "Digest of this contig",
              "type" : "string"
            }
          }
        }
      }
    }
  }
}

```

Example 2: Schema for dataset details for an object of 'subreads' type:

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.subreads.details",
  "version" : "0.1.0",
  "title" : "Subread Dataset Details",
  "description" : "The raw XML of Subread DataSet de-serialized into JSON",
  "type" : "object",
  "properties" : {
    "Name" : {
      "title" : "Dataset Name",

```

```

    "description" : "Name of this dataset",
    "type" : "string"
  },
  "Tags" : {
    "title" : "Dataset Tags",
    "description" : "Tags of this dataset",
    "type" : "string"
  },
  "Version" : {
    "title" : "Dataset Version",
    "description" : "Software version corresponding to this dataset",
    "type" : "string"
  },
  "UniqueId" : {
    "title" : "Dataset UUID",
    "description" : "UUID of the dataset XML",
    "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "MetaType" : {
    "title" : "Dataset MetaType",
    "description" : "MetaType of this dataset, e.g. PacBio.DataSet.SubreadSet",
    "type" : "string"
  },
  "TimeStampedName" : {
    "title" : "Time-stamped Dataset Name",
    "description" : "Time-stamped name of the dataset XML, e.g. subreadbamfile_151116_221101",
    "type" : "string"
  },
  "ExternalResources" : {
    "title" : "Dataset External Resources",
    "description" : "External resources of this dataset",
    "type" : "object",
    "properties" : {
      "ExternalResource" : {
        "title" : "Dataset External Resource",
        "description" : "External resource of this dataset",
        "type" : "array",
        "minItems" : 1,
        "items" : {
          "type" : "object",
          "properties" : {
            "Name" : {
              "title" : "External Resource Name",
              "description" : "Name of this external resource",
              "type" : "string"
            },
            "Description" : {
              "title" : "External Resource Description",
              "description" : "Description of this external resource",
              "type" : "string"
            },
            "ResourceId" : {
              "title" : "External Resource ID",
              "description" : "ID of this external resource, in form of file path",
              "type" : "string"
            }
          }
        }
      }
    }
  }
}

```

```

"Version" : {
  "title" : "External Resource Version",
  "description" : "Software version corresponding to this external resource",
  "type" : "string"
},
"UniqueId" : {
  "title" : "External Resource UUID",
  "description" : "UUID of this external resource",
  "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}$"
},
"MetaType" : {
  "title" : "External Resource MetaType",
  "description" : "Resource metatype, e.g. PacBio.Subreads.ScrapBamFile",
  "type" : "string"
},
"TimeStampedName" : {
  "title" : "Time-stamped External Resource Name",
  "description" : "Time-stamped name of this external resource",
  "type" : "string"
},
"FileIndices" : {
  "title" : "File Indices of External Resource",
  "description" : "File indices of this external resource",
  "type" : "object",
  "properties" : {
    "FileIndex" : {
      "title" : "File Index of External Resource",
      "description" : "File index of this external resource",
      "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "object",
        "properties" : {
          "ResourceId" : {
            "title" : "File Index Resource ID",
            "description" : "Resource ID (file path) of this file index",
            "type" : "string"
          },
          "Version" : {
            "title" : "File Index Version",
            "description" : "Software version of this file index",
            "type" : "string"
          },
          "UniqueId" : {
            "title" : "File Index UUID",
            "description" : "UUID of this file index",
            "type" : "string",
            "format" : "uuid",
            "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}$"
          },
          "MetaType" : {
            "title" : "File Index MetaType",
            "description" : "Index metatype, e.g. PacBio.Index.PacBioIndex",
            "type" : "string"
          },
          "TimeStampedName" : {

```

```

        "title" : "Time-stamped File Index Name",
        "description" : "Time-stamped name of this file index",
        "type" : "string"
    }
}
}
}
}
}
}
}
},
"DataSetMetadata" : {
    "title" : "Dataset Metadata",
    "description" : "Metadata of this dataset",
    "type" : "object",
    "properties" : {
        "TotalLength" : {
            "title" : "Dataset Total Length",
            "description" : "Total length of this dataset",
            "type" : "integer"
        },
        "NumRecords" : {
            "title" : "Number of Records",
            "description" : "Number of records in this dataset",
            "type" : "integer"
        },
        "Collections" : {
            "title" : "Dataset Collections",
            "description" : "Collections for this dataset",
            "type" : "object"
            "properties" : {
                "CollectionMetadata" : {
                    "title" : "Dataset Collection",
                    "description" : "Collection of this dataset",
                    "type" : "array",
                    "minItems" : 1,
                    "items" : {
                        "type" : "object",
                        "properties" : {
                            "CreatedAt" : {
                                "title" : "Created at",
                                "description" : "Time when the dataset collection was created",
                                "type" : "string",
                                "format" : "date-time"
                            },
                            "ModifiedAt" : {
                                "title" : "Modified at",
                                "description" : "Time when the dataset collection was modified",
                                "type" : "string",
                                "format" : "date-time"
                            },
                            "UniqueId" : {
                                "title" : "Collection UUID",
                                "description" : "UUID of this collection",
                                "type" : "string",

```



```

    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]
},
"MetaType" : {
  "title" : "Collection MetaType",
  "description" : "MetaType of this collection",
  "type" : "string"
},
"Context" : {
  "title" : "Collection Context",
  "description" : "Context of this collection",
  "type" : "string"
},
"InstrumentId" : {
  "title" : "Instrument Id",
  "description" : "Instrument Id corresponding to this collection",
  "type" : "string"
},
"InstrumentName" : {
  "title" : "Instrument Name",
  "description" : "Instrument name corresponding to this collection",
  "type" : "string"
},
"WellSample" : {
  "title" : "Collection Well Sample",
  "description" : "Well sample of this collection",
  "type" : "object"
  "properties" : {
    "Name" : {
      "title" : "Sample Name",
      "description" : "Name of this sample",
      "type" : "string"
    },
    "CreatedAt" : {
      "title" : "Created at",
      "description" : "Time when this well sample was created",
      "type" : "string",
      "format" : "date-time"
    },
    "ModifiedAt" : {
      "title" : "Modified at",
      "description" : "Time when this well sample was modified",
      "type" : "string",
      "format" : "date-time"
    },
    "Well Name" : {
      "title" : "Well Name",
      "description" : "Name of this well",
      "type" : "string"
    },
    "Concentration" : {
      "title" : "Concentration",
      "description" : "Concentration of this well sample",
      "type" : "number"
    },
    "InsertSize" : {
      "title" : "Insert Size",
      "description" : "Insert size of this well sample",

```

```

        "type" : "integer"
    },
    "SampleReuseEnabled" : {
        "title" : "Sample Reuse Enabled",
        "description" : "Whether sample reuse is enabled",
        "type" : "boolean"
    },
    "StageHotstartEnabled" : {
        "title" : "Stage Hotstart Enabled",
        "description" : "Whether stage hotstart is enabled",
        "type" : "boolean"
    },
    "SizeSelectionEnabled" : {
        "title" : "Size Selection Enabled",
        "description" : "Whether size selection is enabled",
        "type" : "boolean"
    },
    "UseCount" : {
        "title" : "Use Count",
        "description" : "Use count of this well sample",
        "type" : "integer"
    }
}
},
"Automation" : {
    "title" : "Collection Automation",
    "description" : "Automation of this collection",
    "type" : "object"
    "properties" : {
        "AutomationParameters" : {
            "title" : "Collection Automation Parameters",
            "description" : "Automation parameters of this collection",
            "type" : "object"
            "properties" : {
                "AutomationParameter" : {
                    "title" : "Collection Automation Parameter",
                    "description" : "Automation parameter of the collection",
                    "type" : "array",
                    "minItems" : 1,
                    "items" : {
                        "type" : "object",
                        "properties" : {
                            "Name" : {
                                "title" : "Automation Parameter Name",
                                "description" : "Automation parameter name",
                                "type" : "string"
                            },
                            "CreatedAt" : {
                                "title" : "Created at",
                                "description" : "Parameter creation time",
                                "type" : "string",
                                "format" : "date-time"
                            },
                            "ModifiedAt" : {
                                "title" : "Modified at",
                                "description" : "Parameter modification time",
                                "type" : "string",
                                "format" : "date-time"
                            }
                        }
                    }
                }
            }
        }
    }
}

```

```

    },
    "ValueDataType" : {
      "title" : "Automation Parameter Value Data Type",
      "description" : "Automation parameter data type",
      "type" : "string"
    },
    "SimpleValue" : {
      "title" : "Automation Parameter Simple Value",
      "description" : "Automation parameter value",
      "type" : "string"
    }
  }
}
},
"CollectionNumber" : {
  "title" : "Collection Number",
  "description" : "Collection number",
  "type" : "integer"
},
"CellIndex" : {
  "title" : "Cell Index",
  "description" : "Cell index of this collection",
  "type" : "integer"
},
"CellPac" : {
  "title" : "Cell Pac",
  "description" : "Cell pack of this collection",
  "type" : "object"
  "properties" : {
    "PartNumber" : {
      "title" : "Part Number",
      "description" : "Part number",
      "type" : "string"
    },
    "LotNumber" : {
      "title" : "Lot Number",
      "description" : "Lot number",
      "type" : "string"
    },
    "Barcode" : {
      "title" : "Barcode",
      "description" : "Barcode",
      "type" : "string"
    },
    "ExpirationDate" : {
      "title" : "Expiration Date",
      "description" : "Expiration date",
      "type" : "string",
      "format" : "date-time"
    }
  }
},
"TemplatePrepKit" : {
  "title" : "Template Prep Kit",

```

```

"description" : "Template prep kit of this collection",
"type" : "object"
"properties" : {
  "Name" : {
    "title" : "Name",
    "description" : "Name",
    "type" : "string"
  },
  "PartNumber" : {
    "title" : "Part Number",
    "description" : "Part number",
    "type" : "string"
  },
  "LotNumber" : {
    "title" : "Lot Number",
    "description" : "Lot number",
    "type" : "string"
  },
  "Barcode" : {
    "title" : "Barcode",
    "description" : "Barcode",
    "type" : "string"
  },
  "ExpirationDate" : {
    "title" : "Expiration Date",
    "description" : "Expiration date",
    "type" : "string",
    "format" : "date-time"
  },
  "MinInsertSize" : {
    "title" : "Min Insert Size",
    "description" : "Min insert size",
    "type" : "integer"
  },
  "MaxInsertSize" : {
    "title" : "Max Insert Size",
    "description" : "Max insert size",
    "type" : "integer"
  },
  "LeftAdaptorSequence" : {
    "title" : "Left Adaptor Sequence",
    "description" : "Left adaptor sequence",
    "type" : "string"
  },
  "RightAdaptorSequence" : {
    "title" : "Right Adaptor Sequence",
    "description" : "Right adaptor sequence",
    "type" : "string"
  }
}
},
"BindingKit" : {
  "title" : "Binding Kit",
  "description" : "Binding kit of this collection",
  "type" : "object"
  "properties" : {
    "Name" : {
      "title" : "Name",

```



```

    }
  }
}

```

### Retrieve dataset details by type and id - response sample

Sample 1 - retrieve the deserialized XML of the dataset object of type 'references' with ID=12:

```

{
  "Name" : "All4mer_V2_44_circular_72x_150256",
  "Version" : "3.0.1",
  "CreatedAt" : "2015-11-16T11:16:54.366-08:00",
  "UniqueId" : "83495502-6233-4379-9e06-fd43fb0738c4",
  "MetaType" : "PacBio.DataSet.ReferenceSet",
  "TimeStampedName" : "referenceset_150304_231155",
  "ExternalResources" : {
    "ExternalResource" : [{
      "Name" : "First References FASTA",
      "Description" : "Points to an example references FASTA file.",
      "Tags" : "converted",
      "ResourceId" : "./sequence/All4mer_V2_44_circular_72x_150256.fasta",
      "UniqueId" : "bbbbdc0b-136b-460d-93ec-0353bf74e875",
      "MetaType" : "PacBio.ReferenceFile.ReferenceFastaFile",
      "TimeStampedName" : "pacbio_dataset_index-bbbbbdc0b-136b-460d-93ec-0353bf74e875",
      "FileIndices" : {
        "FileIndex" : [{
          "ResourceId" : "./sequence/All4mer_V2_44_circular_72x_150256.fasta.contig.index",
          "UniqueId" : "bd2c4b9e-b319-4c43-b3fe-5a18f017c94e",
          "MetaType" : "PacBio.Index.FastaContigIndex",
          "TimeStampedName" : "pacbio_dataset_index-bd2c4b9e-b319-4c43-b3fe-5a18f017c94e"
        }, {
          "ResourceId" : "./sequence/All4mer_V2_44_circular_72x_150256.fasta.fai",
          "UniqueId" : "5794ef86-f247-425b-9ff2-cabb84d87397",
          "MetaType" : "PacBio.Index.SamIndex",
          "TimeStampedName" : "pacbio_dataset_index-5794ef86-f247-425b-9ff2-cabb84d87397"
        }, {
          "ResourceId" : "./sequence/All4mer_V2_44_circular_72x_150256.fasta.index",
          "UniqueId" : "a428c173-9ee9-47bd-b272-98da4445518a",
          "MetaType" : "PacBio.Index.Indexer",
          "TimeStampedName" : "pacbio_dataset_index-a428c173-9ee9-47bd-b272-98da4445518a"
        }, {
          "ResourceId" : "./sequence/All4mer_V2_44_circular_72x_150256.fasta.sa",
          "UniqueId" : "cc374eff-c34e-4a47-9f2c-bcf001901b63",
          "MetaType" : "PacBio.Index.SaWriterIndex",
          "TimeStampedName" : "pacbio_dataset_index-cc374eff-c34e-4a47-9f2c-bcf001901b63"
        }
      ]
    }
  ]
},
  "DataSetMetadata" : {

```

```

"TotalLength" : 50256,
"NumRecords" : 1,
"Organism" : "All4mer_V2_44_circular_72x_150256",
"Ploidy" : "haploid",
"Contigs" : {
  "Contig" : {
    "Name" : "ref000001",
    "Description" : "All4mer.V2.44_circular_72x_150256",
    "Length" : "50256",
    "Digest" : "efbac09bb1f5e5449f51d3c741687612"
  }
}
}
}

```

Sample 2 - retrieve the deserialized XML of the dataset object of type 'subreads' with ID=17:

```

{
  "Name" : "SubreadSetFromMetadata",
  "Tags" : "subreadset",
  "Version" : "3.0.0",
  "UniqueId" : "c8d700d8-f159-408e-bfb9-31253bc58c22",
  "MetaType" : "PacBio.DataSet.SubreadSet",
  "TimeStampedName" : "SubreadSetCollection_151116_221101282",
  "ExternalResources" : {
    "ExternalResource" : [{
      "Name" : "subreads bam",
      "Description" : "Points to the subreads bam file.",
      "ResourceId" : "m54004_151116_214433.subreads.bam",
      "Version" : "3.0.1",
      "UniqueId" : "4dc1f25a-63f4-453b-a43f-b98e3bda1ca3",
      "MetaType" : "PacBio.SubreadFile.SubreadBamFile",
      "TimeStampedName" : "pacbio_subreadfile_subreadbamfile-151116_221101342",
      "FileIndices" : {
        "FileIndex" : [{
          "ResourceId" : "m54004_151116_214433.subreads.bam.pbi",
          "Version" : "3.0.1",
          "UniqueId" : "5ab7b3cf-3689-49f0-b984-924dd3c95d91",
          "MetaType" : "PacBio.Index.PacBioIndex",
          "TimeStampedName" : "pacbio_index_pacbioindex-151116_221101342"
        }
      ]
    }
  ],
  "ExternalResources" : {
    "ExternalResource" : [{
      "Name" : "scraps bam",
      "Description" : "Points to the scraps bam file.",
      "ResourceId" : "m54004_151116_214433.scraps.bam",
      "Version" : "3.0.1",
      "UniqueId" : "61963fe2-e408-4fba-aa5d-a4169d306520",
      "MetaType" : "PacBio.SubreadFile.ScrapsBamFile",
      "TimeStampedName" : "pacbio_subreadfile_scrapsbamfile-151116_221101344",
      "FileIndices" : {

```





```

"Collections" : {
  "CollectionMetadata" : [{
    "CreatedAt" : "0001-01-01T00:00:00",
    "ModifiedAt" : "0001-01-01T00:00:00",
    "UniqueId" : "edafcb47-8bd8-427f-be3f-49aee347791e",
    "MetaType" : "CollectionMetadata",
    "Context" : "m54004_151116_214433",
    "InstrumentId" : "54004",
    "InstrumentName" : "Inst54004",
    "WellSample" : {
      "Name" : "\"TestSample\"",
      "CreatedAt" : "0001-01-01T00:00:00",
      "ModifiedAt" : "0001-01-01T00:00:00",
      "WellName" : "SamplePlate-1-A-1",
      "Concentration" : 0.0,
      "InsertSize" : 0,
      "SampleReuseEnabled" : false,
      "StageHotstartEnabled" : true,
      "SizeSelectionEnabled" : false,
      "UseCount" : 0
    },
    },
  "Automation" : {
    "Name" : "manualcellprep.py",
    "AutomationParameters" : {
      "AutomationParameter" : [{
        "Name" : "Exposure",
        "CreatedAt" : "0001-01-01T00:00:00",
        "ModifiedAt" : "0001-01-01T00:00:00",
        "ValueDataType" : "Double",
        "SimpleValue" : "0.0125"
      }, {
        "Name" : "CouplerLaserPower",
        "CreatedAt" : "0001-01-01T00:00:00",
        "ModifiedAt" : "0001-01-01T00:00:00",
        "ValueDataType" : "Double",
        "SimpleValue" : "15.0"
      }, {
        "Name" : "ActiveLaserPower",
        "CreatedAt" : "0001-01-01T00:00:00",
        "ModifiedAt" : "0001-01-01T00:00:00",
        "ValueDataType" : "String",
        "SimpleValue" : "False"
      }, {
        "Name" : "MovieLength",
        "CreatedAt" : "0001-01-01T00:00:00",
        "ModifiedAt" : "0001-01-01T00:00:00",
        "ValueDataType" : "Double",
        "SimpleValue" : "20.0"
      }, {
        "Name" : "CellAtStage",
        "CreatedAt" : "0001-01-01T00:00:00",
        "ModifiedAt" : "0001-01-01T00:00:00",
        "ValueDataType" : "String",
        "SimpleValue" : "True"
      }, {
        "Name" : "sequencingPixelROI",
        "CreatedAt" : "0001-01-01T00:00:00",
        "ModifiedAt" : "0001-01-01T00:00:00",

```

```

        "ValueDataType" : "JSON",
        "SimpleValue" : "[[0,0,1080,1920]]"
    }, {
        "Name" : "traceFilePixelROI",
        "CreatedAt" : "0001-01-01T00:00:00",
        "ModifiedAt" : "0001-01-01T00:00:00",
        "ValueDataType" : "JSON",
        "SimpleValue" : "[[103,192,64,128],[373,192,64,128],[643,192,64,128]]"
    }, {
        "Name" : "UseStageHotStart",
        "CreatedAt" : "0001-01-01T00:00:00",
        "ModifiedAt" : "0001-01-01T00:00:00",
        "ValueDataType" : "String",
        "SimpleValue" : "False"
    }, {
        "Name" : "CollectionNumber",
        "ValueDataType" : "Int32",
        "SimpleValue" : "0"
    }, {
        "Name" : "CellReuseIndex",
        "ValueDataType" : "Int32",
        "SimpleValue" : "0"
    }, {
        "Name" : "CollectionNumber",
        "ValueDataType" : "Int32",
        "SimpleValue" : "0"
    }, {
        "Name" : "CellReuseIndex",
        "ValueDataType" : "Int32",
        "SimpleValue" : "0"
    }
    ]
}
},
"CollectionNumber" : 0,
"CellIndex" : 0,
"CellPac" : {
    "PartNumber" : "100-513-100",
    "LotNumber" : "007777",
    "Barcode" : "00000133635833070737064980",
    "ExpirationDate" : "2015-02-14"
},
"TemplatePrepKit" : {
    "Name" : "SMRTbell™ Template Prep Kit",
    "PartNumber" : "100259100",
    "LotNumber" : "333333",
    "Barcode" : "333333100259100092215",
    "ExpirationDate" : "2020-09-22",
    "MinInsertSize" : 500,
    "MaxInsertSize" : 20000,
    "LeftAdaptorSequence" : "ATCTCTCTcttttcctcctcctccggttggttggtGAGAGAGAT",
    "RightAdaptorSequence" : "ATCTCTCTcttttcctcctcctccggttggttggtGAGAGAGAT"
},
"BindingKit" : {
    "Name" : "Sequel Binding Kit v1",
    "PartNumber" : "100-619-300",
    "LotNumber" : "444444",
    "Barcode" : "444444100619300092215",

```

```
    "ExpirationDate" : "2020-09-22"
  },
  "SequencingKitPlate" : {
    "PartNumber" : "100-620-000",
    "LotNumber" : "002222",
    "Barcode" : "002222100620000123115",
    "ExpirationDate" : "2015-12-31"
  },
  "Primary" : {
    "AutomationName" : "SequelAlpha",
    "ConfigFileName" : "SqlPoC_SubCrf_2C2A-t2.xml",
    "OutputOptions" : {
      "ResultsFolder" : "Analysis_Results",
      "CollectionPathUri" : "rsync://pbi_collections/313/r54004_20151116_214425/1_A01/",
      "CopyFiles" : {
        "CollectionFileCopy" : ["Trace", "Fasta", "Bam", "Baz"]
      },
      "Readout" : "Bases",
      "MetricsVerbosity" : "High"
    }
  },
  "Secondary" : {
    "CellCountInJob" : 0
  },
  "UserDefinedFields" : {
    "DataEntities" : [{
      "ValueDataType" : "String"
    }, {
      "ValueDataType" : "String"
    }, {
      "ValueDataType" : "String"
    }, {
      "ValueDataType" : "String"
    }, {
      "ValueDataType" : "String"
    }
  ]
}
]
```

## 3.2 Jobs Service

### 3.2.1 Overview of Jobs Service

#### Use Cases

The Jobs Service enables creating and viewing jobs, as well as retrieving job datastores, reports and events.

## Key Concepts

Jobs may be categorized as *Dataset Manipulation jobs* and *Analysis jobs*.

**Dataset Manipulation jobs** enable dataset creation through:

- Importing a dataset from a file
- Importing a datastore from a file
- Merging two datasets of the same type
- Converting an HDF5 file into a dataset
- Converting a reference FASTA file into a dataset

**Analysis job** is defined as a set of the following information:

- An analysis *workflow template* (e.g. resequencing) that refers to a series of *tasks* necessary to perform the analysis;
- Analysis *options* and *parameters*;
- One or more input *datasets*;
- Optional analysis *metadata*, such as a name, comments, owner, permissions.

## Job Types

Job Types list:

- import-dataset: Import a Pacbio DataSet XML file
- import-datastore: Import a PacBio DataStore JSON file
- merge-datasets: Merge PacBio XML DataSets of the same type
- convert-rs-movie: Import RS metadata.xml and create an HdfSubread DataSet XML file
- convert-fasta-reference: Import a FASTA reference file and create a Reference DataSet XML file
- pbsmrtpipe: Run a Secondary Analysis pbsmrtpipe job

---

**Note:** Two more job types returned by [List All Job Types](#) request - 'simple' and 'mock-pbsmrtpipe' - are not in scope of this documentation, as they are used for development/debugging/testing purposes only.

---

## Job States

Job States list:

- CREATED: Job resource has been created
- SUBMITTED: Job has been submitted to compute resource
- RUNNING: Job is currently executing
- SUCCESSFUL: Job has successfully completed execution
- FAILED: Job has one or more failed tasks
- KILLED: Job is forcefully killed
- STOPPED: No more tasks will be submitted, but currently running tasks will be allowed to complete

### 3.2.2 List All Job Types

Get the list of all job types.

#### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/job-manager/job-types">http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/job-manager/job-types</a> |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

#### Sample Request

Get the list of all job types:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/job-types>

#### Response

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request.   |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Thu, 04 Feb 2016 18:24:30 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 877                             |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema           |
|------------------|---|
| application/json | See <i>List all job types - response schema</i> |

### Sample Response

See *List all job types - response sample*

### Additional Information

| Authentication   | Technical Support        |
|------------------|--------------------------|
| See Introduction | E-mail: support@pacb.com |

### Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.0 | New service endpoint.  | N/A                 |

### List all job types - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.jobs.types.list",
  "version" : "0.1.0",
  "title" : "Jobs Types List",
  "description" : "Array of objects describing Job Types",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "jobTypeId" : {
        "title" : "Job Type Id",
        "description" : "Identifier of this job type",
        "type" : "string"
      },
      "description" : {
        "title" : "Job Type Description",
        "description" : "Description of this job type",
        "type" : "string"
      }
    }
  },
  "required" : [
    "jobTypeId",
    "description"
  ]
},
"additionalItems" : false
}
```

### List all job types - response sample

```
[{
  "jobTypeId" : "convert-rs-movie",
  "description" : "Import RS metadata.xml and create an HdfSubread DataSet XML file"
}, {
  "jobTypeId" : "mock-pbsmrtpipe",
  "description" : "Mock Pbsmrtpipe Job used for Development purposes"
}, {
  "jobTypeId" : "pbsmrtpipe",
  "description" : "Run a Secondary Analysis pbsmrtpipe job"
}, {
  "jobTypeId" : "simple",
  "description" : "Simple Job for debugging and development"
}, {
  "jobTypeId" : "merge-datasets",
  "description" : "Merge PacBio XML DataSets (Subread, HdfSubread dataset types are supported)"
}, {
  "jobTypeId" : "import-datastore",
  "description" : "Import a PacBio DataStore JSON file"
}, {
  "jobTypeId" : "convert-fasta-reference",
  "description" : "Import a FASTA reference file and create a Reference DataSet XML file"
}, {
  "jobTypeId" : "import-dataset",
  "description" : "Import a Pacbio DataSet XML file"
}
]
```

### 3.2.3 List All Jobs by Type

Get the list of all job objects of a specific type available on the system.

---

**Note:** Job type identifiers and descriptions are available in the response to [List All Job Types](#) request.

---

#### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/job-manager/jobs/{jobTypeId}">http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/job-manager/jobs/{jobTypeId}</a> |

| Path Parameters | Data Type | Description   | Required | Multi-valued | Possible Values   |
|-----------------|-----------|---|----------|--------------|---|
| jobTypeId       | string    | Job type / category; list of all possible job types may be obtained through <a href="#">List All Job Types</a> request. | Yes      | No           | import-dataset<br>import-datastore<br>merge-datasets<br>convert-rs-movie<br>convert-fasta-reference<br>pbsmrtpipe |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Get the list of all jobs of type 'import-dataset' available on the system:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/import-dataset>

Get the list of all jobs of type 'convert-fasta-reference' available on the system:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/convert-fasta-reference>

### Response

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request. Note: If there are no jobs corresponding to job type specified in {jobTypeId}, then the response still will be 200 OK, with an empty jobs array in the response body. |
| 404 Not Found      | The requested resource could not be found.  | Occurs when an invalid value of jobTypeId (non-existing job type) is passed in the request. Note: To get the list of valid jobTypeId values, use <a href="#">List All Job Types</a> request.                |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml   |



| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Thu, 04 Feb 2016 23:06:16 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 1211150                         |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema              |
|------------------|--|
| application/json | See <i>List all jobs by type - response schema</i> |

### Sample Response

See *List all jobs by type - response sample*

### Additional Information

| Authentication   | Technical Support        |
|------------------|--------------------------|
| See Introduction | E-mail: support@pacb.com |

### Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.0 | New service endpoint.  | N/A                 |

### List all jobs by type - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.jobs.list",
  "version" : "0.1.0",
  "title" : "Jobs List",
  "description" : "Array of Job objects",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "name" : {
        "title" : "Job Name",
        "description" : "Name of this job",
        "type" : "string"
      },
      "jobTypeId" : {
        "title" : "Job Type Id",
```

```

    "description" : "Type identifier of this job",
    "type" : "string"
  },
  "id" : {
    "title" : "Job Id",
    "description" : "Identifier of this job",
    "type" : "integer"
  },
  "uuid" : {
    "title" : "UUID",
    "description" : "UUID of this job",
    "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when this job was created",
    "type" : "string",
    "format" : "date-time"
  },
  "updatedAt" : {
    "title" : "Updated at",
    "description" : "Time when this job was updated",
    "type" : "string",
    "format" : "date-time"
  },
  "path" : {
    "title" : "Job path",
    "description" : "Path to the job folder",
    "type" : "string",
    "format" : "uri"
  },
  "state" : {
    "title" : "Job State",
    "description" : "Job state (CREATED, SUBMITTED, RUNNING, SUCCESSFUL, FAILED, KILLED, STOPPED)",
    "type" : "string"
  },
  "comment" : {
    "title" : "Comment",
    "description" : "Comment describing this job",
    "type" : "string"
  },
  "jsonSettings" : {
    "title" : "JSON Settings",
    "description" : "Serialized JSON file that contains settings for this job",
    "type" : "string"
  }
},
"required" : [
  "name",
  "jobTypeId",
  "id",
  "uuid",
  "createdAt",
  "updatedAt",
  "path",
  "state",

```

```

    "comment",
    "jsonSettings"
  ]
},
"additionalItems" : false
}

```

### List all jobs by type - response sample

Sample 1 - get the list of all jobs of type 'import-dataset':

```

[ {
  "name" : "Job import-dataset",
  "updatedAt" : "2015-11-13T11:50:17.801-08:00",
  "path" : "/pbi/smrtsuite_166987/jobs/002",
  "state" : "SUCCESSFUL",
  "uuid" : "72804c90-1868-481a-9b55-4b734e858a17",
  "jobTypeId" : "import-dataset",
  "id" : 2,
  "comment" : "Import DataSet ImportDataSetOptions (/pbi/47.subreadset.xml,PacBio.DataSet.SubreadSet",
  "createdAt" : "2015-11-13T11:50:17.801-08:00",
  "jsonSettings" : "{ \"path\": \"/pbi/47.subreadset.xml\", \"datasetType\": \"PacBio.DataSet.SubreadSet",
}, {
  "name" : "Job import-dataset",
  "updatedAt" : "2015-11-13T11:57:44.743-08:00",
  "path" : "/pbi/smrtsuite_166987/jobs/005",
  "state" : "SUCCESSFUL",
  "uuid" : "6831fc97-38f3-4122-9472-045fbc9c2536",
  "jobTypeId" : "import-dataset",
  "id" : 5,
  "comment" : "Import DataSet ImportDataSetOptions (/pbi/47.subreadset.xml,PacBio.DataSet.SubreadSet",
  "createdAt" : "2015-11-13T11:57:44.743-08:00",
  "jsonSettings" : "{ \"path\": \"/pbi/47.subreadset.xml\", \"datasetType\": \"PacBio.DataSet.SubreadSet",
}, {
  "name" : "Job import-dataset",
  "updatedAt" : "2015-11-16T12:05:46.156-08:00",
  "path" : "/pbi/smrtsuite_166987/jobs/009",
  "state" : "SUCCESSFUL",
  "uuid" : "2f5fc160-0264-4bdf-8445-47a4fb8259ef",
  "jobTypeId" : "import-dataset",
  "id" : 9,
  "comment" : "Import DataSet ImportDataSetOptions (/pbi/19.subreadset.xml,PacBio.DataSet.SubreadSet",
  "createdAt" : "2015-11-16T12:05:46.156-08:00",
  "jsonSettings" : "{ \"path\": \"/pbi/19.subreadset.xml\", \"datasetType\": \"PacBio.DataSet.SubreadSet",
}, {
  "name" : "Job import-dataset",
  "updatedAt" : "2015-11-16T14:21:48.359-08:00",
  "path" : "/pbi/smrtsuite_166987/jobs/012",
  "state" : "SUCCESSFUL",
  "uuid" : "50f8b1d7-c1f7-42f6-accd-93611de7bd7f",
  "jobTypeId" : "import-dataset",
  "id" : 12,
  "comment" : "Import DataSet ImportDataSetOptions (/pbi/33.subreadset.xml,PacBio.DataSet.SubreadSet",
  "createdAt" : "2015-11-16T14:21:48.359-08:00",
}

```

```

    "jsonSettings" : "{ \"path\": \"/pbi/33.subreadset.xml\", \"datasetType\": \"PacBio.DataSet.SubreadSet\" }",
  }, {
    "name" : "Job import-dataset",
    "updatedAt" : "2015-11-16T18:57:38.991-08:00",
    "path" : "/pbi/smrtsuite_166987/jobs/014",
    "state" : "SUCCESSFUL",
    "uuid" : "0c7fe101-8b49-45e6-bc83-0852b10fabef",
    "jobTypeId" : "import-dataset",
    "id" : 14,
    "comment" : "Import DataSet ImportDataSetOptions (/pbi/56.subreadset.xml,PacBio.DataSet.SubreadSet)",
    "createdAt" : "2015-11-16T18:57:38.991-08:00",
    "jsonSettings" : "{ \"path\": \"/pbi/56.subreadset.xml\", \"datasetType\": \"PacBio.DataSet.SubreadSet\" }",
  }, {
    "name" : "Job import-dataset",
    "updatedAt" : "2015-11-16T19:13:52.152-08:00",
    "path" : "/pbi/smrtsuite_166987/jobs/015",
    "state" : "SUCCESSFUL",
    "uuid" : "a5df53e8-c286-43a5-93bf-671137271f43",
    "jobTypeId" : "import-dataset",
    "id" : 15,
    "comment" : "Import DataSet ImportDataSetOptions (/pbi/14.subreadset.xml,PacBio.DataSet.SubreadSet)",
    "createdAt" : "2015-11-16T19:13:52.152-08:00",
    "jsonSettings" : "{ \"path\": \"/pbi/14.subreadset.xml\", \"datasetType\": \"PacBio.DataSet.SubreadSet\" }",
  }, {
    "name" : "Job import-dataset",
    "updatedAt" : "2015-11-16T20:30:50.396-08:00",
    "path" : "/pbi/smrtsuite_166987/jobs/016",
    "state" : "SUCCESSFUL",
    "uuid" : "00057a50-5b6d-476e-8b6a-fa7a19382cbc",
    "jobTypeId" : "import-dataset",
    "id" : 16,
    "comment" : "Import DataSet ImportDataSetOptions (/pbi/28.subreadset.xml,PacBio.DataSet.SubreadSet)",
    "createdAt" : "2015-11-16T20:30:50.396-08:00",
    "jsonSettings" : "{ \"path\": \"/pbi/28.subreadset.xml\", \"datasetType\": \"PacBio.DataSet.SubreadSet\" }",
  }, {
    "name" : "Job import-dataset",
    "updatedAt" : "2015-11-16T21:42:04.686-08:00",
    "path" : "/pbi/smrtsuite_166987/jobs/017",
    "state" : "SUCCESSFUL",
    "uuid" : "14bac755-2357-4ade-b26a-eb6af41e7c77",
    "jobTypeId" : "import-dataset",
    "id" : 17,
    "comment" : "Import DataSet ImportDataSetOptions (/pbi/31.subreadset.xml,PacBio.DataSet.SubreadSet)",
    "createdAt" : "2015-11-16T21:42:04.686-08:00",
    "jsonSettings" : "{ \"path\": \"/pbi/31.subreadset.xml\", \"datasetType\": \"PacBio.DataSet.SubreadSet\" }",
  }, {
    "name" : "Job import-dataset",
    "updatedAt" : "2015-11-16T21:55:31.586-08:00",
    "path" : "/pbi/smrtsuite_166987/jobs/018",
    "state" : "SUCCESSFUL",
    "uuid" : "9ffacda6-4d8c-405f-a3d8-2fbel6f13014",
    "jobTypeId" : "import-dataset",
    "id" : 18,
    "comment" : "Import DataSet ImportDataSetOptions (/pbi/41.subreadset.xml,PacBio.DataSet.SubreadSet)",
    "createdAt" : "2015-11-16T21:55:31.586-08:00",
    "jsonSettings" : "{ \"path\": \"/pbi/41.subreadset.xml\", \"datasetType\": \"PacBio.DataSet.SubreadSet\" }",
  }, {
    "name" : "Job import-dataset",

```

```

    "updatedAt" : "2015-11-17T00:26:51.391-08:00",
    "path" : "/pbi/smrtsuite_166987/jobs/019",
    "state" : "SUCCESSFUL",
    "uuid" : "65fa2786-3b7d-46d5-a34b-bc47ea56d56d",
    "jobTypeId" : "import-dataset",
    "id" : 19,
    "comment" : "Import DataSet ImportDataSetOptions (/pbi/37.subreadset.xml,PacBio.DataSet.SubreadSet",
    "createdAt" : "2015-11-17T00:26:51.391-08:00",
    "jsonSettings" : "{ \"path\": \" /pbi/37.subreadset.xml\", \"datasetType\": \"PacBio.DataSet.SubreadS
  }
]

```

Sample 2 - get the list of all jobs of type 'convert-fasta-reference':

```

[ {
  "name" : "Job convert-fasta-reference",
  "updatedAt" : "2015-11-13T11:50:07.389-08:00",
  "path" : "/pbi/smrtsuite_166987/jobs/001",
  "state" : "SUCCESSFUL",
  "uuid" : "535b9671-4f2d-435a-a4d6-34333dac39d0",
  "jobTypeId" : "convert-fasta-reference",
  "id" : 1,
  "comment" : "Convert Fasta File to DataSet ConvertImportFastaOptions (/pbi/lambdaNEB.fasta)",
  "createdAt" : "2015-11-13T11:50:07.389-08:00",
  "jsonSettings" : "{ \"path\": \" /pbi/lambdaNEB.fasta\", \"name\": \"lambdaNEB\", \"ploidy\": \"haploid\"
}, {
  "name" : "Job convert-fasta-reference",
  "updatedAt" : "2015-11-13T11:57:37.473-08:00",
  "path" : "/pbi/smrtsuite_166987/jobs/004",
  "state" : "SUCCESSFUL",
  "uuid" : "d0a65373-ac76-44c6-afbe-614bc15c6d0e",
  "jobTypeId" : "convert-fasta-reference",
  "id" : 4,
  "comment" : "Convert Fasta File to DataSet ConvertImportFastaOptions (/pbi/lambdaNEB.fasta)",
  "createdAt" : "2015-11-13T11:57:37.473-08:00",
  "jsonSettings" : "{ \"path\": \" /pbi/lambdaNEB.fasta\", \"name\": \"lambdaNEB\", \"ploidy\": \"haploid\"
}, {
  "name" : "Job convert-fasta-reference",
  "updatedAt" : "2015-11-16T11:16:47.758-08:00",
  "path" : "/pbi/smrtsuite_166987/jobs/008",
  "state" : "SUCCESSFUL",
  "uuid" : "a82f550b-0ad2-4d5b-97bc-bfe3a0698905",
  "jobTypeId" : "convert-fasta-reference",
  "id" : 8,
  "comment" : "Convert Fasta File to DataSet ConvertImportFastaOptions (/mnt/circular72x.fasta)",
  "createdAt" : "2015-11-16T11:16:47.758-08:00",
  "jsonSettings" : "{ \"path\": \" /mnt/circular72x.fasta\", \"name\": \"circular72x\", \"ploidy\": \"haploid\"
}, {
  "name" : "Job convert-fasta-reference",
  "updatedAt" : "2015-11-16T13:15:59.267-08:00",
  "path" : "/pbi/smrtsuite_166987/jobs/011",
  "state" : "SUCCESSFUL",
  "uuid" : "d8cb3d9e-e6ee-48c9-9631-1ac29c01fd36",

```

```

"jobTypeId" : "convert-fasta-reference",
"id" : 11,
"comment" : "Convert Fasta File to DataSet ConvertImportFastaOptions(/mnt/circular23x.fasta)",
"createdAt" : "2015-11-16T13:15:59.267-08:00",
"jsonSettings" : "{\"path\":\"/mnt/circular23x.fasta\",\"name\":\"circular23x\",\"ploidy\":\"haploid\"}",
}, {
"name" : "Job convert-fasta-reference",
"updatedAt" : "2015-11-20T09:58:41.035-08:00",
"path" : "/pbi/smrtsuite_166987/jobs/092",
"state" : "FAILED",
"uuid" : "65e2f87f-d361-400d-88e3-42609035bc8f",
"jobTypeId" : "convert-fasta-reference",
"id" : 92,
"comment" : "Convert Fasta File to DataSet ConvertImportFastaOptions(/lustre/reference.fasta)",
"createdAt" : "2015-11-20T09:58:41.035-08:00",
"jsonSettings" : "{\"path\":\"/lustre/reference.fasta\",\"name\":\"hummingbird\",\"ploidy\":\"haploid\"}",
}, {
"name" : "Job convert-fasta-reference",
"updatedAt" : "2015-11-23T10:16:52.771-08:00",
"path" : "/pbi/smrtsuite_166987/jobs/131",
"state" : "SUCCESSFUL",
"uuid" : "50835c35-4f41-44d6-b2fc-7950caf4c5f5",
"jobTypeId" : "convert-fasta-reference",
"id" : 131,
"comment" : "Convert Fasta File to DataSet ConvertImportFastaOptions(/pbi/circular6x.fasta)",
"createdAt" : "2015-11-23T10:16:52.771-08:00",
"jsonSettings" : "{\"path\":\"/pbi/circular6x.fasta\",\"name\":\"circular6x\",\"ploidy\":\"haploid\"}",
}, {
"name" : "Job convert-fasta-reference",
"updatedAt" : "2015-11-23T13:20:02.706-08:00",
"path" : "/pbi/smrtsuite_166987/jobs/139",
"state" : "SUCCESSFUL",
"uuid" : "82c73b2a-9a8c-4fcd-b622-e75329d300b9",
"jobTypeId" : "convert-fasta-reference",
"id" : 139,
"comment" : "Convert Fasta File to DataSet ConvertImportFastaOptions(/pbi/ecoliK12.fasta)",
"createdAt" : "2015-11-23T13:20:02.706-08:00",
"jsonSettings" : "{\"path\":\"/pbi/ecoliK12.fasta\",\"name\":\"ecoliK12\",\"ploidy\":\"haploid\"}",
}, {
"name" : "Job convert-fasta-reference",
"updatedAt" : "2015-11-23T13:20:52.834-08:00",
"path" : "/pbi/smrtsuite_166987/jobs/140",
"state" : "FAILED",
"uuid" : "e0e36d53-32de-48e8-8c5c-c246db842d93",
"jobTypeId" : "convert-fasta-reference",
"id" : 140,
"comment" : "Convert Fasta File to DataSet ConvertImportFastaOptions(/pbi/palustris.fasta)",
"createdAt" : "2015-11-23T13:20:52.834-08:00",
"jsonSettings" : "{\"path\":\"/pbi/palustris.fasta\",\"name\":\"palustris\",\"ploidy\":\"haploid\"}"
}
]

```

### 3.2.4 Create Job by Type

Create a new job of a specific type.

**Note:** Job type identifiers and descriptions are available in the response to [List All Job Types](#) request.

### Request

| Method | URI   |
|--------|---|
| POST   | <a href="http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/job-manager/jobs/{jobTypeId}">http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/job-manager/jobs/{jobTypeId}</a> |

| Path Parameters | Data Type | Description   | Required | Multi-valued | Possible Values   |
|-----------------|-----------|---|----------|--------------|---|
| jobTypeId       | string    | Job type / category; list of all possible job types may be obtained through <a href="#">List All Job Types</a> request. | Yes      | No           | import-dataset<br>import-datastore<br>merge-datasets<br>convert-rs-movie<br>convert-fasta-reference<br>pbsmrtpipe |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Content-Type    | The MIME type of the content in the request.        | Yes      | application/json |
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | See <i>Create job by type - request schema</i> |

### Sample Request

See *Create job by type - request sample*

## Response

| HTTP Status Code           | Error Message  | Description   |
|----------------------------|--|---|
| 201 Created                | None   | Successful completion of the request. The newly created job object will be returned in the response body.   |
| 400 Bad Request            | The request content was malformed: Expected Task Option.   | Occurs when the “optionTypeId” field was omitted in the “taskOptions” array’s elements, in the request body of a create ‘pbsmrtpipe’ job request.   |
| 404 Not Found              | The requested resource could not be found.   | Occurs when an invalid value of jobTypeId (non-existing job type) was passed in the request. Note: To get the list of valid jobTypeId values, use <a href="#">List All Job Types</a> request. |
| 404 Not Found              | Unable to find Hdf subread dataset ‘129’   | Occurs when a non-existing dataset identifier was passed in the request body of a create ‘merge-datasets’ job request.  |
| 406 Not Acceptable         | Resource representation is only available with these Content-Types: application/json; charset=UTF-8          | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml   |
| 415 Unsupported Media Type | There was a problem with the request’s Content-Type: Expected ‘application/json’                             | Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded   |
| 422 Unprocessable Entity   | Failed to validate: com.pacbio.secondary.analysis.jobs.InvalidJobOptionError: Unable to find /tmp/file.fasta | Occurs when an invalid path to the input data file was passed in the request body, for example: “path”: “/tmp/file.fasta”   |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Tue, 23 Feb 2016 18:38:46 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 679                             |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema                    |
|------------------|--|
| application/json | See <a href="#">Create job by type - response schema</a> |

## Sample Response

See [Create job by type - response sample](#)



### Additional Information

| Authentication   | Technical Support  |
|------------------|--|
| See Introduction | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

### Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.0 | New service endpoint.  | N/A                 |

### Create job by type - request schema

Schema 1 - request body schema to create a job of type 'import-dataset':

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.import-dataset.create",
  "version" : "0.1.0",
  "title" : "Create Import-dataset Job",
  "description" : "Schema of request body for creating import-dataset job",
  "type" : "object",
  "properties" : {
    "path" : {
      "title" : "Dataset File Path",
      "description" : "Path to the dataset file",
      "type" : "string",
      "format" : "uri"
    },
    "datasetType" : {
      "title" : "Dataset Type",
      "description" : "Type of this dataset, e.g. PacBio.DataSet.SubreadSet",
      "type" : "string"
    }
  },
  "required" : [
    "path",
    "datasetType"
  ],
  "additionalProperties" : false
}
```

Schema 2 - request body schema to create a job of type 'import-datastore':

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.import-datastore.create",
  "version" : "0.1.0",
```

```

"title" : "Create Import-datastore Job",
"description" : "Schema of request body for creating import-datastore job",
"type" : "object",
"properties" : {
  "path" : {
    "title" : "Datastore File Path",
    "description" : "Path to the datastore file",
    "type" : "string",
    "format" : "uri"
  }
},
"required" : [
  "path"
],
"additionalProperties" : false
}

```

Schema 3 - request body schema to create a job of type 'merge-datasets':

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.merge-datasets.create",
  "version" : "0.1.0",
  "title" : "Create Merge-datasets Job",
  "description" : "Schema of request body for creating merge-datasets job",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Merged Dataset Name",
      "description" : "Name of the resulting merged dataset",
      "type" : "string"
    },
    "datasetType" : {
      "title" : "Dataset Type",
      "description" : "Type of the datasets being merged, e.g. PacBio.DataSet.SubreadSet",
      "type" : "string"
    },
    "ids" : {
      "title" : "Dataset IDs Array",
      "description" : "Integer array of dataset identifiers being merged",
      "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "integer"
      },
      "additionalItems" : false
    }
  },
  "required" : [
    "name",
    "datasetType",
    "ids"
  ],
}

```

```
"additionalProperties" : false
}
```

Schema 4 - request body schema to create a job of type 'convert-rs-movie':

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.convert-rs-movie.create",
  "version" : "0.1.0",
  "title" : "Create Convert-rs-movie Job",
  "description" : "Schema of request body for creating convert-rs-movie job",
  "type" : "object",
  "properties" : {
    "path" : {
      "title" : "RS Movie File Path",
      "description" : "Path to the RS movie file",
      "type" : "string",
      "format" : "uri"
    },
    "name" : {
      "title" : "RS Movie Name",
      "description" : "Name of this RS movie",
      "type" : "string"
    }
  },
  "required" : [
    "path",
    "name"
  ],
  "additionalProperties" : false
}
```

Schema 5 - request body schema to create a job of type 'convert-fasta-reference':

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.convert-fasta-reference.create",
  "version" : "0.1.0",
  "title" : "Create Convert-fasta-reference Job",
  "description" : "Schema of request body for creating convert-fasta-reference job",
  "type" : "object",
  "properties" : {
    "path" : {
      "title" : "Reference File Path",
      "description" : "Path to the reference FASTA file",
      "type" : "string",
      "format" : "uri"
    }
  }
}
```

```

    },
    "name" : {
      "title" : "Reference Name",
      "description" : "Name of this reference",
      "type" : "string"
    },
  },
  "ploidy" : {
    "title" : "Reference Ploidy",
    "description" : "Ploidy corresponding to this reference, e.g. diploid, haploid",
    "type" : "string"
  },
  "organism" : {
    "title" : "Reference Organism",
    "description" : "Organism presented by this reference",
    "type" : "string"
  }
},
"required" : [
  "path",
  "name",
  "ploidy",
  "organism"
],
"additionalProperties" : false
}

```

Schema 6 - request body schema to create a job of type 'pbsmrtpipe':

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.pbsmrtpipe.create",
  "version" : "0.1.0",
  "title" : "Create Pbsmrtpipe Job",
  "description" : "Schema of request body for creating pbsmrtpipe job",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Pbsmrtpipe Job Name",
      "description" : "Name of this pbsmrtpipe job",
      "type" : "string"
    },
    "pipelineId" : {
      "title" : "Pipeline Id",
      "description" : "Pipeline identifier, e.g. pbsmrtpipe.pipelines.sa3_resequencing",
      "type" : "string"
    },
    "entryPoints" : {
      "title" : "Entry Points Array",
      "description" : "Array of pipeline entry points, i.e. input datasets",
      "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "object",

```

```

"properties" : {
  "entryId" : {
    "title" : "Entry Id",
    "description" : "Identifier of the entry point, e.g. eid_subread",
    "type" : "string"
  },
  "fileTypeId" : {
    "title" : "File Type Id",
    "description" : "File type identifier (dataset type), e.g. PacBio.DataSet.SubreadSet",
    "type" : "string"
  },
  "datasetId" : {
    "title" : "Dataset Id",
    "description" : "Identifier of the dataset of the entry point",
    "type" : "integer"
  }
},
"required" : [
  "entryId",
  "fileTypeId",
  "datasetId"
],
"additionalProperties" : false
},
"additionalItems" : false
},
"taskOptions" : {
  "title" : "Task Options Array",
  "description" : "Array of pipeline tasks' options, in form of Name-Value-Type triples",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "optionId" : {
        "title" : "Option Id",
        "description" : "Name of this option, e.g. genomic_consensus.task_options.min_coverage",
        "type" : "string"
      },
      "value" : {
        "title" : "Option Value",
        "description" : "Value that corresponds to this option name",
        "type" : "string/integer/boolean"
      },
      "optionTypeId" : {
        "title" : "Option Type Id",
        "description" : "Type of the option's value, e.g. pbsmrtpipe.option_types.string",
        "type" : "string"
      }
    }
  },
  "required" : [
    "optionId",
    "value",
    "optionTypeId"
  ],
  "additionalProperties" : false
},
"additionalItems" : false

```

```

    },
    "workflowOptions" : {
      "title" : "Workflow Options Array",
      "description" : "Array of pipeline workflow options, in form of Name-Value-Type triples",
      "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "object",
        "properties" : {
          "optionId" : {
            "title" : "Option Id",
            "description" : "Name of this workflow option",
            "type" : "string"
          },
          "value" : {
            "title" : "Option Value",
            "description" : "Value that corresponds to this option name",
            "type" : "string/integer/boolean"
          },
          "optionTypeId" : {
            "title" : "Option Type Id",
            "description" : "Type of the option's value, e.g. pbsmrtpipe.option_types.string",
            "type" : "string"
          }
        },
        "required" : [
          "optionId",
          "value",
          "optionTypeId"
        ],
        "additionalProperties" : false
      },
      "additionalItems" : false
    }
  },
  "required" : [
    "name",
    "pipelineId",
    "entryPoints",
    "taskOptions",
    "workflowOptions"
  ],
  "additionalProperties" : false
}

```

### Create job by type - request sample

Sample 1 - request to create a job of type 'import-dataset':

POST <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/import-dataset/>

```

{
  "path" : "/pbi/collections/170/32.subreadset.xml",

```

```
{  
  "datasetType" : "PacBio.DataSet.SubreadSet"  
}
```

Sample 2 - request to create a job of type 'import-datastore':

POST <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/import-datastore/>

```
{  
  "path" : "/pbi/smrtsuite_166987/jobs/017/datastore.json"  
}
```

Sample 3 - request to create a job of type 'merge-datasets':

POST <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/merge-datasets/>

```
{  
  "datasetType" : "PacBio.DataSet.SubreadSet",  
  "ids" : [  
    2,  
    85  
  ],  
  "name" : "mergedSubreadset"  
}
```

Sample 4 - request to create a job of type 'convert-rs-movie':

POST <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/convert-rs-movie/>

```
{  
  "path" : "/pbi/collections/315/43.metadata.xml",  
  "name" : "movie-run-metadata"  
}
```

Sample 5 - request to create a job of type 'convert-fasta-reference':

POST <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/convert-fasta-reference/>

```
{
  "path" : "/pbi/lambda.fasta.fai",
  "name" : "lambda-ref",
  "ploidy" : "haploid",
  "organism" : "lambda"
}
```

Sample 6 - request to create a job of type 'pbsmrtpipe':

POST <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/pbsmrtpipe/>

```
{
  "name" : "A4_All4mer_1hr_launchChem",
  "entryPoints" :
  [
    [
      {
        "entryId" : "eid_subread",
        "fileTypeId" : "PacBio.DataSet.SubreadSet",
        "datasetId" : 74
      },
      {
        "entryId" : "eid_ref_dataset",
        "fileTypeId" : "PacBio.DataSet.ReferenceSet",
        "datasetId" : 133
      }
    ]
  ],
  "workflowOptions" : [],
  "taskOptions" :
  [
    [
      {
        "optionId" : "genomic_consensus.task_options.algorithm",
        "value" : "quiver",
        "optionTypeId" : "pbsmrtpipe.option_types.string"
      },
      {
        "optionId" : "genomic_consensus.task_options.diploid",
        "value" : false,
        "optionTypeId" : "pbsmrtpipe.option_types.boolean"
      },
      {
        "optionId" : "genomic_consensus.task_options.min_confidence",
        "value" : 40,
        "optionTypeId" : "pbsmrtpipe.option_types.integer"
      },
      {
        "optionId" : "genomic_consensus.task_options.min_coverage",
        "value" : 5,
        "optionTypeId" : "pbsmrtpipe.option_types.integer"
      },
      {
        "optionId" : "pbaligned.task_options.algorithm_options",
        "value" : "-minMatch 12 -bestn 10 -minPctIdentity 70.0",
        "optionTypeId" : "pbsmrtpipe.option_types.string"
      },
      {
        "optionId" : "pbaligned.task_options.concordant",
        "value" : true,
        "optionTypeId" : "pbsmrtpipe.option_types.boolean"
      },
      {
        "optionId" : "pbaligned.task_options consolidate_aligned_bam",

```



```
    "value" : false,
    "optionTypeId" : "pbsmrtpipe.option_types.boolean"
  }, {
    "optionId" : "pbalign.task_options consolidate_n_files",
    "value" : 1,
    "optionTypeId" : "pbsmrtpipe.option_types.integer"
  }, {
    "optionId" : "pbalign.task_options.hit_policy",
    "value" : "randombest",
    "optionTypeId" : "pbsmrtpipe.option_types.string"
  }, {
    "optionId" : "pbalign.task_options.min_accuracy",
    "value" : 70.0,
    "optionTypeId" : "pbsmrtpipe.option_types.float"
  }, {
    "optionId" : "pbalign.task_options.min_length",
    "value" : 50,
    "optionTypeId" : "pbsmrtpipe.option_types.integer"
  }
],
"pipelineId" : "pbsmrtpipe.pipelines.sa3_resequencing"
}
```

### Create job by type - response schema

Schema of response body returned upon creation of a job of any type:

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.object",
  "version" : "0.1.0",
  "title" : "Job Object",
  "description" : "Job object schema",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Job Name",
      "description" : "Name of this job",
      "type" : "string"
    },
    "jobTypeId" : {
      "title" : "Job Type Id",
      "description" : "Type identifier of this job",
      "type" : "string"
    },
    "id" : {
      "title" : "Job Id",
      "description" : "Identifier of this job",
      "type" : "integer"
    },
    "uuid" : {
      "title" : "UUID",
      "description" : "UUID of this job",
      "type" : "string",
    }
  }
}
```

```

    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when this job was created",
    "type" : "string",
    "format" : "date-time"
  },
  "updatedAt" : {
    "title" : "Updated at",
    "description" : "Time when this job was updated",
    "type" : "string",
    "format" : "date-time"
  },
  "path" : {
    "title" : "Job path",
    "description" : "Path to the job folder",
    "type" : "string",
    "format" : "uri"
  },
  "state" : {
    "title" : "Job State",
    "description" : "Job state (CREATED, SUBMITTED, RUNNING, SUCCESSFUL, FAILED, KILLED, STOPPED)",
    "type" : "string"
  },
  "comment" : {
    "title" : "Comment",
    "description" : "Comment describing this job",
    "type" : "string"
  },
  "jsonSettings" : {
    "title" : "JSON Settings",
    "description" : "Serialized JSON file that contains settings for this job",
    "type" : "string"
  }
},
"required" : [
  "name",
  "jobTypeId",
  "id",
  "uuid",
  "createdAt",
  "updatedAt",
  "path",
  "state",
  "comment",
  "jsonSettings"
],
"additionalProperties" : false
}

```

### Create job by type - response sample

Sample 1 - response returned upon creation of a job of type 'import-dataset':

```
{
  "name" : "Job import-dataset",
  "updatedAt" : "2016-02-23T11:54:26.429-08:00",
  "path" : "",
  "state" : "CREATED",
  "uuid" : "18671448-ff4e-4ed9-a740-1bf8a8f4fcd1",
  "jobTypeId" : "import-dataset",
  "id" : 135,
  "comment" : "Import DataSet ImportDataSetOptions (/pbi/collections/170/32.subreadset.xml) ",
  "createdAt" : "2016-02-23T11:54:26.429-08:00",
  "jsonSettings" : "{ \"path\": \"/pbi/collections/170/32.subreadset.xml\", \"datasetType\": \"PacBio.Data" }"
}
```

Sample 2 - response returned upon creation of a job of type 'import-datastore':

```
{
  "name" : "Job import-datastore",
  "updatedAt" : "2016-02-23T13:20:46.953-08:00",
  "path" : "",
  "state" : "CREATED",
  "uuid" : "2975ddb9-9cde-4543-bda1-beed3b20d0da",
  "jobTypeId" : "import-datastore",
  "id" : 137,
  "comment" : "Import DataStore ImportDataStoreOptions (/pbi/smrtsuite_166987/jobs/017/datastore.json)",
  "createdAt" : "2016-02-23T13:20:46.953-08:00",
  "jsonSettings" : "{ \"path\": \"/pbi/smrtsuite_166987/jobs/017/datastore.json\" }"
}
```

Sample 3 - response returned upon creation of a job of type 'merge-datasets':

```
{
  "name" : "Job merge-datasets",
  "updatedAt" : "2016-02-23T09:41:34.741-08:00",
  "path" : "",
  "state" : "CREATED",
  "uuid" : "b8fb1138-4a00-4baf-a754-fc37492d5f00",
  "jobTypeId" : "merge-datasets",
  "id" : 131,
  "comment" : "Merge Datasets MergeDataSetOptions (PacBio.DataSet.SubreadSet,List (/pbi/3.dataset.xml, /mnt/7.dataset.xml)",
  "createdAt" : "2016-02-23T09:41:34.741-08:00",
  "jsonSettings" : "{ \"name\": \"mergedSubreadset\", \"paths\": [ \"/pbi/3.dataset.xml\", \"/mnt/7.dataset.xml\" ] }"
}
```

Sample 4 - response returned upon creation of a job of type 'convert-rs-movie':

```
{
  "name" : "Job convert-rs-movie",
  "updatedAt" : "2016-02-23T12:16:21.391-08:00",
  "path" : "",
  "state" : "CREATED",
  "uuid" : "92804077-bd0f-41ef-913f-0d7da0ef5656",
  "jobTypeId" : "convert-rs-movie",
  "id" : 136,
  "comment" : "Convert RS movie MovieMetadataToHdfSubreadOptions (/pbi/collections/315/43.metadata.xml)",
  "createdAt" : "2016-02-23T12:16:21.391-08:00",
  "jsonSettings" : "{\"path\":\"/pbi/collections/315/43.metadata.xml\",\"name\":\"movie-run-metadata\""}
}
```

Sample 5 - response returned upon creation of a job of type 'convert-fasta-reference':

```
{
  "name" : "Job convert-fasta-reference",
  "updatedAt" : "2016-02-23T10:38:46.799-08:00",
  "path" : "",
  "state" : "CREATED",
  "uuid" : "78ab0501-cbc8-4b99-9869-952f2a250ba9",
  "jobTypeId" : "convert-fasta-reference",
  "id" : 133,
  "comment" : "Convert Fasta File to DataSet ConvertImportFastaOptions (/pbi/lambda.fasta.fai)",
  "createdAt" : "2016-02-23T10:38:46.799-08:00",
  "jsonSettings" : "{\"path\":\"/pbi/lambda.fasta.fai\",\"name\":\"lambda-ref\",\"ploidy\":\"haploid\""}
}
```

Sample 6 - response returned upon creation of a job of type 'pbsmrtpipe':

```
{
  "name" : "A4_All4mer_1hr_launchChem",
  "updatedAt" : "2016-02-23T10:52:13.071-08:00",
  "path" : "",
  "state" : "CREATED",
  "uuid" : "327f24af-7259-4f10-9998-c74c712e7c1c",
  "jobTypeId" : "pbsmrtpipe",
  "id" : 134,
  "comment" : "pbsmrtpipe PbSmrtPipeJobOptions (List (BoundEntryPoint (eid_subread, /mnt/19.subreadset.xml)",
  "createdAt" : "2016-02-23T10:52:13.071-08:00",
  "jsonSettings" : "{\"taskOptions\": [{\"optionId\":\"genomic_consensus.task_options.algorithm\"}, {\"v"}
}
```

### 3.2.5 Fetch Job by Type and Id

Fetch the record of a job object by its ID within its job type.

**Note:** Job type identifiers and descriptions are available in the response to [List All Job Types](#) request.

#### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}">http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}</a> |

| Path Parameters | Data Type | Description   | Required | Multi-valued | Possible Values   |
|-----------------|-----------|---|----------|--------------|---|
| jobTypeId       | string    | Job type / category; list of all possible job types may be obtained through <a href="#">List All Job Types</a> request. | Yes      | No           | import-dataset<br>import-datastore<br>merge-datasets<br>convert-rs-movie<br>convert-fasta-reference<br>pbsmrtpipe |
| jobId           | integer   | Unique identifier of a job within its job type  | Yes      | No           | 3<br>40   |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

#### Sample Request

Fetch the record of the job object of type 'merge-datasets' with ID=252:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/merge-datasets/252>

Fetch the record of the job object of type 'pbsmrtpipe' with ID=38:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/pbsmrtpipe/38>

## Response

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request.   |
| 404 Not Found      | The requested resource could not be found.  | Occurs when an invalid value of jobId (non-existing job type) is passed in the request. Note: To get the list of valid jobId values, use <a href="#">List All Job Types</a> request.                        |
| 404 Not Found      | Unable to find JobId 3888.  | Occurs when an invalid value of ID (non-existing job identifier within its job type) is passed in the request. Note: To get the list of valid ID values, use <a href="#">List All Jobs by Type</a> request. |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml   |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Tue, 09 Feb 2016 00:45:10 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 6231                            |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema                          |
|------------------|--|
| application/json | See <a href="#">Fetch job by type and id - response schema</a> |

## Sample Response

See [Fetch job by type and id - response sample](#)

## Additional Information

| Authentication                   | Technical Support  |
|----------------------------------|--|
| See <a href="#">Introduction</a> | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

## Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.0 | New service endpoint.  | N/A                 |

## Fetch job by type and id - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.object",
  "version" : "0.1.0",
  "title" : "Job Object",
  "description" : "Job object schema",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Job Name",
      "description" : "Name of this job",
      "type" : "string"
    },
    "jobTypeId" : {
      "title" : "Job Type Id",
      "description" : "Type identifier of this job",
      "type" : "string"
    },
    "id" : {
      "title" : "Job Id",
      "description" : "Identifier of this job",
      "type" : "integer"
    },
    "uuid" : {
      "title" : "UUID",
      "description" : "UUID of this job",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this job was created",
      "type" : "string",
      "format" : "date-time"
    },
    "updatedAt" : {
      "title" : "Updated at",
      "description" : "Time when this job was updated",
      "type" : "string",
      "format" : "date-time"
    },
    "path" : {
      "title" : "Job path",
      "description" : "Path to the job folder",
      "type" : "string",
      "format" : "uri"
    },
    "state" : {
```

```

    "title" : "Job State",
    "description" : "Job state (CREATED, SUBMITTED, RUNNING, SUCCESSFUL, FAILED, KILLED, STOPPED)",
    "type" : "string"
  },
  "comment" : {
    "title" : "Comment",
    "description" : "Comment describing this job",
    "type" : "string"
  },
  "jsonSettings" : {
    "title" : "JSON Settings",
    "description" : "Serialized JSON file that contains settings for this job",
    "type" : "string"
  }
},
"required" : [
  "name",
  "jobTypeId",
  "id",
  "uuid",
  "createdAt",
  "updatedAt",
  "path",
  "state",
  "comment",
  "jsonSettings"
],
"additionalProperties" : false
}

```

### Fetch job by type and id - response sample

Sample 1 - fetch the record of the job object of type 'merge-datasets' with ID=252:

```

{
  "name" : "Job merge-datasets",
  "updatedAt" : "2015-11-30T15:06:10.415-08:00",
  "path" : "/pbi/smrtsuite_166987/jobs/252",
  "state" : "SUCCESSFUL",
  "uuid" : "1576c753-478c-46c6-ad44-9936665df1b7",
  "jobTypeId" : "merge-datasets",
  "id" : 252,
  "comment" : "Merge Datasets MergeDataSetOptions (PacBio.DataSet.SubreadSet,List (/pbi/35.subreadset.",
  "createdAt" : "2015-11-30T15:06:10.415-08:00",
  "jsonSettings" : "{\"name\":\"AutoMergedSubreads\",\"paths\":[\"/pbi/35.subreadset.xml\", \"/pbi/55
}

```

Sample 2 - fetch the record of the job object of type 'pbsmrtpipe' with ID=38:



```
{
  "name" : "A4_All4mer_1hr_launchChem",
  "updatedAt" : "2015-11-18T12:24:35.413-08:00",
  "path" : "/pbi/smrtsuite_166987/jobs/038",
  "state" : "SUCCESSFUL",
  "uuid" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",
  "jobTypeId" : "pbsmrtpipe",
  "id" : 38,
  "comment" : "pbsmrtpipe PbSmrtPipeJobOptions (List (BoundEntryPoint (eid_subread, /pbi/93.subreadset.xr
  "createdAt" : "2015-11-18T12:24:35.413-08:00",
  "jsonSettings" : "{\"taskOptions\": [{\"optionId\": \"genomic_consensus.task_options.algorithm\", \"v
}
```

### 3.2.6 Fetch Job Datastore

Fetch datastore with datastore files, emitted from a job identified by job type and job id.

**Note:** Job type identifiers and descriptions are available in the response to [List All Job Types](#) request.

#### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/datastore">http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/datastore</a> |

| Path Parameters | Data Type | Description   | Required | Multi-valued | Possible Values   |
|-----------------|-----------|---|----------|--------------|---|
| jobTypeId       | string    | Job type / category; list of all possible job types may be obtained through <a href="#">List All Job Types</a> request. | Yes      | No           | import-dataset<br>import-datastore<br>merge-datasets<br>convert-rs-movie<br>convert-fasta-reference<br>pbsmrtpipe |
| jobId           | integer   | Unique identifier of a job within its job type  | Yes      | No           | 5<br>28   |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Fetch datastore with datastore files emitted from the job of type 'import-dataset' with ID=17:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/import-dataset/17/datastore>

Fetch datastore with datastore files emitted from the job of type 'merge-datasets' with ID=252:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/merge-datasets/252/datastore>

Fetch datastore with datastore files emitted from the job of type 'convert-fasta-reference' with ID=4:

GET

<http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/convert-fasta-reference/4/datastore>

Fetch datastore with datastore files emitted from the job of type 'pbsmrtpipe' with ID=38:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/pbsmrtpipe/38/datastore>

### Response

| HTTP Status Code   | Error Message   | Description  |
|--------------------|---|--|
| 200 OK             | None  | Successful completion of the request. Note: If there is no job corresponding to the jobId value passed in the request, or the job exists but does not have datastore files, then the response still will be 200 OK, with an empty array of datastore files in the response body. |
| 404 Not Found      | The requested resource could not be found.  | Occurs when an invalid value of jobId (non-existing job type) is passed in the request. Note: To get the list of valid jobId values, use <a href="#">List All Job Types</a> request.   |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml  |

| Response Headers            | Description  | Re-quired | Sample Value                    |
|-----------------------------|--|-----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes       | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes       | Fri, 05 Feb 2016 00:44:28 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes       | 957                             |
| Content-Type                | The MIME type of this content.   | Yes       | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes       | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema            |
|------------------|--|
| application/json | See <i>Fetch job datastore - response schema</i> |

### Sample Response

See *Fetch job datastore - response sample*

### Additional Information

| Authentication   | Technical Support        |
|------------------|--------------------------|
| See Introduction | E-mail: support@pacb.com |

### Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.0 | New service endpoint.  | N/A                 |

### Fetch job datastore - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.datastore",
  "version" : "0.1.0",
  "title" : "Job Datastore",
  "description" : "Array of job datastore files",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "fileTypeId" : {
        "title" : "File Type Id",
        "description" : "File type identifier, e.g. PacBio.FileTypes.JsonReport",
        "type" : "string"
      },
      "sourceId" : {
        "title" : "Source Id",
```

```

    "description" : "Source identifier of this datastore, e.g. pbscala::import_dataset",
    "type" : "string"
  },
  "uuid" : {
    "title" : "UUID",
    "description" : "UUID of the datastore file",
    "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "jobId" : {
    "title" : "Job Id",
    "description" : "Identifier of the job that emitted this datastore file",
    "type" : "integer"
  },
  "jobUUID" : {
    "title" : "Job UUID",
    "description" : "UUID of the job that emitted this datastore file",
    "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when this datastore file was created",
    "type" : "string",
    "format" : "date-time"
  },
  "importedAt" : {
    "title" : "Imported at",
    "description" : "Time when this datastore file was imported",
    "type" : "string",
    "format" : "date-time"
  },
  "modifiedAt" : {
    "title" : "Modified at",
    "description" : "Time when this datastore file was modified",
    "type" : "string",
    "format" : "date-time"
  },
  "path" : {
    "title" : "Datastore File Path",
    "description" : "Path to the datastore file",
    "type" : "string",
    "format" : "uri"
  },
  "fileSize" : {
    "title" : "Datastore File Size",
    "description" : "Size of the datastore file",
    "type" : "integer"
  }
},
"required" : [
  "fileTypeId",
  "sourceId",
  "uuid",
  "jobId",
  "jobUUID",

```

```
    "createdAt",
    "importedAt",
    "modifiedAt",
    "path",
    "fileSize"
  ]
},
"additionalItems" : false
}
```

### Fetch job datastore - response sample

Sample 1 - fetch datastore with datastore files emitted from the job of type 'import-dataset' with ID=17:

```
[{
  "modifiedAt" : "2015-11-16T21:42:05.882",
  "fileTypeId" : "PacBio.DataSet.SubreadSet",
  "path" : "/pbi/collections/313/m54012_151117_023631.subreadset.xml",
  "uuid" : "9d372452-b24b-41a9-9a3d-3ab9d477b953",
  "fileSize" : 9592,
  "importedAt" : "2015-11-16T21:42:05.882",
  "jobId" : 17,
  "createdAt" : "2015-11-16T21:42:05.882",
  "jobUUID" : "14bac755-2357-4ade-b26a-eb6af41e7c77",
  "sourceId" : "pbscala::import_dataset"
}, {
  "modifiedAt" : "2015-11-16T21:42:06.023",
  "fileTypeId" : "PacBio.FileTypes.JsonReport",
  "path" : "/pbi/smrtsuite_166987/jobs/017/import-datastore-report.json",
  "uuid" : "1ab22884-c789-4767-b269-3055c2b68e29",
  "fileSize" : 1634,
  "importedAt" : "2015-11-16T21:42:06.023",
  "jobId" : 17,
  "createdAt" : "2015-11-16T21:42:06.023",
  "jobUUID" : "14bac755-2357-4ade-b26a-eb6af41e7c77",
  "sourceId" : "pbscala::import_dataset"
}
]
```

Sample 2 - fetch datastore with datastore files emitted from the job of type 'merge-datasets' with ID=252:

```
[{
  "modifiedAt" : "2015-11-30T15:06:12.287",
  "fileTypeId" : "PacBio.DataSet.SubreadSet",
  "path" : "/pbi/smrtsuite_166987/jobs/252/merged.dataset.xml",
  "uuid" : "7aaf577a-9416-413f-9948-7c8d3dfa2a8d",
  "fileSize" : 13240,
  "importedAt" : "2015-11-30T15:06:12.287",
```

```

    "jobId" : 252,
    "createdAt" : "2015-11-30T15:06:12.287",
    "jobUUID" : "1576c753-478c-46c6-ad44-9936665df1b7",
    "sourceId" : "pbscala::merge_dataset"
  }
]

```

Sample 3 - fetch datastore with datastore files emitted from the job of type 'convert-fasta-reference' with ID=4:

```

[ {
  "modifiedAt" : "2015-11-13T11:57:39.331",
  "fileTypeId" : "PacBio.DataSet.ReferenceSet",
  "path" : "/pbi/smrtsuite_166987/jobs/004/pacbio-reference/lambdaNEB/referenceSet.xml",
  "uuid" : "e5433224-d185-4e73-af45-ee7c8154a768",
  "fileSize" : 2427,
  "importedAt" : "2015-11-13T11:57:39.331",
  "jobId" : 4,
  "createdAt" : "2015-11-13T11:57:39.331",
  "jobUUID" : "d0a65373-ac76-44c6-afbe-614bc15c6d0e",
  "sourceId" : "pbscala::convert_fasta_to_dataset"
}
]

```

Sample 4 - fetch datastore with datastore files emitted from the job of type 'pbsmrtpipe' with ID=38:

```

[ {
  "modifiedAt" : "2015-11-18T12:58:47.944",
  "fileTypeId" : "PacBio.DataSet.AlignmentSet",
  "path" : "/pbi/jobs/038/tasks/pbsmrtpipe.tasks.gather_alignmentset-1/file.alignmentset.xml",
  "uuid" : "a8284a60-5b17-1744-6c31-44264dffdbb0",
  "fileSize" : 89832,
  "importedAt" : "2015-11-18T12:58:47.944",
  "jobId" : 38,
  "createdAt" : "2015-11-18T12:58:47.944",
  "jobUUID" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",
  "sourceId" : "pbsmrtpipe.tasks.gather_alignmentset-PacBio.DataSet.AlignmentSet"
}, {
  "modifiedAt" : "2015-11-18T13:00:21.104",
  "fileTypeId" : "PacBio.FileTypes.JsonReport",
  "path" : "/pbi/jobs/038/tasks/pbreports.tasks.mapping_stats-0/mapping_stats_report.json",
  "uuid" : "63e31de0-d295-41e6-bf1a-8d3beda06892",
  "fileSize" : 6326,
  "importedAt" : "2015-11-18T13:00:21.104",
  "jobId" : 38,
  "createdAt" : "2015-11-18T13:00:21.104",
  "jobUUID" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",
  "sourceId" : "pbreports.tasks.mapping_stats-PacBio.FileTypes.JsonReport"
}
]

```

```

}, {
  "modifiedAt" : "2015-11-18T13:00:43.196",
  "fileTypeId" : "PacBio.FileTypes.gff",
  "path" : "/pbi/jobs/038/tasks/pbsmrtpipe.tasks.gather_gff-1/file.gff",
  "uuid" : "0e89ecf9-416f-439d-bfe4-78e539b41454",
  "fileSize" : 21783,
  "importedAt" : "2015-11-18T13:00:43.196",
  "jobId" : 38,
  "createdAt" : "2015-11-18T13:00:43.196",
  "jobUUID" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",
  "sourceId" : "pbsmrtpipe.tasks.gather_gff-PacBio.FileTypes.gff"
}, {
  "modifiedAt" : "2015-11-18T13:00:51.943",
  "fileTypeId" : "PacBio.DataSet.ContigSet",
  "path" : "/pbi/jobs/038/tasks/pbsmrtpipe.tasks.gather_contigset-1/file.contigset.xml",
  "uuid" : "2d0c7852-0050-6bd3-d6af-0d8020112f54",
  "fileSize" : 11886,
  "importedAt" : "2015-11-18T13:00:51.943",
  "jobId" : 38,
  "createdAt" : "2015-11-18T13:00:51.943",
  "jobUUID" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",
  "sourceId" : "pbsmrtpipe.tasks.gather_contigset-PacBio.DataSet.ContigSet"
}, {
  "modifiedAt" : "2015-11-18T13:00:56.217",
  "fileTypeId" : "PacBio.FileTypes.Fastq",
  "path" : "/pbi/jobs/038/tasks/pbsmrtpipe.tasks.gather_fastq-1/file.fastq",
  "uuid" : "9d310ee2-e15b-4683-80af-2c7af2415075",
  "fileSize" : 99068,
  "importedAt" : "2015-11-18T13:00:56.217",
  "jobId" : 38,
  "createdAt" : "2015-11-18T13:00:56.217",
  "jobUUID" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",
  "sourceId" : "pbsmrtpipe.tasks.gather_fastq-PacBio.FileTypes.Fastq"
}, {
  "modifiedAt" : "2015-11-18T13:01:05.093",
  "fileTypeId" : "PacBio.FileTypes.log",
  "path" : "/pbi/jobs/038/logs/master.log",
  "uuid" : "3ba3fad4-613f-477e-b397-8464d5c366a3",
  "fileSize" : 634,
  "importedAt" : "2015-11-18T13:01:05.093",
  "jobId" : 38,
  "createdAt" : "2015-11-18T13:01:05.093",
  "jobUUID" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",
  "sourceId" : "pbsmrtpipe::master.log"
}, {
  "modifiedAt" : "2015-11-18T13:01:05.287",
  "fileTypeId" : "PacBio.FileTypes.log",
  "path" : "/pbi/jobs/038/logs/pbsmrtpipe.log",
  "uuid" : "9c183df8-f7eb-475f-a0f7-e3697370b1dd",
  "fileSize" : 0,
  "importedAt" : "2015-11-18T13:01:05.287",
  "jobId" : 38,
  "createdAt" : "2015-11-18T13:01:05.287",
  "jobUUID" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",
  "sourceId" : "pbsmrtpipe::pbsmrtpipe.log"
}
]

```

### 3.2.7 Fetch Job Reports

Fetch job report files, emitted from a job identified by job type and job id.

**Note:** Job type identifiers and descriptions are available in the response to [List All Job Types](#) request.

#### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/reports">http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/reports</a> |

| Path Parameters | Data Type | Description   | Required | Multi-valued | Possible Values   |
|-----------------|-----------|---|----------|--------------|---|
| jobTypeId       | string    | Job type / category; list of all possible job types may be obtained through <a href="#">List All Job Types</a> request. | Yes      | No           | import-dataset<br>import-datastore<br>merge-datasets<br>convert-rs-movie<br>convert-fasta-reference<br>pbsmrtpipe |
| jobId           | integer   | Unique identifier of a job within its job type  | Yes      | No           | 11<br>252   |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

#### Sample Request

Fetch job report files emitted from the job of type 'import-dataset' with ID=5:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/import-dataset/5/reports>



Fetch job report files emitted from the job of type 'pbsmrtpipe' with ID=38:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/pbsmrtpipe/38/reports>

## Response

| HTTP Status Code   | Error Message   | Description  |
|--------------------|---|--|
| 200 OK             | None  | Successful completion of the request. Note: If there is no job corresponding to the jobId value passed in the request, or the job exists but does not have report files, then the response still will be 200 OK, with an empty array of report files in the response body. |
| 404 Not Found      | The requested resource could not be found.  | Occurs when an invalid value of jobId (non-existing job type) is passed in the request. Note: To get the list of valid jobId values, use <a href="#">List All Job Types</a> request.   |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml  |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Tue, 09 Feb 2016 00:57:13 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 649                             |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema                   |
|------------------|---|
| application/json | See <a href="#">Fetch job reports - response schema</a> |

## Sample Response

See [Fetch job reports - response sample](#)

## Additional Information

| Authentication                   | Technical Support  |
|----------------------------------|--|
| See <a href="#">Introduction</a> | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

## Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.0 | New service endpoint.  | N/A                 |

## Fetch job reports - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.reports",
  "version" : "0.1.0",
  "title" : "Job Reports",
  "description" : "Array of job report files",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "dataStoreFile" : {
        "title" : "Datastore Report File",
        "description" : "Datastore report file",
        "type" : "object",
        "properties" : {
          "fileTypeId" : {
            "title" : "File Type Id",
            "description" : "File type identifier, e.g. PacBio.FileTypes.JsonReport",
            "type" : "string"
          },
          "sourceId" : {
            "title" : "Source Id",
            "description" : "Source identifier of this report, e.g. pbscala::import_dataset",
            "type" : "string"
          },
          "uuid" : {
            "title" : "UUID",
            "description" : "UUID of the report file",
            "type" : "string",
            "format" : "uuid",
            "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
          },
          "jobId" : {
            "title" : "Job Id",
            "description" : "Identifier of the job that emitted this report file",
            "type" : "integer"
          },
          "jobUUID" : {
            "title" : "Job UUID",
            "description" : "UUID of the job that emitted this report file",
            "type" : "string",
            "format" : "uuid",
            "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
          },
          "createdAt" : {
            "title" : "Created at",
            "description" : "Time when this report file was created",
            "type" : "string",

```

```

    "format" : "date-time"
  },
  "importedAt" : {
    "title" : "Imported at",
    "description" : "Time when this report file was imported",
    "type" : "string",
    "format" : "date-time"
  },
  "modifiedAt" : {
    "title" : "Modified at",
    "description" : "Time when this report file was modified",
    "type" : "string",
    "format" : "date-time"
  },
  "path" : {
    "title" : "Report File Path",
    "description" : "Path to the report file",
    "type" : "string",
    "format" : "uri"
  },
  "fileSize" : {
    "title" : "Report File Size",
    "description" : "Size of the report file",
    "type" : "integer"
  }
},
"required" : [
  "fileTypeId",
  "sourceId",
  "uuid",
  "jobId",
  "jobUUID",
  "createdAt",
  "importedAt",
  "modifiedAt",
  "path",
  "fileSize"
],
"additionalProperties" : false
},
"reportTypeId" : {
  "title" : "Report Type Id",
  "description" : "Report type identifier, e.g. mock-report-type-id",
  "type" : "string"
}
},
"required" : [
  "dataStoreFile",
  "reportTypeId"
]
},
"additionalItems" : false
}

```

### Fetch job reports - response sample

Sample 1 - fetch job report files emitted from the job of type 'import-dataset' with ID=5:

```
[{
  "dataStoreFile" : {
    "modifiedAt" : "2015-11-13T11:57:46.727",
    "fileTypeId" : "PacBio.FileTypes.JsonReport",
    "path" : "/pbi/smrtsuite_166987/jobs/005/import-datastore-report.json",
    "uuid" : "3f623691-587a-4231-9faf-10988b374fbd",
    "fileSize" : 1634,
    "importedAt" : "2015-11-13T11:57:46.727",
    "jobId" : 5,
    "createdAt" : "2015-11-13T11:57:46.727",
    "jobUUID" : "6831fc97-38f3-4122-9472-045fbc9c2536",
    "sourceId" : "pbscala::import_dataset"
  },
  "reportTypeId" : "mock-report-type-id"
}
]
```

Sample 2 - fetch job report files emitted from the job of type 'pbsmrtpipe' with ID=38:

```
[{
  "dataStoreFile" : {
    "modifiedAt" : "2015-11-18T13:00:21.104",
    "fileTypeId" : "PacBio.FileTypes.JsonReport",
    "path" : "/pbi/jobs/038/tasks/pbreports.tasks.mapping_stats-0/mapping_stats_report.json",
    "uuid" : "63e31de0-d295-41e6-bf1a-8d3beda06892",
    "fileSize" : 6326,
    "importedAt" : "2015-11-18T13:00:21.104",
    "jobId" : 38,
    "createdAt" : "2015-11-18T13:00:21.104",
    "jobUUID" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",
    "sourceId" : "pbreports.tasks.mapping_stats-PacBio.FileTypes.JsonReport"
  },
  "reportTypeId" : "mock-report-type-id"
}
]
```

### 3.2.8 Fetch Job Specific Report

Fetch a specific report emitted from a job identified by job id.

Examples of specific reports include Mapping Stats Report, Variants Report, etc.

**Note:** Fetching of a specific report of a job is performed in two steps: first, fetching the list of all reports of a job, with use of [Fetch Job Reports](#) request, in order to find UUID of the specific report of interest; second, fetching the specific report with use of the above UUID.

## Request

| Method | URI   |
|--------|---|
| GET    | http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobId}/reports/{uuid} |

| Path Parameters | Data Type | Description  | Required | Multi-valued | Possible Values  |
|-----------------|-----------|--|----------|--------------|--|
| jobId           | integer   | Unique identifier of a job.  | Yes      | No           | 8963   |
| uuid            | string    | Report UUID; valid report UUID values can be found in “uuid” fields of objects returned by <a href="#">Fetch Job Reports</a> . | Yes      | No           | c1338f53-672f-4a4f-98f2-c3ef2a7d2e57<br>67cb8880-173c-4236-bb0d-2758f1985ccb |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Step 1 - fetch the list of all reports of the job with ID = 8963:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/8963/reports>

Step 2a - fetch the mapping stats report, which has UUID = c1338f53-672f-4a4f-98f2-c3ef2a7d2e57:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/8963/reports/c1338f53-672f-4a4f-98f2-c3ef2a7d2e57>

Step 2b - fetch the variants report, which has UUID = 67cb8880-173c-4236-bb0d-2758f1985ccb:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/8963/reports/67cb8880-173c-4236-bb0d-2758f1985ccb>

## Response

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request. Note: If there is no job corresponding to the jobId value passed in the request, however, the report UUID value passed in the request is valid, then the response will be 200 OK, and the corresponding report will be returned in the response body. |
| 404 Not Found      | Unable to find report 67cb8880-173c-4236-bb0d-2758f1985cab  | Occurs when an invalid value of the report UUID is passed in the request. Note: Valid report UUID values can be found in “uuid” fields of objects returned by <a href="#">Fetch Job Reports</a> request.  |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml   |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Thu, 05 May 2016 23:48:22 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 6837                            |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema                           |
|------------------|---|
| application/json | See <a href="#">Fetch job specific report - response schema</a> |

## Sample Response

See [Fetch job specific report - response sample](#)

## Additional Information

| Authentication                   | Technical Support  |
|----------------------------------|--|
| See <a href="#">Introduction</a> | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

## Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.0 | New service endpoint.  | N/A                 |

## Fetch job specific report - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.reports.report",
  "version" : "0.1.0",
  "title" : "Job Report",
  "description" : "Job report schema",
  "type" : "object",
  "properties" : {
    "title" : {
      "title" : "Report Title",
      "description" : "Title of this report",
      "type" : "string"
    },
    "uuid" : {
      "title" : "Report UUID",
      "description" : "UUID of this report",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "id" : {
      "title" : "Report Type Id",
      "description" : "Identifier of the report type, e.g. mapping_stats, variants",
      "type" : "string"
    },
    "_version" : {
      "title" : "Report Version",
      "description" : "Version of this report, e.g. 0.3.25",
      "type" : "string"
    },
    "_changelist" : {
      "title" : "Report Changelist",
      "description" : "Perforce changelist number of this report",
      "type" : "string",
    },
    "dataset_uuids" : {
      "title" : "Dataset UUIDs",
      "description" : "Array of dataset UUIDs",
      "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "object",
        "properties" : {
          "uuid" : {
            "title" : "Dataset UUID",
            "description" : "UUID of the dataset",
            "type" : "string",
            "format" : "uuid",
            "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
          }
        }
      },
      "required" : [
        "uuid",
      ],
      "additionalProperties" : false
    },
  },
}

```

```

    "additionalItems" : false
  },
  "attributes" : {
    "title" : "Report Attributes",
    "description" : "Array of the report's attributes",
    "type" : "array",
    "minItems" : 1,
    "items" : {
      "type" : "object",
      "properties" : {
        "id" : {
          "title" : "Attribute Id",
          "description" : "Identifier of the attribute, e.g. mapping_stats.mapped_subreads_n",
          "type" : "string"
        },
        "name" : {
          "title" : "Attribute Name",
          "description" : "Name of the attribute, e.g. Number of Subreads",
          "type" : "string"
        },
        "value" : {
          "title" : "Attribute Value",
          "description" : "Value of the attribute",
          "type" : "number"
        }
      }
    },
    "required" : [
      "id",
      "name",
      "value"
    ],
    "additionalProperties" : false
  },
  "additionalItems" : false
},
"tables" : {
  "title" : "Report Tables",
  "description" : "Array of the report's tables",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "columns" : {
        "title" : "Table Columns",
        "description" : "Columns of this table",
        "type" : "array",
        "minItems" : 1,
        "items" : {
          "type" : "object",
          "properties" : {
            "header" : {
              "title" : "Column Header",
              "description" : "Header of this column, e.g. Mapped Subreads",
              "type" : "string"
            },
            "id" : {
              "title" : "Column Id",

```



```

        "description" : "Identifier of the column, e.g. mapping_stats_table.mapped_subread",
        "type" : "string"
    },
    "values" : {
        "title" : "Column Values",
        "description" : "Array of values of this column",
        "type" : "array",
        "minItems" : 1,
        "items" : {
            "type" : "object",
            "properties" : {
                "value" : {
                    "title" : "Value",
                    "description" : "A value in the column",
                    "type" : "string or number"
                }
            }
        },
        "required" : [
            "value",
        ],
        "additionalProperties" : false
    },
    "additionalItems" : false
}
},
"required" : [
    "header",
    "id",
    "values"
],
"additionalProperties" : false
},
"additionalItems" : false
}
},
"required" : [
    "columns"
],
"additionalProperties" : false
},
"additionalItems" : false
},
"plotGroups" : {
    "title" : "Report Plot Groups",
    "description" : "Array of the report's plot groups",
    "type" : "array",
    "minItems" : 1,
    "items" : {
        "type" : "object",
        "properties" : {
            "id" : {
                "title" : "Plot Group Id",
                "description" : "Identifier of the plot group, e.g. mapping_stats.subreadlength_plot",
                "type" : "string"
            },
            "title" : {
                "title" : "Plot Group Title",
                "description" : "Title of the plot group, e.g. Mapped Subread Length",
            }
        }
    }
}

```

```

    "type" : "string"
  },
  "legend" : {
    "title" : "Plot Group Legend",
    "description" : "Name of PNG file that contains legend of this plot group",
    "type" : "string"
  },
  "thumbnail" : {
    "title" : "Plot Group Thumbnail",
    "description" : "Name of PNG file that contains thumbnail of this plot group",
    "type" : "string"
  },
  "plots" : {
    "title" : "Plots",
    "description" : "Array of plots of this plot group",
    "type" : "array",
    "minItems" : 1,
    "items" : {
      "type" : "object",
      "properties" : {
        "caption" : {
          "title" : "Plot Caption",
          "description" : "Caption of this plot",
          "type" : "string"
        },
        "id" : {
          "title" : "Plot Id",
          "description" : "Identifier of this plot, e.g. mapping_stats.subreadlength_plot",
          "type" : "string"
        },
        "image" : {
          "title" : "Plot Image",
          "description" : "Name of PNG file that contains image of this plot",
          "type" : "string"
        }
      }
    },
    "required" : [
      "caption",
      "id",
      "image"
    ],
    "additionalProperties" : false
  },
  "additionalItems" : false
}
},
"required" : [
  "id",
  "title",
  "legend",
  "thumbnail",
  "plots"
],
"additionalProperties" : false
},
"additionalItems" : false
}
},

```

```

"required" : [
  "title",
  "uuid",
  "id",
  "_version",
  "_changelist",
  "dataset_uuids",
  "attributes",
  "tables",
  "plotGroups"
],
"additionalProperties" : false
}

```

### Fetch job specific report - response sample

Step 1 - fetch the list of all reports of the job with ID = 8963:

```

[[{
  "dataStoreFile" : {
    "modifiedAt" : "2016-05-04T16:34:54.111Z",
    "name" : "PacBio Json Report",
    "fileTypeId" : "PacBio.FileTypes.JsonReport",
    "path" : "/pbi/jobs/8963/tasks/pbreports.tasks.mapping_stats-0/mapping_stats_report.json",
    "description" : "Output report JSON file.",
    "uuid" : "c1338f53-672f-4a4f-98f2-c3ef2a7d2e57",
    "fileSize" : 6837,
    "importedAt" : "2016-05-04T16:34:54.111Z",
    "jobId" : 8963,
    "createdAt" : "2016-05-04T16:34:54.111Z",
    "jobUUID" : "f2d087f7-2c88-4e0d-977d-59db73b84eff",
    "sourceId" : "pbreports.tasks.mapping_stats-PacBio.FileTypes.JsonReport"
  },
  "reportTypeId" : "mock-report-type-id"
}, {
  "dataStoreFile" : {
    "modifiedAt" : "2016-05-04T16:35:33.774Z",
    "name" : "JSON report",
    "fileTypeId" : "PacBio.FileTypes.JsonReport",
    "path" : "/pbi/jobs/8963/tasks/pbreports.tasks.top_variants-0/report.json",
    "description" : "Filename of JSON output report",
    "uuid" : "bbbc4c-1340-49e0-9d8c-38dd538cb228",
    "fileSize" : 1752,
    "importedAt" : "2016-05-04T16:35:33.774Z",
    "jobId" : 8963,
    "createdAt" : "2016-05-04T16:35:33.774Z",
    "jobUUID" : "f2d087f7-2c88-4e0d-977d-59db73b84eff",
    "sourceId" : "pbreports.tasks.top_variants-PacBio.FileTypes.JsonReport"
  },
  "reportTypeId" : "mock-report-type-id"
}, {
  "dataStoreFile" : {
    "modifiedAt" : "2016-05-04T16:35:53.123Z",
    "name" : "JSON report",

```

```

    "fileTypeId" : "PacBio.FileTypes.JsonReport",
    "path" : "/pbi/jobs/8963/tasks/pbreports.tasks.coverage_report-0/coverage_report.json",
    "description" : "Path to write report JSON output",
    "uuid" : "d4930a9f-d071-4249-92f8-41d527fb7110",
    "fileSize" : 1625,
    "importedAt" : "2016-05-04T16:35:53.123Z",
    "jobId" : 8963,
    "createdAt" : "2016-05-04T16:35:53.123Z",
    "jobUUID" : "f2d087f7-2c88-4e0d-977d-59db73b84eff",
    "sourceId" : "pbreports.tasks.coverage_report-PacBio.FileTypes.JsonReport"
  },
  "reportTypeId" : "mock-report-type-id"
}, {
  "dataStoreFile" : {
    "modifiedAt" : "2016-05-04T16:36:09.228Z",
    "name" : "JSON report",
    "fileTypeId" : "PacBio.FileTypes.JsonReport",
    "path" : "/pbi/jobs/8963/tasks/pbreports.tasks.variants_report-0/report.json",
    "description" : "Filename of JSON output report",
    "uuid" : "67cb8880-173c-4236-bb0d-2758f1985ccb",
    "fileSize" : 3060,
    "importedAt" : "2016-05-04T16:36:09.228Z",
    "jobId" : 8963,
    "createdAt" : "2016-05-04T16:36:09.228Z",
    "jobUUID" : "f2d087f7-2c88-4e0d-977d-59db73b84eff",
    "sourceId" : "pbreports.tasks.variants_report-PacBio.FileTypes.JsonReport"
  },
  "reportTypeId" : "mock-report-type-id"
}, {
  "dataStoreFile" : {
    "modifiedAt" : "2016-05-04T16:36:44.379Z",
    "name" : "JSON report",
    "fileTypeId" : "PacBio.FileTypes.JsonReport",
    "path" : "/pbi/jobs/8963/tasks/pbreports.tasks.sat_report-0/report.json",
    "description" : "Filename of JSON output report",
    "uuid" : "15f636ee-d098-41e4-bf84-537d70a643bc",
    "fileSize" : 950,
    "importedAt" : "2016-05-04T16:36:44.379Z",
    "jobId" : 8963,
    "createdAt" : "2016-05-04T16:36:44.379Z",
    "jobUUID" : "f2d087f7-2c88-4e0d-977d-59db73b84eff",
    "sourceId" : "pbreports.tasks.sat_report-PacBio.FileTypes.JsonReport"
  },
  "reportTypeId" : "mock-report-type-id"
}
]

```

Step 2a - fetch the mapping stats report, which has UUID = c1338f53-672f-4a4f-98f2-c3ef2a7d2e57:

```

{
  "_changelist" : "UNKNOWN",
  "_version" : "0.3.25",
  "attributes" : [{

```

```

    "id" : "mapping_stats.mapped_subread_concordance_mean",
    "name" : "Mean Mapped Concordance",
    "value" : 0.8574
  }, {
    "id" : "mapping_stats.mapped_subreads_n",
    "name" : "Number of Subreads (mapped)",
    "value" : 887868
  }, {
    "id" : "mapping_stats.mapped_subread_bases_n",
    "name" : "Number of Subread Bases (mapped)",
    "value" : 1408496081
  }, {
    "id" : "mapping_stats.mapped_subread_readlength_mean",
    "name" : "Subread Length Mean (mapped)",
    "value" : 1586
  }, {
    "id" : "mapping_stats.mapped_subreadlength_n50",
    "name" : "Subread Length N50 (mapped)",
    "value" : 1910
  }, {
    "id" : "mapping_stats.mapped_subreadlength_q95",
    "name" : "Subread Length 95% (mapped)",
    "value" : 2710
  }, {
    "id" : "mapping_stats.mapped_subread_readlength_max",
    "name" : "Subread Length Max (mapped)",
    "value" : 5860
  }, {
    "id" : "mapping_stats.mapped_reads_n",
    "name" : "Number of Polymerase Reads (mapped)",
    "value" : 298092
  }, {
    "id" : "mapping_stats.mapped_readlength_mean",
    "name" : "Polymerase Read Length Mean (mapped)",
    "value" : 4996
  }, {
    "id" : "mapping_stats.mapped_readlength_n50",
    "name" : "Polymerase Read N50 (mapped)",
    "value" : 7967
  }, {
    "id" : "mapping_stats.mapped_readlength_q95",
    "name" : "Polymerase Read Length 95% (mapped)",
    "value" : 10940
  }, {
    "id" : "mapping_stats.mapped_readlength_max",
    "name" : "Polymerase Read Length Max (mapped)",
    "value" : 19888
  }
],
"dataset_uids" : ["e440ace2-cb8c-18e6-22db-602e5e6d7e30"],
"id" : "mapping_stats",
"plotGroups" : [{
  "id" : "mapping_stats.readlength_plot",
  "legend" : null,
  "plots" : [{
    "caption" : null,
    "id" : "mapping_stats.readlength_plot.readlength_plot",
    "image" : "mapped_readlength_histogram.png"
  }
]
}

```

```

    }
  ],
  "thumbnail" : "mapped_readlength_histogram_thumb.png",
  "title" : "Mapped Polymerase Read Length"
}, {
  "id" : "mapping_stats.subread_concordance_group",
  "legend" : null,
  "plots" : [{
    "caption" : null,
    "id" : "mapping_stats.subread_concordance_group.concordance_plot",
    "image" : "mapped_subread_concordance_histogram.png"
  }
  ],
  "thumbnail" : "mapped_subread_concordance_histogram_thumb.png",
  "title" : "Mapped Subread Concordance"
}, {
  "id" : "mapping_stats.subreadlength_plot",
  "legend" : null,
  "plots" : [{
    "caption" : null,
    "id" : "mapping_stats.subreadlength_plot.subreadlength_plot",
    "image" : "mapped_subreadlength_histogram.png"
  }
  ],
  "thumbnail" : "mapped_subreadlength_histogram_thumb.png",
  "title" : "Mapped Subread Length"
}, {
  "id" : "mapping_stats.rainbow_plot",
  "legend" : null,
  "plots" : [{
    "caption" : "Mapped Concordance vs. Read Length",
    "id" : "mapping_stats.rainbow_plot.rainbow_plot",
    "image" : "mapped_concordance_vs_read_length.png"
  }
  ],
  "thumbnail" : null,
  "title" : "Mapped Concordance vs. Read Length"
}
],
"tables" : [{
  "columns" : [{
    "header" : "Movie",
    "id" : "mapping_stats.mapping_stats_table.movie",
    "values" : ["All Movies", "m54012_160503_235448"]
  }, {
    "header" : "Mapped Reads",
    "id" : "mapping_stats.mapping_stats_table.mapped_reads",
    "values" : [298092, 298092]
  }, {
    "header" : "Mapped Polymerase Read Length",
    "id" : "mapping_stats.mapping_stats_table.mapped_polymerase_read_length",
    "values" : [4996, 4996]
  }, {
    "header" : "Mapped Polymerase Read Length N50",
    "id" : "mapping_stats.mapping_stats_table.mapped_polymerase_read_length_n50",
    "values" : [7967, 7967]
  }, {
    "header" : "Mapped Subreads",

```

```

    "id" : "mapping_stats.mapping_stats_table.mapped_subreads",
    "values" : [887868, 887868]
  }, {
    "header" : "Mapped Subread Bases",
    "id" : "mapping_stats.mapping_stats_table.mapped_subread_base",
    "values" : [1408496081, 1408496081]
  }, {
    "header" : "Mapped Subread Length",
    "id" : "mapping_stats.mapping_stats_table.mapped_subread_length",
    "values" : [1586, 1586]
  }, {
    "header" : "Mapped Subread Concordance",
    "id" : "mapping_stats.mapping_stats_table.mapped_subread_concordance",
    "values" : [0.8574, 0.8574]
  }
],
"table": "mapping_stats.mapping_stats_table",
"title": "Mapping Statistics Summary"
}
],
"report": "Report mapping_stats",
"uuid": "c1338f53-672f-4a4f-98f2-c3ef2a7d2e57"
}

```

Step 2b - fetch the variants report, which has UUID = 67cb8880-173c-4236-bb0d-2758f1985ccb:

```

{
  "_changelist" : "UNKNOWN",
  "_version" : "0.3.25",
  "attributes" : [{
    "id" : "variants.weighted_mean_concordance",
    "name" : "Reference Consensus Concordance (mean)",
    "value" : 1
  }, {
    "id" : "variants.mean_contig_length",
    "name" : "Reference Contig Length (mean)",
    "value" : 48502
  }, {
    "id" : "variants.longest_contig_name",
    "name" : "Longest Reference Contig",
    "value" : "lambda_NEB3011"
  }, {
    "id" : "variants.weighted_mean_bases_called",
    "name" : "Percent Reference Bases Called (mean)",
    "value" : 1
  }, {
    "id" : "variants.weighted_mean_coverage",
    "name" : "Reference Coverage (mean)",
    "value" : 27237.739206548184
  }
],
"dataset_uuids" : ["6b8db144-a601-4577-ab04-ba64cad0548"],
"id" : "variants",

```

```

"plotGroups" : [{
  "id" : "variants.variants_plots",
  "legend" : "variants_plot_legend.png",
  "plots" : [{
    "caption" : "Observed variants across lambda_NEB3011",
    "id" : "variants.variants_plots.coverage_variants_0",
    "image" : "variants_plot_935b383a75c999221678e79f2bafcf9c.png"
  }
],
  "thumbnail" : "variants_plot_935b383a75c999221678e79f2bafcf9c_thumb.png",
  "title" : "Variants Across Reference"
}
],
"tables" : [{
  "columns" : [{
    "header" : "Reference",
    "id" : "variants.consensus_table.contig_name",
    "values" : ["lambda_NEB3011"]
  }, {
    "header" : "Reference Length",
    "id" : "variants.consensus_table.contig_len",
    "values" : [48502]
  }, {
    "header" : "Bases Called",
    "id" : "variants.consensus_table.bases_called",
    "values" : [1]
  }, {
    "header" : "Consensus Accuracy",
    "id" : "variants.consensus_table.concordance",
    "values" : [1]
  }, {
    "header" : "Base Coverage",
    "id" : "variants.consensus_table.coverage",
    "values" : [27237.739206548184]
  }
],
  "id" : "variants.consensus_table",
  "title" : "Consensus Calling Results"
}
],
"title" : "Report variants",
"uuid" : "67cb8880-173c-4236-bb0d-2758f1985ccb"
}

```

### 3.2.9 Fetch Job Events

Fetch events of a job identified by job type and job id.

**Note:** Job type identifiers and descriptions are available in the response to [List All Job Types](#) request.

#### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/events">http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/events</a> |



| Path Parameters | Data Type | Description   | Required | Multi-valued | Possible Values   |
|-----------------|-----------|---|----------|--------------|---|
| jobTypeId       | string    | Job type / category; list of all possible job types may be obtained through <a href="#">List All Job Types</a> request. | Yes      | No           | import-dataset<br>import-datastore<br>merge-datasets<br>convert-rs-movie<br>convert-fasta-reference<br>pbsmrtpipe |
| jobId           | integer   | Unique identifier of a job within its job type  | Yes      | No           | 8<br>34   |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Fetch events of the job of type 'merge-datasets' with ID=252:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/merge-datasets/252/events>

Fetch events of the job of type 'convert-fasta-reference' with ID=4:

GET

<http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/job-manager/jobs/convert-fasta-reference/4/events>

## Response

| HTTP Status Code   | Error Message   | Description  |
|--------------------|---|--|
| 200 OK             | None  | Successful completion of the request. Note: If there is no job corresponding to the jobId value passed in the request, then the response still will be 200 OK, with an empty array of events in the response body. |
| 404 Not Found      | The requested resource could not be found.  | Occurs when an invalid value of jobId (non-existing job type) is passed in the request. Note: To get the list of valid jobId values, use <a href="#">List All Job Types</a> request.                               |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml  |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Mon, 08 Feb 2016 23:28:56 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 1139                            |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema                  |
|------------------|--|
| application/json | See <a href="#">Fetch job events - response schema</a> |

## Sample Response

See [Fetch job events - response sample](#)

## Additional Information

| Authentication                   | Technical Support  |
|----------------------------------|--|
| See <a href="#">Introduction</a> | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

## Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.0 | New service endpoint.  | N/A                 |

**Fetch job events - response schema**

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pachio.secondary.schemas.job.events",
  "version" : "0.1.0",
  "title" : "Job Events",
  "description" : "Array of job events",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "state" : {
        "title" : "Job State",
        "description" : "Job state (CREATED, SUBMITTED, RUNNING, SUCCESSFUL, FAILED, KILLED, STOPPED)",
        "type" : "string"
      },
      "eventId" : {
        "title" : "Event Id",
        "description" : "UUID of the event",
        "type" : "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
      },
      "jobId" : {
        "title" : "Job Id",
        "description" : "Identifier of the job that the event belongs to",
        "type" : "integer"
      },
      "createdAt" : {
        "title" : "Created at",
        "description" : "Time when this event was created",
        "type" : "string",
        "format" : "date-time"
      },
      "message" : {
        "title" : "Message",
        "description" : "Message describing this event",
        "type" : "string"
      }
    }
  },
  "required" : [
    "state",
    "eventId",
    "jobId",
    "createdAt",
    "message"
  ],
  "additionalItems" : false
}
```

**Fetch job events - response sample**

Sample 1 - fetch events of the job of type 'merge-datasets' with ID=252:

```
[{
  "state" : "CREATED",
  "eventId" : "fe5eeae7-dbcd-4e93-a55c-1467b3a9b50d",
  "jobId" : 252,
  "createdAt" : "2015-11-30T15:06:10.531-08:00",
  "message" : "Created job 252 type merge-datasets with 1576c753-478c-46c6-ad44-9936665df1b7"
}, {
  "state" : "SUBMITTED",
  "eventId" : "362b2722-456c-4781-a953-a4c5e8d5eca2",
  "jobId" : 252,
  "createdAt" : "2015-11-30T15:06:12.010-08:00",
  "message" : "Updating job id 1576c753-478c-46c6-ad44-9936665df1b7 to SUBMITTED"
}, {
  "state" : "RUNNING",
  "eventId" : "b4d94bf5-bd00-4778-9e89-1d73cf9d9336",
  "jobId" : 252,
  "createdAt" : "2015-11-30T15:06:12.171-08:00",
  "message" : "Updating job id 1576c753-478c-46c6-ad44-9936665df1b7 to RUNNING"
}, {
  "state" : "RUNNING",
  "eventId" : "5516a6b9-3d72-4d04-bd14-108e71ab217e",
  "jobId" : 252,
  "createdAt" : "2015-11-30T15:06:12.232-08:00",
  "message" : "Updating job id 1576c753-478c-46c6-ad44-9936665df1b7 to RUNNING"
}, {
  "state" : "SUCCESSFUL",
  "eventId" : "7d2b03ab-2aa8-4488-ae4e-e3a2b4540485",
  "jobId" : 252,
  "createdAt" : "2015-11-30T15:06:12.556-08:00",
  "message" : "Updating job id 1576c753-478c-46c6-ad44-9936665df1b7 to SUCCESSFUL"
}
]
```

Sample 2 - fetch events of the job of type 'convert-fasta-reference' with ID=4:

```
[{
  "state" : "CREATED",
  "eventId" : "d4ab8b0b-25c1-4e76-ae5d-2669afaf9ac2",
  "jobId" : 4,
  "createdAt" : "2015-11-13T11:57:37.665-08:00",
  "message" : "Created job 4 type convert-fasta-reference with d0a65373-ac76-44c6-afbe-614bc15c6d0e"
}, {
  "state" : "SUBMITTED",
  "eventId" : "9f040d25-2876-45dd-9438-44fe49ef1361",
  "jobId" : 4,
  "createdAt" : "2015-11-13T11:57:39.107-08:00",
  "message" : "Updating job id d0a65373-ac76-44c6-afbe-614bc15c6d0e to SUBMITTED"
}, {
  "state" : "RUNNING",
  "eventId" : "8c6ef1c7-055e-464d-84fc-e74db65fa518",

```

```
[
  {
    "jobId" : 4,
    "createdAt" : "2015-11-13T11:57:39.184-08:00",
    "message" : "Updating job id d0a65373-ac76-44c6-afbe-614bc15c6d0e to RUNNING"
  }, {
    "state" : "RUNNING",
    "eventId" : "6694db93-4092-41c4-97fb-da680753a86b",
    "jobId" : 4,
    "createdAt" : "2015-11-13T11:57:39.275-08:00",
    "message" : "Updating job id d0a65373-ac76-44c6-afbe-614bc15c6d0e to RUNNING"
  }, {
    "state" : "SUCCESSFUL",
    "eventId" : "6ebb1934-b4cd-407f-af68-92be513a3d39",
    "jobId" : 4,
    "createdAt" : "2015-11-13T11:57:40.654-08:00",
    "message" : "Updating job id d0a65373-ac76-44c6-afbe-614bc15c6d0e to SUCCESSFUL"
  }
]
```

## 3.3 Project Service

### 3.3.1 Overview of Project Service

#### Use Cases

The Project Service enables creating, editing and viewing projects.

#### Key Concepts

The **Project** entity mediates all access control to DataSets and Analysis Jobs.

To access a particular DataSet or Analysis Job, a user must belong to that particular Project.

SMRT Link and SMRT Analysis always include at least one project: the **General** project.

All data is associated with the **General** project, unless the user has created a different project and has specified that the data will be associated with it.

A **Project** is defined as a set of:

- One or more *DataSets* and *Quality Control* information;
- One or more *Analysis results*, including information for all analysis parameters and their values, and reference sequence - if used;
- Meta Data: Project *description*, Project *owner(s)*, and Project *members*.

#### Projects and Users

Projects have owners, who can add or delete members from the project.

By default, the user who creates the project is the **Project Owner**, and the only user who has initial access to that project.

Users granted access by the project owner will have read-only or read/write permissions, as specified by the project owner.

Users can belong to multiple projects.

### Projects and DataSets

Once created, a DataSet always belongs to a project - either the General project or another project the user has access to.

The data represented by that DataSet can be copied into multiple projects. In such cases, the DataSet data remains as one instance, and multiple pointers are created to the original data.

A user can view all DataSets in all of their projects at once.

Samples and Runs are not contained in projects. However, Runs do specify a single project as the destination for their sequence data.

### Project States

Project States list:

- **CREATED:** Project has been created
- **ACTIVE:** Project is currently active

## 3.3.2 List All Projects

Get the list of all projects available on the system.

---

**Note:** OAuth 2.0 authentication is required for this endpoint. See *Authentication* section in [Introduction](#) for more detail.

---

### Request

| Method | URI  |
|--------|--|
| GET    | http://<host>:<port>/secondary-analysis/projects |

| Request Headers | Description   | Re-quired | Sample Value  |
|-----------------|---|-----------|---|
| Accept          | Content-Types that are acceptable for the response. | Yes       | application/json  |
| Authorization   | Authentication credentials for HTTP authentication. | Yes       | Authorization: Bearer eyJhbGciOiJ-SUzI1NiIsInR5cCI6IkpXVCJ9.eyJp... |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Get the list of all projects available on the system:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/projects>

### Response

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request.   |
| 401 Unauthorized   | The resource requires authentication, which was not supplied with the request                       | Occurs when the Authorization header was omitted in the request.  |
| 401 Unauthorized   | The supplied authentication is invalid  | Occurs when an invalid (e.g. expired) authentication token was passed in the Authorization header of the request. |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml |

| Response Headers            | Description  | Re-quired | Sample Value                    |
|-----------------------------|--|-----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes       | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes       | Fri, 22 Jul 2016 23:16:23 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes       | 379                             |
| Content-Type                | The MIME type of this content.   | Yes       | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes       | spray-can/1.3.3                 |

| Media Type       | Response Body Representation / Schema          |
|------------------|--|
| application/json | See <i>List all projects - response schema</i> |

### Sample Response

See *List all projects - response sample*

## Additional Information

| Authentication   | Technical Support           |
|--|-----------------------------|
| OAuth 2.0 authentication is required for this endpoint. See <i>Authentication</i> section in Introduction for more detail. | E-mail:<br>support@pacb.com |

## Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.2 | New service endpoint.  | N/A                 |

## List all projects - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.projects.list",
  "version" : "0.1.0",
  "title" : "Projects List",
  "description" : "Array of Project objects",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "name" : {
        "title" : "Project Name",
        "description" : "Name of this project",
        "type" : "string"
      },
      "id" : {
        "title" : "Project Id",
        "description" : "Identifier of this project",
        "type" : "integer"
      },
      "description" : {
        "title" : "Project Description",
        "description" : "Description of this project",
        "type" : "string"
      },
      "createdAt" : {
        "title" : "Created at",
        "description" : "Time when this project was created",
        "type" : "string",
        "format" : "date-time"
      },
      "updatedAt" : {
        "title" : "Updated at",
        "description" : "Time when this project was updated",
        "type" : "string",
        "format" : "date-time"
      },
      "state" : {
        "title" : "Project State",
        "description" : "Project state (CREATED, ACTIVE)",
        "type" : "string"
      }
    }
  }
}
```



```
    }
  },
  "required" : [
    "name",
    "id",
    "description",
    "createdAt",
    "updatedAt",
    "state"
  ]
},
"additionalItems" : false
}
```

### List all projects - response sample

```
[{
  "name" : "General Project",
  "updatedAt" : "2016-04-28T23:32:09.576Z",
  "state" : "CREATED",
  "description" : "General Project",
  "id" : 1,
  "createdAt" : "2016-04-28T23:32:09.576Z"
}, {
  "name" : "Test Project",
  "updatedAt" : "2016-07-22T23:09:07.426Z",
  "state" : "ACTIVE",
  "description" : "My First Test Project",
  "id" : 2,
  "createdAt" : "2016-07-22T18:33:54.666Z"
}
]
```

### 3.3.3 Create Project

Create a new project.

---

**Note:** OAuth 2.0 authentication is required for this endpoint. See *Authentication* section in [Introduction](#) for more detail.

---

#### Request

| Method | URI   |
|--------|---|
| POST   | <a href="http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/projects">http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/projects</a> |

| Request Headers | Description   | Re-quired | Sample Value  |
|-----------------|---|-----------|---|
| Content-Type    | The MIME type of the content in the request.        | Yes       | application/json  |
| Accept          | Content-Types that are acceptable for the response. | Yes       | application/json  |
| Authorization   | Authentication credentials for HTTP authentication. | Yes       | Authorization: Bearer eyJhbGciOiJ-SUzI1NiIsInR5cCI6IkpXVCJ9.eyJp... |

| Media Type       | Request Body Representation / Schema       |
|------------------|--|
| application/json | See <i>Create project - request schema</i> |

### Sample Request

See *Create project - request sample*

### Response

| HTTP Status Code                      | Error Message   | Description   |
|---------------------------------------|---|---|
| 201 Created                           | None  | Successful completion of the request. The newly created project object will be returned in the response body.                                   |
| 400 Bad Request                       | The request content was malformed: deserialising ProjectRequest: missing description, found name"   | Occurs when a required field ("description", in the example) was missing in the request body.   |
| 401 Unau-<br>thorized                 | The resource requires authentication, which was not supplied with the request                       | Occurs when the Authorization header was omitted in the request.  |
| 401 Unau-<br>thorized                 | The supplied authentication is invalid  | Occurs when an invalid (e.g. expired) authentication token was passed in the Authorization header of the request.                               |
| 406 Not Acceptable                    | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml                               |
| 415 Un-<br>supported<br>Media<br>Type | There was a problem with the request's Content-Type: Expected 'application/json'                    | Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Thu, 04 Aug 2016 23:59:02 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 407                             |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.3                 |

| Media Type       | Response Body Representation / Schema       |
|------------------|---|
| application/json | See <i>Create project - response schema</i> |

### Sample Response

See *Create project - response sample*

### Additional Information

| Authentication   | Technical Support  |
|--|--|
| OAuth 2.0 authentication is required for this endpoint. See <i>Authentication</i> section in Introduction for more detail. | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

### Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.2 | New service endpoint.  | N/A                 |

### Create project - request schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.project.new",
  "version" : "0.1.0",
  "title" : "New Project",
  "description" : "A subset of Project object required to create a new project",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Project Name",
      "description" : "Name of this project",
      "type" : "string"
    },
    "description" : {
      "title" : "Project Description",
      "description" : "Description of this project",

```

```

    "type" : "string"
  }
},
"required" : [
  "name",
  "description"
],
"additionalProperties" : false
}

```

**Note:** The structure of the POST request body for creating a project may be the same as the full project structure (see *Create project - response schema*), but many of the fields are optional. Only “name” and “description” are required fields. The full project structure is allowed in the POST request body.

### Create project - request sample

Create a project:

POST <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/projects>

```

{
  "name" : "Test Project",
  "description" : "My First Test Project"
}

```

**Note:** The value of the “name” field passed in the request body does not have to be unique. If a project object with the same “name” already exists, the new project object still will be created successfully, with a new “id” allocated for it by the server.

### Create project - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.project.object",
  "version" : "0.1.0",
  "title" : "Project Object",
  "description" : "Project object schema",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Project Name",
      "description" : "Name of this project",
      "type" : "string"
    },
    "id" : {
      "title" : "Project Id",
      "description" : "Identifier of this project",
      "type" : "integer"
    }
  }
}

```

```
},
"description" : {
  "title" : "Project Description",
  "description" : "Description of this project",
  "type" : "string"
},
"createdAt" : {
  "title" : "Created at",
  "description" : "Time when this project was created",
  "type" : "string",
  "format" : "date-time"
},
"updatedAt" : {
  "title" : "Updated at",
  "description" : "Time when this project was updated",
  "type" : "string",
  "format" : "date-time"
},
"state" : {
  "title" : "Project State",
  "description" : "Project state (CREATED, ACTIVE)",
  "type" : "string"
},
"datasets" : {
  "title" : "Datasets Array",
  "description" : "Array of the datasets that belong to this project",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "id" : {
        "title" : "Dataset Id",
        "description" : "Identifier of this dataset",
        "type" : "integer",
        "minimum" : 0
      },
      "uuid" : {
        "title" : "Dataset UUID",
        "description" : "UUID of this dataset",
        "type" : "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
      },
      "name" : {
        "title" : "Dataset Name",
        "description" : "Display name of this dataset",
        "type" : "string",
        "minLength" : 1
      },
      "version" : {
        "title" : "Version",
        "description" : "Version of this dataset",
        "type" : "string",
        "format" : "sem-ver",
        "minLength" : 5
      },
      "createdAt" : {
```

```

    "title" : "Created at",
    "description" : "Time when this dataset was created",
    "type" : "string",
    "format" : "date-time"
  },
  "updatedAt" : {
    "title" : "Updated at",
    "description" : "Time when this dataset was updated",
    "type" : "string",
    "format" : "date-time"
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Identifier of the project that this dataset belongs to",
    "type" : "integer",
    "minimum" : 0
  },
  "jobId" : {
    "title" : "Job Id",
    "description" : "Identifier of the job that generated this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "userId" : {
    "title" : "User Id",
    "description" : "Identifier of the user who imported this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "path" : {
    "title" : "Dataset Path",
    "description" : "Path to this dataset",
    "type" : "string",
    "format" : "uri"
  },
  "tags" : {
    "title" : "Dataset Tags",
    "description" : "Tags assigned to this dataset upon creation.",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  },
  "numRecords" : {
    "title" : "Number of Records",
    "description" : "Number of records in this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "totalLength" : {
    "title" : "Total Length",
    "description" : "Total length of this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "md5" : {
    "title" : "md5",

```

```
    "description" : "md5 checksum of this dataset",
    "type" : "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-9]{32}$"
  },
  "isActive" : {
    "title" : "Is Active",
    "description" : "Boolean flag specifying whether this dataset is active",
    "type" : "boolean"
  },
  "comments" : {
    "title" : "Comments",
    "description" : "User description and comments about this dataset",
    "type" : "string"
  }
},
"required" : [
  "id",
  "uuid",
  "name",
  "version",
  "createdAt",
  "updatedAt",
  "projectId",
  "jobId",
  "userId",
  "path",
  "tags",
  "numRecords",
  "totalLength",
  "md5",
  "isActive",
  "comments"
],
"additionalProperties" : false
},
"additionalItems" : false
},
"members" : {
  "title" : "Members Array",
  "description" : "Array of the members that belong to this project",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "user" : {
        "title" : "User",
        "description" : "Member user information",
        "type" : "object",
        "properties" : {
          "login" : {
            "title" : "User Login",
            "description" : "Login name of this user",
            "type" : "string"
          },
          "email" : {
            "title" : "User Email",
```

```

        "description" : "Email address of this user",
        "type" : "string"
    },
    "firstName" : {
        "title" : "User First Name",
        "description" : "First name of this user",
        "type" : "string"
    },
    "lastName" : {
        "title" : "User Last Name",
        "description" : "Last name of this user",
        "type" : "string"
    },
    "id" : {
        "title" : "User Id",
        "description" : "Identifier of this user",
        "type" : "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}$"
    },
    "roles" : {
        "title" : "User Roles",
        "description" : "Array of roles of this user",
        "type" : "array",
        "minItems" : 1,
        "items" : {
            "type" : "string",
            "description" : "User role, e.g. ADMIN"
        },
        "additionalItems" : false
    }
},
"required" : [
    "login",
    "email",
    "firstName",
    "lastName",
    "id",
    "roles"
],
"additionalProperties" : false
},
"role" : {
    "title" : "Member Role",
    "description" : "Member role in the project (Owner, Can Write, Can Read)",
    "type" : "string"
}
},
"required" : [
    "user",
    "role"
],
"additionalProperties" : false
},
"additionalItems" : false
}
},
"required" : [

```



```
"name",
"id",
"description",
"createdAt",
"updatedAt",
"state",
"datasets",
"members"
],
"additionalProperties" : false
}
```

### Create project - response sample

```
{
  "name" : "Test Project",
  "updatedAt" : "2016-08-04T23:59:02.622Z",
  "state" : "CREATED",
  "description" : "My First Test Project",
  "datasets" : [],
  "id" : 2,
  "createdAt" : "2016-08-04T23:59:02.622Z",
  "members" : [{
    "user" : {
      "email" : "jdoe@pacificbiosciences.com",
      "lastName" : "Doe",
      "firstName" : "John",
      "id" : "4b0c0df5-1f82-418c-b376-35acec8b291c",
      "roles" : [],
      "login" : "jdoe"
    },
    "role" : "Owner"
  }
]
```

### 3.3.4 Fetch Project by Id

Fetch the project object by its Id.

---

**Note:** Valid project Id values can be found in “id” fields of objects returned by the [List All Projects](#) request.

---

**Note:** OAuth 2.0 authentication is required for this endpoint. See *Authentication* section in [Introduction](#) for more detail.

---

#### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/projects/{id}">http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/projects/{id}</a> |

| Path Parameters | Data Type | Description  | Required | Multi-valued | Possible Values |
|-----------------|-----------|--|----------|--------------|-----------------|
| id              | integer   | Unique identifier of the project; valid Id values can be found in “id” fields of objects returned by <a href="#">List All Projects</a> . | Yes      | No           | 1<br>43         |

| Request Headers | Description   | Re-quired | Sample Value  |
|-----------------|---|-----------|---|
| Accept          | Content-Types that are acceptable for the response. | Yes       | application/json  |
| Authorization   | Authentication credentials for HTTP authentication. | Yes       | Authorization: Bearer eyJhbGciOiJ-SUzI1NiIsInR5cCI6IkpXVCJ9.eyJp... |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Fetch the project object with Id = 1:

GET <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/projects/1>

## Response

| HTTP Status Code    | Error Message   | Description  |
|---------------------|---|--|
| 200 OK              | None  | Successful completion of the request.  |
| 401 Unauthenticated | The resource requires authentication, which was not supplied with the request                       | Occurs when the Authorization header was omitted in the request.   |
| 401 Unauthenticated | The supplied authentication is invalid  | Occurs when an invalid (e.g. expired) authentication token was passed in the Authorization header of the request.  |
| 404 Not Found       | Unable to find project 11   | Occurs when an invalid value of Id (non-existing project identifier) was passed in the request. Note: To get the list of valid Id values, use <a href="#">List All Projects</a> request. |
| 406 Not Acceptable  | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml  |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Wed, 03 Aug 2016 16:35:21 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 141528                          |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.3                 |

| Media Type       | Response Body Representation / Schema                     |
|------------------|---|
| application/json | See <a href="#">Fetch project by id - response schema</a> |

## Sample Response

See [Fetch project by id - response sample](#)

## Additional Information

| Authentication  | Technical Support  |
|---|--|
| OAuth 2.0 authentication is required for this endpoint. See <a href="#">Authentication</a> section in <a href="#">Introduction</a> for more detail. | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

## Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.2 | New service endpoint.  | N/A                 |

## Fetch project by id - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.project.object",
  "version" : "0.1.0",
  "title" : "Project Object",
  "description" : "Project object schema",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Project Name",
      "description" : "Name of this project",
      "type" : "string"
    },
    "id" : {
      "title" : "Project Id",
      "description" : "Identifier of this project",
      "type" : "integer"
    },
    "description" : {
      "title" : "Project Description",
      "description" : "Description of this project",
      "type" : "string"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this project was created",
      "type" : "string",
      "format" : "date-time"
    },
    "updatedAt" : {
      "title" : "Updated at",
      "description" : "Time when this project was updated",
      "type" : "string",
      "format" : "date-time"
    },
    "state" : {
      "title" : "Project State",
      "description" : "Project state (CREATED, ACTIVE)",
      "type" : "string"
    },
    "datasets" : {
      "title" : "Datasets Array",
      "description" : "Array of the datasets that belong to this project",
      "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "object",
        "properties" : {
          "id" : {

```

```
    "title" : "Dataset Id",
    "description" : "Identifier of this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "uuid" : {
    "title" : "Dataset UUID",
    "description" : "UUID of this dataset",
    "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}"
  },
  "name" : {
    "title" : "Dataset Name",
    "description" : "Display name of this dataset",
    "type" : "string",
    "minLength" : 1
  },
  "version" : {
    "title" : "Version",
    "description" : "Version of this dataset",
    "type" : "string",
    "format" : "sem-ver",
    "minLength" : 5
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when this dataset was created",
    "type" : "string",
    "format" : "date-time"
  },
  "updatedAt" : {
    "title" : "Updated at",
    "description" : "Time when this dataset was updated",
    "type" : "string",
    "format" : "date-time"
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Identifier of the project that this dataset belongs to",
    "type" : "integer",
    "minimum" : 0
  },
  "jobId" : {
    "title" : "Job Id",
    "description" : "Identifier of the job that generated this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "userId" : {
    "title" : "User Id",
    "description" : "Identifier of the user who imported this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "path" : {
    "title" : "Dataset Path",
    "description" : "Path to this dataset",
```

```

    "type" : "string",
    "format" : "uri"
  },
  "tags" : {
    "title" : "Dataset Tags",
    "description" : "Tags assigned to this dataset upon creation.",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  },
  "numRecords" : {
    "title" : "Number of Records",
    "description" : "Number of records in this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "totalLength" : {
    "title" : "Total Length",
    "description" : "Total length of this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of this dataset",
    "type" : "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-9]{32}$"
  },
  "isActive" : {
    "title" : "Is Active",
    "description" : "Boolean flag specifying whether this dataset is active",
    "type" : "boolean"
  },
  "comments" : {
    "title" : "Comments",
    "description" : "User description and comments about this dataset",
    "type" : "string"
  }
},
"required" : [
  "id",
  "uuid",
  "name",
  "version",
  "createdAt",
  "updatedAt",
  "projectId",
  "jobId",
  "userId",
  "path",
  "tags",
  "numRecords",
  "totalLength",
  "md5",
  "isActive",

```

```

    "comments"
  ],
  "additionalProperties" : false
},
"additionalItems" : false
},
"members" : {
  "title" : "Members Array",
  "description" : "Array of the members that belong to this project",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "user" : {
        "title" : "User",
        "description" : "Member user information",
        "type" : "object",
        "properties" : {
          "login" : {
            "title" : "User Login",
            "description" : "Login name of this user",
            "type" : "string"
          },
          "email" : {
            "title" : "User Email",
            "description" : "Email address of this user",
            "type" : "string"
          },
          "firstName" : {
            "title" : "User First Name",
            "description" : "First name of this user",
            "type" : "string"
          },
          "lastName" : {
            "title" : "User Last Name",
            "description" : "Last name of this user",
            "type" : "string"
          },
          "id" : {
            "title" : "User Id",
            "description" : "Identifier of this user",
            "type" : "string",
            "format" : "uuid",
            "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}$"
          },
          "roles" : {
            "title" : "User Roles",
            "description" : "Array of roles of this user",
            "type" : "array",
            "minItems" : 1,
            "items" : {
              "type" : "string",
              "description" : "User role, e.g. ADMIN"
            },
            "additionalItems" : false
          }
        }
      }
    }
  }
},

```

```

        "required" : [
            "login",
            "email",
            "firstName",
            "lastName",
            "id",
            "roles"
        ],
        "additionalProperties" : false
    },
    "role" : {
        "title" : "Member Role",
        "description" : "Member role in the project (Owner, Can Write, Can Read)",
        "type" : "string"
    }
},
"required" : [
    "user",
    "role"
],
"additionalProperties" : false
},
"additionalItems" : false
}
},
"required" : [
    "name",
    "id",
    "description",
    "createdAt",
    "updatedAt",
    "state",
    "datasets",
    "members"
],
"additionalProperties" : false
}

```

### Fetch project by id - response sample

```

{
  "name" : "General Project",
  "updatedAt" : "2016-08-03T15:03:58.621Z",
  "state" : "CREATED",
  "description" : "General Project",
  "datasets" : [{
    "name" : "lambdaNEB",
    "updatedAt" : "2016-08-03T15:05:22.672Z",
    "path" : "/pbi/dept/secondary/smrtsuite_183872/referenceset/lambdaNEB/referenceset.xml",
    "tags" : "",
    "uuid" : "1a369917-507e-4f70-9f38-69614ff828b6",
    "totalLength" : 48502,
    "projectId" : 1,
    "numRecords" : 1,
    "version" : "3.0.1",
    "id" : 1,
  }
]
}

```



```

"md5" : "4861bca63e02aa26c92724febb3299c2",
"jobId" : 1,
"createdAt" : "2016-08-03T15:05:22.672Z",
"isActive" : true,
"userId" : 1,
"comments" : "reference dataset comments"
}, {
  "name" : "pacbio_barcode_96",
  "updatedAt" : "2016-08-03T15:05:40.323Z",
  "path" : "/pbi/dept/secondary/smrtsuite_183872/barcodes/pacbio_barcode_96/barcodeset.xml",
  "tags" : "",
  "uuid" : "e72583fc-3fc6-caa5-5e62-01df662128e8",
  "totalLength" : 1536,
  "projectId" : 1,
  "numRecords" : 96,
  "version" : "3.0.1",
  "id" : 3,
  "md5" : "bc6701b507bb6818a753381f83737995",
  "jobId" : 3,
  "createdAt" : "2016-08-03T15:05:40.323Z",
  "isActive" : true,
  "userId" : 1,
  "comments" : "Barcode imported"
}, {
  "name" : "Convert-movie",
  "updatedAt" : "2016-08-03T15:06:30.358Z",
  "path" : "/pbi/dept/secondary/siv/2530923/m140906_c10067_s1_p0.hdfsubreadset.xml",
  "tags" : "pacbio.secondary.instrument=RS",
  "uuid" : "abf54d44-19a6-48d2-b2d2-dfdef09de77",
  "totalLength" : 5000000,
  "projectId" : 1,
  "numRecords" : 150000,
  "version" : "3.0.1",
  "id" : 8,
  "md5" : "88cc1a85eef3772abd9bb2ec5299993",
  "jobId" : 8,
  "createdAt" : "2016-08-03T15:06:30.358Z",
  "isActive" : true,
  "userId" : 1,
  "comments" : ""
}, {
  "name" : "ecoli_k12_MG1655",
  "updatedAt" : "2016-08-03T15:07:47.636Z",
  "path" : "/pbi/dept/secondary/siv/ecoli_k12_MG1655/ecoli_k12_MG1655.referenceset.xml",
  "tags" : "",
  "uuid" : "e2dfa44b-8ce1-46e3-9046-7622b926d595",
  "totalLength" : 4639675,
  "projectId" : 1,
  "numRecords" : 1,
  "version" : "0.3.0",
  "id" : 41,
  "md5" : "d6ffff25c6db968c68fbaac1cb2ae3d9d",
  "jobId" : 41,
  "createdAt" : "2016-08-03T15:07:47.636Z",
  "isActive" : true,
  "userId" : 1,
  "comments" : "reference dataset comments"
}, {

```

```

    "name" : "Fluidigm_EGFR_600bp_ampliconOnly",
    "updatedAt" : "2016-08-03T15:08:00.120Z",
    "path" : "/pbi/dept/secondary/siv/Fluidigm_EGFR_600bp_ampliconOnly.referenceset.xml",
    "tags" : "",
    "uuid" : "9cd24a8e-efd4-47e8-b03d-1a46e7698368",
    "totalLength" : 25309,
    "projectId" : 1,
    "numRecords" : 49,
    "version" : "0.3.0",
    "id" : 46,
    "md5" : "4ce950a801bb782de18d796aa4c82af3",
    "jobId" : 46,
    "createdAt" : "2016-08-03T15:08:00.120Z",
    "isActive" : true,
    "userId" : 1,
    "comments" : "reference dataset comments"
  }, {
    "name" : "pacbio_dataset_alignmentset-160803_160641242",
    "updatedAt" : "2016-08-03T16:07:26.416Z",
    "path" : "/pbi/dept/secondary/smrtsuite_183872/0214/combined.alignmentset.xml",
    "tags" : "",
    "uuid" : "6b4bad36-f323-2015-686c-aabf600b06fe",
    "totalLength" : 9954,
    "projectId" : 1,
    "numRecords" : 1,
    "version" : "3.0.1",
    "id" : 231,
    "md5" : "f9344e0dfd5c9c4f93d93b03eda9708e",
    "jobId" : 214,
    "createdAt" : "2016-08-03T16:07:26.416Z",
    "isActive" : true,
    "userId" : 1,
    "comments" : "alignment dataset converted"
  }
],
  "id" : 1,
  "createdAt" : "2016-08-03T15:03:58.621Z",
  "members" : [{
    "user" : {
      "email" : "jdoe@pacificbiosciences.com",
      "lastName" : "Doe",
      "firstName" : "John",
      "id" : "4b0c0df5-1f82-418c-b376-35acec8b291c",
      "roles" : [],
      "login" : "jdoe"
    },
    "role" : "Owner"
  }, {
    "user" : {
      "email" : "tcruise@pacificbiosciences.com",
      "lastName" : "Cruise",
      "firstName" : "Tom",
      "id" : "50dafeec-d6ad-48b5-9aca-e13e44114f39",
      "roles" : [],
      "login" : "tcruise"
    },
    "role" : "Can Write"
  }, {

```

```

    "user" : {
      "email" : "nkidman@pacificbiosciences.com",
      "lastName" : "Kidman",
      "firstName" : "Nicole",
      "id" : "bc325c0f-5286-4703-a37e-d193639cb206",
      "roles" : [],
      "login" : "nkidman"
    },
    "role" : "Can Read"
  }
]
}

```

### 3.3.5 Update Project Datasets

Add a dataset to a project.

**Note:** OAuth 2.0 authentication is required for this endpoint. See *Authentication* section in *Introduction* for more detail.

#### Request

| Method | URI   |
|--------|---|
| PUT    | <a href="http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/projects/{id}">http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/projects/{id}</a> |

| Path Parameters | Data Type | Description  | Required | Multi-valued | Possible Values |
|-----------------|-----------|--|----------|--------------|-----------------|
| id              | integer   | Unique identifier of the project; valid Id values can be found in “id” fields of objects returned by <a href="#">List All Projects</a> . | Yes      | No           | 2<br>17         |

| Request Headers | Description   | Re-quired | Sample Value  |
|-----------------|---|-----------|---|
| Content-Type    | The MIME type of the content in the request.        | Yes       | application/json  |
| Accept          | Content-Types that are acceptable for the response. | Yes       | application/json  |
| Authorization   | Authentication credentials for HTTP authentication. | Yes       | Authorization: Bearer eyJhbGciOiJ-SUzI1NiIsInR5cCI6IkpXVCJ9.eyJp... |

| Media Type       | Request Body Representation / Schema                |
|------------------|---|
| application/json | See <i>Update project datasets - request schema</i> |

### Sample Request

See *Update project datasets - request sample*

### Response

| HTTP Status Code           | Error Message   | Description  |
|----------------------------|---|--|
| 200 OK                     | None  | Successful completion of the request. The updated project object will be returned in the response body.  |
| 400 Bad Request            | The request content was malformed: deserialising ProjectRequest: missing description, found name”   | Occurs when a required field (“description”, in the example) was missing in the request body.  |
| 401 Unauthenticated        | The resource requires authentication, which was not supplied with the request                       | Occurs when the Authorization header was omitted in the request.   |
| 401 Unauthenticated        | The supplied authentication is invalid  | Occurs when an invalid (e.g. expired) authentication token was passed in the Authorization header of the request.  |
| 404 Not Found              | Unable to find project 3  | Occurs when an invalid value of Id (non-existing project identifier) was passed in the request. Note: To get the list of valid Id values, use <a href="#">List All Projects</a> request. |
| 406 Not Acceptable         | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml  |
| 415 Unsupported Media Type | There was a problem with the request’s Content-Type: Expected ‘application/json’                    | Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded  |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Fri, 05 Aug 2016 21:56:39 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 926                             |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.3                 |

| Media Type       | Response Body Representation / Schema                |
|------------------|--|
| application/json | See <i>Update project datasets - response schema</i> |

### Sample Response

See *Update project datasets - response sample*

### Additional Information

| Authentication  | Technical Support           |
|---|-----------------------------|
| OAuth 2.0 authentication is required for this endpoint. See <i>Authentication</i> section in <i>Introduction</i> for more detail. | E-mail:<br>support@pacb.com |

### Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.2 | New service endpoint.  | N/A                 |

### Update project datasets - request schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.project.update.datasets",
  "version" : "0.1.0",
  "title" : "Project Datasets Update",
  "description" : "A subset of Project object intended for updating a project with datasets",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Project Name",
      "description" : "Name of this project",
      "type" : "string"
    },
    "description" : {
      "title" : "Project Description",
      "description" : "Description of this project",
      "type" : "string"
    },
    "datasets" : {
      "title" : "Datasets Array",
      "description" : "Array of the datasets that belong to this project",
      "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "object",
        "properties" : {
          "id" : {
            "title" : "Dataset Id",
            "description" : "Identifier of this dataset",
            "type" : "integer",
            "minimum" : 0
          }
        }
      }
    }
  }
}
```

```

    },
    "required" : [
      "id"
    ],
    "additionalProperties" : false
  },
  "additionalItems" : false
}
},
"required" : [
  "name",
  "description",
  "datasets"
],
"additionalProperties" : false
}

```

**Note:** The structure of the PUT request body for updating a project may be the same as the full project structure (see *Update project datasets - response schema*), but many of the fields are optional. Only “name”, “description”, and “datasets” array are required fields for adding a dataset to a project.

### Update project datasets - request sample

Add a dataset to a project:

PUT <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/projects/2>

```

{
  "name" : "Test Project",
  "description" : "My First Test Project",
  "datasets" : [{
    "id" : 48
  }
]
}

```

### Update project datasets - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacific.secondary.schemas.project.object",
  "version" : "0.1.0",
  "title" : "Project Object",
  "description" : "Project object schema",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Project Name",
      "description" : "Name of this project",
      "type" : "string"
    }
  }
}

```

```

},
"id" : {
  "title" : "Project Id",
  "description" : "Identifier of this project",
  "type" : "integer"
},
"description" : {
  "title" : "Project Description",
  "description" : "Description of this project",
  "type" : "string"
},
"createdAt" : {
  "title" : "Created at",
  "description" : "Time when this project was created",
  "type" : "string",
  "format" : "date-time"
},
"updatedAt" : {
  "title" : "Updated at",
  "description" : "Time when this project was updated",
  "type" : "string",
  "format" : "date-time"
},
"state" : {
  "title" : "Project State",
  "description" : "Project state (CREATED, ACTIVE)",
  "type" : "string"
},
"datasets" : {
  "title" : "Datasets Array",
  "description" : "Array of the datasets that belong to this project",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "id" : {
        "title" : "Dataset Id",
        "description" : "Identifier of this dataset",
        "type" : "integer",
        "minimum" : 0
      },
      "uuid" : {
        "title" : "Dataset UUID",
        "description" : "UUID of this dataset",
        "type" : "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
      },
      "name" : {
        "title" : "Dataset Name",
        "description" : "Display name of this dataset",
        "type" : "string",
        "minLength" : 1
      },
      "version" : {
        "title" : "Version",
        "description" : "Version of this dataset",

```

```

    "type" : "string",
    "format" : "sem-ver",
    "minLength" : 5
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when this dataset was created",
    "type" : "string",
    "format" : "date-time"
  },
  "updatedAt" : {
    "title" : "Updated at",
    "description" : "Time when this dataset was updated",
    "type" : "string",
    "format" : "date-time"
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Identifier of the project that this dataset belongs to",
    "type" : "integer",
    "minimum" : 0
  },
  "jobId" : {
    "title" : "Job Id",
    "description" : "Identifier of the job that generated this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "userId" : {
    "title" : "User Id",
    "description" : "Identifier of the user who imported this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "path" : {
    "title" : "Dataset Path",
    "description" : "Path to this dataset",
    "type" : "string",
    "format" : "uri"
  },
  "tags" : {
    "title" : "Dataset Tags",
    "description" : "Tags assigned to this dataset upon creation.",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  },
  "numRecords" : {
    "title" : "Number of Records",
    "description" : "Number of records in this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "totalLength" : {
    "title" : "Total Length",
    "description" : "Total length of this dataset",

```



```

    "type" : "integer",
    "minimum" : 0
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of this dataset",
    "type" : "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-9]{32}$"
  },
  "isActive" : {
    "title" : "Is Active",
    "description" : "Boolean flag specifying whether this dataset is active",
    "type" : "boolean"
  },
  "comments" : {
    "title" : "Comments",
    "description" : "User description and comments about this dataset",
    "type" : "string"
  }
},
"required" : [
  "id",
  "uuid",
  "name",
  "version",
  "createdAt",
  "updatedAt",
  "projectId",
  "jobId",
  "userId",
  "path",
  "tags",
  "numRecords",
  "totalLength",
  "md5",
  "isActive",
  "comments"
],
"additionalProperties" : false
},
"additionalItems" : false
},
"members" : {
  "title" : "Members Array",
  "description" : "Array of the members that belong to this project",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "user" : {
        "title" : "User",
        "description" : "Member user information",
        "type" : "object",
        "properties" : {
          "login" : {
            "title" : "User Login",

```

```

        "description" : "Login name of this user",
        "type" : "string"
    },
    "email" : {
        "title" : "User Email",
        "description" : "Email address of this user",
        "type" : "string"
    },
    "firstName" : {
        "title" : "User First Name",
        "description" : "First name of this user",
        "type" : "string"
    },
    "lastName" : {
        "title" : "User Last Name",
        "description" : "Last name of this user",
        "type" : "string"
    },
    "id" : {
        "title" : "User Id",
        "description" : "Identifier of this user",
        "type" : "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}$"
    },
    "roles" : {
        "title" : "User Roles",
        "description" : "Array of roles of this user",
        "type" : "array",
        "minItems" : 1,
        "items" : {
            "type" : "string",
            "description" : "User role, e.g. ADMIN"
        },
        "additionalItems" : false
    }
},
"required" : [
    "login",
    "email",
    "firstName",
    "lastName",
    "id",
    "roles"
],
"additionalProperties" : false
},
"role" : {
    "title" : "Member Role",
    "description" : "Member role in the project (Owner, Can Write, Can Read)",
    "type" : "string"
}
},
"required" : [
    "user",
    "role"
],
"additionalProperties" : false

```

```
    },
    "additionalItems" : false
  }
},
"required" : [
  "name",
  "id",
  "description",
  "createdAt",
  "updatedAt",
  "state",
  "datasets",
  "members"
],
"additionalProperties" : false
}
```

### Update project datasets - response sample

```
{
  "name" : "Test Project",
  "updatedAt" : "2016-08-05T21:56:39.568Z",
  "state" : "CREATED",
  "description" : "My First Test Project",
  "datasets" : [{
    "name" : "lambda",
    "updatedAt" : "2016-08-05T21:56:39.581Z",
    "path" : "/pbi/dept/secondary/siv/references/lambda/lambda.referenceset.xml",
    "tags" : "",
    "uuid" : "bf490f77-e615-462e-813a-0d5dc833bb5c",
    "totalLength" : 48502,
    "projectId" : 2,
    "numRecords" : 1,
    "version" : "0.3.0",
    "id" : 48,
    "md5" : "f46a9d229d529d9d46c09d6c333b11e0",
    "jobId" : 49,
    "createdAt" : "2016-08-05T21:07:04.626Z",
    "isActive" : true,
    "userId" : 1,
    "comments" : "reference dataset comments"
  }
],
  "id" : 2,
  "createdAt" : "2016-08-05T21:51:19.733Z",
  "members" : [{
    "user" : {
      "email" : "jdoe@pacificbiosciences.com",
      "lastName" : "Doe",
      "firstName" : "John",
      "id" : "4b0c0df5-1f82-418c-b376-35acec8b291c",
      "roles" : [],
      "login" : "jdoe"
    },
    "role" : "Owner"
  }
}
```

```
]
}
```

### 3.3.6 Update Project Members

Set the list of members in a project.

**Note:** OAuth 2.0 authentication is required for this endpoint. See *Authentication* section in [Introduction](#) for more detail.

#### Request

| Method | URI   |
|--------|---|
| PUT    | <a href="http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/projects/{id}">http://&lt;host&gt;:&lt;port&gt;/secondary-analysis/projects/{id}</a> |

| Path Parameters | Data Type | Description  | Required | Multi-valued | Possible Values |
|-----------------|-----------|--|----------|--------------|-----------------|
| id              | integer   | Unique identifier of the project; valid Id values can be found in “id” fields of objects returned by <a href="#">List All Projects</a> . | Yes      | No           | 2<br>17         |

| Request Headers | Description   | Re-quired | Sample Value  |
|-----------------|---|-----------|---|
| Content-Type    | The MIME type of the content in the request.        | Yes       | application/json  |
| Accept          | Content-Types that are acceptable for the response. | Yes       | application/json  |
| Authorization   | Authentication credentials for HTTP authentication. | Yes       | Authorization: Bearer eyJhbGciOiJ-SUzI1NiIsInR5cCI6IkpXVCJ9.eyJp... |

| Media Type       | Request Body Representation / Schema                        |
|------------------|---|
| application/json | See <a href="#">Update project members - request schema</a> |

Sample Request

See *Update project members - request sample*

Response

| HTTP Status Code            | Error Message   | Description  |
|-----------------------------|---|--|
| 200 OK                      | None  | Successful completion of the request. The updated project object will be returned in the response body.  |
| 400 Bad Request             | The request content was malformed: deserialising ProjectRequest: missing description, found name”   | Occurs when a required field (“description”, in the example) was missing in the request body.  |
| 401 Unau-<br>thorized       | The resource requires authentication, which was not supplied with the request                       | Occurs when the Authorization header was omitted in the request.   |
| 401 Unau-<br>thorized       | The supplied authentication is invalid  | Occurs when an invalid (e.g. expired) authentication token was passed in the Authorization header of the request.  |
| 404 Not Found               | Unable to find project 3  | Occurs when an invalid value of Id (non-existing project identifier) was passed in the request. Note: To get the list of valid Id values, use <a href="#">List All Projects</a> request. |
| 406 Not Acceptable          | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml  |
| 415 Un-supported Media Type | There was a problem with the request’s Content-Type: Expected ‘application/json’                    | Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded  |

| Response Headers            | Description  | Re-quired | Sample Value                    |
|-----------------------------|--|-----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes       | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes       | Fri, 05 Aug 2016 21:58:17 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes       | 1435                            |
| Content-Type                | The MIME type of this content.   | Yes       | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes       | spray-can/1.3.3                 |

| Media Type       | Response Body Representation / Schema               |
|------------------|---|
| application/json | See <i>Update project members - response schema</i> |

## Sample Response

See *Update project members - response sample*

## Additional Information

| Authentication   | Technical Support           |
|--|-----------------------------|
| OAuth 2.0 authentication is required for this endpoint. See <i>Authentication</i> section in Introduction for more detail. | E-mail:<br>support@pacb.com |

## Change Log

| Release           | Description of changes | Backward-compatible |
|-------------------|------------------------|---------------------|
| SMRT Analysis 3.2 | New service endpoint.  | N/A                 |

## Update project members - request schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.project.update.members",
  "version" : "0.1.0",
  "title" : "Project Members Update",
  "description" : "A subset of Project object intended for updating a project with members",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Project Name",
      "description" : "Name of this project",
      "type" : "string"
    },
    "description" : {
      "title" : "Project Description",
      "description" : "Description of this project",
      "type" : "string"
    },
    "members" : {
      "title" : "Members Array",
      "description" : "Array of the members that belong to this project",
      "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "object",
        "properties" : {
          "user" : {
            "title" : "User",
            "description" : "Member user information",
            "type" : "object",
            "properties" : {
              "login" : {
                "title" : "User Login",
                "description" : "Login name of this user",
                "type" : "string"
              }
            }
          }
        }
      }
    }
  }
}
```

```
    },
    "required" : [
      "login"
    ],
    "additionalProperties" : false
  },
  "role" : {
    "title" : "Member Role",
    "description" : "Member role in the project (Owner, Can Write, Can Read)",
    "type" : "string"
  }
},
"required" : [
  "user",
  "role"
],
"additionalProperties" : false
},
"additionalItems" : false
}
},
"required" : [
  "name",
  "description",
  "members"
],
"additionalProperties" : false
}
```

---

**Note:** The structure of the PUT request body for updating a project may be the same as the full project structure (see *Update project members - response schema*), but many of the fields are optional. Only “name”, “description”, and “members” array are required fields for setting the list of members in a project.

---

### Update project members - request sample

Set the list of members in a project:

PUT <http://smrtlink-alpha.nanofluidics.com:8081/secondary-analysis/projects/2>

```
{
  "name" : "Test Project",
  "description" : "My First Test Project",
  "state" : "ACTIVE",
  "members" : [{
    "user" : {
      "login" : "jdoe"
    },
    "role" : "Owner"
  }, {
    "user" : {
      "login" : "tcruise"
    }
  }
}
```

```

    },
    "role" : "Can Write"
  }, {
    "user" : {
      "login" : "nkidman"
    },
    "role" : "Can Read"
  }
]
}

```

### Update project members - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacific.secondary.schemas.project.object",
  "version" : "0.1.0",
  "title" : "Project Object",
  "description" : "Project object schema",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Project Name",
      "description" : "Name of this project",
      "type" : "string"
    },
    "id" : {
      "title" : "Project Id",
      "description" : "Identifier of this project",
      "type" : "integer"
    },
    "description" : {
      "title" : "Project Description",
      "description" : "Description of this project",
      "type" : "string"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this project was created",
      "type" : "string",
      "format" : "date-time"
    },
    "updatedAt" : {
      "title" : "Updated at",
      "description" : "Time when this project was updated",
      "type" : "string",
      "format" : "date-time"
    },
    "state" : {
      "title" : "Project State",
      "description" : "Project state (CREATED, ACTIVE)",
      "type" : "string"
    },
    "datasets" : {
      "title" : "Datasets Array",
      "description" : "Array of the datasets that belong to this project",

```



```
"type" : "array",
"minItems" : 1,
"items" : {
  "type" : "object",
  "properties" : {
    "id" : {
      "title" : "Dataset Id",
      "description" : "Identifier of this dataset",
      "type" : "integer",
      "minimum" : 0
    },
    "uuid" : {
      "title" : "Dataset UUID",
      "description" : "UUID of this dataset",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "name" : {
      "title" : "Dataset Name",
      "description" : "Display name of this dataset",
      "type" : "string",
      "minLength" : 1
    },
    "version" : {
      "title" : "Version",
      "description" : "Version of this dataset",
      "type" : "string",
      "format" : "sem-ver",
      "minLength" : 5
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this dataset was created",
      "type" : "string",
      "format" : "date-time"
    },
    "updatedAt" : {
      "title" : "Updated at",
      "description" : "Time when this dataset was updated",
      "type" : "string",
      "format" : "date-time"
    },
    "projectId" : {
      "title" : "Project Id",
      "description" : "Identifier of the project that this dataset belongs to",
      "type" : "integer",
      "minimum" : 0
    },
    "jobId" : {
      "title" : "Job Id",
      "description" : "Identifier of the job that generated this dataset",
      "type" : "integer",
      "minimum" : 0
    },
    "userId" : {
      "title" : "User Id",
      "description" : "Identifier of the user who imported this dataset",
```

```

    "type" : "integer",
    "minimum" : 0
  },
  "path" : {
    "title" : "Dataset Path",
    "description" : "Path to this dataset",
    "type" : "string",
    "format" : "uri"
  },
  "tags" : {
    "title" : "Dataset Tags",
    "description" : "Tags assigned to this dataset upon creation.",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  },
  "numRecords" : {
    "title" : "Number of Records",
    "description" : "Number of records in this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "totalLength" : {
    "title" : "Total Length",
    "description" : "Total length of this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of this dataset",
    "type" : "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-9]{32}$"
  },
  "isActive" : {
    "title" : "Is Active",
    "description" : "Boolean flag specifying whether this dataset is active",
    "type" : "boolean"
  },
  "comments" : {
    "title" : "Comments",
    "description" : "User description and comments about this dataset",
    "type" : "string"
  }
},
"required" : [
  "id",
  "uuid",
  "name",
  "version",
  "createdAt",
  "updatedAt",
  "projectId",
  "jobId",
  "userId",

```

```

    "path",
    "tags",
    "numRecords",
    "totalLength",
    "md5",
    "isActive",
    "comments"
  ],
  "additionalProperties" : false
},
"additionalItems" : false
},
"members" : {
  "title" : "Members Array",
  "description" : "Array of the members that belong to this project",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "user" : {
        "title" : "User",
        "description" : "Member user information",
        "type" : "object",
        "properties" : {
          "login" : {
            "title" : "User Login",
            "description" : "Login name of this user",
            "type" : "string"
          },
          "email" : {
            "title" : "User Email",
            "description" : "Email address of this user",
            "type" : "string"
          },
          "firstName" : {
            "title" : "User First Name",
            "description" : "First name of this user",
            "type" : "string"
          },
          "lastName" : {
            "title" : "User Last Name",
            "description" : "Last name of this user",
            "type" : "string"
          },
          "id" : {
            "title" : "User Id",
            "description" : "Identifier of this user",
            "type" : "string",
            "format" : "uuid",
            "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}$"
          },
          "roles" : {
            "title" : "User Roles",
            "description" : "Array of roles of this user",
            "type" : "array",
            "minItems" : 1,
            "items" : {

```

```

        "type" : "string",
        "description" : "User role, e.g. ADMIN"
    },
    "additionalItems" : false
}
},
"required" : [
    "login",
    "email",
    "firstName",
    "lastName",
    "id",
    "roles"
],
"additionalProperties" : false
},
"role" : {
    "title" : "Member Role",
    "description" : "Member role in the project (Owner, Can Write, Can Read)",
    "type" : "string"
}
},
"required" : [
    "user",
    "role"
],
"additionalProperties" : false
},
"additionalItems" : false
}
},
"required" : [
    "name",
    "id",
    "description",
    "createdAt",
    "updatedAt",
    "state",
    "datasets",
    "members"
],
"additionalProperties" : false
}
}

```

### Update project members - response sample

```

{
  "name" : "Test Project",
  "updatedAt" : "2016-08-05T21:58:17.568Z",
  "state" : "ACTIVE",
  "description" : "My First Test Project",
  "datasets" : [{
    "name" : "lambda",
    "updatedAt" : "2016-08-05T21:56:39.581Z",
    "path" : "/pbi/dept/secondary/siv/references/lambda/lambda.referenceset.xml",
    "tags" : ""
  }
]
}

```

```
    "uuid" : "bf490f77-e615-462e-813a-0d5dc833bb5c",
    "totalLength" : 48502,
    "projectId" : 2,
    "numRecords" : 1,
    "version" : "0.3.0",
    "id" : 48,
    "md5" : "f46a9d229d529d9d46c09d6c333b11e0",
    "jobId" : 49,
    "createdAt" : "2016-08-05T21:07:04.626Z",
    "isActive" : true,
    "userId" : 1,
    "comments" : "reference dataset comments"
  }
],
"id" : 2,
"createdAt" : "2016-08-05T21:51:19.733Z",
"members" : [{
  "user" : {
    "email" : "jdoe@pacificbiosciences.com",
    "lastName" : "Doe",
    "firstName" : "John",
    "id" : "4b0c0df5-1f82-418c-b376-35acec8b291c",
    "roles" : [],
    "login" : "jdoe"
  },
  "role" : "Owner"
}, {
  "user" : {
    "email" : "tcruise@pacificbiosciences.com",
    "lastName" : "Cruise",
    "firstName" : "Tom",
    "id" : "50dafeec-d6ad-48b5-9aca-e13e44114f39",
    "roles" : [],
    "login" : "tcruise"
  },
  "role" : "Can Write"
}, {
  "user" : {
    "email" : "nkidman@pacificbiosciences.com",
    "lastName" : "Kidman",
    "firstName" : "Nicole",
    "id" : "bc325c0f-5286-4703-a37e-d193639cb206",
    "roles" : [],
    "login" : "nkidman"
  },
  "role" : "Can Read"
}
]
```

## SMRT BASE SERVICE API

### 4.1 Core Service

#### 4.1.1 Overview of Core Service

##### Use Cases

The Core Service is the service that provides metadata about each util service that is loaded, and monitors the util services that are loaded.

It also is the central hub where subsystem-to-subsystem communication occurs.

The Core Service includes endpoints that return the system status, configuration, and list of components.

The Core Service is accessible from the root of the application server.

#### 4.1.2 Get System Status

Get the current status of the system and uptime.

##### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/status">http://&lt;host&gt;:&lt;port&gt;/status</a> |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

**Sample Request**

Get the current status of the system and uptime:  
 GET <http://smrtlink-alpha.nanofluidics.com:8081/status>

**Response**

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request.   |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml |

| Response Headers            | Description  | Re-quired | Sample Value                    |
|-----------------------------|--|-----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes       | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes       | Fri, 01 Apr 2016 18:57:54 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes       | 267                             |
| Content-Type                | The MIME type of this content.   | Yes       | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes       | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema          |
|------------------|--|
| application/json | See <i>Get system status - response schema</i> |

**Sample Response**

See *Get system status - response sample*

**Additional Information**

| Authentication   | Technical Support  |
|------------------|--|
| See Introduction | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

**Change Log**

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Base 3.0 | New service endpoint.  | N/A                 |

## Get system status - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtbase.schemas.system.status",
  "version" : "0.1.0",
  "title" : "System Status",
  "description" : "The current status of the system and uptime",
  "type" : "object",
  "properties" : {
    "uuid" : {
      "title" : "System UUID",
      "description" : "UUID of the system",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "version" : {
      "title" : "System Version",
      "description" : "The version number of the system, e.g. 0.50.14-SNAPSHOT",
      "type" : "string"
    },
    "id" : {
      "title" : "System Id",
      "description" : "Identifier of the system, e.g. pacbio.smrtservices.smrtlink_analysis",
      "type" : "string"
    },
    "uptime" : {
      "title" : "System Uptime",
      "description" : "Uptime of the system in milliseconds",
      "type" : "integer"
    },
    "message" : {
      "title" : "System Message",
      "description" : "A narrative description of the system status",
      "type" : "string"
    },
    "user" : {
      "title" : "System User",
      "description" : "Login name of the system user",
      "type" : "string"
    }
  },
  "required" : [
    "uuid",
    "version",
    "id",
    "uptime",
    "message",
    "user"
  ],
  "additionalProperties" : false
}

```



**Get system status - response sample**

```
{
  "uuid" : "1e18c39d-7a24-4913-9042-22df46f2cc45",
  "version" : "0.50.14-SNAPSHOT",
  "id" : "pacific.smrtservices.smrtlink_analysis",
  "uptime" : 8275247,
  "message" : "Services have been up for 2 hours, 17 minutes and 55.247 seconds.",
  "user" : "secondarytest"
}
```

**4.1.3 Get System Configuration**

Get the current configuration of the system.

**Request**

| Method | URI                         |
|--------|-----------------------------|
| GET    | http://<host>:<port>/config |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

**Sample Request**

Get the current configuration of the system:  
 GET <http://smrtlink-alpha.nanofluidics.com:8081/config>

**Response**

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request.   |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml |

| Response Headers            | Description  | Re-quired | Sample Value                    |
|-----------------------------|--|-----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes       | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes       | Fri, 01 Apr 2016 19:01:02 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes       | 37538                           |
| Content-Type                | The MIME type of this content.   | Yes       | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes       | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema                 |
|------------------|---|
| application/json | See <i>Get system configuration - response schema</i> |

### Sample Response

See *Get system configuration - response sample*

### Additional Information

| Authentication   | Technical Support        |
|------------------|--------------------------|
| See Introduction | E-mail: support@pacb.com |

### Change Log

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Base 3.0 | New service endpoint.  | N/A                 |

### Get system configuration - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtbase.schemas.system.config",
  "version" : "0.1.0",
  "title" : "System Configuration",
  "description" : "The current configuration of the system",
  "type" : "object",
  "properties" : {
    "entries" : {
      "title" : "Configuration Parameters Array",
      "description" : "Key-value array of configuration parameters",
      "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "object",
        "properties" : {
          "key" : {
            "title" : "Parameter Key",
```

```

        "description" : "Name of a configuration parameter",
        "type" : "string"
    },
    "value" : {
        "title" : "Parameter Value",
        "description" : "Value of the configuration parameter",
        "type" : "string"
    }
},
"required" : [
    "key",
    "value"
],
"additionalProperties" : false
},
"additionalItems" : false
},
"origin" : {
    "title" : "Configuration Origin",
    "description" : "Full path of configuration files from where configuration info was taken",
    "type" : "string"
}
},
"required" : [
    "entries",
    "origin"
],
"additionalProperties" : false
}

```

#### Get system configuration - response sample

```

{
  "entries" : [{
    "key" : ".java.specification.name",
    "value" : "Java Platform API Specification"
  }, {
    "key" : ".spray.can.parsing.max-uri-length",
    "value" : "2k"
  }, {
    "key" : ".pb-engine.pb-tmp-dir",
    "value" : "/pbi/smrtsuite_166987/userdata/tmp_dir"
  }, {
    "key" : ".akka.io.udp.received-message-size-limit",
    "value" : "unlimited"
  }, {
    "key" : ".spray.can.server.parsing.header-cache.User-Agent",
    "value" : "32"
  }, {
    "key" : ".akka.actor.default-dispatcher.thread-pool-executor.core-pool-size-factor",
    "value" : "3"
  }, {
    "key" : ".sun.management.compiler",
    "value" : "HotSpot 64-Bit Tiered Compilers"
  }, {
    "key" : ".pb-services.db-uri",

```

```

    "value" : "/pbi/smrtsuite_166987/userdata/database/smrtlink_analysis_sqlite.db"
  }, {
    "key" : ".pb-engine.pb-smrtpipe-preset-xml",
    "value" : "/pbi/smrtsuite_166987/userdata/config/preset.xml"
  }, {
    "key" : ".akka.actor.default-dispatcher.executor",
    "value" : "default-executor"
  }, {
    "key" : ".spray.can.connection-dispatcher",
    "value" : "akka.actor.default-dispatcher"
  }, {
    "key" : ".user.language",
    "value" : "en"
  }, {
    "key" : ".spray.can.parsing.max-header-value-length",
    "value" : "8k"
  }, {
    "key" : ".spray.can.parsing.max-header-name-length",
    "value" : "64"
  }, {
    "key" : ".java.vm.name",
    "value" : "Java HotSpot(TM) 64-Bit Server VM"
  }, {
    "key" : ".spray.can.server.parsing.max-content-length",
    "value" : "8m"
  }, {
    "key" : ".java.endorsed.dirs",
    "value" : "/pbi/smrtsuite_166987/install/thirdparty/jre/jre_8u40/lib/endorsed"
  }, {
    "key" : ".ldap.port",
    "value" : "389"
  }, {
    "key" : ".spray.can.parsing.max-header-count",
    "value" : "64"
  }, {
    "key" : ".java.specification.vendor",
    "value" : "Oracle Corporation"
  }, {
    "key" : ".java.vm.specification.version",
    "value" : "1.8"
  }, {
    "key" : ".host",
    "value" : "0.0.0.0"
  }, {
    "key" : ".akka.scheduler.implementation",
    "value" : "akka.actor.LightArrayRevolverScheduler"
  }, {
    "key" : ".java.version",
    "value" : "1.8.0_40"
  }, {
    "key" : ".os.arch",
    "value" : "amd64"
  }, {
    "key" : ".java.class.path",
    "value" : "/pbi/smrtsuite_166987/install/smrtlink-gui/secondary-analysis-services.jar"
  }, {
    "key" : ".akka.io.udp-connected.selector-association-retries",
    "value" : "10"
  }

```

```

}, {
  "key" : ".path.separator",
  "value" : ":"
}, {
  "key" : ".port",
  "value" : "8080"
}, {
  "key" : ".db.log.driver",
  "value" : "org.sqlite.JDBC"
}, {
  "key" : ".java.awt.graphicsenv",
  "value" : "sun.awt.X11GraphicsEnvironment"
}, {
  "key" : ".akka.io.udp.max-channels",
  "value" : "4096"
}, {
  "key" : ".java.class.version",
  "value" : "52.0"
}, {
  "key" : ".akka.loglevel",
  "value" : "INFO"
}, {
  "key" : ".java.vm.version",
  "value" : "25.40-b25"
}, {
  "key" : ".sun.java.launcher",
  "value" : "SUN_STANDARD"
}, {
  "key" : ".pb-engine.max-workers",
  "value" : "24"
}, {
  "key" : ".java.runtime.version",
  "value" : "1.8.0_40-b26"
}, {
  "key" : ".db.log.url",
  "value" : "jdbc:sqlite:file:/tmp/logs.db"
}, {
  "key" : ".spray.can.server.server-header",
  "value" : "spray-can/1.3.2"
}, {
  "key" : ".java.vm.info",
  "value" : "mixed mode"
}, {
  "key" : ".user.home",
  "value" : "/home/UNIXHOME/secondarytest"
}, {
  "key" : ".ldap.users.id-type",
  "value" : "BYTES_GUID"
}, {
  "key" : ".ldap.users.id-attr",
  "value" : "objectGUID"
}, {
  "key" : ".java.vm.specification.name",
  "value" : "Java Virtual Machine Specification"
}, {
  "key" : ".ldap.users.first-name-attr",
  "value" : "givenName"
}, {

```

```

    "key" : ".akka.actor.default-dispatcher.thread-pool-executor.keep-alive-time",
    "value" : "60s"
  }, {
    "key" : ".spray.can.server.stats-support",
    "value" : "on"
  }, {
    "key" : ".user.dir",
    "value" : "/home/UNIXHOME/secondarytest"
  }, {
    "key" : ".file.encoding.pkg",
    "value" : "sun.io"
  }, {
    "key" : ".java.library.path",
    "value" : "/usr/java/packages/lib/amd64:/usr/lib64:/lib64:/lib:/usr/lib"
  }, {
    "key" : ".java.runtime.name",
    "value" : "Java(TM) SE Runtime Environment"
  }, {
    "key" : ".os.name",
    "value" : "Linux"
  }, {
    "key" : ".ldap.users.username-attr",
    "value" : "sAMAccountName"
  }, {
    "key" : ".spray.can.server.request-timeout",
    "value" : "20 s"
  }, {
    "key" : ".sun.jnu.encoding",
    "value" : "UTF-8"
  }, {
    "key" : ".spray.servlet.root-path",
    "value" : "AUTO"
  }, {
    "key" : ".sun.cpu.isalist",
    "value" : ""
  }, {
    "key" : ".akka.io.tcp.trace-logging",
    "value" : "off"
  }, {
    "key" : ".java.vendor.url.bug",
    "value" : "http://bugreport.sun.com/bugreport/"
  }, {
    "key" : ".spray.can.server.request-chunk-aggregation-limit",
    "value" : "1m"
  }, {
    "key" : ".ldap.users.last-name-attr",
    "value" : "sn"
  }, {
    "key" : ".pb-engine.debug-mode",
    "value" : "false"
  }, {
    "key" : ".LOG_PROP_FILE",
    "value" : "/pbi/smrtsuite_166987/install/smrtlink-gui/logback.properties"
  }, {
    "key" : ".akka.io.udp.direct-buffer-size",
    "value" : "128 KiB"
  }, {
    "key" : ".ldap.users.dn",

```

```
"value" : "CN=Users,DC=Nanofluidics,DC=com"
}, {
  "key" : ".sun.io.unicode.encoding",
  "value" : "UnicodeLittle"
}, {
  "key" : ".java.specification.version",
  "value" : "1.8"
}, {
  "key" : ".sun.cpu.endian",
  "value" : "little"
}, {
  "key" : ".file.separator",
  "value" : "/"
}, {
  "key" : ".pb-services.port",
  "value" : "8081"
}, {
  "key" : ".ldap.users.email-attr",
  "value" : "mail"
}, {
  "key" : ".user.timezone",
  "value" : "America/Los_Angeles"
}, {
  "key" : ".spray.can.server.idle-timeout",
  "value" : "60 s"
}, {
  "key" : ".user.country",
  "value" : "US"
}, {
  "key" : ".spray.can.listener-dispatcher",
  "value" : "akka.actor.default-dispatcher"
}, {
  "key" : ".ldap.host",
  "value" : "nanofluidics.com"
}, {
  "key" : ".ldap.users.cache-size",
  "value" : "10"
}, {
  "key" : ".pb-services.host",
  "value" : "smrtlink-beta.nanofluidics.com"
}, {
  "key" : ".akka.io.tcp.register-timeout",
  "value" : "5s"
}, {
  "key" : ".sun.arch.data.model",
  "value" : "64"
}, {
  "key" : ".spray.can.server.response-header-size-hint",
  "value" : "512"
}, {
  "key" : ".akka.version",
  "value" : "2.3.6"
}, {
  "key" : ".pb-engine.jobs-root",
  "value" : "/pbi/smrtsuite_166987/userdata/jobs_root"
}, {
  "key" : ".user.name",
  "value" : "secondarytest"
```

```

    }, {
      "key" : ".sun.boot.library.path",
      "value" : "/pbi/smrtsuite_166987/install/thirdparty/jre/jre_8u40/lib/amd64"
    }, {
      "key" : ".java.awt.printerjob",
      "value" : "sun.print.PSPrinterJob"
    }, {
      "key" : ".java.vm.vendor",
      "value" : "Oracle Corporation"
    }, {
      "key" : ".config.file",
      "value" : "/pbi/smrtsuite_166987/install/smrtlink-gui/prod.conf"
    }, {
      "key" : ".line.separator",
      "value" : "\\n"
    }, {
      "key" : ".os.version",
      "value" : "3.13.0-24-generic"
    }, {
      "key" : ".spray.version",
      "value" : "1.3.2"
    }, {
      "key" : ".awt.toolkit",
      "value" : "sun.awt.X11.XToolkit"
    }
  ],
  "origin" : "merge of system properties,/pbi/smrtsuite_166987/install/smrtlink-gui/prod.conf: 1"
}

```

### 4.1.4 Get System Components

Get required component dependencies of the service.

#### Request

| Method | URI                             |
|--------|---------------------------------|
| GET    | http://<host>:<port>/components |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |



**Sample Request**

Get required component dependencies of the service:  
 GET <http://smrtlink-alpha.nanofluidics.com:8081/components>

**Response**

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request.   |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml |

| Response Headers            | Description  | Re-quired | Sample Value                    |
|-----------------------------|--|-----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes       | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes       | Fri, 01 Apr 2016 19:03:27 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes       | 68                              |
| Content-Type                | The MIME type of this content.   | Yes       | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes       | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema              |
|------------------|--|
| application/json | See <i>Get system components - response schema</i> |

**Sample Response**

See *Get system components - response sample*

**Additional Information**

| Authentication   | Technical Support  |
|------------------|--|
| See Introduction | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

**Change Log**

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Base 3.0 | New service endpoint.  | N/A                 |

### Get system components - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtbase.schemas.system.components",
  "version" : "0.1.0",
  "title" : "System Components",
  "description" : "Array of required system components",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "id" : {
        "title" : "Component Id",
        "description" : "Identifier of this component, e.g. pacbio.smrtservices.components",
        "type" : "string"
      },
      "version" : {
        "title" : "Component Version",
        "description" : "The version number of the component, e.g. 0.2.0",
        "type" : "string"
      }
    },
    "required" : [
      "id",
      "version"
    ],
    "additionalProperties" : false
  },
  "additionalItems" : false
}
```

### Get system components - response sample

```
[{
  "id" : "pacbio.smrtservices.components",
  "version" : "0.2.0"
}]
```

## 4.2 Health Service

### 4.2.1 Overview of Health Service

#### Use Cases

The Health Service enables monitoring of the health status of the system.

#### Key Concepts

A **Health Gauge** is a measurement of a specific health metric, such as 'disk space full'.

A Health Gauge is analogous to a smoke detector.

A **Health Message** is a means to alter the state of a gauge.

It provides a message string that contains context information, as well as the message source, and severity level.

### Severity Levels

Severity Levels list:

- **OK**: A health gauge is currently free of problems
- **CAUTION**: Equivalent to warning; indicates the detection of a potential or impending service-affecting fault before any significant effects have occurred
- **ALERT**: Equivalent to error; indicates that a non-service-affecting condition has developed, and a corrective action should be taken to prevent a more serious fault
- **CRITICAL**: Equivalent to fatal failure; indicates that a service-affecting condition, such as a severe degradation in the capability, has developed that requires an urgent corrective action

## 4.2.2 List All Health Gauges

Get the list of all health gauges available on the system.

### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/smrt-base/health/gauges">http://&lt;host&gt;:&lt;port&gt;/smrt-base/health/gauges</a> |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Get the list of all health gauges available on the system:

GET <http://smrtlink-alpha.nanofluidics.com:8081/smrt-base/health/gauges>

## Response

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request. Note: If there are no health gauges defined on the server, then the response still will be 200 OK, with an empty array of health gauges in the response body. |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml   |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Fri, 01 Apr 2016 19:40:09 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 199                             |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema               |
|------------------|---|
| application/json | See <i>List all health gauges - response schema</i> |

## Sample Response

See *List all health gauges - response sample*

## Additional Information

| Authentication   | Technical Support  |
|------------------|--|
| See Introduction | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

## Change Log

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Base 3.0 | New service endpoint.  | N/A                 |

### List all health gauges - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtbase.schemas.healthgauges.list",
  "version" : "0.1.0",
  "title" : "Health Gauges List",
  "description" : "Array of Health Gauge objects",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "name" : {
        "title" : "Health Gauge Name",
        "description" : "Name of this health gauge",
        "type" : "string"
      },
      "id" : {
        "title" : "Health Gauge Id",
        "description" : "Health gauge identifier, e.g. pacbio.health.gauges.disk_space_full",
        "type" : "string"
      },
      "description" : {
        "title" : "Description",
        "description" : "Description of the current state of this health gauge",
        "type" : "string"
      },
      "createdAt" : {
        "title" : "Created at",
        "description" : "Time when this health gauge was created",
        "type" : "string",
        "format" : "date-time"
      },
      "severity" : {
        "title" : "Severity Level",
        "description" : "Severity of the health gauge state (OK, CAUTION, ALERT, CRITICAL)",
        "type" : "string"
      }
    }
  },
  "required" : [
    "name",
    "id",
    "description",
    "createdAt",
    "severity"
  ],
  "additionalItems" : false
}
```

### List all health gauges - response sample

```
[{
  "name" : "Disk Space Full",
  "description" : "Found 95% disk full",
```

```

    "id" : "pacbio.health.gauges.disk_space_full",
    "createdAt" : "2016-04-01T14:36:24.599",
    "severity" : "ALERT"
  }
]

```

### 4.2.3 Create Health Gauge

Create a new health gauge.

#### Request

| Method | URI   |
|--------|---|
| POST   | <a href="http://&lt;host&gt;:&lt;port&gt;/smrt-base/health/gauges">http://&lt;host&gt;:&lt;port&gt;/smrt-base/health/gauges</a> |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Content-Type    | The MIME type of the content in the request.        | Yes      | application/json |
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema            |
|------------------|---|
| application/json | See <i>Create health gauge - request schema</i> |

#### Sample Request

See *Create health gauge - request sample*

#### Response

| HTTP Status Code           | Error Message  | Description   |
|----------------------------|--|---|
| 201 Created                | None   | Successful completion of the request. The newly created health gauge object will be returned in the response body.                              |
| 415 Unsupported Media Type | There was a problem with the request's Content-Type: Expected 'application/json' | Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded |

| Response Headers            | Description  | Re-quired | Sample Value                    |
|-----------------------------|--|-----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes       | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes       | Fri, 01 Apr 2016 19:37:15 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes       | 197                             |
| Content-Type                | The MIME type of this content.   | Yes       | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes       | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema            |
|------------------|--|
| application/json | See <i>Create health gauge - response schema</i> |

### Sample Response

See *Create health gauge - response sample*

### Additional Information

| Authentication   | Technical Support        |
|------------------|--------------------------|
| See Introduction | E-mail: support@pacb.com |

### Change Log

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Base 3.0 | New service endpoint.  | N/A                 |

### Create health gauge - request schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtbase.schemas.healthgauge.new",
  "version" : "0.1.0",
  "title" : "New Health Gauge",
  "description" : "A subset of Health Gauge object required to create a new health gauge",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Health Gauge Name",
      "description" : "Name of this health gauge",
      "type" : "string"
    },
    "id" : {
      "title" : "Health Gauge Id",
      "description" : "Health gauge identifier, e.g. pacbio.health.gauges.disk_space_full",
      "type" : "string"
    }
  }
}
```

```

},
"required" : [
  "name",
  "id"
],
"additionalProperties" : false
}

```

### Create health gauge - request sample

Create a new health gauge:

POST <http://smrtlink-alpha.nanofluidics.com:8081/smrt-base/health/gauges>

```

{
  "id" : "pacbio.health.gauges.disk_space_full",
  "name" : "Disk Space Full"
}

```

### Create health gauge - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtbase.schemas.healthgauge.object",
  "version" : "0.1.0",
  "title" : "Health Gauge Object",
  "description" : "Health gauge object schema",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Health Gauge Name",
      "description" : "Name of this health gauge",
      "type" : "string"
    },
    "id" : {
      "title" : "Health Gauge Id",
      "description" : "Health gauge identifier, e.g. pacbio.health.gauges.disk_space_full",
      "type" : "string"
    },
    "description" : {
      "title" : "Description",
      "description" : "Description of the current state of this health gauge",
      "type" : "string"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this health gauge was created",
      "type" : "string",
      "format" : "date-time"
    },
    "severity" : {
      "title" : "Severity Level",

```



```

    "description" : "Severity of the health gauge state (OK, CAUTION, ALERT, CRITICAL)",
    "type" : "string"
  }
},
"required" : [
  "name",
  "id",
  "description",
  "createdAt",
  "severity"
],
"additionalProperties" : false
}

```

**Create health gauge - response sample**

```

{
  "name" : "Disk Space Full",
  "description" : "This gauge has not yet been updated",
  "id" : "pacbio.health.gauges.disk_space_full",
  "createdAt" : "2016-04-01T12:37:15.252",
  "severity" : "OK"
}

```

**Note:** The “createdAt”, “description” and “severity” fields are automatically populated with the current system time, default description and ‘OK’ initial severity correspondingly.

**4.2.4 Fetch Health Gauge by Id**

Fetch the health gauge object by its Id.

**Note:** Valid health gauge Id values can be found in “id” fields of objects returned by [List All Health Gauges](#) request.

**Request**

| Method | URI   |
|--------|---|
| GET    | http://<host>:<port>/smrt-base/health/gauges/{id} |

| Path Parameters | Data Type | Description  | Re-quired | Multi-valued | Possible Values                      |
|-----------------|-----------|--|-----------|--------------|--------------------------------------|
| id              | string    | Health gauge Id; valid Id values can be found in “id” fields of objects returned by <a href="#">List All Health Gauges</a> . | Yes       | No           | pacbio.health.gauges.disk_space_full |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Fetch the health gauge object with Id = pacbio.health.gauges.disk\_space\_full:

GET [http://smrtlink-alpha.nanofluidics.com:8081/smrt-base/health/gauges/pacbio.health.gauges.disk\\_space\\_full](http://smrtlink-alpha.nanofluidics.com:8081/smrt-base/health/gauges/pacbio.health.gauges.disk_space_full)

### Response

| HTTP Status Code   | Error Message  | Description   |
|--------------------|--|---|
| 200 OK             | None   | Successful completion of the request.   |
| 404 Not Found      | Unable to find resource<br>pacbio.health.gauges.disk_space_full  | There are no health gauges corresponding to the Id value passed in the request. Note: Valid Id values can be found in “id” fields of health gauge objects returned by <a href="#">List All Health Gauges</a> request. |
| 406 Not Acceptable | Resource representation is only available with these Content-Types:<br>application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml   |

| Response Headers            | Description  | Required | Sample Value                       |
|-----------------------------|--|----------|------------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                                  |
| Date                        | The date and time that the message was sent.                                 | Yes      | Fri, 01 Apr 2016 19:43:43 GMT      |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 197                                |
| Content-Type                | The MIME type of this content.   | Yes      | application/json;<br>charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                    |

| Media Type       | Response Body Representation / Schema                          |
|------------------|--|
| application/json | See <a href="#">Fetch health gauge by id - response schema</a> |

### Sample Response

See *Fetch health gauge by id - response sample*

### Additional Information

| Authentication   | Technical Support        |
|------------------|--------------------------|
| See Introduction | E-mail: support@pacb.com |

### Change Log

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Base 3.0 | New service endpoint.  | N/A                 |

### Fetch health gauge by id - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtbase.schemas.healthgauge.object",
  "version" : "0.1.0",
  "title" : "Health Gauge Object",
  "description" : "Health gauge object schema",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Health Gauge Name",
      "description" : "Name of this health gauge",
      "type" : "string"
    },
    "id" : {
      "title" : "Health Gauge Id",
      "description" : "Health gauge identifier, e.g. pacbio.health.gauges.disk_space_full",
      "type" : "string"
    },
    "description" : {
      "title" : "Description",
      "description" : "Description of the current state of this health gauge",
      "type" : "string"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this health gauge was created",
      "type" : "string",
      "format" : "date-time"
    },
    "severity" : {
      "title" : "Severity Level",
      "description" : "Severity of the health gauge state (OK, CAUTION, ALERT, CRITICAL)",
      "type" : "string"
    }
  },
  "required" : [
    "name",

```

```

    "id",
    "description",
    "createdAt",
    "severity"
  ],
  "additionalProperties" : false
}

```

#### Fetch health gauge by id - response sample

```

{
  "name" : "Disk Space Full",
  "description" : "Found 95% disk full",
  "id" : "pacbio.health.gauges.disk_space_full",
  "createdAt" : "2016-04-01T14:36:24.599",
  "severity" : "ALERT"
}

```

### 4.2.5 Create Health Gauge Message

Create a new health gauge message, and update the state of the corresponding health gauge.

#### Request

| Method | URI  |
|--------|--|
| POST   | http://<host>:<port>/smrt-base/health/gauges/{id}/messages |

| Path Parameters | Data Type | Description  | Required | Multi-valued | Possible Values                          |
|-----------------|-----------|--|----------|--------------|--|
| id              | string    | Health gauge Id; valid Id values can be found in “id” fields of objects returned by <a href="#">List All Health Gauges</a> . | Yes      | No           | pacbio.health.gauges.<br>disk_space_full |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Content-Type    | The MIME type of the content in the request.        | Yes      | application/json |
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema                             |
|------------------|--|
| application/json | See <a href="#">Create health gauge message - request schema</a> |

**Sample Request**

See *Create health gauge message - request sample*

**Response**

| HTTP Status Code           | Error Message  | Description   |
|----------------------------|--|---|
| 201 Created                | None   | Successful completion of the request. The newly created health gauge message object will be returned in the response body.                      |
| 415 Unsupported Media Type | There was a problem with the request's Content-Type: Expected 'application/json' | Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Fri, 01 Apr 2016 21:36:24 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 180                             |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema                    |
|------------------|--|
| application/json | See <i>Create health gauge message - response schema</i> |

**Sample Response**

See *Create health gauge message - response sample*

**Additional Information**

| Authentication   | Technical Support  |
|------------------|--|
| See Introduction | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

**Change Log**

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Base 3.0 | New service endpoint.  | N/A                 |

### Create health gauge message - request schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtbase.schemas.healthgauge.message.new",
  "version" : "0.1.0",
  "title" : "New Health Gauge Message",
  "description" : "A subset of Health Gauge Message object required to create a new message",
  "type" : "object",
  "properties" : {
    "message" : {
      "title" : "Information Message",
      "description" : "Information message, used to update the health gauge 'description' field",
      "type" : "string"
    },
    "severity" : {
      "title" : "Severity Level",
      "description" : "Severity level of the message (OK, CAUTION, ALERT, CRITICAL)",
      "type" : "string"
    },
    "sourceId" : {
      "title" : "Source Id",
      "description" : "Identifier of the source which generated this message",
      "type" : "string"
    }
  },
  "required" : [
    "message",
    "severity",
    "sourceId"
  ],
  "additionalProperties" : false
}
```

### Create health gauge message - request sample

Create a new health gauge message for the health gauge with Id = pacbio.health.gauges.disk\_space\_full, and update its state:

POST

[http://smrtlink-alpha.nanofluidics.com:8081/smrt-base/health/gauges/pacbio.health.gauges.disk\\_space\\_full/messages](http://smrtlink-alpha.nanofluidics.com:8081/smrt-base/health/gauges/pacbio.health.gauges.disk_space_full/messages)

```
{
  "message" : "Found 95% disk full",
  "severity" : "ALERT",
  "sourceId" : "scan-util"
}
```

**Note:** The “message” and “severity” fields will be copied into “description” and “severity” fields of the health gauge correspondingly, thus updating its state.

### Create health gauge message - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtbase.schemas.healthgauge.message.object",
  "version" : "0.1.0",
  "title" : "Health Gauge Message Object",
  "description" : "Health gauge message object schema",
  "type" : "object",
  "properties" : {
    "uuid" : {
      "title" : "Health Gauge Message UUID",
      "description" : "UUID of this health gauge message",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this health gauge message was created",
      "type" : "string",
      "format" : "date-time"
    },
    "message" : {
      "title" : "Information Message",
      "description" : "Information message, used to update the health gauge 'description' field",
      "type" : "string"
    },
    "severity" : {
      "title" : "Severity Level",
      "description" : "Severity level of the message (OK, CAUTION, ALERT, CRITICAL)",
      "type" : "string"
    },
    "sourceId" : {
      "title" : "Source Id",
      "description" : "Identifier of the source which generated this message",
      "type" : "string"
    }
  },
  "required" : [
    "uuid",
    "createdAt",
    "message",
    "severity",
    "sourceId"
  ],
  "additionalProperties" : false
}
```

### Create health gauge message - response sample

```
{
  "uuid" : "ab9fe280-a19c-444a-a18b-afb0bb776cdb"
  "createdAt" : "2016-04-01T14:36:24.599"
  "message" : "Found 95% disk full"
  "severity" : "ALERT"
}
```

```

"sourceId" : "scan-util"
}

```

**Note:** The “createdAt” and “uuid” fields are automatically populated with the current system time and a server-generated UUID correspondingly.

## 4.2.6 Fetch Health Gauge Messages

Fetch messages of the health gauge identified by its Id.

**Note:** Valid health gauge Id values can be found in “id” fields of objects returned by [List All Health Gauges](#) request.

### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/smrt-base/health/gauges/{id}/messages">http://&lt;host&gt;:&lt;port&gt;/smrt-base/health/gauges/{id}/messages</a> |

| Path Parameters | Data Type | Description  | Re-quired | Multi-valued | Possible Values                      |
|-----------------|-----------|--|-----------|--------------|--------------------------------------|
| id              | string    | Health gauge Id; valid Id values can be found in “id” fields of objects returned by <a href="#">List All Health Gauges</a> . | Yes       | No           | pacbio.health.gauges.disk_space_full |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Fetch messages of the health gauge with Id = pacbio.health.gauges.disk\_space\_full:

GET

[http://smrtlink-alpha.nanofluidics.com:8081/smrt-base/health/gauges/pacbio.health.gauges.disk\\_space\\_full/messages](http://smrtlink-alpha.nanofluidics.com:8081/smrt-base/health/gauges/pacbio.health.gauges.disk_space_full/messages)



## Response

| HTTP Status Code   | Error Message   | Description  |
|--------------------|---|--|
| 200 OK             | None  | Successful completion of the request. Note: If there is no health gauge corresponding to the Id value passed in the request, then the response still will be 200 OK, with an empty array of messages in the response body. |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml  |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Fri, 01 Apr 2016 21:40:22 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 182                             |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.2                 |

| Media Type       | Response Body Representation / Schema                    |
|------------------|--|
| application/json | See <i>Fetch health gauge messages - response schema</i> |

## Sample Response

See *Fetch health gauge messages - response sample*

## Additional Information

| Authentication   | Technical Support  |
|------------------|--|
| See Introduction | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

## Change Log

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Base 3.0 | New service endpoint.  | N/A                 |

## Fetch health gauge messages - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtbase.schemas.healthgauge.messages.list",
  "version" : "0.1.0",
  "title" : "Health Gauge Messages List",
  "description" : "Array of Health Gauge Messages",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "uuid" : {
        "title" : "Health Gauge Message UUID",
        "description" : "UUID of this health gauge message",
        "type" : "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
      },
      "createdAt" : {
        "title" : "Created at",
        "description" : "Time when this health gauge message was created",
        "type" : "string",
        "format" : "date-time"
      },
      "message" : {
        "title" : "Information Message",
        "description" : "Information message, used to update the health gauge 'description' field",
        "type" : "string"
      },
      "severity" : {
        "title" : "Severity Level",
        "description" : "Severity level of the message (OK, CAUTION, ALERT, CRITICAL)",
        "type" : "string"
      },
      "sourceId" : {
        "title" : "Source Id",
        "description" : "Identifier of the source which generated this message",
        "type" : "string"
      }
    }
  },
  "required" : [
    "uuid",
    "createdAt",
    "message",
    "severity",
    "sourceId"
  ],
  "additionalItems" : false
}

```

### Fetch health gauge messages - response sample

```
[{
  "uuid" : "ab9fe280-a19c-444a-a18b-afb0bb776cdb",
  "createdAt" : "2016-04-01T14:36:24.599",
  "message" : "Found 95% disk full",
  "severity" : "ALERT",
  "sourceId" : "scan-util"
}]
```

## 4.3 User Service

### 4.3.1 Overview of User Service

#### Use Cases

The User Service enables retrieving user information, as well as obtaining a user token for authentication purposes.

#### Key Concepts

A **user login** is the network login name of the user, as it is defined in LDAP.

A **JWT** is a Json Web Token, required for authentication that uses the OAuth 2.0 Bearer scheme.

See <http://jwt.io/> for more information.

To obtain a JWT, [Obtain User Token](#) request is used.

Once obtained, the JWT can be used for authentication on those SMRT Link API endpoints that require it.

The JWT is passed in the request header *Authorization: Bearer <JWT>*

The JWT will expire after a certain configurable time interval, and a new one will need to be obtained.

### 4.3.2 Fetch User Information

Fetch the user information by its login name.

#### Request

| Method | URI   |
|--------|---|
| GET    | <a href="http://&lt;host&gt;:&lt;port&gt;/smrt-base/user/{login}">http://&lt;host&gt;:&lt;port&gt;/smrt-base/user/{login}</a> |

| Path Parameters | Data Type | Description   | Required | Multi-valued | Possible Values |
|-----------------|-----------|---|----------|--------------|-----------------|
| login           | string    | The network login name of the user, as it is defined in LDAP. | Yes      | No           | jdoe<br>tcruise |

| Request Headers | Description   | Required | Sample Value     |
|-----------------|---|----------|------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes      | application/json |

| Media Type       | Request Body Representation / Schema           |
|------------------|--|
| application/json | Request schema is N/A, as this is GET request. |

### Sample Request

Fetch information for the user with login = jdoe:

GET <http://smrtlink-alpha.nanofluidics.com:8081/smrt-base/user/jdoe>

### Response

| HTTP Status Code   | Error Message   | Description   |
|--------------------|---|---|
| 200 OK             | None  | Successful completion of the request.   |
| 404 Not Found      | Unable to find user tcruise   | There are no users corresponding to the login value passed in the request.  |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: application/json; charset=UTF-8 | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml |

| Response Headers            | Description  | Required | Sample Value                    |
|-----------------------------|--|----------|---------------------------------|
| Access-Control-Allow-Origin | Specifying which web sites can participate in cross-origin resource sharing. | Yes      | *                               |
| Date                        | The date and time that the message was sent.                                 | Yes      | Fri, 22 Jul 2016 17:41:56 GMT   |
| Content-Length              | The length of the response body in octets.                                   | Yes      | 189                             |
| Content-Type                | The MIME type of this content.   | Yes      | application/json; charset=UTF-8 |
| Server                      | A name for the server.   | Yes      | spray-can/1.3.3                 |

| Media Type       | Response Body Representation / Schema               |
|------------------|---|
| application/json | See <i>Fetch user information - response schema</i> |

### Sample Response

See *Fetch user information - response sample*

### Additional Information

| Authentication   | Technical Support  |
|------------------|--|
| See Introduction | E-mail: <a href="mailto:support@pacb.com">support@pacb.com</a> |

### Change Log

| Release       | Description of changes | Backward-compatible |
|---------------|------------------------|---------------------|
| SMRT Base 3.1 | New service endpoint.  | N/A                 |

### Fetch user information - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.user.object",
  "version" : "0.1.0",
  "title" : "User Object",
  "description" : "User object schema",
  "type" : "object",
  "properties" : {
    "login" : {
      "title" : "User Login",
      "description" : "Login name of this user",
      "type" : "string"
    },
    "email" : {
      "title" : "User Email",
      "description" : "Email address of this user",
      "type" : "string"
    },
    "firstName" : {
      "title" : "User First Name",
      "description" : "First name of this user",
      "type" : "string"
    },
    "lastName" : {
      "title" : "User Last Name",
      "description" : "Last name of this user",
      "type" : "string"
    },
    "id" : {
      "title" : "User Id",
```

```

    "description" : "Identifier of this user",
    "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "roles" : {
    "title" : "User Roles",
    "description" : "Array of roles of this user",
    "type" : "array",
    "minItems" : 1,
    "items" : {
      "type" : "string",
      "description": "User role, e.g. ADMIN"
    },
    "additionalItems" : false
  }
},
"required" : [
  "login",
  "email",
  "firstName",
  "lastName",
  "id",
  "roles"
],
"additionalProperties" : false
}

```

#### Fetch user information - response sample

```

{
  "login" : "jdoe",
  "email" : "jdoe@pacificbiosciences.com",
  "firstName" : "John",
  "lastName" : "Doe",
  "id" : "19aa242d-4570-4ca3-9e45-8e6f17fd98de",
  "roles" : [
    "ADMIN"
  ]
}

```

### 4.3.3 Obtain User Token

Obtain a JWT for the given user as a string.

See [Overview of User Service](#) for JWT term definition and explanation.

---

**Note:** Basic HTTP authentication is required for this endpoint. The username and password are combined into a single string, and then encoded using base64. Only the given user or a user with root privileges may be authorized.

---

## Request

| Method | URI   |
|--------|---|
| GET    | http://<host>:<port>/smrt-base/user/{login}/token |

| Path Parameters | Data Type | Description   | Required | Multi-valued | Possible Values |
|-----------------|-----------|---|----------|--------------|-----------------|
| login           | string    | The network login name of the user, as it is defined in LDAP. | Yes      | No           | jdoe<br>tcruise |

| Request Headers | Description   | Re-quired | Sample Value                        |
|-----------------|---|-----------|-------------------------------------|
| Accept          | Content-Types that are acceptable for the response. | Yes       | text/plain                          |
| Authorization   | Authentication credentials for HTTP authentication. | Yes       | Basic QWxhZGRpbjpvYVUuI-HNlc2FtZQcm |

| Media Type | Request Body Representation / Schema           |
|------------|--|
| text/plain | Request schema is N/A, as this is GET request. |

## Sample Request

Obtain a JWT for the user with login = jdoe:

GET <http://smrtlink-alpha.nanofluidics.com:8081/smrt-base/user/jdoe/token>

## Response

| HTTP Status Code   | Error Message  | Description   |
|--------------------|--|---|
| 200 OK             | None   | Successful completion of the request.   |
| 401 Unauthorized   | The resource requires authentication, which was not supplied with the request                            | The user/password authentication failed - either it was not provided at all, or it did not correspond to the given user or a user with root privileges. |
| 406 Not Acceptable | Resource representation is only available with these Content-Types: text/plain; charset=UTF-8 text/plain | Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/json                                      |





For Research Use Only. Not for use in diagnostic procedures. © Copyright 2015 - 2016, Pacific Biosciences of California, Inc. All rights reserved. Information in this document is subject to change without notice. Pacific Biosciences assumes no responsibility for any errors or omissions in this document. Certain notices, terms, conditions and/or use restrictions may pertain to your use of Pacific Biosciences products and/or third party products. Please refer to the applicable Pacific Biosciences Terms and Conditions of Sale and to the applicable license terms at <http://www.pacb.com/legal-and-trademarks/product-license-and-use-restrictions/>.

Pacific Biosciences, the Pacific Biosciences logo, PacBio, SMRT, SMRTbell, Iso-Seq and Sequel are trademarks of Pacific Biosciences. BluePippin and SageELF are trademarks of Sage Science, Inc. NGS-go and NGSengine are trademarks of GenDx. All other trademarks are the sole property of their respective owners.