Introduction

An important adjunct to the MERRA/AS service is a persistence service that allows users to store, download, annotate, and otherwise manage codes or CDS scripts that implement the map and reduce functions of their analyses. The persistence service has the capacity to execute these codes on the MERRA cluster, capture the resulting output, and manage the output as the user wishes under control of the persistence service. The code sets essentially become realizable objects — their logical representations are used in server-side processes that cause their analytical results to be realized upon request.

Input-Output-Format

The input format is specifiable by the ingester and is treated as binary. The output format matches the ingested input format.

Credits

Utility	Description
iRODS	integrated Rule-Oriented Data-management System, a community-driven, open source, data grid software solution.

PS-Method-Overview:

PS methods are composed of basic utilities that are designed for the CDS API Web Service calls, or Python scripts and applications.

PS-Basic-Utilities:

Basic utilities are designed for the CDS API Web Service calls, or Python scripts and applications.

Ingest

Ingest a Submission Information Package (SIP), which is definable by the ingester. The returned sessionId is required to download the SIP.

CDS API users can ingest a SIP to be persisted by the service. Generally speaking, a Submission Information Package is simply an artifact to be stored, shared, and retrieved. With respect to CDS, a SIP will typically be a script or application to be shared, but any ingested artifact will be stored and available for download. A sample use case may involve ordering the average temperature for North America in 2013. The script that calculates this could be ingested and reused by other consumers that are interested in the same information. In this case, the consumer would simply download the script and run it locally. Additionally, accumulated scripts provide a head start for easy modifications to perform other operations (e.g., maximum, minimum).

Example Web Service Request:

```
http://skyportal.sci.gsfc.nasa.gov/cds/ps/ingest.php?service=Put&input_path=/tmp/prod.tst&overwrite=true
```

Example Web Service XML Response:

```
<Response>
    <sessionId>5E125CF8118589AA182A54241EEA7578</sessionId>
    <sessionStatus>Completed</sessionStatus>
    <sessionStatusDetail>'Put' completed Sat Jan 11 11:51:36 EST 2014. File ingested: prod.tst</sessionStatusDetail>
</Response>
```

Example Python Request:

```
response = cds_lib.ingest('PS', 'Put', './prod.tst', "5849066EF15C8471DFD273EEC8AF1F4F", 'true')
new_session_id = cds_lib.getElement(response, "sessionId")
status = cds_lib.getElement(response, "sessionStatus")
```

Service-Requests:

Service Request	Service	Description
Put	PS	Ingest the Submission Information Package

Download

Retrieve a Dissemination Information Package (DIP). The sessionId from the ingest() call is required to download the SIP.

Example Web Service Request:

```
http://skyportal.sci.gsfc.nasa.gov/cds/ps/download.php?service=Get&filename=prod.tst&target_path=/tmp/prod.tst&overwrite=true
```

Example Web Service XML Response:

```
Payload is delivered via browser
```

Example Python Request:

```
cds_lib.download("PS", "37734A627B5E7E74AAB8374586D3D018", "/tmp/prod.tst")
```

Service-Requests:

Service Request	Service	Description
Get	PS	Download the previously ingested SIP (e.g., Dissemination Information Package)
GetFileNameByAttribute	PS	Query for a file name based on an attribute (e.g., key=sessionId&value=5849066EF15C8471DFD273EEC8AF1F4F)
AddMetadataByName	PS	Execute metadata data attributions for a file (e.g., filename=myfile.txt&key=author&value=gtamkin&units=string)

Required-Parameters:

Parameter	Description	Sample Value(s)	Units
filename	Name of SIP	prod.tst	String
target_path	Destination path	/tmp/prod.tst	String

Optional-Parameters:

Parameter	Description	Sample Value(s)	Units
overwrite	Specifies whether to overwrite the file if it already exists locally	true	String

Execute

Execute an extended persistence service.

Example Web Service Request:

```
http://skyportal.sci.gsfc.nasa.gov/cds/ps/execute.php?service=AddMetadataByName&filename=prod.tst&key=one&value=two&units=three
```

Example Web Service XML Response:

```
<Response>
    <sessionId>57B08896566EEB58F828791A3C17ABCE</sessionId>
    <sessionStatus>Completed</sessionStatus>
    <sessionStatusDetail>AddMetadataByName completed Sat Jan 11 12:24:42 EST 2014</sessionStatusDetail>
</Response>
```

Example Python Request:

```
    response = cds_lib.execute("PS", 'AddMetadataByName', "filename=prod.tst&key=experiment_ps_FCE8PH&value=wei_subset_ca_avg_tem
```

Service-Requests:

Service Request	Service	Description
AddMetadataByName	PS	Add metadata to the ingested SIP

Required-Parameters:

Parameter	Description	Sample Value(s)	Units
filename	Name of SIP	prod.tst	String
key	Metadata key name	experiment_ps_FCE8PH	String
value	Metadata value name	wei_subset_ca_avg_temp	String

Optional-Parameters:

Parameter	Description	Sample Value(s)	Units
units	data type	degrees	String

Query

Search for a Submission Information Package (SIP).

Example Web Service Request:

```
http://skyportal.sci.gsfc.nasa.gov/cds/ps/query.php?service=GetFileNameByAttribute&key=one&value=two&units=three
```

Example Web Service XML Response:

```
<Response>
    <sessionId>1A7E47141B3F38F40CB4E5B8C7B762AF</sessionId>
```

```
        <sessionStatus>Completed</sessionStatus>
        <sessionStatusDetail>prod.tst</sessionStatusDetail>
    </Response>
```

Example Python Request:

```
        response = cds_lib.query("PS", 'GetFileNameByAttribute', "key=session_id&value=1A7E47141B3F38F40CB4E5B8C7B762AF")
        file = cds_lib.getElement(response, "sessionStatusDetail")
```

Service-Requests:

Service Request	Service	Description
GetFileNameByAttribute	PS	Return file names that have the associated attributes as metadata

Required-Parameters:

Parameter	Description	Sample Value(s)	Units
key	Metadata key name	experiment_ps_FCE8PH	String
value	Metadata value name	wei_subset_ca_avg_temp	String

Optional-Parameters:

Parameter	Description	Sample Value(s)	Units
units	data type	degrees	String