

# Web Services Interface

There are three groups of web service endpoints that can be used with the Data Access Portal:

Endpoints	Description	Documentation
<a href="https://ws.data.csiro.au/collections">https://ws.data.csiro.au/collections</a> <b>(Stable)</b>	Unofficially called "/ws/v1". Use this to search and access DAP collections.	This page.
<a href="https://data.csiro.au/dap/ws/v2/collections">https://data.csiro.au/dap/ws/v2/collections</a> <b>(In development)</b>	In development. Use this to search and access DAP collections. Supersedes ws.data.csiro.au (or "/ws/v1").	<a href="https://data.csiro.au/dap/swagger-ui.html#/">https://data.csiro.au/dap/swagger-ui.html#/</a> (note, this also documents /api/v1).
<a href="https://data.csiro.au/dap/api/v1">https://data.csiro.au/dap/api/v1</a> <b>(In development)</b>	Use this to create DAP collections (CSIRO staff only).	<a href="https://data.csiro.au/dap/swagger-ui.html#/">https://data.csiro.au/dap/swagger-ui.html#/</a> (note, this also documents /ws/v2).

Swagger - Interactive documentation for /ws/v2 and /api/v1 is available here: <https://data.csiro.au/dap/swagger-ui.html>

All of the "/ws/v1" and /ws/v2 endpoints should be publicly accessible.

Note that you will need a DAP web services account to use the /api/v1 endpoints (for creating collections). CSIRO Staff requiring a web services account should contact [researchdatasupport@csiro.au](mailto:researchdatasupport@csiro.au)

## Service Overview

The Data Access Portal provides a Web Service Interface for accessing Public Collections. The interface allows remote applications to search for collections as well as download Collection Metadata and Data Files.

The Web Service Interface is hosted at the following address (Base URL):

- <https://ws.data.csiro.au/>.

The web service supports Cross Origin Resource Sharing (CORS). This allows browser-based, client-side cross-origin requests for DAP metadata and files. You can find some example JavaScript code at the [Browser Based Client Side Examples page](#).

Authenticated access to CSIRO-Only data and metadata is also available for CSIRO Staff.

Here is the list of Available Functions:

- [Search Collections](#)
- [Retrieve a Collection](#)
- [Retrieve a list of a Collection's Versions](#)
- [Retrieve a list of a Collection's Metadata Streams](#)
- [Retrieve a Collection Metadata Stream](#)
- [Retrieve a list of a Collection's Data Files](#)
- [Retrieve a Data File from a Collection](#)
- [Retrieve a list of a Collection's Supporting Files](#)
- [Retrieve a Supporting File from a Collection](#)
- [Retrieve a Licence](#)
- [Retrieve a list of External System Tags](#)
- [Retrieve a list of Collections for an External System Tag](#)

## Requests

The service is entirely read only at this time and all requests are expected to be **GET** requests. No authentication or authorisation is required to use the service.

Where an optional parameter is not to be supplied, either the value may be left blank or both the parameter key and value (e.g. `&p={pageNo}`) may be omitted.

## Responses

All responses are returned in XML format by default at this time. Where a list is provided (e.g. search results or file list) it will comply with the [ATOM 1.0 format](#). Data files and metadata files are downloaded individually without compression.

The following **HTTP response codes** are used by the web service.

Response Code	HTTP Meaning	Usage
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200	OK	A successful call returning immediate results. The usual indicator of a success result.
301	Moved Permanently	The request cannot be fulfilled because the requested resource has been updated. A link to the published version will be provided in the Location HTTP header. Note that if the published version of the collection is not available to the public a 403 Forbidden code will be returned. If extra information is available it will be shown in a HTTP header "warning:" field.
400	Bad Request	The request cannot be fulfilled due to bad syntax. For example, if a parameter is expecting a positive integer but it receives a negative integer this response code will be sent. Note that if you attempt to use a non-numeric value for a numeric parameter you will receive a 404 instead. If extra information is available it will be shown in a HTTP header "warning:" field.
401	Unauthorised	The resource requested is not accessible to the permission level of the request. If extra information is available it will be shown in a HTTP header "warning:" field.
403	Forbidden	The resource requested is not accessible. If extra information is available it will be shown in a HTTP header "warning:" field.
404	Not Found	The resource requested does not exist (e.g. no collection, or the specific file or data stream does not exist). If extra information is available it will be shown in a HTTP header "warning:" field.
406	Not Acceptable	The resource requested cannot be provided according to the Accept headers in the request (e.g. requesting JSON format for a collection's alternative metadata feed, such as RIF-CS, which can only be provided in XML format).
500	Internal Server Error	If an unrecoverable error occurred while processing the request. If extra information is available it will be shown in a HTTP header "warning:" field.

## Formats

The web service is capable of providing responses in a variety of formats. A format can be specified either by providing the mime type in the HTTP ACCEPT header on the request, or providing a suffix on the request path or adding a `_type={extension}` to the query parameters e.g.

```
http://ws.data.csiro.au/collections.xml?q=water
http://ws.data.csiro.au/collections?q=water&_type=xml
http://ws.data.csiro.au/collections/7119.json
http://ws.data.csiro.au/collections/7119?_type=json
```

The supported formats are:

Format	Description	mime-type	suffix
XML	Default format for all functions other than search or download. An <a href="#">XML schema</a> is provided.	application/xml	.xml

ATOM 1.0	An XML language used for web feeds. This is only available for collection search, where it is the default format.	application/atom+xml	.atom
JSON	JavaScript Object Notation. This is an option for all functions apart from downloads and collection metadata streams (e.g. RIF-CS, CSMD, Dublin Core, ANZLIC). The format is the same as that given in the XML schema with collection wrappers removed.	application/json	.json
HTML	Only available for the licence function, where it is the default for browsers.	text/html	.html

#### Note on formatting of alternative collection metadata streams

Collection metadata streams (such as CSMD, RIF-CS, ANZLIC) are only provided in XML format.

e.g.

`http://ws.data.csiro.au/collections/7119/metadata/rif.json`

will return a *406 Not Acceptable* error.

## Machine readable documentation

A [Web Application Description Language \(WADL\)](#) version of this specification should be read in conjunction with this document.

The XML formats outlined in this document are represented in the [XML Schema](#).

## Available Functions

Function	Example
Search Collections	<code>http://ws.data.csiro.au/collections?q=TasMAN&amp;soud=true</code>
Retrieve a Collection	<code>http://ws.data.csiro.au/collections/csiro:5604</code>
Retrieve a list of a Collection's Versions	<code>http://ws.data.csiro.au/collections/csiro:11028/versions</code>
Retrieve a list of a Collection's Metadata Streams	<code>http://ws.data.csiro.au/collections/7119/metadata/</code>
Retrieve a Collection Metadata Stream	<code>http://ws.data.csiro.au/collections/7119/metadata/csmd</code>
Retrieve a list of a Collection's Data Files	<code>http://ws.data.csiro.au/collections/7119/data/</code>
Retrieve a Data File from a Collection	<code>http://ws.data.csiro.au/collections/8290/data/1565875</code>
Retrieve a list of a Collection's Supporting Files	<code>http://ws.data.csiro.au/collections/9187/support/</code>
Retrieve a Supporting File from a Collection	<code>http://ws.data.csiro.au/collections/9187/support/159</code>
Retrieve a Licence	<code>http://ws.data.csiro.au/licences/2</code>

## Search Collections

This function allows a client to search for collections matching specific criteria, or to list all collections.

```
http://ws.data.csiro.au/collections?q={searchString}&p={pageNo}&rpp={pageSize}&soud={soud}&sb={sortField}
https://ws.data.csiro.au/collections?q={searchString}&p={pageNo}&rpp={pageSize}&soud={soud}&sb={sortField}
```

### Parameters

- **q - searchString** (optional) can be any text to be searched for and will be processed in the same manner as front page search. If not present all accessible collections will be returned.
- **p - pageNo** (optional) is the number of the page being requested. If not present, page 1 is returned.
- **rpp - pageSize** (optional) is the maximum number of collections to be returned on each page. If not present will default to 25. If higher than 100 then 100 will be used.
- **soud - soud** (optional) Show Only Unrestricted Data - may be `on` or `true`. When `on` or `true` the search will only show records with unrestricted data. If not present or not `on` or `true` it defaults to `false`.
- **sb - sortField** (optional) may be `RECENT`, `RELEVANCE`, or `TITLE`. If not present it defaults to `RELEVANCE`. This parameter is case sensitive.

## Response

The response will be an xml stream conforming to the ATOM 1.0 specification (see [RFC 4287](#) and [RFC 5005](#)). There will be one entry element for each collection matching the search criteria. If there are multiple pages then a `<link>` element with an attribute `rel="next"` will be provided allowing the next page of results to be accessed. Requesting a page after the last page will return a page that has no results, but that does have `<link>` elements with `rel="previous"` and `rel="last"` that can be used to access the search results. A search which does not match any collections will produce a page with no results (rather than a 404).

Note: The search is rerun for each request. This means that the total number of matches and total number of pages for a given search may have changed between retrieving the first page of results and any subsequent pages. For example, if some data collections are coincidentally published between the time you retrieve the first page and the time you retrieve the second page.

## Response

```
<feed xmlns="http://www.w3.org/2005/Atom" xmlns:fh="http://purl.org
/syndication/history/1.0">
  <title type="text">CSIRO Data Access Portal - Search Results<
/title>
  <subtitle type="html">
    Query Parameters: [[name {value};]* [name {value}]] [. Ignored
Parameters [[name value; ]* [name value]]]
  </subtitle>
  <updated>{time of query}</updated>
  <link rel="alternate" type="text/html"
  hreflang="en" href="https://data.csiro.au/" />
  <link rel="self" type="application/atom+xml"
  href="https://ws.data.csiro.au/collections/{query parameters
with blank items removed}" />
  <!-- if only one page -->
  <fh:complete/>
  <!-- else link to next and prev pages, where relevant -->
  <link rel="first"
  href="https://ws.data.csiro.au/collections/{query parameters
with blank items removed}&p=1" />
  <link rel="next"
  href="https://ws.data.csiro.au/collections/{query parameters
with blank items removed}&p=3" />
  <link rel="prev"
  href="https://ws.data.csiro.au/collections/{query parameters
with blank items removed}&p=1" />
  <link rel="last"
  href="https://ws.data.csiro.au/collections/{query parameters
with blank items removed}&p={lastPage}" />
  <rights>Copyright (c) {current year}, CSIRO Australia</rights>
  <id>https://ws.data.csiro.au/collections/</id>
  <generator uri="https://www.csiro.au/" version="1.0">
    CSIRO Data Access Portal
  </generator>
  <entry>
    <title>{collection title}</title>
    <link rel="self" type="application/xml"
    href="{link to retrieve a collection function for collection}" />
    <link rel="alternate" type="text/html"
    href="{link to DAP landing page for collection}" />
    <link rel="license" type="text/html"
    href="{link to Retrieve a Licence function for collection's
licence}" />
    <id>{collection fedora PID}</id>
    <published>{collection published date}</published>
    <author>
      <name>{lead researcher name}</name>
    </author>
    <summary>{data collection description}</summary>
    <rights>{data collection rights}{licence sentence}</rights>
  </entry>
</feed>
```

## Example

### Sample Search Request

```
http://ws.data.csiro.au/collections?q=TasMAN&soud=true&invalid=param
https://ws.data.csiro.au/collections?q=TasMAN&soud=true&invalid=param
```

### Sample Search Response

```
<feed xmlns="http://www.w3.org/2005/Atom" xmlns:fh="http://purl.org
/syndication/history/1.0">
  <title type="text">CSIRO Data Access Portal - Search Results</title>
  <subtitle type="html">Query Parameters: q TasMAN; soud true.
Ignored Parameters: invalid param</subtitle>
  <updated>2014-06-16T04:02:59.445Z</updated>
  <link href="https://data.csiro.au/dap/" rel="alternate" hreflang="
en" type="text/html"/>
  <link href="https://ws.data.csiro.au/collections?q=TasMAN&amp;
soud=true&amp;invalid=param" rel="self" type="application/atom+xml"/>
  <fh:complete/>
  <rights type="text">Copyright (c) 2014, CSIRO Australia</rights>
  <id>https://ws.data.csiro.au/collections</id>
  <generator uri="http://www.csiro.au" version="1.0">CSIRO Data
Access Portal</generator>
  <entry>
    <title type="text">Tasmanian Marine Analysis Network -
Sullivans Cove CSIRO Wharf Sensor</title>
    <link href="https://ws.data.csiro.au/collections/5604" rel="
self" type="application/xml"/>
    <link href="https://data.csiro.au/dap/landingpage?pid=csiro%
3A5604" rel="alternate" type="text/html" hreflang="en"/>
    <link href="https://ws.data.csiro.au/licences/1061" rel="
license" type="text/html"/>
    <id>csiro:5604</id>
    <published>2012-09-25T05:02:57.000Z</published>
    <author>
      <name>Greg Timms</name>
    </author>
    <summary type="text">The Tasmanian Marine Analysis Network
(TasMAN) project has collected sea water temperature and conductivity
data from the CSIRO wharf at Battery Point, Hobart. The Data has been
collected for multiple purposes including, data mining research into
pattern discovery, detection, and automated quality control algorithms.

    </summary>
    <rights type="text">All rights (including copyright) CSIRO
Australia. This collection is licensed under a CSIRO Data Licence.<
/rights>
  </entry>
  <entry>
    <title type="text">Tasmanian Marine Analysis Network - Low-Cost
Marine Sensor Network</title>
    <link href="https://ws.data.csiro.au/collections/5603" rel="
self" type="application/xml"/>
    <link href="https://data.csiro.au/dap/landingpage?pid=csiro%
3A5603" rel="alternate" type="text/html" hreflang="en"/>
```

```

<link href="https://ws.data.csiro.au/licences/1061" rel="
license" type="text/html"/>
<id>csiro:5603</id>
<published>2012-09-25T01:03:07.000Z</published>
<author>
  <name>Chris Sharman</name>
</author>
<summary type="text">The Tasmanian Marine Analysis Network
(TasMAN) has deployed a low-cost marine sensor network in the South
East tasmanian coastal region. This collection contains all
observations by this network. Sensor nodes were measuring sea water
conductivity and temperature. The data set also includes engineering
data such as GPS location, battery voltage, etc. The sensor network was
deployed as a field trial of the newly developed low-cost sensor
platform. The data is raw as collected from the sensor network with no
quality assessment applied.</summary>
  <rights type="text">All rights (including copyright) CSIRO
Australia. This collection is licensed under a CSIRO Data Licence.<
/rights>
</entry>
</feed>

```

## Retrieve a Collection

This function allows summary information about a single collection to be retrieved. If a collection ID is used, that collection is retrieved; if a fedora pid is used, the *latest* version of that collection is retrieved (see 'A note on ID numbers' below). A specific version of a multi-version collection can be retrieved by appending 'v{version number}' to the collection ID or fedora pid e.g. 1234v002 retrieves the second version of collection 1234.

(Prior to DAP release of 28 April 2016, using the identifier for an older version of a collection received a "301 Moved Permanently" redirect to the most recent version.)

```

http://ws.data.csiro.au/collections/{dcid}
https://ws.data.csiro.au/collections/{dcid}

```

## Parameters

- **dcid**(required) is the unique identifier of the collection. Any of the following can be used:
  - collection id e.g. 1234 – retrieves that collection
  - collection id + version id e.g. 1234v002 – retrieves a specific version of collection
  - fedora pid e.g. csiro:1234 – retrieves latest version of collection
  - fedora pid + version id e.g. csiro:1234v002 – retrieves a specific version of collection
  - ANDS pid e.g. 102.100.100/10122 - Note that you must replace the slash character with a tilde e.g. / as ~. This results in 102.100.100~10122
  - DOI e.g. 10.4225/08/50F624325B0A7 - Note that you must replace the slash character with a tilde e.g. / as ~. This results in 10.4225~08~50F624325B0A7

### Temporary change to ANDS PIDs and DOIs

Due to a technical limitation with the DAP system, encoded /s in paths are not currently supported. To work around this DAP currently supports substituting ~ for / in ANDS PID and DOIs, e.g. a DOI would be 10.4225~08~50F624325B0A7 or an ANDS PID would be 102.100.100~10122

### A note on ID numbers

The numeric component of IDs in "collection id" and "fedora pid" will not necessarily be the same for a given collection. e.g. <http://ws.data.csiro.au/collections/7119>

### Portion of example collection's metadata

```
<dap:id identifierType="Fedora PID">
  <dap:identifier>csiro:5268</dap:identifier>
</dap:id>
<dap:self>https://ws.data.csiro.au/collections/7119</dap:self>
```

For some collections the numeric components will be identical, but it should not be assumed that they will be, i.e. the fedora pid is not merely the collection id with the prefix "csiro:". In this example, the following URLs will resolve to the same collection, but to different versions:

- fedora pid: <http://ws.data.csiro.au/collections/csiro:5268> (resolves to most recent version)
- fedora pid without namespace prefix: <http://ws.data.csiro.au/collections/5268> (resolves to version 1)
- collection id: <http://ws.data.csiro.au/collections/7119> (resolves to version 2)
- ANDS pid: <http://ws.data.csiro.au/collections/102.100.100~10122> (resolves to version 2)
- DOI: <http://ws.data.csiro.au/collections/10.4225~08~50F624325B0A7> (resolves to version 2 - note that version 1 also has this DOI, but since there were no changes to the actual data files the service will resolve to the most recent version of the collection that the DOI is valid for)

Removing the "csiro:" prefix from a fedora pid will still work, however taking the collection id and adding the prefix "csiro:" would not, e.g. <http://ws.data.csiro.au/collections/csiro:7119> does not work.

## Response

The response by default will be a custom xml stream containing summary metadata for the collection and links to further queries about the collection. The xml format will also include the URL as an ID, plus the URLs of other possible calls for further information.

### Data Collection Summary Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<dap:dataCollection xmlns:dap="urn:au:csiro:rds:dap:1.0">
  <dap:id identifierType="Fedora PID">
    <dap:identifier>{dataCollection.dataCollectionId}</dap:
identifier>
  </dap:id>
  <dap:self>{link to this record using the data collection id}</dap:
self>
  <dap:landingPage rel="alternate" type="text/html" href="{landing
page url for this collection}"/>
  <dap:title>{dataCollection.title}</dap:title>
  <dap:published>{collection published date}</dap:published>
  <dap:leadResearcher>{collection lead researcher}</dap:
leadResearcher>
  <dap:contributors>
    <dap:contributor>{collection contributors}</dap:contributor>
  </dap:contributors>
  <dap:project irpHierarchy="{true|false}">
    <dap:wbs>{a CSIRO specific project code - should be available
for both irpHierarchy values}</dap:wbs>

    <!-- where irpHierarchy="true" -->
    <dap:businessUnit>{"Business unit", a term referring to broad
organisational group in CSIRO.}</dap:businessUnit>
    <dap:program>{a finer level organisational unit than
businessUnit}</dap:program>
    <dap:projectDescription>{project description}</dap:
projectDescription>
    <dap:projectLeader>{project leader - should be available for
both irpHierarchy values}</dap:projectLeader>
```



```

        <!-- where irpHierarchy="false" -->
        <dap:group>{usually the CSIRO "Flagship" name, a former
term for broad-level research groups in CSIRO}</dap:group>
        <dap:portfolio>{usually similar to "group"}</dap:
portfolio>
        <dap:theme>{a term for a general research category
formerly used for CSIRO projects}</dap:theme>
        <dap:stream>{a finer level research category than
"theme"}</dap:stream>
        <dap:projectLeader>{project leader - should be
available for both irpHierarchy values}</dap:projectLeader>
        </dap:project>
        <dap:nationalFacility>{national facility}</dap:nationalFacility>
        <dap:organisationalLevels irpHierarchy="{true|false}">
        <dap:businessUnit>{"Business unit", a term referring to broad
organisational group in CSIRO. Historically many of these these were
called "divisions", although not all were.}</dap:businessUnit>

        <!-- where irpHierarchy="true" -->
        <dap:team>{"team" here is a finer level term than "program", it
is the finest level of organisational unit described here}</dap:team>
        <dap:program>{"program" here is a finer level term than
"group", a more specific research area}</dap:program>
        <dap:group>{"group" here is a finer level term than "business
unit", a broad research area}</dap:group>

        <!-- where irpHierarchy="true" -->
        <dap:costCentre>{"cost centre" here is a finer level
term than "business unit"}</dap:costCentre>
        <dap:researchProgram>{"research program" is a term
related to the combination of "business unit" and "cost centre"}</dap:
researchProgram>
        <dap:researchGroup>{"research group" is a term related
to the combination of "business unit" and "cost centre"}</dap:
researchGroup>
        </dap:organisationalLevels>
        <dap:activity>{activity name}</dap:activity>
        <dap:activityType>{activity title}</dap:activityType>
        <dap:description>{dataCollection.description}</dap:description>
        <dap:fieldsOfResearch>
        <dap:fieldOfResearch>{six digit ANZSRC code - see http://abs.
gov.au/ausstats/abs@.nsf/mf/1297.0</dap:fieldOfResearch>
        </dap:fieldsOfResearch>
        <dap:dataStartDate>{dataCollection.dataStartDate}</dap:
dataStartDate>
        <dap:dataEndDate>{dataCollection.dataEndDate}</dap:dataEndDate>
        <dap:spatialParameters projection="{WGS84|GDA94|EPSG:4326}">
        <dap:northLatitude>{max latitude}</dap:northLatitude>
        <dap:southLatitude>{min latitude}</dap:southLatitude>
        <dap:westLongitude>{min longitude}</dap:westLongitude>
        <dap:eastLongitude>{max latitude}</dap:eastLongitude>
        </dap:spatialParameters>
        <dap:keywords>{a string containing all user-defined keywords -
typically semi colons are used as delimiters}</dap:keywords>
        <dap:relatedMaterials>
        <dap:relatedMaterial>{URL for related material}</dap:

```

```

relatedMaterial>
  </dap:relatedMaterials>
  <dap:lineage>{dataCollection.lineage}</dap:lineage>
  <dap:credit>{dataCollection.credit}</dap:credit>
  <dap:licence>{dataCollection.licence}</dap:licence>
  <dap:link rel="license" type="text/html" href="{link to the
licence}"/>
  <dap:organisations>
    <dap:organisation>{collaborating organisation}</dap:
organisation>
  </dap:organisations>
  <dap:fundingSources>
    <dap:fundingSource>{funding source name}</dap:fundingSource>
  </dap:fundingSources>
  <dap:attributionStatement>{dataCollection.attributionStatement}<
/dap:attributionStatement>
  <dap:rights>{dataCollection.rightsStatement}</dap:rights>
  <dap:access>{dataCollection.access}</dap:access>
  <dap:size>{storage category.
    possible values:      small
                                medium
                                large
                                categoryD
                                atnf_pulsar
                                MNF_EOV
                                CASDA
                                inprogress
    "small" and "medium" collections may have files
accessible under the "data" endpoint.
    "large", "atnf_pulsar", "MNF_EOV" and "CASDA"
collections need to be mounted
    from the UI before data files can be accessed
using the "data" endpoint".
    "categoryD" files cannot be accessed via the "data"
endpoint, only the DAP UI.
    "inprogress" refers to a collection that is scheduled
to automatically ingest data on a regular basis.
    The files should be available via the web
service depening on the total collection size.
    size ranges:      small = 0-1GB;
                                medium = 1-10GB;
                                large = 10GB-150GB;
                                categoryD = 150GB-750GB;
                                atnf_pulsar = any size;
                                MNF_EOV = any size;
                                CASDA = any size
                                inprogress = any size
    notes:      MNF_EOV = "Marine National Facility End
Of Voyage"
                                atnf_pulsar = "Australian Telescope
National Facility pulsar"
                                CASDA = "CSIRO ASKAP (Australian Square
Kilometre Array Pathfinder) Science Data Archive"}
  </dap:size>
  <dap:versions>{link to list of available versions of the
collection}</dap:versions>
  <dap:metadata>{link to metadata stream list}</dap:metadata>

```

```

    <dap:data>{link to data file list, not present if data is not
public}</dap:data>
    <dap:supportingFiles>{link to supporting files list}</dap:
supportingFiles>
    <dap:collectionType>{collection type. possible values:
Data|Software}</dap:collectionType>
</dap:dataCollection>

```

## Example

### Sample Collection Request

```

http://ws.data.csiro.au/collections/5604
https://ws.data.csiro.au/collections/5604

```

### Example Data Collection Summary Response

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<dap:dataCollection xmlns:dap="urn:au:csiro:rds:dap:1.0">
  <dap:id identifierType="Fedora PID">
    <dap:identifier>csiro:5604</dap:identifier>
  </dap:id>
  <dap:self>https://ws.data.csiro.au/collections/5604</dap:self>
  <dap:landingPage rel="alternate" type="text/html" href="
https://data.csiro.au/dap/landingpage?pid=csiro%3A5604"/>
  <dap:title>Tasmanian Marine Analysis Network - Sullivans Cove CSIRO
Wharf Sensor</dap:title>
  <dap:published>2012-09-25T15:02:57.192+10:00</dap:published>
  <dap:leadResearcher>Greg Timms</dap:leadResearcher>
  <dap:contributors>
    <dap:contributor>Chris Sharman</dap:contributor>
    <dap:contributor>Ben Howell</dap:contributor>
    <dap:contributor>John McCulloch</dap:contributor>
    <dap:contributor>Daniel Hugo</dap:contributor>
  </dap:contributors>
  <dap:organisationalLevels irpHierarchy="false">
    <dap:businessUnit>ICT Centre</dap:businessUnit>
    <dap:costCentre>Tasmania ICT Centre</dap:costCentre>
    <dap:researchProgram>TICTC</dap:researchProgram>
    <dap:researchGroup>TICTC</dap:researchGroup>
  </dap:organisationalLevels>
  <dap:activity>Sullivans Cove CSIRO Wharf Sensor</dap:activity>
  <dap:activityType>Measurement</dap:activityType>
  <dap:description>The Tasmanian Marine Analysis Network (TasMAN)
project has collected sea water temperature and conductivity data from
the CSIRO wharf at Battery Point, Hobart. The Data has been collected
for multiple purposes including, data mining research into pattern
discovery, detection, and automated quality control algorithms.
  </dap:description>
  <dap:fieldsOfResearch>
    <dap:fieldOfResearch>050206</dap:fieldOfResearch>
  </dap:fieldsOfResearch>
  <dap:dataStartDate>2008-02-19T00:00:00+11:00</dap:dataStartDate>
  <dap:dataEndDate>2012-07-20T00:00:00+10:00</dap:dataEndDate>

```

```

    <dap:keywords>sea water temperature; sea water conductivity; TasMAN<
/dap:keywords>
    <dap:relatedMaterials>
      <dap:relatedMaterial>http://www.csiro.au/tasman/portal</dap:
relatedMaterial>
    </dap:relatedMaterials>
    <dap:lineage>This collection was measured with a Tyco EC250 sensor<
/dap:lineage>
    <dap:licence>CSIRO Data Licence</dap:licence>
    <dap:link rel="license" type="text/html" href="https://ws.data.
csiro.au/licences/1061"/>
    <dap:organisations>
      <dap:organisation>CSIRO</dap:organisation>
    </dap:organisations>
    <dap:attributionStatement>Timms, Greg; Sharman, Chris; Howell, Ben;
McCulloch, John; Hugo, Daniel (2012): Tasmanian Marine Analysis Network
- Sullivans Cove CSIRO Wharf Sensor. v1. CSIRO. Data Collection. 10.4225
/08/50613AE767787</dap:attributionStatement>
    <dap:rights>All rights (including copyright) CSIRO Australia.</dap:
rights>
    <dap:access>The metadata and files are available to the public.<
/dap:access>
    <dap:size>small</dap:size>
    <dap:versions>https://ws.data.csiro.au/collections/5604
/versions</dap:versions>
    <dap:metadata>https://ws.data.csiro.au/collections/5604/metadata<
/dap:metadata>
    <dap:data>https://ws.data.csiro.au/collections/5604/data</dap:data>
    <dap:supportingFiles>https://ws.data.csiro.au/collections/5604
/support</dap:supportingFiles>
    <dap:collectionType>Data</dap:collectionType>
</dap:dataCollection>

```

## Retrieve a list of a Collection's Versions

This function allows a list of the available versions of a collection to be retrieved.

```

http://ws.data.csiro.au/collections/{dcid}/versions
https://ws.data.csiro.au/collections/{dcid}/versions

```

### Parameters

**dcid** (required) is the unique identifier of the collection. Only the following can be used:

- collection id e.g. 1234
- fedora pid e.g. csiro:2345 (see [Note on IDs](#))
- ANDS pid e.g. 102.100.100~3456 (note that the slash / has been replaced by a tilde ~)
- DOI e.g. 10.4225~08~50F624325B0A7 (note that the slash / has been replaced by a tilde ~)

### Response

Response is a list of available versions of the collection, including the version number of the collection, its publication date, and a URL to retrieve the collection via the web services interface.

The response may not list all versions of the collection that exist in DAP, and omit versions not accessible to the permission level of the request. An [authenticated request](#) is required to access collections which are restricted to CSIRO-only access. A version of the collection that has been withdrawn in DAP will never be listed.

### Data Collection Version List Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<dap:versionsList xmlns:dap="urn:au:csiro:rds:dap:1.0">
  <dap:versions>
    <dap:version>
      <dap:versionNumber>{version number of collection}</dap:
versionNumber>
      <dap:published>{collection published date}</dap:published>
      <dap:self>{link to retrieve a collection function for
collection}</dap:self>
    </dap:version>
  </dap:versions>
</dap:versionsList>
```

### Example

#### Sample Collection Version List Request

```
http://ws.data.csiro.au/collections/csiro:11028/versions
https://ws.data.csiro.au/collections/csiro:11028/versions
```

#### Example Data Collection Version List Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<dap:versionsList xmlns:dap="urn:au:csiro:rds:dap:1.0">
  <dap:versions>
    <dap:version>
      <dap:versionNumber>4</dap:versionNumber>
      <dap:published>2016-02-24T21:43:56.841+11:00</dap:published>
      <dap:self>https://ws.data.csiro.au/collections/16550</dap:
self>
    </dap:version>
    <dap:version>
      <dap:versionNumber>3</dap:versionNumber>
      <dap:published>2015-09-04T09:48:18.399+10:00</dap:published>
      <dap:self>https://ws.data.csiro.au/collections/14830</dap:
self>
    </dap:version>
    <dap:version>
      <dap:versionNumber>2</dap:versionNumber>
      <dap:published>2015-02-03T13:25:56.369+11:00</dap:published>
      <dap:self>https://ws.data.csiro.au/collections/12275</dap:
self>
    </dap:version>
    <dap:version>
      <dap:versionNumber>1</dap:versionNumber>
      <dap:published>2014-10-24T17:15:08.462+11:00</dap:published>
      <dap:self>https://ws.data.csiro.au/collections/11028</dap:
self>
```

```
</dap:version>
</dap:versions>
</dap:versionsList>
```

## Retrieve a list of a Collection's Metadata Streams

This function allows a list of the data collection's metadata streams to be retrieved.

```
http://ws.data.csiro.au/collections/{dcid}/metadata
https://ws.data.csiro.au/collections/{dcid}/metadata
```

Currently only metadata streams for the most recent version of a collection will be available. All versions of a collection will list the metadata streams for the most recent version. This means that the XML metadata available under this endpoint may differ from the metadata under the /collections/{dcid} endpoint when accessing older versions.

### Parameters

**dcid** (required) is the unique identifier of the collection. Only the following can be used:

- collection id e.g. 1234
- fedora pid e.g. `csiro:2345` (see [Note on IDs](#))
- ANDS pid e.g. `102.100.100~3456` (note that the slash / has been replaced by a tilde ~)
- DOI e.g. `10.4225~08~50F624325B0A7` (note that the slash / has been replaced by a tilde ~)

### Response

Response is a list of available metadata formats in XML format.

The response by default will be a custom xml stream containing a list of links to metadata streams for the collection. The xml format will also include the URL as an ID, plus the URLs of other possible calls for further information.

#### Data Collection Metadata List Response

```
<?xml version="1.0" encoding="UTF-8"?>
<dap:metadataStreams xmlns="urn:au:csiro:rds:dap:1.0">
  <dap:id>metadata:{dataCollection.dataCollectionId}</dap:id>
  <dap:self>{link to this record using the data collection id}<
/dap:self>
  <dap:link type="csmd" href="{link to the csmd metadata record
for the data collection}" />
  <dap:link type="{metadata prefix}" href="{link to the csmd
metadata record for the data collection}"/>
</dap:metadataStreams>
```

The supported prefixes are:

- `csmd` (Core Scientific Metadata)
- `anzlic` (ISO 19139 implementation of ISO 19115)
- `rif` (RIF-CS)
- `dc` (Dublin Core)
- `dwc` (for darwin core)
- `vo` (Virtual Observatory resource)

Note that individual collections will not provide *all* of these options. Only schemas that are available for an individual collection will be listed.

### Example

### Sample Collection Metadata List Request

```
http://ws.data.csiro.au/collections/7119/metadata/  
https://ws.data.csiro.au/collections/7119/metadata/
```

### Example Data Collection Metadata List Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>  
<dap:metadataStreams xmlns:dap="urn:au:csiro:rds:dap:1.0">  
  <dap:id>metadata:7119</dap:id>  
  <dap:self>https://ws.data.csiro.au/collections/7119/metadata</dap:  
self>  
  <dap:link type="anzlic" href="https://ws.data.csiro.au/collections  
/7119/metadata/anzlic"/>  
  <dap:link type="csmd" href="https://ws.data.csiro.au/collections  
/7119/metadata/csmd"/>  
  <dap:link type="rif" href="https://ws.data.csiro.au/collections/7119  
/metadata/rif"/>  
  <dap:link type="dc" href="https://ws.data.csiro.au/collections/7119  
/metadata/dc"/>  
</dap:metadataStreams>
```

## Retrieve a Collection Metadata Stream

This function allows a metadata stream for the data collection to be retrieved.

```
http://ws.data.csiro.au/collections/{dcid}/metadata/{format}  
https://ws.data.csiro.au/collections/{dcid}/metadata/{format}
```

Currently only metadata streams for the most recent version of a collection will be available. All versions of a collection will list the metadata streams for the most recent version. This means that the XML metadata available under this endpoint may differ from the metadata under the /collections/{dcid} endpoint when accessing older versions.

### Parameters

**dcid** (required) is the unique identifier of the collection. Only the following can be used:

- collection id e.g. 1234
- fedora pid e.g. csiro:2345 (see [Note on IDs](#))
- ANDS pid e.g. 102.100.100~3456 (note that the slash / has been replaced by a tilde ~)
- DOI e.g. 10.4225~08~50F624325B0A7 (note that the slash / has been replaced by a tilde ~)

**format** can be

- csmd (Core Scientific Metadata)
- anzlic (ISO 19139 implementation of ISO 19115)
- rif (RIF-CS)
- dc (Dublin Core)
- dwc (for darwin core)
- vo (Virtual Observatory resource)

XML is the only format available for these schemes (i.e. using ?\_type=json will result in a 406 Not Acceptable error).

### Response

Response is the xml stream for that metadata format.

## Example

### Sample Collection Metadata Request

```
http://ws.data.csiro.au/collections/7119/metadata/csmd
https://ws.data.csiro.au/collections/7119/metadata/csmd
```

## Retrieve a list of a Collection's Data Files

This function allows a list of the data collection's data files to be retrieved.

```
http://ws.data.csiro.au/collections/{dcid}/data
https://ws.data.csiro.au/collections/{dcid}/data
```

Due to an update made in February 2016, file links provided via the web services interface will be URLs that use a HTTPS protocol. For publicly accessible collections it is still possible to substitute HTTP for HTTPS.

The Web Service Interface does not allow you to download files from **all** collections (exceptions come when the collection has a combined file size of 10GB or greater). Depending on the size of the collection, you may experience wait times before a file begins to download as the collections files must first be mounted from long term storage.

In the collection's main record (under /collections/{dcid}) look for the <dap:size> value. Here is a guide to the following values:

Value	Size Range	Notes
small	0-1GB	Where access restrictions permit, the files will be listed under the /collections/{dcid}/data endpoint
medium	1-10GB	Where access restrictions permit, the files will be listed under the /collections/{dcid}/data endpoint. If the collection has not been accessed for a long period of time it may have to be loaded from tape, which can result in file requests initially timing out with a 502 error. Depending on how many jobs the tape library has queued it can take several minutes before file requests resolve correctly. Once the data has been loaded from the tape file requests should return quickly.
large	10-150GB	By default the files will not be listed under the /collections/{dcid}/data endpoint. If the collection is mounted, a process which is currently only triggered in the DAP UI - <a href="https://data.csiro.au">https://data.csiro.au</a> - the files will be listed where access restrictions permit.
categoryD	150-750GB	Data files from categoryD collections cannot be accessed via the DAP web service. A WebDAV access request can be initiated from the DAP UI - <a href="https://data.csiro.au">https://data.csiro.au</a>
atnf_pulsar	any size	ATNF data can be accessed via the DAP web service. Alternatively you can use Virtual Observatory (VO) services. See <a href="http://www.atnf.csiro.au/observers/data/ppdu_guide.html">http://www.atnf.csiro.au/observers/data/ppdu_guide.html</a> for more detail.



MNF_EOV	any size	Data files from MNF_EOV collections cannot be access via the DAP web service. A WebDAV access request can be initiated from the DAP UI - <a href="https://data.csiro.au">https://data.csiro.au</a>
CASDA	any size	For access to CASDA data, please refer to <a href="http://www.atnf.csiro.au/observers/data/casdaguide.html">http://www.atnf.csiro.au/observers/data/casdaguide.html</a>

## Parameters

**dcid** (required) is the unique identifier of the collection. Only the following can be used:

- collection id e.g. 1234
- fedora pid e.g. `csiro:2345` (see [Note on IDs](#))
- ANDS pid e.g. `102.100.100~3456` (note that the slash / has been replaced by a tilde ~)
- DOI e.g. `10.4225~08~50F624325B0A7` (note that the slash / has been replaced by a tilde ~)

## Response

Response is the list of data files for that collection, by default in xml format.

### Data File List Response

```
<?xml version="1.0" encoding="UTF-8"?>
<dap:dataFiles xmlns="urn:au:csiro:rds:dap:1.0">
  <dap:id>data:{data collection id}</dap:id>
  <dap:self>{link to this record using the data collection id}</dap:
self>
  <dap:licence>{dataCollection.licence}</dap:licence>
  <dap:link rel="license" type="text/html"
    href="{link to the licence}" />
  <dap:rights>{dataCollection.rightsStatement}</dap:rights>
  <dap:access>{dataCollection.access}</dap:access>
  <dap:files>
    <dap:file>
      <dap:id>{data file id}</dap:id>
      <dap:fileName>{data file name including path within data
collection}</dap:fileName>
      <dap:lastUpdated>{data file last updated date}</dap:
lastUpdated>
      <dap:fileSize>{data file size in bytes}</dap:fileSize>
      <dap:link rel="self" type="{optional file mimetype}" href="{
link to the data file}" />
      <dap:parameters>
        <!-- One of these for each file level metadata item -->
        <dap:parameter>
          <dap:name>{file level meta data parameter name}</dap:name>
          <!-- A choice of one of the below -->
          <dap:stringValue>{if the file level metadata is a string}<
/dap:stringValue>
          <dap:dateValue>{if the file level metadata is a date}</dap:
dateValue>
          <dap:numericValue>{if the file level metadata is a number}<
/dap:numericValue>
          <!-- The following is optional, only if the source is
numeric and is a measure -->
          <dap:units>{the units of the numeric value}</dap:units>
```

```

        </dap:parameter>
    </dap:parameters>
</dap:file>
</dap:files>
</dap:dataFiles>

```

## Example

### Sample Collection Data File List Request

```

http://ws.data.csiro.au/collections/csiro:8290/data/
https://ws.data.csiro.au/collections/csiro:8290/data/

```

### Sample Data File List Response

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<dap:dataFiles xmlns:dap="urn:au:csiro:rds:dap:1.0">
  <dap:id>data:8290</dap:id>
  <dap:self>https://ws.data.csiro.au/collections/csiro:8290/data/<
/dap:self>
  <dap:licence>Creative Commons Attribution Licence</dap:licence>
  <dap:link rel="license" type="text/html" href="https://ws.data.
csiro.au/licences/2"/>
  <dap:rights>All Rights (including copyright) CSIRO Australia 2014.<
/dap:rights>
  <dap:access>The metadata and data are available to the public.</dap:
access>
  <dap:files>
    <dap:file>
      <dap:id>1565875</dap:id>
      <dap:filename>ChristmasBeetle_Thumbnail.png</dap:filename>
      <dap:lastUpdated>2014-03-05T17:22:22.000+11:00</dap:
lastUpdated>
      <dap:fileSize>91555</dap:fileSize>
      <dap:link rel="self" type="image/png" href="https://ws.data.
csiro.au/collections/csiro:8290/data/1565875"/>
      <dap:parameters>
        <dap:parameter>
          <dap:name>Creator</dap:name>
          <dap:stringValue>Chuong Nguyen</dap:stringValue>
        </dap:parameter>
        <dap:parameter>
          <dap:name>Title</dap:name>
          <dap:stringValue>3D Reconstruction from multi-view
images of a Christmas Beetle</dap:stringValue>
        </dap:parameter>
      </dap:parameters>
    </dap:file>
    <dap:file>
      <dap:id>1565874</dap:id>
      <dap:filename>ChristmasBeetle.x3d</dap:filename>
      <dap:lastUpdated>2014-03-05T17:22:18.000+11:00</dap:
lastUpdated>
      <dap:fileSize>8384510</dap:fileSize>

```

```

        <dap:link rel="self" type="application/xml" href="
https://ws.data.csiro.au/collections/csiro:8290/data/1565874"/>
        <dap:parameters/>
    </dap:file>
    <dap:file>
        <dap:id>1565872</dap:id>
        <dap:filename>ChristmasBeetle.jpg</dap:filename>
        <dap:lastUpdated>2014-03-05T17:22:06.000+11:00</dap:
lastUpdated>
        <dap:fileSize>7054936</dap:fileSize>
        <dap:link rel="self" type="image/jpeg" href="https://ws.
data.csiro.au/collections/csiro:8290/data/1565872"/>
        <dap:parameters>
            <dap:parameter>
                <dap:name>Title</dap:name>
                <dap:stringValue>3D Reconstruction from multi-view
images of a Christmas Beetle</dap:stringValue>
            </dap:parameter>
            <dap:parameter>
                <dap:name>Creator</dap:name>
                <dap:stringValue>Chuong Nguyen</dap:stringValue>
            </dap:parameter>
        </dap:parameters>
    </dap:file>
    <dap:file>
        <dap:id>1565873</dap:id>
        <dap:filename>ChristmasBeetle.ply</dap:filename>
        <dap:lastUpdated>2014-03-05T17:22:11.000+11:00</dap:
lastUpdated>
        <dap:fileSize>5738394</dap:fileSize>
        <dap:link rel="self" type="application/octet-stream" href="
https://ws.data.csiro.au/collections/csiro:8290/data/1565873"/>
        <dap:parameters/>
    </dap:file>
</dap:files>
</dap:dataFiles>

```

## Retrieve a Data File from a Collection

This function allows an individual data file from the data collection to be retrieved.

The Web Service Interface does not allow you to download files from **all** collections (exceptions come when the collection has a combined file size of 1GB or greater). Depending on the size of the collection, you may experience wait times before a file begins to download as the collections files must first be mounted from long term storage.

In the collection's main record (under /collections/{dcid}) look for the <dap:size> value. Here is a guide to the following values:

Value	Size Range	Notes
small	0-1GB	Where access restrictions permit, the files will be listed under the /collections/{dcid}/data endpoint
medium	1-10GB	Where access restrictions permit, the files will be listed under the /collections/{dcid}/data endpoint. If the collection has not been accessed for a long period of time it may have to be loaded

		from tape, which can result in file requests initially timing out with a 502 error. Depending on how many jobs the tape library has queued it can take several minutes before file requests resolve correctly. Once the data has been loaded from the tape file requests should return quickly.
large	10-150GB	By default the files will not be listed under the /collections/{dcid}/data endpoint. If the collection is mounted, a process which is currently only triggered in the DAP UI - <a href="https://data.csiro.au">https://data.csiro.au</a> - the files will be listed where access restrictions permit.
categoryD	150-750GB	Data files from categoryD collections cannot be accessed via the DAP web service. A WebDAV access request can be initiated from the DAP UI - <a href="https://data.csiro.au">https://data.csiro.au</a>
atnf_pulsar	any size	ATNF data can be accessed via the DAP web service. Alternatively you can use Virtual Observatory (VO) services. See <a href="http://www.atnf.csiro.au/observers/data/ppdu_guide.html">http://www.atnf.csiro.au/observers/data/ppdu_guide.html</a> for more detail.
MNF_EOV	any size	Data files from MNF_EOV collections cannot be accessed via the DAP web service. A WebDAV access request can be initiated from the DAP UI - <a href="https://data.csiro.au">https://data.csiro.au</a>
CASDA	any size	For access to CASDA data, please refer to <a href="http://www.atnf.csiro.au/observers/data/casdaguide.html">http://www.atnf.csiro.au/observers/data/casdaguide.html</a>

```
http://ws.data.csiro.au/collections/{dcid}/data/{datafileid}
https://ws.data.csiro.au/collections/{dcid}/data/{datafileid}
```

Due to an update made in February 2016, file links provided via the web services interface will be URLs that use a HTTPS protocol. For publicly accessible collections it is still possible to substitute HTTP for HTTPS.

### Parameters

**dcid** (required) is the unique identifier of the collection. Only the following can be used:

- collection id e.g. 1234
- fedora pid e.g. `csiro:2345` (see [Note on IDs](#))
- ANDS pid e.g. `102.100.100~3456` (note that the slash / has been replaced by a tilde ~)
- DOI e.g. `10.4225~08~50F624325B0A7` (note that the slash / has been replaced by a tilde ~)

**datafileid** is the numeric id of the file (from the id element in the data files list).

- e.g. 42357

A bug fix in DAP version 2.9.477 (14 Aug 2015) means that all public collections under 1GB total file size should now have accessible files.

Details: previously access to individual files was not working when a collection's metadata had been updated, but the data files had remained unchanged.

### Response

Response is the data file contents as a binary stream. The following HTTP headers will be set to give metadata information about the file:

--	--	--

Header name	Description	Example
Content-Disposition	How the user agent should treat the file (always inline for this service) and the filename (without path)	inline; filename=1-100-1.csv
Content-Length	Length in octets (8 bit bytes) of the content	2105327
Content-Type	The media type of the data file, defaulting to application/octet-stream if unknown	application/pdf
Last-Modified	The date the data file was last modified in RFC 2822 format	Wed, 11 Jul 2012 07:40:48 GMT

### Example

#### Sample Collection Data File Request

```
http://ws.data.csiro.au/collections/csiro:8290/data/741578
https://ws.data.csiro.au/collections/csiro:8290/data/741578
```

Sample file retrieval: ``



### Retrieve a list of a Collection's Supporting Files

This function allows a list of the data collection's supporting files to be retrieved.

```
http://ws.data.csiro.au/collections/{dcid}/support
https://ws.data.csiro.au/collections/{dcid}/support
```

Due to an update made in February 2016, file links provided via the web services interface will be URLs that use a HTTPS protocol. For publicly accessible collections it is still possible to substitute HTTP for HTTPS.

## Parameters

**dcid** (required) is the unique identifier of the collection. Only the following can be used:

- collection id e.g. 1234
- fedora pid e.g. `csiro:2345` (see [Note on IDs](#))
- ANDS pid e.g. `102.100.100~3456` (note that the slash / has been replaced by a tilde ~)
- DOI e.g. `10.4225~08~50F624325B0A7` (note that the slash / has been replaced by a tilde ~)

## Response

Response is the list of supporting files for that collection, by default in xml format.

### Supporting File List Response

```
<?xml version="1.0" encoding="UTF-8"?>
<dap:supportingFiles xmlns:dap="urn:au:csiro:rds:dap:1.0">
  <id>data:{data collection id}</id>
  <self>{link to this record using the data collection id}</self>
  <dap:files>
    <dap:file>
      <dap:id>{supporting file's id}</dap:id>
      <dap:filename>{supporting file's name}</dap:filename>
      <dap:link rel="self" type="{always application/octet-
stream}" href="{link to download the supporting file}"/>
    </dap:file>
  </dap:files>
</dap:supportingFiles>
```

## Example

### Sample Supporting File List Request

```
http://ws.data.csiro.au/collections/9187/support/
https://ws.data.csiro.au/collections/9187/support/
```

### Sample Supporting File List Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<dap:supportingFiles xmlns:dap="urn:au:csiro:rds:dap:1.0">
  <dap:id>supportingFiles:9187</dap:id>
  <dap:self>https://ws.data.csiro.au/collections/9187/support</dap:
self>
  <dap:files>
    <dap:file>
      <dap:id>159</dap:id>
      <dap:filename>EBSDinterp_v1_User_Guide.pdf</dap:filename>
      <dap:link rel="self" type="application/octet-stream" href="
https://ws.data.csiro.au/collections/9187/support/159"/>
    </dap:file>
    <dap:file>
      <dap:id>156</dap:id>
      <dap:filename>CSIRO_Binary_Software_Licence_Agreement_v1.
pdf</dap:filename>
      <dap:link rel="self" type="application/octet-stream" href="
https://ws.data.csiro.au/collections/9187/support/156"/>
    </dap:file>
  </dap:files>
</dap:supportingFiles>
```

```
</dap:file>
</dap:files>
</dap:supportingFiles>
```

## Retrieve a Supporting File from a Collection

This function allows an individual supporting file from the data collection to be retrieved.

```
http://ws.data.csiro.au/collections/{dcid}/support/{supportingfileid}
https://ws.data.csiro.au/collections/{dcid}/support/{supportingfileid}
```

Due to an update made in February 2016, file links provided via the web services interface will be URLs that use a HTTPS protocol. For publicly accessible collections it is still possible to substitute HTTP for HTTPS.

### Parameters

**dcid** (required) is the unique identifier of the collection. Only the following can be used:

- collection id e.g. 1234
- fedora pid e.g. `csiro:2345` (see [Note on IDs](#))

**supportingfileid** is the numeric id of the file (from the id element in the supporting files list).

- e.g. 42357

### Response

Response is the supporting file contents as a binary stream. The following HTTP headers will be set to give metadata information about the file:

Header Name	Description	Example
Content-Disposition	How the user agent should treat the file (always inline for this service) and the filename	inline; filename=readme.txt
Content-Length	Length in octets (8 bit bytes) of the content	2678
Content-Type	Always set to application/octet-stream	application/octet-stream
Last-Modified	The date the data file was last modified in RFC 2822 format	Wed, 11 Jul 2012 07:40:48 GMT

### Example

#### Sample Supporting File Request

```
http://ws.data.csiro.au/collections/9068/support/147
https://ws.data.csiro.au/collections/9068/support/147
```

## Retrieve a Licence

This function allows an individual licence to be retrieved.

```
http://ws.data.csiro.au/licences/{licenceId}
https://ws.data.csiro.au/licences/{licenceId}
```

## Parameters

**licenceId** (required) is the unique identifier of the licence. e.g. 1

## Response

Response is the licence, by default in html format. The content will be the same as shown in the licence pop-up dialog.

## Example

### Sample Licence Request

```
http://ws.data.csiro.au/licences/2
https://ws.data.csiro.au/licences/2
```

### Sample Licence Response (HTML)

```
<html>
<head><title>Creative Commons Attribution Licence</title></head>
<body>
<h1>Creative Commons Attribution Licence</h1>
<div></div>
<p><p>This licence lets others distribute, remix, tweak, and build upon
your work, even
commercially, as long as they credit you for the original creation.
This is the most
accommodating of licences offered. Recommended for maximum
dissemination and use of licensed materials.</p>
<p><a href="https://creativecommons.org/licenses/by/3.0" target="_blank"
>View Licence Deed</a> |
<a href="https://creativecommons.org/licenses/by/3.0/legalcode" target="
_blank">View Legal Code</a> </p></p>
</body>
</html>
```

### Sample Licence Response (XML)

```
<?xml version="1.0" encoding="UTF-8"?>
<licence xmlns="urn:au:csiro:imt:rds:1.0">
  <id>2</id>
  <self>https://ws.data.csiro.au/licences/2</self>
  <name>Creative Commons Attribution Licence</name>
  <description>&lt;p&gt;This licence lets others distribute,
    remix, tweak, and build upon your work, even commercially,
    as long as they credit you for the original creation.
    This is the most accommodating of licences offered.
    Recommended for maximum dissemination and use of licensed
    materials.&lt;/p&gt; &lt;p&gt;&lt;a href="
https://creativecommons.org/licenses/by/3.0"
target="_blank"&gt;View Licence Deed&lt;/a&gt; | &lt;a
href="https://creativecommons.org/licenses/by/3.0/legalcode"
```



```
target="_blank"&gt;View Legal Code&lt;/a&gt; &lt;/p&gt;<
/description>
  <logo>&lt;img src="https://i.creativecommons.org/l/by/3.0/88x31.png"
    alt="Attribution" /&gt;&lt;/logo>
&lt;/licence>
```

## Retrieve a list of External System Tags

This function allows you to retrieve a list of external system tags used by the DAP. External system tags are configured so specific sets of collection metadata can be harvested without retrieving the full set of available collections.

```
http://ws.data.csiro.au/tags.{xml|json}
https://ws.data.csiro.au/tags.{xml|json}
```

### Parameters

**extension** (required) specifies the metadata format. The only valid values are "xml" or "json".

### Response

The response is an XML or JSON metadata stream listing all tags configured for use by the Data Access Portal.

#### External System Tag List Response - XML

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<dap:externalSystemList xmlns:dap="urn:au:csiro:rds:dap:1.0">
  <dap:externalSystemList>
    <dap:externalSystem>
      <dap:id>{external system tag ID}&lt;/dap:id>
      <dap:name>{external system tag name}&lt;/dap:name>
      <dap:tag>{external system tag}&lt;/dap:tag>
      <dap:schemaName>{external system tag schema}&lt;/dap:
schemaName>
    &lt;/dap:externalSystem>
  &lt;/dap:externalSystemList>
&lt;/dap:externalSystemList>
```

### Example

```
http://ws.data.csiro.au/tags.xml
https://ws.data.csiro.au/tags.xml
```

#### External System Tag List Example - XML

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<dap:externalSystemList xmlns:dap="urn:au:csiro:rds:dap:1.0">
  <dap:externalSystemList>
    <dap:externalSystem>
      <dap:id>1040&lt;/dap:id>
      <dap:name>Marine National Facility&lt;/dap:name>
```

```

    <dap:tag>MNF</dap:tag>
    <dap:schemaName>MCP</dap:schemaName>
</dap:externalSystem>
<dap:externalSystem>
  <dap:id>1000</dap:id>
  <dap:name>RDA</dap:name>
  <dap:tag>RDA</dap:tag>
  <dap:schemaName>RIF-CS</dap:schemaName>
</dap:externalSystem>
<dap:externalSystem>
  <dap:id>1021</dap:id>
  <dap:name>TERN_ACEF</dap:name>
  <dap:tag>TERN_ACEF</dap:tag>
  <dap:schemaName>RIF-CS</dap:schemaName>
</dap:externalSystem>
<dap:externalSystem>
  <dap:id>1020</dap:id>
  <dap:name>TERN_Soils</dap:name>
  <dap:tag>TERN_Soils</dap:tag>
  <dap:schemaName>RIF-CS</dap:schemaName>
</dap:externalSystem>
</dap:externalSystemList>
</dap:externalSystemList>

```

<http://ws.data.csiro.au/tags.json>  
<https://ws.data.csiro.au/tags.json>

### External System Tag List Example - JSON

```

{
  "externalSystem": [ {
    "id": 1040,
    "name": "Marine National Facility",
    "tag": "MNF",
    "schemaName": "MCP"
  },
  {
    "id": 1000,
    "name": "RDA",
    "tag": "RDA",
    "schemaName": "RIF-CS"
  },
  {
    "id": 1021,
    "name": "TERN_ACEF",
    "tag": "TERN_ACEF",
    "schemaName": "RIF-CS"
  },
  {
    "id": 1020,
    "name": "TERN_Soils",
    "tag": "TERN_Soils",

```

```

    "schemaName": "RIF-CS"
  }]
}

```

## Retrieve a list of Collections for an External System Tag

This function allows you to retrieve a list of collections that have been tagged to harvest by external systems. The metadata retrieved for each collection will be the most recently published version available.

```

http://ws.data.csiro.au/tags/{tag}.{xml|json}
https://ws.data.csiro.au/tags/{tag}.{xml|json}

```

### Parameters

**tag** (required) is the tag for the external system (see the `<dap:tag>` value in [Retrieve a List of External System Tags](#))

**extension** (required) specifies the metadata format. The only valid values are "xml" or "json".

### Response

#### List of Tagged Collections Response - XML

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<dap:dataCollectionsList xmlns:dap="urn:au:csiro:rds:dap:1.0">
  <dap:dataCollections>
    <dap:dataCollection>
      <dap:id identifierType="Fedora PID">
        <dap:identifier>{dataCollection.
dataCollectionId}</dap:identifier>
      </dap:id>
      <dap:self>{link to the complete record using the data
collection id}</dap:self>
      <dap:landingPage rel="alternate" type="text/html" href="{
landing page url for this collection}"/>
      <dap:title>{dataCollection.title}</dap:title>
      <dap:published>{date and time that the most recent version
of this metadata record was published}</dap:published>
      <dap:description>{dataCollection.description}</dap:
description>
      <dap:keywords>{dataCollection.keywords}</dap:keywords>
      <dap:credit>{dataCollection.credit}</dap:credit>
      <dap:link rel="license" type="text/html" href="{link to the
licence}"/>
      <dap:attributionStatement>{dataCollection.
attributionStatement}</dap:attributionStatement>
      <dap:rights>{dataCollection.rightsStatement}</dap:rights>
    </dap:dataCollection>
  </dap:dataCollections>
</dap:dataCollectionsList>

```

### Example

[http://ws.data.csiro.au/tags/TERN\\_Soils.xml](http://ws.data.csiro.au/tags/TERN_Soils.xml)  
[https://ws.data.csiro.au/tags/TERN\\_Soils.xml](https://ws.data.csiro.au/tags/TERN_Soils.xml)

### Example list of collections for "TERN\_Soils" tag - XML

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<dap:dataCollectionsList xmlns:dap="urn:au:csiro:rds:dap:1.0">
  <dap:dataCollections>
    <dap:dataCollection>
      <dap:id>{dataCollection.dataCollectionId}
      <dap:identifier>csiro:5588</dap:identifier>
      </dap:id>
      <dap:self>https://ws.data.csiro.au/collections/5588</dap:
self>
      <dap:landingPage rel="alternate" type="text/html" href="
https://data.csiro.au/dap/landingpage?pid=csiro%3A5588"/>
      <dap:title>Topographic Wetness Index (3&quot; resolution)
derived from 1&quot; SRTM DEM-H</dap:title>
      <dap:published>2012-11-19T18:43:55.595+11:00</dap:published>
      <dap:description>TWI is calculated as log_e(specific
catchment area / slope) and estimates the relative wetness within a
catchment.
```

The TWI product was derived from the partial contributing area product (CA\_MFD\_PARTIAL), which was computed from the Hydrologically enforced Digital Elevation Model (DEM-H; ANZCW0703014615), and from the percent slope product, which was computed from the Smoothed Digital Elevation Model (DEM-S; ANZCW0703014016). Both DEM-S and DEM-H are based on the 1 second resolution SRTM data acquired by NASA in February 2000.

Note that the partial contributing area product does not always represent contributing areas larger than about 25 km<sup>2</sup> because it was processed on overlapping tiles, not complete catchments. This only impacts on TWI values in river channels and does not affect values on the land around the river channels. Since the index is not intended for use in river channels this limitation has no impact on the utility of TWI for spatial modelling.

```
The 3 second resolution TWI product was generated from the 1 second TWI
product and masked by the 3" water and ocean mask datasets.</dap:
description>
  <dap:keywords>Topographic Wetness Index; LAND Topography
Models; ECOLOGY Landscape; TERN_Soils; Land Surface;Australia</dap:
keywords>
  <dap:credit>Access to this data has been made possible by
the Terrestrial Ecosystem Research Network (TERN), supported by the
Australian Government through the National Collaborative Research
Infrastructure Strategy and the Super Science Initiative.</dap:credit>
  <dap:link rel="license" type="text/html" href="https://ws.
data.csiro.au/licences/2"/>
  <dap:attributionStatement>John Gallant; Jenet Austin
(2012): Topographic Wetness Index (3&quot; resolution) derived from
1&quot; SRTM DEM-H. v1. CSIRO. Data Collection. 10.4225/08
/50A9DF3968422</dap:attributionStatement>
  <dap:rights>All Rights Reserved (including copyright) CSIRO
Australia 2012.</dap:rights>
```

```

    </dap:dataCollection>
    <dap:dataCollection>
      <dap:id>csiro:5587</dap:id>
      <dap:self>https://ws.data.csiro.au/collections/5587</dap:
self>
      <dap:landingPage rel="alternate" type="text/html" href="
https://data.csiro.au/dap/landingpage?pid=csiro%3A5587"/>
      <dap:title>Contributing Area - Multiple Flow Direction
(Partial) (3" resolution) derived from 1" SRTM DEM-H</dap:
title>
      <dap:published>2012-11-19T17:47:10.743+11:00</dap:published>
      <dap:description>CA_MFD_PARTIAL is contributing area in m2
computed using multiple flow directions on hillslopes and ANUDEM-
derived flow directions in channels. The contributing area was computed
on 1 degree tiles with 200 cell (about 5 km) overlaps so the areas in
channels do not account for catchments beyond that size (hence the use
of PARTIAL in the name). The primary purpose of this product was to
calculate topographic wetness index (TWI; Gallant and Wilson, 2000) for
which full contributing areas in channels are not necessary. Do not use
this product to represent contributing areas of catchments larger than
5 km across.

The CA_MFD_PARTIAL product was derived from the Hydrologically enforced
Digital Elevation Model (DEM-H; ANZCW0703014615), which was derived
from the 1 second resolution SRTM data acquired by NASA in February
2000.

The 3 second resolution product was generated from the 1 second CA_MFD
(partial) product and masked by the 3" water and ocean mask datasets.
    </dap:description>
    <dap:keywords>Contributing Area; LAND Topography Models;
ECOLOGY Landscape; TERN_Soils; Land Surface;Australia</dap:keywords>
    <dap:credit>Access to this data has been made possible by
the Terrestrial Ecosystem Research Network (TERN), supported by the
Australian Government through the National Collaborative Research
Infrastructure Strategy and the Super Science Initiative.</dap:credit>
    <dap:link rel="license" type="text/html" href="https://ws.
data.csiro.au/licences/2"/>
    <dap:attributionStatement>John Gallant; Jenet Austin
(2012): Contributing Area - Multiple Flow Direction (Partial) (3"
resolution) derived from 1" SRTM DEM-H. v1. CSIRO. Data
Collection. 10.4225/08/50A9D0E561DA6</dap:attributionStatement>
    <dap:rights>All Rights Reserved (including copyright) CSIRO
Australia 2012.</dap:rights>
  </dap:dataCollection>
</dap:dataCollections>
</dap:dataCollectionsList>

```

```

http://ws.data.csiro.au/tags/TERN_Soils.json
https://ws.data.csiro.au/tags/TERN_Soils.json

```

### Example list of collections for "TERN\_Soils" tag - JSON

```
{
```

```

    "dataCollection": [{
      "id": {"identifierType": "Fedora PID", "identifier": "csiro:
5588"},
      "self": "https://ws.data.csiro.au/collections/5588",
      "landingPage": {
        "href": "https://data.csiro.au/dap/landingpage?pid=csiro%
3A5588",
        "rel": "alternate",
        "type": "text/html"
      },
      "title": "Topographic Wetness Index (3\" resolution) derived
from 1\" SRTM DEM-H",
      "published": 1353311035595,
      "leadResearcher": null,
      "description": "TWI is calculated as log_e(specific catchment
area / slope) and estimates the relative wetness within a catchment.
\n\nThe TWI product was derived from the partial contributing area
product (CA_MFD_PARTIAL), which was computed from the Hydrologically
enforced Digital Elevation Model (DEM-H; ANZCW0703014615), and from the
percent slope product, which was computed from the Smoothed Digital
Elevation Model (DEM-S; ANZCW0703014016). Both DEM-S and DEM-H are
based on the 1 second resolution SRTM data acquired by NASA in February
2000.\n\nNote that the partial contributing area product does not
always represent contributing areas larger than about 25 km2 because it
was processed on overlapping tiles, not complete catchments. This only
impacts on TWI values in river channels and does not affect values on
the land around the river channels. Since the index is not intended for
use in river channels this limitation has no impact on the utility of
TWI for spatial modelling.\n\nThe 3 second resolution TWI product was
generated from the 1 second TWI product and masked by the 3" water and
ocean mask datasets.",
      "dataStartDate": null,
      "dataEndDate": null,
      "keywords": "Topographic Wetness Index; LAND Topography Models;
ECOLOGY Landscape; TERN_Soils; Land Surface;Australia",
      "lineage": null,
      "credit": "Access to this data has been made possible by the
Terrestrial Ecosystem Research Network (TERN), supported by the
Australian Government through the National Collaborative Research
Infrastructure Strategy and the Super Science Initiative.",
      "licence": null,
      "link": {
        "href": "https://ws.data.csiro.au/licences/2",
        "rel": "license",
        "type": "text/html"
      },
      "attributionStatement": "John Gallant; Jenet Austin (2012):
Topographic Wetness Index (3\" resolution) derived from 1\" SRTM DEM-H.
v1. CSIRO. Data Collection. 10.4225/08/50A9DF3968422",
      "rights": "All Rights Reserved (including copyright) CSIRO
Australia 2012.",
      "access": null,
      "size": null,
      "metadata": null,
      "data": null,
      "supportingFiles": null
    },
  ],

```

```

    {
        "id":{"identifierType":"Fedora PID","identifier":"csiro:
5587"},
        "self": "https://ws.data.csiro.au/collections/5587",
        "landingPage": {
            "href": "https://data.csiro.au/dap/landingpage?pid=csiro%
3A5587",
            "rel": "alternate",
            "type": "text/html"
        },
        "title": "Contributing Area - Multiple Flow Direction (Partial)
(3\" resolution) derived from 1\" SRTM DEM-H",
        "published": 1353307630743,
        "leadResearcher": null,
        "description": "CA_MFD_PARTIAL is contributing area in m2
computed using multiple flow directions on hillslopes and ANUDEM-
derived flow directions in channels. The contributing area was computed
on 1 degree tiles with 200 cell (about 5 km) overlaps so the areas in
channels do not account for catchments beyond that size (hence the use
of PARTIAL in the name). The primary purpose of this product was to
calculate topographic wetness index (TWI; Gallant and Wilson, 2000) for
which full contributing areas in channels are not necessary. Do not use
this product to represent contributing areas of catchments larger than
5 km across.\n\nThe CA_MFD_PARTIAL product was derived from the
Hydrologically enforced Digital Elevation Model (DEM-H;
ANZCW0703014615), which was derived from the 1 second resolution SRTM
data acquired by NASA in February 2000. \n\nThe 3 second resolution
product was generated from the 1 second CA_MFD (partial) product and
masked by the 3" water and ocean mask datasets.\n",
        "dataStartDate": null,
        "dataEndDate": null,
        "keywords": "Contributing Area; LAND Topography Models; ECOLOGY
Landscape; TERN_Soils; Land Surface;Australia",
        "lineage": null,
        "credit": "Access to this data has been made possible by the
Terrestrial Ecosystem Research Network (TERN), supported by the
Australian Government through the National Collaborative Research
Infrastructure Strategy and the Super Science Initiative.",
        "licence": null,
        "link": {
            "href": "https://ws.data.csiro.au/licences/2",
            "rel": "license",
            "type": "text/html"
        },
        "attributionStatement": "John Gallant; Jenet Austin (2012):
Contributing Area - Multiple Flow Direction (Partial) (3\" resolution)
derived from 1\" SRTM DEM-H. v1. CSIRO. Data Collection. 10.4225/08
/50A9D0E561DA6",
        "rights": "All Rights Reserved (including copyright) CSIRO
Australia 2012.",
        "access": null,
        "size": null,
        "metadata": null,
        "data": null,
        "supportingFiles": null
    }
}

```

