



<https://w3id.org/>
<http://purl.org/>
<http://environment.data.gov.au/>
<http://linked.data.gov.au/>

Ashurbanipal's clay tablet library (650BC)
had index tablets pointing to content.
Both indexes and content still exist!

How long will I URIs last?

Persistent URIs for the Australian Govt.

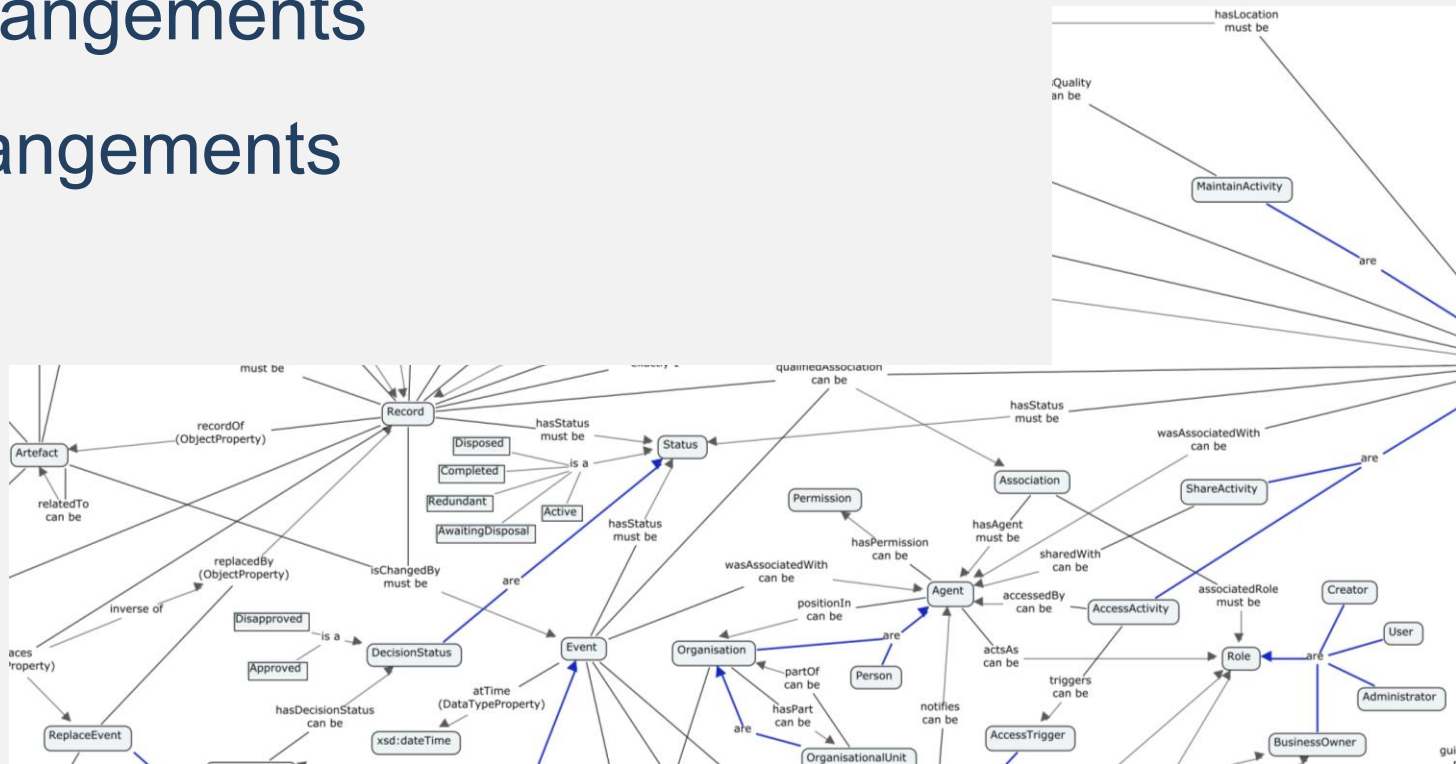
Simon Cox, Nicholas Car

CSIRO Research Scientist & Member of the
Australian Government Linked Data Working Group



Outline

- The Aust Govt Linked Data WG
- AGLDWG PIDs
- Initial arrangements
- New arrangements



Australian Government Linked Data WG

Community of Commonwealth Government experts and champions, with invited non-voting participation of individuals, corporations and other entities.

- Established in August 2012, with strong growth in membership since the Government released the outcomes of an inquiry on [Data Availability and Use in the Australian Government](#).
- No official Government mandate or related legislation, but a community of practice that promotes and represents a series of federal Government entities who seek to implement and use Linked Data technologies for the betterment of Australian Government data sharing.
- Several members have signed an MoU to support the use and persistence of linked.data.gov.au URIs.



Australian Government
Geoscience Australia



Australian Government
Australian Taxation Office



Australian Government
Bureau of Meteorology



Australian Government
Department of Human Services



Australian Government
Digital Transformation Agency



Australian Government
Department of Finance



Australian Government
Department of Communications

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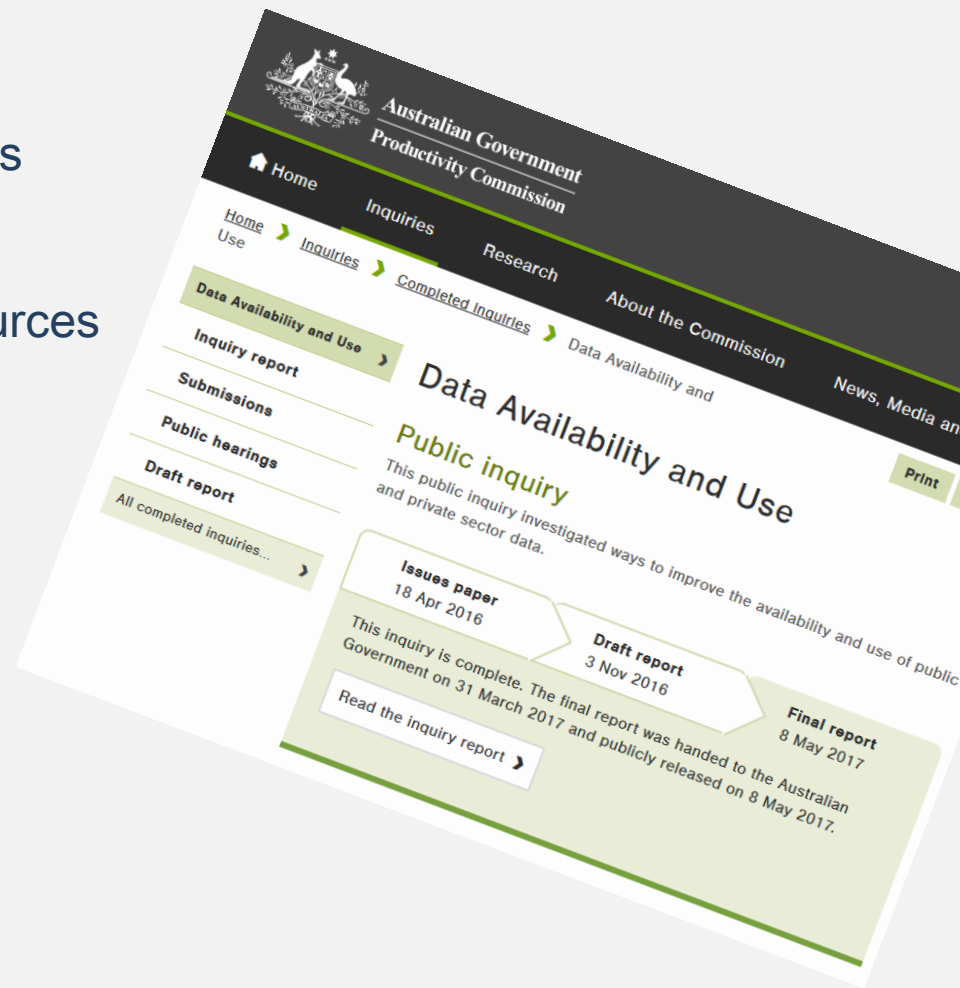
- Established in August 2012, with strong growth in membership since the Government released the outcomes of an inquiry on Data Availability and Use in the Australian Government.
- No official Government mandate or related legislation, but a series of federal Government policies of practice that promotes and represents a series of federal Government policies that seek to implement and use Linked Data technologies for the purpose of increasing the transparency of Australian Government data sharing.
- Several members have signed an MoU to support the continued existence of linked.data.gov.au URIs.

May change soon!



Things the AGLDWG Does

- Facilitate the Aust Govt LD community
- Engage with WoG data initiatives
- Manage persistent URIs for resources
 - and provide Guidelines for their use
- Starting to register Linked Data resources
 - Datasets
 - Ontologies
 - Others...



AGLDWG PIDs – Initial Arrangements

- It is seen as essential for useful Linked Data to have persistent URIs
- A PID regime started in 2013 provided for URIs within 26 subdomains of data.gov.au:
 - Top-level AGIFT terms used to segment management
 - environment
 - maritime
 - infrastructure
 - ...
- Other domain segmentation vocabs considered, e.g. COFOG
- Regime has run until now
- The non-AGIFT subdomain reference.data.gov.au added in 2015 to cater for general LD resources
- Only environment.data.gov.au has been well utilised, reference a little bit

URI Guidelines for publishing Linked Data datasets on data.gov.au v0.3

(March 12 2018)

Table of Contents

Conformance

1. Introduction
 2. Linked Data dataset URIs
 3. Domain structure
 4. URI patterns
 5. Publishing URIs
 6. URI naming conventions
 7. HOW-TO publish a Linked Data dataset on data.gov.au
- References

Conformance

The key words *MUST*, *MUST NOT*, *REQUIRED*, *SHOULD*, *SHOULD NOT*, *RECOMMENDED*, *MAY*, and *OPTIONAL* in this document are to be interpreted as described in [11].

1. Introduction

AGLDWG PIDs – Initial Arrangements

- {environment, reference, infrastructure}.data.gov.au managed with the PID Svc tool
 - A CSIRO-developed management UI for a proxy server
 - Scales to large numbers of PID mappings
 - Can be edited without low-level server access
- Individual resources (ontology files) and whole collections of resources (APIs) have been allocated persistent URIs
- Important datasets include: ACORN-SAT & Geofabric
 - The UI of the PID Svc managing environment.data.gov.au
- Important definitional resources include:
 - AGIFT
 - Dataset Ontology
 - BA Glossary

Mapping	Path / Pattern
AHGF Feature class registers Resource mappings for Geofabric datasets, and Catchments.	^\/water\/id\/(catchment rive..
AHGF Feature resources Resource mappings for Geofabric features \$Header: https://svnserv.csiro.au/svn/SIRF/Projects /data/linked-data/trunk/dna/hydrology/ahgf-pid-rules.xml 2209 2014-06-27 09:24:09Z atk093 \$	^\/water\/id\/(catchment rive..
AHGF Feature specialisation Drainage Divisions Resource mappings for Drainage Divisions. \$Header: https://svnserv.csiro.au/svn/SIRF/Projects /data/linked-data/trunk/dna/hydrology/ahgf-pid-hdd-rules.xml 2186 2014-06-23 00:26:33Z atk093 \$	^\/water\/id\/(drainagedivision)..
AHGF Feature specialisation River Regions Resource mappings for River Regions. \$Header: https://svnserv.csiro.au/svn/SIRF/Projects /data/linked-data/trunk/dna/hydrology/ahgf-pid-hrr-rules.xml 2190 2014-06-23 00:39:13Z atk093 \$	^\/water\/id\/(riverregion)\/([0-...
def BA Glossary	/def/ba/glossary(/.*)?
def OP	/def/op(/.html .rdf)*\$
eReefs legacy WO def Owner: Sharon Tickell (sharon.tickell@csiro.au)	/water/quality/def(/.*)
Water Quality Observable Properties Ontology	^\/water/quality/def/op(/.html...
Water Quality Vocabulary	^\/water/quality/def(/.*)\$

AGLDWG PIDs – Initial Arrangements

- Questions about how to deal with non-AGIFT terms were always anticipated
- In 2017, URIs about spatial data were requested for the Linked Data version of the Geocoded National Address File (G-NAF: <http://gnafld.net>)
- With ‘statistics’ being added to AGIFT, ‘spatial’ was requested and ultimately received
 - A need to do things differently to AGIFT management segmentation was perceived
 - Some members of the WG felt uncomfortable with thematic classifiers in URIs, even for management

The National Archive's AGIFT as an online vocabulary

Australian Governments' Interactive Functions Thesaurus (AGIFT)

<https://data.naa.gov.au/def/agift/AGIFT>

Subject

The Australian Governments' Interactive Functions Thesaurus (AGIFT) is a three-level hierarchical thesaurus that describes the business functions carried out across Commonwealth, state and local governments in Australia.

Top Concept

[BUSINESS-SUPPORT-AND-REGULATION](#)

[CIVIC-INFRASTRUCTURE](#)

[COMMUNICATIONS](#)

[COMMUNITY-SERVICES](#)

AGLDWG PIDs – New Arrangements

Aims of the New Arrangements:

- Work within a new MoU arrangement across agencies to lock down a namespace
- Avoid indicating classification of resources in URI
- Avoid constricting top-level vocabulary
- Make 1st round allocation easy
 - Anyone can easily get a dataset or definitional PID
- Provide for a 2nd-round of class-based register URIs
 - Maximally re-use top-level registers for resources of the same type

AGLDWG PIDs – New Arrangements

- New PID URI arrangements proposed in Feb, 2018. Currently under test
- **Proposed:**
 - linked.data.gov.au to be used for all PIDs
 - No other subdomains used

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AGLDWG PIDs – New Arrangements

- New PID URI arrangements proposed in Feb, 2018. Currently under test
 - **Proposed:**
 - linked.data.gov.au to be used for all PIDs
 - No other subdomains used
- One reason for this was the Digital Transformation Office's preferment of single-subdomain allocation for AGLDWG management

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 - **Top-level registers** at `.../{CLASS-NAME}/`

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 - **Definitional resources** with URIs at `.../def/{NAME}`
 - **Top-level registers** at `.../{CLASS-NAME}/`
 - Individual items either within datasets or within top-level registers:
 - `.../dataset/{NAME}/{REGISTER}/{ITEM-ID}`
 - `.../{CLASS-NAME}/{ITEM-ID}`

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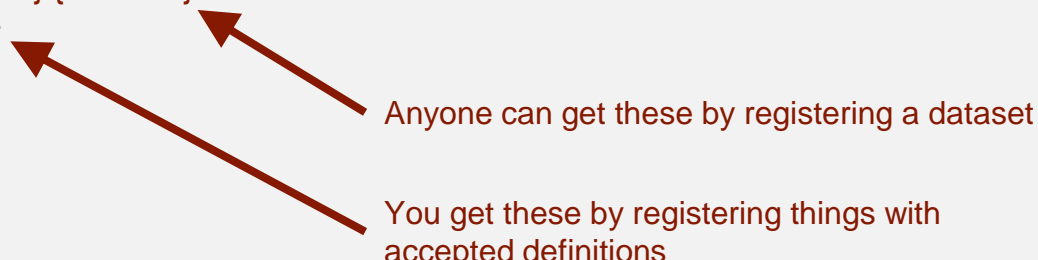
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 - `.../dataset/{NAME}/{REGISTER}/{ITEM-ID}`
 - `.../{CLASS-NAME}/{ITEM-ID}`
- 
- Anyone can get these by registering a dataset
- You get these by registering things with accepted definitions

AGLDWG PIDs – New Arrangements

- A dataset now in test: AU Orgs Register
- Dataset: <http://test.linked.data.gov.au/dataset/auorg>

API Home

All Organisations

Boards

Persons

Portfolios

About

AU Organisations Register

This is a demonstration system only: 'test.' in web addresses will be removed in production

This is the Linked Data version of directory.gov.au. It allows web requests to be made for directory.gov.au content (no search, direct links only!) and responds with either simple web pages (HTML) or [Resource Description Framework \(RDF\)](#), machine-readable, data. Internet protocol [content negotiation](#) can be used to request the different formats.

AGLDWG PIDs – New Arrangements

- A dataset now in test: AU Orgs Register
- Dataset: <http://test.linked.data.gov.au/dataset/auorg>
- Ontology: <http://test.linked.data.gov.au/def/auorg>

AU Org Ontology

IRI:

<http://test.linked.data.gov.au/def/auorg>

Version IRI:

<http://test.linked.data.gov.au/def/auorg/0.5>

Current version:

Beta version

Authors:

Nicholas Car

<http://orcid.org/0000-0002-8742-7730>

Imported Ontologies:

<http://www.w3.org/ns/org#>

Other visualisation:

[Ontology source \(RDF, turtle\)](#)

Further documentation & examples:

[This ontology's full documentation on GitHub](#)

AGLDWG PIDs – New Arrangements

- A dataset now in test: AU Orgs Register
- Dataset: <http://test.linked.data.gov.au/dataset/auorg>
- Ontology: <http://test.linked.data.gov.au/def/auorg> ← Don't have to have an ontology per dataset, this one just does

AU Org Ontology

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AGLDWG PIDs – New Arrangements

- A dataset now in test: AU Orgs Register
- Dataset: <http://test.linked.data.gov.au/dataset/auorg>
- Ontology: <http://test.linked.data.gov.au/def/auorg>
- Register of Organisations from AU Orgs Register: <http://test.linked.data.gov.au/org/>
 - Defined as org:Organization
 - Expected to share register with other orgs in the future

The screenshot shows a web interface for the Register of Organisations. At the top, there is a dark blue navigation bar with links for 'API Home', 'All Organisations', 'Boards', 'Persons', and 'Portf'. Below the navigation bar, the main content area has a white background. The title 'Register View' is prominently displayed in a large, dark blue font. Underneath, the subtitle 'Of Register of Organisations' is shown in a smaller, black font. A section titled 'Classes of items in this Register:' lists a single class: 'http://www.w3.org/ns/org#Organization'. Below this, the 'Items in this Register' section lists several organizations, each with a blue hyperlink: ABC Advisory Council, ACCC Consumer Consultative Committee, ACCC Performance Consultative Committee, ACIAR Policy Advisory Council, AHL Opal Fund, ANSTO Inc, ANSTO Nuclear Medicine Pty Ltd, ANU (UK) Foundation, ANU Enterprise Pty Limited, ANU MTA Super Venture Capital Partnership LP, ANU MTA Super Venture Capital Pty Limited, ANZLIC - the Spatial Information Council, and AP Innovation Ventures Pty Ltd. To the right of the items list, there is a section titled 'Automated Pagination' which explains how to use query string arguments to paginate results. It includes an example of a URL: 'http://test.linked.data.gov.au/'.

API Home All Organisations Boards Persons Portf

Register View

Of Register of Organisations

Classes of items in this Register:

- <http://www.w3.org/ns/org#Organization>

Items in this Register

- [ABC Advisory Council](#)
- [ACCC Consumer Consultative Committee](#)
- [ACCC Performance Consultative Committee](#)
- [ACIAR Policy Advisory Council](#)
- [AHL Opal Fund](#)
- [ANSTO Inc](#)
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Automated Pagination

To paginate these registered items, something crawler to do, use the query string arguments the number of items per page. HTTP Link head indicate URIs to the first, a previous, a next an

Example:

<http://test.linked.data.gov.au/>

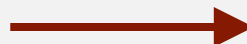
Assuming 500 items, this request would result

Link: `<http://test.linked.data.gov.au/>`
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AGLDWG PIDs – New Arrangements

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- Ontology: <http://test.linked.data.gov.au/def/auorg>
- Register of Organisations from AU Orgs Register: <http://test.linked.data.gov.au/org/>
 - Defined as org:Organization
 - Expected to share register with other orgs in the future

Things in the register could have any URI. The /org/ here is just for the register of things of a particular class



API Home All Organisations Boards Persons Portf

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- Ontology: <http://test.linked.data.gov.au/def/auorg>
- Register of Organisations from AU Orgs Register: <http://test.linked.data.gov.au/org/>
- Items in the AU Orgs Register dataset appear in top-level and 2nd-level registers:
- .../org/ - org:Organisations
 - e.g. Australian Bureau of Statistics <http://test.linked.data.gov.au/org/O-000928>
- .../dataset/auorg/subStructure/
 - sub-units within government organisations, e.g. <http://test.linked.data.gov.au/dataset/auorg/subStructure/O-003289>

AGLDWG PIDs – New Arrangements

Timeline:

- Mar 2018: Proposed
- May 2018: demonstrated
- June 2018: New Arrangements URI Guidelines to be issued
- July 2018: AGLDWG vote to proceed with New Arrangements
- July 2018+: New Arrangement-style URIs allocated

Contacts

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Nick: nicholas.car@csiro.au

Questions?