

典藏目錄的語意與連結

「語意網視野下的知識組織與文化資產」研討會 2016年6月2日 台北

莊庭瑞、黃韋菁、李承鑫、陳心萍 中央研究院 資訊科學研究所

1. 典藏品目錄資料

典藏品目錄資料

- 常人親近機構典藏品的介面
- 研究者常需參照不同機構的典藏品目錄資料
- 目錄資料的維持與更新；目錄資料也成為藏品！

- 典藏台灣聯合目錄：資料來自四方、樣態豐富
- 部份目錄已採創用CC授權：可被自由複製散布
 - 典藏品資訊的重新呈現與外部連結
 - 時間、空間、人物、物件的語意關聯查詢
 - 「資料連結」(linked data)的實踐

XML – RDF – CSV

- XML

- 巢狀階層；文本&標示同現於文件
- 可自訂標示語彙以規範文件結構

- RDF

- 節點網絡；個體—關聯—個體（個體—屬性—純量）
- 可自訂關聯（屬性）語彙以表達網絡意涵

- CSV

- 格狀表單；同質性群體的表列式個體屬性值
- 不明定表單欄位名稱與型態；固定欄位數量

XML – 可擴展標示語言 (eXtensible Markup Language)

RDF – 資源描述架構 (Resource Description Framework)

CSV – 逗號分隔值 (Comma-Separated Values)

From XML to RDF via CSV

- 目錄結構 XML
 - 非遞迴、非深巢狀的層次型態文件；固定語彙；文字紀錄
- 中介表單 CSV
 - XML語彙對映至RDF語彙為欄位；目錄資料依序條列
- 資料連結 RDF
 - 逐列轉譯中介表單為資料連結網絡；使用領域語彙為關聯
- 特點
 - 中介表單可參照其他資源表單；表單可人工勘誤；表單增修歷程可管理；軟體工具多；資料連結的產出方式有彈性

```

<?xml version="1.0" encoding="BIG5"?>
<DACatalog>
  <AdminDesc>
    <Project Creator="中研院生物多樣性中心" GenDate="2011-05-13">台灣本土植物數位化典藏</Project>
    <Catalog>
      <Record>典藏機構與計畫:中央研究院:生物多樣性研究中心:台灣本土植物數位化典藏</Record>
      <Record>內容主題:生物:植物界:種子植物門:單子葉植物綱:天門冬目:蘭科</Record>
    </Catalog>
    <DigiArchiveID>43501</DigiArchiveID>
    <Hyperlink>http://www.hast.biodiv.tw/specimens/SpecimenDetailC.aspx?specimenOrderNum=43501</Hyperlink>
    <ICON license="CC2.5:BY-NC-ND">http://img.hast.biodiv.tw/specimenSmall/specimenSmall004/3/S_043501.jpg</ICON>
  </AdminDesc>
  <MetaDesc license="CC2.5:BY-NC-ND">
    <Title field="中文種名">台灣一葉蘭</Title>
    <Title field="學名">Pleione formosana Hayata</Title>
    <Creator field="鑑訂者">吉占和</Creator>
    <Contributor field="採集者">呂文賓</Contributor>
    <Contributor field="採集者(英文)">Wen-Pen Leu</Contributor>
    <Subject field="界">植物界</Subject>
    <Subject field="界(英文)">Plantae</Subject>
    <Subject field="門">種子植物門</Subject>
    <Subject field="門(英文)">Spermatophyta</Subject>
    <Subject field="綱">單子葉植物綱</Subject>
    <Subject field="綱(英文)">Monocotyledons</Subject>
    <Subject field="目">天門冬目</Subject>
    <Subject field="目(英文)">Asparagales</Subject>
    <Subject field="科">蘭科</Subject>
    <Subject field="科(英文)">ORCHIDACEAE</Subject>
    <Subject field="屬">一葉蘭屬</Subject>
    <Subject field="屬(英文)">Pleione</Subject>
    <Date field="採集日期">1993-04-25</Date>
    <Coverage field="國家">台灣</Coverage>
    <Coverage field="行政區">宜蘭縣大同鄉</Coverage>
    <Coverage field="最低海拔">1650</Coverage>
    <Identifier field="標本館號">43501</Identifier>
    <Identifier field="編目號">Wen-Pen Leu 2018</Identifier>
    <Publisher>中央研究院生物多樣性研究中心</Publisher>
    <Source>台灣本土植物資料庫 (http://taiwanflora.sinica.edu.tw/) </Source>
    <Language>中文</Language>
    <Rights>中央研究院 生物多樣性研究中心 植物標本館 Herbarium, Research Center for Biodiversity, Academia Sinica, Taipei (HAST)</Rights>
  </MetaDesc>
</DACatalog>

```

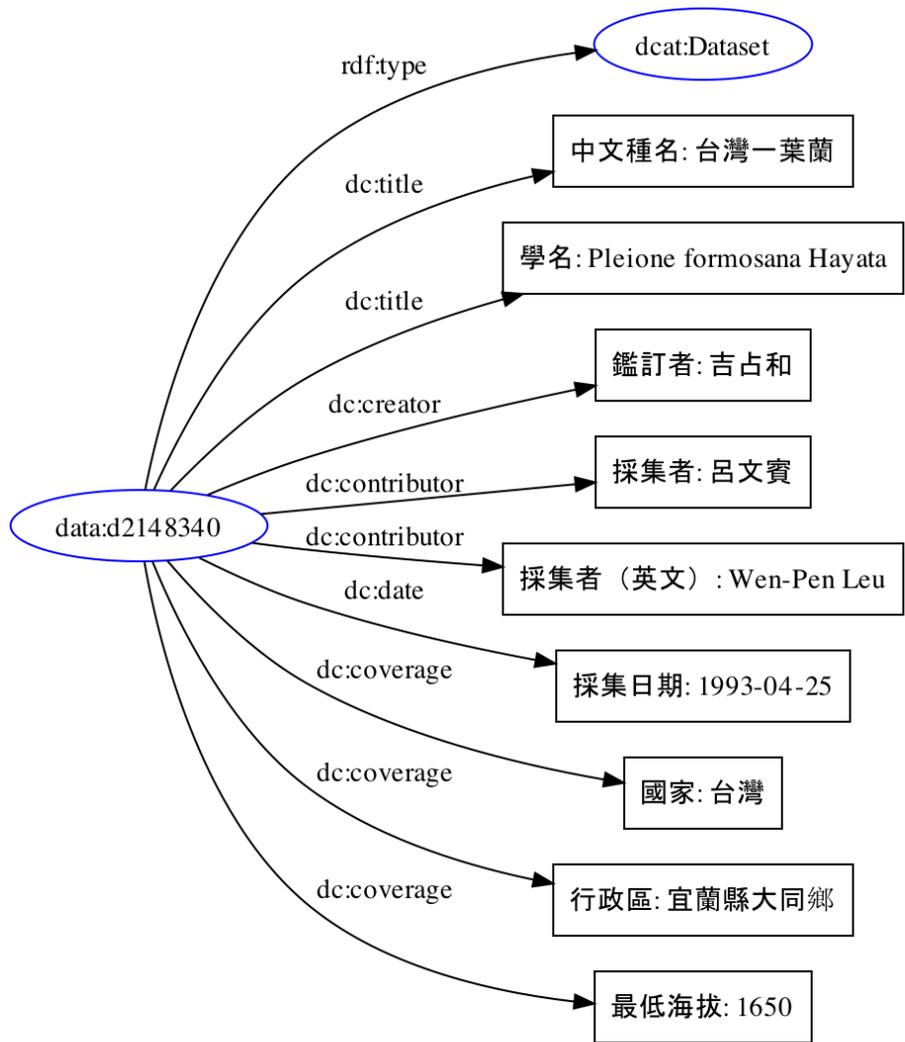
中文種名:台灣一葉蘭

學名:Pleione formosana Hayata



Sheet1

OID	Title::field	Title	Creator::field	Creator	Contributor::field	Contributor	Date::field	Date	Coverage::field	Coverage
2148340	中文種名	台灣一葉蘭								
2148340	學名	Pleione formosana Hayata								
2148340			鑑訂者	吉占和						
2148340					採集者	呂文賓				
2148340					採集者 (英文)	Wen-Pen Leu				
2148340							採集日期	1993-04-25		
2148340									國家	台灣
2148340									行政區	宜蘭縣大同鄉
2148340									最低海拔	1650



Model:
(Unknown)

Namespaces:
 rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
 data: <http://data.odw.tw/record/>
 dc: <http://purl.org/dc/elements/1.1/>
 dcat: <http://www.w3.org/ns/dcat#>

中文種名: 台灣一葉蘭 - Datasets - Linked Open Data LOD Lab 317

140.109.23.228:5000/record/d2148340

BETA

Log in Register

Home / 中文種名: 台灣一葉蘭

Dataset Groups Activity Stream

中文種名: 台灣一葉蘭

Followers: 0

Get Refined Records

Organization

Union Catalog and Knowledge Engineering for Digital Archives Project

There is no description for this organization

Social: Google+, Twitter, Facebook

Other Access

The information on this page (the dataset metadata) is also available in these formats: JSON, Turtle

via the CKAN API

METADATA	
rdf:type	<ul style="list-style-type: none"> data:Reused r4r:RRObject dcat:Dataset
r4r:locateAt	http://data.odw.tw/record/d2148340
dcat:themeTaxonomy	data:Biology
dc:contributor	<ul style="list-style-type: none"> 採集者: 呂文賓 採集者 (英文): Wen-Pen Leu
dc:coverage	<ul style="list-style-type: none"> 國家: 台灣 最低海拔: 1650 行政區: 宜蘭縣大同鄉
dc:creator	鑑訂者: 吉占和
dc:date	採集日期: 1993-04-25
dc:identifier	<ul style="list-style-type: none"> 編目號: Wen-Pen Leu 2018

2. 資料連結的系統

<http://data.odw.tw/>

從目錄資料到資料連結

- 以資料連結完整呈現數位典藏之藏品 (原始文字)
 - D (DC15) 版本
- 對應外部資料，以領域語彙豐富藏品描述
 - R (Refined) 版本
 - "Coverage" (即 dc:coverage) 中描述之地名，對應至 geonames.org
 - "Date" (即 dc:date) 中描述之各種格式時間，正規化為標準的 ISO8601 格式
 - 生物標本資料之 dc:title，對應至生命大百科 (Encyclopedia of Life)
- 以自動化方式作業，再輔以人工判斷

語彙對應與格式轉換： 兩步驟流程



Title	台灣一葉蘭	txn:hasEOLPage	eol:1134120	txn:hasEOLPage <http://eol.org/pages/1134120> ; ----- skos:editorialNote "採集日期" ; dwc:eventDate "1993-04-25" ;
Date::field	採集日期	rdf:type	schema:CreateAction	
Date	1993-04-25	skos:editorialNote	採集日期	
		dwc:eventDate	1993-04-25	

- ❑ 以設定檔 (profile) 定義對應關係
- ❑ 更換語彙時僅需調整對應的設定檔

儲存與呈現



提供機器存取

SPARQL Endpoint

高執行效能

高可靠度



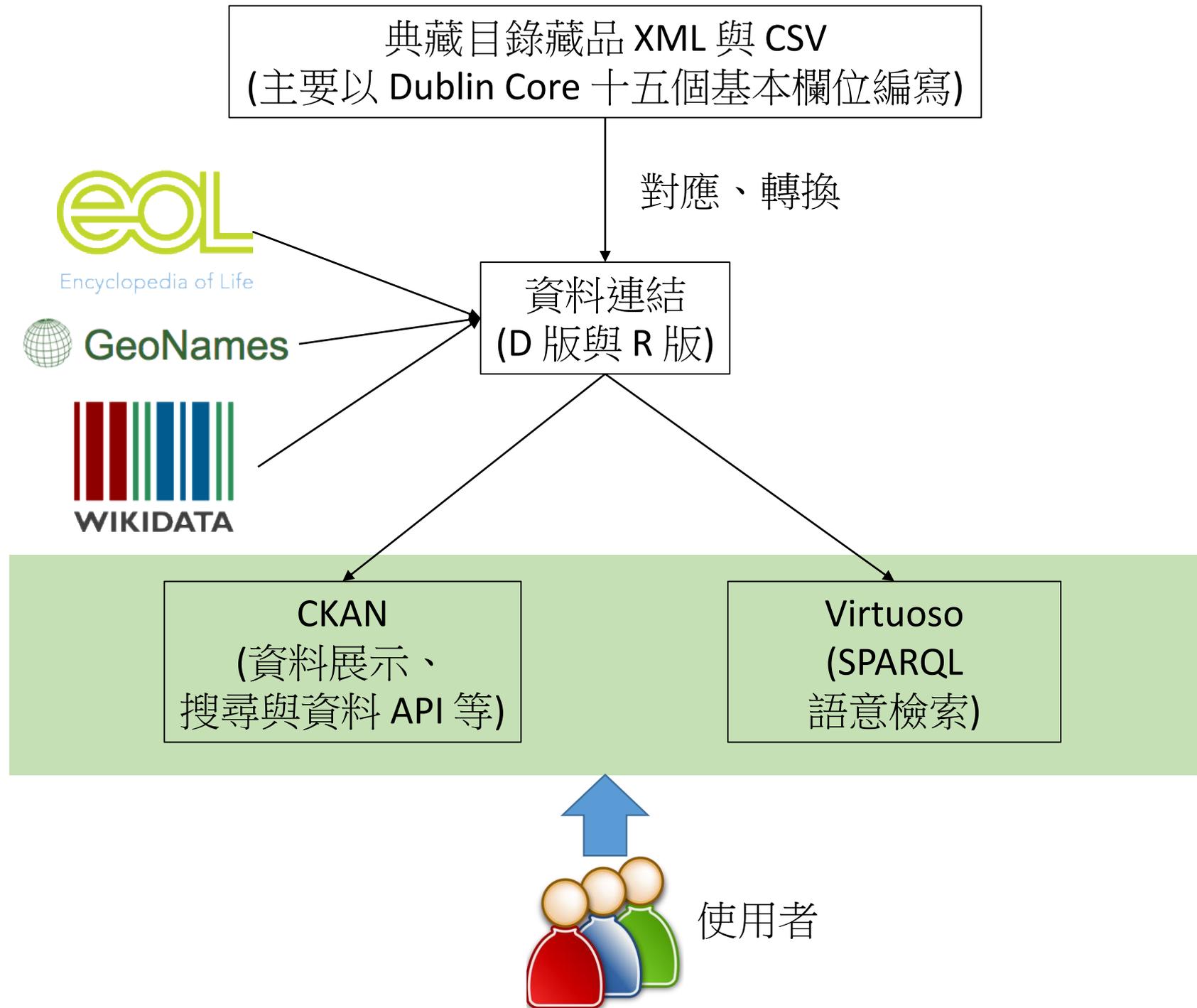
提供資料連結瀏覽

熱門開源資料管理系統

介面可自定性高

提供資料連結匯出/入

系統架構與運作方式



功能展示 (1): 資料連結瀏覽

主功能選單
Records: 藏品原始資料 (D 版)
Refined: 擴充語彙內容 (R 版)

The screenshot displays the website's interface. At the top, a dark navigation bar contains the logo on the left and a menu with 'Home', 'About', 'Records', 'Refined', and 'Sparql' on the right. A search bar is positioned to the right of the menu. Below the navigation bar, the page title is 'Home / Records'. On the left side, there is a vertical sidebar with filter categories: 'Agent' (listing '中研院生多中心 (1001)', '逢甲史物管理所 (1)', and '暨南東南亞學系 (1)'), 'Theme' (listing 'Biology (1001)', 'Archives (1)', and 'Anthropology (1)'), 'MetaDesc License' (listing 'CC2.5:BY-NC-ND (1001)' and 'CC3.0:BY-NC-ND (2)'), and 'ICON License' (listing 'CC2.5:BY-NC-ND (1001)' and 'CC3.0:BY-NC-ND (2)'). The main content area features an 'Add Dataset' button and a search box labeled 'Search datasets...'. Below the search box, it states '1,003 datasets found' and 'Order by: Relevance'. Three dataset entries are visible, each with a 'Get Refined Records' button. The first entry is '中文種名: 台灣一葉蘭', the second is '銅製沉思少女', and the third is '文件名稱: 咸豐十二年鍾阿佑立杜賣字'. A pagination bar at the bottom shows '1' as the current page, with '49', '50', and '51' as adjacent pages. At the very bottom, there is a note: 'You can also access this registry using the API (see API Docs)'.

過濾器

藏品列表



中文種名: 台灣一葉蘭

中文種名: 台灣一葉蘭

Dataset

Groups

Activity Stream

Manage

標題與藏品圖片

中文種名: 台灣一葉蘭

Follow

Organization



Union Catalog and Knowledge Engineering for Digital Archives Project

There is no description for this organization

Social

Google+

Twitter

Facebook

Other Access

The information on this page (the dataset metadata) is also available in these formats:

JSON

Turtle

via the CKAN API



METADATA

Get Refined Records

快速切換 D/R 版本

rdf:type	<ul style="list-style-type: none"> data:Reused r4:RRObject dc:Dataset
r4r:locateAt	http://data.odw.tw/record/d2148340
dc:themeTaxonomy	data:Biolog
dc:contributor	<ul style="list-style-type: none"> 採集者: 呂文賓 採集者 (英文): Wen-Pen Leu
dc:coverage	<ul style="list-style-type: none"> 國家: 台灣 最低海拔: 1650 行政區: 宜蘭縣大同鄉
dc:creator	鑑訂者: 吉占和
dc:date	採集日期: 1993-04-25

資料連結內容

METADATA

rdf:type	<ul style="list-style-type: none">• data:Reused• r4r:RRObject• dcat:Dataset
r4r:locateAt	http://data.odw.tw/record/d2148340
dcat:themeTaxonomy	data:Biolog
dc:contributor	<ul style="list-style-type: none">• 採集者: 呂文賓• 採集者 (英文): Wen-Pen Leu
dc:coverage	<ul style="list-style-type: none">• 國家: 台灣• 最低海拔: 1650• 行政區: 宜蘭縣大同鄉
dc:creator	鑑訂者: 吉占和
dc:date	採集日期: 1993-04-25
dc:identifier	<ul style="list-style-type: none">• 編目號: Wen-Pen Leu 2018• 標本館號: 43501
dc:language	中文
dc:publisher	中央研究院生物多樣性研究中心
dc:rights	中央研究院 生物多樣性研究中心 植物標本館 Herbarium, Research Center for Biodiversity, Academia Sinica, Taipei (HAST)
dc:source	台灣本土植物資料庫 (http://taiwanflora.sinica.edu.tw/)
dc:subject	<ul style="list-style-type: none">• 目 (英文): Asparagales• 門 (英文): Spermatophyta• 門: 種子植物門• 目: 天門冬目• 綱 (英文): Monocotyledons• 綱: 單子葉植物綱• 屬: 一葉蘭屬• 科 (英文): ORCHIDACEAE• 界: 植物界• 屬 (英文): Pleione• 科: 蘭科• 界 (英文): Plantae
dc:title	<ul style="list-style-type: none">• 中文種名: 台灣一葉蘭

Social

Google+

Twitter

Facebook

Other Access

The information on this page (the dataset metadata) is also available in these formats:

JSON

Turtle

via the CKAN API

提供 JSON 與 Turtle

功能展示 (2): 空間搜尋

The screenshot displays a web application interface for spatial search. On the left, a map shows Tainan City (臺南市) with a red bounding box indicating the search area. The map includes labels for districts like Qigu (七股區) and Nanhu (南化區). Below the map, there is a 'Filter by location' section with a 'Clear' button. To the right of the map is a search bar with the text 'Search datasets...' and a magnifying glass icon. A red box highlights the search bar, and a red arrow points from it to the search results. The search results section is titled '257 datasets found' and includes an 'Order by: Relevance' dropdown menu. Three dataset entries are visible, each with a unique ID (r1-r6602582, r1-r6602568, r1-r6602616) and a 'Get DC15 Records' button. The text 'This dataset has no description' is displayed below each ID. At the bottom left, there is a 'Temporal Search' section with 'Start Time' and 'End Time' input fields and an 'Update Search' button.

- 空間索引範圍: property = geo:lat, geo:long

功能展示 (3): 時間搜尋

The screenshot displays a search interface for a digital archive. On the left, there is a map of Taiwan with a 'Filter by location' section containing 'Clear' and a 'Temporal Search' section with a calendar icon, 'Clear', and date inputs for '1800-01-01' and '1899-12-31', along with an 'Update Search' button. The main search area features an 'Add Dataset' button and a search bar containing '19 世紀資料'. Below the search bar, the results section is titled '950 datasets found' and includes an 'Order by: Relevance' dropdown. Three dataset entries are visible, each with a 'Get DC15 Records' button. A red box highlights the search bar and the results section, with an arrow pointing from the search bar to the results. A blue box highlights the 'Temporal Search' section.

Filter by location [Clear](#)

Map data © OpenStreetMap contributors
Tiles by MapQuest

Temporal Search [Clear](#)

1800-01-01

1899-12-31

[Update Search](#)

[Add Dataset](#)

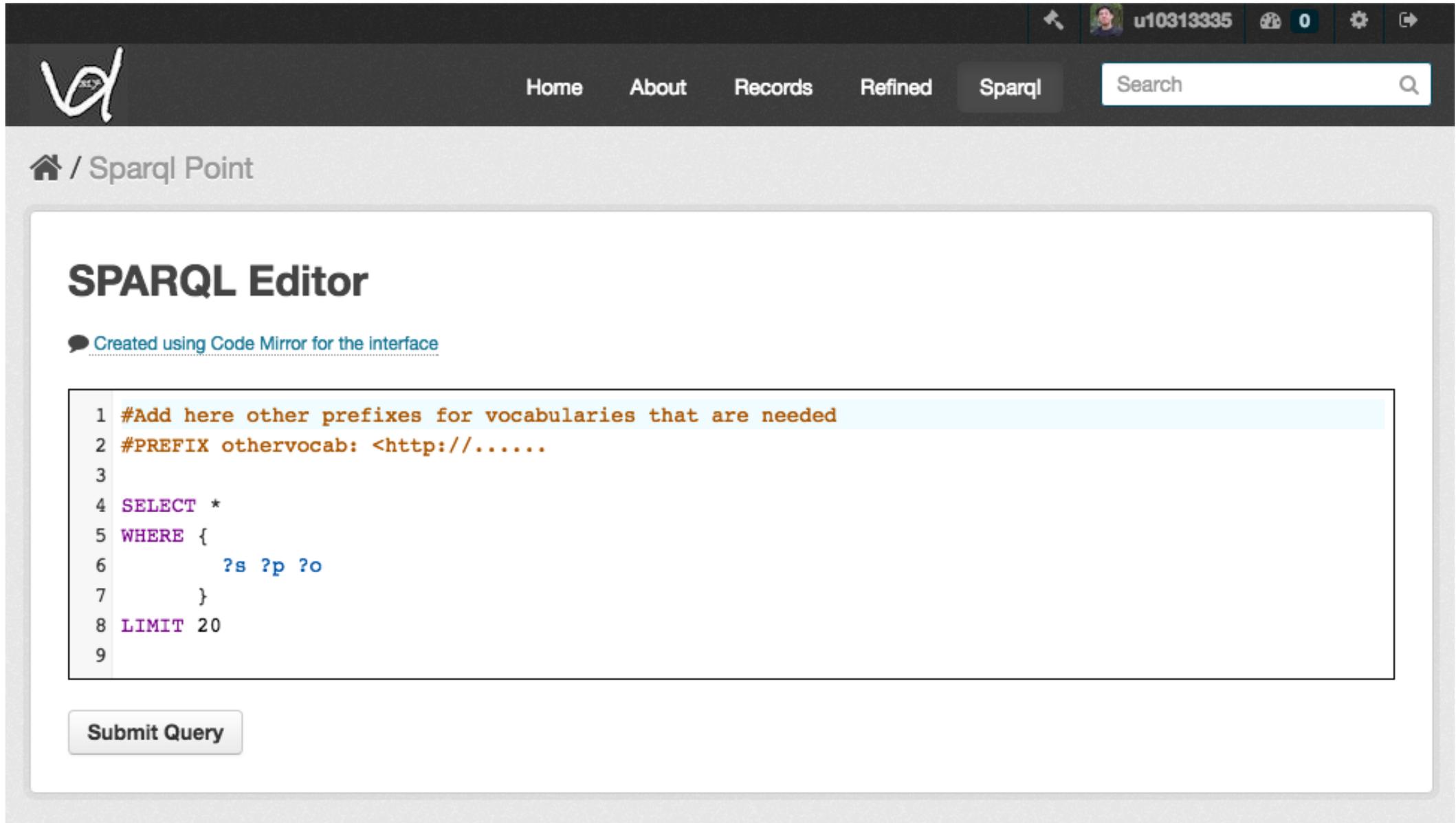
Search datasets... **19 世紀資料** 🔍

950 datasets found Order by: Relevance ▾

r1-r1359817 <i>This dataset has no description</i>	Get DC15 Records
r1-r1359380 <i>This dataset has no description</i>	Get DC15 Records
r1-r1360018 <i>This dataset has no description</i>	Get DC15 Records

- 時間索引範圍: datatype = dct:W3CDTF, xsd:date, xsd:gYear

功能展示 (4): SPARQL Endpoint



The screenshot shows a web browser window displaying the SPARQL Editor interface. The browser's address bar shows the user is logged in as 'u10313335'. The page has a dark header with a logo on the left and navigation links: Home, About, Records, Refined, and Sparql. A search bar is located on the right side of the header. Below the header, the page title is 'Sparql Point'. The main content area is titled 'SPARQL Editor' and includes a note: 'Created using Code Mirror for the interface'. A text editor contains the following SPARQL query:

```
1 #Add here other prefixes for vocabularies that are needed
2 #PREFIX othervocab: <http://.....
3
4 SELECT *
5 WHERE {
6     ?s ?p ?o
7 }
8 LIMIT 20
9
```

At the bottom of the editor, there is a 'Submit Query' button.

地理展示 (開發中)

Home About Records Refined Sparql Search

中文種名: 台灣一葉蘭

中文種名: 台灣一葉蘭

Dataset Groups Activity Stream Manage

中文種名: 台灣一葉蘭

Followers 0

Follow

Organization

Union Catalog and Knowledge Engineering for Digital Archives Project

There is no description for this organization

Social

Google+ Twitter Facebook

Other Access

The information on this page (the dataset metadata) is also available in these formats: JSON Turtle

via the CKAN API

中文種名: 台灣一葉蘭

Get Refined Records

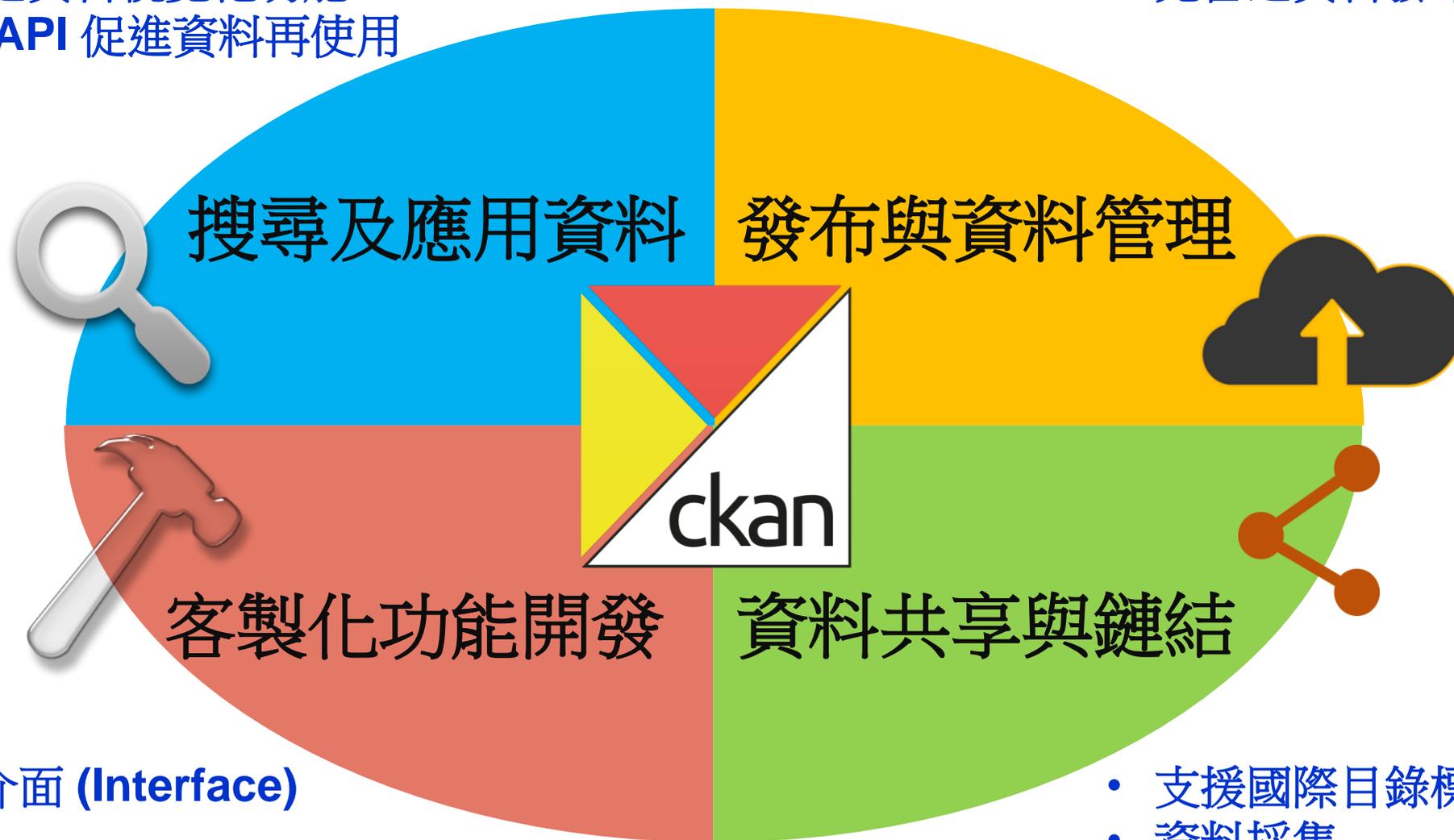


METADATA

rdf:type	<ul style="list-style-type: none">data:Reusedr4r:RRObjectdcat:Dataset
r4r:locateAt	http://data.odw.tw/record/d2148340
dcat:themeTaxonomy	data:Biologymy
dc:contributor	<ul style="list-style-type: none">採集者: 呂文賓採集者 (英文): Wen-Pen Leu
dc:coverage	<ul style="list-style-type: none">國家: 台灣最低海拔: 1650行政區: 宜蘭縣大同鄉
dc:creator	鑑訂者: 吉占和
dc:date	採集日期: 1993-04-25

- 友善之搜尋介面
- 多元之資料視覺化功能
- 資料 **API** 促進資料再使用

- 多元的資料發布方式
- 完善之資料發布流程

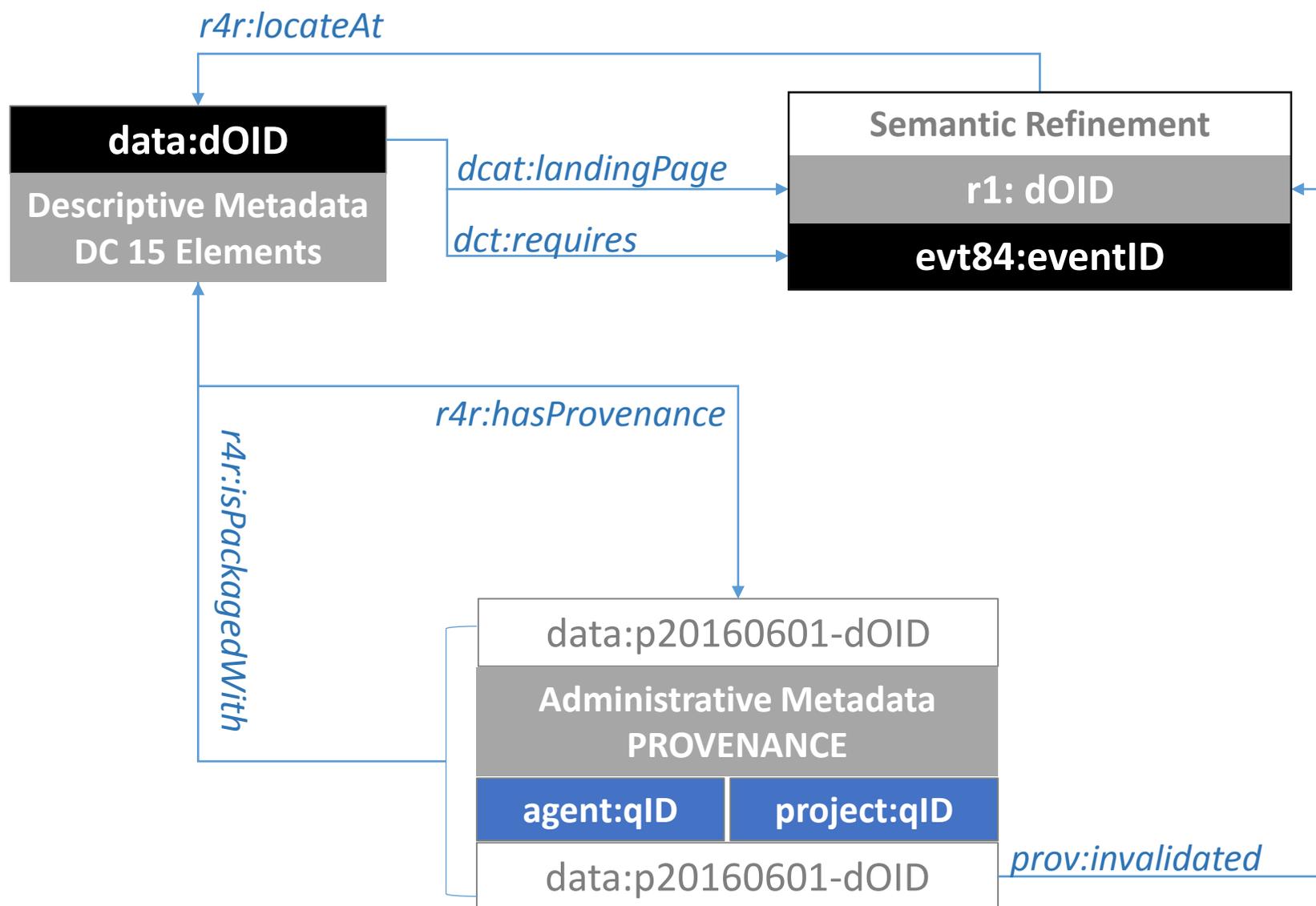


- 擴充介面 (**Interface**)

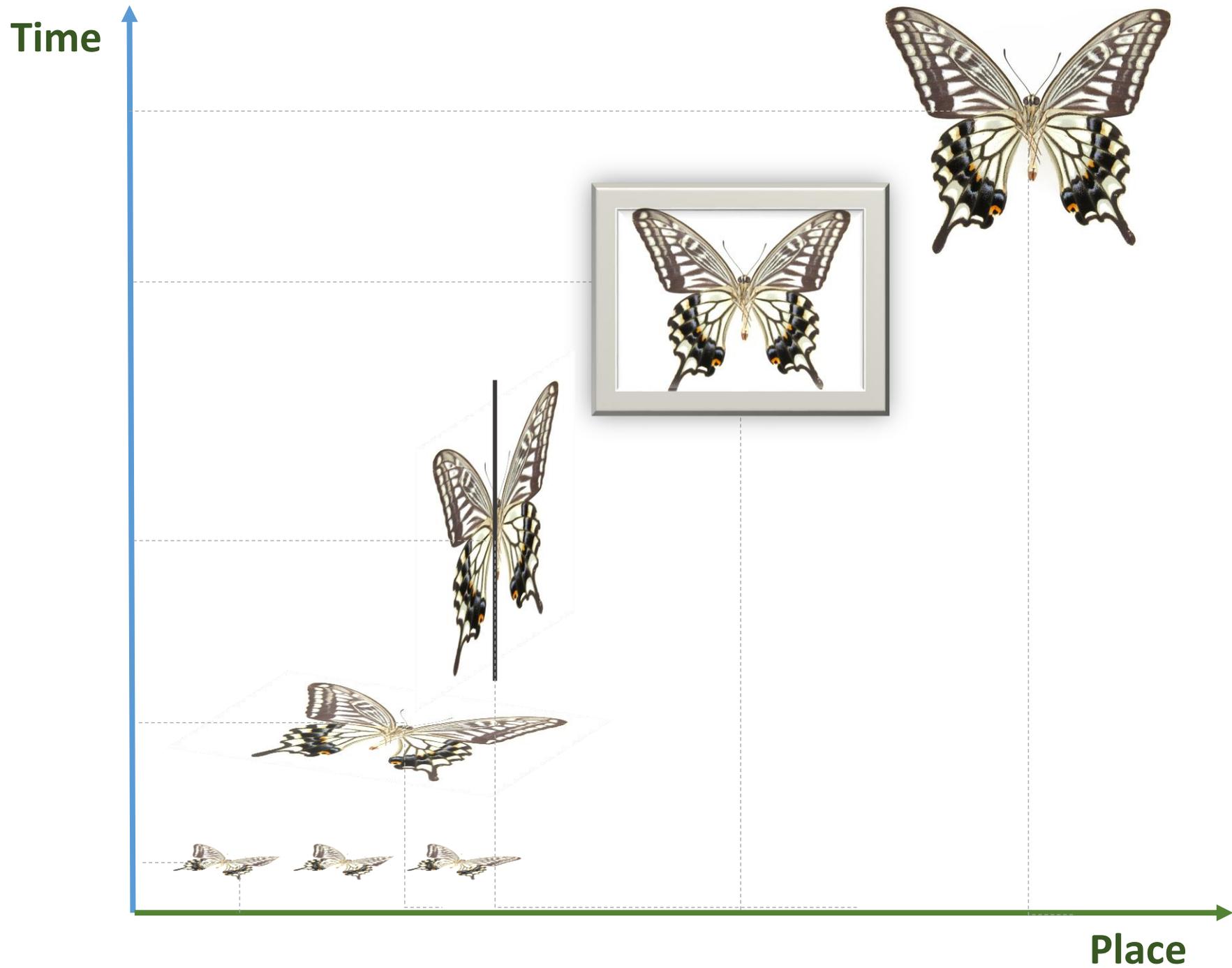
- 支援國際目錄標準
- 資料採集
- 社交網站資料公告

3. 資料的語意與連結: Ontology for Open Data Web (voc4odw)

<http://voc.odw.tw/>



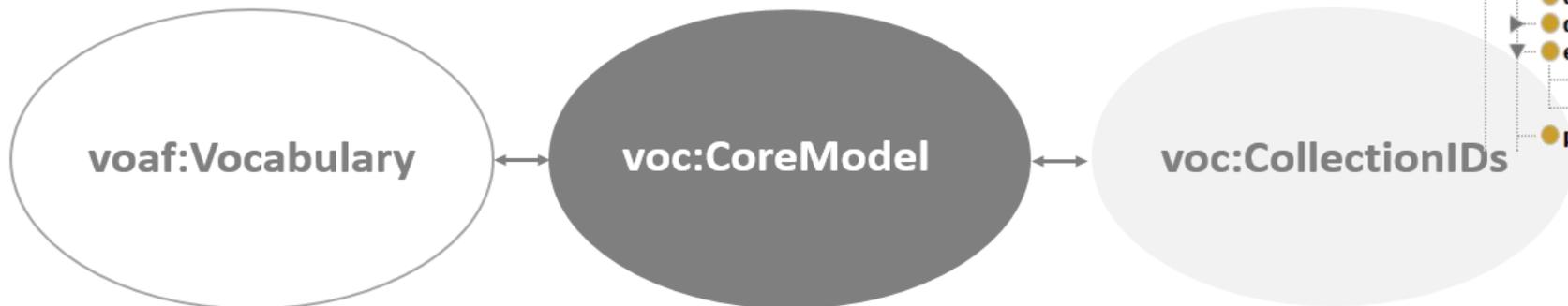
- D版物件作為主要 RObject(再次使用相關物件)
- 每個物件均配套打包後設資料溯源 (provenance)
- R版物件以D版為基礎套用相關語彙豐富物件語意



Metadata 資源描述的是誰? 誰的時間? 誰的地點?

- 獨立Core Model 使用的國際語彙與上下位關係，可簡化Core Model 使用外部語彙的複雜度。
- 在不變動Core Model 前提下，可彈性增減、替換國際語彙的利用，而不影響原ontology 架構。

- 協助使用者再次使用 data.odw.tw 物件時，了解資料ID的使用結構。



- **voc:CollectionIDs**
- agent:qID
- catdat:DAURL
- data:dOID
- data:mappedID
 - eol:ID
 - gns:ID
 - wde:qID
- data:pOID
- data:themeID
- evt84:dOID
 - evt84:event-dOID
 - evt84:eventType-dOID
- project:qID

- **voaf:Vocabulary**
 - **aat:AAThesaurus**
 - **aat:ActivitiesFacet**
 - **aat:Disciplines**
 - **aat:Anthropology**
 - **aat:Architecture**
 - **aat:Events**
 - **aat:ReligiousCeremonies**
 - **aat:AgentsFacet**
 - **aat:Tribes**
 - **aat:ObjectsFacet**
 - **aat:Archives**
 - **aat:CulturalArtifacts**
 - **aat:RareBooks**
 - **aat:RockCarvings**
 - **dcat:Namespace**
 - **dct:Terms**
 - **dwc:Terms**
 - **event:Ontology**
 - **foaf:Vocabulary**
 - **geo:SpatialThing**
 - **gn:Feature**
 - **org:Organization** ≡ **data:Agent** ≡ **foaf:Organization**
 - **prov:Namespaces**
 - **r4r:Ontology**
 - **rdfs:Resource**
 - **schema:Thing**
 - **skos:Namespace**
 - **time:TemporalEntity**
 - **txn:TaxonConcept**

- **voc:ConceptualModel**
 - **voc:Context** ≡ **skos:ConceptScheme**
 - **voc:CommonKnowledge**
 - **voc:DomainKnowledge**
 - **voc:Event** ≡ **event:Event** ≡ **skos:Concept**
 - **voc:People**
 - **data:Agent** ≡ **foaf:Organization** ≡ **org:Organization**
 - **data:Person**
 - **data:Project**
 - **voc:Place**
 - **voc:Time**
 - **voc:Object** ≡ **skos:Collection**
- **voc:DataModel**
 - **data:Provenance**
 - **voc:DerivationData**
 - **data:Refined**
 - **voc:KnownEvent**
 - **voc:UnKnownEvent**
 - **data:Reused** ≡ **r4r:RRObject**
 - **voc:PrimaryData**
 - **voc:CatalogRecord**
 - **voc:PrimarySource**
- **voc:OpenData**

- Data Model 依賴 Conceptual Model 決定Event的人時地物概念。
- Event Concept 依賴國際語彙描述一般性或專業領域的知識情境 (context)。
- 如一般性拍攝活動(事件)主要以 Schema.org terms 描述，若與專業知識有關的拍攝活動，則進一步考量專業知識語彙如 Art and Architecture Thesaurus (AAT) 或 Darwin Core Terms。

DC 15 Elements

DC Terms

Class

Event

Time

Place

People

(not done yet)

- | | |
|-------------------|--|
| 1. dc:contributor | 1. dct:contributor
<small>(not done yet)</small> |
| 2. dc:coverage | 2. dct:coverage |
| 3. dc:creator | 3. dct:creator
<small>(not done yet)</small> |
| 4. dc:date | 4. dct:date |
| 5. dc:description | 5. dct:description |
| 6. dc:format | 6. dct:format |
| 7. dc:identifier | 7. dct:identifier |
| 8. dc:language | 8. dct:language |
| 9. dc:publisher | 9. dct:publisher
<small>(not done yet)</small> |
| 10. dc:relation | 10. dct:relation |
| 11. dc:rights | 11. dct:rights |
| 12. dc:source | 12. dct:source |
| 13. dc:subject | 13. dct:subject |
| 14. dc:title | 14. dct:title |
| 15. dc:type | 15. dct:type |

LocationPeriodOrJurisdiction

- Location
- **PeriodOfTime**
- Coverage Literal
- **PeriodOfTime**
- **Date Literal**

dct:temporal
event:time
time:intervalStarts
time:intervalFinishes
time:intervalBefore
time:intervalAfter
voc:lastIntervalOf
voc:initialIntervalOf

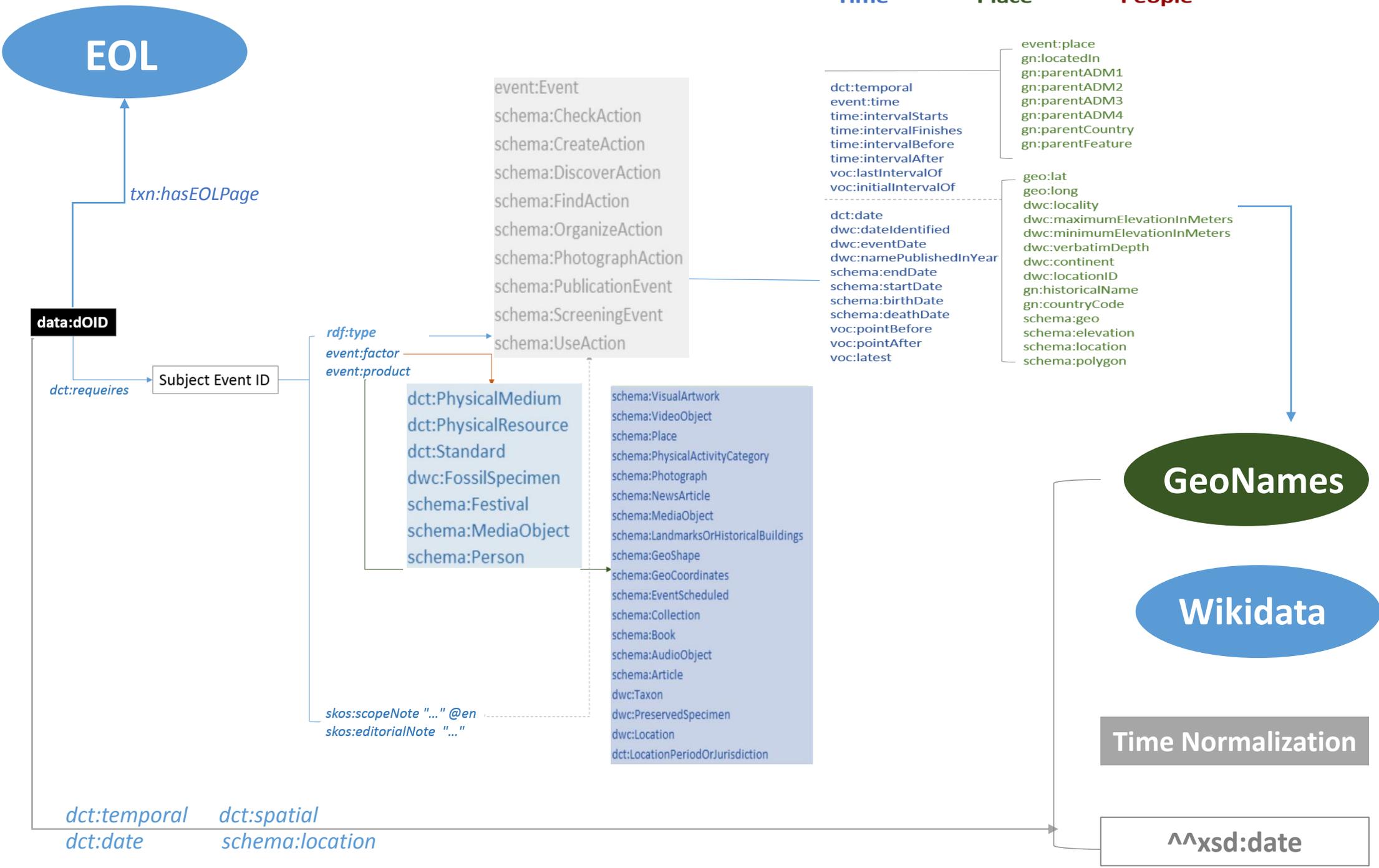
dct:date
dwc:dateIdentified
dwc:eventDate
dwc:namePublishedInYear
schema:endDate
schema:startDate
schema:birthDate
schema:deathDate
voc:pointBefore
voc:pointAfter
voc:latest

event:place
gn:locatedIn
gn:parentADM1
gn:parentADM2
gn:parentADM3
gn:parentADM4
gn:parentCountry
gn:parentFeature

geo:lat
geo:long
dwc:locality
dwc:maximumElevationInMeters
dwc:minimumElevationInMeters
dwc:verbatimDepth
dwc:continent
dwc:locationID
gn:historicalName
gn:countryCode
schema:geo
schema:elevation
schema:location
schema:polygon

- 自Coverage 抽取空間與時間資訊，自Date抽取時間資訊。
- 在Event概念情境下，時間空間的連結外部知識庫之property，以時空專屬語彙描述其二者關係，如時間 Time Ontology，空間GeoNames Ontology。
- 若與專業知識有關的event，如標本資料之鑑定活動，則進一步考量專業知識語彙如Darwin Core Terms (*dwc:dateIdentified*)。

- 現階段14 domain 只處理生物類與 Encyclopaedia of Life (EOL)語意連結。

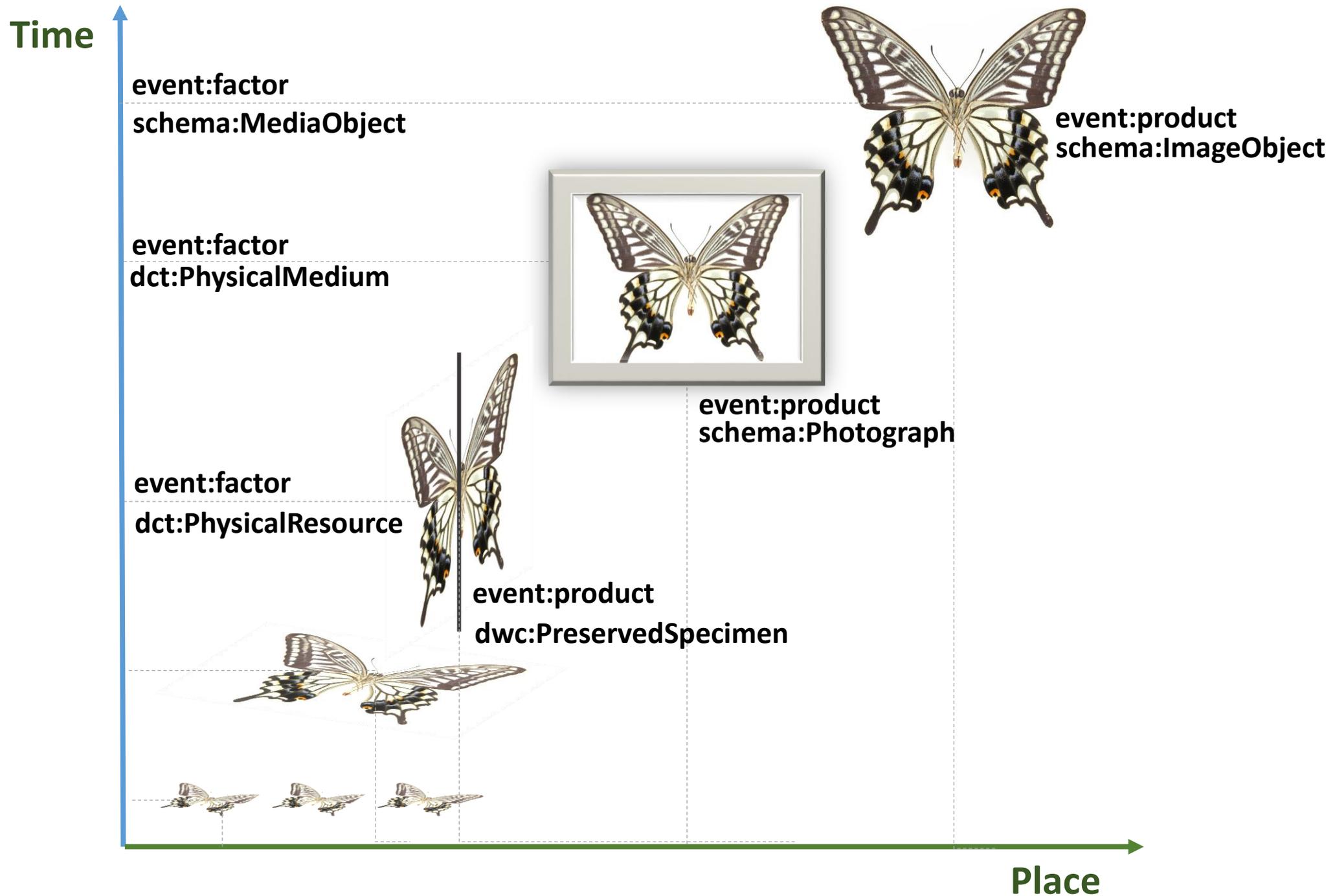


```

dct:PhysicalMedium
dct:PhysicalResource
dct:Standard
dwc:FossilSpecimen
schema:Festival
schema:MediaObject
schema:Person
event:Event
schema:CheckAction
schema:CreateAction
schema:DiscoverAction
schema:FindAction
schema:OrganizeAction
schema:PhotographAction
schema:PublicationEvent
schema:ScreeningEvent
schema:UseAction
schema:VisualArtwork
schema:VideoObject
schema:Place
schema:PhysicalActivityCategory
schema:Photograph
schema:NewsArticle
schema:MediaObject
schema:LandmarksOrHistoricalBuildings
schema:GeoShape
schema:GeoCoordinates
schema:EventScheduled
schema:Collection
schema:Book
schema:AudioObject
schema:Article
dwc:Taxon
dwc:PreservedSpecimen
dwc:Location
dct:LocationPeriodOrJurisdiction

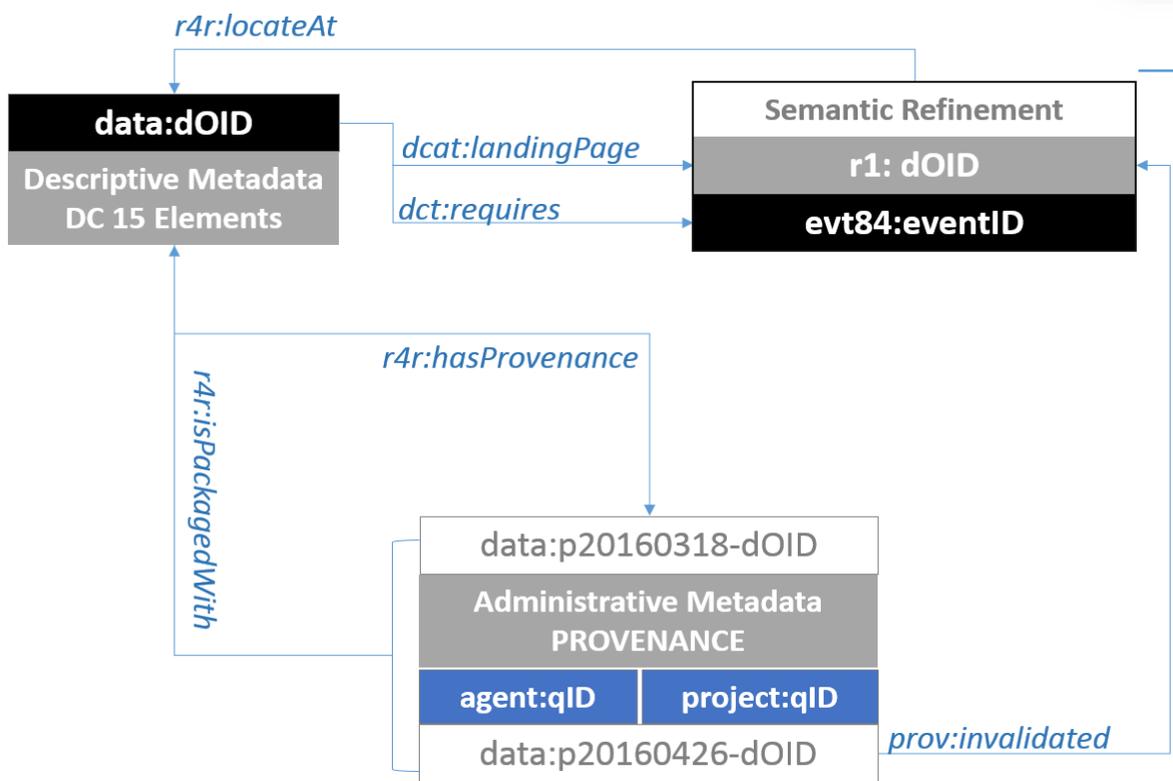
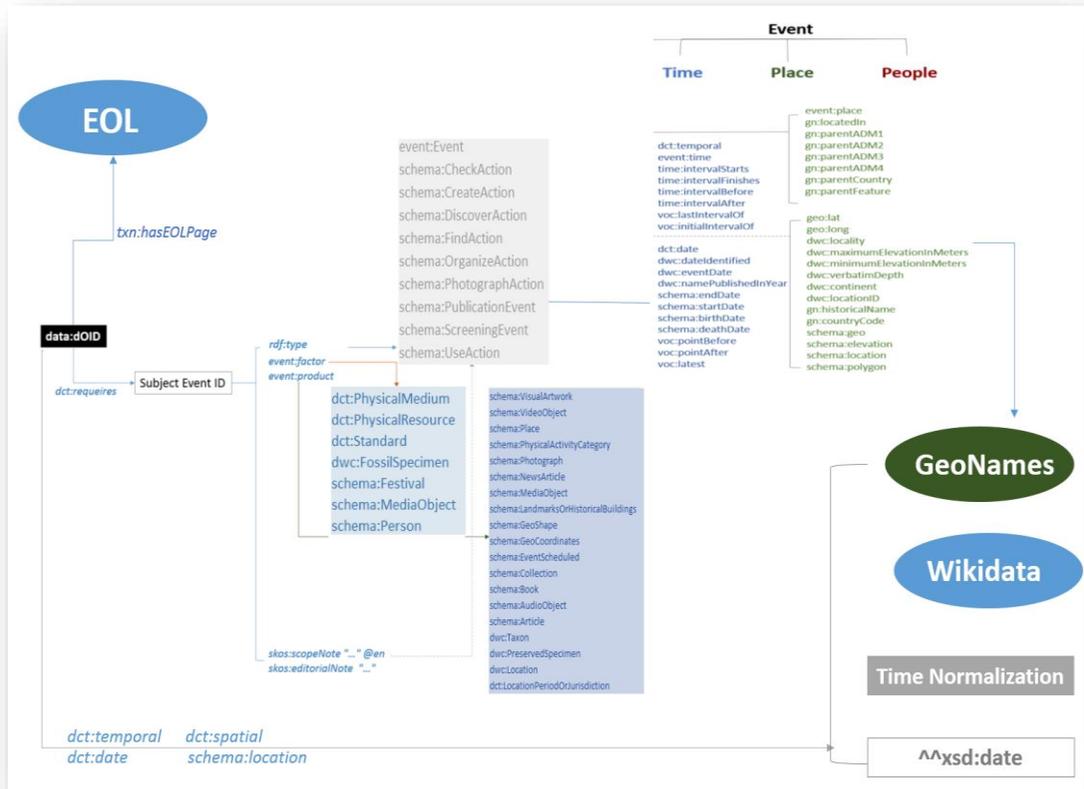
```

- Event Type, Event Factor, Event Product 的知識概念以 Individual 概念串連，使知識概念容易增減、更動、替換，同時不會影響Core Model 結構。



- 以Event Factor, Event Product 的概念回答Metadata 資源描述的是誰? 誰的時間? 誰的地點?
- 釐清事件的描述主體是資源的數位化過程中不同階段的主體，如是實體物標本、實體物相片、數位化物件...等。

voc:CoreModel



典藏目錄的語意與連結

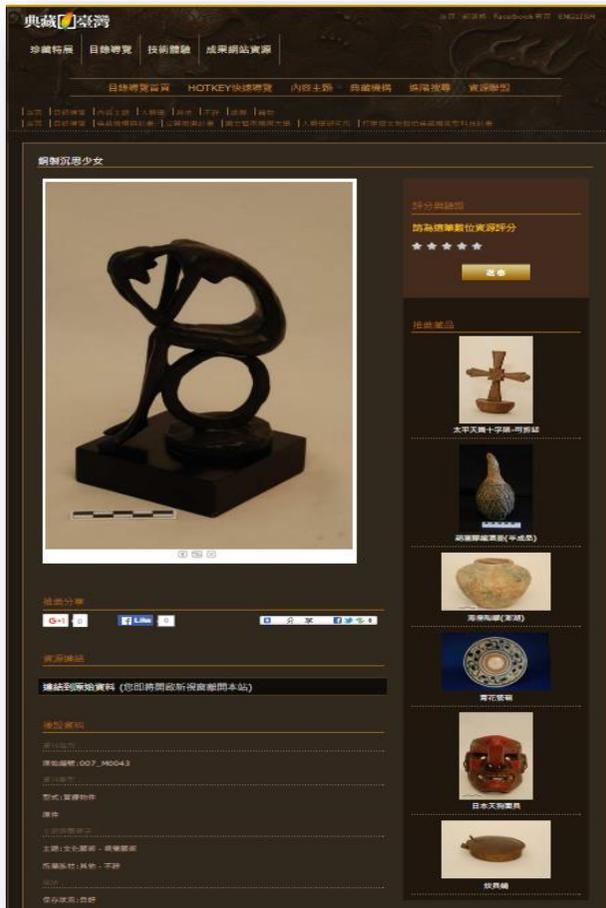
典藏目錄的後設資料溯源

銅製沉思少女：我的生日是何時？



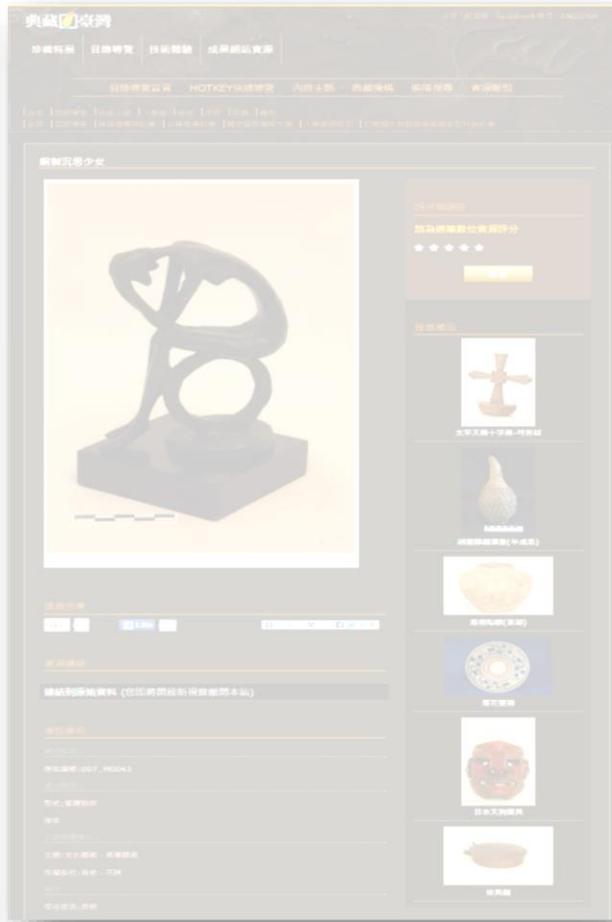
source:<http://image.digitalarchives.tw/ImageCache/00/46/73/00.jpg>

人懂 “台灣日治時期”



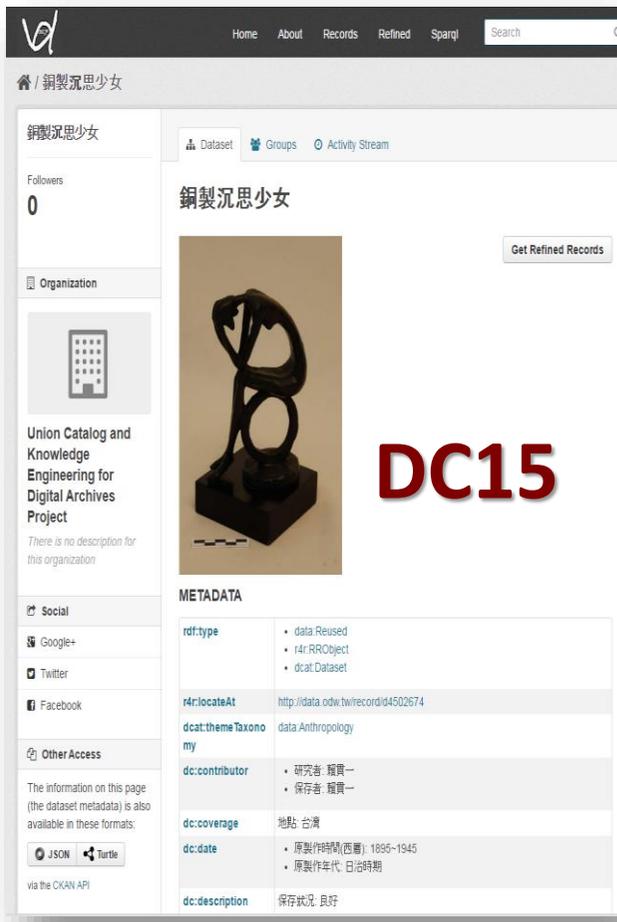
機器不懂

人懂“台灣日治時期”



機器不懂

人懂“台灣日治時期”



機器懂一些

- “台灣日治時期” 是時間
- 銅製沉思少女的家譜

D版 Provenance (後設資料溯源)描述

PROVENANCE	
rdftype	<ul style="list-style-type: none"> data:Provenance r4r:Provenance prov:Activity
prov:wasStartedBy	<p>http://catalog.digitalarchives.tw/item/00/44/b4/92.html</p> <p>rdftype: voc:CatalogRecord</p> <p>rdftype: prov:Revision</p> <p>rdftype: dcat:Catalog</p> <p>cc:license: http://creativecommons.org/licenses/by-nc-nd/3.0/</p> <p>rdftype: cc:License</p> <p>rdftype: dct:RightsStatement</p> <p>rdfs:comment: ICON license</p> <p>rdfs:comment: MetaDesc license</p> <p>rdfs:label: CC3.0:BY-NC-ND</p> <p>data:digiArchiveID: 007_M0043</p> <p>data:objectID: 4502674</p> <p>schema:thumbnail: http://image.digitalarchives.tw/ImageCache/00/46/73/00.jpg</p> <p>rdftype: dct:MediaTypeOrExtent</p> <p>prov:wasRevisionOf: http://140.110.17.87/dorefile/00/00/qp.jpg</p> <p>prov:atLocation: gns:7280290</p> <p>prov:generatedAtTime: 2010-10-22 22:54:19</p> <p>prov:hadPrimarySource: http://dore.gia.ncnu.edu.tw/textdb/pingpu/result_sq.php?_section=310&_op=?totaldb.toid:117742</p> <p>rdftype: voc:PrimarySource</p> <p>rdftype: prov:PrimarySource</p> <p>prov:value: 內容主題:人類學其他-不詳-總類-器物</p> <p>prov:value: 典藏機構與計畫-公開徵選計畫-國立臺灣國際大學-人類學研究所-打里摺文物數位典藏國家型科技計畫</p> <p>prov:wasGeneratedBy: project:q21159868</p>
prov:wasAssociatedWith	<ul style="list-style-type: none"> http://data.odw.tw agent:q20872470

prov:wasStartedBy

人懂“台灣日治時期”



機器不懂

人懂“台灣日治時期”

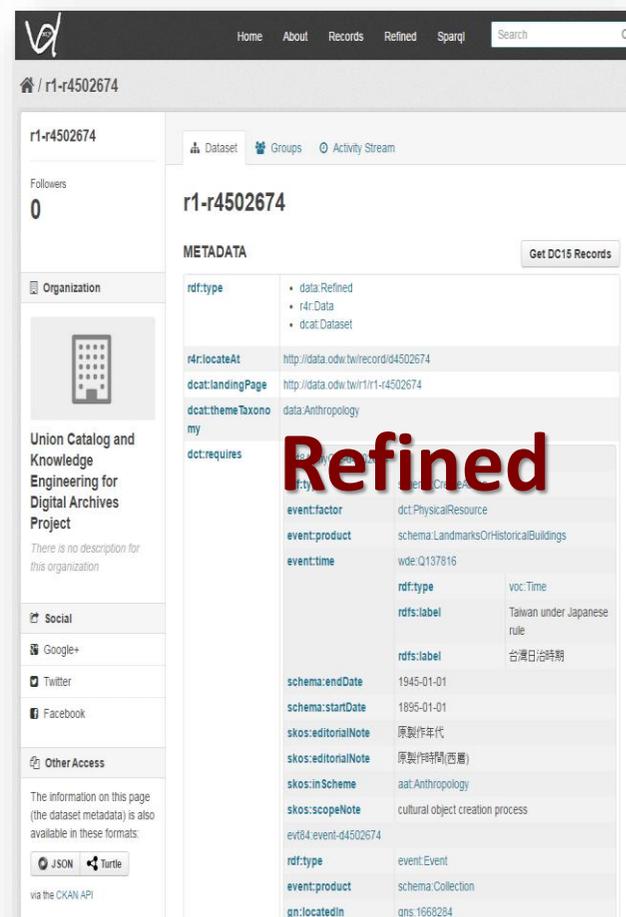


機器懂一些

- “台灣日治時期” 是時間
- 銅製沉思少女的家譜

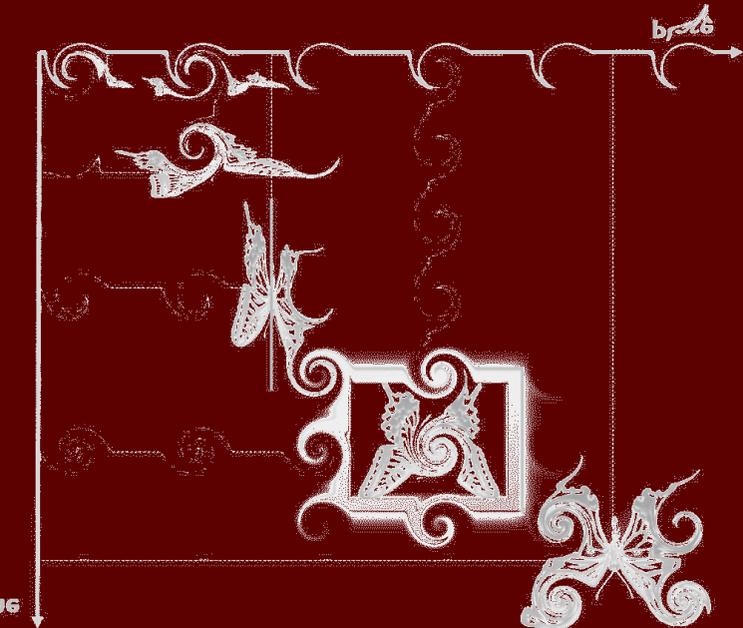
Wikidata 的多國語言使得

更多人懂更多“台灣日治時期”



機器能作時間推理

- “明末清初”在“台灣日治時期”之前。
- 多種定義interpretations 可同時存在。
- 外部URI內容更新，語意自動更新。



data.odw.tw & voc.odw.tw

歡迎您寶貴的意見!
預祝端午佳節快樂!

