

Publishing with iiRDS from DITA

Marion Knebel, parson AG



Once upon a time

The idea was to make it market ready...



In 2017 Empolis and parson developed an iIRDS plugin for DITA-OT as a showcase.



... but ...



In 2023 the iIRDS Consortium officially requested that a DITA plugin for iIRDS be developed.



What is iiRDS?

(a very brief introduction)

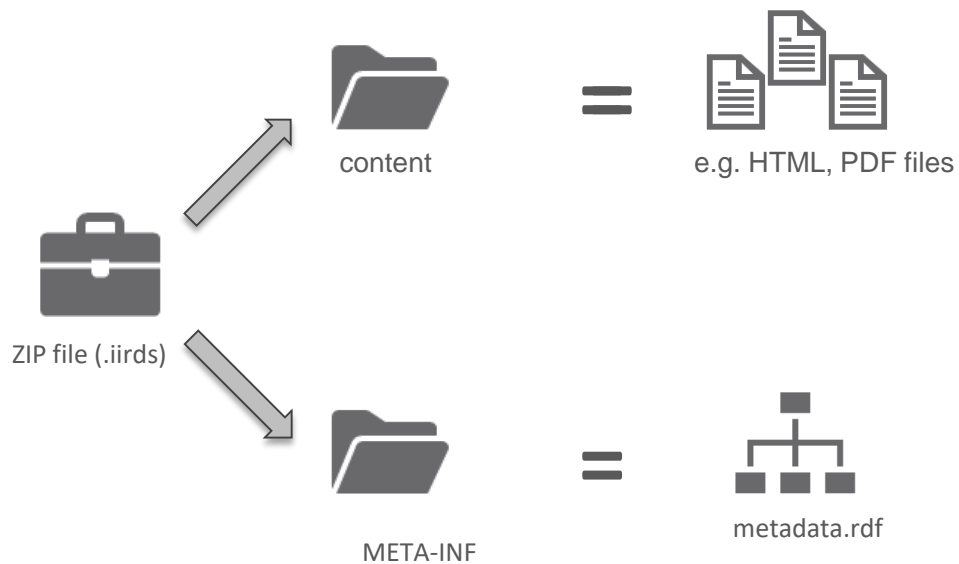
Overview of iiRDS

Intelligent Information Request and Delivery Standard

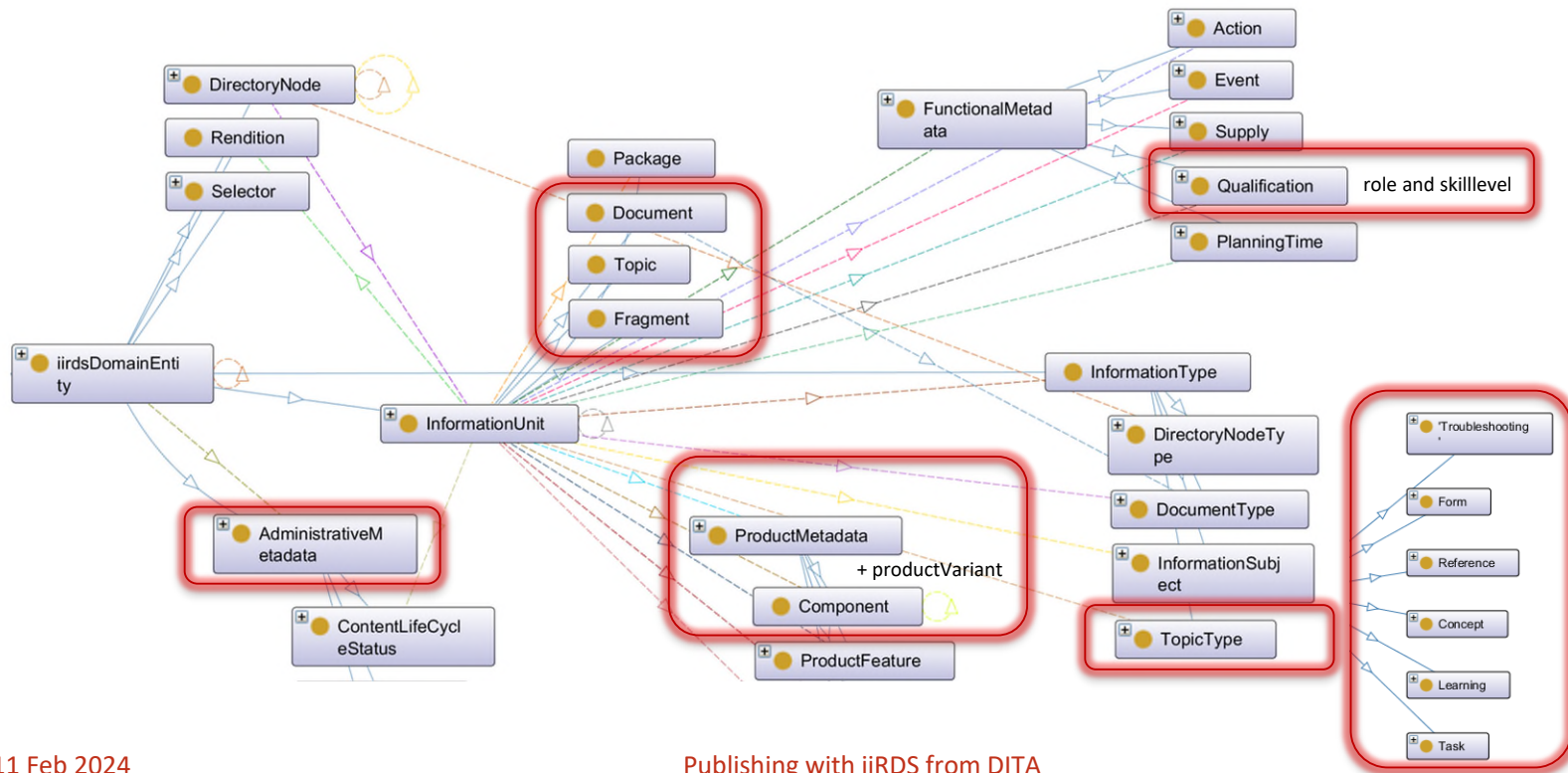
- Facilitates data exchange and data retrieval
 - Between manufacturers and systems
 - Combine different sources in content delivery scenarios
- Standardized metadata for technical documentation
- Common package format
- A standard developed and maintained by the iiRDS Consortium



iiRDS package format



iiRDS metadata model





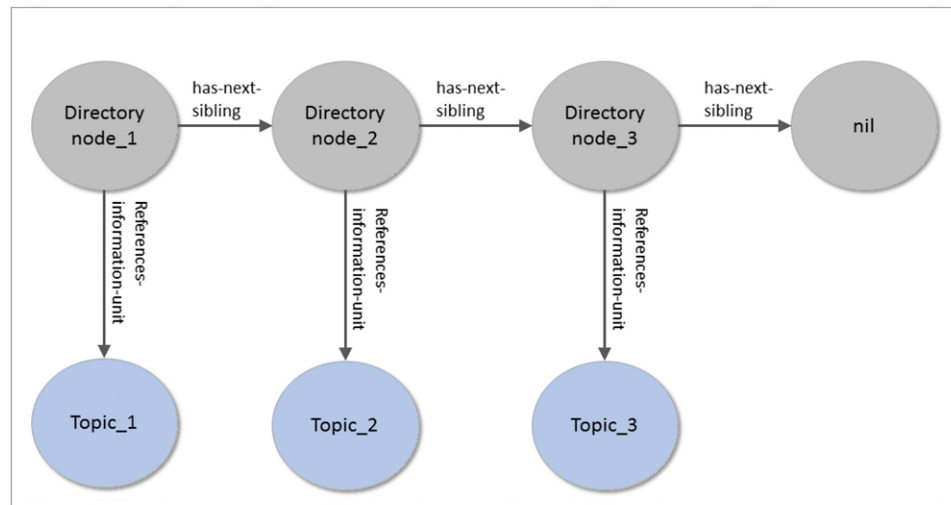
- RDFS = Resource Description Framework Schema ([W3C specification](#))
- Formal language to define ontologies
- Defines classes, properties, and individuals
- Statements about resources are subject-predicate-object expressions = triples
- Abstract model, serialization into multiple file formats possible. Examples: Turtle, JSON-LD, RDF/XML
- iiRDS uses RDF/XML
 - Standardized vocabulary to describe content
 - Extension points for proprietary vocabulary



Directory nodes for navigation

DirectoryNodes form linked lists for navigation and structure

- iirds:DirectoryNode is a list item
- List item may have a relation to
 - Successor
 - First child
 - iirds:InformationUnit
- No direct relation between information units that represents navigation structures



From DITA to iiRDS



(with love?)



Why DITA?

Content Delivery needs:

- Classification
- Taxonomies
- Terminology

- Granular information
- Content chunking
- Information types
- Structured content formats

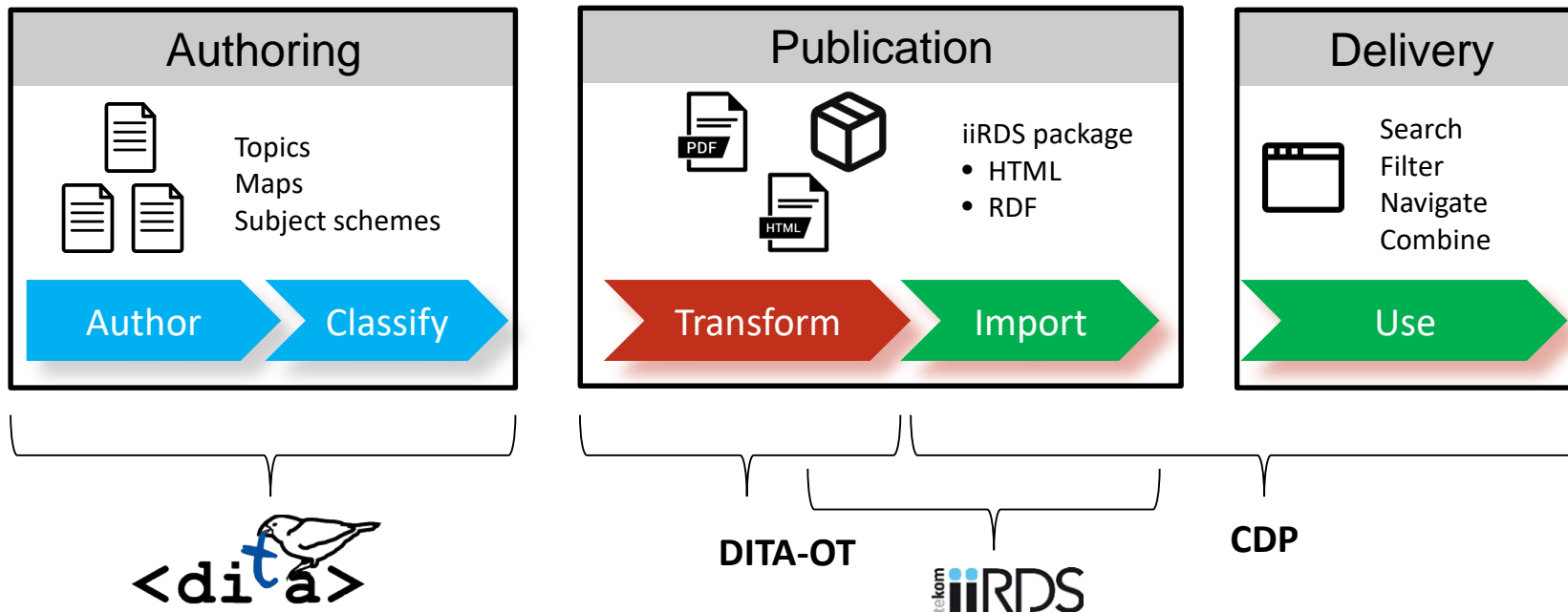
DITA offers:

- Metadata
- Subject schemes

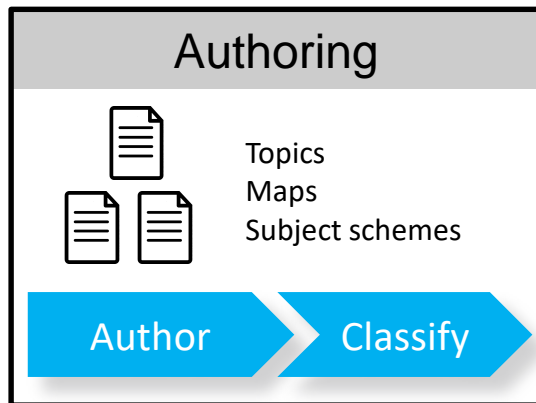
- Topics, maps
- Topic types
- Transformations via DITA Open Toolkit



iiRDS for delivery of DITA content



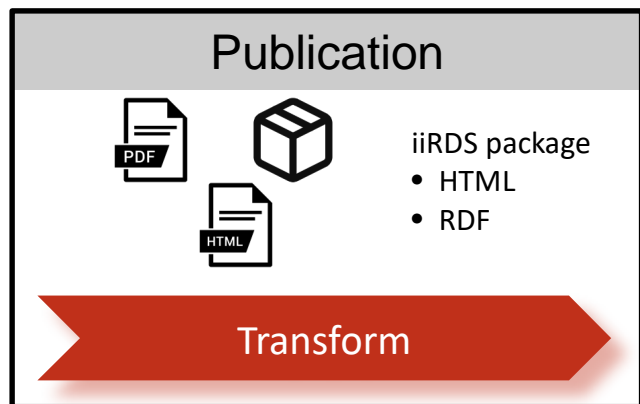
Authoring



- Nothing changes
- Existing DITA content is used
- Supports vanilla DITA as well as custom doc types
 - Specialized content is processed based on most basic class



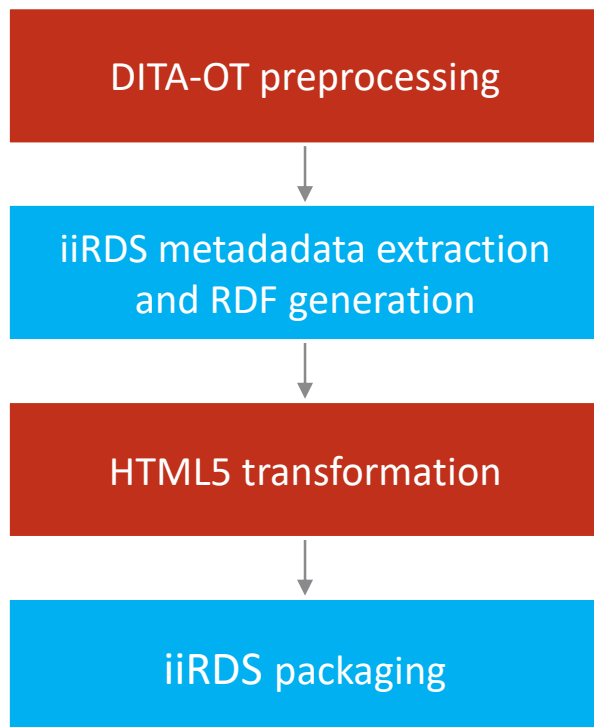
iiRDS plugin for DITA-OT



- Name = org.iirds.dita.package
 - Transtype = iirds
 - Designed by Empolis and parson AG
 - Developed by Empolis
 - Documented and tested by parson AG
 - Requires DITA-OT 3.7.x and Java 8 or higher
-
- Transforms DITA maps or individual topics
 - Generates iiRDS 1.2 packages with HTML output of content



Processing

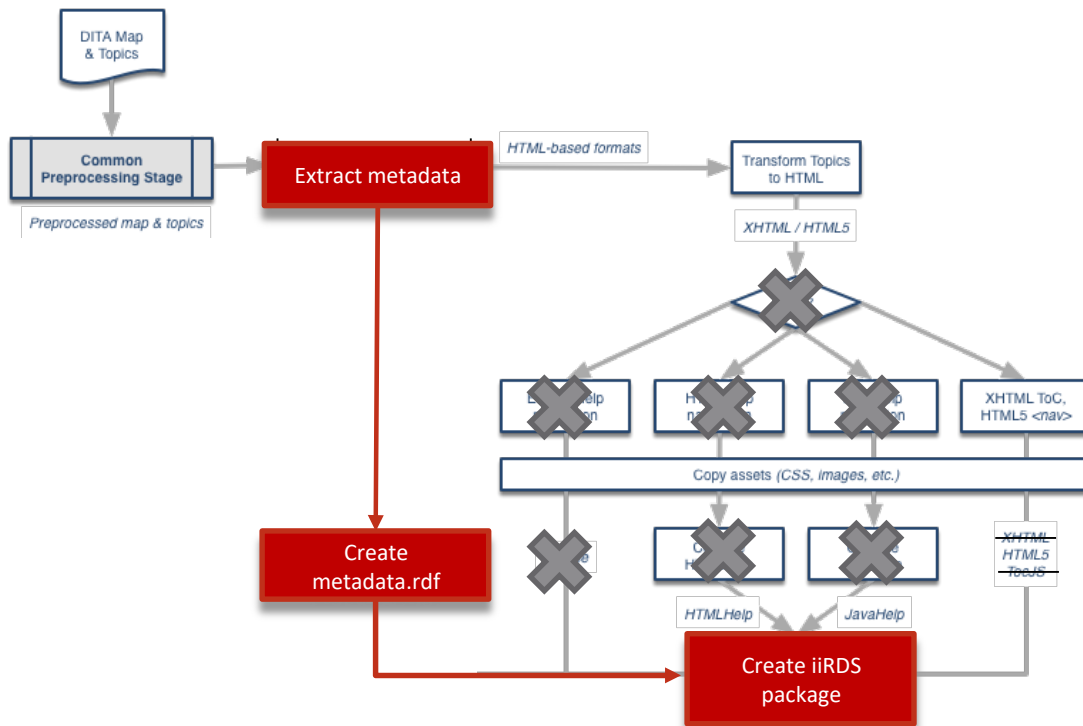


- No changes to common preprocessing
- Map semantic elements, metadata elements, and attributes to iiRDS resources in RDF
- Generate IRIs for iiRDS resources
- Create directory structure based on DITA map

- Generate HTML files (renditions of iiRDS information units)

- Package metadata and HTML content into ZIP archive with file ending .iirds

DITA-OT iiRDS Pipeline



Based on: <https://www.dita-ot.org/dev/reference/processing-structure>

Metadata extraction

iiRDS resources in RDF:

- iirds:Package and iirds:Document for root DITA map, if available
- iirds:DocumentType set to iirds:OperatingInstruction
- Hierarchical directory structure, with one iirds:DirectoryNode for each <topicref>

- Metadata is extracted from root DITA map and topic roots after preprocessing
 - Propagation and inheritance of metadata already done in preprocessing
 - No custom filtering or normalization is applied

Metadata mapping

DITA	iiRDS RDF
<ditamap>	iirds:Document with document type iirds:OperatingInstructions
<topic>, <task>, <concept>, <reference>	iirds:Topic, topic type = iirds:GenericConcept, iirds:GenericTask, iirds:GenericConcept, iirds:GenericReference
<shortdesc>	iirds:Topic > iirds:has-abstract
<title>	iirds:title
@xml:lang	iirds:language
<prodname> or @product	iirds:ProductVariant
@audience or (<audience> with @type and/or @experiencelevel)	iirds:Role and iirds:Skilllevel (= @experiencelevel)
<component>	iirds:Component
<copyright> with @year and @holder	iirds:rights
<created> with @date	iirds:dateOfCreation
<revised> with @modified	iirds:dateOfLastModification and iirds:dateOfStatus
<created> or revised with @golive	iirds:dateOfEffect
<created> or <revised> with @expiry	iirds:dateOfExpiry
<topichead>	iirds:DirectoryNode
<navtitle>	iirds:DirectoryNode

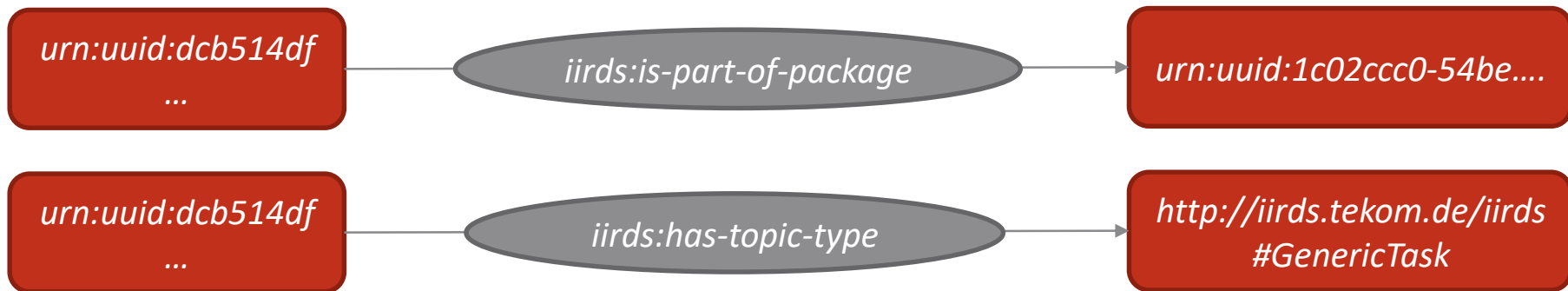
Unique identifiers

In iiRDS, topics with different metadata must have different unique identifiers (IRIs).

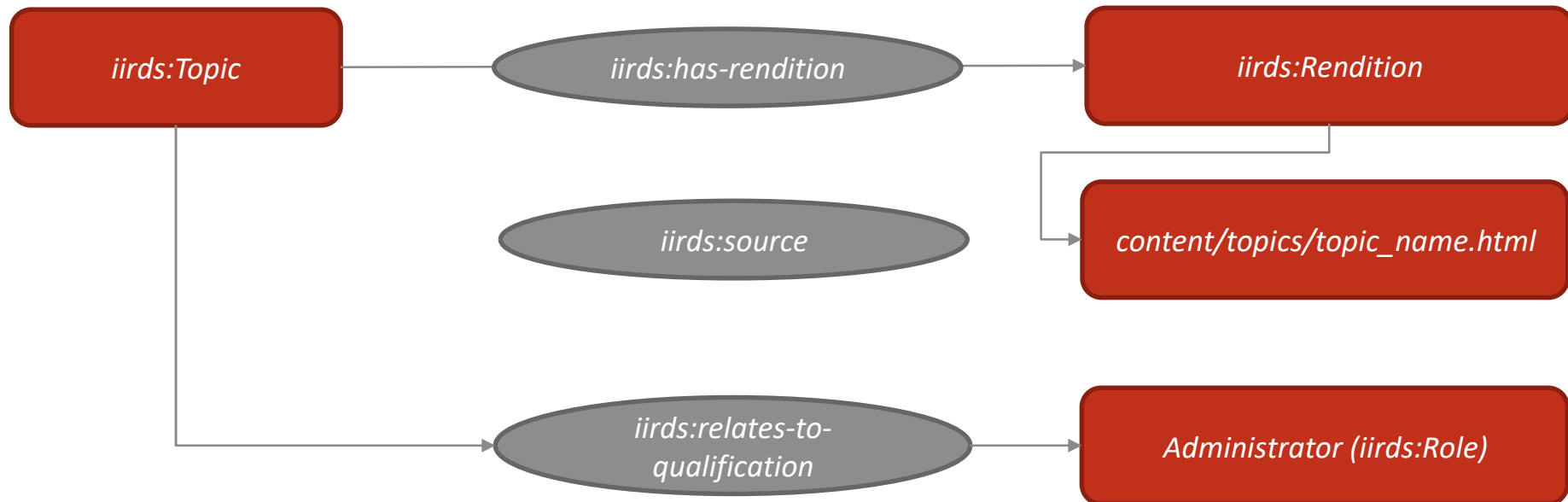
IRIs are generated from DITA content as follows:

iiRDS resource	IRI is based on	Comment
iiRDS:Package	UUID (random)	Different for each run
iiRDS:Document	Map ID + content hash after preprocessing UUIR (random) if no map ID is present	Differs for variants; stable if content is identical
iiRDS:Topic	Topic ID + content hash after preprocessing	Differs for variants; stable if content is identical
iiRDS:InformationObject	Topic ID	Unique for each topic and stable. Can be used to match content across variants and languages

Everything is related



Everything is related



Example: User Guide ditamap (Thunderbird)

```
<map xml:lang="en">  <title>User Guide</title>
  <topicmeta> <copyright>
    <copyyear year="2015"/>
    <copyrholder>Gnostyx Research Inc.</copyrholder>
  </copyright> <critdates>
    <created date="2015-01-03" golive="2015-06-06" expiry="2023-12-01"/>
    <revised modified="2023-11-11" golive="2023-11-30" expiry="2024-12-01"/>
  </critdates>
  <audience type="administrator" job="maintaining" experiencelevel="expert"/>
  <prodinfo>
    <prodname>MobileView (Map)</prodname>
  </prodinfo>
</topicmeta>
```

Demo content: <https://github.com/gnostyx/dita-demo-content-collection>

metadata.rdf

```
<iirds:Package rdf:about="urn:uuid:a3663189-a440-4f89-814f-1606324f08b4">
  <iirds:iirdsVersion>1.2</iirds:iirdsVersion> </iirds:Package>
<iirds:Document rdf:about="urn:uuid:ea6c07ea-7dfe-401d-8deb-49d076379429">
  <iirds:dateOfCreation rdf:datatype="http://www.w3.org/2001/XMLSchema#dateTimeStamp">2015-01-03T00:00:00
</iirds:dateOfCreation>
  <iirds:dateOfLastModification rdf:datatype="http://www.w3.org/2001/XMLSchema#dateTimeStamp">2023-11-11T00:00:00
</iirds:dateOfLastModification>
  <iirds:has-document-type rdf:resource="http://iirds.tekom.de/iirds#OperatingInstructions"/>
  <iirds:rights>Copyright 2015 Gnostyx Research Inc.</iirds:rights>
  <iirds:relates-to-qualification> <iirds:Role rdf:about="urn:md5:285b44ffc70efe447fefe16026353d44">
    <rdfs:label>administrator</rdfs:label>
  </iirds:Role> </iirds:relates-to-qualification>
  <iirds:relates-to-qualification> <iirds:SkillLevel rdf:about="urn:md5:75b6921086191af98d034ce0d8c562ea">
    <rdfs:label>expert</rdfs:label>
  </iirds:SkillLevel> </iirds:relates-to-qualification>
</iirds:Document>
```


Result in CDP

The screenshot shows a web browser window with the URL `esc-eu-central-1.empoliservices.com/service-express/portal/project1_e/document/project1_e--urn_uuid_c59be356-ce3f-4ed1-98f5-414c5361a29e--urn_dita_id_gearlever_4aed...`. The page title is "Changing gears".

Left Sidebar (Table of Contents):

- Austin Mini Owner's Manual
 - Morris Mini Minor
 - Introduction
 - Technical Information
 - Controls, Instruments and Switches
 - Starting
 - Driving
 - Using the pedal controls
 - Changing gears**
 - Using the hand brake
 - Sounding the horn
 - Using windshield wipers
 - Indicating turning
 - Turning on the headlights
 - Dipping the headlight beams
 - Wet brakes
 - Running-in speeds

Main Content Area:

Changing gears

The gear lever is used to switch between the different gears to allow you to drive the car.

Depress the clutch foot pedal to engage a gear.

Figure 1. Gear lever

The diagram shows a top-down view of the gear lever. It has a central position labeled 'N' for neutral. Moving left and right from neutral leads to gears 1 and 2, and 3 and 4 respectively. Moving forward from neutral leads to 'R' for reverse. The lever is shown in its neutral position.

The lever is centrally situated and defaults to neutral gear.

Tip: References to right or left hand sides in this book are made when viewing the **vehicle** from the rear.

From the neutral position, move the lever:

Right Side Panel:

- Related Content:** No related content available.
- Metadata:**
 - Language: English
 - Component: Gear lever
 - Product: Mini
 - Topic type: Task

Customization

Multiple customization options:

1. Use parameters of HTML5 transformation, e.g. to provide custom CSS
2. Ant extension points, e.g. to perform additional preprocessing before metadata extraction
3. Java interface to customize metadata extraction, e.g. to extract metadata from additional elements and attributes
4. Java interface to customize IRI generation, e.g. to provide semantic or language-independent IRIs

Detailed documentation

The screenshot shows the DITA Maps Manager interface with the `metadata_mapping.dita` file open. The file content is as follows:

```

map

  metadata_mapping.dita keys="metadata_mapping"

  Metadata mapping

  The following table describes how DITA elements and attributes are mapped to iIRDS resources in the RDF file of the iIRDS package. If nothing else is stated, available metadata is mapped to iIRDS:Document and iIRDS:Topic in the RDF file.

  Mapping of DITA to iIRDS metadata
  colspecs...
  
```

DITA	iIRDS RDF	Comment
<code><ditamap></code>	<code>iirds:Document</code> with document type <code>iirds:OperatingInstructions</code>	All DITA maps are treated as operating instructions because DITA does not provide a document type by default.
<code><topic></code> , <code><task></code> , <code><concept></code> , <code><reference></code>	<code>iirds:Topic</code> with topic type set to <code>iirds:GenericConcept</code> , <code>iirds:GenericTask</code> , <code>iirds:GenericConcept</code> , <code>iirds:GenericReference</code>	Topic types are derived from the <code>@class</code> attribute of the corresponding topic. Specialized topics fall back to the most basic class.
<code><shortdesc></code>	<code>iirds:Topic > iirds:has-abstract</code>	Content of topic-level short description is used as abstract property. If <code><shortdesc></code> is wrapped in <code><abstract></code> and multiple <code><shortdesc></code> elements are present, only the first short description is evaluated. Note: Short descriptions on map level are not evaluated. The DITA standard defines that short descriptions should be copied from topic references to the corresponding topics during preprocessing, but currently this is not the case.

Next Steps



Next Steps

- Final review of plugin by iiRDS Consortium in the next weeks
- Publication via DITA plugin registry



- Sources to be made available publicly
- Open for further development by the community



Danke für Ihre Aufmerksamkeit | Thank you for your attention



Marion Knebel

Reinbeker Redder 94
21031 Hamburg, Germany



+49 (0)40-7200-500-30
contact@parson-europe.com
parson-europe.com



[Newsletter](#)