



DITA Release 1.1 Architectural Specification

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- **Technical Committee:**

- OASIS Darwin Information Typing Architecture (DITA) TC*

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- OASIS DITA Language Specification Version 1.1 Committee Draft

- (<http://docs.oasis-open.org/dita/v1.1/CD01/langspec/ditaref-type.html>)

- OASIS DITA DTDs Committee Draft Version (1.1 <http://docs.oasis-open.org/dita/v1.1/CD01/dtd/ditadtd.zip>)

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- **Abstract:**

- The Darwin Information Typing Architecture (DITA) 1.1 specification defines both a) a set of document types for authoring and organizing topic-oriented information; and b) a set of mechanisms for combining and extending document types using a process called specialization.

- **Status:**

- This document was last revised or approved by the Darwin Information Typing Architecture (DITA) TC on the above date. The level of approval is also listed above. Check the "Latest Version" or "Latest Approved Version" location noted above for possible later revisions of this document.

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Chapter 1. About the DITA 1.1 Specification

The Darwin Information Typing Architecture (DITA) 1.1 specification defines both a) a set of document types for authoring and organizing topic-oriented information; and b) a set of mechanisms for combining and extending document types using a process called specialization.

The specification consists of:

- The DTDs and schemas that define DITA markup for the base DITA document types, as well as catalog files. While the DTDs and schemas should define the same DITA elements, the DTDs are normative if there is ever any discrepancy.
- The language reference that provides explanations for each element in the base DITA document types
- This document, which has the following parts:
 - an introduction, which provides background concepts and an overview of the architecture
 - the DITA markup specification, which provides an overview of DITA's base document types
 - the DITA processing specification, which provides descriptions of common DITA processing expectations
 - the DITA specialization specification, which provides details of the mechanisms DITA provides for defining and extending DITA document types.

This document is part of the technical specification for the DITA architecture. While the specification does contain some introductory information, it is not intended as an introduction to DITA nor as a users guide. The intended audience of this specification consists of implementers of the DITA standard, including tool developers and specializers.

Changes since DITA 1.0

The DITA 1.1 specification is designed to be backwards-compatible with 1.0-conforming applications. The following major changes to the architecture provide added functionality for 1.1:

- A <bookmap> specialization for encoding book-specific information in a DITA map
- A <glossentry> specialization for glossary entries
- Indexing specializations for see, see-also, page ranges, and sort order
- Improvements to graphic scaling capability
- Improved short description flexibility through a new <abstract> element
- Specialization support for new global attributes, such as conditional processing attributes
- Support for integration of existing content structures through the <foreign> element
- Support for new kinds of information and structures through the <data> and <unknown> elements
- Formalization of conditional processing profiles

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History

2004-04-12	OASIS DITA Technical Committee formed with initial submission of materials from IBM
2005-06-01	OASIS DITA 1.0 specification approved by OASIS

Chapter 2. An introduction to DITA

DITA is an architecture for creating topic-oriented, information-typed content that can be reused and single-sourced in a variety of ways. It is also an architecture for creating new topic types and describing new information domains based on existing types and domains.

The process for creating new topic types and domains is called specialization. Specialization allows the creation of very specific, targeted document type definitions while still sharing common output transforms and design rules developed for more general types and domains, in much the same way that classes in an object-oriented system can inherit methods of ancestor classes.

DITA topics are XML conforming. As such, they are readily viewed, edited, and validated with standard XML tools, although some features such as content referencing and specialization may benefit from customized support.

Definitions and background concepts

The following terms have specific meanings in DITA which should be understood before reading either the DITA markup specification or the DITA specialization specification.

Basic concepts

The following are basic concepts used in DITA.

“What are topics?” on page 15

A topic is a unit of information with a title and some form of content, short enough to be specific to a single subject or answer a single question, but long enough to make sense on its own and be authored as a unit.

“What are maps?” on page 24

DITA maps are documents that collect and organize references to DITA topics to indicate the relationships among the topics. They can also serve as outlines or tables of contents for DITA deliverables and as build manifests for DITA projects.

“What is specialization?” on page 65

Specialization allows you to define new kinds of information (new structural types or new domains of information), while reusing as much of existing design and code as possible, and minimizing or eliminating the costs of interchange, migration, and maintenance.

“Structural versus domain specialization” on page 66

Structural specialization defines new types of structured information, such as new topic types or new map types. Domain specialization creates new markup that can be useful in multiple structural types, such as new kinds of keywords, tables, or lists, or new attributes such as conditional processing attributes.

“Integration” on page 79

Each domain specialization or structural specialization has its own design module. These modules can be combined to create many different document types. The process of creating a new document type from a specific combination of modules is called integration.

“Customization” on page 88

When you just need a difference in output, you can use DITA customization to override the default output without affecting portability or interchange, and without involving specialization.

“Generalization” on page 75

Specialized content can be generalized to any ancestor type. The generalization process can preserve information about the former level of specialization to allow round-tripping between specialized and unspecialized forms of the same content.

Terminology

DITA uses a number of terms in particular or unique ways. Within the scope of this specification, the following terms are used when talking about DITA models, DITA declarations, and DITA instances.

When particular attributes are listed together with elements, attribute names may be preceded by @ to distinguish them from elements. For example: @props, @class.

When particular elements are named outside of a list, they may be delimited with < and > to distinguish them from surrounding text. For example: <keyword>, <prolog>.

Model terminology

DITA can be understood at the level of an abstract model without reference to particular DTDs, schemas, or actual XML documents. When discussing DITA concepts at this level, the following terminology is used.

Element type

Defines the structure and semantics for a fragment of content.

Specialized element type

Defines an element type as a semantic refinement of another element type. The content allowed by the specialized element type must be a subset of or identical to the content allowed by the original element type.

Attribute type

Defines the structure and semantics for an attribute.

Specialized attribute type

Defines an attribute type as a semantic refinement of another attribute type. The attribute must specialize the base or props attribute, and its content must be a subset of or identical to the content allowed by the original attribute type.

Topic type

An element type that defines a complete unit of content. The topic type provides the root element for the topic and, through contained element types, substructure for the topic instances. The root element of the topic type is not necessarily the same as the root element of a document type: document types may nest multiple topic types, and may also declare non-DITA wrapper elements as the root element for compatibility with other processes.

Map type

An element type that defines a set of relationships for topic instances. The map type provides the root element and, through contained element types, substructure for the map instances. The map substructure provides hierarchy, group, and matrix organization of references to topic instances.

Structural type

A topic type or map type.

Domain

A set of elements or an attribute that supports a specific subject area. Elements or attributes in a domain can be integrated with topic or map types to enhance their semantic support for particular kinds of content. For example, the structural type <topic> declares the <keyword> element; when integrated with a domain for describing user interfaces, new keyword specializations (such as <wintitle>) become available wherever <keyword> was allowed in the original structural type.

Document type

The full set of element types and attribute types defined in the modules that are integrated by the document type shell. A DITA document type may support authoring multiple topic types or multiple map types, but not a mix of the two. The structural types can be augmented with elements from domains. The term "document type" is used for compatibility with existing

standards, since this is the point at which DITA's set of topic, domain, and map types are assembled into a document type that is functionally equivalent to a traditional non-modularized document type.

Declaration terminology

When the model is expressed in a DTD or schema, the various element types are declared. When referring to these declarations, the following terminology is used.

Element declaration

The representation within a schema technology (such as DTD, XML Schema, or Relax NG) for an element type.

Attribute declaration

The representation within a schema technology (such as DTD, XML Schema, or Relax NG) for an attribute type.

Type module

The representation within a schema technology for the element and attribute types uniquely defined by a topic type, map type, or domain.

Topic module

The representation within a schema technology for the element types uniquely defined by a topic type.

Map module

The representation within a schema technology for the element types uniquely defined by a map type.

Structural module

A topic or map module.

Domain module

The representation within a schema technology for the element types or attribute type uniquely defined by a domain.

Document type shell, head schema

The representation within a schema technology for a DTD shell or head schema that declares no element or attribute types itself (except potentially for a <dita> root element that allows multiple peer topic types in the same document type) but points to and assembles topic and domain modules or map and domain modules.

Document type declaration

The representation within a schema technology for a document type. The document type declaration includes the declaration modules assembled by the document declaration shell.

Instance terminology

When actual documents, topics, and elements are created based on a DITA document type, the following terminology is used.

Element instance

An occurrence of an element type in a document.

Attribute instance

An occurrence of an attribute type in a document.

Topic instance

An occurrence of a topic type in a document.

Map instance

An occurrence of a map type in a document.

Structural type instance

An occurrence of a topic type or a map type in a document.

Document instance

A document whose meaning and validity are determined by a document type declaration.

Naming conventions and file extensions

The following naming conventions and file extensions are in use by DITA.

DITA topic instance files

**.dita* (recommended), **.xml*

DITA map instance files

**.ditamap*

DTD structural module files

typename.mod

DTD domain module files

typenameDomain.mod

typenameDomain.ent

Schema structural module files

typenameMod.xsd

typenameGrp.xsd

Schema domain module files

typenameDomain.xsd

CSS override files (recommended convention for tool providers)

typename.css

customization-purpose.css

XSLT override files (recommended convention for tool providers)

typename.xsl

customization-purpose.xsl

Conditional processing profiles

profilename.ditaval

DTD organization

The OASIS DITA document types are implemented with a set of DTD modules. Some of these modules are used by every DITA document type; others are only used by topics or by maps, and some are only used in specific specializations.

DTDs versus Modules

A significant feature of the DITA implementation is that it places more importance on the modules than on the actual DTD. All element and attribute type declarations are made in modules, which are then integrated into a document type using a document type shell. Implementors are free to create new DTDs that reorganize the modules, introduce new modules, or remove modules as appropriate. For example, the standard topic DTD from OASIS includes all of the standard topic domains; in addition, while the default topic DTD allows topics to nest, it is not possible to include concepts. A new DTD can change one or both of these features and still be valid; the DTD may add or remove domains, and it may allow topic to nest concepts, or allow authoring of different types at the same level, as in the database document type. When creating a new or changing an existing DTD, users should remember to give the new or changed DTD a new public ID, so that various DITA tools will not confuse the new DTD with the default OASIS version.

Description of DITA Modules

Each specialization requires one or more modules to define elements for that specialization. Any DTD that makes use of a specialization must include the modules for that specialization.

In addition to the modules specific to a specialization, there are several files that are used by every DITA DTD. These are included in the base topic or map modules, so they do not need to be referenced in the DTD – they are already included simply by including the topic or map module.

The tables below describe each of the DTD modules that come with the OASIS DITA standard.

Table 1. Description of topic and its specialization modules

Common module file	Purpose	Used within DTD
topic.mod	Define all elements that may be used within the base topic type.	Must be included in any topic-based DITA DTD.
concept.mod	Define elements used within the concept specialization.	concept.dtd, ditabase.dtd
glossary.mod	Define elements used within the glossary specialization	glossary.dtd, ditabase.dtd
reference.mod	Define elements used within the reference specialization.	reference.dtd, ditabase.dtd
task.mod	Define elements used within the task specialization.	task.dtd, ditabase.dtd

Table 2. Description of map and its specialization modules

Common module file	Purpose	Used within DTD
map.mod	Define all elements that may be used within the base map type.	Must be included in any map-based DITA DTD.
bookmap.mod	Define elements used within the bookmap specialization.	bookmap.dtd

Table 3. Description of domain modules

Common module file	Purpose	Used within DTD
indexingDomain.ent, indexingDomain.mod	Define entities and elements used by the indexing domain.	bookmap.dtd, concept.dtd, ditabase.dtd, glossary.dtd, map.dtd reference.dtd, task.dtd, topic.dtd
highlightDomain.ent, highlightDomain.mod	Define entities and elements used by the highlighting domain.	concept.dtd, ditabase.dtd, glossary.dtd, reference.dtd, task.dtd, topic.dtd
programmingDomain.ent, programmingDomain.mod	Define entities and elements used by the programming domain.	concept.dtd, ditabase.dtd, glossary.dtd, reference.dtd, task.dtd, topic.dtd
softwareDomain.ent, softwareDomain.mod	Define entities and elements used by the software domain.	concept.dtd, ditabase.dtd, glossary.dtd, reference.dtd, task.dtd, topic.dtd
uiDomain.ent, uiDomain.mod	Define entities and elements used by the user interface domain.	concept.dtd, ditabase.dtd, glossary.dtd, reference.dtd, task.dtd, topic.dtd
utilitiesDomain.ent, utilitiesDomain.mod	Define entities and elements used by the utilities domain.	concept.dtd, ditabase.dtd, glossary.dtd, reference.dtd, task.dtd, topic.dtd

Table 3. Description of domain modules (continued)

Common module file	Purpose	Used within DTD
mapGroup.ent, mapGroup.mod	Define entities and elements used by the map group domain.	map.dtd, bookmap.dtd
xnalDomain.ent, xnalDomain.mod	Define entities and elements used by the XNAL domain.	bookmap.dtd

Table 4. Description of other common modules used by the files above

Common module file	Purpose	Used within module
commonElements.ent, commonElements.mod	Define all content elements that may appear in both maps and topics.	topic.mod, map.mod (this makes it a part of any DITA DTD)
metaDecl.mod	Define meta elements that may appear in both maps and topics	topic.mod, map.mod (this makes it a part of any DITA DTD)
tblDecl.mod	Defines the complex tables used within DITA, based on the OASIS Exchange Table model.	commonElements.mod (this makes it a part of any DITA DTD)
topicDefn.ent	Defines entities used within the topic module.	topic.mod (this makes it a part of any topic-based DITA DTD)

Public identifiers for DTDs

Each standard DTD has a public identifier that can be used to reference either the latest version or a specific version of the DTD.

```

PUBLIC "-//OASIS//DTD DITA Concept//EN" "concept.dtd"
PUBLIC "-//OASIS//DTD DITA 1.1 Concept//EN" "concept.dtd"
PUBLIC "-//OASIS//DTD DITA 1.0 Concept//EN" "concept.dtd"

PUBLIC "-//OASIS//DTD DITA Composite//EN" "ditabase.dtd"
PUBLIC "-//OASIS//DTD DITA 1.1 Composite//EN" "ditabase.dtd"
PUBLIC "-//OASIS//DTD DITA 1.0 Composite//EN" "ditabase.dtd"

PUBLIC "-//OASIS//DTD DITA Glossary//EN" "glossary.dtd"
PUBLIC "-//OASIS//DTD DITA 1.1 Glossary//EN" "glossary.dtd"

PUBLIC "-//OASIS//DTD DITA Reference//EN" "reference.dtd"
PUBLIC "-//OASIS//DTD DITA 1.1 Reference//EN" "reference.dtd"
PUBLIC "-//OASIS//DTD DITA 1.0 Reference//EN" "reference.dtd"

PUBLIC "-//OASIS//DTD DITA Task//EN" "task.dtd"
PUBLIC "-//OASIS//DTD DITA 1.1 Task//EN" "task.dtd"
PUBLIC "-//OASIS//DTD DITA 1.0 Task//EN" "task.dtd"

PUBLIC "-//OASIS//DTD DITA Topic//EN" "topic.dtd"
PUBLIC "-//OASIS//DTD DITA 1.1 Topic//EN" "topic.dtd"
PUBLIC "-//OASIS//DTD DITA 1.0 Topic//EN" "topic.dtd"

PUBLIC "-//OASIS//DTD DITA Map//EN" "map.dtd"
PUBLIC "-//OASIS//DTD DITA 1.1 Map//EN" "map.dtd"
PUBLIC "-//OASIS//DTD DITA 1.0 Map//EN" "map.dtd"

PUBLIC "-//OASIS//DTD DITA BookMap//EN" "bookmap.dtd"
PUBLIC "-//OASIS//DTD DITA 1.1 BookMap//EN" "bookmap.dtd"

```

XML Schema organization

The OASIS DITA document types are implemented with a set of schema modules. Some of these modules are used by every DITA schema document; others are only used by topics or by maps, and some are only used in specific specializations.

XML Schemas versus Modules

A significant feature of the DITA implementation is that it places more importance on the modules than on the actual head schema. All element and attribute type declarations are made in modules, which are then integrated into a document type using a head schema. Implementors are free to create new head schemas that reorganize the modules, introduce new modules, redefine modules, or remove modules as appropriate. For example, the standard topic XML Schema from OASIS includes all of the standard topic domains; in addition, while the default topic XML Schema allows topics to nest, it is not possible to include concepts. A new XML Schema can change one or both of these features and still be valid; the XML Schema may add or remove domains, and it may allow topic to nest concepts, or allow authoring of different types at the same level, as in the database document type.

Description of DITA Modules

Each specialization requires one or more modules to define elements for that specialization. Any XML Schema that makes use of a specialization must include the modules for that specialization.

In addition to the modules specific to a specialization, there are several files that are used by every DITA XML Schema. These are included in the base topic or map modules, so they do not need to be referenced in the XML Schema – they are already included simply by including the topic or map module.

The tables below describe each of the XML Schema modules that come with the OASIS DITA standard.

Table 5. Description of topic and its specialization module

Common module file	Purpose	Used within XML Schema
topicMod.xsd, topicGrp.xsd	Define all elements that may be used within the base topic type.	Must be included in any topic-based DITA XML Schema.
conceptMod.xsd, conceptGrp.xsd	Define elements used within the concept specialization.	concept.xsd, database.xsd
glossaryMod.xsd, glossaryGrp.xsd	Define elements used within the glossary specialization	glossary.xsd, database.xsd
referenceMod.xsd, referenceGrp.xsd	Define elements used within the reference specialization.	reference.xsd, database.xsd
taskMod.xsd, taskGrp.xsd	Define elements used within the task specialization.	task.xsd, database.xsd

Table 6. Description of map and its specialization modules

Common module file	Purpose	Used within DTD
mapMod.xsd	Define all elements that may be used within the base map type.	Must be included in any map-based DITA XML Schema.
bookmapMod.xsd	Define elements used within the bookmap specialization.	bookmap.xsd

Table 7. Description of domain modules

Common module file	Purpose	Used within DTD
indexingDomainMod.xsd	Define entities and elements used by the indexing domain.	bookmap.xsd, concept.xsd, ditabase.xsd, glossary.xsd, map.xsd, reference.xsd, task.xsd, topic.xsd
highlightDomainMod.xsd	Define entities and elements used by the highlighting domain.	concept.xsd, ditabase.xsd, glossary.xsd, reference.xsd, task.xsd, topic.xsd
programmingDomainMod.xsd	Define entities and elements used by the programming domain.	concept.xsd, ditabase.xsd, glossary.xsd, reference.xsd, task.xsd, topic.xsd
softwareDomainMod.xsd	Define entities and elements used by the software domain.	concept.xsd, ditabase.xsd, glossary.xsd, reference.xsd, task.xsd, topic.xsd
uiDomainMod.xsd	Define entities and elements used by the user interface domain.	concept.xsd, ditabase.xsd, glossary.xsd, reference.xsd, task.xsd, topic.xsd
utilitiesDomainMod.xsd	Define entities and elements used by the utilities domain.	concept.xsd, ditabase.xsd, glossary.xsd, reference.xsd, task.xsd, topic.xsd
mapGroupMod.xsd	Define entities and elements used by the map group domain.	map.xsd, bookmap.xsd
xnalDomainMod.xsd	Define entities and elements used by the XNAL domain.	bookmap.xsd

Table 8. Description of other common modules used by the files above

Common module file	Purpose	Used within module
commonElementsMod.xsd, commonElementsGrp.xsd	Define all content elements that may appear in both maps and topics.	topic.mod, map.mod (this makes it a part of any DITA XML Schema)
metaDeclMod.xsd, metaDeclGrp.xsd	Define meta elements that may appear in both maps and topics	topic.mod, map.mod (this makes it a part of any DITA XML Schema)
tblDeclMod.xsd, tblDeclGrp.xsd	Defines the complex tables used within DITA, based on the OASIS Exchange Table model.	commonElements.mod (this makes it a part of any DITA XML Schema)
ditaarch.xsd	Defines the attribute that defines DITA's architectural version	Must be imported in any topic-based DITA XML Schema.
xml.xsd	Defines the attributes with the XML namespace	Must be imported in any topic-based DITA XML Schema.

XML Schema catalog identifiers

An XML resolver needs to be able to uniquely identify an XML Schema in order to map to a local resource.

In a catalog, DITA XML Schemas must be uniquely identified using a URL location. The URLs can be used as the `xsi:noNamespaceSchemaLocation` value to reference a schema.

<http://docs.oasis-open.org/dita/v1.1/schema/topic.xsd>
<http://docs.oasis-open.org/dita/v1.0/schema/topic.xsd>

<http://docs.oasis-open.org/dita/v1.1/schema/map.xsd>
<http://docs.oasis-open.org/dita/v1.0/schema/map.xsd>

<http://docs.oasis-open.org/dita/v1.1/schema/concept.xsd>
<http://docs.oasis-open.org/dita/v1.0/schema/concept.xsd>

<http://docs.oasis-open.org/dita/v1.1/schema/reference.xsd>
<http://docs.oasis-open.org/dita/v1.0/schema/reference.xsd>

<http://docs.oasis-open.org/dita/v1.1/schema/task.xsd>
<http://docs.oasis-open.org/dita/v1.0/schema/task.xsd>

<http://docs.oasis-open.org/dita/v1.1/schema/ditabase.xsd>
<http://docs.oasis-open.org/dita/v1.0/schema/ditabase.xsd>

<http://docs.oasis-open.org/dita/v1.1/schema/bookmap.xsd>

<http://docs.oasis-open.org/dita/v1.1/schema/glossary.xsd>

Chapter 3. DITA markup

The two main units of authoring in DITA are topics and maps. Each can be extended into new structural types and domains through specialization.

DITA topics

DITA topics are the basic units of DITA content. Each topic should be organized around a single subject. Topics may be of different types, such as task or reference, or may be generic, that is, without a specific type.

What are topics?

A topic is a unit of information with a title and some form of content, short enough to be specific to a single subject or answer a single question, but long enough to make sense on its own and be authored as a unit.

In DITA, a topic is the basic unit of authoring and of reuse. An XML document may contain one topic or multiple topics, and a document type may support authoring one or many kinds of topics. But regardless of where they occur, all DITA topics have the same basic structure and capabilities. Books, PDF files, Websites, and help sets, for example, can all be constructed from the same set of underlying topic content, although there may be some topics that are unique to a particular deliverable, and the organization of topics may differ to take advantage of the unique capabilities of each delivery mechanism.

DITA topics can be as small as a title that organizes other subtopics or links or as large as a few pages or screens of content. Larger units of content, such as complex reference documents or book chapters, can be created by nesting topics, either directly in a single document or indirectly through references in a DITA map. Nested DITA topics can be used to accommodate the migration of legacy non-topic-oriented content, as well as information with specific authoring requirements, such as marketing material or API reference documents.

Reference information is inherently topic-oriented, since it requires information to be modular and self-contained for the sake of retrievability.

Topic-oriented authoring for conceptual and task information has its roots in Minimalism, an instructional design technique first espoused by John Carroll. The minimalist approach to information design focusses on identifying the smallest amount of instruction that allows for the successful completion of a task, or that provides basic knowledge of a concept. Readers have goals, and they want to achieve those goals as quickly as possible. Generally, readers don't want to read information just for the pleasure of reading. They are reading to learn or to do something.

Some of the key principles of Minimalism are:

- Support actions. Let people act as they learn, and let them pursue the goals they want to accomplish.
- Document tasks, not tools or functions.
- Help readers anticipate and avoid errors.
- Let readers explore. They don't need explained what they can discover for themselves.

While DITA's topic-oriented approach has its roots in instructional design, the topic-based approach can be useful for any information that has human readers and a consistent structure.

Why topics?

Topics are the basis for high-quality information. They should be short enough to be easily readable, but long enough to make sense on their own.

By organizing content into topics, authors can achieve several goals simultaneously:

- Content is readable even when accessed from an index or search, not just when read in sequence as part of a chapter. Since most readers don't read information end-to-end, it's good information design to make sure each unit of information can be read on its own to give just-in-time help.
- Content can be organized differently for online and print purposes. Authors can create task flows and concept hierarchies for online orientation, and still have a print-friendly combined hierarchy that helps people who do want an organized reading flow.
- Content can be reused in different collections. Since the topic is written to make sense when accessed randomly (as by search), it should also make sense when included as part of different product deliverables, so authors can refactor information as needed, including just the topics that apply for each reuse scenario.

Topics are small enough to provide lots of opportunities for reuse, but large enough to be coherently authored and read. While DITA supports reuse below the topic level, this requires considerably more thought and review, since topics assembled out of smaller chunks often require editing to make them flow properly. By contrast, since topics are already organized around a single subject, authors can organize a set of topics logically and get an acceptable flow between them, since transitions from subject to subject don't need to be as seamless as the explanations within a single subject.

Information typing

Information typing is the practice of identifying types of topics that contain distinct kinds information, such as concepts, tasks, and reference information. Topics that answer different kinds of questions can be categorized as different information types. The base topic types provided by DITA provide a usable starter set that can be adopted for immediate authoring.

Classifying information by type helps authors:

- Design new information more easily and consistently.
- Ensure the right design gets used for the kind of information (retrieval-oriented structures like tables for reference information, simple sequences of steps for task information)
- Focus on tasks.
- Factor out supporting concepts and reference information into other topics, where they can be read if required and ignored if not.
- Eliminate unimportant or redundant information. Identify common or reusable subjects.

Information typing is part of the general authoring approach called structured writing, which is used across the technical authoring industry to improve information quality. It is based on extensive research and experience, including Robert Horn's Information Mapping, and Hughes Aircraft's STOP (Sequential Thematic Organization of Proposals).

Information types in DITA are expressed as topic types. The base topic types provided by DITA can be used as a base for further specialization. New information types that require different structures and semantics are directly supported by topic type modules, each of which defines the specific markup and structural rules required to describe a particular type of topic. These modules can then be integrated into document types to support authoring information-typed topics.

Transitional text

Most writers are familiar with narrative writing, in which writers provide transitions that lead a reader from one section to the next (like "Next, we will consider..." or "Having completed the previous tasks,...").

The topic-oriented paradigm incorporated in DITA's design--and implicit in the bookmap model derived from DITA maps--favors a writing style that minimizes the use of such narrative filler between topics.

Why topic orientation in writing?

Topic-oriented writing is a disciplined approach to writing that emphasizes modularity and reuse of concise units of information--topics. A topic is enough information to fully convey an idea or task in one reading. Well-written topics can be reused in many contexts, as long as writers are careful about a few things.

Conciseness and appropriateness

Readers who are trying to quickly learn or do something will appreciate if that information is written in a clear pattern that is easy to follow and contains only the information they need to complete that task or grasp a fact. Recipes, encyclopedia entries, car repair procedures--all are informational units that serve up a uniquely focused unit of information that someone has consulted. Typically, anything before or after in the sequence of the document is not of interest--the topic contains everything pertinent to the reason the reader looked up the topic in the first place.

Locational independence

A well-written topic is reusable in other context if it is "context free," meaning that it can be inserted into a new document without revision of its content to refer to a changed context. This is where the issue of transitional text is perhaps most obvious to writers who are new to topic orientation. Phrases like "As we considered earlier..." or "Now that you have completed the initial step..." are likely to make little sense if a topic is reused in a new context in which those preliminary conditions are different or perhaps no longer existent. A well-written topic will read appropriately in any new context because the writing style within it does not lead the reader outside of the topic.

Navigational independence

Most HTML web pages are a mixture of both content and navigation, with the contained links representing the web of reading sequences and choices that a reader can make as he or she navigates through a web site. A standalone topic obviously should not have any navigation within it that would need to be changed if the topic were used in a different context. The DITA design supports this separation of navigation from topics through the use of ditamaps, which represent how topics should be organized for particular information deliverables. However, it is still tempting for writers to want to provide links within the content of a topic that allow a reader to consult external resources. DITA does not prohibit such linking, and in fact the markup allows writers to indicate that such links are external--choosing them opens a new browser window rather than taking the reader on a navigational tangent. A well-written DITA topic generally eschews internal linking to other topics within the document set--these are best supported through the map, which allows the topics to be used in any context without internal revision.

Transitional text workarounds

Topic orientation does not mean that transitions can't be authored in DITA. The key to providing both locational independence and intentional sequences is the adroit use of DITA markup features.

For DITA 1.1, the print attribute on the topicref element of a ditamap now allows a new value of "printonly," which directs processing to skip such a topic if the map is instead being output to an online format, for which transitions are not necessary. A topic designated as printonly can be written in whatever style an author feels necessary to let the topic serve as a transitional topic in the flow of printed information. A DITA topic can be as minimal as just a title, so you can craft your transitional topic to have just as much information as necessary for this output-specific nonce.

Another strategy that you can use to insert transitional sequences into a map of topics is the use of conditionality to include or exclude the content of shortdescs or of paragraphs at the end of a topic. With

rigor among your team, this can be made to work, but it is not as general as the printonly approach--if you share your conditionally marked topics with other business partners or teams, you will have to instruct them on the proper runtime settings to enable those conditions to be honored the way you intended. The printonly method works generally for everyone who inherits maps that reference transitional topics.

Generic topics

The generic or unspecialized topic type provides the base for other specialized topic types, and also provides a place to author content that does not belong in existing specialized types.

Why generic topics?

For specializers, generic topics provide an appropriate base for new specializations that do not fit the concept/task/reference mold. For authors, generic topics provide a way to author untyped content in DITA.

Although typed content is always preferable for consistency and processing concerns, the generic type can be useful when authors are not trained for information typing or when the currently available specialized types are inappropriate.

Topic structure

All topics have the same basic structure, regardless of topic type: title, description or abstract, prolog, body, related links, and nested topics.

All DITA topics must have an ID, a title, and a body. Topic structures can consist of the following parts:

Topic element

Required *id* attribute, contains all other elements

Title The subject of the topic.

Alternate titles

Titles specifically for use in navigation or search. When not provided, the base title is used for all contexts.

Short description or abstract

A short description of the topic, or a longer abstract with an embedded short description. The short description is used both in topic content (as the first paragraph), in generated summaries that include the topic, and in links to the topic. Alternatively, the abstract lets you create more complex introductory content, and uses an embedded short description element to define the part of the abstract that is suitable for summaries and link previews.

While short descriptions aren't required, they can make a dramatic difference to the usability of an information set, and should generally be provided for all topics.

Prolog Container for various kinds of topic metadata, such as change history, audience, product, and so on.

Body The actual topic content: paragraphs, lists, sections - whatever the information type allows.

Related links

Links to other topics. When an author creates a link as part of a topic, the topic becomes dependent on the other topic being available. To reduce dependencies between topics and thereby increase the reusability of each topic, authors can use DITA maps to define and manage links between topics, instead of embedding links directly in each related topic.

Nested topics

Topics can be defined inside other topics. Nesting can result in complex documents that are less usable and less reusable, and should be used carefully. It is more often appropriate for reference information, which can support longer documents organized into multiple topics for scanning and retrieval. The rules for nesting topics can vary from document type to document type: for

example, the concept document type allows nesting of other concepts only, while the database document type allows nesting of any of the standard DITA topic type.

Topic content

All topics, regardless of topic type, build on the same common structures.

Topic bodies

While all topic types have the same elements for title, short description or abstract, and prolog, they each allow different content in their body.

Sections and examples

Sections and examples can be contained only by the body of a topic. They cannot nest. They can contain block-level elements like paragraphs, phrase-level elements like API names, or text.

Block-level elements

Paragraphs, lists, and tables are kinds of "block" elements. As a class of content, they can contain other blocks, phrases, or text, though the rules vary for each structure.

Phrases and keywords

Authors can intermix markup with text when they need to identify part of a paragraph or even part of a sentence as having special significance. Phrases can usually contain other phrases and keywords as well as text. Keywords can only contain text.

Images

Authors can insert images using the image element. Images can be used at the block level, for example to show screen captures or diagrams, or at the phrase level, for example to show what icons or toolbar buttons look like.

Multimedia

Authors can create multimedia for online information using the object element, for example to display SVG diagrams that can be rotated and explored.

Topic modules

There are several modules that provide the basic topic elements and attributes. Some are specific to topic and its specializations, others are shared with DITA maps.

tblDecl.mod (DTD)

tblDeclMod.xsd, tblDeclGrp.xsd (Schema)

Defines the elements for authoring tables, based on the CALS table model but with some DITA-specific extensions.

metaDecl.mod (DTD)

metaDeclMod.xsd, metaDeclGrp.xsd (Schema)

Defines metadata elements, which can appear in both topics and in maps, where metadata can be defined for multiple topics at once.

commonElements.mod, commonElements.ent (DTD)

commonElementsGrp.xsd (Schema)

Defines common elements such as ph or keyword that appear in both topics and maps.

topicAttr.mod, topicDefn.ent (DTD only - folded into other schema files))

Common DITA attributes and entities.

xml.xsd, ditaarch.xsd (Schema only - folded into other DTD files)

Common XML attributes and the DITA architecture version attribute

topic.mod (DTD)

topicMod.xsd, topicGrp.xsd (Schema)

Defines the rest of the elements in a topic.

Concepts

DITA concept topics answer "What is..." questions. They include a body-level element with a basic topic structure, including sections and examples.

Why concepts?

Concepts provide background that helps readers understand essential information about a product, interface, or task. Often, a concept is an extended definition of a major abstraction such as a process or function. Conceptual information may explain a product and how it fits into its category of products. Conceptual information helps users to map their existing knowledge to tasks and other essential information about a product or system.

Concept structure

The <concept> element is the top-level element for a DITA concept topic. Every concept contains a <title> and a <conbody> and optional <titlealts>, <shortdesc> or <abstract>, <prolog>, <related-links>, and nested topics.

The <conbody> element is the main body-level element for a concept. Like the body element of a general topic, <conbody> allows paragraphs, lists, and other elements as well as sections and examples. But <conbody> has a constraint that a section or an example can be followed only by other sections or examples.

Here is an example of a simple concept topic.

```
<concept id="concept">
  <title>Bird Calling</title>
  <conbody>
    <p>Bird calling attracts birds.</p>
    <example>
      <p>Bird calling requires learning:</p>
      <ul>
        <li>Popular and classical bird songs</li>
        <li>How to whistle like a bird</li>
      </ul>
    </example>
  </conbody>
</concept>
```

Modules

concept.mod (DTD)

conceptMod.xsd, conceptGrp.xsd (Schema)

Tasks

Task topics answer "How do I?" questions, and have a well-defined structure that describes how to complete a procedure to accomplish a specific goal.

Why tasks?

Tasks are the essential building blocks for providing procedure information. A task topic answers the "How do I?" question by providing precise step-by-step instructions detailing what to do and the order in which to do it. The task topic includes sections for describing the context, prerequisites, expected results, and other aspects of a task.

Task structure

The <task> element is the top-level element for a task topic. Every task topic contains a <title> and a <taskbody> and optional <titlealts>, <shortdesc> or <abstract>, <prolog>, <related-links>, and nested topics.

The <taskbody> element is the main body-level element inside a task topic. A task body has a very specific structure, with the following elements in this order: <prereq>, <context>, <steps>, <result>, <example> and <postreq>. Each of the body sections is optional.

<prereq>

Describes information needed before starting the current task.

<context>

Provides background information for the task. This information helps the user understand what the purpose of the task is and what they will gain by completing the task. This section should be brief and does not replace or recreate a concept topic on the same subject, although the context section may include some conceptual information.

<steps>

Provides the main content of the task topic. A task consists of a series of steps that accomplish the task. The <steps> section must have one or more <step> elements, which provide the specifics about each step in in the task.

The <step> element represents an action that a user must follow to accomplish a task. Each step in a task must contain a command <cmd> element which describes the particular action the user must do to accomplish the overall task. The step element can also contain information <info>, substeps <substeps>, tutorial information <tutorialinfo>, a step example <stepxmp>, choices <choices> or a stepresult <stepresult>, although these are optional.

<result>

Describes the expected outcome for the task as a whole.

<example>

Provides an example that illustrates or supports the task.

<postreq>

Describes steps or tasks that the user should do after the successful completion of the current task. It is often supported by links to the next task or tasks in the <related-links> section.

Here's an example of a task topic.

```
<task id="ertx">
  <title>Creating an ERTX file</title>
  <taskbody>
    <context>Each morning before breakfast you need to
create a fresh ERTX file.</context>
    <steps>
      <step><cmd>Start ERTX.</cmd></step>
      <step><cmd>Click New ERTX File.</cmd></step>
    </steps>
    <result>You now have your ERTX file for today!</result>
  </taskbody>
</task>
```

Modules

task.mod (DTD)

taskMod.xsd, taskGrp.xsd (Schema)

Reference

Reference topics describe regular features of a subject or product, such as commands in a programming language.

Why reference?

In technical information, reference topics are often used to cover subjects such as the commands in a programming language. Reference topics can hold anything that has regular content, such as ingredients for food recipes, bibliographic lists, catalogues, and the like. Reference topics provide quick access to facts. Information needed for deeper understanding of a reference topic or to perform related procedures should be provided in a concept or task topic.

Reference structure

The <reference> element is the top-level element for a reference topic. Every reference topic contains a <title> and a <refbody> and optional <titlealts>, <shortdesc> or <abstract>, <prolog>, <related-links>, and nested topics.

The <refbody> element holds the main content of the reference topic. Reference topics limit the body structure to tables (both simple and standard), property lists, syntax sections, and generic sections and examples.

All of the elements of <refbody> are optional and may appear in any sequence and number.

<section>

Represents an organizational division in a reference topic. Sections organize subsets of information within a larger topic. You can only include a simple list of peer sections in a topic; sections cannot be nested. A section may have an optional title.

<refsyn>

Contains syntax or signature content (for example, a command-line utility's calling syntax, or an API's signature). The <refsyn> contains a brief, possibly diagrammatic description of the subject's interface or high-level structure.

<example>

Provides containing examples that illustrate or support the current topic. The <example> element has the same content model as <section>.

<table>

Organizes information according into a tabular rows and columns structure. Table markup also allows for more complex structures, including spanning rows and columns, as well as table captions.

<simpletable>

Holds information in regular rows and columns and does not allow for a caption.

<properties>

Lists properties and their types, values, and descriptions.

Here's an example of a reference topic.

```
<reference id="boldproperty">
<title>Bold property</title>
<shortdesc>(Read-write) Whether to use a bold font for the specified
text string.</shortdesc>
<refbody>
  <refsyn>
    <synph>
      <var>object</var><delim>.</delim><kwd>Font</kwd><delim>.</delim>
      <kwd>Bold</kwd><delim> = </delim><var>trueorfalse</var>
    </synph>
```

```

</refsyn>
<properties>
  <property>
    <proptype>Data type</proptype>
    <propvalue>Boolean</propvalue>
  </property>
  <property>
    <proptype>Legal values</proptype>
    <propvalue>True (1) or False (0)</propvalue>
  </property>
</properties>
</refbody>
</reference>

```

Modules

reference.mod (DTD)
referenceMod.xsd, referenceGrp.xsd (Schema)

Glossary

Each DITA glossary topic defines a single sense of one term. Besides identifying the term and providing a definition, the topic can identify related terms.

Why glossary?

Defining terminology is helpful to the writer so a team of writers can use the same term for the same thing. The reader can also get an explanation of unfamiliar terminology. More generally, identification of the things described by the content encourages more precise treatment of those subjects. Glossary topics can be assembled by authors or processes to create glossaries for various purposes, including books, Web sites, or development projects.

Glossary structure

The `<glossentry>` element is the top-level element for a DITA glossary topic. Every glossary topic contains a `<glossterm>` and a `<glossdef>` element and optional `<related-links>`.

Where a term has multiple senses, the writer should create multiple topics with the same term in the `<glossterm>` element but different definitions in the `<glossdef>` element. A process can collate and group glossary entries by term when generating formatted output. Note that definitions with the same term in one language can have different terms in other languages, so translation can result in different collation and grouping of the same set of glossary entries.

Here is an example of a simple glossary entry:

```

<glossentry id="ddl">
  <glossterm>Data Definition Language</glossterm>
  <glossdef>A language used for defining database schemas.</glossdef>
</glossentry>

```

To create a glossary, authors can group multiple entries together either by authoring in a single document under a container topic using the database document type (`database.dtd/database.xsd`), or by referencing the glossary topics in a map, or by using an automated process, for example electing glossary topics from a repository based on the `<term>` markup in a particular collection of topics.

Modules

glossentry.mod (DTD)
glossentryMod.xsd, glossentryGrp.xsd (Schema)

Topic domains

A DITA domain defines a set of elements associated with a particular subject area or authoring requirement regardless of topic type.

The elements in a domain are defined in a domain module which can be integrated with a topic type to make the domain elements available within the topic type structure. Currently the following domains are provided:

Table 9. DITA topic domains

Domain	Description	Short name	Module name
Typographic	For highlighting when the appropriate semantic element doesn't exist yet	hi-d	highlightDomain.mod (DTD) highlightDomain.xsd (Schema)
Programming	For describing programming and programming languages	pr-d	programmingDomain.mod (DTD) programmingDomain.xsd (Schema)
Software	For describing software	sw-d	softwareDomain.mod (DTD) softwareDomain.xsd (Schema)
User interfaces	For describing user interfaces	ui-d	uiDomain.mod (DTD) uiDomain.xsd (Schema)
Utilities	For providing imagemaps and other useful structures	ut-d	utilitiesDomain.mod (DTD) utilitiesDomain.xsd (Schema)
Indexing	For extended indexing functions such as see and see-also	indexing-d	indexingDomain.mod (DTD) indexingDomain.xsd (Schema)

DITA maps

Maps organize topics for output to a specific deliverable, including generating navigation files and links to related topics.

What are maps?

DITA maps are documents that collect and organize references to DITA topics to indicate the relationships among the topics. They can also serve as outlines or tables of contents for DITA deliverables and as build manifests for DITA projects.

DITA maps represent the architecture of an information set – what topics are needed, in what order or relationships, to support a particular set of user goals or other requirements.

Maps describe the context in which the topics will be read – the audience, platform, relationships, requirements of the information set. In this way, the topics themselves become relatively context-free, and can be more easily used and reused in many different contexts, as defined by maps.

Maps draw on a rich set of existing best practices and standards for defining information models, such as hierarchical task analysis. They also support the definition of non-hierarchical relationships, such as matrices and groups, which provide a set of capabilities that has some similarities to RDF (Resource Description Framework) and ISO (International Standards Organization) topic maps. See <http://www.w3.org/RDF/> and <http://www.topicmaps.org/> for more information on those standards.

A DITA map file references one or more DITA topic files using <topicref> elements. The <topicref> elements can be nested or otherwise organized to reflect the desired relationships between the referenced topics. Map files need to have a file extension of .ditamap to be processed properly.

Why DITA maps?

Maps allow scalable reuse of content across multiple contexts. They can be used by information architects, writers, and publishers to plan, develop, and deliver content.

Among the specific uses that maps support:

Defining an information architecture

The map can be used to define what topics are required for a particular audience and user goals, even before the topics themselves exist.

Providing an authoring interface

The map can be used as a starting point for authoring new topics and integrating existing ones.

Defining what topics to build for a particular output

Maps point to topics that are included in output processing. Authors or publishers can use maps to specify a set of topics to transform at the same time, instead of transforming each topic individually.

Defining online navigation

Maps can define the online navigation or table of contents for the topics it points to.

Defining what topics to print

Maps can define a hierarchy that will determine how topics will be combined and nested for printing.

Defining related links

Maps define relationships among the topics they reference; on output, these relationships can be expressed as related links among the topics in each relationship.

Common DITA map attributes and metadata

DITA maps have many of the same common attributes as DITA content, but also have some additional ones for controlling the way relationships are interpreted for different output purposes.

Because DITA maps may encode structures that are wholly or partially specific to a particular medium or kind of output (for example, hyperlinked web pages or printed books), DITA maps contain attributes to help processors interpret the map for each kind of output. These attributes (such as print and toc) are not available in DITA content: individual topics, once separated from the high-level structures and dependencies associated with a particular kind of output, should be entirely reusable across multiple media.

Linking attributes

The collection-type and linking attributes affect how related links are generated for topics described in the map.

collection-type

The collection-type attribute indicates how a particular set of sibling topicrefs relate to each other. The collection-type attribute is set on the container element for the sibling topicrefs. The collection-type value can indicate whether to generate links among the siblings, and what kind of links to generate (for example, next and previous links for a sequence, or sibling links for a family). The collection-type attribute can also indicate how the parent topic should link to its children (for example, showing the child links as a numbered list when the collection-type is sequence).

linking

By default, relationships between topics in a map are reciprocal: children link to parents and vice versa; next and previous topics in a sequence link to each other; topics in a family link to their siblings; topics

in table cells of the same row in a relationship table link to each other. This default behavior can be modified using the linking attribute, which lets a topic modify how it participates in a relationship:

- A topic reference with `linking="none"` does not exist in the map for the purposes of calculating links
- `linking="sourceonly"` means that the topic will link to its related topics but not vice versa
- `linking="targetonly"` means that the related topics will link to it, but not vice versa
- `linking="normal"` is the default, and means that linking will be reciprocal (the topic will link to related topics, and they will link back to it)

You can also create links directly in a topic using the `<xref>` or `<link>` elements, but in many cases map-based linking is preferable, because links in topics create dependencies between topics that can hinder reuse.

```
<topicref href="A.dita" collection-type="sequence">
  <topicref href="A1.dita"/>
  <topicref href="A2.dita"/>
</topicref>
<reltable>
  <relrow>
    <relcell>A.dita</relcell>
    <relcell>B.dita</relcell>
  </relrow>
</reltable>
```

- A** links to A1, A2 as children
links to B as related
- A1** links to A as a parent
links to A2 as next in the sequence
- A2** links to A as a parent
links to A1 as previous in the sequence
- B** links to A as related

Figure 1. Simple linking example

```

<topicref href="A.dita" collection-type="sequence">
  <topicref href="B.dita" linking="none"/>
  <topicref href="A1.dita"/>
  <topicref href="A2.dita"/>
</topicref>
<reltable>
  <relrow>
    <relcell>A.dita</relcell>
    <relcell linking="sourceonly">B.dita</relcell>
  </relrow>
</reltable>

```

- A** links to A1, A2 as children
(no links to B as a child, no links to B as related)
- A1** links to A as a parent
 links to A2 as next in the sequence
(no links to B as previous)
- A2** links to A as a parent
 links to A1 as previous in the sequence
- B** links to A as related

Figure 2. Linking example with the linking attribute

Navigation, media, and chunking attributes

There are standard attributes available for identifying output-media-specific content and for rechunking topics.

toc, navtitle, locktitle

Authors can exclude entries from navigation output (such as an online table of contents, or a Web site map) using the toc attribute. By default, hierarchies are included in navigation output, and tables are excluded.

Authors can provide a shorter version of the title for use in the navigation using the navtitle attribute. By default the navtitle attribute is ignored, and used only to help the author keep track of the target topic's title. The locktitle attribute can be set to ensure that the navtitle takes effect and overrides any title values in the target topic, or defined elsewhere in the topic reference metadata.

print, search

You can set attributes on a topic to indicate whether it should be included in printed output and search indexes.

chunk

When a set of topics is transformed using a map, multi-topic files can be broken into smaller files, and multiple individual topics can be combined into a single larger file, using the chunk attribute. There is no default value for the chunk attribute, but a default for an entire map may be established by setting the chunk attribute on the map element or a specialization. For a detailed description of the chunk attribute and its usage see "Chunking" on page 46.

copy-to

When a set of topics is transformed using a map, duplicate topic versions can be created using the copy-to attribute. The copied topic will have a new file name or location as provided in the copy-to attribute, and the map can override the default title and shortdesc for this particular copy by providing values for them in the map using the topicref's navtitle and shortdesc. For information on how the copyto attribute can be used with the chunk attribute see "Chunking" on page 46.

Shared attributes

DITA maps use the same metadata and reuse attributes that DITA topics use.

- product, platform, audience, otherprops, rev, status, importance, xml:lang, translate
- id, conref
- props, base

DITA maps also use many of the same attributes that are used with link or xref elements in DITA content:

- format, scope, href, keyref, type, query

When new attributes are specialized off of props or base as a domain, they may be incorporated into both map and topic structural types.

DITA map structure

Maps organize topics into hierarchies, tables, and groups, and have special elements for referencing other maps.

topicref elements are the basic elements of a map. A topicref can point to a DITA topic, map, or to any other resource that can be processed or linked to. They can also have a title, short description, and the same kinds of prolog-level metadata available in topics.

topicref elements can be nested to create a hierarchy, which can be used to define print output, online navigation, and parent/child links. The topichead element can be used for nodes in the hierarchy that provide containers without equivalent topics: they are equivalent to topicref elements with a navtitle but no href or equivalent referencing attribute.

Relationship tables are defined with the reltable element. Relationship tables can be used to define relationships among the topics in different cells of the same row. In a relationship table, the columns define common attributes or metadata for the topics in that column. The rows define relationships, with each cell representing a different role in the relationship. For example, a table with different columns for concepts, tasks, and reference topics could be used to define the relationship between a task and the topics that support it.

Both hierarchies and tables can be annotated using the collection-type attribute to define sets of siblings that are part of a particular kind of collection, for example a set of choices, a sequence, or a family. These collection-types can affect link generation, and may be interpreted differently for different outputs.

Groups or collections outside of a hierarchy or table can be defined with the topicgroup element, which is equivalent to a topicref with no referencing attributes or titles. Groups can be combined with hierarchies and tables, for example by including a group within a table cell or within a set of siblings in a hierarchy.

Most elements in the map, including the map itself, can contain metadata, which typically applies to the element and its descendants, as described in "Inheritance of attributes and metadata in maps" on page 29.

Example of a simple map with a relationship table

```
<map>
<reltable>
  <relheader>
    <relcolspec type="concept"/>
    <relcolspec type="task"/>
    <relcolspec type="reference"/>
  </relheader>
  <relrow>
    <relcell>
      <topicref href="A.dita"/>
    </relcell>
    <relcell>
      <topicref href="B.dita"/>
    </relcell>
    <relcell>
      <topicref href="C1.dita"/>
      <topicref href="C2.dita"/>
    </relcell>
  </relrow>
</reltable>
</map>
```

type="concept"	type="task"	type="reference"
A	B	C1 C2

A links to B, C1, C2

B links to A, C1, C2

C1, C2 link to A, B

DITA map modules

Maps have the same module structure as topics, and share some of the same modules for defining metadata.

map.mod (DTD)

mapMod.xsd, mapGrp.xsd (Schema)

Defines the base map structures.

mapGroup.mod (DTD)

mapGroup.xsd (Schema)

Adds topicgroup and topichead as specialized variants of topicref.

Inheritance of attributes and metadata in maps

Some of the attributes and metadata in a map can be inherited based on the structures in the map.

Inheritance is additive except where this would cause a conflict. When there is a conflict, the value defined closest (most specifically) to the topicref takes effect. In a relationship table, row-level metadata is considered more specific than column-level metadata, as shown in the following containment hierarchy:

- map (most general)
 - topichead/topicgroup/topicref container (more specific)
 - topicref (most specific)
 - reltable (more specific)
 - relcolspec (more specific)
 - relrow (more specific)
 - topichead/topicgroup/topicref container (more specific)

- topicref (most specific)

The following attributes and metadata elements are inheritable:

Attributes

audience, platform, product, otherprops, rev
props and any attribute specialized from props
linking, toc, print, search
format, scope, type
xml:lang, dir, translate

Elements

author, source, publisher, copyright, critdates, permissions
audience, category, proinfo, othermeta

Attributes and metadata can be defined at the root level (attributes on the map element itself, topicmeta as a direct child of the map element) to apply them to the entire map. They can also be applied at any point in a hierarchy, group, or table. Tables can be particularly useful for attribute and metadata management, since they can be applied to entire columns or rows as well as individual cells.

While the chunk attribute no longer inherits a value from containers (new with DITA 1.1), specifying a value for the chunk attribute on the map or map specialization element establishes a default value for chunking that applies to the entire map unless overridden by more specific chunk attribute settings elsewhere within the document.

Related reference

“Metadata inheritance between maps and topics” on page 38

The topicmeta element in maps contains numerous elements for the declaration of metadata. In general, specifying metadata in a topicmeta element is equivalent to specifying it in the topic, while allowing that topic to be reused in other maps where the metadata does not apply. Many items in the metadata also cascade to nested topic references within the map.

Bookmap

The bookmap specialization of DITA’s standard DITA map allows you to organize your DITA topics into a collection that can be printed as a book or other paged layout.

Why use a bookmap?

The OASIS bookmap application of DITA allows you to produce your DITA topics and even whole DITA maps as the content of a formally defined book. This allows you to produce not only maps for online deliverables, but also PDFs with the same content, replete with covers, formal notices and frontmatter, and so forth.

What is a bookmap?

A bookmap is a special kind of DITA map that defines the major structures and setup information for producing maps of information as a book.

A typical DITA map might have a title and then a set of topicrefs, in a sequence, in a hierarchy, or both, that define the structure by which topics are to be viewed as a complete information deliverable. A DITA map does not have structures to specifically designate how topics are to be treated as chapters, preface content, or even for constructing a cover or special content (such as edition notice boilerplate). To enable DITA content to be viewed in a more booklike manner, you need a context that represents all the special processing that might be invested on producing a map or set of maps as a book. That is the role of DITA’s bookmap specialization.

A bookmap has the following specialized major structures:

- An optional title or booktitle (which itself can have substructure for complex titles)
- Optional bookmeta (all the information about the book--its owners, authors, publishing data, and so forth)
- Optional frontmatter (the usual preface and introductory topics in a book prior to the gist of the book, and also including booklists--containers for special collections of information in a book)
- Any number of chapters or parts (which can contain chapters)
- Any number of appendix topics
- Optional backmatter (often for special notices or supplementary information, and also for booklists)
- Any number of reltables, as in a typical map.

What is bookmeta?:

Bookmeta is a specialization of the topicmeta element in a DITA map. It has specialized content for holding information about a particular book represented by the bookmap.

What are booklists?:

A booklist is a specialized topicref that indicates a collection of information from the content of a book. Sets of <booklist> elements (or elements derived from booklist) are contained in the <booklists> element.

A common kind of booklist is the Table of Contents. If you wish, you can define a completely new collection such as a Table of Footnotes and provide either a pre-populated topic with that content, or provide processing that will collect and insert that topical content during the book processing.

Specific booklist elements are provided in the OASIS bookmap for:

- toc--the usual Table of Contents (commonly located in the frontmatter booklists)
- figurelist--a list of figures
- tablelist--a list of tables
- abbrevlist--a list of abbreviations
- trademarklist--a list of trademarks
- bibliolist--a list of bibliographic references
- glossarylist--a list of glossary terms and definitions
- indexlist--an index (commonly located in the backmatter booklists)
- booklist--reference any other topic that contains booklist-like material, or specialize the element to represent a collection that will be gathered by new override processing.

What is in frontmatter?:

Front matter of a book typically contains prefaces, instructions, or other introductory material prior to the actual content of a book.

Specific frontmatter elements include any number of:

- booklists--collections of book parts, like ToC
- notices--edition notices, safety notices, terms and conditions, and so forth
- dedication--to my forebearing significant other...
- colophon--how the book was produced
- bookabstract--handy for search tools and registry into tracking/workflow systems
- draftintro--special content for reviewers
- preface--an introduction or introductory statement
- topicref--extensible placeholder for any topic

- topichead--as in a DITA map, this element allows grouping with a navigation title
- topicgroup--as in DITA map, this element allows grouping without a navigation title.

What is in backmatter?:

Back matter of a book typically contains closing information that follows the main content of a book.

Specific backmatter elements include any number of:

- booklists--collections of book parts, like the index
- notices--edition notices, safety notices, terms and conditions, and so forth
- dedication--to my first grade teacher...
- colophon--how the book was produced
- amendments--points to a list of amendments or updates to the book
- topicref--extensible placeholder for any topic
- topichead--as in a DITA map, this element allows grouping with a title
- topicgroup--as in DITA map, this element allows grouping without a title.

How is a bookmap authored and produced?

As a specialization of DITA map, the DITA bookmap will be supported by default like a typical DITA map in DITA-aware editors and processing tools.

With appropriate style and functional overrides, XML editors can display a DITA bookmap just as they would the XML structure for other book-supporting DTDs, and specialized DITA processing or DITA bookmaps will exploit the book metadata and book features in high quality paged output.

For example, you might have a DITA map that represents the hierarchy you intend for a particular Web deliverable of your DITA topics. Now you wish to also produce that map as a formal book to be packaged along with your boxed product. You can open a new bookmap instance and define a title for the book, indicate any required publisher information in the bookmeta area, link in a preface, indicate whether you want a table of figures along with the table of contents, and finally create a chapter element that references your existing DITA map. You have created a complete book deliverable, at least in a simplistic manner. The design of bookmap allows you to refine your deliverable and even make the book version of the map have content that is specific to the book version, versus the Web version.

Example

```
<bookmap id="taskbook">
  <booktitle>
    <mainbooktitle>Product tasks</mainbooktitle>
    <booktitlealt>Tasks and what they do</booktitlealt>
  </booktitle>
  <bookmeta>
    <author>John Doe</author>
    <bookrights>
      <copyrfirst>
        <year>2006</year>
      </copyrfirst>
      <bookowner>
        <person href="janedoe.xml">Jane Doe</person>
      </bookowner>
    </bookrights>
  </bookmeta>
  <frontmatter>
    <preface/>
  </frontmatter>
  <chapter format="ditamap" href="installing.ditamap"/>
  <chapter href="configuring.xml"/>
  <chapter href="maintaining.xml">
```

```
<topicref href="maintainstorage.xml"/>
<topicref href="maintainserver.xml"/>
<topicref href="maintaindatabase.xml"/>
</chapter>
<appendix href="task_appendix.xml"/>
</bookmap>
```

Modules

DTD:

```
bookmap.dtd
bookmap.mod
```

Schema:

```
bookmap.xsd
bookmapGrp.xsd
bookmapMod.xsd
```

Map domains

The following domains provide expanded functionality for map document types that incorporate them.

The xNAL domain

Book metadata has many commonalities with other metadata standards, in particular those for addressing persons and places. The OASIS xNAL Standard (extensible Name and Address Language) was selected to represent close mappings from the DITA bookmap metadata content model to an existing standard.

The OASIS CIQ standard for global customer information management contains the definition of the OASIS extensible Name and Address Language (xNAL) metadata elements. Version 2 of the standard states:

The objective of xNAL is to describe a common structure for Personal/Organization Names and Addresses that would enable any applications that want to represent customer names and addresses in a common standard format. The applications could be CRM/e-CRM, Customer Information Systems, Data Quality (Parsing, Matching, Validation, Verification, etc), Customer Data Warehouses, Postal services, etc.

However, any party for its own purposes and applications may use xNAL grammar or parts of it.

The metadata elements defined for bookmap naturally include structures that identify the authors and content owners. Although it was not possible to subset the xNAL standard definitions directly into DITA due to differences between the two processing architectures, OASIS DITA Technical Committee members determined that there was value in having at least a transformational equivalence between bookmap and xNAL definitions for names and addresses. This equivalence enables XML-aware tools in workflow systems to capture and manipulate DITA bookmap names and addresses in a standard way.

For DITA 1.1, the xNAL domain is part of the bookmap specialization. This means that the xNAL elements appear any place that bookmap allows the <author> element - within bookmeta and topicmeta.

Metadata elements and common attributes

The same metadata elements and many of the same attributes are available in both DITA topic types and DITA map types. The sharing of metadata elements allows the metadata assigned to a topic when it is created to be supplemented or overridden when the topic is included in a collection. The sharing of attributes allows processing behaviors, such as content reuse and conditional processing, to be implemented consistently across both maps and topics.

Common metadata elements

The following metadata elements occur in both maps and topic prologs.

Many of the DITA metadata elements map to Dublin Core metadata (<http://dublincore.org/>), with the exception of Dublin Core elements such as title, which maps to the DITA <title> element.

Publication metadata elements

These elements provide standard information about the topic as a publication.

Some content providers might choose to provide such information only in the map or the initial topic for a deliverable.

author The person or organization who created the content. This element is equivalent to the Dublin Core Creator.

publisher

The organization who provides and distributes the content. This element is equivalent to the Dublin Core Publisher.

copyright

The legal ownership for the content. This element is equivalent to the Dublin Core Rights.

Management metadata elements

These elements provide a basis for managing the publication process for topics.

The management elements might get updated by workflow processes or provide input for such processes:

source An identifier or name for the original form of the content. This element is equivalent to Dublin Core Source.

critdates

Milestones in the publishing cycle. This element is equivalent to Dublin Core Date.

permissions

Specification of the level of entitlement needed to access for content.

resourceid

The identifier associated with the topic when provided to the specified application.

Metadata qualification elements

These elements can be used to provide additional information about a topic, and may be used in conjunction with conditional processing attributes to provide more information about the attribute values.

The metadata elements apply to an entire topic, and can also be used in a map to apply metadata to multiple topics at a time. Metadata elements can expand on the values used in metadata attributes. (See metadata attributes.) For example, the audience element in a topic's prolog can define an audience in terms of type, job, and experience level, and give it a name; when there is content within the topic's body that applies only to that audience, that content can identify its audience by the same name used in the prolog.

When metadata is expressed in a map, it supplements any metadata expressed in the topics it references. When metadata in a map and a topic conflict (for example, both define a publisher), by default the value in the map takes precedence, on the assumption that the author of the map has more knowledge of the reusing context than the author of the topic.

audience

The type, job, experience level, and other characteristics of the reader for the topic. Many of these characteristics have enumerated values, but the enumeration can be extended through associated

attributes. For instance, the audience type enumeration can be extended through an othertype attribute. The audience element can provide more information about a value used by an audience attribute.

category

A classification of the topic content. Such classifications are likely to come from an enumerated or hierarchical set. This element is equivalent to both Dublin Core Coverage and Dublin Core Subject.

keywords

Terms from a controlled or uncontrolled subject vocabulary that apply to the topic.

prodinfo

The definition of the product or platform for the topic. The prodinfo element can provide more information about values used by the product and platform attributes.

othermeta

A name-value pair specifying other metadata about the topic.

data

Additional data or metadata about the topic or map, or elements in the topic or map; allows for more complex metadata using nested values. Primarily used as the base for specialized metadata structures.

Common attributes

The following attributes are common across most DITA elements.

Identifier and content referencing attributes

The id and conref attributes are available on almost all DITA elements, and allow sharing of content between DITA topics or maps.

Related concepts

“IDs and references” on page 41

The DITA identity attribute provides mechanisms for identifying content for retrieval or linking. The syntax for referencing IDs is consistent regardless of the referencing mechanism.

“Content inclusion (conref)” on page 42

The DITA conref attribute provides a mechanism for reuse of content fragments. The conref attribute stores a reference to another element and is processed to replace the referencing element with the referenced element.

Metadata attributes

The metadata attributes express qualifications on the content. These qualifications can be used to modify the processing of the content.

One typical use of the metadata attributes is to filter content based on their values. Another typical use is to flag content based on their values, for example by highlighting the affected text on output. Typically audience, platform, product, and otherprops are used for filtering, and the same attributes plus rev are used for flagging. Status and importance are used for tool-specific or transform-specific behavior, for example marking steps in a task as optional or required.

Conditional processing attributes:

In general, a conditional processing attribute provides a list of one or more values separated with whitespace. For instance, audience="administrator programmer" qualifies the content as applying to administrators and programmers.

There are several attributes intended for conditional processing, available on most elements:

- product: the product that is the subject of the discussion.
- platform: the platform on which the product is deployed.

- audience: the intended audience of the text
- rev: the revision or draft number of the current document (typically used for flagging only, not for filtering)
- otherprops: other properties that do not require semantic identification
- props: a generic conditional processing attribute that can be specialized to create new semantic conditional processing attributes

Related concepts

“Conditional processing attributes” on page 44

Other metadata attributes:

Other attributes are still considered part of an element’s metadata but are not designed for conditional processing, such as filtering or flagging.

importance

The degree of priority of the content. This attribute takes a single value from an enumeration.

status The current state of the content. This attribute takes a single value from an enumeration.

Miscellaneous Attributes

DITA has several elements for supporting translation and for providing additional classification or typing of a specific element.

Miscellaneous attributes of DITA elements include the following:

xml:lang

The xml:lang attribute’s behavior is described in detail in the XML specification: <http://www.w3.org/TR/REC-xml/#sec-lang-tag> The attribute identifies a language by means of the standard language and country codes (as described in RFC 4646). For instance, French Canadian would be identified by the value fr-ca. As is usual, the language applies to the contained content and attributes of the current element and contained elements, other than fragments that declare a different language.

translate

Determines whether the element requires translation. A default value may be inferred from the element type: for example, <apiname> may be untranslated by default, whereas <p> may be translated by default. A list of suggested defaults is provided in “All elements with translation properties” on page 53.

dir Determines the direction in which the content should be read.

outputclass

The outputclass attribute provides a label on one or more element instances, typically to specify a role or other semantic distinction. As the outputclass attribute doesn’t provide a formal type declaration or the structural consistency of specialization, it should be used sparingly, often only as a temporary measure while a specialization is developed. For example, <uicontrol> elements that define button labels could be distinguished by adding an outputclass: <uicontrol outputclass="button">Cancel</uicontrol>. The outputclass value could be used to trigger XSLT or CSS rules, as well as providing a mapping to be used for future migration to a more specialized set of UI elements.

base A generic attribute that has no specific purpose, but is intended to act as a base for specialized attributes that have a simple value syntax like the conditional processing attributes (one or more alphanumeric values separated by whitespace).

The attributes @xml:lang, @translate, and @dir are described in more detail in “Translation” on page 49.

Architectural attributes

DITA provides some attributes to provide type information to processors instead of qualifications or properties of content.

Ordinarily, architectural attributes don't appear in the source files for document instances. Instead, architectural attributes appear in document instances through defaults set in the DTD or Schema declaration. This practice ensures that the creation of document instances cannot produce invalid values for the architectural attributes. These attributes are as follows:

class This attribute identifies the specialization module for the element type as well as the ancestor element types and the specialization modules to which they belong. Every DITA element has a class attribute.

domains

This attribute identifies the domain specialization modules used in a topic and, for each domains module, its module dependencies. Every topic and map element has a domains attribute.

DITAArchVersion

This attribute identifies the version of the DITA architecture used by the DTD or schema. Every topic and map element has a DITAArchVersion attribute. The attribute is declared in a DITA namespace to allow namespace-sensitive tools to detect DITA markup.

To make the document instance usable without the DTD or Schema declaration, a normalization process can instill the architectural attributes in the document instance.

Topic properties in topics and maps

The properties of a topic (including metadata attributes and metadata elements) can be specified in the topic itself or in references to the topic within maps.

Within a topic, properties can be expressed using metadata attributes on the topic element or using publication, management, or metadata elements in the topic prolog.

DITA offers users three levels at which to apply topic properties. Topic attributes and metadata elements can be defined within the topic itself. Properties can also be set as attributes or subelements of a `topicref` that points to the topic. In addition, properties can be set on container or ancestor elements of the `topicref` within the map. Because the topics in a branch of the navigation hierarchy typically have some common subjects or properties, this is a convenient mechanism to set properties for a set of topics.

If a property is set in both the map and topic, the map properties are additive if the property (such as the audience type) takes a list of values. If, instead, the property (such as the importance) takes a single value, the map property overrides the topic property.

Example of audience metadata in prolog and body

Prolog metadata elements can provide more information about values used in metadata attributes on content. However, prolog metadata and attribute metadata can also be used and expressed independently. The coordination shown here is possible but is not required.

```
<prolog>
  <metadata>
    <audience name="AdminNovice"
              type="administrator"
              job="customizing"
              experiencelevel="novice">
  </metadata>
```

```

</prolog>
....
<p audience="AdminNovice ProgrammerExp">This paragraph applies to both
novice administrators and expert programmers</p>

```

In the preceding example, the attribute value "AdminNovice" is associated with the audience element with the same name, which gives authors and processes more information about the audience in question: in this case, that the "AdminNovice" audience is administrators who are customizing and are new at it.

Shared metadata elements, and the lockmeta attribute

You can associate topic metadata with a topic or branch of topics in a map. By default metadata in the map supplements or overrides metadata in the topic. If the lockmeta attribute is set to "no", then the metadata in the map will not take precedence over the metadata in the topic, and conflicts will be resolved in favor of the topic.

In a map, metadata elements are authored within a <topicmeta> element, which associates metadata with the <topicref> or other element that contains it, plus the other children of that element. For example, <topicmeta> in a <relcolspec> can associate metadata with all the topics referenced in a <reltable> column.

The metadata elements in a map are the same as those in a topic, although they may be in a different order. The map metadata also includes a short description and alternate titles, which can override their equivalents in the content. In sum, the map can override or supplement everything about a topic except its content (in the topic's body element) and primary title.

Metadata inheritance between maps and topics

The topicmeta element in maps contains numerous elements for the declaration of metadata. In general, specifying metadata in a topicmeta element is equivalent to specifying it in the topic, while allowing that topic to be reused in other maps where the metadata does not apply. Many items in the metadata also cascade to nested topic references within the map.

For each element in the topicmeta, the following table provides three different behaviors.

- **How does it apply to the topic?** This describes how the metadata in a topicref interacts with the specified topic. In most cases, the properties are additive, *within the current context*. For example, when an audience is set to "user" within a topicref, this means that the audience for the specified topic is "user" when viewed within this context. This is in addition to any audience values specified within the topic, and does not apply to the topic when it is viewed in other contexts.
- **Does it cascade to other topics in the map?** This indicates whether the specified meta value cascades to nested topicrefs. For example, setting an audience to "user" implicitly means that other topicrefs within that branch of the map also have an audience of "user". Elements like linktext, which can apply only to the specified target, do not cascade.
- **What is the purpose when specified at the map level?** The map element allows for metadata to be specified for the entire map. This column describes what effect, if any, each element has when specified at this level.

Table 10. Topicmeta elements and their properties

Element	How does it apply to the topic (in this context)?	Does it cascade to other topics in the map?	What is the purpose when specified at the map level?
audience	Add to the topic	Yes	Specify an audience for the entire map
author	Add to the topic	Yes	Specify an author for the entire map
category	Add to the topic	Yes	Specify a category for the entire map

Table 10. Topicmeta elements and their properties (continued)

Element	How does it apply to the topic (in this context)?	Does it cascade to other topics in the map?	What is the purpose when specified at the map level?
copyright	Add to the topic	Yes	Specify a copyright for the entire map
critdates	Add to the topic	Yes	Specify critical dates for the entire map
data	Add to the topic	No, unless specialized for a purpose that inherits	No stated purpose, until the element is specified
data-about	Add the property to the specified target	No, unless specialized for a purpose that inherits	No stated purpose, until the element is specified
foreign	Add to the topic	No, unless specialized for a purpose that inherits	No stated purpose, until the element is specified
keywords	Add to the topic	No	No stated purpose
linktext	Not added to the topic; applies to links created based on this occurrence in the map	No	No stated purpose
othermeta	Add to the topic	No	Define metadata for the entire map
permissions	Add to the topic	Yes	Specify permissions for the entire map
prodinfo	Add to the topic	Yes	Specify product info for the entire map
publisher	Add to the topic	Yes	Specify a publisher for the map
resourceid	Add to the topic	No	Specify a resource ID for the map
searchtitle	Replace the one in the topic. If multiple searchtitles are given for one target, processors may choose to issue a warning.	No	No stated purpose
shortdesc	Not added to the topic; applies to links created based on this occurrence in the map	No	Provide a description of the map
source	Add to the topic	No	Specify a source for the map
unknown	Add to the topic	No, unless specialized for a purpose that cascades	No stated purpose, until the element is specified

Related concepts

“Inheritance of attributes and metadata in maps” on page 29

Some of the attributes and metadata in a map can be inherited based on the structures in the map.

Chapter 4. DITA processing

Several common DITA processing behaviors are driven by attributes, including navigation, content reuse, and conditional processing.

IDs and references

The DITA identity attribute provides mechanisms for identifying content for retrieval or linking. The syntax for referencing IDs is consistent regardless of the referencing mechanism.

The id attribute assigns a unique identifier to an element so the element can be referenced. The scope of uniqueness for the id attribute depends on the role of the element within the DITA architecture:

Topic IDs

Because topics are the basic units of information within DITA, the id attribute for the topic must be unique within the document instance.

A topic architecture assembles topics into a deliverable by reference. To ensure that topics can be referenced, the id attribute is required on the topic element.

The complete identifier for a topic consists of the combination of the URI for the document instance, a separating hash character, and the topic id (as in `http://some.org/some/directory/topicfile.xml#topicid`). URIs are described in RFC 2396. As is typical with URIs, a relative URI can be used as the identifier for the document instance so long as it is resolvable in the referencing context. For instance, within a file system directory, the filename of the document instance suffices (as in `some/directory/topicfile.xml#topicid`). Within the same document, the topic id alone suffices (as in `#topicid`). Where the topic element is the root element of the document instance, contexts outside the document instance may omit the topic id when referring to the topic element (as in `topicfile.xml`). If the target contains multiple peer topics organized by a `<dita>` element (as in the ditabase document type), then the reference is resolved to the first topic in the target, except in the case of `topicrefs` being resolved as inclusion directives (for example during PDF output), in which case the entire target file is included, regardless of whether a specific topic is targeted.

The topic id can be referenced by other elements, including `topicrefs`, `links`, `xrefs`, or `conrefs` to the topic, as well as being used as part of references to the topic content.

The id attribute for DITA topics is of type ID in XML, and so must be unique within the document instance.

Element IDs within a topic

Because topic content is always contained within a topic, the id attribute for a topic content element must be unique only within the one topic that immediately contains it. This approach ensures maintainable references to content because the identifier remains valid so long as the document instance, topic, and content exist. The position of the content within the topic and the position of the topic within the document instance can change without invalidating the content identifier. In addition, this approach avoids the need to rewrite topic content ids to avoid naming collisions when aggregating topics.

The id is optional and need be added only to make the content referenceable.

The complete identifier for topic content consists of the combination of the complete identifier for the topic, a separating solidus (`/`), and the topic content id (as in `http://some.org/some/directory/topicfile.xml#topicid/contentid`). As noted before, the topic identifier portion can use a relative URI for the document instance in contexts where the relative URI can be resolved (as in `some/directory/topicfile.xml#topicid/contentid`).

The containing topic id must always be included when referencing an element id. Otherwise, a reference to another topic couldn't be distinguished from a reference to an element within the same topic. For references within the same document instance, the identifier for the document instance can be omitted altogether (as in #topicid/contentid).

The id attribute for elements within DITA topics is not of type ID and is not required to be unique within a document, although it should be unique within the topic.

Map IDs and element IDs within a map

For a map, the id of an element should be unique within the document instance. This approach ensures that these elements can be referenced outside the map without qualification by the map id.

For the anchor element, which exists only to identify a position within a map as a target for references, the id attribute is required. For the other elements, the id attribute is optional.

The complete identifier for a map element consists of the combination of the absolute URI for the map document instance and the element id (as in `http://some.org/some/directory/mapfile.xml#topicrefid`).

The id attributes for maps and anchors are of type ID and are required to be unique within the document instance. The id attributes for other elements in map are not of type ID and are not required to be unique.

Navigation behaviors

The following behaviors support the creation of reader navigation to or across DITA topics.

Tables of contents (TOCs)

Generated from DITA maps; can be compiled from multiple DITA maps. Parts of maps can be omitted from the generated TOC using the toc attribute.

Related links

Authored in individual topics, or generated from maps. Map-generated linking can be controlled using the linking attribute.

Indexing

Generated from index entries occurring in topic bodies, topic prologs, or DITA maps.

Content inclusion (conref)

The DITA conref attribute provides a mechanism for reuse of content fragments. The conref attribute stores a reference to another element and is processed to replace the referencing element with the referenced element.

The element containing the content reference acts as a placeholder for the referenced element. The identifier for the referenced element must be either absolute or resolvable in the context of the referencing element. (See "IDs and references" on page 41 for the details on identifiers.)

More formally, the DITA conref attribute can be considered a transclusion mechanism. In that respect, conref is similar to XInclude as well as HyTime value references. DITA differs from these mechanisms, however, by comparing the constraints of each context to ensure the ongoing validity of the replacement content in its new context. In other words, conref validity does not apply simply to the current content at the time of replacement, but to the ranges of possible content given the constraints of the two document types. A valid conref processor does not allow the resolution of a reuse relationship that could be rendered invalid under the rules of either the reused or reusing content.

If the referenced element is the same type as the referencing element and the list of domains in the referenced topic instance (declared on the domains attribute) is the same as or a subset of the list of domains in the referencing document, the element set allowed in the referenced element is guaranteed to

