

Review L: DITA linking

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1 DITA linking

DITA supports many different linking elements, but they all use the same set of attributes: `@format`, `@href`, `@scope`, and `@type`. These four attributes act as a unit.

1.1 The `@format` attribute

The `@format` attribute identifies the format of the **referenced resource**.

The following values are explicitly supported:

dita

Indicates that the target is a DITA topic or an element in a DITA topic. Unless otherwise specified, when `@format` is set to "dita", the value for the `@type` attribute is treated as "topic".

ditamap

Indicates that the target is a DITA map. References to submaps can occur at any point in a map.

When a topic reference specifies `format="ditamap"`, the topic reference resolves in one of the following ways:

Target of <code><topicref></code>	Resolution of <code><topicref></code>
DITA map	The hierarchy of all the topic references in the targeted map
Map branch	The hierarchy of the targeted map branch

In either case, the final result is equivalent to inserting those topic references at the current point in the map that contains the topic reference that specifies `format="ditamap"`.

When a topic reference targets an entire DITA map and the referenced map contains a relationship table, there are special processing implications. Because relationship tables are only valid as direct children of the DITA map, referenced relationship tables are treated as children of the referencing map.

Comment by Kristen J Eberlein on 03 March 2022

I think we need to have an example of the expected processing behaviour. I think it is a good candidate for the new chapter on "DITA map processing".

Note If a `<topicref>` element that references a map contains child `<topicref>` elements, the processing behavior regarding the child `<topicref>` elements is undefined.

For other formats, the file extension without the "." character typically represents the format. For example, the following are all possible values for `@format`: "html", "pdf", or "txt".

If no value is explicitly specified for the `@format` attribute, the following precedence rules apply:

1. If the `@format` attribute is specified on a containing element within the map or within the related-links section of **a topic**, the value cascades from the closest containing element.
2. If a value for the `@format` attribute does not cascade, the processing default is used. The processing default for the `@format` attribute is determined by inspecting the value of the `@href` attribute:

- a. If the `@href` attribute specifies a file extension, the processing default for the `@format` attribute is that extension, after conversion to lower-case and with no leading period. The only exception to this is if the extension is `.xml`, in which case the default value for `@format` is "dita".
- b. If there is no file extension, but the `@href` value is an absolute URI whose scheme is "http" or "https", then the processing default is "html".
- c. In all other cases where no file extension is available, the processing default is "dita".

001 (7)

If the actual format of the referenced content differs from the effective value of the `@format` attribute, and a processor is capable of identifying such cases, it **MAY** recover gracefully and treat the content as its actual format. The processor **MAY** also issue a message.

For processors that support Lightweight DITA, the following table summarizes values for the `@format` attribute:

Document type	Value of the <code>@format</code> attribute	Description
Map	hditamap	HDITA map
	mditamap	MDITA map
	xditamap	XDITA map
Topic	hdita	HDITA topic
	mdita	MDITA topic
	xdita	XDITA topic

1.2 The `@href` attribute

The `@href` attribute specifies the URI of the resource that is addressed. **The referenced resource can be another DITA topic or map, an element inside a DITA topic or map, or a non-DITA resource.**

002 (7)

The value of the `@href` attribute **MUST** be a valid URI reference [RFC 3986]. If the value of the `@href` attribute is not a valid URI reference, an implementation **MAY** generate an error message. It **MAY** also recover from this error condition by attempting to convert the value to a valid URI reference.

The value of the `@href` attribute can optionally contain a fragment identifier.

When an `@href` attribute references a DITA resource using a URI without a fragment identifier, the URI resolves to the root element in the referenced document. For the purposes of rendering, such as when a topic reference to a DITA document is used to render the content as HTML, this means that **all** topics in the target document are included in the reference. For the purpose of linking, the reference resolves to the first topic in the document.

When an `@href` attribute references a DITA resource using a URI with a fragment identifier, the portion after the hash must be a DITA local identifier. A DITA local identifier takes the following forms:

Target	Syntax
Topic element	<i>topicID</i>
Element in a topic	<i>topicID/elementID</i>
Element in a map	<i>mapElementID</i>

Where:

- *topicID* is the value of the @id attribute of the DITA topic. If the topic referenced by a DITA local identifier is the same topic that includes the reference, then *topicID* can be replaced by a period.
- *elementID* is the value of the @id attribute of the **non-topic** element within a DITA topic.
- *mapElementID* is the value of the @id attribute of the element within a DITA map document.

See [Processing xrefs and conrefs within a conref](#) for more information on how this syntax relates to conref resolution.

Example: Common syntax for the @href attribute

The following table includes some examples of common @href syntax. Note that these examples represent only a few common scenarios and are not all-inclusive.

Target	Syntax
The first topic in a DITA document	href="file.dita"
A specific topic in a DITA document	href="file.dita# <i>topicid</i> "
A non-topic element inside a DITA topic	href="file.dita# <i>topicid</i> / <i>elementid</i> "
A non-topic element inside the same DITA topic as the reference	href="#./ <i>elementid</i> "
An element in a DITA map	href="myMap.ditamap# <i>map-branch</i> "
An image	href="exampleImage.jpg"
An external resource	href="http://www.example.org"

where:

- *topicid* is the value of the @id attribute on the referenced DITA topic.
- *elementid* is the value of the @id attribute on the referenced (non-topic) DITA element.
- *map-branch* is the value of the @id attribute on the referenced DITA map element.

1.3 The @scope attribute

The @scope attribute identifies the closeness of the relationship between the current document and the target resource.

The @scope attribute takes the following values:

external

Indicates that the resource is not part of the current **set of content**.

local

Indicates that the resource is part of the current set of content.

peer

Indicates one of the following:

- The resource is part of the current set of content, but it might not **be** accessible at build time.
- The resource should be treated as a root map for the purpose of creating map-to-map key references (peer maps).

-dita-use-conref-target

See [Using the -dita-use-conref-target value](#) for more information on "-dita-use-conref-target"

If no value is specified for the @scope attribute, the following considerations apply:

- If the `@scope` attribute is specified on a containing element within a map or within the related-links section, the value cascades from the closest containing element.
- In most cases, the processing default is "local". However the processing default is "external" whenever the absolute URI in the `@href` attribute begins with one of the following schemes: "http", "https", "ftp", or "mailto"

003 (7)

For the `@scope` attribute, processors can consider additional URI schemes as "external" by default. Processors **MUST** always consider relative URIs as "local" by default.

1.4 The `@type` attribute

On linking elements, the `@type` attribute describes the target of a reference. The `@type` attribute is also used on several non-linking elements for other purposes.

This topic describes how to interpret the `@type` attribute when it is used on linking elements. Usage information for the `@type` attribute on other elements, such as `<note>` or `<copyright>`, is described in the element reference topics for those elements.

If the `@type` attribute is specified on a linking element that references DITA content, the attribute value should reflect the `@class` attribute of the referenced element. The value can be an unqualified local name, for example, "fig", or a qualified name exactly as specified in the `@class` attribute, for example, "topic/fig". Processors might ignore qualified names or consider only the local name.

If not explicitly specified on an element, the `@type` attribute value cascades from the closest containing element. If there is no explicit value for the `@type` attribute specified on an ancestor element, the processor should retrieve the type from the target resource, if it is available. If the type cannot be determined, the processing default is "topic".

004 (7)

Applications **MAY** issue a warning when the specified or inherited `@type` attribute value does not match the target or a specialization ancestor of the target. Applications **MAY** recover from this error condition by using the correct value detected.

Only the `<xref>` element can link to content below the topic level. The other linking elements only can link to topics.

The following table lists values for the `@type` attribute that are commonly used on `<xref>` elements:

Value	Target element
fig	<code><fig></code>
fn	<code><fn></code>
li	<code></code>
section	<code><section></code>
table	<code><table></code>

An application might generate cross-reference text that is based the value of the `@format` attribute.

"-dita-use-conref-target" is also a valid value for the `@type` attribute. See [Using the -dita-use-conref-target value](#) for more information.

A Aggregated RFC-2119 statements

This appendix contains all the normative statements from the DITA 2.0 specification. They are aggregated here for convenience in this non-normative appendix.

Item	Conformance statement
001 (4)	If the actual format of the referenced content differs from the effective value of the <code>@format</code> attribute, and a processor is capable of identifying such cases, it MAY recover gracefully and treat the content as its actual format. The processor MAY also issue a message.
002 (4)	The value of the <code>@href</code> attribute MUST be a valid URI reference [RFC 3986]. If the value of the <code>@href</code> attribute is not a valid URI reference, an implementation MAY generate an error message. It MAY also recover from this error condition by attempting to convert the value to a valid URI reference.
003 (6)	For the <code>@scope</code> attribute , processors can consider additional URI schemes as "external" by default. Processors MUST always consider relative URIs as "local" by default.
004 (6)	Applications MAY issue a warning when the specified or inherited <code>@type</code> attribute value does not match the target or a specialization ancestor of the target. Applications MAY recover from this error condition by using the correct value detected.

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