

# DITA Specialization using FrameMaker

## What is specialization?

Specialization is the process by which new designs are created based on existing designs, allowing new kinds of content to be processed using existing processing rules. 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.

FrameMaker provides special handling for many objects in DITA like Table, Image, Title, Indexterm, Xref etc. so when we specialize any such element which have some special handling, same handling should be available for it. E.g. When we insert a crossref in any DITA document (xref or fm-xref element from element catalog or Special->Cross Reference), DITA-Cross reference dialog shows up. Same should happen if we insert any specialized xref element in any DITA document and name of specialized element should also show in DITA <xref> Element drop down.

## Types of specialization

Specialization can be broadly categorised into two types

- Structural Specialization
- Domain Specialization

Structural specialization defines new types of structured information, such as new topic types or new map types. Structural types define structures for modules of information, such as concept or task or reference, which often apply across subject areas. When doing structural specialization we generally create new specialized elements from top (Map or Topic) and then create specialization till the element required so essentially with structured specialization, we create a whole new hierarchy e.g. if we have to create a new structurally specialized UIControlWindow element for uicontrol element, we should create Specialization of Topic, body, p, uicontrol elements.

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. Domains typically define markup for a particular domain or subject area, such as programming, or hardware. Domain elements become available wherever their ancestor elements are allowed once the domains are integrated with the structural specializations in a document type. E.g. if we create domain specialized table element "DTable", it should be available wherever table element is, in the element hierarchy.

*NOTE: We dont support attribute based specialization in FrameMaker.*

## How to specialize DITA elements in FrameMaker

When we are specializing DITA elements, the most important and tedious process is defining the new specializing elements and deciding where they will fit in the existing DITA hierarchy. Some times we can get carried away and specialize elements more than what's required or can create crude specializations. So most effort should be put in carefully designing the specialized elements required and should avoid creating specialized elements when the existing elements could suffice. Once we have the list of elements we want and defined where they will fit in the existing DITA elements hierarchy, 75% task is done and rest is moreover following the following mechanical steps.

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### TASK

1. Create new set of DTD's defining the new set of elements derived, from existing element types.  
*ADDITIONAL INFORMATION:* [See this](#)
2. Combine the specialized DTD's into a base dtd.
3. Create a new Read Write Rule file using the existing standard Topic/Map read write rule file and add the element mappings for specialized elements derived from DITA elements, which have some mappings defined. Its like if we have any declaration in read write rule file for the base element and we want the element derived from that to have similar functionality, we need to add the same declaration for child element as well e.g. If we have mapped DITA image element to FrameMaker Graphic element then the specialized image element need to have same declaration in read write rule file to have special image handling. If there is unwrap statement for any element, then elements derived from that should be unwrapped as well.
4. Import the base DTD as EDD in FrameMaker using the read write rule file and DTDs created in step 1-3.
5. Check the class attributes of all the specialized elements in EDD. The correct element hierarchy should be created from the base element to the specialized one. Its the only criteria for Frame to map specialized element to its parent element.

6. Make FrameMaker specific changes in the EDD file as listed below
  - For topic specialization :-
    - a Copy All the elements starting from “FM-” from standard Topic EDD to the New EDD generated. These are all FrameMaker specific elements which are declared to handle special objects like table, crossref, image etc.
    - b Change the content model of element properties to “fm-propheading?, fm-propertybody+”.
    - c Change the content model of element choicetable to “chhead, fm-chbody” and simpletable to “sthead, fm-stbody”.
    - d Change the content model of sthead to “fm-stheadrow” and chhead to “fm-chheadrow”.
    - e Add fm-xref element to the content model of xref, syntaxdiagram, synblk, groupseq, groupchoice, groupcomp and fragment elements and all the elements where xref is valid. We need to do the same for specialized xref elements as well i.e. wherever any element of type xref is allowed, fm-xref should also be allowed.
    - f Add fm-linktext where ever linktext or any specialization of linktext is allowed.
    - g Hide the elements fm-graphic, alt, index-base, index-see, index-see-also and index-see-also using conditional tag.
  - For Map specialization :-
    - a Change the content model of reltable to (fm-reltablemeta)?,(relheader)?,(fm-reltablebody).
    - b Change the content model of relheader to (fm-relheaderrow).
    - c Copy elements fm-relheaderrow and fm-reltablebody from standard Map edd to current EDD.
    - d Add fm-topicreflabel to content model of topicref.
7. Copy the element formatting of standard DITA elements from the default DITA Topic/map EDD to the new EDD and also define the formatting rules for the new specialized elements.
8. Import EDD into new template file, import paragraph and character formats from standard DITA template into this new template and create new structured application for specialized elements using the template, read write rule and the integrated DTD file created from step 1-7. Add new topic type as doctype in the application definition and also replace the name of ditabase.dtd with the new integrated DTD created in step1. We also need to change the value of ‘writer external dtd’ in the read write rule file to the new integrated dtd name.

9. Change the new application name in DITA option dialog (DITA-Topic Application, DITA Map Application) and click on save.
  10. You should be able to see your specialized Topic/Map in the DITA->New DITA file submenu. Start authoring. Its simple :)
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## DITA elements with special handling in FrameMaker for specialization

For special elements like table, image, indexterm, footnote etc. the EDD contains special information denoting its type. All specialized elements for such special elements should also have corresponding information in EDD then only the special handling can be provided to the specialized elements. Following is the list of elements with special handling and the needful for specialization

- 1) topicref:- User should include fm-topicreflabel as the valid first element in the general rule of its specialized topicrefs. The functionalities like update reference, open all topicref, conref topic ref, navtitle update etc. are also available for specialized topicrefs.
- 2) indexterm:- If indexterm import and export processing is ON in DITA options then the nesting of indexterm and Index-see, index-see-also, index-sort-as processing etc. is also available for specialized indexterms.
- 3) table/simpletable/retable/choicetable:-DITA table elements doesn't contain numCols and colWidth properties which need to be set explicitly in ditafm.ini for retable/simpletable and for elements specialized from them. While specializing retable, simple table etc., user need to add elements parallel to fm-reltablemeta, fm-chtheadrow etc with similar structure in the EDD file (as we have for standard elements) and need to make similar declarations in read write rule file for the new elements. When we insert specialized table/simpletable/retable elements, the name of specialized elements also appears in insert table dialog.
- 4) topic/map:- If correct specialized topic/map application is set in DITA options, the specialized topic/map name appears in DITA->New DITA file submenu. Composite FM doc/ Book with FM doc etc functionality is available for the specialized topics as well.
- 5) image/alt:-We need to make declaration in read write rule file for specialized image element to work as Frame graphic object. We don't support specialization of alt element.
- 6) xref/link:- When a specialization of xref element is created, in the EDD file, we need to make element fm-xref available wherever the specialized xref is available. When we insert specialized xref/link element in DITA

document, DITA-CROSS REFERENCE dialog opens and name of specialized xref/link element is available as DITA <xref/link> element.

- 7) linktext:- We need to add fm-linktext in the EDD, as a valid choice, at all occurrences of specialized linktext element.
- 8) prolog/draft-comment:- If the DITA option for conditionalize prolog/comments on file open is selected, then the specializations of prolog and draft-comment elements are conditionalized as well.
- 9) fn:- We need to declare specialized fn element as footnote in read write rules file.

*NOTE: For all the above elements with some special handling, empty class attribute is allowed for the base element.*