DITA 1.3 proposed feature 13097, stage 2

Contents

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Proposal to add a new troubleshooting topic type.

Date and version information

Include the following information:

- First draft of proposal completed on 4/25/2012
- Second draft of proposal completed on 6/25/2013

Original requirement or use case

In 2012, the Technical Communications Subcommittee collected use cases from HP, Cisco, and Avaya.

Use cases

A troubleshooting topic describes how to troubleshoot a particular problem a user has encountered. This topic typically contains the following sections, in the order shown:

1. Problem statement.
2. Possible cause.
3. Recommended solution.

In cases where there is more than one possible cause, it is typical to find a recommended solution associated with each cause. In this scenario, writers successively present a possible cause and its corresponding solution. Usually these cause-solution pairs will be presented according to how likely the cause is to occur. One exception to this order would be when one of the solutions was much easier to perform than the others.

In addition to troubleshooting, this same semantic pattern exists alarm clearing, event handling, and error response documentation.

Proposed solution

Add a new topic type named <troubleshooting> that contains the standard topic elements including a specialization of <body> called <troublebody>. The <troublebody> element will begin with an optional <condition> element followed by a repeatable mix of the <cause>, <remedy>, and <troubleSolution> elements. The <troubleSolution> element will be a wrapper that contains an optional mix of <cause> and <remedy>. The <troubleSolution> facilitates reuse and indicates that <cause> and <remedy> belong together. Both <condition> and <cause> will have content models that are identical to <section>. The <remedy> content model will have the same content model as <section>, plus it will also have the <steps> element and the <steps-unordered> element added to the block mix, along with a new element named <responsibleParty> (a specialization of topic/p).

This content model will permit troubleshooting scenarios with a series fallback cause-remedy pairs to be documented within a single topic. When a series of cause-remedy pairs exists, each pair should be wrapped inside of a<troubleSolution> element. Implementors may wish to impose a constraint that requires the <troubleSolution> wrapper in all cases.

The content model will use the %troubleshooting-info-types; parameter entity to allow <task> topics to be embedded in troubleshooting after <troublebody>. This structure is allowed to facilitate reuse of task topics in their entirety within troubleshooting information. When a task is subordinate to a troubleshooting topic, the <cause> information would be placed in the task’s <context> element and the <remedy> would be placed in the task’s <steps> element.

Note:

Use the new semantic <cause> and <remedy> elements in preference to subordinating <task> elements whenever possible.

The IBM troubleshooting specialization could be redefined to inherit from this specialization because both <condition> and <cause> are isomorphic with <section>. The <responsibleParty> element in <remedy> can serve as a target for metadata from the IBM troubleshooting specialization. See *IBM troubleshooting—Migration considerations*.

New elements

Element	Purpose
<cause>	Describes a possible cause for the <condition> or for a <troubleSolution>. This element inherits from <section>, and its content model is the same as <section>.
<condition>	This optional, first-child of <troublebody> describes the condition or symptom associated with the some undesirable state in a system, a product, or a service. This element is optional because the topic title may have already sufficiently connoted the condition. This element inherits from <section>, and its content model is the same as <section>.
<remedy>	Describes a possible remedy for the <condition> or for a <troubleSolution>. This element inherits from <section>, and its content model is the same as <section> with the addition of <responsibleParty>, <steps>, and <steps-unordered> to the <section> mix.
<responsibleParty>	A metadata element that identifies the party responsible for performing a remedy. This element is available as child to <remedy>. This element inherits from <p>, and its content model is the same as <p>.
<troublebody>	The body element for the troubleshooting topic. This element inherits from <body>, and its content model follows the design pattern for body elements.
<troubleSolution>	A wrapper element for <cause> and <remedy> that can appear wherever <cause> or <remedy> are allowed. Use <troubleSolution> to signify cause-remedy pairs. <troubleSolution> facilitates reuse of common cause-remedy pairs across a number of topics. This element inherits from <bodydiv>, and its content model follows the design pattern for bodydiv elements.
<troubleshooting>	The topic element for the troubleshooting topic. This element inherits from <topic>, and its content model follows the design pattern for topics.

Benefits

This topic type allows writers to deal with all causes and solutions for a trouble condition from within a single topic. Incorporating the semantics pertinent to troubleshooting into a topic type nudges the writers into a mind-set that is appropriate for writing this sort of content. These specific semantics also reduce the chances of arbitrary inconsistencies from occurring from one topic to the next.

In addition to troubleshooting information, the proposed <troubleshooting> topic will also accommodate alarm clearing, error response, and event handling information.

Technical requirements

Provide a detailed description of how the solution will work. Be sure to include the following details:

DTD and Schema modifications	**Topic or map specialization**	<troubleshooting> specializes <topic>
	Domain	None

Element <troublebody> specializes <body>, <troubleSolution> specializes <bodydiv>, <condition> and <cause> specialize <section> (name change only—same content model), <remedy> specializes section by adding <steps> and <steps-unordered> from <task> to the <section> content model. The <remedy> content model also contains <responsibleParty> which specializes <data> from <topic>.

Attributes None

Processing impact None for DITA-compliant applications

Overall usability This proposal would improve usability more than damage it.

Pro Writers have all of the structure necessary to document troubleshooting scenarios that have successive fallbacks. Introducing the semantics of troubleshooting into the tag set subtly, but significantly, changes the mind-set of the writers to one that is better focused on creating troubleshooting topics.

Con This is a new topic type, so the same overhead needed for other topic types would also be incurred here. Users will need to learn the semantic intent of these specialized elements.

Costs

The impact would be as follows

- Maintainers of the DTDs and XSDs would have to add a new topic type along with its specialized descendants.
- The DITA specification would have to have <troubleshooting> and its specialized descendants added to the element reference and the language specification.
- Vendors of tools: XML editors, component content management systems, processors, would have to add catalog support for a new topic type.
- DITA community-at-large would perceive this change as an improvement.

Examples

```
<troubleshooting id="nologon">
  <title>Cannot log on</title>
  <shortdesc>Login attempts have failed</shortdesc>
  <troublebody>
    <condition>
      <p>The system will not accept your login credentials.</p>
    </condition>
    <troubleSolution>
      <cause>
        <title>Caps Lock</title>
        <p>Caps Lock key may be on.</p>
      </cause>
      <remedy>
        <title>Fix</title>
        <p>Verify that the Caps Lock key is off.</p>
      </remedy>
    </troubleSolution>
    <troubleSolution>
      <cause>
        <title>Password</title>
        <p>The password you are using might not match the one stored in the
system.</p>
      </cause>
      <remedy id="gotoaccountmanagement">
```

```
        <title>Fix</title>
        <steps>
          <step>
            <cmd>Open a Web browser window</cmd>
          </step>
          <step>
            <cmd>Go to <xref href="http://your.itdept.com/reset.html"
scope="external" format="html"
                >Account management</xref>, and follow the instructions</
cmd>
          </step>
        </steps>
      </remedy>
    </troubleSolution>
    <troubleSolution>
      <cause>
        <title>Account name</title>
        <p>The account name you are using might not match one stored in the
system.</p>
      </cause>
      <remedy conref="#nologon/gotoaccountmanagement"/>
    </troubleSolution>
  </troublebody>
</troubleshooting>
```

Original use cases

Avaya use case

Troubleshooting topic

In our model, a troubleshooting topic describes a problem and provides information on how to correct it. This information typically has the following structure:

1. Problem statement
2. Possible cause (one or more). This is optional--some writers include this information in the problem statement.
3. Recommended solution (one or more)

Today, we have one topic that describes the problem and one or more separate task topics that provide the possible solutions. We originally tried a specialization but had issues. So today we nest the task topic(s) with the resolution steps under the problem description topic and then we use attributes to control the appearance in outputs. Not ideal at all—we'd really prefer a single troubleshooting topic.

Cisco use case

Troubleshooting topic

A troubleshooting topic describes how to troubleshoot a particular problem a user has encountered. This topic typically contains the following sections, in the order shown:

1. Problem statement
2. Possible cause (one or more)
3. Recommended solution (one or more)

A variation of this, which is arguably more user-friendly, is the following, which groups the cause and solution sections together:

1. Problem statement

2. Resolution path (one or more)

Each "resolution path" comprises one "possible cause" followed by one or more "recommended solutions".

HP use cases

Problem-solving information Based on the Hewlett Packard Editorial Design System, circa 1990

The Problem modules have three styles:

1. Checkstep – for checking several possible causes of a problem
2. Message – for explaining error and other messages
3. Symptom – for identifying a problem from a set of symptoms

Basic structure

Module head	Conditional phrase
Introduction	Optional
Action	First action
Explanation	Explanation of the action
Action	Second action
Explanation	Explanation of the action (and so on)

Checkstep Module

Purpose: Diagnose and solve problems that have a single obvious symptom and multiple possible causes.

Checksteps are action steps telling the user what to check among possible causes. The following explanation gives more details about the problem and may include a numbered or bulleted list of instructions. If the solution is obvious, the explanation may be omitted.

Module head	If the power indicator is OFF and the unit appears dead
Introduction	[none]
Action	Check that the power cord is connected ….
Action	Check that the front-panel switch is on.
Action	Check that the voltage selection switch is set properly.
Explanation	See “To set the voltage selection switch” on page 14.
Action	Check that the fuse is good.
Explanation	The fuse holder is located on the lower right corner … It is a 3-ampere, 250-volt … . This fuse may be used for either line voltage selection: 115 or 230 volts AC. To check and change the fuse: 1. Turn the power switch … 2. Verify that you have unplugged … 3. Unscrew the fuse … 4. Remove the fuse … 5. Replace the fuse … 6. Switch power On
Action	Call HP Services if necessary

Message Module

Purpose: Explain a message that the product displays.

Since users may need help diagnosing a message and solving a problem, message modules may include instructions. The module head is the text of a group of messages, followed by individual message name, descriptions, and explanations. The explanations may included numbered or bulleted lists and reference to more detailed steps. If the solution is obvious, no instructions are necessary.

Module head 1-2-3 objects

Introduction The following messages may appear as you work with a 1-2-3 object.

Message You have entered an incorrect cell or range name.

Explanation The cell name must be a cell. …

Message The number you enter must be between 0 and 200.

Explanation The maximum number of objects. …

Message The destination window Is full.

Explanation The maximum number of objects. … To remove objects from a window that is full:

1. Open the window.
2. Drag one or more objects to another window. …

Message You entered an incorrect time zone value.

Explanation Time zone values must be entered as follows:

The hour …
The sign …
The minutes …

If you do not know which time zone value to use…. See “To change your user name” in the …

Symptom Module

Purpose: Help users solve a problem that has a complex set of symptoms and a clearly defined cause.

The symptom block lists a set of symptoms that define the problem. It may include illustrations, graphs, screen shots, text, etc. The introduction defines the cause of the problem. The text after the symptom block may include numbered or bulleted lists of instructions to solve the problem.

Module head If the column bleeds

Introduction High temperature can drive the column. …

Symptoms Graph

Shape of the baseline rises	The baseline remains level until. …
Spectrum	A spectrum of the baseline. ….
Isothermal run	No
Temperature-programmed run	No

Explanation To solve this problem:

Use cross-linked …
Be aware of the …

Proposed implementation

Listing: troubleshooting.dtd

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- ============================================================= -->
<!--                    HEADER                                     -->
<!-- ============================================================= -->
<!--  MODULE:    DITA Troubleshooting DTD                          -->
<!--  VERSION:   1.2                                               -->
<!--  DATE:      March 2012                                        -->
<!--                                                               -->
<!-- ============================================================= -->

<!-- ============================================================= -->
<!--                    PUBLIC DOCUMENT TYPE DEFINITION            -->
<!--                    TYPICAL INVOCATION                         -->
<!--                                                               -->
<!--  Refer to this file by the following public identifier or an
      appropriate system identifier
PUBLIC "-//OASIS//DTD DITA Troubleshooting//EN"
      Delivered as file "troubleshooting.dtd"                      -->

<!-- The public ID above refers to the latest version of this DTD.
     To refer to this specific version, you may use this value:
PUBLIC "-//OASIS//DTD DITA 1.2 Troubleshooting//EN"                -->

<!-- ============================================================= -->
<!-- SYSTEM:     Darwin Information Typing Architecture (DITA)     -->
<!--                                                               -->
<!-- PURPOSE:    DTD to describe DITA Troubleshooting topics       -->
<!--                                                               -->
<!-- ORIGINAL CREATION DATE:                                       -->
<!--             March 2012                                        -->
<!--                                                               -->
<!--             (C) Copyright OASIS Open 2012.                    -->
<!-- ============================================================= -->


<!-- ============================================================= -->
<!--                    TOPIC ENTITY DECLARATIONS                  -->
<!-- ============================================================= -->

<!ENTITY % troubleshooting-dec
  PUBLIC "-//OASIS//ENTITIES DITA 1.2 Troubleshooting//EN"
         "troubleshooting.ent"
>%troubleshooting-dec;

<!-- ============================================================= -->
<!--                    DOMAIN ENTITY DECLARATIONS                 -->
<!-- ============================================================= -->


<!ENTITY % hi-d-dec
  PUBLIC "-//OASIS//ENTITIES DITA 1.2 Highlight Domain//EN"
         "../../base/dtd/highlightDomain.ent"
>%hi-d-dec;

<!ENTITY % ut-d-dec
  PUBLIC "-//OASIS//ENTITIES DITA 1.2 Utilities Domain//EN"
         "../../base/dtd/
```

```
utilitiesDomain.ent"
>%ut-d-dec;

<!ENTITY % indexing-d-dec
  PUBLIC "-//OASIS//ENTITIES DITA 1.2 Indexing Domain//EN"
         "../../base/dtd/
indexingDomain.ent"
>%indexing-d-dec;

<!ENTITY % hazard-d-dec
  PUBLIC "-//OASIS//ENTITIES DITA 1.2 Hazard Statement Domain//EN"
         "../../base/dtd/hazardstatementDomain.ent"
>%hazard-d-dec;

<!ENTITY % abbrev-d-dec
  PUBLIC "-//OASIS//ENTITIES DITA 1.2 Abbreviated Form Domain//EN"
         "abbreviateDomain.ent"
>%abbrev-d-dec;

<!ENTITY % pr-d-dec
  PUBLIC "-//OASIS//ENTITIES DITA 1.2 Programming Domain//EN"

"programmingDomain.ent"
>%pr-d-dec;

<!ENTITY % sw-d-dec
  PUBLIC "-//OASIS//ENTITIES DITA 1.2 Software Domain//EN"

"softwareDomain.ent"
>%sw-d-dec;

<!ENTITY % ui-d-dec
  PUBLIC "-//OASIS//ENTITIES DITA 1.2 User Interface Domain//EN"

"uiDomain.ent"
>%ui-d-dec;

<!-- ============================================================= -->
<!--                    DOMAIN ATTRIBUTE DECLARATIONS              -->
<!-- ============================================================= -->


<!-- ============================================================= -->
<!--                    DOMAIN EXTENSIONS                          -->
<!-- ============================================================= -->
<!--                    One for each extended base element, with
                        the name of the domain(s) in which the
                        extension was declared                     -->

<!ENTITY % pre          "pre |
                         %pr-d-pre; |
                         %sw-d-pre;|
                         %ui-d-pre;
                        ">
<!ENTITY % keyword      "keyword |
                         %pr-d-keyword; |
                         %sw-d-keyword; |
                         %ui-d-keyword;
                        ">
<!ENTITY % ph           "ph |
                         %hi-d-ph; |
                         %pr-d-ph; |
                         %sw-d-ph; |
                         %ui-d-ph;
                        ">
<!ENTITY % term         "term |
                         %abbrev-d-term;
                        ">
<!ENTITY % fig          "fig |
                         %pr-d-fig; |
                         %ut-d-fig;
                        ">
<!ENTITY % dl           "dl |
                         %pr-d-dl;
                        ">
<!ENTITY % index-base   "index-base |
                         %indexing-d-index-base;
                        ">
<!ENTITY % note         "note |
                         %hazard-d-note;
                        ">

<!-- ============================================================= -->
<!--                    DOMAIN ATTRIBUTE EXTENSIONS                -->
<!-- ============================================================= -->
<!ENTITY % props-attribute-extensions  ""                            >
<!ENTITY % base-attribute-extensions   ""                            >


<!-- ============================================================= -->
<!--                    TOPIC NESTING OVERRIDE                     -->
<!-- ============================================================= -->

<!--                    Redefine the infotype entity to exclude
                        other topic types and disallow nesting     -->
<!ENTITY % troubleshooting-info-types
                        "task"                                       >


<!-- ============================================================= -->
<!--                    DOMAINS ATTRIBUTE OVERRIDE                 -->
<!-- ============================================================= -->
<!--                    Must be declared ahead of the DTDs, which
                        puts @domains first in order               -->

<!ENTITY included-domains
                          "&troubleshooting-att;
                           &hi-d-att;
                           &ut-d-att;
                           &indexing-d-att;
                           &hazard-d-att;
                           &abbrev-d-att;
                           &pr-d-att;
                           &sw-d-att;
                           &ui-d-att;
                           &taskbody-constraints;
  "
>

<!-- ============================================================= -->
<!--                    CONTENT CONSTRAINT INTEGRATION             -->
<!-- ============================================================= -->

<!ENTITY % strictTaskbody-c-def
  PUBLIC "-//OASIS//ELEMENTS DITA 1.2 Strict Taskbody Constraint//EN"
  "strictTaskbodyConstraint.mod">
%strictTaskbody-c-def;
```

```
<!-- ============================================================= -->
<!--                    TOPIC ELEMENT INTEGRATION                  -->
<!-- ============================================================= -->

<!--                    Embed topic to get generic elements        -->
<!ENTITY % topic-type   PUBLIC
"-//OASIS//ELEMENTS DITA 1.2 Topic//EN"
"../../base/dtd/topic.mod">
%topic-type;

<!--            Embed troubleshooting to get specific elements     -->
<!ENTITY % troubleshooting-typemod
                        PUBLIC
"-//OASIS//ELEMENTS DITA 1.2 Troubleshooting//EN"
"troubleshooting.mod">
%troubleshooting-typemod;


<!-- ============================================================= -->
<!--                    DOMAIN ELEMENT INTEGRATION                 -->
<!-- ============================================================= -->


<!ENTITY % hi-d-def
  PUBLIC "-//OASIS//ELEMENTS DITA 1.2 Highlight Domain//EN"
         "../../base/dtd/highlightDomain.mod"
>%hi-d-def;

<!ENTITY % ut-d-def
  PUBLIC "-//OASIS//ELEMENTS DITA 1.2 Utilities Domain//EN"
         "../../base/dtd/utilitiesDomain.mod"
>%ut-d-def;

<!ENTITY % indexing-d-def
  PUBLIC "-//OASIS//ELEMENTS DITA 1.2 Indexing Domain//EN"
         "../../base/dtd/indexingDomain.mod"
>%indexing-d-def;

<!ENTITY % hazard-d-def
  PUBLIC "-//OASIS//ELEMENTS DITA 1.2 Hazard Statement Domain//EN"
         "../../base/dtd/hazardstatementDomain.mod"
>%hazard-d-def;

<!ENTITY % abbrev-d-def
  PUBLIC "-//OASIS//ELEMENTS DITA 1.2 Abbreviated Form Domain//EN"
         "abbreviateDomain.mod"
>%abbrev-d-def;

<!ENTITY % ui-d-def
  PUBLIC "-//OASIS//ELEMENTS DITA 1.2 User Interface Domain//EN"
         "uiDomain.mod"
>%ui-d-def;

<!ENTITY % pr-d-def
  PUBLIC "-//OASIS//ELEMENTS DITA 1.2 Programming Domain//EN"
         "programmingDomain.mod"
>%pr-d-def;

<!ENTITY % sw-d-def
  PUBLIC "-//OASIS//ELEMENTS DITA 1.2 Software Domain//EN"
         "softwareDomain.mod"
>%sw-d-def;

<!-- Call task.mod to make available <steps> and its descendents  -->
```

```
<!ENTITY % task-typemod PUBLIC
"-//OASIS//ELEMENTS DITA 1.2 Task//EN"
"task.mod"                                                           >
%task-typemod;

<!-- ================== End DITA Troubleshooting DTD  ====================
-->
```

Listing: troubleshooting.mod

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- ============================================================= -->
<!--                    HEADER                                     -->
<!-- ============================================================= -->
<!--  MODULE:    DITA Troubleshooting                              -->
<!--  VERSION:   1.3                                               -->
<!--  DATE:      March 2012                                        -->
<!--                                                               -->
<!-- ============================================================= -->

<!-- ============================================================= -->
<!--                    PUBLIC DOCUMENT TYPE DEFINITION            -->
<!--                    TYPICAL INVOCATION                         -->
<!--                                                               -->
<!--  Refer to this file by the following public identifier or an
      appropriate system identifier
PUBLIC "-//OASIS//ELEMENTS DITA Troubleshooting//EN"
      Delivered as file "troubleshooting.mod"                      -->

<!-- ============================================================= -->
<!-- SYSTEM:     Darwin Information Typing Architecture (DITA)     -->
<!--                                                               -->
<!-- PURPOSE:    Define elements and specialization atttributes    -->
<!--             for troubleshooting and other resolution          -->
<!--                                                               -->
<!-- ORIGINAL CREATION DATE:                                       -->
<!--             March 2012                                        -->
<!--                                                               -->
<!--             (C) Copyright OASIS Open 2005, 2009.              -->
<!-- ============================================================= -->


<!-- ============================================================= -->
<!--                   ARCHITECTURE ENTITIES                       -->
<!-- ============================================================= -->

<!-- default namespace prefix for DITAArchVersion attribute can be
     overridden through predefinition in the document type shell   -->
<!ENTITY % DITAArchNSPrefix
  "ditaarch"
>

<!-- must be instanced on each topic type                          -->
<!ENTITY % arch-atts
             "xmlns:%DITAArchNSPrefix;
                        CDATA
                                  #FIXED 'http://dita.oasis-open.org/
architecture/2005/'
              %DITAArchNSPrefix;:DITAArchVersion
                        CDATA
                                  '1.3'
"
```

```
>


<!-- ============================================================= -->
<!--                   SPECIALIZATION OF DECLARED ELEMENTS         -->
<!-- ============================================================= -->


<!ENTITY % troubleshooting-info-types
  "%info-types;
  "
>


<!-- ============================================================= -->
<!--                   ELEMENT NAME ENTITIES                       -->
<!-- ============================================================= -->


<!ENTITY % cause           "cause"                                   >
<!ENTITY % condition       "condition"                               >
<!ENTITY % remedy          "remedy"                                  >
<!ENTITY % responsibleParty "responsibleParty"                       >
<!ENTITY % troubleshooting "troubleshooting"                         >
<!ENTITY % troublebody     "troublebody"                             >
<!ENTITY % troubleSolution  "troubleSolution"                          >


<!-- ============================================================= -->
<!--                    DOMAINS ATTRIBUTE OVERRIDE                 -->
<!-- ============================================================= -->


<!ENTITY included-domains
  ""
>


<!-- ============================================================= -->
<!--                    ELEMENT DECLARATIONS                       -->
<!-- ============================================================= -->


<!--                    LONG NAME: Troubleshooting                 -->
<!ENTITY % troubleshooting.content
                       "((%title;),
                         (%titlealts;)?,
                         (%abstract; |
                          %shortdesc;)?,
                         (%prolog;)?,
                         (%troublebody;)?,
                         (%related-links;)?,
                         (%troubleshooting-info-types;)* )"
>
<!ENTITY % troubleshooting.attributes
             "id
                        ID
                                  #REQUIRED
              %conref-atts;
              %select-atts;
              %localization-atts;
              outputclass
                        CDATA
                                  #IMPLIED"
```

```
>
<!ELEMENT troubleshooting    %troubleshooting.content;>
<!ATTLIST troubleshooting
              %troubleshooting.attributes;
              %arch-atts;
              domains
                        CDATA
                                  "&included-domains;">



<!--                    LONG NAME: Troubleshooting Body            -->
<!ENTITY % troublebody.content
                       "(%condition;?,
                         (%cause; |
                         %remedy; |
                         %troubleSolution;)*)"
>
<!ENTITY % troublebody.attributes
             "%id-atts;
              %localization-atts;
              base
                        CDATA
                                  #IMPLIED
              %base-attribute-extensions;
              outputclass
                        CDATA
                                  #IMPLIED"
>
<!ELEMENT troublebody    %troublebody.content;>
<!ATTLIST troublebody    %troublebody.attributes;>

<!--                    LONG NAME: Cause                           -->
<!ENTITY % cause.content
                       "(%section.cnt;)*"
>
<!ENTITY % cause.attributes
             "spectitle
                        CDATA
                                  #IMPLIED
              %univ-atts;
              outputclass
                        CDATA
                                  #IMPLIED"
>
<!ELEMENT cause    %cause.content;>
<!ATTLIST cause    %cause.attributes;>

<!--                    LONG NAME: Condition                       -->
<!ENTITY % condition.content
                       "(%section.cnt;)*"
>
<!ENTITY % condition.attributes
             "spectitle
                        CDATA
                                  #IMPLIED
              %univ-atts;
              outputclass
                        CDATA
                                  #IMPLIED"
>
<!ELEMENT condition    %condition.content;>
<!ATTLIST condition    %condition.attributes;>
```

```
<!--                    LONG NAME: Remedy                          -->
<!ENTITY % remedy.content
                       "( #PCDATA |
                          %basic.block; |
                          %basic.ph; |
                          %data.elements.incl; |
                          %foreign.unknown.incl; |
                          %responsibleParty; |
                          %sectiondiv; |
                          %steps; |
                          %steps-unordered; |
                          %title; |
                          %txt.incl;
                        )*"
>
<!-- "((%title;), (%body.cnt;)*, %steps;?)" -->
<!ENTITY % remedy.attributes
             "spectitle
                        CDATA
                                  #IMPLIED
              %univ-atts;
              outputclass
                        CDATA
                                  #IMPLIED"
>
<!ELEMENT remedy    %remedy.content;>
<!ATTLIST remedy    %remedy.attributes;>

<!--                    LONG NAME: Troubleshooting Body division   -->
<!ENTITY % troubleSolution.content
                       "(%cause;|
                       %remedy;)*"
>
<!ENTITY % troubleSolution.attributes
             "%univ-atts;
              outputclass
                        CDATA
                                  #IMPLIED"
>
<!ELEMENT troubleSolution    %troubleSolution.content;>
<!ATTLIST troubleSolution    %troubleSolution.attributes;>

<!--                   LONG NAME: Responsible Party                -->
<!ENTITY % responsibleParty.content
             "(%para.cnt;)*"
>
<!ENTITY % responsibleParty.attributes
             "name CDATA #IMPLIED"
>
<!ELEMENT responsibleParty    %responsibleParty.content;>
<!ATTLIST responsibleParty    %responsibleParty.attributes;>

<!-- ============================================================= -->
<!--                    SPECIALIZATION ATTRIBUTE DECLARATIONS      -->
<!-- ============================================================= -->

<!ATTLIST troubleshooting     %global-atts;  class CDATA "- topic/topic
troubleshooting/troubleshooting ">
<!ATTLIST troublebody     %global-atts;  class CDATA "- topic/body
troubleshooting/troublebody ">
<!ATTLIST troubleSolution  %global-atts;  class CDATA "- topic/bodydiv
troubleshooting/troubleSolution ">
<!ATTLIST cause      %global-atts;  class  CDATA "- topic/section
troubleshooting/cause ">
```

```
<!ATTLIST condition      %global-atts;  class  CDATA "- topic/section
troubleshooting/condition ">
<!ATTLIST remedy      %global-atts;  class  CDATA "- topic/section
troubleshooting/remedy ">
<!ATTLIST responsibleParty %global-atts;  class CDATA "- topic/p
troubleshooting/responsibleParty ">

<!-- ================== End DITA Troubleshooting  ========================
-->
```

Listing: troubleshooting.ent

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- ============================================================= -->
<!--                    HEADER                                     -->
<!-- ============================================================= -->
<!--  MODULE:    DITA Troubleshooting Entity                       -->
<!--  VERSION:   1.2                                               -->
<!--  DATE:      March 2012                                        -->
<!--                                                               -->
<!-- ============================================================= -->

<!-- ============================================================= -->
<!--                    PUBLIC DOCUMENT TYPE DEFINITION            -->
<!--                    TYPICAL INVOCATION                         -->
<!--                                                               -->
<!--  Refer to this file by the following public identifier or an
      appropriate system identifier
PUBLIC "-//OASIS//ENTITIES DITA Troubleshooting//EN"
      Delivered as file "troubleshooting.ent"                      -->

<!-- ============================================================= -->
<!-- SYSTEM:     Darwin Information Typing Architecture (DITA)     -->
<!--                                                               -->
<!-- PURPOSE:    Declaring the domain entity for troubleshooting   -->
<!--                                                               -->
<!-- ORIGINAL CREATION DATE:                                       -->
<!--             March 2012                                        -->
<!--                                                               -->
<!--             (C) Copyright OASIS Open 2012.                    -->
<!--             All Rights Reserved.                              -->
<!--                                                               -->
<!--  UPDATES:                                                     -->
<!-- ============================================================= -->


<!-- ============================================================= -->
<!--                    TROUBLESHOOTING ENTITIES                   -->
<!-- ============================================================= -->

<!ENTITY troubleshooting-att
  "(topic troubleshooting+task/steps+task/steps-unordered)"
>


<!-- =============== End Troubleshooting Entities ================ -->
```

IBM troubleshooting—Migration considerations

The proposed troubleshooting topic could serve as a specialization basis for the IBM troubleshooting specialization.

The following table shows the specialization inheritance that could be used to re-implement the existing IBM troubleshooting topic.

Class attribute from the existing specialization	Class attribute from a new specialization
- topic/topic tsTroubleshooting/tsTroubleshooting	- topic/topic **troubleshooting/troubleshooting** tsTroubleshooting/tsTroubleshooting
- topic/body tsTroubleshooting/tsBody	- topic/body **troubleshooting/troublebody** tsTroubleshooting/tsBody
- topic/section tsTroubleshooting/tsSymptoms	- topic/section **troubleshooting/condition** tsTroubleshooting/tsSymptoms
- topic/section tsTroubleshooting/tsCauses	- topic/section **troubleshooting/cause** tsTroubleshooting/tsCauses
- topic/section tsTroubleshooting/tsEnvironment	- topic/section **troubleshooting/cause** tsTroubleshooting/tsEnvironment
- topic/section tsTroubleshooting/tsDiagnose	- topic/section **troubleshooting/remedy** tsTroubleshooting/tsDiagnose
- topic/section tsTroubleshooting/tsResolve	- topic/section **troubleshooting/remedy** tsTroubleshooting/tsResolve
- topic/p tsTroubleshooting/tsUserResponse	- topic/p **troubleshooting/responsibleParty** tsTroubleshooting/tsUserResponse
- topic/p tsTroubleshooting/tsProgrammerResponse	- topic/p **troubleshooting/responsibleParty** tsTroubleshooting/tsProgrammerResponse
- topic/p tsTroubleshooting/ tsSystemProgrammerResponse	- topic/p **troubleshooting/responsibleParty** tsTroubleshooting/tsSystemProgrammerResponse
- topic/p tsTroubleshooting/ tsApplicationProgrammerResponse	- topic/p **troubleshooting/responsibleParty** tsTroubleshooting/tsApplicationProgrammerResponse
- topic/p tsTroubleshooting/ tsDatabaseAdministratorResponse	- topic/p **troubleshooting/responsibleParty** tsTroubleshooting/tsDatabaseAdministratorResponse
- topic/p tsTroubleshooting/tsAdministratorResponse	- topic/p **troubleshooting/responsibleParty** tsTroubleshooting/tsAdministratorResponse
- topic/p tsTroubleshooting/ tsSystemAdministratorResponse	- topic/p **troubleshooting/responsibleParty** tsTroubleshooting/tsSystemAdministratorResponse
- topic/p tsTroubleshooting/ tsSecurityAdministratorResponse	- topic/p **troubleshooting/responsibleParty** tsTroubleshooting/tsSecurityAdministratorResponse
- topic/p tsTroubleshooting/ tsNetworkAdministratorResponse	- topic/p **troubleshooting/responsibleParty** tsTroubleshooting/tsNetworkAdministratorResponse
- topic/p tsTroubleshooting/ tsHardwareServiceProviderResponse	- topic/p **troubleshooting/responsibleParty** tsTroubleshooting/tsHardwareServiceProviderResponse
- topic/p tsTroubleshooting/ tsSoftwareServiceProviderResponse	- topic/p **troubleshooting/responsibleParty** tsTroubleshooting/tsSoftwareServiceProviderResponse

Class attribute from the existing specialization	Class attribute from a new specialization
- topic/p tsTroubleshooting/tsOperatorResponse	- topic/p **troubleshooting/responsibleParty** tsTroubleshooting/tsOperatorResponse
- topic/p tsTroubleshooting/tsResponseRole	- topic/p **troubleshooting/responsibleParty** tsTroubleshooting/tsResponseRole
- topic/keyword tsTroubleshooting/tsResponseRoleLabel	- topic/keyword tsTroubleshooting/tsResponseRoleLabel
- topic/para tsTroubleshooting/tsResponseRoleAction	- [*must be fixed*] tsTroubleshooting/tsResponseRoleAction

Note:

The IBM troubleshooting specialization contains an architectural error. Specifically, the class-attribute for tsResponseRoleAction specifies “topic/para” as its parent. However, “para” is not a DITA element. Changing “topic/para” to “topic/p” won’t work because the tsResponseRoleAction element’s parent is tsResponseRole, which itself inherits from “topic/p”. This would be a problem because generalizing XML context "tsResponseRole/tsResponseRoleAction" would yield "p" as a child of "p".