

Stage three: #316 Add <diagnostics> element to troubleshooting topic

Add an optional <diagnostics> element to the troubleshooting topic. This element will provide a location for authors to provide information about how to determine the cause of a problem and thus apply the correct remedy.

Champions

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Tracking information

Event	Date	Links
Stage 1 proposal accepted	19 November, 2019	Minutes
Stage 2 proposal submitted	28 April, 2020	E-mail
Stage 2 proposal discussed	30 June, 2020	Minutes
Stage 2 proposal approved	7 July, 2020	Minutes
Stage 3 proposal submitted to reviewers	1 September, 2020	Eric Sirois, Nancy Harrison
Stage 3 proposal (this document) submitted to TC	06 October 2020; updated on 07 October 2020	E-mail, 06 October 2020 E-mail, 07 October 2020 E-mail, 13 October 2020
[▶] Stage 2 and 3 proposal reopened	13 July 2021 The proposal was reopened to change the content model of <diagnostics>. Instead of containing either <diagnostics-general> or <diagnostics-steps>, <diagnostics> will also allow a single instance of both elements. This change was requested by Ericsson.	Minutes [◀]
[▶] Revised stage 3 proposal submitted to reviewers	06 September 2021	Nancy Harrison, Eliot Kimber [◀]
[▶] Revised stage 3 proposal submitted to TC	13 September 2021	[◀]
[▶] Revised stage 3 proposal approved		[◀]

Approved technical requirements

Modify the content model of <troublebody> to allow zero or more new <diagnostics> elements after <condition>. The <diagnostics> element will in turn contain one [▶] or both of [◀] two new diagnostic elements, <diagnostics-general> and <diagnostics-steps> to address the two use cases described earlier. [▶] In addition, this proposal will make the <troubleSolution> element optional, as the diagnostic content might reference standalone topics rather than cause-remedy pairs contained within the troubleshooting topic. [◀]

This proposal will add three elements:

- Add <diagnostics> element which will:
 - Be specialized from <bodydiv>
 - Have a content model of [▶] one or both of: [◀]
 - <diagnostics-general>
 - <diagnostics-steps>
- Add a <diagnostics-general> element which will:
 - Be specialized from <section>
 - Have an identical content model as <cause>
 - Provide a location to add a diagnostics table or [▶] image to illustrate the steps in the diagnostic procedure [◀]
- Add <diagnostics-steps> which will:
 - Be specialized from <section>
 - Remove <responsible-party> from the <remedy> content model, but otherwise be identical
 - Provide a location to add step-by-step diagnostic instructions

Dependencies or interrelated proposals

None.

Modified grammar files

This proposal will require modifications to the following files:

- troubleshooting.mod
- troubleshooting.rng

In the content below, the following conventions are used:

- Bold is used to indicate code to be added, for example, **addition**.
- Line-through and red text is used to indicate code to be removed, for example, ~~removal~~.
- Ellipses (...) indicate where code is snipped for brevity.

Figure 1: Changes to troubleshooting.mod

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

<!ENTITY % troubleshooting          "troubleshooting"          >
<!ENTITY % troublebody              "troublebody"                >
```

```

<!ENTITY % cause "cause" >
<!ENTITY % condition "condition" >
<!ENTITY % remedy "remedy" >
<!ENTITY % diagnostics "diagnostics" >
<!ENTITY % diagnostics-general "diagnostics-general" >
<!ENTITY % diagnostics-steps "diagnostics-steps" >
<!ENTITY % responsibleParty "responsibleParty" >
<!ENTITY % troubleSolution "troubleSolution" >

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

<!-- LONG NAME: Troubleshooting Body -->
<!ENTITY % troublebody.content
"((%condition;)?,"?
(%diagnostics;)?,
(%troubleSolution;)[▶]?[◀])?"
...
<!-- LONG NAME: Diagnostics --> [▶]
<!ENTITY % diagnostics.content
"(((%diagnostics-general;), (%diagnostics-steps;)?) |
(%diagnostics-steps;))
"
> [◀]
<!ENTITY % diagnostics.attributes
"%univ-atts;"
>
<!ELEMENT diagnostics %diagnostics.content;>
<!ATTLIST diagnostics %diagnostics.attributes;>

<!-- LONG NAME: Diagnostics general -->
<!ENTITY % diagnostics-general.content
"(%section.blocks.only.cnt)?"
>
<!ENTITY % diagnostics-general.attributes
"%univ-atts;
spectitle
CDATA
#IMPLIED"
>
<!ELEMENT diagnostics-general %diagnostics-general.content;>
<!ATTLIST diagnostics-general %diagnostics-general.attributes;>

<!-- LONG NAME: Diagnostics steps -->
<!ENTITY % diagnostics-steps.content
"((%title;)?,
(%steps; |
%steps-unordered; |
%steps-informal;))"
>
<!ENTITY % diagnostics-steps.attributes
"%univ-atts;
spectitle
CDATA
#IMPLIED"
>
<!ELEMENT diagnostics-steps %diagnostics-steps.content;>
<!ATTLIST diagnostics-steps %diagnostics-steps.attributes;>

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

<!ATTLIST troubleshooting class CDATA "- topic/topic troubleshooting/troubleshooting ">
<!ATTLIST troublebody class CDATA "- topic/body troubleshooting/troublebody ">
<!ATTLIST troubleSolution class CDATA "- topic/bodydiv troubleshooting/troubleSolution ">
<!ATTLIST cause class CDATA "- topic/section troubleshooting/cause ">
<!ATTLIST condition class CDATA "- topic/section troubleshooting/condition ">
<!ATTLIST diagnostics class CDATA "- topic/bodydiv troubleshooting/diagnostics ">
<!ATTLIST diagnostics-general class CDATA "- topic/section troubleshooting/diagnostics-
general ">

```

```

<!ATTLIST diagnostics-steps class CDATA "- topic/section troubleshooting/diagnostics-steps
">
<!ATTLIST remedy class CDATA "- topic/section troubleshooting/remedy ">
<!ATTLIST responsibleParty class CDATA "- topic/p troubleshooting/responsibleParty ">

<!-- ===== End of DITA Troubleshooting DomainTopic ===== -->

```

Figure 2: Changes to troubleshooting.rng

```

...
<div>
  <a:documentation>ELEMENT TYPE NAME PATTERNS</a:documentation>
  ...
  <define name="diagnostics">
    <ref name="diagnostics.element"/>
  </define>
  <define name="diagnostics-general">
    <ref name="diagnostics-general.element"/>
  </define>
  <define name="diagnostics-steps">
    <ref name="diagnostics-steps.element"/>
  </define>
</div>
...
<div>
  <a:documentation>ELEMENT TYPE DECLARATIONS</a:documentation>
  <div>
    ...
    <div>
      <a:documentation> LONG NAME: Troubleshooting Body </a:documentation>
      <define name="troublebody.content">
        <optional>
          <optional>
            <ref name="condition"/>
          </optional>
          <optional>
            <ref name="diagnostics"/>
          </optional>
          <optional>
            [▶] <optional>
              <ref name="troubleSolution"/>
            </optional>
          </optional>
        </define>
      </div>
      ...
      <div>
        <a:documentation> LONG NAME: Diagnostics </a:documentation>
        [▶] <define name="diagnostics.content">
          <choice>
            <group>
              <ref name="diagnostics-general"/>
              <optional>
                <ref name="diagnostics-steps"/> n b
              </optional>
            </group>
            <ref name="diagnostics-steps"/>
          </choice>
        </define> [◀]
        <define name="diagnostics.element">
          <element name="diagnostics" dita:longName="Diagnostics" dita:since="2.0">
            <a:documentation>
              <![CDATA[
                Category: Troubleshooting elements
              ]]></a:documentation>
            <ref name="diagnostics.attlist"/>
            <ref name="diagnostics.content"/>
          </element>
        </define>
        <define name="diagnostics.attlist" combine="interleave">
          <ref name="diagnostics.attributes"/>
        </define>
      </div>
      <div>
        <a:documentation> LONG NAME: Diagnostics General </a:documentation>

```

```

<define name="diagnostics-general.content">
  <optional>
    <ref name="section.blocks.only.cnt"/>
  </optional>
</define>
<define name="diagnostics-general.attributes">
  <ref name="univ-atts"/>
  <optional>
    <attribute name="spectitle"/>
  </optional>
</define>
<define name="diagnostics-general.element">
  <element name="diagnostics-general" dita:longName="Diagnostics General"
dita:since="2.0">
    <a:documentation>
      <![CDATA[
Category: Troubleshooting elements
]]></a:documentation>
      <ref name="diagnostics-general.attlist"/>
      <ref name="diagnostics-general.content"/>
    </element>
  </define>
  <define name="diagnostics-general.attlist" combine="interleave">
    <ref name="diagnostics-general.attributes"/>
  </define>
</div>
<div>
  <a:documentation> LONG NAME: Diagnostics Steps </a:documentation>
  <define name="diagnostics-steps.content">
    <optional>
      <ref name="title"/>
    </optional>
    <choice>
      <ref name="steps"/>
      <ref name="steps-unordered"/>
      <ref name="steps-informal"/>
    </choice>
  </define>
  <define name="diagnostics-steps.attributes">
    <optional>
      <attribute name="spectitle"/>
    </optional>
    <ref name="univ-atts"/>
  </define>
  <define name="diagnostics-steps.element">
    <element name="diagnostics-steps" dita:longName="Diagnostics Steps" dita:since="2.0">
      <a:documentation>
        <![CDATA[
Category: Troubleshooting elements
]]></a:documentation>
        <ref name="diagnostics-steps.attlist"/>
        <ref name="diagnostics-steps.content"/>
      </element>
    </define>
    <define name="diagnostics-steps.attlist" combine="interleave">
      <ref name="diagnostics-steps.attributes"/>
    </define>
  </div>
</div>
<div>
  <a:documentation>SPECIALIZATION ATTRIBUTE DECLARATIONS</a:documentation>
  ...
  <define name="diagnostics.attlist" combine="interleave">
    <optional>
      <attribute name="class" a:defaultValue="- topic/bodydiv troubleshooting/diagnostics
"/>
    </optional>
  </define>
  <define name="diagnostics-general.attlist" combine="interleave">
    <optional>
      <attribute name="class" a:defaultValue="- topic/section troubleshooting/diagnostics-
general "/>
    </optional>
  </define>

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<define name="diagnostics-steps.attlist" combine="interleave">
  <optional>
    <attribute name="class" a:defaultValue="- topic/section troubleshooting/diagnostics-
steps "/>
  </optional>
</define>
</div>
...

```

Modified terminology

None.

Modified specification documentation

- Update Section 2.7.1.6 to discuss new structure
 - Rewrite first paragraph

Original	Suggested Rewrite
For some conditions there could be more than one cause-remedy pair. The troubleshooting topic accommodates this. Typically, a cause is immediately followed by its remedy. Multiple cause-remedy pairs can provide a series of successive fall-backs for resolving a condition.	For some conditions there could be more than one cause-remedy pair. The troubleshooting topic accommodates this. Typically, a cause is immediately followed by its remedy. Multiple cause-remedy pairs can provide a series of successive fall-backs for resolving a condition. An optional diagnostics section can be included to point to the applicable cause-remedy pair or to other stand-alone topics that address the issue.

- Add after `<condition>` and before `<troubleSolution>` in the section *The structure of the troubleshooting topic*

<diagnostics>

This optional element precedes `<troubleSolution>` and provides information used to determine [▶] which of multiple causes applies and to point to the appropriate remedy, either within a subsequent `<troubleSolution>` within the same topic or to another stand-alone topic [◀].

The `<diagnostics>` element contains [▶] one or both [◀] of the following elements:

<diagnostics-general>

This element provides non-procedural diagnostic information, such as a flowchart diagram or a look-up table of symptoms. Results of the diagnosis may link to the specific cause-remedy section [▶] or stand-alone topic [◀] that applies to each result.

<diagnostics-steps>

This element provides step-by-step instructions for diagnosing the problem. Step results may link to the specific cause-remedy section [▶] or stand-alone topic [◀] that applies.

- Update example

```

<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE troubleshooting PUBLIC "-//OASIS//DTD DITA 2.0 Troubleshooting//EN"
"troubleshooting.dtd">
<troubleshooting id="blinking-lights">
  <title>Blinking lights</title>
  <shortdesc>Printer indicator lights are blinking, indicating an error of

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some kind.</shortdesc>
<troublebody>
  <condition>
    <p>The printer lights are blinking, and you are unable to print.</p>
  </condition>
  <diagnostics>
    <diagnostics-general>
      <p>Use the table below to determine the problem.</p>
      <simplatable frame="all" id="light_diagnostics" relcolwidth="1* 2*">
        <title>Printer light diagnostics</title>
        <sthead>
          <stentry>Lights</stentry>
          <stentry>Issue</stentry>
        </sthead>
        <strow>
          <stentry>
            <ul>
              <li>Power light: Flashing</li>
              <li>Resume light: Off</li>
            </ul>
          </stentry>
          <stentry>The printer is preparing to print. No action is
            required. The light will stop flashing when the printer has
            received all data.</stentry>
        </strow>
        <strow>
          <stentry>
            <ul>
              <li>Power light: On</li>
              <li>Resume light: Flashing</li>
            </ul>
          </stentry>
          <stentry>Printer jam. See <xref href="#blinking-lights/jam"/> .
          </stentry>
        </strow>
        <strow>
          <stentry>
            <ul>
              <li>Power light: Flashing</li>
              <li>Resume light: Flashing</li>
            </ul>
          </stentry>
          <stentry>Printer is stalled and needs to be restarted. See
            <xref href="#blinking-lights/restart" format="dita"/>.
          </stentry>
        </strow>
        <strow>
          <stentry>
            <ul>
              <li>Left cartridge light: On</li>
              <li>Right cartridge light: Off</li>
            </ul>
          </stentry>
          <stentry>Low ink. See <xref href="#blinking-lights/ink"
            format="dita"/>.</stentry>
        </strow>
        <strow>
          <stentry>
            <ul>
              <li>Left cartridge light: On</li>
              <li>Right cartridge light: Flashing</li>
            </ul>
          </stentry>
          <stentry>Dirty ink cartridge. See <xref
            href="#blinking-lights/clean" format="dita"/>. </stentry>
        </strow>
        <strow>
          <stentry>
            <ul>
              <li>Connection light: Flashes for five seconds</li>
              <li>Error light: Flashes for five seconds</li>
            </ul>
          </stentry>
          <stentry>The printer has lost connection with the camera while

```

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        printing. Unplug and replug the camera.</stentry>
    </strow>
    <strow>
        <stentry>
            <ul>
                <li>Connection light: On</li>
                <li>Error light: Flashing</li>
            </ul>
        </stentry>
        <stentry>The camera is not set to the correct mode for
            transferring photos. Change the camera mode.</stentry>
    </strow>
    <strow>
        <stentry>
            <ul>
                <li>Connection light: Off</li>
                <li>Error light: On</li>
            </ul>
        </stentry>
        <stentry>An unsupported device, such as a mouse, has been
            connected to the front USB port. Disconnect the unsupported
            device.</stentry>
    </strow>
</simpletable>
</diagnostics-general>
</diagnostics>
<troubleSolution>
    <remedy id="jam">
        <title>Clearing a paper jam </title>
        <steps>
            <step>
                <cmd>Turn off the printer.</cmd>
            </step>
            <step>
                <cmd>Remove the rear access door by pressing the handle to the
                    right and pulling out the door.</cmd>
            </step>
            <step>
                <cmd>Remove any paper that is inside the printer by pulling the
                    paper out from the back of the printer.</cmd>
            </step>
            <step>
                <cmd>Replace the rear access door.</cmd>
            </step>
            <step>
                <cmd>If the paper jam cannot be removed from the back of the
                    printer, raise the printer cover, remove the paper jam from
                    the front of the printer, and then lower the cover. </cmd>
            </step>
            <step>
                <cmd>Turn on the printer and print the document again. </cmd>
            </step>
        </steps>
    </remedy>
</troubleSolution>
<troubleSolution>
    <remedy id="restart">
        <title>Restarting the printer</title>
        <steps>
            <step>
                <cmd>Press the Power button to turn off the printer, and then
                    press the Power button to restart the printer. </cmd>
                <info>Proceed to step 2 if the lights continue to flash.
                </info>
            </step>
            <step>
                <cmd>Press the Power button to turn off the printer.</cmd>
            </step>
            <step>
                <cmd>Disconnect the printer power cord from the electrical
                    outlet.</cmd>
            </step>
            <step>
                <cmd>Reconnect the printer power cord to the electrical

```



```

        outlet.</cmd>
    </step>
</step>
    <cmd>Press the Power button to turn on the printer.</cmd>
</step>
</steps>
</remedy>
</troubleSolution>
<troubleSolution>
    <remedy id="clean">
        <title>Cleaning ink cartridge</title>
        <steps>
            <step>
                <cmd>Raise the printer cover, remove the print cartridge on the
                    right, and then lower the cover.</cmd>
            </step>
            <step>
                <cmd>Follow one of these steps.</cmd>
                <choices id="choices_kql_wgh_wmb">
                    <choice>If the light is flashing: Open the printer cover,
                        replace the print cartridge that you removed, and then
                        remove the other print cartridge. Proceed to step 3. </choice>
                    <choice>If the light is off: There is a problem with the
                        print cartridge that you removed. Proceed to step 3.
                    </choice>
                </choices>
            </step>
            <step>
                <cmd>Manually clean the print cartridge.</cmd>
            </step>
            <step>
                <cmd>After cleaning the print cartridge, reinsert it into the
                    printer. If the light continues to flash, replace the print
                    cartridge.</cmd>
            </step>
        </steps>
    </remedy>
</troubleSolution>
<troubleSolution>
    <remedy id="ink">
        <title>Replacing ink cartridge</title>
        <steps>
            <step>
                <cmd>Turn on the printer.</cmd>
            </step>
            <step>
                <cmd>Make sure to load the printer with plain, white paper.
            </cmd>
            </step>
            <step>
                <cmd>Gently grasp the handles on either side of the printer and
                    raise the ink cartridge access door until it locks in
                    place.</cmd>
                <stepresult>The carriage moves to the center of the printer.
                </stepresult>
            </step>
            <step>
                <cmd>Wait until the carriage is idle and silent before you
                    proceed.</cmd>
            </step>
            <step>
                <cmd>Lift the lid on the ink cartridge slot, then gently push
                    the lid back until it stops.</cmd>
            </step>
            <step>
                <cmd>Pull up on the ink cartridge to remove it from the
                    slot.</cmd>
            </step>
            <step>
                <cmd>Remove one of the new ink cartridges from its package,
                    being careful to touch only the black plastic on the
                    cartridge.</cmd>
            </step>
            <step>

```

```

    <cmd>Remove the plastic tape from the ink cartridge.</cmd>
    <info>
      <note type="caution">Do not touch the copper-colored contacts
        or the ink nozzles. Do not replace the protective tape on
        the contacts. Handling these parts can result in clogs, ink
        failure, and bad electrical connections.</note>
    </info>
  </step>
</step>
<step>
  <cmd>Hold the ink cartridge by its sides with the nozzles
    toward the printer, then slide the ink cartridge forward into
    the slot.</cmd>
</step>
<step>
  <cmd>Close the lid on the ink cartridge slot to secure the n
    ink cartridge i place.</cmd>
</step>
<step>
  <cmd>Repeat the previous steps to install the other ink
    cartridge if necessary.</cmd>
</step>
<step>
  <cmd>Close the ink cartridge access door.</cmd>
  <stepresult>The printer automatically prints an alignment
    page.</stepresult>
</step>
<step>
  <cmd>Wait for the alignment page to fully eject from the
    printer.</cmd>
</step>
<step>
  <cmd>Lift the scanner lid.</cmd>
</step>
<step>
  <cmd>Place the alignment page with the print side down on the
    scanner glass according to the engraved guides around the
    glass.</cmd>
</step>
<step>
  <cmd>Close the scanner lid and touch OK.</cmd>
  <stepresult>The printer aligns the ink cartridges.
</stepresult>
</step>
</steps>
</remedy>
</troubleSolution>
</troublebody>
</troubleshooting>

```

- Update to section 3.10.4:

- New sections on the three new elements (see topics that follow)

Note Updates to the example in section 3.10.4.1 were considered; however, because the diagnostics section could contain multiple approaches, it was decided to add examples to those topics below, rather than attempt to make 3.10.4.1 comprehensive for only one case.

Migration plans for backwards incompatibilities

Not applicable.

<diagnostics>

The <diagnostics> element is a container element for diagnostic elements that help users determine which of several possible causes discussed within the troubleshooting topic applies to the symptoms they are experiencing. Diagnostics may be provided in text or table format within <diagnostics-general> [▶] and/or [◀] in step-by-step format within <diagnostics-steps>.

Usage information

Use when a troubleshooting topic contains more than one possible cause for the condition.

Specialization hierarchy

The <diagnostics> element is specialized from <bodydiv>. It is defined in the troubleshooting module.

Attributes

The following attributes are available on this element: [Universal attribute group](#).

Example



The following example shows how both <diagnostics-general> and <diagnostics-steps> elements can be used in a troubleshooting topic.

In this scenario, the <diagnostics-general> element contains introductory information and a flow chart illustrates the series of sequential troubleshooting steps that a user might follow; the <diagnostics-steps> element contains the actual procedure.

```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE troubleshooting PUBLIC "-//OASIS//DTD DITA 2.0 Troubleshooting//EN"
"troubleshooting.dtd">
<troubleshooting id="ejol">
  <title>EJOL: excessive jitter on line</title>
  <shortdesc>The system experienced an <q>excessive jitter on line</q>
  alarm. Although the category is minor, the alarm should be cleared
  within 24 hours.</shortdesc>
  <troublebody>
    <diagnostics>
      <diagnostics-general>
        <p>The EJOL alarm occurs due to the following issues:</p>
        <ul>
          <li>Trouble on the far-end system</li>
          <li>Excessive line noise</li>
          <li>Faulty LN243 circuit pack</li>
        </ul>
        <p>Below is a flow chart that shows the process for diagnosing the
        cause:</p>
        <image href="images/ejol-diagnostics-flowchart.png"/>
      </diagnostics-general>
      <diagnostics-steps>
        <steps>
          <step>
            <cmd>Query the state of health of the far-end system.</cmd>
            <info>If the far-end system is not healthy, go to <xref
            keyref="far-end-not-healthy"/>.</info>
          </step>
          <step>
            <cmd>To retrieve the line-fault count, click <menucascade>
              <uicontrol>Operations</uicontrol>
              <uicontrol>Performance</uicontrol>
              <uicontrol>line</uicontrol>
            </menucascade>.</cmd>
          </step>
          <step>
            <cmd>To retrieve the line-fault-max value, click <menucascade>
              <uicontrol>Administration</uicontrol>
              <uicontrol>Transmission</uicontrol>
              <uicontrol>Settings</uicontrol>
            </menucascade>.</cmd>
          </step>
        </steps>
      </diagnostics-steps>
    </troublebody>
  </troubleshooting>
```

```

        <cmd>Compare the line-fault count to the line-fault-max
            value:</cmd>
        <choices>
            <choice>If the line-fault count is greater than or equal to
                the line-fault-max value, go to <xref keyref="excessive-line-noise"/>.</
choice>
            <choice>If the line-fault count is less than the
                line-fault-max value, go to <xref
                    keyref="faulty-LN243-line-pack"/>.</choice>
        </choices>
    </step>
</steps>
</diagnostics-steps>
</diagnostics>
</troublebody>
</troubleshooting>

```

[◀]

<diagnostics-general>

The <diagnostics-general> element includes non-procedural information that can help determine which of multiple causes apply to a specific situation. Results of the diagnosis may link to the specific cause-remedy section [▶] or stand-alone topic [◀] that applies to each result.

Usage information

Use this element when presenting non-procedural diagnostic information; for example, when including a diagnostic table or a flowchart. Often in these cases, the symptoms are observable without users having to take a specific action – they can simply observe that the symptom exists; for example, if a particular light is on or off.

Specialization hierarchy

The <diagnostics-general> element is specialized from <section>. It is defined in the troubleshooting module.

Attributes

The following attributes are available on this element: [Universal attribute group](#) and @spectitle.

Example

The following code sample shows how a troubleshooting topic would provide a diagnostic table to help a user determine which cause and therefore which solution applies to them.

```

<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE troubleshooting PUBLIC "-//OASIS//DTD DITA 2.0 Troubleshooting//EN"
"troubleshooting.dtd">
<troubleshooting id="car-is-making-funny-noises">
  <title>Car is making funny noises</title>
  <shortdesc>You probably know how your vehicle sounds when it's running
properly. Listening to your car can help you troubleshoot
problems.</shortdesc>
  <troublebody>
    <condition>
      <p>If you hear a strange sound, pay attention and react
        accordingly.</p>
    </condition>
    <diagnostics>
      <diagnostics-general>
        <table frame="topbot">
          <tgroup cols="2">
            <colspec colname="c1" colnum="1" colwidth="1*"/>

```

```

<colspec colname="c2" colnum="2" colwidth="1*"/>
<thead>
  <row>
    <entry>Symptom</entry>
    <entry>Probable Cause</entry>
  </row>
</thead>
<tbody>
  <row>
    <entry>Clunking noise on bumps only</entry>
    <entry><xref href="#car-is-making-funny-noises/checkstruts"
/></entry>
  </row>
  <row>
    <entry>Continuous clunking noise</entry>
    <entry><xref href="#./checkballjoints"/></entry>
  </row>
  <row>
    <entry>Ticks when in neutral</entry>
    <entry><xref href="#./checkexhaust"/></entry>
  </row>
  <row>
    <entry>Ticks only in reverse</entry>
    <entry><xref href="#./checkbrakes"/></entry>
  </row>
  <row>
    <entry>Ticks in turns and curves</entry>
    <entry><xref href="#./checkcvjoint"/></entry>
  </row>
  <row>
    <entry>Only ticks when cold</entry>
    <entry><xref href="#./checkcatalyticconverter"/></entry>
  </row>
  <row>
    <entry>Ticks only at slow speed</entry>
    <entry><xref href="#car-is-making-funny-noises/checkwheels"
/></entry>
  </row>
</tbody>
</tgroup>
</table>
</diagnostics-general>
</diagnostics>
<troubleSolution>
  <remedy id="checkstruts">
    <title>Checking your struts</title>
    <steps>
      <step>
        <cmd>...</cmd>
      </step>
      <!-- ... -->
    </steps>
  </remedy>
</troubleSolution>
<troubleSolution>
  <remedy id="checkballjoints">
    <title>Checking your ball joints</title>
    <steps>
      <step>
        <cmd>...</cmd>
      </step>
      <!-- ... -->
    </steps>
  </remedy>
</troubleSolution>
<troubleSolution>
  <remedy id="checkexhaust">
    <title>Checking your exhaust</title>
    <steps>
      <step>
        <cmd>...</cmd>
      </step>
      <!-- ... -->
    </steps>
  </remedy>
</troubleSolution>

```

```

    </remedy>
  </troubleSolution>
  <troubleSolution>
    <remedy id="checkbrakes">
      <title>Checking your brakes</title>
      <steps>
        <step>
          <cmd>...</cmd>
        </step>
        <!-- ... -->
      </steps>
    </remedy>
  </troubleSolution>
  <troubleSolution>
    <remedy id="checkcvjoint">
      <title>Checking your CV joints</title>
      <steps>
        <step>
          <cmd>...</cmd>
        </step>
        <!-- ... -->
      </steps>
    </remedy>
  </troubleSolution>
  <troubleSolution>
    <remedy id="checkcatalyticconverter">
      <title>Checking your catalytic converter</title>
      <steps>
        <step>
          <cmd>...</cmd>
        </step>
        <!-- ... -->
      </steps>
    </remedy>
  </troubleSolution>
  <troubleSolution>
    <remedy id="checkwheels">
      <title>Checking your wheels</title>
      <steps>
        <step>
          <cmd>...</cmd>
        </step>
        <!-- ... -->
      </steps>
    </remedy>
  </troubleSolution>
</troublebody>
</troubleshooting>

```

<diagnostics-steps>

The <diagnostics-steps> element includes step-by-step information that can help determine which of multiple causes apply to a specific situation. Results of each diagnostic step may link to the specific cause-remedy section [▶] or stand-alone topic [◀] that applies to each result.

Usage information

Use this element in situations where causes are not be simply observable, but require the user to perform a series of steps to determine the cause of the problem; for example, set breakpoints, send commands, push buttons, and so on.

Specialization hierarchy

The <diagnostics-steps> element is specialized from <section>. It is defined in the troubleshooting module.

Attributes

The following attributes are available on this element: [Universal attribute group](#) and @spectitle.

Example

The following code sample shows how a troubleshooting topic would provide step-by-step instructions to help a user determine which cause and therefore which solution applies to them.

```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE troubleshooting PUBLIC "-//OASIS//DTD DITA 2.0 Troubleshooting//EN"
"troubleshooting.dtd">
<troubleshooting id="diagnostics-steps">
  <title/>
  <shortdesc/>
  <troublebody>
    <condition/>
    <diagnostics>
      <diagnostics-steps>
        <steps>
          <step>
            <cmd>Open the command prompt and type
              <userinput>ipconfig</userinput>.</cmd>
            <info>
              <p>The Default Gateway (listed last) is your router's IP.
                Your computer's IP address is the number next to "IP
                Address." If your computer's IP address starts with 169,
                the computer is not receiving a valid IP address. See <xref
                href="#./ipaddress"/></p>
            </info>
          </step>
          <step>
            <cmd>If your address does not start with 169, type
              <userinput>tracert 8.8.8.8</userinput> to view each step
              between your router and the Google DNS servers.</cmd>
            <info>If the error comes up early along the pathway, see <xref
              href="#./resetnetwork"/></info>
          </step>
          <step>
            <cmd>If everything is working with Google, use the command
              <cmdname>nslookup</cmdname> to determine if there's a
              problem with the server you are trying to connect to.</cmd>
            <info>If you received results such as <msgph>Timed Out</msgph>,
              <msgph>Server Failure</msgph>, <msgph>Refused</msgph>,
              <msgph>No Response from Server</msgph>, or <msgph>Network
              is , the problem originates in the DNS server for your
              destination. </msgph></info>
          </step>
          <step>
            <cmd>If the previous steps turn up no problems, contact your
              ISP to see if they're having issues.</cmd>
          </step>
        </steps>
      </diagnostics-steps>
    </diagnostics>
  </troublebody>
  <troubleSolution>
    <remedy id="ipaddress">
      <title>Resetting Your IP Address</title>
      <steps>
        <step>
          <cmd>...</cmd>
        </step>
      </steps>
    </remedy>
  </troubleSolution>
  <troubleSolution>
    <remedy id="resetnetwork">
      <title>Resetting Your Local Network</title>
      <steps>
        <step>
          <cmd>...</cmd>
        </step>
      </steps>
    </remedy>
  </troubleSolution>
</troubleshooting>
```

```
</steps>  
</remedy>  
</troubleSolution>  
</troublebody>  
</troubleshooting>
```