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## Stage three: #257 Hardware Domain

Provide a new domain to support documenting content associated with documenting hardware. (Formerly “Provide a new element to semantically tag things you press on keyboards or other input devices.”)

### Champion

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### Tracking information

Event	Date	Links
Stage 1 proposal accepted	18 June 2019	<a href="#">Minutes</a>
Stage 2 proposal submitted	22 June 2020	<a href="#">Email</a>
Stage 2 proposal discussed	23 June 2020	<a href="#">Minutes</a>
Stage 2 proposal approved	30 June 2020	<a href="#">Minutes</a>
Stage 3 proposal submitted to reviewers	8 July 2020	Deb Bissantz Dr. Carsten Brennecke
Stage 3 proposal (this document) submitted to TC	28 July 2020; updated to reflect changes in content models requested by TC and resubmitted on 21 August 2020.	<a href="#">E-mail on 28 July 2020</a> <a href="#">E-mail on 21 August 2020</a>

### Approved technical requirements

Create a new hardware domain (hw-d) to include elements germane to documenting hardware information.

Add the following new elements:

- `<hwcontrol>`
- `<partno>`

The `<hwcontrol>` element would inherit from `topic/ph` and be defined as follows:

The `<hwcontrol>` element represents the name of a key, button, switch, or other physical control on a device.

This element is part of the DITA hardware domain, a special set of DITA elements designed to document hardware information.

The `<partno>` element would inherit from `topic/ph` and be defined as follows:

The `<partno>` element represents a part number. This element is part of the DITA hardware domain, a special set of DITA elements designed to document hardware information.

### Dependencies or interrelated proposals

None

### New grammar files

The following files must be created:



```

                %ph; |
                %text;)*"
>
<!ENTITY % hwcontrol.attributes
        "keyref
                CDATA
                #IMPLIED
                %univ-atts;"
>
<!ELEMENT hwcontrol %hwcontrol.content;>
<!ATTLIST hwcontrol %hwcontrol.attributes;>

<!-- LONG NAME: Part number -->
<!ENTITY % partno.content
        "(#PCDATA |
                %data; |
                %draft-comment; |
                %keyword; |
                %text;)*"
>
<!ENTITY % partno.attributes
        "keyref
                CDATA
                #IMPLIED
                %univ-atts;"
>
<!ELEMENT partno %partno.content;>
<!ATTLIST partno %partno.attributes;>

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

<!ATTLIST hwcontrol class CDATA "+ topic/ph hw-d/hwcontrol ">
<!ATTLIST partno class CDATA "+ topic/ph hw-d/partno ">

<!-- ===== End of DITA Hardware Domain ===== -->

```

Figure 3: hwDomain.rng

```

<?xml version="1.0" encoding="UTF-8"?>
<?xml-model href="urn:oasis:names:tc:dita:rng:vocabularyModuleDesc.rng"
        schematypens="http://relaxng.org/ns/structure/1.0"?>
<grammar xmlns:a="http://relaxng.org/ns/compatibility/annotations/1.0"
        xmlns:dita="http://dita.oasis-open.org/architecture/2005/"
        xmlns="http://relaxng.org/ns/structure/1.0">
  <moduleDesc xmlns="http://dita.oasis-open.org/architecture/2005/">
    <moduleTitle>DITA Hardware Domain</moduleTitle>
    <headerComment xml:space="preserve"><![CDATA[
=====
HEADER
=====
MODULE:   DITA Hardware Domain
VERSION:  2.0
DATE:    [[Release date]]
=====
]]></headerComment>
    <moduleMetadata>
      <moduleType>elementdomain</moduleType>
      <moduleShortName>hw-d</moduleShortName>
      <modulePublicIds>
        <dtdMod>-//OASIS//ELEMENTS DITA<var presep=" " name="ditaver"/> Hardware Domain//EN</
dtdMod>
        <dtdEnt>-//OASIS//ENTITIES DITA<var presep=" " name="ditaver"/> Hardware Domain//EN</
dtdEnt>
        <rngMod>urn:oasis:names:tc:dita:rng:hwDomain.rng<var presep=":" name="ditaver"/></
rngMod>
      </modulePublicIds>

```

```

    <domainsContribution>(topic hw-d)</domainsContribution>
  </moduleMetadata>
</moduleDesc>

<div>
  <a:documentation>DOMAIN EXTENSION PATTERNS</a:documentation>
  <define name="hw-d-ph">
    <ref name="hwcontrol.element"/>
    <ref name="partno.element"/>
  </define>
  <define name="ph" combine="choice">
    <ref name="hw-d-ph"/>
  </define>
</div>

<div>
  <a:documentation>ELEMENT TYPE NAME PATTERNS</a:documentation>
  <define name="hwcontrol">
    <ref name="hwcontrol.element"/>
  </define>
  <define name="partno">
    <ref name="partno.element"/>
  </define>
</div>

<div>
  <a:documentation>ELEMENT TYPE DECLARATIONS</a:documentation>
  <div>
    <a:documentation> LONG NAME: Hardware control </a:documentation>
    <define name="hwcontrol.content">
      <zeroOrMore>
        <choice>
          <text/>
          <ref name="data"/>
          <ref name="draft-comment"/>
          <ref name="image"/>
          <ref name="keyword"/>
          <ref name="partno"/>
          <ref name="ph"/>
          <ref name="text"/>
        </choice>
      </zeroOrMore>
    </define>
    <define name="hwcontrol.attributes">
      <optional>
        <attribute name="keyref"/>
      </optional>
      <ref name="univ-atts"/>
    </define>
    <define name="hwcontrol.element">
      <element name="hwcontrol" dita:longName="Hardware Control" dita:since="2.0">
        <a:documentation>The hwcontrol (&lt;hwcontrol&gt;) element is used to ... </
a:documentation>
        <ref name="hwcontrol.attlist"/>
        <ref name="hwcontrol.content"/>
      </element>
    </define>
    <define name="hwcontrol.attlist" combine="interleave">
      <ref name="hwcontrol.attributes"/>
    </define>
  </div>
</div>

<div>
  <a:documentation>LONG NAME: Part number</a:documentation>
  <define name="partno.content">
    <zeroOrMore>
      <choice>
        <text/>
        <ref name="data"/>
        <ref name="draft-comment"/>
        <ref name="keyword"/>
        <ref name="text"/>
      </choice>
    </zeroOrMore>
  </define>
</div>

```

```

</define>
<define name="partno.attributes">
  <optional>
    <attribute name="keyref"/>
  </optional>
  <ref name="univ-atts"/>
</define>
<define name="partno.element">
  <element name="partno" dita:longName="Part number">
    <a:documentation>The <partno> element ... </a:documentation>
    <ref name="partno.attlist"/>
    <ref name="partno.content"/>
  </element>
</define>
<define name="partno.attlist" combine="interleave">
  <ref name="partno.attributes"/>
</define>
</div>
</div>

<div>
  <a:documentation>SPECIALIZATION ATTRIBUTE DECLARATIONS</a:documentation>
  <define name="hwcontrol.attlist" combine="interleave">
    <optional>
      <attribute name="class" a:defaultValue="+ topic/ph hw-d/hwcontrol "/>
    </optional>
  </define>
  <define name="partno.attlist" combine="interleave">
    <optional>
      <attribute name="class" a:defaultValue="+ topic/ph hw-d/partno "/>
    </optional>
  </define>
</div>

</grammar>

```

## Modified grammar files

The following document-type shells must be modified:

### DTD

- bookmap.dtd
- concept.dtd
- ditabase.dtd
- generalTask.dtd
- glossentry.dtd
- glossgroup.dtd
- map.dtd
- reference.dtd
- task.dtd
- topic.dtd
- troubleshooting.dtd

### RNG

- bookmap.rng
- concept.rng
- ditabase.rng
- generalTask.rng
- glossentry.rng
- glossgroup.rng

- map.rng
- reference.rng
- task.rng
- topic.rng
- troubleshooting.rng

In the content below, the following conventions are used:

- Bold is used to indicate code to be added, for example, **addition**.
- Ellipses (...) indicate where code is snipped for brevity.

**Figure 4: Changes to DTD-based document-type shells**

```

...
<!-- ===== -->
<!--          DOMAIN ENTITY DECLARATIONS          -->
<!-- ===== -->
...
<!ENTITY % hw-d-dec
  PUBLIC "-//OASIS//ENTITIES DITA 2.0 Hardware Domain//EN"
  "hwDomain.ent"
>%hw-d-dec;
...
<!-- ===== -->
<!--          DOMAIN EXTENSIONS          -->
<!-- ===== -->
...
<!ENTITY % ph          "ph |
                        %hi-d-ph; |
                        %hw-d-ph; |
                        %pr-d-ph; |
                        %sw-d-ph; |
                        %ui-d-ph; |
                        %equation-d-ph;
                        ">
...
<!ENTITY % keyword    "keyword |
                        %markup-d-keyword; |
                        %pr-d-keyword; |
                        %sw-d-keyword; |
                        %ui-d-keyword; |
                        %xml-d-keyword;
                        ">
...
<!-- ===== -->
<!--          DOMAINS ATTRIBUTE OVERRIDE          -->
<!-- ===== -->

<!ENTITY included-domains
  "&concept-att;
  &abbrev-d-att;
  &audienceAtt-d-att;
  &deliveryTargetAtt-d-att;
  &otherpropsAtt-d-att;
  &platformAtt-d-att;
  &productAtt-d-att;
  &equation-d-att;
  &hazard-d-att;
  &hi-d-att;
  &hw-d-att;
  &markup-d-att;
  &mathml-d-att;
  &pr-d-att;
  &relmgmt-d-att;
  &sw-d-att;
  &svg-d-att;
  &ui-d-att;
  &ut-d-att;

```

```

&xml-d-att;
"
>
...
<!-- ===== -->
<!--          DOMAIN ELEMENT INTEGRATION          -->
<!-- ===== -->
...
<!ENTITY % hw-d-def
PUBLIC "-//OASIS//ELEMENTS DITA 2.0 Hardware Domain//EN"
      "hwDomain.mod"
>%hw-d-def;
...

```

Figure 5: Changes to RNG-based document-type shells

```

...
<div>
  <a:documentation>DOMAINS ATTRIBUTE</a:documentation>
  <define name="domains-att" combine="interleave">
    <optional>
      <attribute name="domains"
        a:defaultValue="(topic abbrev-d)
                        (topic concept)
                        (topic equation-d)
                        (topic hazard-d)
                        (topic hi-d)
                        (topic hw-d)
...
<div>
  <a:documentation>MODULE INCLUSIONS</a:documentation>
  ...
  <include href="hwDomain.rng"/>
  ...

```

## Modified catalog files

The catalog files must be modified.

In the content below, the following conventions are used:

- Bold is used to indicate code to be added, for example, **addition**.
- Ellipses (...) indicate where code is snipped for brevity.

Figure 6: dtd/technicalContent/catalog.xml

```

...
<public publicId="-//OASIS//ELEMENTS DITA 2.0 Hardware Domain//EN"
  uri="dtd/hwDomain.mod"/>
<public publicId="-//OASIS//ELEMENTS DITA 2.x Hardware Domain//EN"
  uri="dtd/hwDomain.mod"/>
<public publicId="-//OASIS//ENTITIES DITA 2.0 Hardware Domain//EN"
  uri="dtd/hwDomain.ent"/>
<public publicId="-//OASIS//ENTITIES DITA 2.x Hardware Domain//EN"
  uri="dtd/hwDomain.ent"/>
...

```

Figure 7: rng/technicalContent/catalog.xml

```

<?xml version="1.0" encoding="UTF-8"?>
<catalog xmlns="urn:oasis:names:tc:entity:xmlns:xml:catalog">
  <!--DITA Technical Communications modules-->
  <group><!-- System ID (URL) catalog entries -->
    ...
    <system systemId="urn:oasis:names:tc:dita:rng:hwDomain.rng:2.0"

```

```

        uri="rng/hwDomain.rng"/>
        <system systemId="urn:oasis:names:tc:dita:rng:hwDomainDomain.rng:2.x"
            uri="rng/hwDomain.rng"/>
    ...
<group><!-- Public ID (URN) catalog entries -->
    ...
        <uri name="urn:oasis:names:tc:dita:rng:hwDomain.rng:2.0"
            uri="rng/hwDomain.rng"/>
        <uri name="urn:oasis:names:tc:dita:rng:hwDomain.rng:2.x"
            uri="rng/hwDomain.rng"/>

```

## Modified terminology

None

## Modified specification documentation

Three new topics.

- langref/containers/hwdomain.dita - Container for the Hardware domain.
- langRef/technicalContent/hwcontrol.dita
- langRef/technicalContent/partno.dita

Suggest this is added to langRef/technicalContent-elements.ditamap.

```

...
<!--Equation domain-->
<mapref href="equation-domain-elements.ditamap"/>
<!--Hardware domain-->
<mapref href="hardware-domain-elements.ditamap"/>
<!--Markup domain-->
<mapref href="markup-domain-elements.ditamap"/>
...

```

One new ditamap, langRef/hardware-domain-elements.ditamap.

```

<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE map PUBLIC "-//OASIS//DTD DITA Map//EN" "map.dtd">
<map>
  <title>Software domain elements</title>
  <topicref href="containers/hwdomain.dita" navtitle="Hardware domain">
    <topicref href="technicalContent/hwcontrol.dita" keys="hwcontrol" navtitle="hwcontrol"/>
    <topicref href="technicalContent/partno.dita" keys="partno" navtitle="partno"/>
  </topicref>
</map>

```

## Migration plans for backwards incompatibilities

Not applicable.



## Hardware domain

The hardware domain elements are used to document physical devices.

### <hwcontrol>

The <hwcontrol> element represents the name of a key, button, switch, or other physical control on a device. This element is part of the DITA hardware domain, a special set of DITA elements designed to document hardware information.

### Usage information

If you require different output between different types of hardware controls, you can use the @outputclass attribute to distinguish between different types of usage.

### Specialization hierarchy

The <hwcontrol> element is specialized from <ph>. It is defined in the hardware domain module.

### Examples

```
<step><cmd>If the command is already running,
select the command window and press <hwcontrol>CTRL+C</hwcontrol>
to end processing.</cmd></step>
```

```
<step><cmd>After entering the amount you received, press <hwcontrol>Amt Tend</hwcontrol>.</cmd>
<stepresult>This opens the cash drawer. The display shows the amount of change to give the
customer.</stepresult></step>
```

```
<step><cmd>To set your machine for this type of hem, set the <hwcontrol
outputclass="knob">Stitch Length</hwcontrol> to
<userinput>3</userinput> and the <hwcontrol outputclass="lever">Stitch Selector</hwcontrol> to
<userinput>D</userinput>.
```

```
<step><cmd>To sew backwards, set the <hwcontrol outputclass="discrete-control">Stitch Length</
hwcontrol> to
<userinput>Reverse</userinput> and press the <hwcontrol outputclass="continuous-
control">pedal</hwcontrol> with your foot.
```

### <partno>

The <partno> element represents a part number. This element is part of the DITA hardware domain, a special set of DITA elements designed to document hardware information.

### Specialization hierarchy

The <partno> element is specialized from <ph>. It is defined in the hardware domain module.

### Examples

```
<p>The basic model, <partno>DB-123-456</partno>, is an entry model. Most users can take
advantage of all features with
little to no set up. The <partno>DB-123-456</partno> is available with all systems.
```

```
<step>
<cmd>Place the replacement <hwcontrol>Component <partno>DB-123-789</partno></hwcontrol> in
the slot and secure with the 4 screws.</cmd>
```

</step>