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	Minutes
Stage 2 proposal submitted	22 June 2020	Email
Stage 2 proposal discussed	23 June 2020	Minutes
Stage 2 proposal approved	30 June 2020	Minutes
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.	E-mail on 28 July 2020 E-mail on 21 August 2020

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/keyword 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:

- (DTD) `hwDomain.ent` and `hwDomain.mod`
- (RNG) `hwDomain.rng`

Figure 1: hwDomain.ent

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- ============================================================  -->
<!--                     HEADER                                    -->
<!--  ============================================================  -->
<!--   MODULE:    DITA Hardware Domain                             -->
<!--   VERSION:   2.0                                                -->
<!--   DATE:      [[[Release date]]]                                      -->
<!--                                                                -->
<!--  ============================================================  -->
<!--  ============================================================       -->
<!--                                                              -->

<!-- ============================================================ -->
<!--                    ELEMENT EXTENSION ENTITY DECLARATIONS      -->
<!-- ============================================================ -->

<!ENTITY % hw-d-ph
  "hwcontrol"
>
<!ENTITY % hw-d-keyword
  "partno"
>

<!-- ============================================================ -->
<!--                    DOMAIN ENTITY DECLARATION                 -->
<!-- ============================================================ -->

<!ENTITY hw-d-att
  "(topic hw-d)"
>

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

Figure 2: hwDomain.mod

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- ============================================================  -->
<!--                     HEADER                                    -->
<!--  ============================================================  -->
<!--   MODULE:    DITA Hardware Domain                             -->
<!--   VERSION:   2.0                                                -->
<!--   DATE:      [[[Release date]]]                                      -->
<!--                                                                -->
<!--  ============================================================  -->
<!--  ============================================================       -->
<!--                                                              -->

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

<!ENTITY % hwControl  "hwcontrol"                                   >
<!ENTITY % partno     "partno"                                      >

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

<!--                    LONG NAME:  Hardware control              -->
<!ENTITY % hwcontrol.content
                      "(#PCDATA |
```

```
                          %data; |
                          %draft-comment; |
                          %image; |
                          %keyword; |
                          %partno; |
                          %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>
      <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>
      <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 &lt;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>
```