



DRAFT FOR REAFFIRMATION REVIEW

E1.30-1 – 2010 (R202x) EPI 23. Device Identification Subdevice

Part of the E1.30 Project, Application level equipment interoperability for control of commonly encountered entertainment technology devices using E1.17.

Approved by the ANSI Board of Standards Review on _____

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Abstract

This EPI specifies a collection of properties which may be exposed by a DMP device to provide detailed information on the manufacturer, model, serial number, hardware and software revisions and other administrative details of the device. These properties are described in a standard format as a templated DDL (sub)device.

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Acknowledgments

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Voting members**Observer members (non-voting)****Key to Interest Categories**

CP = custom-market producer

DR = dealer rental company

MP = mass-market producer

DE = designer

G = general interest

U = user

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Foreword – ACN EPIs

E1.17 is the “Architecture for Control Networks” standard [ACN]. It specifies an architecture – including a suite of protocols and languages which may be configured and combined with other standard protocols in a number of ways to form flexible networked control systems.

E1.17 Profiles for Interoperability (EPIs) are standards documents which specify how conforming implementations are to operate in a particular environment or situation in order to guarantee interoperability. They may specify a single technique, set of parameters or requirement for the various ACN [components](#). They may also specify how other standards (including other EPIs) either defined within ACN or externally are to be used to ensure interoperability.

1 Introductory Discussion

Device Description Language [DDL] provides the facility to describe devices such that one device, previously described, may be embedded within another device. Such a device is termed a sub-device, and the device it is embedded in a parent device. This allows common descriptions to be reused. It also allows applications to provide services specific to a particular sub-device, rather than having to divine the purpose of a group of properties from first principles.

Note

This EPI refers extensively to elements and constructions which are part of the DDL standard [DDL]. To understand this specification will require some knowledge of DDL and its terms. Also since DDL is founded on XML, that pervasive standard also needs to be understood.

This particular sub-device is intended to provide a common set of properties to identify for a user a particular instance of an ACN device, its hardware, software, and other information. In order to aid configuration, certain properties are writeable.

2 Device Identification Model

This section summarizes the model of the Device Identification device which a conforming device presents to a controller, without reference to specific DDL which will be shown in later sections.

2.1 Device Name (User Assigned Component Name or UACN).

EPI 19 [DiscoveryIP] requires every compliant component to maintain a persistent component name called the User Assigned Component Name (UACN). This name shows up in discovery and may be assigned by the user with any string value to suit the system role of that component. EPI19 [DiscoveryIP] does not specify any method to configure the value of this name, but for any device complying with this EPI the UACN must be accessible and modifiable using DMP via this property. The maximum size of the UACN property is parameterized but must be at least 64 octets.

In many implementations the UACN may be configurable by other methods (local controls, web-pages etc.) and so this property may be declared as volatile. It is also required to be persistent.

When the UACN is changed (whether by writing to this property or otherwise) the device must re-register itself and modify its advertisements as necessary to ensure that the new name is propagated throughout the ACN system. This same consideration will apply to any other discovery mechanism which uses the UACN.

2.2 The Default Device Name

The template also specifies the default value of the UACN. This is the value of the name as supplied from the factory and following a “reset defaults” operation and may be a null string.

2.3 The Model Name – Fixed Component Type Name (FCTN)

EPI 19 [DiscoveryIP] also defines a Fixed Component Type Name (FCTN) which is the string representing the model name and/or number of the device. It cannot be changed. Manufacturers use widely varying formats for this string. The model name is an immediate value provided as a template parameter. This allows a controller which has processed the device description offline to know in advance what FCTN received during discovery corresponds to this device. Note that while this facility is invaluable for presenting a human readable model name, it should not be used for automated identification – there are UUID [UUID] based mechanisms for this.

2.4 The Manufacturer

This is the string representing the name of the manufacturer of the device. It cannot be changed. The manufacturer shall take reasonable steps to ensure that this string is unique to them (e.g. “ABC Lighting Controls Inc.” rather than “ABC” or “ALC”). The manufacturer name is an immediate value provided as a template parameter.

2.5 The Manufacturer URL

This is the string representing the URL of the manufacturer of the device. It is intended to lead the user to further information. Manufacturers should ensure that, as a minimum, this URL leads to resources which provide the user with contact information for sales and support of the device. The manufacturer URL is an immediate value provided as a template parameter.

2.6 Hardware Version

This is a string representing the hardware version of the device. It cannot be changed. Manufacturers use widely varying version formats, so this property uses a string rather than a number to accommodate those formats. For software-only devices, (e.g. such as would run on PCs), the hardware version is frequently unknown or meaningless. In these cases it shall be an empty string.

Hardware version is included as a constant network readable property. This means that different instances of the same device type can have differing hardware versions. Note though that by the rules of DDL, if two hardware versions have sufficiently differing functionality to require different treatment of any kind by a controller, then a revised device description should be applied.

2.7 Software Version

This is a string representing the version of the software of the device. It cannot be changed. Manufacturers use widely varying version formats, so this property uses a string rather than a number to accommodate those formats.

Software version is included as a constant network readable property. This means that different instances of the same device type can have differing software versions. Note though that by the rules of DDL, if two software versions have sufficiently differing functionality to require different treatment of any kind by a controller, then a revised device description should be applied.

2.8 Serial Number

This is a string representing the serial number of the device. It cannot be changed. Manufacturers use widely varying serial number formats, so this property uses a string to accommodate those formats. Manufacturers shall ensure that each instance of any device has a unique serial number within their own organization. This ensures that the combination of Manufacturer Name and Serial Number will be globally unique.

Products without serial numbers shall return a null string for this property.

As with the Model name, the serial number is suitable for human interaction, but automated algorithms for identification of specific ACN components should use the CID.

3 The DDL

The following is a listing of two DDL documents which define this device. These documents are available under their UUID identifiers from ESTA and may be available in a variety of encodings or formats subject to the rules of DDL [DDL].

The combination of these two DDL documents and the referenced behavior descriptions and label form a normative description of this device. Any discrepancies between the DDL and this EPI are errors and should be reported to ESTA.

3.1 Behaviors Needed

All behaviors used by these documents are defined in the ACN Base Behaviorset [ACNbase] which is separately available under its own UUID.

Note on Draft DDL

The “provider” attribute in these DDL documents is given as “<http://www.esta.org/ddl/draft/>” which in accordance with EPI32 [DraftDDL] indicates that these descriptions are in draft form and may change. On approval of this standard, the provider attribute must be changed to “<http://www.esta.org/ddl/final/>” and this note removed.

3.2 Device Identification Device DDL

```
<?xml version="1.0" encoding="ASCII"?>
<DDL version="1.1">
  <device UUID="c7efa24c-dd82-11d9-881e-00e018a44101"
    date="2008-03-24"
    provider="http://www.esta.org/ddl/draft/"
    xml:id="devid.dev">
    <UUIDname UUID="c7efa24c-dd82-11d9-881e-00e018a44101" name="devid.dev"/>
    <UUIDname UUID="4f0b2bfc-92c1-11dc-8098-000475d78133" name="devid.lset"/>
    <UUIDname UUID="71576eac-e94a-11dc-b664-0017316c497d" name="acnbase.bset"/>
    <parameter name="devicename-UACN-factory-default"/>
    <parameter name="devicename-size">
      <mininclusive>64</mininclusive>
      <maxinclusive>256</maxinclusive>
    </parameter>
    <parameter name="devicename-volatile-behavior">
      <choice>volatile</choice>
      <choice>NULL</choice>
    </parameter>
    <parameter name="modelname-FCTN-value"/>
    <parameter name="manufacturer-name"/>
    <parameter name="manufacturer-URL"/>
    <label key="devid-device" set="devid.lset"/>
    <useprotocol name="ESTA.DMP"/>
    <property sharedefine="true" valuetype="network" xml:id="devicename">
      <label key="devicename" set="devid.lset"/>
      <behavior name="UACN" set="acnbase.bset" xml:id="devicename-behav"/>
      <behavior set="acnbase.bset"
        name="volatile" name.paramname="devicename-volatile-behavior"/>
      <protocol name="ESTA.DMP">
        <propref_DMP loc="0" read="true"
          size="64" size.paramname="devicename-size"
          varsize="true" write="true" xml:id="devicename-access"/>
      </protocol>
    </property sharedefine="true" valuetype="immediate" xml:id="defaultname">
```

```

    <label key="defaultname" set="devid.lset"/>
    <behavior name="initializer" set="acnbase.bset"/>
    <value type="string" value.paramname="devicename-UACN-factory-default"/>
  </property>
</property>
<property sharedefine="true" valuetype="immediate" xml:id="modelname">
  <label key="modelname" set="devid.lset" xml:id="modelname-lbl"/>
  <behavior name="FCTN" set="acnbase.bset"/>
  <value type="string" value.paramname="modelname-FCTN-value"
    xml:id="modelname-value"/>
</property>
<property sharedefine="true" valuetype="immediate" xml:id="manufacturer">
  <label key="manufacturer" set="devid.lset"/>
  <behavior name="manufacturer" set="acnbase.bset"/>
  <value type="string" value.paramname="manufacturer-name"
    xml:id="manufacturer-value"/>
</property>
<property sharedefine="true" valuetype="immediate" xml:id="maunfacturerURL">
  <label key="maunfacturerURL" set="devid.lset"/>
  <behavior name="maunfacturerURL" set="acnbase.bset"/>
  <value type="string" value.paramname="manufacturer-URL"
    xml:id="manufacturerURL-value"/>
</property>
<property sharedefine="true" valuetype="network" xml:id="hardwareversion">
  <label key="hardwareversion" set="devid.lset"/>
  <behavior name="hardwareVersion" set="acnbase.bset"/>
  <protocol name="ESTA.DMP">
    <propref_DMP loc="1" read="true" size="32" varsize="true"/>
  </protocol>
</property>
<property sharedefine="true" valuetype="network" xml:id="softwareversion">
  <label key="softwareversion" set="devid.lset"/>
  <behavior name="softwareVersion" set="acnbase.bset"/>
  <protocol name="ESTA.DMP">
    <propref_DMP loc="2" read="true" size="32" varsize="true"/>
  </protocol>
</property>
<property sharedefine="true" valuetype="network" xml:id="serialno">
  <label key="serialno" set="devid.lset"/>
  <behavior name="devSerialNo" set="acnbase.bset"/>
  <protocol name="ESTA.DMP">
    <propref_DMP loc="3" read="true" size="32" varsize="true"/>
  </protocol>
</property>
</device>
</DDL>

```

Notes:

- The DMP addresses for network accessible properties all use the relative format of DDL so that the entire sub-device's address map may be relocated when it is included, however since they are not parameterized it is not possible to change their relative arrangement from instance to instance
- All four network properties are strings which use the variable length encoding of DMP.
- The devicename property value is persistent because its "UACN" behavior refines "persistent" behavior.

3.3 Languageset for Device Identification Device

```

<?xml version="1.0" encoding="ASCII"?>
<DDL version="1.1">
  <!--Part of BSR E1.30-1 ESTA TSP document ref. CP/2008-1004 -->
  <languageset UUID="4f0b2bfc-92c1-11dc-8098-000475d78133" date="2008-03-24"
    provider="http://www.esta.org/ddl/draft/" xml:id="devid.lset">
    <UUIDname UUID="4f0b2bfc-92c1-11dc-8098-000475d78133" name="devid.lset"/>
    <label key="devid-languageset" set="devid.lset"/>
    <language lang="en-US">
      <string key="devid-languageset">Labels for Device ID device</string>
      <string key="devid-device">Device ID device</string>
      <string key="devicename">User assigned component name (UACN)
        &#8211; also appears in discovery</string>
      <string key="defaultname">Default value for UACN name
        &#8211; only used in new devices or on &#8220;reset defaults&#8221;
        operation.</string>
      <string key="modelname">Manufacturer's model name
        &#8211; also appears in discovery</string>
      <string key="manufacturer">Manufacturer</string>
      <string key="maunfacturerURL">URL of Manufacturer</string>
      <string key="hardwareversion">Hardware version string</string>
      <string key="softwareversion">Software version string</string>
      <string key="serialno">Serial number of device</string>
    </language>
    <language lang="de">
      <string key="devid-languageset">Beschriftung der Ger&#228;te
        ID des Ger&#228;ts</string>
      <string key="devid-device">Ger&#228;te ID des Ger&#228;ts</string>
      <string key="devicename">Benutzer-definierter Ger&#228;te-Name
        &#8211; erscheint auch in Discovery</string>
      <string key="defaultname">Vorgabe-Wert f&#252;r den Ger&#228;te-Namen
        &#8211; erscheint nur bei neuen Ger&#228;ten und bei Verwendung
        der "reset defaults" Funktion.</string>
      <string key="modelname">Hersteller Modell-Name
        &#8211; erscheint auch in Discovery</string>
      <string key="manufacturer">Hersteller</string>
      <string key="maunfacturerURL">URL des Herstellers</string>
      <string key="hardwareversion">Hardware-Versions Bezeichnung</string>
      <string key="softwareversion">Software-Versions Bezeichnung</string>
      <string key="serialno">Serien-Nummer des Ger&#228;tes</string>
    </language>
  </languageset>
</DDL>

```

4 Use as a subdevice.

This Device Identification Device description is a template which requires instantiating to supply the values for immediate properties and other parameters.

Here is an example where the device is just inserted into another device's description:

```

<?xml version="1.0" encoding="US-ASCII"?>
<DDL version="1.1">
  <device UUID="3886a80a-92c8-11dc-9067-000475d78133" date="2010-01-06"
    provider="http://www.esta.org/ddl/draft/">
    <UUIDname UUID="c7efa24c-dd82-11d9-881e-00e018a44101" name="devid.dev"/>
    <useprotocol name="ESTA.DMP"/>
    <includedev UUID="devid.dev">
      <protocol name="ESTA.DMP">
        <childrule_DMP loc="10000"/>
      </protocol>
    </includedev>
  </device>
</DDL>

```

```

</protocol>
<setparam name="devicename-UACN-factory-default"
  >ESTA Example Device For EPI 23</setparam>
<setparam name="devicename-size">128</setparam>
<setparam name="modelname-FCTN-value"
  >ESTA Example Device For EPI 23</setparam>
<setparam name="manufacturer-name"
  >Entertainment Services & Technology Association (ESTA)</setparam>
<setparam name="manufacturer-URL">http://www.esta.org/tsp/</setparam>
</includedev>
<!--The rest of the parent device's properties follow
  ...
-->
</device>
</DDL>

```

Notes:

- In this example, the default volatile behavior of the Device Name property is preserved. If parameter “devicename-volatile-behavior” were set to “NULL” instead of the default “volatile”, this would imply that accessing this property via DMP is the only way to change its value.
- The example device has a maximum length for the device name string of 128 octets which is longer than the default 64. Since this string is UTF8 encoded, the number of complete characters that 128 octets can represent is variable and may be anything from 128 down to 42.
- The childrule_DMP element provides an offset for the relative addresses used in the template meaning that in this example the network properties are laid out as follows:

Property xml:id	DMP location	Access
devicename	10,000	Read/Write
hardwareversion	10,001	Read only
softwareversion	10,002	Read only
serialno	10,003	Read only

- It is likely that manufacturers have more detailed information per device than the Device Identification device currently holds. These may be added in the same device which instantiates the Device ID template, in a template that contains the Device ID template, or in a template that extends the Device ID template.

Annex A. Definitions

CID: Component Identifier. A UUID [UUID] identifying a particular component.

component: The process, program or application corresponding to a single ACN endpoint. All messages in ACN are sent and received by a component which is identified by a CID. See [Arch] for a more complete definition. See also CID.

Annex B. Normative References

[ACN] Entertainment Services and Technology Association, [<http://tsp.esta.org/>]. ANSI E1.17 - 2010, Entertainment Technology - Architecture for Control Networks.

[Arch] Entertainment Services and Technology Association, [<http://tsp.esta.org/>]. ANSI E1.17 - 2010, Entertainment Technology – Architecture for Control Networks. “ACN” Architecture.

[DDL] Entertainment Services and Technology Association, [<http://tsp.esta.org/>]. ANSI E1.17 - 2010, Entertainment Technology - Architecture for Control Networks. Device Description Language.

[DiscoveryIP] Entertainment Services and Technology Association, [<http://tsp.esta.org/>]. ANSI E1.17 - 2010, Entertainment Technology – Architecture for Control Networks. EPI 19 ACN Discovery on IP Networks.

[DraftDDL] Entertainment Services and Technology Association, [<http://tsp.esta.org/>]. E1.30-10 - 2009. EPI 32, Identification of Draft Device Description Language Modules.

[ACNbase] Entertainment Services and Technology Association, [<http://tsp.esta.org/>]. ACN base behaviorset. urn:uuid:71576eac-e94a-11dc-b664-0017316c497d.

[UUID] Internet Engineering Task Force (IETF) [<http://ietf.org/>]. RFC 4122 [<http://ietf.org/rfc/rfc4122.txt>]. P. Leach, M. Mealling, and R. Salz. A Universally Unique Identifier (UUID) URN Namespace. July 2005.