ANSI E1.17-2015 (R2020) Architecture for Control Networks
EPI 22. DDL Core Modules for ACN Devices

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Abstract

This EPI specifies how DDL modules that are core to the ACN specification are marked and identified.

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Foreword – ACN EPIs

ANSI E1.17-2006 is the “Architecture for Control Networks” standard [ACN]. It specifies an architecture, including a suite of protocols and languages that 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 that 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 a rich framework for describing controlled devices in terms of a structure of properties and describes how those properties relate to the properties accessible via Device Management Protocol [DMP]. In conjunction with DMP it also specifies how to access those properties. However, the functionality associated with those properties is left to DDL descriptions.

> **Note**
>
> This EPI refers extensively to elements and constructions that are part of the DDL standard [DDL]. To understand this specification will require some knowledge of DDL and its terms.

While the DDL specification provides the syntax framework for descriptions it does not itself define any modules, and provides no specific behaviors.

This Interoperability Profile specifies modules that are suitable for DMP, DMX512, or E1.31 systems [DMP][DMX512][E1.31] and that include descriptions of properties that enable most control mechanisms common in entertainment technology equipment to be addressed. The behaviorset modules defined here include many very fundamental and in some cases abstract behavior descriptions that are highly relevant across a huge range of control applications and that may be built upon to create new more specialist behaviors in other applications.

Both behaviorset and device modules generally have associated sets of strings (languageset modules) that complement the device or behavior descriptions.

2 DDL Modules

A DDL module is defined within the DDL specification to be a behaviorset, languageset or device element and its contents (including attributes).

All DDL modules of whichever type carry three mandatory attributes: UUID, provider and date: UUID is a Universally Unique Identifier [UUID] that is uniquely assigned to this module to be used as an identifier for it; provider is a URL identifying the person or organization who is responsible for this module. The use of a URL allows flexible subdivision of large organizations or access to additional material associated with the description; date is the date of release of the module. In the case where multiple modules are available for the same purpose (e.g., as marked by an alternatefor element), the date can assist a controller or user in selecting between multiple alternatives.

3 ESTA Approved ACN Core Modules

3.1 Original Behaviorset and Languageset Modules

The behaviors specified by the first revision of this EPI are defined in DDL behaviorset module with UUID a713a314-a14d-11d9-9f34-000d613667e2. These have an associated languageset with UUID 98757e30-a14e-11d9-8fcc-000d613667e2.

This behaviorset and languageset are defined as part of DDL for DMP but may be freely referenced by DDL using other protocols without change of UUID provided that they do not conflict with rules specific to those other protocols.

3.2 Additional Modules

From time to time ESTA may sanction additional behaviorsets and languagesets that extend, supersede or complement the original base behaviorset. To avoid requiring revision of this EPI or other parts of the ACN standard each time some additional module is sanctioned as a part of the core ACN behaviors, a special provider URL is assigned.

The provider attribute of any DDL module is a URL that specifies the originator or controller of the module. Any URL beginning “http://www.esta.org/” is the property of ESTA.

3.3 ACN-core URL

The ACN-DDL-core URL shall be reserved for DDL modules that are sanctioned as having official approval of ESTA’s Control Protocols Working Group.

The ACN-DDL-core URL shall be: `http://www.esta.org/ddl/acn-core/`

3.4 Availability Requirements

In general DMP requires any device to be able to provide DDL documents containing the definitions associated with any UUID they reference. Conformance to [DDLretrieval] requires DMP devices to make all DDL modules they reference available on the network except as specifically exempted by this EPI.

The following DDL modules are considered a core part of DDL for DMP equipment and devices are not required to store and make them available:

- a713a314-a14d-11d9-9f34-000d613667e2 “DMP Standard Behavior Set”
- 98757e30-a14e-11d9-8fcc-000d613667e2 “DMP Standard Behavior Names”
- Any DDL module with the provider attribute set to the ACN-DDL-core URL defined above

Annex A Definitions

controller (DDL): Within DDL a controller is a network entity that interprets the DDL descriptions of devices to know how to access or control them using the access protocol(s) of the Device Description to access each device.

device (DDL): Within DDL, a device is a DDL module describing an entity that may be monitored and controlled by means of a network or datalink. In DDL there is no distinction between a device and a sub-device except for the context in which they are encountered (device is a recursive term).

Annex B Normative References

[ACN] Entertainment Services and Technology Association, [https://tsp.esta.org]. E1.17. Entertainment Technology - Architecture for Control Networks. The edition current when this Standard is approved.

[DDL] Entertainment Services and Technology Association, [https://tsp.esta.org].E1.17. Entertainment Technology - Architecture for Control Networks. Device Description Language. The edition current when this Standard is approved.

[DMP] Entertainment Services and Technology Association, [https://tsp.esta.org].. E1.17. Entertainment Technology - Architecture for Control Networks. Device Management Protocol. The edition current when this Standard is approved.

[DDLretrieval] Entertainment Services and Technology Association, [https://tsp.esta.org].E1.17. Entertainment Technology - Architecture for Control Networks. EPI 11. Retrieval of Device Descriptions from DMP Devices on IPv4 networks. The edition current when this Standard is approved.

[DMX512] Entertainment Services and Technology Association, [https://tsp.esta.org]. ANSI E1.11. Entertainment Technology - USITT DMX512-A, Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories. The edition current when this Standard is approved.

[E1.31] Entertainment Services and Technology Association, [https://tsp.esta.org]. ANSI E1.31-2009, Entertainment Technology – Lightweight streaming protocol for transport of DMX512 using ACN. 2009.

[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.

[ISO-DATE] International Standards Organisation [http://www.iso.org/]. ISO 8601. Data elements and interchange formats - Information interchange. Representation of dates and times. 2000.