ANSI E1.17-2015, Architecture for Control Networks EPI 11.
Retrieval of Device Descriptions from DMP Devices on IPv4 Networks

Part of ANSI E1.17 - 2015, which was approved by the ANSI Board of Standards Review on 21 May 2015.
This part has no substantive changes from the 2010 edition.

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Abstract

The proper operation of Device Management Protocol [DMP] in E1.17 systems is dependent on controllers having access to the appropriate device descriptions [DDL] for the devices present. This EPI specifies the requirements for devices operating DMP in IPv4 networks.

Table of Contents

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 Outline

A component exposing DMP [DMP] properties on an IPv4 network shall make available all documents and entities comprising the full DDL device description(s) [DDL] of that component including all devices and subdevices that it exposes together with any languagesets or behaviorsets referenced (directly or indirectly). The only exceptions to this rule shall be any DDL modules that are explicitly exempted.

In the case of components with reconfigurable sub devices, components shall make available descriptions and associated modules for all devices currently configured. They should make available descriptions and associated modules for all devices that can or may be configured. For example, this means a dimmer pack with pluggable modules *must* offer descriptions for the modules that are actually fitted and *should* make available descriptions for alternative modules that may be fitted at some time.

2 Names of DDL descriptions

All modules comprising a DDL description are identified by a 128-bit UUID [UUID]. In order to retrieve the corresponding description a "filename" shall be created by writing the UUID in the standard text format of [UUID], and appending ".ddl" e.g. "4448a7c7-51f5-4e1f-a7ff-8a945a91d193.ddl".

The file of this name shall then be requested from the IP host that houses the component using the file transfer mechanism. No directory or structure need be applied.

2.1 Content of DDL files

In DDL, a UUID identifies just one module, and a DDL document may contain just one module. However, for simplicity in lightweight devices, they are permitted to combine multiple DDL documents into a single file. When a device receives a request for a DDL module as specified above, it shall return a file containing the DDL document defining that module. The file returned may contain additional DDL documents entirely at the choice of the designer of that device, provided that each document complies with the DDL specification and with the XML definition of a document [XML]. The file may not ,however, contain anything apart from valid DDL documents. (Note the XML production for a document does allow white-space padding.)

For example, a device whose description is divided into five modules may return five different files in response to requests for those modules. Or it may return just one file that contains the descriptions of all five modules in response to requests for any of them.

This means that processors that use off-the-shelf XML processing tools may need to split the file returned by the device into multiple XML documents before processing them.

2.2 Uniqueness of File Names

The name of the file is not globally unique in the sense that files of this name may reside in multiple places, and

because some copies of the file may contain other DDL documents (see Content of DDL files), but the rules of DDL mandate that all copies of the identified document have identical information content and so it does not matter which is returned.

3 File transfer mechanism

For IPv4 networks the file transfer mechanism shall be TFTP [TFTP].

Annex A Definitions

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

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).

IPv4: Internet Protocol version 4.

Annex B Normative References

[ACN] Entertainment Services and Technology Association, since 1 Janury 2011 PLASA North America [http://tsp.plasa.org/]. E1.17. Entertainment Technology – Architecture for Control Networks. The edition current when this Standard is approved.

[Arch] Entertainment Services and Technology Associationsince 1 Janury 2011 PLASA North America [http://tsp.plasa.org/]. E1.17. Entertainment Technology – Architecture for Control Networks. "ACN" Architecture. The edition current when this Standard is approved.

[DDL] Entertainment Services and Technology Association, since 1 Janury 2011 PLASA North America [http://tsp.plasa.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 Associationsince 1 Janury 2011 PLASA North America [http://tsp.plasa.org/]. E1.17. Entertainment Technology – Architecture for Control Networks. Device Management Protocol. The edition current when this Standard is approved.

[TFTP] Internet Engineering Task Force (IETF) [http://ietf.org/]. RFC 1350 [http://ietf.org/rfc/rfc1350.txt]. K. Sollins. The TFTP Protocol (Revision 2). July 1992.

[CoreDDL] Entertainment Services and Technology Associationsince 1 Janury 2011 PLASA North America [http://tsp.plasa.org/]. E1.17. Entertainment Technology – Architecture for Control Networks. EPI 22 DDL Core Modules for ACN Devices. The edition current when this Standard is approved.

[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.

[XML] World Wide Web Consortium (W3C) [http://www.w3c.org/]. Extensible Markup Language (XML) 1.0 (Third Edition). 1.0 (The edition current when this Standard is approved. W3C Recommendation. [http://www.w3.org/TR/xml/].