1722.1 Draft 20 Changes

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Changes

- Entity Discovery

- AEM Descriptors

- AEM Commands

- AEM Notifications

- Security

- Connection Management

- IP Proxy

Entity Discovery

- Things which cause entity_model_id changes better clarified

- Advertising State Machine split into 2 parts - Advertising Interface State Machine and Advertising Entity State Machine

  - For a single interface Entity (one MAC address) there is no change

  - For a multi interface Entity (multiple MAC addresses) ADP is now synchronized across the interfaces.

AEM Descriptors

- **All Descriptors**

  - Replaced clock_source_index, clock_sources_count and clock_sources_offset fields with clock_domain_index field

  - Removed clock_sources field

- **Entity Descriptor**

  - Removed as_grandmaster_id and entity_type fields

- **Unit Descriptors (AUDIO_UNIT, VIDEO_UNIT, SENSOR_UNIT)**

  - Added child CONTROL_BLOCKs

AEM Descriptors (cont)

- Stream Descriptors (STREAM_INPUT and STREAM_OUTPUT)

    - Added buffer_length which is the length in nanoseconds of the MAC's ingress or egress buffer as defined in 1722-2011 Fig 5.4

    - Added flag to say that it supports encrypted PDUs

    - The stream formats (current_format and formats fields) changed - See 7.3.2

- AVB_INTERFACE Descriptor

    - Removed the as_grandmaster_id and MSRP mappings fields

AEM Descriptors (cont)

- Clock Source Descriptor

  - Updated the flags and types

- Audio Cluster

  - am824_label field renamed format and enumerated values defined

- Video Cluster

  - PES updated to better describe audio

AEM Descriptors (cont)

- Maps (AUDIO_MAP, VIDEO_MAP and SENSOR_MAP) now describe only static fixed mappings which cannot be changed at runtime (without changing the entity model)

- New AEM commands are available for providing dynamically changeable maps

  - Get current map

  - Add map entries

  - Delete map entries

AEM Descriptors (cont)

- Control Descriptor

  - control_location_type and control_location_index removed

  - reset_time added (for controls which automatically reset to default values after a timeout if not tickled)

- Signal Selector, Mixer, Matrix, Signal Splitter, Signal Combiner, Signal Demultiplexer, Signal Multiplexer and Signal Transducer Descriptors

  - control_location_type and control_location_index removed

AEM Descriptors (cont)

- **Clock Domain Descriptor**

  - Added

  - Defines a set of objects being driven by the same clock (may be PLL)

- **Control Block Descriptor**

  - Added

  - Provides way to group output reporting controls with the controls which manipulate them (e.g. filter response control)

AEM Commands

- Commands have been re-ordered to group like functionality together

- Required commands are at the top (ACQUIRE_ENTITY, LOCK_ENTITY, ENTITY_AVAILABLE and CONTROLLER_AVAILABLE)

- Commands shorter than 64 octets now have no explicit reserved padding built in, but instead require that the frame is zero padded to the minimum transmission size

AEM Commands (cont)

- Old notification commands have been replaced with new ones

- New commands provided for manipulating dynamic maps

- Authentication and Key commands have been completely re-done

- Added commands for enabling/disabling transport and stream security

AEM Notifications

- State Change and Specific Query notifications are gone

- Replace with Unsolicited Response notifications

  - Interested Controllers register their interest with Entity who then sends an unsolicited response to each one

  - When the Entity successfully processes and responds to a (specified) command it also sends an unsolicited version of the response to all of the registered Controllers

Security

- Security section has had a major overhaul

- There is now one list of keys on the entity

- Keychains are a list of key GUIDs which give the keys permissions or rights

  - See Authentication and Security presentation

- Now use IEEE 1363a-2004 to define how to do security

Connection Management

- Added new status codes

- Added flags for encrypted streams

- Changed the Listener State Machine

    - Now does extra validation and disconnects before sending the DISCONNECT_TX command

    - Fixed mistake in DISCONNECT_TX timeout

IP Proxy

- Greatly simplified

- Leverages http connect for authentication, TLS and chaining through proxies

- Allows server to manage dynamic Controller GUIDs

- There are state machine diagrams and definitions now!