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!