



# IEEE 1722.1 New Work - April 2014

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# 6.2, 7.4, 8.2 and 9.2 PDU Diagrams

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- Need to replace all of the PDU diagrams with diagrams which include the full PDU format. To match what we have done in 1722a

# Dynamic Entities

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- Add support for dynamic entity IDs and dynamic entity model IDs
  - A dynamic entity ID shall be unique within a session but may not be unique across sessions, e.g. the device containing the entity may reboot and assign a different dynamic entity ID to the entity
  - Two entities with the same dynamic entity model ID may have different models based on how they are configured (whats plugged in)
- least significant bit of the most significant byte of the EUI-64 (the I/G or M bit of the EUI) indicates that it is dynamic
  - See <https://standards.ieee.org/develop/regauth/tut/eui.pdf>

# Supported Commands

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- Add a command or descriptor which includes a bitmap of which commands are supported by the entity

## 7.3 AEM Field Value Types

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- Add new field value types
- Expand existing types (Control Types)

# Sampling Rate Ranges

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- Need to add Sampling Rate Ranges
  - Needed so that Video Clusters can represent a dynamic frame rate device

# New Control Types

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- Barometric Pressure
- Vendor URL
- Entity URL
- Configuration URL
- Other URL
- Fault

# More New Control Types

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- Controller Target
  - A way to configure simple controllers (such as the button on the wall) with where the control values should be sent
- Latency Compensation
  - Like a Delay control but used specifically for correcting for internal latency differences between entities
  - Delay is then purely for effects



# More New Control Types

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- Link Status
- Port Mode Options
- Port Mode Status
- SRP
  - deltaBandwidth
  - adminIdleSlope

# More New Control Types

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- gPTP
  - clock class
  - accuracy
  - priority 1
  - priority 2
  - GM capable
  - UTC offset

# Yet More new Control Types

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- gPTP (cont)
  - neighborPropDelayThresh
  - neighborRateRatio (read only)
  - log announce interval
  - log sync interval
  - log PDelay request interval

# Even More New Control Types

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- Baud Rate
- Serial Bit Width
- Parity
- Number of Stop Bits

## 7.2 AEM Descriptors

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- Expand descriptors for new capabilities

# AVB\_INTERFACE Descriptor

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- Add flags for if the interface
  - Can listen to streams it is transmitting
  - Can listen to streams another interface on the entity is transmitting
- Add controls as children
  - Add number\_of\_controls and base\_control fields.

# Video Cluster

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- Add the new sampling rate ranges to the VIDEO\_CLUSTER descriptor
  - current\_sampling\_rate\_range, supported\_sampling\_rate\_ranges\_count and supported\_sampling\_rate\_ranges\_offset will be added at offset 121
  - supported\_sampling\_rate\_ranges will be added to the end
  - Cluster shall use either sampling rate or sampling rate ranges (i.e. either supported\_sampling\_rates\_count or supported\_sampling\_rate\_ranges\_count shall be 0)

## 7.3 AEM AECP Commands

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- Enhance some existing commands
- Add new commands



# Acquire Entity Command

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- Needs descriptive text and/or a state machine for how to handle receiving an ACQUIRE\_ENTITY command while waiting for the CONTROLLER\_AVAILABLE response or timeout
- **Acquire sends unsolicited response**

# ENTITY\_AVAILABLE Response

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- Update the ENTITY\_AVAILABLE response to include the following fields:
  - flags
  - acquired\_controller\_id
  - locked\_controller\_id

# GET\_AVB\_INFO

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- Add flag which indicates link status (up/down)
- Add flags which indicate link mode? (100/1G/10G/etc?)

# GET\_PATH\_LATENCY Command

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- Add GET\_PATH\_LATENCY command which will get the path latency for a cluster (as is reported by the path\_latency field)
- Unsolicited response is sent when something causes this value to change (e.g. a signal selector changes it to a shorter or longer path)

# SET/GET\_SAMPLING\_RATE\_RANGE

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- Need to add new command for the new sampling rate ranges which are the equivalent of SET\_SAMPLING\_RATE and GET\_SAMPLING\_RATE

# SET/GET\_MULTIPLE\_CONTROLS

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- Add a command that lets you set and get the values of multiple controls in the same command

# CHANGE\*\_ENCRYPTION

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- Add command to enable the changing of stream or transport encryption without disabling and re-enabling encryption
- Specifies a gPTP time at when the change will take effect (e.g. a stream frame with a presentation time after this time will use the new key)

# GET\_MSRP\_\* Commands

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- Add new commands targeting an AVB\_INTERFACE descriptor to get the MSRP attributes for a port (egress)
  - GET\_MSRP\_TALKER\_ATTRIBUTES
    - Talker attributes being advertised on the port
  - GET\_MSRP\_LISTENER\_ATTRIBUTE
    - Listener attributes being advertised on the port
  - GET\_MSRP\_DOMAIN\_ATTRIBUTE
    - Domain attributes being advertised on the port
  - GET\_MSRP\_BANDWIDTH
    - The amount of bandwidth reserved on the port



# SET/GET\_MAX\_TRANSIT\_TIME

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- Add SET\_MAX\_TRANSIT\_TIME and GET\_MAX\_TRANSIT\_TIME commands which will act on a STREAM\_INPUT or STREAM\_OUTPUT object

# OPERATION\_STATUS

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- Clarify how the sequence\_id for these messages is generated/used

# 7.5 Unsolicited Responses

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- Need a (timeout) mechanism to remove a registered Controller when it is lost or killed without deregistering.

# Controller Request

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- Add cr (controller request) bit to all commands which allows the entity to request the controller perform an action to set the appropriate thing
  - e.g. user changes a front panel knob for the sample rate, entity sends SET\_SAMPLING\_RATE with u and rq set, controller can then call STOP\_STREAMING on all of the connected entities, SET\_SAMPLE\_RATE on all of the entities that are connected to the streams for the entity that requested, and then START\_STREAMING on all of the entities.

# Authentication and ACMP

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- Clarify that if authentication is being used (that is before doing any AECMP based action the AUTHENTICATE command must be sent) then this also applies to ACMP. If we feel this should be an option then may need to add a flag and error code.

# ACMP Status Codes

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- Need to add
  - ACMP\_LISTENER\_INVALID\_CONNECTION, 18, "The AVDECC Listener is being asked to connect to something that it cannot listen to, e.g. it is being asked to listen to it's own AVDECC Talker stream."
- Some listeners are incapable of listening to the same stream multiple time, may need a new status code for this
  - ACMP\_LISTENER\_CAN\_ONLY\_LISTEN\_ONCE?

# ACMP Controller Commands

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- Add new command or allow Controller to send command to disconnect the TX when a listener is not present.

# Memory Object Download Protocol

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- We have a Memory Object Upload Protocol, we should be consistent and define the opposite direction as well



# Redundancy

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- Need a way to specify that two streams are used as redundant backups for the other on a different link
  - We can already specify that streams are on different ethernet ports
  - Need to specify that they are the same stream

# Flash Programming

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- Need a standard binary AEM format that is suitable for programming directly into flash and being used to configure the device at boot

# AVDECC Proxy Protocol

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- Add JOIN\_MULTICAST and LEAVE\_MULTICAST to enable the APC to tell APS to join or leave a multicast address

# Your New Work Here

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- If you have more new work for the new version of IEEE 1722.1 please email the reflector
  - [AVBTP-DECC@LISTSERV.IEEE.ORG](mailto:AVBTP-DECC@LISTSERV.IEEE.ORG)