
New command and response modes for AECP-AEM in 1722.1

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Purpose

- Current 1722.1 draft has 5 types of command and response modes
- These modes are not sufficient to handle all scenarios in an automotive environment.
- For example:
 - Time consuming operations,
 - Getting updates from devices as their value change,
 - Increment some parameter without knowing its current value etc.

Purpose

- To handle these scenarios we are proposing new modes for commands and responses
- New command modes are:
 - START_OPERATION
 - ABORT_OPERATION
 - REGISTER
 - DEREGISTER
 - SETGET
 - INCREMENT
 - DECREMENT
- New response modes are:
 - PROCESSING
 - RESULT

Time consuming operations

- Get and Set commands are meant to get a 'property' value
- If a device needs to do a lot of processing for a particular command and takes long time to reply, then the controller can not know whether the command has succeeded or failed
- Example for this is tuner command **Auto store FM stations**. This operation may take few seconds to complete.
- This can be solved using commands **START_OPERATION**, **PROCESSING** and response **RESULT**

Time consuming operations

- For time consuming operations, controller sends **START_OPERATION**
- **Sequence**
 - On receiving **START_OPERATION**, the device immediately sends a response **PROCESSING** (with a status success or failure)
 - After finishing the operation tuner sends **RESULT** (final result with a status success or failure)
 - Optionally, the controller can stop an operation which is in progress using command **ABORT_OPERATION**

Property Updates

- We may need to continuously monitor some parameter (property) and get the new value whenever it changes
E.g. Current time of track in a CD player
- This can be achieved by having a new command mode **REGISTER**
- **Sequence:**
 - Controller will send **REGISTER** command to a device with some property (Address?)
 - Device **registers** (stores in a notification table?) this controller's address and sends the response **ACKSET** (Or may be **VALUE**)
 - Whenever the value of this property changes the device sends an update with response message **VALUE**
 - Controller will send **DEREGISTER** command to stop receiving updates

Increment/Decrement

- We may need to increment/decrement some parameter without knowing its current value
- E.g. Increment/Decrement sound volume of an amplifier
- Can be achieved through **SET** command, but the controller needs to know the exact value
- **Sequence**
 - Controller sends command **INCREMENT** or **DECREMENT** for a property
 - Device increments or decrements the **current value** of this property and sends the response **ACKSET** (or **VALUE?**)

SetGet Mode

- Can be used to SET some property and GET its new value
- It is just an improvement over existing SET and GET commands
- Advantage is, we need only one set of command and response instead of two
- **Sequence**
 - Controller sends command SETGET with a some value to be set
 - Device sets this new value and sends the response VALUE