Clarification Request

Reference: "BTL Implementers Guide-17", "BTL Checklist-3.0.final", "ASHRAE 135.1-2003"

Background:

I figured out that there is a difference between the input and output objects regarding the out-of-service functionality. I think I understood the behaviour of the input type objects, but the value and output type is strange:

In the BTL-Impl-Guide-12 (newest one?)

In section 8.7 there is:
If a device cannot afford priority-array use value objects, but when doing so, there is a difference in the definition of the behaviour of the out-of-service feature.

For Output Objects Clause 12.3.10 says
The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the physical point that the object represents is not in service. This means that changes to the Present_Value property are decoupled from the physical output when the value of Out_Of_Service is TRUE. In addition, the Reliability property and the corresponding state of the FAULT flag of the Status_Flags property shall be decoupled from the physical output when Out_Of_Service is TRUE. While the Out_Of_Service property is TRUE, the Present_Value and Reliability properties may still be changed to any value as a means of simulating specific fixed conditions or for testing purposes. Other functions that depend on the state of the Present_Value or Reliability properties shall respond to changes made to these properties while Out_Of_Service is TRUE, as if those changes had occurred to the physical output. The Present_Value property shall still be controlled by the BACnet command prioritization mechanism if Out_Of_Service is TRUE. See Clause 19.

For Value Objects Clause 12.4.9 says
The Out-Of-Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the Present_Value of the Analog Value object is prevented from being modified by software local to the BACnet device in which the object resides. When Out_Of_Service is TRUE, the Present_Value property may be written to freely. If the Priority_Array and Relinquish_Default properties are present, then writing to the Present_Value property shall be controlled by the BACnet command prioritization mechanism. See Clause 19.

Question:

The behaviour of value objects tells you:
- decouple the internal mechanism to set the present-value but the output is still coupled to the present value, meaning the load sees a voltage that the tracks the changes of the present-value property if there is a 0-10V output. This behaviour is independent whether the value object has a priority-array or not. If the priority-array is available, the present value can easily been written using a higher priority anyway. What do we need the out-of-service service for? Does it mean that internal mechanisms are no longer allowed to write to priority 16 (the lowest one used for internal settings)?

The behaviour of output objects tells you:

- decouple the physical output. Does that mean that
    - the output not longer tracks the changes in present-value (freeze?)

- is set by another mechanism as a local matter?
- is set by another mechanism defined by BACnet?
- is parked in the relinquish-default position?
- anything else?

The question above addresses the analog objects directly. Similar things happen when looking to the binary and multi-state objects too.

For me these two types do definitively mean that there is a big difference in the behaviour.

Is there already a clarification-request around or does anybody know the solution (e.g. new guideline to the standard?)

Response

The most recent version of the BTL Implementer's Guide is v17 and can be found on the BTL website (www.bacnetinternational.org/btl/documentation.php).

The BTL-WG has discussed the above question in reference to section 8.7 of the Implementer's Guide and believes this section in the guide is correct and useful to implementers.

The Value and Output object behavior differences in the standard are intentional.

When the Output Object OUT_OF_SERVICE property is TRUE it is 'decoupled' from the physical output. The intent here is that the output no longer tracks the changes in the present-value property.

When the Value Object OUT_OF_SERVICE property is TRUE, the present-value is required to be writable by BACnet Services. If the OUT_OF_SERVICE property is FALSE it is not required that the present-value be writable. If the Value Object is commandable the command prioritization mechanism still applies. The present-value of the Value object may be writable even if it is not a commandable object.

The behavior of any physical output connected to a Value Object is not addressed in the standard. For example, the Value Object can be implemented such that when the OUT_OF_SERVICE is TRUE causes a 'decoupling' of the physical output but this is not required.