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Title	**Clarifications on DASH EssentialProperty**
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1 Introduction

From the discussion during the 109th MPEG meeting and from the reading of the current MPEG-DASH standard, the behavior of EssentialProperty is unclear. This contribution proposes some clarifications.

2 Analysis

In Table 9 of section 5.3.7.2 on the semantics of common attributes and elements for AdaptationSet, Representation and Sub-Representation, the following text indicates the semantics of Essential and Supplemental Property descriptors.

> "**EssentialProperty**
> specifies information about the containing element that is considered essential by the Media Presentation author for processing the containing element."

> "**SupplementalProperty**
> specifies supplemental information about the containing element that may be used by the DASH client optimizing the processing."

This above text is redundant with the following text in "Specific descriptors" section which is more precise.

> "**5.8.4.8 Essential Property Descriptor**
> For the element **EssentialProperty** the Media Presentation author expresses that the successful processing of the descriptor is essential to properly use the information in the parent element that contains this descriptor unless the **EssentialProperty** element shares the same @id with another **EssentialProperty** element."

While the first part of the sentence explains the "essential" part of this descriptor: i.e. if the property is not understood, the content associated to the parent element may not be processed properly, the last part is inherited from generic DASH DescriptorType@id's semantic:

"Descriptors with identical values for this attribute shall be synonymous, i.e. the processing of one of the descriptors with an identical value is sufficient."

More importantly, in the text in 5.8.4.8, the wording is not strong enough for players to act correctly. In particular, it does not contain any normative statement.

Also, the following text in 5.8.4.8 is again a repetition of the generic DescriptorType@id's semantic from which EssentialProperty inherits.

> "If **EssentialProperty** elements share the same @id, then processing one of the **EssentialProperty** elements with the same value for @id <mark>is sufficient</mark>. At least one **EssentialProperty** element of each distinct @id value is expected to be processed."

This wording again is too soft. What does "is sufficient" mean exactly in terms of conformance?

Again in 5.8.4.8:
> "NOTE if the scheme or the value for this descriptor is not recognized the DASH <mark>client is expected to ignore</mark> the parent element that contains the descriptor.»

This wording does not indicate what happens with the MPD once the client ignores it. Should the MPD still be valid?

The current text on SupplementalProperty is fine:

> **"5.8.4.9 Supplemental Property Descriptor**
> For the element **SupplementalProperty** the Media Presentation author expresses that the descriptor contains supplemental information that may be used by the DASH client for optimized processing.
>
> NOTE if the scheme or the value for this descriptor is not recognized the DASH client is expected to ignore the descriptor.
>
> Multiple **SupplementalProperty** elements may be present."

EssentialProperty and SupplementalProperty elements are allowed at the AdaptationSet, Representation, SubRepresentation levels. More recently (in TuC w14618) it was proposed to extend their use at the MPD and Period elements level."

3   Proposal

Replace :
5.8.4.8   Essential Property Descriptor

For the element **EssentialProperty** the Media Presentation author expresses that the successful processing of the descriptor is essential to properly use the information in the parent element that contains this descriptor unless the element shares the same @id with another **EssentialProperty** element.

If **EssentialProperty** elements share the same @id, then processing one of the **EssentialProperty** elements with the same value for @id is sufficient. At least one **EssentialProperty** element of each distinct @id value is expected to be processed.

> NOTE   if the scheme or the value for this descriptor is not recognized the DASH client is expected to ignore the parent element that contains the descriptor.

Multiple **EssentialProperty** elements with the same value for @id and with different values for @id may be present.

With:

5.8.4.8   Essential Property Descriptor

With the presence of **EssentialProperty** elements, the Media Presentation author expresses that:

- The understanding and the successful processing (if any specific processing is required by the descriptor, e.g. authentication) of at least one **EssentialProperty** descriptor with a given **@id** value (in the scope of the parent element) is essential to properly use the information in the parent element. In particular, the processing of the parent element and of its children may lead to invalid or non-conformant results for a client not aware of the **EssentialProperty;**
- the MPD remains conformant to the indicated profile if the parent element is removed from the MPD.

NOTE   if the scheme or the value for this descriptor is not recognized the DASH client is expected to ignore the parent element that contains the descriptor.

Multiple **EssentialProperty** elements with the same value for @id and with different values for @id may be present.

4   Conclusion

We propose to adopt the proposal in a DASH Corrigendum.