Presentation Engine:
Profile Specification
for Connected Television

Draft A
19 August 2010

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Revision History

Rev.	Date	Author	Comment
DRAFT A	19/08/2010	BBC	Initial Draft

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1   Introduction

The UK Profile of MHEG-5 continues to provide a very effective solution for "red button" broadcast interactivity. The addition of the Interaction Channel creates the potential for an "extended broadcast" experience, with IP delivery being used to overcome the bandwidth restrictions of current broadcast networks.

However, MHEG-5 application development remains a specialist activity, which represents a barrier to entry for many content providers, particularly those with no existing broadcast presence and/or MHEG experience. To make application development easier for content providers and to reach the wider developer community additional presentation engine technology needs to be supported that is more in line with the implementation of mainstream web services.

This document defines the presentation technology to be supported by a consumer device.

2   MHEG-5 Profile

Devices that provide support for reception of UK-DTT services shall support a profile of MHEG-5 comprising:

- The UK Profile of MHEG-5, as defined in D-book 6.2.1, including support for the following extensions:
    - *HDGraphicsPlaneExtension*
    - *HDVideoExtension*
    - *ICEncryptedStreamExtension*
    - *LifecycleExtension*
    - *NativeApplicationExtension*
    - *DownloadableFontExtension*

- MHEG-5 Extensions defined in the Broadcast Content Delivery for Connected Television specification.

3   W3C Profile

Devices shall support a profile of W3C technologies comprising:

> Definition of the set of W3C-defined technologies to support is ongoing. Project Canvas partners are involved in industry standardisation activities including DTG, OIPF and W3C and take these groups into account when deciding on a profile.
>
> A high-level summary of the profile of W3C that we are looking at is as follows:
>
> - HTML 4.0.1, XHTML 1.0
> - Subset of HTML-5 (draft), including Web Forms, Web Storage, and <audio>, <video> and <canvas> elements.
> - CSS-2.1
> - Subset of CSS-3, potentially including webfonts (TTF), RGBA, opacity, transitions, borders (rounded), boxshadow, textshadow, 2D transforms
> - JavaScript 1.5+
> - JavaScript extensions providing access to device functionality outside of the W3C presentation engine, which embody the Developer API as introduced in the Consumer Device Software Architecture specification
> - XmlHttpRequest API (AJAX support)
> - DOM level 2
> - Subset of DOM level 3
> - Dependency on shared libraries in line with Consumer Device Platform specification

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In addition the definition of an explicit mapping of programming semantics onto graphics hardware acceleration so as to provide developers with means to achieve a more deterministic outcome.

4 Flash Profile

Consideration of the use of Flash as a presentation technology is ongoing. The following defines the profile of Flash that is being considered.

Devices shall support a profile of Flash comprising:

- The SWF File Specification version 10, which can be found at:
  http://www.adobe.com/devnet/swf/pdf/swf_file_format_spec_v10.pdf

  This specification makes reference to a separate document outlining how the AVM2 virtual machine operates, which can be found at:
  http://www.adobe.com/devnet/actionscript/articles/avm2overview.pdf

  Note: Support for AVM2 allows Flash applications to be developed using ActionScript 3.

- The Action Message Format (AMF) Specification version 3, which can be found at:
  http://opensource.adobe.com/wiki/download/attachments/1114283/amf3_spec_05_05_08.pdf

- The minimum Flash Video File Specification version 10, which can be found at:
  http://www.adobe.com/devnet/flv/pdf/video_file_format_spec_v10.pdf

  This specification includes definition of support for an MP4 based file format (F4V).

- The Real-Time Messaging Protocol (RTMP) Specification version 1.0, which can be found at:
  http://www.adobe.com/devnet/rtmp/pdf/rtmp_specification_1.0.pdf

- A set of extensions providing access to device functionality outside of the Flash presentation engine, which embody the Developer API as introduced in the Consumer Device Software Architecture specification.

The means by which such extensions could be achieved within the Flash VM would be defined in a future revision of this specification.