bmcoforum **Recommendation for Implementation Profile**

OMA BCAST Services

Approved Version 2.0

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Based on OMA BCAST V1.0 Enabler Specification

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Introduction

Scope

The "Broadcast Mobile Convergence Forum" (**bmco**forum) is an international organisation targeting to shape an open market environment (eco-system) for mobile broadcast services. This ranges from support of the various bearer technologies over application architecture to regulatory and business issues.

The Interoperability Work item (WI2) targets on enabling interoperability between back end systems and terminals of different vendors, even before standards are available or complete.

For this purposes and based on commercial requirements from our membership profiles of the standard specifications are developed. The profiles serve as a prioritization for implementers so that interoperability of the profile features can be maximised. The profiles are prepared as valid subsets of the standard.

The main objective of the recent activity is to facilitate and accelerate the development of OMA BCAST implementations by focussing implementations of **bmco**forum members who wish to launch mobile TV services to a subset of features which has been agreed between operators, system and handset vendors.

As the specifications **bmco**forum are profiling will evolve, the profiles are reviewed and enhanced. Still, the profiles may not include the entire specifications, since **bmco**forum works on the superset of commercial requirements of its members.

Implementers of the profiles may use other features of OMA BCAST, however with the caveat that they may not be supported by other **bmco**forum profile implementers.

This document includes **bmco**forum's implementation profile recommendation for the OMA BCAST 1.0 Services specification. It is intended to support industry players in developing interoperable OMA BCAST 1.0 standards-based solutions.

This document is intended to be used as a support and clarification when implementing OMA BCAST Services specification.

The used reference OMA BCAST baseline document has been:

Mobile Broadcast Services, Open Mobile Alliance, [1].

The document contains the following information:

- A list of the OMA BCAST 1.0 Services features which are required by **bmco**forum members who wish to launch mobile TV.
- Implementation guidelines related to those features (where appropriate).

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How to read this document

The chapter numbering in this document matches that of the original OMA BCAST Services specification [1].

Therefore after this introduction the numbering jumps to '5'. This makes it easier to cross-reference against the original OMA items.

This document profiles a baseline of OMA BCAST features intended to promote interoperability between the service providers, mobile and broadcast operators and terminal vendors involved in a BCAST deployment. The phrases "part of this profile"/"not part of this profile" are used instead of "supported/not supported". This is because implementers may use other features of OMA BCAST, however with the caveat that they may not be supported by other **bmco**forum profile implementers. If a particular feature described in the referred BCAST specification(s) is not explicitly mentioned in this profile, it means that the feature is implicitly "not part of this profile".

The following is the legend used in this specification before the XML item name:

Type: (E)=Element, (A)=Attribute, (E1)=sub-element, (E2)=sub-element's sub-element, (E[n])=sub-element of element[n-1]

Terminology

Please refer to [1] for definitions and abbreviations.

References

[1] Mobile Broadcast Services, Open Mobile Alliance OMA-TS-BCAST_Services-V1_0, available from http://www.openmobilealliance.org

[2] Service Guide for Mobile Broadcast Services, Open Mobile Alliance OMA-TS-BCAST_ServiceGuide-V1_0, available from http://www.openmobilealliance.org

[3] OMA BCAST Service and Content Protection: Smartcard profile, **bmco**forum Recommendation for Implementation Profile, V2.0 20090630-A

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5 Mobile Broadcast Services

5.1 Service Provisioning

The following table specifies which of the general Service Provisioning messages are part of this profile. Note that the messages below are relevant for the DRM profile but not for the Smartcard profile.

Message	**Section as defined in [1]**	**Part of the profile?**
Pricing Information Request	5.1.5.1.1	Yes
Pricing Information Response	5.1.5.1.2	Yes
Service Request	5.1.5.2.1	Yes
Service Response	5.1.5.2.2	Yes
Service Completion	5.1.5.2.3	Yes
LTKM Renewal Request	5.1.5.3.1	Yes
LTKM Renewal Response	5.1.5.3.2	Yes
LTKM Renewal Completion	5.1.5.3.3	Yes
Unsubscribe Request	5.1.5.4.1	Yes
Unsubscribe Response	5.1.5.4.2	Yes
Token Purchase Request	5.1.5.5.1	No
Token Purchase Response	5.1.5.5.2	No
Token Purchase Completion	5.1.5.5.3	No
Account Inquiry Request	5.1.5.6.1	No
Account Inquiry Response	5.1.5.6.2	No

Table 1: Summary General Service Provisioning messages

The following table specifies which of the (U)SIM Smartcard Service Provisioning messages are part of this profile. Note that the messages below are relevant for the Smartcard profile but not for the DRM profile.

Message	**Section as defined in [1]**	**Included in the profile**
Pricing Information Request	5.1.6.1.1	Yes
Pricing Information Response	5.1.6.1.2	Yes
Service Request	5.1.6.2.1	Yes
Service Response	5.1.6.2.1	Yes
LTKM Renewal Request	5.1.6.3	Yes
LTKM Renewal Response	5.1.6.3	Yes
Unsubscribe Request	5.1.6.4.1	Yes
Unsubscribe Response	5.1.6.4.1	Yes
Token Purchase Request	5.1.6.5.1	No
Token Purchase Response	5.1.6.5.1	No
Account Inquiry Request	5.1.6.6	No
Account Inquiry Response	5.1.6.6	No
Registration Procedure	5.1.6.7	Yes
LTKM Request Procedure	5.1.6.8	Yes
Deregistration Procedure	5.1.6.9	Yes
LTKM delivery mechanisms	5.1.6.10	Yes
Parental Control messages delivery mechanisms	5.1.6.11	Yes
PDP context handling	5.1.6.12	Yes

Table2: Summary (U)SIM Smartcard Service Provisioning messages.

5.1.1 Transport Protocol for Service Provisioning Messages

This is part of this profile as specified by 5.1.1 of [1]

5.1.2 HTTP Binding

This is part of this profile as specified by 5.1.2 of [1].

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5.1.3 Message Authentication

This is part of this profile as specified by 5.1.3 of [1]

5.1.4 Use of Global Status Codes for Service Provisioning Messages

This is part of this profile as specified by 5.1.4 of [1]

5.1.5 General Service Provisioning Messages

Messages that are part of this profile are defined in table 1, see above, with the exception of the 'BroadcastRoamingSpecificPart' element which is not part of this profile.

Note that this section is relevant for the DRM profile but not for the Smartcard profile.

5.1.6 Smartcard Profile Service Provisioning Messages

Messages that are part of this profile are defined in table 2, see above.

Note that this section is relevant for the Smartcard profile but not for the DRM profile. Further note that this document only lists those higher-level messages that are not directly involved into registration/deregistration and LTKM/Parental control messages delivery. Recommendations for registration/deregistration and LTKM/Parental control messages delivery related messages are given in [3].

5.1.6.1 Pricing Information Messages

This is part of this profile as specified in 5.1.6.1 of [1], with the exception of the 'BroadcastRoamingSpecificPart' element which is not part of this profile.

5.1.6.2 Service Request Messages

This is part of this profile as specified in 5.1.6.2 of [1], with the exception of the 'BroadcastRoamingSpecificPart' element which is not part of this profile.

5.1.6.4 Unsubscription Messages

This is part of this profile as specified in section 5.1.6.4 of [1]

5.1.7 Message Compression

This is part of this profile as specified by 5.1.7 of [1]

5.1.8 Provisioning Trigger Message

This is not part of this profile.

5.1.9 Web-based Service Provisioning

For use with the smartcard profile, this is part of this profile as specified in 5.1.9 of [1], through use of registration request and not service request.

For use with the DRM profile, this is not part of this profile.

5.2 Terminal Provisioning

Terminal provisioning is not part of this profile.

However, terminals should be able to bootstrap themselves by scanning available frequencies.

The expected behavior is that user should have a choice between the different Service Guides which are available at their current location. Terminals may choose a default SG based on whatever criteria (e.g. the network code in the ESGProviderDiscovery Descriptor) but a general choice should be possible.

5.3 Interaction

The following interaction types are part of this profile:

- Interactive retrieval of the service guide
- Service interaction
- Interactive delivery of BCAST services

Interactive retrieval of additional information related to the Service Guide through the 'Extension' element is part of this profile.

5.3.1 Protocols and media codecs for Service Interaction function

This is part of this profile as per section 5.3.1 of [1]. The protocols used for interaction are: IP, TCP, HTTP, SMS, IPSEC, UDP, MMS, HTTPS, Voice call, e-mail.

5.3.2 Interactive retrieval of Service Guide

This is part of this profile as per section 5.3.2 of [1].

5.3.3 Interactive retrieval of Service related information

Interactive retrieval of service related information should be supported for those fragments for which support of the extension URL is specified in the SG profile.

5.3.4 Interactive Service Ordering

This is part of this profile as defined in table 1 and 2, see above

5.3.5 Interaction for service and content protection

This is part of this profile as defined in table 1 and 2, see above

5.3.6 Service related interaction and feedback

5.3.6.1 Interactivity Media Document

For terminals not supporting the ActionDescriptor element, the terminal is assumed to render documents with a GroupPosition 0x000000 as part of this profile.

Legend: (E) denotes a root element, (E1) a sub-element, (E2) a sub-sub-element, E(*n*) a sub-element of (E*n*-1). (A) denotes an attribute.

5.3.6.1.2 Format of Interactivity Media Document

The elements and attributes in InteractivityMediaDocument that are part of this profile are:

- (E) InteractivityMediaDocument
  - (A) groupID
  - (A) groupPosition . The value 0x000000 is used for static documents which do not contain ActionDescriptor elements as part of this profile.
  - (A) id
  - (A) version
  - (A) validFrom
  - (A) validTo
- (E1) MediaObjectGroup
  - (A) id
  - (A) startMediaFlag
  - (E2) ActionDescriptor
    - (A) inputAllowedTime
    - (A) onTimeOutPointer
    - (A) updateFlag
    - (A) onActionPointer
  - (E2) BackOffTiming
    - (A) offsetTime
    - (A) randomTime
  - (E2) MediaObjectSet
    - (A) relativePreference
    - (A) Content-Type
    - (A) Content-Location

- (E3) Description
- (E3) Object
  - (A) Content-Location
  - (A) Content-Type
  - (A) start

o (E2) SMSTemplate

- (A) relativePreference
- (E3) Description
  - (A) text
- (E3) SelectChoice
  - (A) smsURI
  - (E4) ChoiceText

o (E2) EmailTemplate

- (A) relativePreference
- (A) toHeader
- (A) subjectHeader
- (E3) Description
- (E3) MessageBody

o (E2) VoiceCall

- (A) relativePreference
- (E3) Description
- (E3) PhoneNumber

o (E2) Weblink

- (A) relativePreference
- (A) webURL
- Note: The following behaviour is part of this profile: browsing to a Web page, further browsing and subsequent return to the TV application as desired by the user. Once the browsing session has ended focus is returned to the TV application. Cardinality is 0…1
- (E3) Description

- (E1) PrivateExt
  - o (E2) <proprietary elements>

5.3.6.1.3 On the rendering

Section 5.3.6.1.3 of [1] is part of the profile with the following clarification:

The regular broadcast stream may be suspended when the user is interacting with the media objects associated with the InteractivityMediaDocument.

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5.3.6.1.4 MediaObjectSet parsing for interactivity technology selection

MediaObjectSet parsing for interactivity technology selection is part of this profile as defined in section 5.3.6.1.4 of [1].

5.3.6.1.5 InteractivityMediaDocument generation and parsing for language selection

InteractivityMediaDocument generation and parsing for language selection is part of this profile as defined in section 5.3.6.1.5 of [1].

5.3.6.1.6 MediaObjectSet definition for some interactivity technologies

MediaObjectSet definition for some interactivity technologies is part of this profile as defined in section 5.3.6.1.6 of [1].

5.3.6.1.7 Using URI scheme "sms:"

The URI scheme for SMS is part of this profile as defined in section 5.3.6.1.7 of [1].

5.3.6.1.8 Service Interaction using MMS Message Template

The usage of the MMS template is part of this profile as defined in 5.3.6.1.8 of [1].

Examples of the document usage are given in Appendix A.

Table 3: Content types/protocols supported by the interactivity function

Table 3 shows which content types and protocols of the interactivity function are parts of the profile.

Content type/protocol	**Part of this profile?**
SMS template	Yes
MMS template	Yes if available on terminal
Phonenumber via Tel-URI (RFC 3966)	Yes (at least one required)
Phonenumber via SIP URI (RFC 3261)	
HTML/XHTML/XHTML-MP	Yes (at least one required)
SMS-URI in (X)HTML files	Yes if available on terminal
Tel-URI in (X)HTML files	Yes if available on terminal
JPEG	Yes

GIF	Yes
PNG	Yes
Email template	Yes if available on terminal
Other image formats	No
Video codecs	No
Audio codecs	No
Vector graphics formats	No

Table 3: Profile of content types and protocols for interactivity function

5.3.6.2 Broadcast delivery of InteractivityMediaDocuments

Broadcast delivery of InteractivityMediaDocuments is part of the profile as defined in 5.3.6.2 of [1]

5.3.6.3 Interactive delivery of InteractivityMediaDocuments

Interactive delivery of InteractivityMediaDocuments over HTTP is part of the profile, as defined in 5.3.6.3 of [1]

5.4 Personalization/Support for User-based Profiles and Preferences

Not part of this profile.

5.5 Charging

Not part of this profile.

5.6 Mobility

This is part of this profile as specified in 5.6 of [1] with the exception of section 5.6.2 [1], 'Global identification of services and content'.

5.7 Broadcast Roaming

Not part of this profile.

5.8 Availability of Location Information

Not part of this profile.

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5.9 XML for Signalling

This is part of this profile as specified in 5.9 of [1].

5.10 Service Provisioning of Unicast Services

This is part of this profile as specified in section 5.10 of [1].

5.11 Global Status Codes

This is part of this profile as specified in section 5.11 of [1].

5.12 Auxiliary data insertion and support for advertisements

Not part of this profile.

5.13 Subtitling and Closed Captions

This is part of the profile as specified in section 5.13 of [1].

5.14 Notification Function

Notification Function is not part of this profile.

Appendix A: Examples of InteractivityMedia Documents

Example of SMS Interactivity

```
<?xml version="1.0" encoding="UTF-8"?>
<InteractivityMediaDocument
 groupID="www.example.com/bar/documentGroup1234"
 groupPosition="0"
 id="www.example.com/bar/document1234"
 version="56">
 <MediaObjectGroup id="www.example.com/bar/group1234"
    startMedia_Flag="true">
  <SMSTemplate>
     <SelectChoice smsURI="sms:+410000000?body=Vote A">
       <ChoiceText xml:lang="en">Vote for song A</ChoiceText>
     </SelectChoice>
    <SelectChoice smsURI="sms:+410000000?body=Vote B">
       <ChoiceText xml:lang="en">Vote for song B</ChoiceText>
     </SelectChoice>
  </SMSTemplate>
 </MediaObjectGroup>
</InteractivityMediaDocument>
```

Example of Interactivity Application

```
<?xml version="1.0" encoding="UTF-8"?>
<InteractivityMediaDocument
 groupID="www.example.com/bar/documentGroup1235"
 groupPosition="0"
 id="www.example.com/bar/document1235"
```

```
version="56">
<MediaObjectGroup id="www.example.com/bar/group1235"
      startMediaFlag="true">
  <MediaObjectSet
    relativePreference="1"
    Content-Type="application/x-gzip"
    Content-URI="www.example.com/bar/entryPoint.gz">
    <Description>More Information</Description>
    <Object
      Content-Type="application/xhtml+xml"
      Content-Location="page.xhtml"
      start="true"/>
    <Object
      Content-Type="xxx"
      Content-Location="associatedFile1.xxx"
      start="false"/>
    <Object
      Content-Type="xxx"
      Content-URI="associatedFile2.xxx"
      Start="false"/>
    ...
    <Object
      Content-Type="xxx"
      Content-URI="associatedFileN.xxx"
      start="false"/>
  </MediaObjectSet>
</MediaObjectGroup>
</InteractivityMediaDocument>
```

Change history

Version	Date / Status	Description of changes
1.0	20070930-A	Initial version of the Implementation Profile.
1.1	20080708-D	Aligned with bug fixes that have been applied to the referenced versions of the OMA BCAST specifications. No new functionality added. Alignments include: - Updates to Table 1 and Table 2 in sect. 5.1. - Editorial restructuring to sections 5.1.6. - Clarification to the use of procedures and methods in sections 5.1.7, 5.1.8, 5.1.9, 5.1.10. - Note added to sect. 5.1.8.
1.1	20080709-V	
1.1	20080721-A	
1.2	20081111-D	Editorial changes. Updated reference to Final Draft of OMA BCAST spec. Moved the low-level Registration and LTKM delivery related sections into Smartcard profile document. Aligned with bug fixes that have been applied to the referenced version of the OMA BCAST specification. No new functionality added. Alignments include: - Changes in tables 1 and 2 as some messages were removed. Added scoping for DRM and Smartcard profiles for Service provisioning messages. - Profiled out from Service provisioning messages the new "BroadcastRoamingSpecificPart" that was added to BCAST. - Profiled out Provisioning Trigger for DRM - Clarified that web shop is part of the profile only for Smartcard profile. - Removed SmartcardProfile Trigger message from the profile as it was removed from OMA BCAST. - Multi-language supprt in InteractivityMediaDocument.

1.2	20081128-D	Editorial changes. Updated references to Final Draft OMA BCAST specs and to latest **bmco**forum profile docs.
1.2	20081209-D	Updated references to latest **bmco**forum profile docs.
1.2	20081211-V	
1.2	20090107-A	
2.0	20090618-D	Added the following features: - No more limitations in the support of Registration/Deregistration/LTKM request procedures - LTKM delivery mechanisms - Parental Control messages delivery mechanisms - PDP context handling - Support of subtitling and closed captions
2.0	20090622-V	Reference update to the **bmco**forum profile documents V2.0
2.0	20090630-A	