

**bmcoforum Recommendation for Implementation Profile**

**OMA BCAST Service Guide**

**Approved Version 2.0**

**30 June 2009**

**Based on OMA BCAST V1.0 Enabler Specification**

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## Introduction

### Scope

The “Broadcast Mobile Convergence Forum” (**bmcoforum**) 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 **bmcoforum** 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 **bmcoforum** are profiling will evolve, the profiles are reviewed and enhanced. Still, the profiles may not include the entire specifications, since **bmcoforum** 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 **bmcoforum** profile implementers.

This document includes **bmcoforum**’s implementation profile recommendation for the OMA BCAST 1.0 Service Guide 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 Service Guide specification.

The used reference OMA BCAST baseline document has been:

*Service Guide for Mobile Broadcast Services, Open Mobile Alliance, [1].*

The document contains the following information:

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

## How to read this document

The chapter numbering of the original OMA specification is reflected in the numbering of this document. 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 **bmcoforum** 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] Service Guide for Mobile Broadcast Services, Open Mobile Alliance OMA-TS-BCAST\_ServiceGuide-V1\_0, available from <http://www.openmobilealliance.org>

## 5.1 Service Guide Data Model

### 5.1.1 Service Guide Structure and Fragmentation

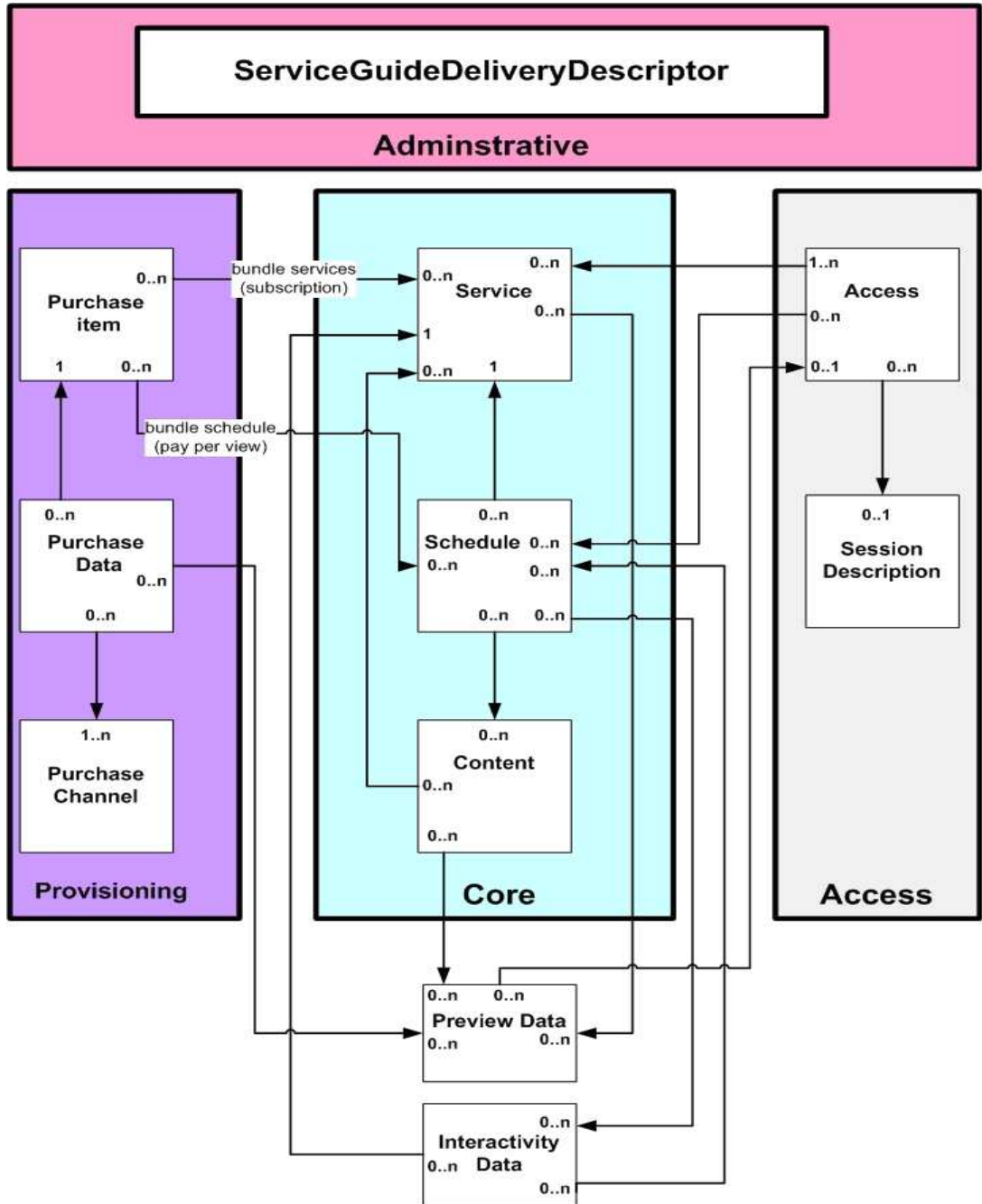


Figure 1: The Profiled Structure of Service Guide

## 5.1.2 Service Guide Elements, Attributes and Meta Data

This section gives detailed list of data model fragments with their element and attributes as supported by the profile.

### 5.1.2.1 Service fragment

Service fragment is specified in the section 5.1.2.1 in [1]. Elements and attributes that are part of this profile are:

- (E) Service
- (A) id
- (A) version
- (A) validFrom
- (A) validTo
- (A) globalServiceID
- (A) weight
- (A) baseCID
- (E1) ProtectionKeyID
  - (A) type
- (E1) ServiceType
- (E1) Name
- (E1) Description
- (E1) AudioLanguage
  - (A) languageSDPtag
- (E1) TextLanguage
  - (A) languageSDPtag

Note: The attribute "languageSDPtag" for AudioLanguage and TextLanguage are not necessarily (may or may not be) used by a terminal.

- (E1) ParentalRating

Note: The ETSI EN 300 468 scheme, in which the enumerated values are 3 less than each age limit, is part of this profile. The default, but modifiable set in use is: 2 ('5 years'), 8 ('11 years'), 12 ('15 years') and 15 ('18 years').

- (A) ratingSystem

Note: Value "0" which signals the ETSI EN 300 468 scheme is part of this profile.

- (E1) Genre



Note: The use of free string is part of this profile. Only the use of this string for display purposes to the end-user is part of this profile. Any automated classification processing by the terminal is not part of this profile.

- (E1) Extension

Note: The cardinality of this element is restricted to 0..1.

- (A) url

Note: The following behavior 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.

- (E2) Description

- (E1) PreviewDataReference

- (A) idRef

- (A) usage

Note: The values 2 (Service Guide Browsing), 3 (Service Preview, still picture only) are part of this profile.

- (E1) PrivateExt

- (E2) <proprietary elements>

### 5.1.2.2 Schedule fragment

Schedule fragment is specified in the section 5.1.2.2 in [1].

Elements and attributes that are part of this profile are:

- (E) Schedule
- (A) id
- (A) version
- (A) defaultSchedule
- (A) onDemand
- (A) validFrom
- (A) validTo
- (E1) ServiceReference
  - (A) idRef
- (E1) InteractivityDataReference
  - (A) idRef
- (E1) ContentReference
  - (A) idRef

- (A) contentLocation
- (E2) PresentationWindow
  - Note: The cardinality of this element is restricted to 0...1.
  - (A) startTime
  - (A) endTime
- (E1) PrivateExt
  - (E2) <proprietary elements>

As a restriction, a schedule fragment may only reference a single instantiation of a piece of content.

### 5.1.2.3 Content fragment

Content fragment is specified in the section 5.1.2.3 in [1].

Elements and attributes that are part of this profile are:

- (E) Content
  - (A) id
  - (A) version
  - (A) validFrom
  - (A) validTo
  - (A) globalContentID
  - (A) baseCID
  - (E1) ServiceReference
    - (A) idRef
    - (A) weight
  - (E1) ProtectionKeyID
    - (A) type
  - (E1) Name
  - (E1) Description
  - (E1) StartTime
  - (E1) EndTime
  - (E1) AudioLanguage
    - (A) languageSDPtag
  - (E1) TextLanguage
    - (A) languageSDPtag

Note: The attribute "languageSDPtag" for AudioLanguage and TextLanguage are not necessarily (may or may not be) used by a terminal.

- (E1) Length
- (E1) ParentalRating

Note: The ETSI EN 300 468 scheme, in which the enumerated values are 3 less than each age limit, is part of this profile. The default, but modifiable set in use is: 2 ('5 years'), 8 ('11 years'), 12 ('15 years') and 15 ('18 years').

- (A) ratingSystem

Note: Value "0" which signals the ETSI EN 300 468 scheme is part of this profile.

- (E1) Genre
  - The use of free string is part of this profile. Only the use of this string for display purposes to the end-user is part of this profile. Any automated classification processing by the terminal is not part of this profile.

- (E1) Extension

Note: The cardinality of this element is restricted to 0..1.

- (A) url

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.

(E2) Description)

- (E1) PreviewDataReference

- (A) idRef
- (A) usage

Note: The values 2 (Service Guide Browsing) and 3 (Service Preview, still picture only) form part of this profile.

- (E1) PrivateExt

- (E2) <proprietary elements>

Note: The following elements and attributes are not necessarily used by a terminal.

- weight
- Length

#### 5.1.2.4 Access fragment

Access fragment is specified in the section 5.1.2.4 in [1].

Elements and attributes that are part of this profile are:

- (E) Access
  - (A) id
  - (A) version
  - (A) validFrom
  - (A) validTo
  - (E1) AccessType
    - (E2) BroadcastServiceDelivery
      - (E3) BDSType
        - (E4) Type
      - (E3) SessionDescription
        - (E4) SDP
          - encoding
        - (E4) SDPRef
          - (A) uri
          - (A) idRef
      - (E2) UnicastServiceDelivery
        - (A) type
 

Note: only type="4" (RTSP to initialize RTP delivery as per 3GPP packet-switched streaming service) is part of this profile
        - (E3) AccessServerURL
        - (E3) SessionDescription
          - (E4) SDP
            - encoding
          - (E4) SDPRef
            - (A) uri
            - (A) idRef
    - (E1) KeyManagementSystem
      - (A) kmsType
      - (A) secureChannelRequired

The attribute 'secureChannelRequired' is part of this profile for terminals that support the Smartcard profile.

- (A) protectionType
- (E2) PermissionIssuerURI
- (E2) ProtectionKeyID
  - (A) type
- (E1) EncryptionType
- (E1) ServiceReference
  - (A) idRef
- (E1) ScheduleReference
  - (A) idRef
- (E1) TerminalCapabilityRequirements
  - (E2) Video
    - (E3) Complexity
      - (E4) Bitrate
        - (A) maximum
      - (E4) Resolution
        - (A) horizontal
        - (A) vertical
        - (A) temporal
    - (E2) Audio
      - (E3) Complexity
        - (E4) Bitrate
          - (A) maximum
  - (E1) ServiceClass

Note: E.2.2 (file delivery) and E.2.6 (streaming) are part of this profile.

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

#### ***5.1.2.5.1 Session Description***

Session Description fragment is part of this profile as specified in 5.1.2.5.1 in [1].

Session Description for broadcast streamed media sessions is part of this profile as specified in 5.1.2.5.2 in [1].

Session Description for broadcast file delivery session is part of this profile as specified in 5.1.2.5.3 and 5.1.2.5.3.1 (FLUTE only).

### 5.1.2.6 Purchase Item fragment

Purchase Item fragment is been specified in the section 5.1.2.6 in [1].

Elements and attributes that are part of this profile are:

- (E) PurchaseItem
  - (A) id
  - (A) version
  - (A) validFrom
  - (A) validTo
  - (A) globalPurchaseItemId
  - (A) weight

Note: The attribute 'weight' is not necessarily used by a terminal.

- (E1) ServiceReference
  - (A) idRef
- (E1) ScheduleReference
  - (A) idRef
- (E1) ProtectionKeyID
  - (A) type
- (E1) Name
- (E1) Description
- (E1) ParentalRating

Note: The ETSI EN 300 468 scheme, in which the enumerated values are 3 less than each age limit, is part of this profile. The default, but modifiable set in use is: 2 ('5 years'), 8 ('11 years'), 12 ('15 years') and 15 ('18 years').

- (A) ratingSystem

Note: Value "0" which signals the ETSI EN 300 468 scheme is part of this profile.

- (E1) Extension

Note: The cardinality of this element is restricted to 0...1.

- (A) url

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.

(E2) Description

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

Note: The behavior of the StartTime and EndTime elements can be covered by using ValidTo and ValidFrom elements.

### 5.1.2.7 Purchase Data fragment

Purchase Data fragment is specified in the section 5.1.2.7 in [1].

Elements and attributes that are part of this profile are:

- (E) PurchaseData
    - (A) id
    - (A) version
    - (A) validFrom
    - (A) validTo
    - (E1) ProtectionKeyID
      - (A) type
    - (E1) Description
    - (E1) PriceInfo
      - (A) subscriptionType
      - (E2) MonetaryPrice
        - (A) currency
      - (E2) SubscriptionPeriod
    - (E1) PurchaseItemReference
      - (A) idRef
    - (E1) PurchaseChannelReference
      - (A) idRef
    - (E1) PreviewDataReference
      - (A) idRef
      - (A) usage
- Note: The values 2 (Service Guide Browsing) and 3 (Service Preview, still picture only) are part of this profile.
- (E1) PrivateExt

- (E2) <proprietary elements>

### 5.1.2.8 Purchase Channel fragment

Purchase Channel fragment is specified in the section 5.1.2.8 in [1].

Elements and attributes that are part of this profile are:

- (E) PurchaseChannel
  - (A) id
  - (A) version
  - (A) validFrom
  - (A) validTo
  - (A) rightsIssuerURI
  - (E1) PortalURL
    - (A) supportedService
    - (A) kmsType
  - (E1) PurchaseURL
    - (A) kmsType
  - (E1) Name
  - (E1) Description
  - (E1) ContactInfo
  - Note: The element 'ContactInfo is not necessarily used by the terminals supporting interactivity channel.
  - (E1) PrivateExt
    - (E2) <proprietary elements>

### 5.1.2.9 Preview Data fragment

Preview Data fragment is specified in the section 5.1.2.9 in [1].

Elements and attributes that are part of this profile are:

- (E) PreviewData
  - (A) id
  - (A) version
  - (A) validFrom
  - (A) validTo
  - (E1) Picture
    - (E2) PictureURI



Note: Picture URI refers to picture inside the FileCast stream that AccessReference/idRef refers to.

- (E2) PictureData
- (E2) MIMETYPE

Note: the maximum resolution of a picture as part of this profile is QVGA (320 x 240)

- (E1) AccessReference

Note: There is exactly one Access fragment for all the Preview-Data fragments, addressing a file delivery session transmitted over the Broadcast channel.

- (A) idRef
- (E1) PrivateExt
  - (E2) <proprietary elements>

### 5.1.2.10 Interactivity Data fragment

Interactivity Data fragment is specified in the section 5.1.2.10 in [1].

Elements and attributes that are part of this profile are:

- (E) InteractivityData
  - (A) id
  - (A) version
  - (A) validFrom
  - (A) validTo
  - (A) preListenIndicator
    - Note: Fixed value "false"
  - (A) interactivityMediaDocumentPointer
  - (E1) InteractivityType
  - (E1) ServiceReference
    - (A) idRef
  - (E1) ContentReference
    - (A) idRef
  - (E1) ScheduleReference
    - (A) idRef
  - (E1) InteractivityWindow
    - (A) startTime
    - (A) endTime

- (E1) InteractiveDelivery
  - (A) interactivityMediaURL
- (E1) Extension

Note: The cardinality of this element is restricted to 0..1.

- (A) url

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.

(E2) Description

- (E1) BackOffTiming
  - (A) offsetTime
  - (A) randomTime
- (E1) PrivateExt
  - (E2) <proprietary elements>

## 5.2 Announcing Service Guides within a Service Guide

The ability to announce other Service Guides within a Service Guide as specified in the chapter 5.2 in [1] is not part of this profile.

## 5.3 Interfaces for Service Guide Generation

The Service Guide data model has been used as Generic Interchange format.

The method to deliver Service Guide fragments over the interface SG-5 as specified in 5.4.2 of [1] is part of this profile.

## 5.4 Service Guide Delivery

This section profiles Service Guide delivery specified in the section 5.4 in [1].

### 5.4.1 Encapsulating and identifying fragments

#### 5.4.1.1 Fragment identifier versus transport identifier

The fragment ID mapping for transport is part of this profile as specified in 5.4.1.1 in [1].

#### 5.4.1.2 Resolving fragment references

The fragment ID resolving is part of this profile as specified in 5.4.1.2 in [1].

### 5.4.1.3 Service Guide Fragment Encapsulation

Service Guide encapsulation is part of this profile as specified in the section 5.4.1.3 in [1], with the following restriction to Service\_Guide\_Delivery\_Unit:

- In UnitHeader, extension\_offset value is always zero. The ability for terminals to cope with non-zero values (by ignoring extensions) is part of this profile.

### 5.4.1.4 Compression of Service Guide Delivery Units

The methods specified in 5.4.1.4 in [1] are part of this profile.

### 5.4.1.5 Service Guide Delivery Descriptor

#### 5.4.1.5.2 Transport Dependencies

Transport dependencies as defined in 5.4.1.5.1 of [1] are part of this profile.

#### 5.4.1.5.2 Service Guide Delivery Descriptor Structure

Service Guide Delivery Descriptor (SGDD) declares all the fragment instances that describe the services. See section 5.4.1.5.2 in [1] for details.

Elements and attributes that are part of this profile are:

- (E) ServiceGuideDeliveryDescriptor
  - (A) id
  - (A) version
  - (E1) BSMList
    - (E2) BSMSelector
      - (A) id
      - (E3) BSMFilterCode
        - (A) type
        - (A) serviceProviderCode
        - (A) corporateCode
        - (A) serviceProviderName
        - (A) nonSmartcardCode
        - (E4) NetworkCode3GPP
          - (A) mobileCountryCode
          - (A) mobileNetworkCode
          - (A) networkSubsetCode

- (A) networkSubsetCodeRangeStart
    - (A) networkSubsetCodeRangeEnd
  - (E3) Name
- (E1) DescriptorEntry
  - (E2) GroupingCriteria
    - (E3) TimeGroupingCriteria
      - (A) startTime
      - (A) endTime
    - (E3) BSMSelector
      - (A) idRef
    - (E3) ServiceCriteria
 

Note: the support of the "ServiceCriteria" element is for the Service Guide access over the interaction channel so that servers can appropriately answer to terminal requests that used the "svc" key".
  - (E2) Transport
    - (A) ipAddress
    - (A) port
    - (A) transmissionSessionID
  - (E2) AlternativeAccessURL
  - (E2) ServiceGuideDeliveryUnit
    - (A) transportObjectID
    - (A) contentLocation
    - (A) validFrom
    - (A) validTo
    - (E3) Fragment
      - (A) transportID
      - (A) id
      - (A) version
      - (A) validFrom
      - (A) validTo
      - (A) fragmentEncoding
- (E1) PrivateExt
  - (E2) <proprietary elements>

#### ***5.4.1.5.3 Grouping of Service Guide***

Grouping of the service guide is part of this profile, but restricted to the criteria of the SGDD as supported in this profile.

#### ***5.4.1.5.4 Availability of the SG fragments over broadcast and interactive channel***

Section 5.4.1.5.4 of [1] describes the availability of SG fragments over both the broadcast and interaction channel. The 'hybrid service guide' scenario (as described in the informative section 5.5.3 of [1]) is not part of this profile.

Note that "5.4.2 Delivery over broadcast channel", and "5.4.3 Delivery over interaction channel" are part of the profile, as indicated below. However the inference or assumption of a logical relationship between these two SG fragments is not part of this profile.

### **5.4.2 Delivery over the Broadcast Channel**

Delivery over the broadcast channel as described in the section 5.4.2 of [1] is part of this profile, with the exception of 5.4.2.1.3 (Split TOI) as indicated below.

This profile does not recognise any relationship between an SG fragment delivered over the Broadcast channel and an SG fragment delivered over the Interaction channel (5.4.3 of [1]), and no such relationship should be assumed.

#### **5.4.2.1 Signalling Changes in the Service Guide over Broadcast Channel**

The signalling of SGDU updates as specified in the section 5.4.2.1 in [1] is part of this profile, with the exception of:

##### ***5.4.2.1.3.1.1 Split-TOI schema***

This is not part of this profile.

### **5.4.3 Delivery over the Interaction Channel**

Delivery over the interaction channel as described in the section 5.4.3 of [1] is part of this profile.

This profile does not recognise any relationship between an SG fragment delivered over the Interaction channel and an SG fragment delivered over the Broadcast channel (5.4.2 of [1]), and no such relationship should be assumed.

## 5.5 Service Guide Update and Management

### 5.5.1 Service Guide update and management using the Broadcast Channel

This is part of this profile as defined in section 5.5.1 of [1], with the exception of ALC support.

### 5.5.2 Service Guide update and management using the Interaction Channel

This is part of this profile as defined in section 5.5.2 of [1], with the exception of OMA PUSH is not part of this profile.

### 5.5.3 Service Guide Update and Management Cases for Hybrid Broadcast/Interactive Scenario (Informative)

This is not part of this profile. Please refer to sections 5.4.1.5.4, 5.4.2 and 5.4.3 in this document for further details.

## 5.6 Service Guide Backend Interface

Service Guide backend interfaces as specified in section 5.6 in [1] are not part of this profile.

## 5.7 Use of PreviewData to support Service Switching, Browsing and Preview

The use of PreviewData for browsing as specified in section 5.7.2 in [1] and for Service Preview as specified in section 5.7.3 in [1] are part of this profile. The other sections in 5.7 of [1] are not part of this profile.

## 5.8 Associating accesses with services and content

This is part of the profile with the exception that section 5.8.7 Distribution Window and Presentation Window for Cachecast Services is not part of the profile.

# 6. Discovery of Service Guide

## 6.1.1 Service Guide discovery over broadcast channel

Service Discovery over the broadcast channel is part of this profile as specified in section 6.1.1 of [1].

### 6.1.2 Service Guide discovery over interaction channel

Service discovery over interaction channel (section 6.1.2 of [1]) is part of this profile, with the exception of:

- The entry point information being provisioned to the Terminal via the Terminal Provisioning function is not part of this profile.

### 6.2 Service Guide Transmitted over the interaction channel

Service guide transmission over interaction channel (section 6.2 of [1]) is part of this profile, with the exception of:

- The entry point information being provisioned to the Terminal via the Terminal Provisioning function is not part of this profile.

## 7 Multi-language support

Multi-language support is part of this profile.

## Appendix A: Examples

### *All appendices are informative*

In this appendix the following deployment case is implemented as an example.

- **Service:** There is one Service, TV1, its id is 151.
- **Content:** There is only one Content related to it, OurCity. OurCity is a cultural program for people of 11 year old and above. It is broadcasted twice, on Monday and Tuesday.
- **Schedule:** OurCity doesn't require its own Schedule fragments, as the times for rendering are given in the Content fragment. There needs to be a Schedule fragment that links InteractivityData with the Access fragment that tells where the InteractivityMediaDocuments are available.
- **Interactivity:** There is an interactive service that comes with TV1: one for VoiceCall voting valid on Monday 9:30-10 and Tuesday 9:30-10.
- **Access:** There are three Access fragments, one with id 444 that refers to TV1 Service, another with id 445 that all the PreviewData fragments refer to, and a third one for InteractivityMediaDocuments.
- **PreviewData:** There is a logo related to Service. It is represented as Pictures in PreviewData fragments, with ids 600.
- **Purchase fragments:** For purchasing only one possibility exists: to purchase TV1 Service. It can be purchased for a month only. There is only one PurchaseChannel available, which allows purchasing either via Portal URL or using service provisioning messages.



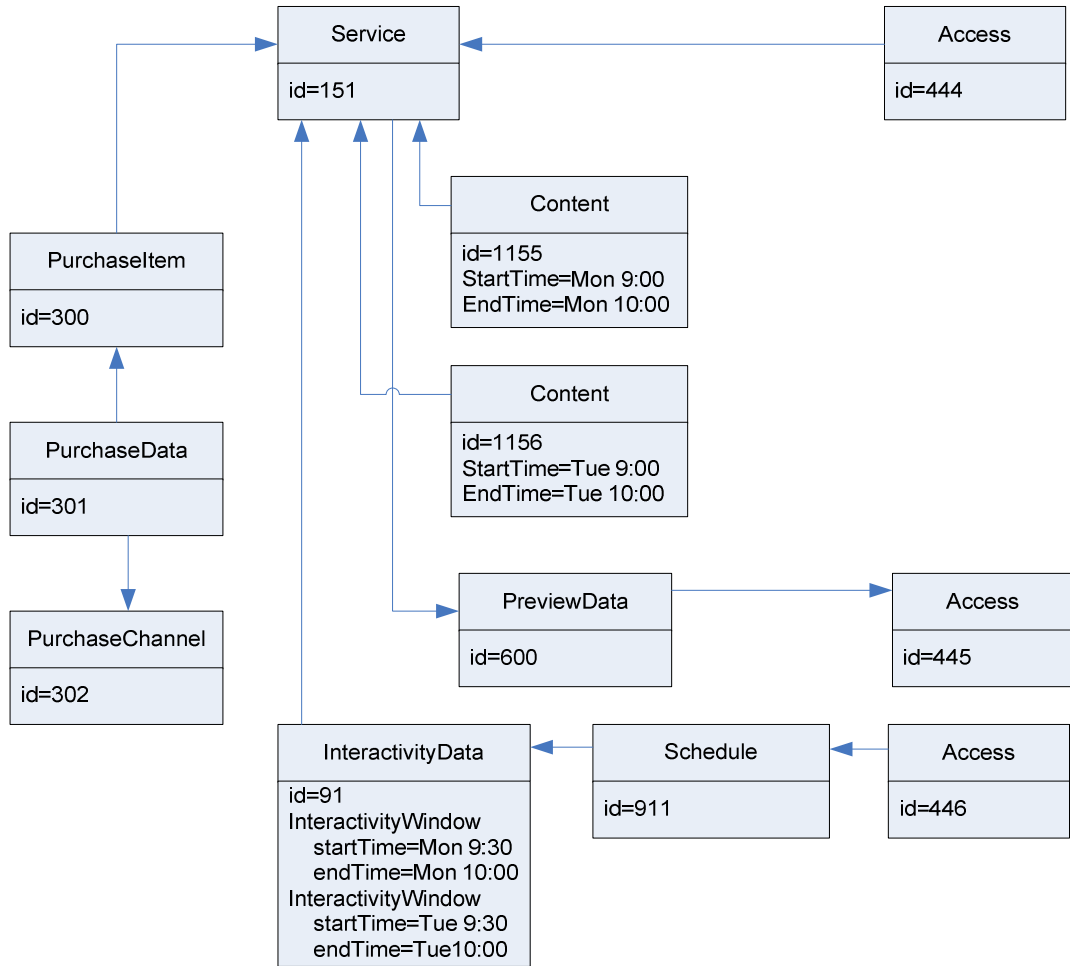


Figure 2: Relationships of the Example Fragments

### Service Fragment Example

```
<?xml version="1.0" encoding="UTF-8"?>
<Service xmlns="urn:oma:xml:bcast:sg:fragments:1.0"
  id="//this.example.com/service/151"
  version="2"
  validFrom="3363973200"
  validTo="3944584800"
  globalServiceID="//this.example.com/service/151"
  weight="2"
  baseCID="151">
  <ServiceType>1</ServiceType>
  <Name xml:lang="en">TV1</Name>
  <Description xml:lang="en">Channel One</Description>
  <Genre>News/Current Affairs</Genre>
  <PreviewDataReference usage="2"
  idRef="//this.example.com/previewdata/600"/>
</Service>
```

#### Note:

In the above example some optional (cardinality 0..1 or 0..N) elements and/or attributes are not used. These are:

- (E) AudioLanguage
- (E) TextLanguage
- (E) ParentalRating
- (E) Extension
- (E) PrivateExt

### Schedule Fragment Example

```
<?xml version="1.0" encoding="UTF-8"?>
<Schedule xmlns="urn:oma:xml:bcast:sg:fragments:1.0"
id="//this.example.com/schedule/911" version="0" validFrom="3367094400"
validTo="3367180800">
    <InteractivityDataReference idRef="//this.example.com/int/911"/>
</Schedule>
```

#### Notes:

In the above example some optional (cardinality 0..1 or 0..N) elements and/or attributes are not used. These are:

- (A) defaultSchedule and (A) onDemand of (E) Schedule
- (E) ServiceReference and (E) ContentReference as this Schedule is for linking InteractivityData and the related Access fragment
- (E) PrivateExt

### Content Fragment Example

```
<?xml version="1.0" encoding="UTF-8"?>
<Content xmlns="urn:oma:xml:bcast:sg:fragments:1.0"
  id="//this.example.com/content/1155"
  version="0"
  validFrom="3367094400"
  validTo="3367180800"
  globalContentID="//this.example.com/content/1155">
  <ServiceReference idRef="//this.example.com/service/151"/>
  <Name xml:lang="en">OurCity</Name>
  <Description xml:lang="en">What's on in Our City</Description>
  <StartTime>2006-08-07T21:00:00Z</StartTime>
  <EndTime>2006-08-07T23:00:00Z</EndTime>
  <ParentalRating ratingSystem="0">8</ParentalRating>
  <Genre>Arts/Culture</Genre>
</Content>
```

In the above example some optional (cardinality 0..1 or 0..N) elements and/or attributes are not used. These are:

- (A) BaseCID
- (A) weight of (E) ServiceReference
- (E) ProtectionKeyID
- (E) AudioLanguage
- (E) TextLanguage
- (E) Length
- (E) Extension
- (E) PreviewDataReference
- (E) PrivateExt

### Access Fragment Example

```

<?xml version="1.0" encoding="UTF-8"?>
<Access xmlns="urn:oma:xml:bcast:sg:fragments:1.0"
id="//this.example.com/access/444" version="3"
validFrom="3366921600" validTo="3367008000">
  <AccessType>
    <BroadcastServiceDelivery>
      <BDSType>
        <Type>0</Type>
      </BDSType>
      <SessionDescription>
        <SDPRef idRef="444111"/>
      </SessionDescription>
    </BroadcastServiceDelivery>
  </AccessType>
  <ServiceReference idRef="//this.example.com/service/151"/>
  <TerminalCapabilityRequirements>
    <Video>
      <Complexity>
        <Bitrate maximum="256"/>
      </Complexity>
    </Video>
    <Audio>
      <Complexity>
        <Bitrate maximum="64"/>
      </Complexity>
    </Audio>
  </TerminalCapabilityRequirements>
  <ServiceClass> urn:oma:bcast:oma_bsc:st:1.0</ServiceClass>
</Access>

```

In the above example some optional (cardinality 0..1 or 0..N) elements and/or attributes are not used. These are:

- (E) SDP (inlined) of (E) SessionDescription

- (E) UnicastServiceDelivery of (E) AccessType
- (E) KeyManagementSystem
- (E) EncryptionType
- (E) ScheduleReference
- (E) Resolution of (E) Complexity
- (E) PrivateExt

Note: Another example is a similar Access fragment with id="445" but no ServiceReference, and a third Access fragment with id="446" with ScheduleReference, but without ServiceReference

### Purchase Item Fragment Example

```
<?xml version="1.0" encoding="UTF-8"?>
<PurchaseItem xmlns="urn:oma:xml:bcast:sg:fragments:1.0"
id="//this.example.com/purchaseitem/300" version="1"
validFrom="3363973200" validTo="3364290000"
globalPurchaseItemID="//this.example.com/purchaseitem/300">
  <ServiceReference idRef="//this.example.com/service/151"/>
  <Name xml:lang="en">BundleTV1</Name>
</PurchaseItem>
```

In the above example some optional (cardinality 0..1 or 0..N) elements and/or attributes are not used. These are:

- (A) weight in (E) PurchaseItem
- (E) ScheduleReference
- (E) ProtectionKeyID
- (E) Description
- (E) ParentalRating
- (E) Extension
- (E) PrivateExt

### Purchase Data Fragment Example

```
<?xml version="1.0" encoding="UTF-8"?>
<PurchaseData xmlns="urn:oma:xml:bcast:sg:fragments:1.0"
id="//this.example.com/purchasedata/301" version="17"
validFrom="3363973200" validTo="3364281500">
  <PriceInfo subscriptionType="0">
    <MonetaryPrice currency="EUR">5</MonetaryPrice>
    <SubscriptionPeriod>P1M</SubscriptionPeriod>
  </PriceInfo>
  <PurchaseItemReference
idRef="//this.example.com/purchaseitem/300"/>
  <PurchaseChannelReference
idRef="//this.example.com/purchasechannel/302"/>
</PurchaseData>
```

In the above example some optional (cardinality 0..1 or 0..N) elements and/or attributes are not used. These are :

- (E) Description
- (E) PreviewDataReference
- (E) PrivateExt

### Purchase Channel Fragment Example

```
<?xml version="1.0" encoding="UTF-8"?>
<PurchaseChannel xmlns="urn:oma:xml:bcast:sg:fragments:1.0"
id="//this.example.com/purchasechannel/302" version="1"
validFrom="3363973200" validTo="3364290000">
  <Name xml:lang="en">Channel1</Name>
  <PortalURL supportedService="2">http://foo.channel1.com</PortalURL>
  <PurchaseURL>http://foo.purchase.server.com/mobiletv</PurchaseURL>
</PurchaseChannel>
```

In the above example some optional (cardinality 0..1 or 0..N) elements and/or attributes are not used. These are :

- (A) rightsIssuerURI of (E) PurchaseChannel
- (E) Description
- (E) ContactInfo
- (E) PrivateExt



## Preview Data Fragment Examples

Example 1:

```
<?xml version="1.0" encoding="UTF-8"?>
<PreviewData xmlns="urn:oma:xml:bcast:sg:fragments:1.0"
  id="//this.example.com/previewdata/600" version="2">
  <Picture>
    <PictureURI>filecast:600</PictureURI>
  </Picture>
  <AccessReference idRef="//this.example.com/access/445" />
</PreviewData>
```

In the above example some optional (cardinality 0..1 or 0..N) elements and/or attributes are not used. These are :

- (A) validFrom and (A) validTo of (E) PreviewData
- (E) MIMETYPE of (E) Picture
- (E) PrivateExt

## Interactivity Data Fragment Examples

Example 1:

```
<?xml version="1.0" encoding="UTF-8"?>
<InteractivityData xmlns="urn:oma:xml:bcast:sg:fragments:1.0"
  id="//this.example.com/int/91"
  version="2"
  preListenIndicator="false"
  interactivityMediaDocumentPointer="//this.example.com/service/rt45tqw">
  <InteractivityType>Voting</InteractivityType>
  <ServiceReference idRef="//this.example.com/service/151"/>
  <InteractivityWindow
    startTime="3367096200"
    endTime="3367098000"/>
  <InteractivityWindow
    startTime="3367106300"
    endTime="3367108100"/>
</InteractivityData>
```

In the above example some optional (cardinality 0..1 or 0..N) elements and/or attributes are not used. These are :

- (A) validFrom and (A) validTo of (E) InteractivityData
- (E) ScheduleReference
- (E) Extension
- (E) BackOffTiming
- (E) PrivateExt

### SGDD Example

This will be added in a subsequent version of this document.

## Appendix B: (Informative) overview of omitted elements and attributes of the service guide

This annex provides an informative overview of the use cases that are 'disabled' by the profile, because some of the elements and/or attributes in the service guide fragments are not supported.

Fragments and omitted Elements or Attributes		Typical use of the elements or attributes and 'disabled' use-cases.
Service		
	emergency	Attribute for presentation purposes to indicate to users that this service is of emergency nature.
	TargetUserProfile	This profiles the user for which the service is intended. However, the classification of targetuserprofile has not been specified yet and is therefore left out of the profile
	Type and href under Genre element	This is used to classify the genre according to standardised genre vocabulary such as TV Anytime ContentCS classification scheme.
	BroadcastArea	This defines the area in which the terminal is allowed to receive the service or should consider no reception allowed, irrespective of actual signal reception by the radio towers. The target area is specified by OMA MLP. Note: part of this functionality can also be enabled by transmitting the radio signal only in the allowed areas.
	TermsOfUse	This declares the terms of use for the service. This can be used for disclaimers, legal text and other pieces of information to be rendered to the user upon activation, purchase or consumption of the service.
Schedule		
	Some elements and attributes under InteractivityDataReference; autostart, DistributionWindow, duration and id.	Autostart dictates the automatic rendering of interactivity media files when they are valid. Note: the profile leaves it up to terminal implementation how to show and access interactivitymediafiles DistributionWindow can indicate the time at which the interactivity media files are broadcasted on the file carousel and is primarily used for cachecast usecases. Note: this usecase can also be enabled by dynamically updating this fragment. During the time the interactivity media files are available for download the fragment is present and will be removed when the data carousel is not available anymore Duration and id are primarily used for cachecast services
	Some elements and attributes under ContentReference; repeatPlayback, Autostart, DistributionWindow, duration and id.	Repeatplayback indicates whether the content item should be repeated during the play-out interval (e.g. 5 min contentitem with playout window of 30 minutes) Autostart dictates the automatic rendering of content files when they are valid. This is primarily used for cachecast services.

		<p>Distributionwindow can indicate the time at which the content files are broadcasted on the file carousel and is primarily used for cachecast usecases.</p> <p>Note: this usecase can also be enabled by dynamically updating this fragment. During the time the content files are available for download the fragment is present and will be removed when the data carousel is not available anymore</p> <p>Duration and id are primarily used for cachecast services</p>
	PreviewDataReference	Reference to a preview data fragment for the schedule.
	TermsOfUse	This declares the terms of use for the service. This can be used for disclaimers, legal text and other pieces of information to be rendered to the user upon activation, purchase or consumption of the service.
Content		
	emergency	Attribute for presentation purposes to indicate to users that this content is of emergency nature.
	TargetUserProfile	This profiles the user for which the service is intended. However, the classification of targetuserprofile has not been specified yet and is therefore left out of the profile
	Type and href under Genre element	This is used to classify the genre according to standardised genre vocabulary such as TV Anytime ContentCS classification scheme.
	BroadcastArea	<p>This defines the area in which the terminal is allowed to receive the service or should consider no reception allowed, irrespective of actual signal reception by the radio towers. The target area is specified by OMA MLP.</p> <p>Note: part of this functionality can also be enabled by transmitting the radio signal only in the allowed areas.</p>
	TermsOfUse	This declares the terms of use for the service. This can be used for disclaimers, legal text and other pieces of information to be rendered to the user upon activation, purchase or consumption of the service.
Access		
	ReferredSGInfo	Information needed for the function "5.2 Announcing Service Guides within a Service Guide" which is not part of this profile.
	USBDRef under SessionDescription	Reference to an instance of MBMS User Service Bundle Description.
	ADPRef under SessionDescription	Reference to an AssociatedDeliveryProcedure for File and Stream Distribution
	FileDescription under BroadcastserviceDelivery	<p>SDP is the actual inclusion of the SDP file in the access fragment</p> <p>Note: the profil uses the reference to an external SDP in stead of inline carriage of the SDP fragment</p> <p>Filedescription describes the parameters when ALC is used to deliver files</p> <p>Note: in the profile FLUTE is supported for delivering files.</p>
	TerminalBindingKeyID under KeymanagementSystem	This parameter is used for the smartcard profile service and content protection when the communication between the Smartcard and terminal needs to be encrypted

	DistributionWindowID under ScheduleReference	This provides a pointer to specialize the access to a particular distribution window under the schedule fragment. Note: DistributionWindows are typically used for cachecast services and is not part of the profile.
	average under bitrate	To signal the required average bitrate of the video and audio-stream Note: the maximum bitrate is perceived as the most important and included in the profile
	minimum buffersize under complexity	to signal the minimum required decoder buffersize. Note: the maximum bitrate is perceived as the most important and included in the profile
	DownloadFile under TerminalCapabilityRequirements	Describes the required capabilities for the terminal for the download files Note: Filecasting is not part of the profile
	BandwidthRequirement	This specifies the required bandwidth to access the content. Depending on the reception condition the terminal could make a choice which access channel to choose from to access this service.
	PreviewDataReference	This provides the mechanism for zapping support, i.e. showing media during channel switching.
	NotificationReception	Information regarding service-specific notification messages. Note: the notification function is not part of the profiles.
	MIMETYPE under Video in TerminalCapabilityRequirement	Eases MIME type based filtering of video. Note that in the current version of the profile, this can still be achieved by looking into the SDP file.
	MIMETYPE under Audio in TerminalCapabilityRequirement	Eases MIME type based filtering of audio. Note that in the current version of the profile, this can still be achieved by looking into the SDP file.
PurchaseItem		
	binaryPurchaseItemID	This provides the PurchaseItemID to relate the PurchaseItem to a BCRO (broadcast rights objects). Note: BCRO's (broadcast rights objects) are not part of profile.
	Closed	This dictates whether a purchaseitem is not available for purchase anymore to new subscribers but still present as part of the service guide. Note: in the profile this is left for terminal implementation.
	ContentReference	This provides a reference to a content item that can be purchased for PPV purposes. Note: under the profile the link with scheduleItem serves this purpose. The scheduleItem can also differentiate for text or audiolanguages of individual content items.
	PurchaseItemReference	This allows for referencing a purchase item from another purchaseitem and acts as a short hand. E.g, PurchaseItem 'Basic' = Service 1-6 and PurchaseItem 'Premium' = PurchaseItem 'Basic' + Service 7-9.
	StartTime	This provides the start-time for the purchasability of an item. Note: under the profile this feature can also be enabled by the validFrom time.
	EndTime	This provides the end-time for the purchasability of an item. Note: under the profile this feature can also be enabled by the

		validTo time.
	DependencyReference	This creates dependencies between purchasable items. E.g. PurchaseItem 'Premium' is only shown to users that already have subscribed to PurchaseItem 'Basic'.
	ExclusionReference	This creates exclusions between purchasable items. E.g. PurchaseItem 'Adult' is not shown to users that already have subscribed to PurchaseItem 'Kidz'.
<b>PurchaseData</b>		
	OfferDetails element and subelements and attributes	Gives price related info when the user wants to buy token-based or count-based credits.
	PromotionInfo and the subelements and attributes.	This provides information when there are special promotions related to the purchase item.
	TermsOfUse	This declares the terms of use for the service. This can be used for disclaimers, legal text and other pieces of information to be rendered to the user upon activation, purchase or consumption of the service.
<b>PurchaseChannel</b>		
	Extension	This provides a link to a website where additional information related to this fragment can be downloaded.
<b>PreviewData</b>		
	SMIL	This provides SMIL media for preview.
	Video	This provides Video media for preview.
	Audio	This provides Audio media for preview.
	Alternative text under Picture	This provides the Alternative as part of the ESG. The profile assumes a certain support for media codecs, hence alternative text is not necessary.
	Text	This provides plain text for preview.
<b>InteractivityData</b>		
	TermsOfUse	This declares the terms of use for the service. This can be used for disclaimers, legal text and other pieces of information to be rendered to the user upon activation, purchase or consumption of the service.
<b>SGDD</b>		
	NotificationReception	This provides information for global notification messages. Note: the notification function is not part of the profile.
	NotificationReception under BSMSector	This provides information for service provider specific notification messages. Note: the notification function is not part of the profile.
	Roaming rule and roamingRuleRequestAddress under BSMSector	RoamingRuleRequestAddress defines the ip address of the service provider where the terminal can send roaming-requests to. RoamingRule specifies a certain roamingrule for this SGDD. Note: roaming is not part of the profile.
	the href and type attributes under Genre-GroupingCriteria.	This allows to refer to standardised vocabulary for a genre such as TV anytime.. Note: under the profile the delivery of service guide fragments is grouped per time or service or genre (free string).
	SrcIPaddress and versionIDlength and	This provides the source IP address of the service guide

	hasFDT under transport.	<p>fragments delivery.</p> <p>VersionIDLength and hasFDT is used when Split-TOI is used for the delivery of SGDD's.</p> <p>Note: under the profile the destination IP address is used to identify the address of the delivery of the service guide fragments.</p>
	fragmentType under Fragment.	<p>The fragmentType signals the type of an XML encoded BCAST Service Guide fragment.</p>
	GroupingCriteria under Fragment	<p>Specifies the criteria for grouping the Service Guide fragment</p>

## Change history

Version	Date / Status	Description of changes
1.0	20070930-A	Initial version of the Implementation Profile.
1.1	20080708-D	<p>Aligned with bug fixes that have been applied to the referenced versions of the OMA BCAS T specifications. No new functionality added.</p> <p>Alignments include:</p> <ul style="list-style-type: none"> <li>- Attribute serviceContentProtection removed globally.</li> <li>- Attribute id of AudioLanguage and TextLanguage elements in the Services and Content fragments removed. Respectively, the audioLanguageIDRef and textLanguageIDRef attributes in the Schedule fragment deleted.</li> <li>- ProtectionKeyID element added to Purchase Data fragment.</li> <li>- kmsType attribute added to PortalURL and PurchaseURL elements in the Purchase Channel fragment.</li> <li>- Editorial re-ordering or renaming of some elements / attributes.</li> <li>- Editorial clarification to some Notes.</li> <li>- Format of the id URIs corrected in the examples of Annex A.</li> <li>- Alignments to BCAS T spec changes in Annex B.</li> </ul>
1.1	20080709-V	
1.1	20080721-A	
1.2	20081111-D	<p>Editorial changes.</p> <p>Updated reference to Final Draft of OMA BCAS T spec.</p> <p>Aligned with bug fixes that have been applied to the referenced version of the OMA BCAS T specification. No new functionality added.</p> <p>Alignments include:</p> <ul style="list-style-type: none"> <li>- Removal of 'TotalNumberCredits'</li> <li>- Removal of 'AccessReference/@usage' in 'PreviewData' fragment and addition of a</li> </ul>



		<p>note to keep restricted semantics</p> <ul style="list-style-type: none"> <li>- Profiling-out of ResponseValidity mechanism in 5.4.3</li> <li>- Added support for "secureChannelRequired" attribute for the Smartcard profile.</li> <li>- Added statements to Appendix B that the following new attributes/elements which have has been added to BCAST are not supported in the profile: <ul style="list-style-type: none"> <li>o 'OfferDetails' in 'PurchaseData' fragment</li> <li>o 'MIMETYPE' and 'MIMETYPE/@codec' within 'TerminalCapabilityRequirement' in 'Access' fragment</li> <li>o 'ReferredSGInfo' in 'Access' fragment</li> <li>o 'NotificationReception' within 'BSMSelector' in 'ServiceGuideDeliveryDescriptor'</li> </ul> </li> </ul>
1.2	20081128-D	Editorial changes. Updated reference to Final Draft OMA BCAST ServiceGuide spec.
1.2	20081209-D	History updated.
1.2	20081211-V	
1.2	20090107-A	
2.0	20090618-D	<p>Added following features:</p> <ul style="list-style-type: none"> <li>- PictureData in PreviewData fragments</li> <li>- ContentReference and interactivityMediaURL in InteractivityData fragment</li> <li>- ServiceCriteria in SGDD</li> <li>- ValidFrom and ValidTo for SGDU and fragments in SGDD</li> <li>- Mechanisms to control response validity for SG delivered over the interaction channel</li> </ul>
2.0	20090622-V	Reference update to the <b>bmcoforum</b> profile documents V2.0
2.0	20090630-A	