Enhanced Visual Call XDM Specification

Candidate Version 1.0 – 02 Jun 2015

Open Mobile Alliance

OMA-TS-EVC_XDMS-V1_0-20150602-C

Contents

1. Scope

This specification describes the data formats and XDM Application Usages for the Enhanced Visual Call (EVC) XML Documents.

2. References

2.1 Normative References

[EVC_ER] "Enhanced Visual Call", Version 1.0, Open Mobile Alliance™, OMA-ER-EVC-V1_0, URL:http://www.openmobilealliance.org/

[EVC_XSD_VisualIVR Mapping] "EVC Visual IVR Mapping Document", Open Mobile Alliance™, XSD_EVC_VisualIVRMapping_V1_0, URL:http://www.openmobilealliance.org/

[RFC2119] IETF RFC 2119 "Key words for use in RFCs to Indicate Requirement Levels", S. Bradner, March 1997, URL:http://www.ietf.org/rfc/rfc2119.txt

[RFC4825] IETF RFC 4825 "The Extensible Markup Language (XML) Configuration Access protocol (XCAP)", J. Rosenberg, May 2007, URL:http://www.ietf.org/rfc/rfc4825.txt

[RFC4826] IETF RFC 4826 "The Extensible Markup Language (XML) Formats for Representing Resource Lists", J. Rosenberg, May 2007, URL:http://www.ietf.org/rfc/rfc4826.txt

[SCRRULES] "SCR Rules and Procedures", Version 1.0, Open Mobile Alliance™, OMA-ORG-SCR_Rules_and_Procedures-V1_0, URL:http://www.openmobilealliance.org/

[XDM_AD] "XML Document Management Architecture", Version 2.2, Open Mobile Alliance™, OMA-AD-XDM-V2_2, URL:http://www.openmobilealliance.org/

[XDM_Core] "XML Document Management (XDM) Specification", Version 2.2, Open Mobile Alliance™, OMA-TS-XDM_Core-V2_2, URL:http://www.openmobilealliance.org/

[XDM_ERELD-V2_2] "Enabler Release Document for XDM", Version 2.2, Open Mobile Alliance™, OMA-ERELD-XDM-V2_2, URL:http://www.openmobilealliance.org/

[XDM_RD] "XML Document Management Requirements", Version 2.2, Open Mobile Alliance™, OMA-RD-XDM-V2_2, URL:http://www.openmobilealliance.org/

[XSD_aliasList] "XML Schema Definition : XDM Alias Principals List", Version 1.0, Open Mobile Alliance™, OMA-SUP-XSD_xdm_alias_principals_list-V1_0, URL:http://www.openmobilealliance.org/

[XSD_apList] "XML Schema Definition : XDM Access Permissions List", Version 1.0, Open Mobile Alliance™, OMA-SUP-XSD_xdm_access_permissions_list-V1_0, URL:http://www.openmobilealliance.org/

[XSD_appusage] "XML Schema Definition: XDM Resource List Elements – appusage", Version 1.0, Open Mobile Alliance™, OMA-SUP-XSD_xdm_rsrclst_appusage-V1_0, URL:http://www.openmobilealliance.org/

[XSD_fnl] "XML Schema Definition: "XDM – Forwarding Notification List", Version 1.0, Open Mobile Alliance™, OMA-SUP-XSD_xdm_forwarding_notification_list-V1_0, URL:http://www.openmobilealliance.org/

[XSD_uriusage] "XML Schema Definition: XDM Resource List Elements – uriusage", Version 1.0, Open Mobile Alliance™, OMA-SUP-XSD_xdm_rsrclst_uriusage-V1_0, URL:http://www.openmobilealliance.org/

IETF

OMA Open Mobile Alliance™, URL:http://www.openmobilealliance.org/

2.2 Informative References

[OMADICT] "Dictionary for OMA Specifications", Version 2.9, Open Mobile Alliance™, OMA-ORG-Dictionary-V2_9, URL:http://www.openmobilealliance.org/

OMA Open Mobile Alliance™, URL:http://www.openmobilealliance.org/

3. Terminology and Conventions

3.1 Conventions

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC2119].

All sections and appendixes, except “Scope” and “Introduction”, are normative, unless they are explicitly indicated to be informative.

3.2 Definitions

Access Permissions	Use definition from [XDM_RD].
Access Permissions Document	Use definition from [XDM_Core].
Access Permissions List	Use definition from [XDM_AD].
Access Permissions List Document	Use definition from [XDM_AD].
Admin Principal	Use definition from [XDM_RD].
Alias Principal	Use definition from [XDM_RD].
Alias Principals List Document	Use definition from [XDM_AD].
Application Unique ID	Use definition from [XDM_Core].
Application Usage	Use definition from [XDM_Core].
Document Reference	Use definition from [XDM_AD].
Document Selector	Use definition from [XDM_Core].
Enabler	Use definition from [OMADICT].
Enhanced Visual Call	An audio call that is enhanced with visual information.
Entity Tag	Use definition from [XDM_Core].
EVC Client	The Client entity of EVC responsible for catering requests of EVC User.
EVC Server	The Server entity of EVC responsible for catering and managing EVC services to the EVC Client.
EVC User	User of EVC services.
EVC XDMS	The XDM entity of EVC responsible for XML document management.
First Menu	The landing page of a Visual IVR call.
Forwarding Notification List	Use definition from [XDM_AD].
Forwaring Notification List Document	Use definition from [XDM_AD].
Global Document	Use definition from [XDM_Core].
Global Tree	Use definition from [XDM_Core].
Group Usage List	Use definition from [XDM_RD].
Group Usage List Document	Use definition from [XDM_RD].
History Information	Use definition from [XDM_AD].

Modification History Information Document	Use definition from [XDM_Core].
Next Menu	Subsequent pages of the Visual IVR call after the First Menu.
Node Selector	Use definition from [XDM_Core].
Node Selector Separator	Use definition from [XDM_Core].
Node URI	Use definition from [XDM_Core].
Primary Principal	Use definition from [XDM_RD].
Principal	Use definition from [OMADICT].
Request History Document	Use definition from [XDM_Core].
URI List	Use definition from [XDM_RD].
URI List Document	Use definition from [XDM_RD].
Visual IVR Call	An IVR call with visual information.
XCAP Root	Use definition from [XDM_Core].
XCAP Server	Use definition from [XDM_Core].
XDCP Request	Use definition from [XDM_Core].
XDM Agent	Use definition from [XDM_AD].
XDM Document	Use definition from [XDM_RD].
XDM Document Part	Use definition from [XDM_RD].
XDM Preferences Document	Use definition from [XDM_Core].
XDM Resource	Use definition from [XDM_RD].
XDMC	Use definition from [XDM_AD].
XDMS	Use definition from [XDM_AD].

3.3 Abbreviations

ABNF	Augmented Backus-Naur Form
AUID	Application Unique ID
DTMF	Dual-tone Multi-frequency
E-Tag	Entity Tag
EVC	Enhanced Visual Call
HTTP	Hypertext Transfer Protocol
IETF	Internet Engineering Task Force
IVR	Interactive Voice Response
MIME	Multipurpose Internet Mail Extensions
OMA	Open Mobile Alliance
OMNA	Open Mobile Naming Authority
SCR	Static Conformance Requirements
SIP	Session Initiation Protocol
URI	Uniform Resource Identifier
URL	Uniform Resource Locator

URN	Uniform Resource Name
XCAP	XML Configuration Access Protocol
XDM	XML Document Management
XDMC	XDM Client
XDMS	XDM Server
XML	Extensible Markup Language

4. Introduction

This specification, which is a part of the EVC Enabler, describes the following Application Usages:

- EVC Visual IVR Call Mapping Application Usage.

And reuses the following XDM lists and/or groups:

- Access Permissions List, as defined in [XSD_apList]. The EVC Application Usages MUST use the XDM architecture defined in [XDM_AD] and the [XDM_Core] procedures, with the clarifications and restrictions added in this specification.

4.1 Version 1.0

This version of the EVC Application Usages specifies:

- EVC Visual IVR Call Mapping Application Usage.

5. EVC XDM Application Usages

5.1 EVC Visual IVR Call Mapping Application Usage

The EVC Visual IVR Call Mapping Application Usage contains information to access the visual data associated to the IVR call voice data. The EVC Visual IVR Call Mapping document is managed (read/write/update) by the authorized external entity e.g., XDMC on Business side and interpreted (read) by the EVC Server based on request made by EVC Clients for their respective EVC Users.

5.1.1 Structure

The EVC Visual IVR Call Mapping Application Usage SHALL conform to the structure described in this section. The Schema definition is provided in section 5.1.3 "*XML Schema*".

The following is the structure of EVC Visual IVR Call Mapping Document of EVC XDMS for retrieving the visual data associated with the IVR call.

Each EVC Visual IVR Call Mapping Document SHALL include one root element <business> which SHALL have the following attributes:

a. ID: SHALL be set with a unique identifier, identifying the Business uniquely.

b. system-type: SHALL be set with one of the following values to identify the type of the traditional IVR system:

   i. DTMFOnly – set to this value if the traditional IVR system takes only DTMF codes as input.

   ii. VoiceOnly – set to this value if the traditional IVR system takes only Voice as input.

   iii. Hybrid – set to this value if the traditional IVR system supports both DTMF codes and Voice as input.

c. dynamic: to identify whether the Business wants EVC Server to share the complete Visual IVR mapping information when requested for First Visual IVR Menu, or wants EVC Server to share Visual IVR mapping information on-demand basis. The value of this element SHALL be set to:

   i. TRUE – if the business entity would like to share on-demand menu

   ii. FALSE – if the business would like to share complete menu

The root element <business> SHALL have the following children elements;

a. SHALL have zero or more <comm-addr> elements containing the business addressing information and SHALL include the following child elements:

   i. zero or more <uri-entry> elements, each of which SHALL have an 'addr-uri-type' and 'index' attributes, MAY have 'pref' attributes. Each <uri-entry> element:

      1) SHALL contain a <addr-uri> element containing a URI of a communication means of the CAB User. If the <addr-uri> element is a 'SIP URI' and it is used as an XUI, then the element SHALL have a 'xui-type' attribute.

      2) MAY contain a <label> element that provides text based description of the communication address URI.

   ii. zero or more <tel> elements, each indicating one telephone number associated with the CAB User. If one of the <tel> elements is used as an XUI, then that element SHALL have a 'xui-type' attribute. Each <tel> element SHALL have 'index' and 'tel-type' attributes, and MAY have a 'pref' attribute. The <tel> element:

      a. SHALL contain a <tel-nb> element,

      b. MAY contain an <extension> element that represents a PBX extension.

      c. MAY have a <label> element that provides descriptive information of the communication address.

The <tel-nb> element SHALL contain one of the following structures:

1) a <tel-str> element, containing the telephone number in String format,
2) a <tel-uri> element containing a tel URI formatted telephone number,
3) a <E.164> element containing a parsed structure:
   (a) MAY contain an <intl-prefix-symbols> element, indicating a string that is an international prefix symbol,
   (b) MAY contain a <cc> element, indicating the country code,
   (c) MAY contain a <ndc>, indicating the national destination code or area code,
   (d) SHALL contain a <sn>, indicating the subscriber number,

b. SHALL include zero or more <CurrentWebURL> elements to identify the URL pointing to visual data. The <CurrentWebURL> element SHALL have an "index" attribute and:

i. SHALL include <mapping> element for each input assigned for the CurrentWebURL. <mapping> element:
   1. MAY include one <DTMFCode> element set to DTMF input.
   2. MAY include one <Text> element set to Text converted from the Voice input
   3. SHALL include one <NextWebURL> element set corresponding to the <CurrentWebURL> and the input values.

5.1.2 Application Unique ID

The AUID MUST be "org.openmobilealliance.evc-visual-ivr-mapping".

5.1.3 XML Schema

The schema is described in [EVC_XSD_VisualIVRCallMapping].

5.1.4 Default Namespace

The default element namespace MUST be "urn:oma:xml:evc-visual-ivr-mapping".

5.1.5 MIME Type

The MIME type MUST be "application/vnd.oma.evc.visual-ivr-mapping+xml".

5.1.6 Validation Constraints

The value of the ID attribute SHALL be unique throughout the application usage.

The value of 'dynamic' attribute is 'TRUE' if the Business wants EVC Server to share the complete Visual IVR mapping information when requested for First Visual IVR Menu otherwise 'FALSE'.

If the value of the <CurrentWebURL> element is set as 'NULL', the <mapping> element SHALL include one <NextWebURL> element containing the landing page URL.

If the value of the <CurrentWebURL> element is not set to 'NULL', the <mapping> element SHALL contain atleast two child elements as described in section 5.1.1, one of which SHALL be <NextWebURL>..

5.1.7 Data Semantics

The data semantics are organized into basic types, elementary types and composite types. The definitions use ABNF notation [RFC5234] to define the data semantics of the elements and the attributes.

5.1.8 Naming Conventions

The filename MUST be "evc-visual-ivr-mapping".

There SHALL be:

zero or more XDM Documents in this Application Usage. Each document SHALL be named based on the following convention:

- "evc-business-{ID}.xml".

The String {ID} is a variable that SHOULD carry the same value as the 'ID' attribute inside the document.

5.1.9 Global Documents

Not applicable.

5.1.10 Resource Interdependencies

Not applicable.

5.1.11 Authorization Policies

The authorization policies are defined as follows:

- The business side XDMC MUST have permission to perform all operations defined in section "Document Management" of [XDM_Core].

The EVC Server MUST have permissions that permit all read operation and forbid all writing/updating operations defined in section "Document Management" of [XDM_Core].

5.1.12 Subscription to Changes

Not Applicable.

5.1.13 Search Capabilities

An Application Usage SHALL support search in EVC Visual IVR Call Mapping Document and the following rules apply in addition to the procedures defined in [XDM Core]:

1. Support a collection "org.openmobilealliance.evc-visual-ivr-call-mapping/users", subject to Authorization Policies as specified in sub-clause 5.1.11"Authorization Policies".

2. The basic XQuery expression [XDM Core] supported by the EVC Visual IVR Call Mapping Application Usage SHALL be as follows:

   xquery version "1.0"

   declare default element namespace "urn:oma:xml:evc:visual-ivr-call-mapping";

All Search Requests that do not comply with the basic XQuery expression as defined in this chapter SHALL be responded with an HTTP "409 Conflict" error response as defined by [XDM Core].

5.1.14 XDM Preferences Document

Not Applicable.

5.1.15 History Information Documents

Not Applicable.

5.1.16 Forwarding

Not Applicable.

5.1.17 Restore

Not Applicable.

5.1.18 Document Reference

Document Reference MAY be supported, as described in section “Document Reference” of [XDM_Core].

5.1.19 Differential Read and Write

Not Applicable.

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No prior version

A.2 Draft/Candidate Version 1.0 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-TS-EVC_XDMS-V1_0	20 Jan 2015	All	Baseline version. OMA-COM-EVC-2015-0005-INP_EVC_1_0_TS_XDMS_Baseline
	03 Feb 2015	5, C.1	1. OMA-COM-EVC-2015-0006R02-CR_TS_XDMS_EVC_Mapping_For_Visual_IVR_Call_Sync_Application_Usage 2. OMA-COM-EVC-2015-0007R02-CR_TS_XDMS_IVR_System_Type_Application_Usage
	28 Apr 2015	Section 5.1.1	OMA-COM-EVC-2015-0057R01-CR_CONRR_XDMS_Comment_B015
		Section 5.1.6	OMA-COM-EVC-2015-0058R01-CR_CONRR_XDMS_Comment_B017
		Section 5.1.11	OMA-COM-EVC-2015-0059-CR_CONRR_XDMS_Comment_B018
		Section 5.1.13	OMA-COM-EVC-2015-0060-CR_CONRR_XDMS_Comment_B019
		Section 5.1 Section 5.1.1	OMA-COM-EVC-2015-0061-CR_CONRR_XDMS_Editorial_Fixes
		Section 5.1.2 Section 5.1.4 Section 5.1.5 Section 5.1.8	OMA-COM-EVC-2015-0087-CR_CONRR_XDMS_B020_B021
	24 May 2015	Appendix C.1	OMA-COM-EVC-2015-0097-CR_CONRR_XDM_Comment_B007_B016
		All Sections	OMA-COM-EVC-2015-0105-CR_COMMENT_Editorial_Fixes
		Section 3.2 Section 3.3	OMA-COM-EVC-2015-0118-CR_CONRR_XDMS_Comment_B004
		Appendix C	OMA-COM-EVC-2015-0125-CR_CONRR_XDMS_Comment_B004
		Section 5.1.7	OMA-COM-EVC-2015-0129-CR_CONRR_XDMS_Comment_B009
		Section 5.1.1 Section 5.1.11	OMA-COM-EVC-2015-0136-CR_XDMS_Editorial
Candidate Version OMA-TS-EVC_XDMS-V1_0	02 Jun 2015	n/a	Status changed to Candidate by TP TP Ref # OMA-TP-2015-0092-INP_EVC_V1_0_ERP_and_ETR_for_Candidate_approval

Appendix B. Examples (Informative)

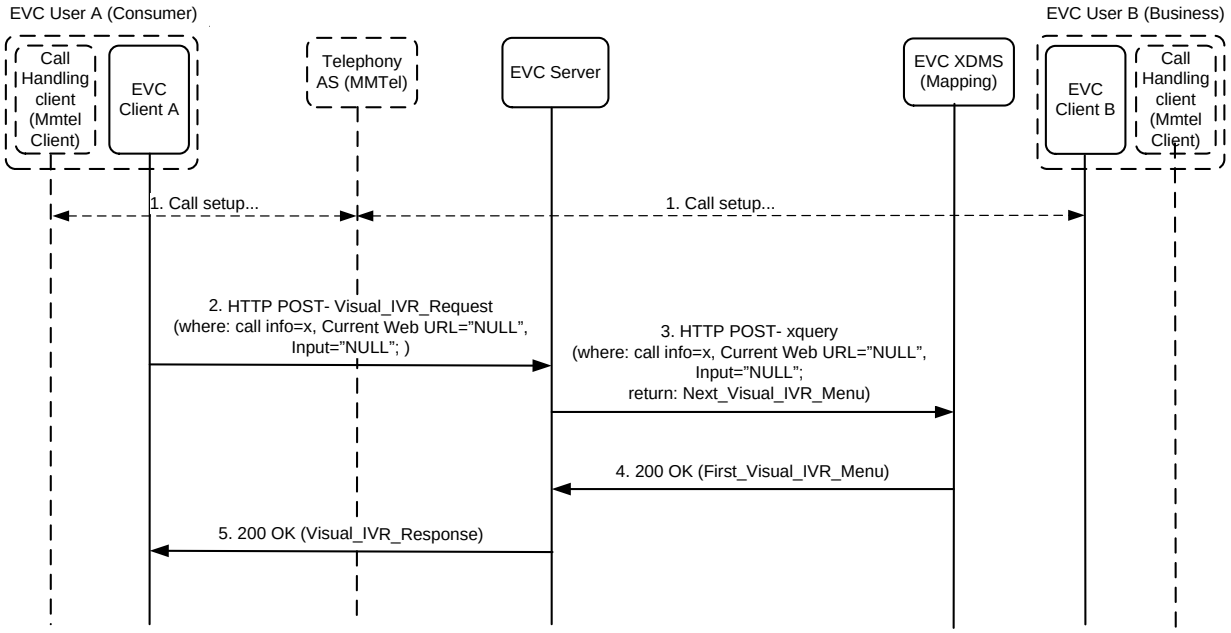
B.1 Visual IVR Application Usage Example

Following is the example XML structure for the EVC Visual IVR Call Mapping document.

```
<?xml version="1.0" encoding="UTF-8"?>
< visual-ivr-mapping xmlns="urn:oma:xml:evc:visual-ivr-call-mapping">
   <business ID=”18001236789” system-type=”Hybrid” dynamic=”FALSE”>
      <comm-addr>
          <tel-nb>+1-514-345-7900</tel-nb>
      </comm-addr>
      <CurrentWebURL url=”” index=”1”>
          <mapping>
              <NextWebURL>../Index.html</NextWebURL>
          </mapping>
      </CurrentWebURL>
      <CurrentWebURL url=”../Index.html” index=”2”>
          <mapping>
              <DTMFCode>1</DTMFCode>
              <Text>New Order</Text>
              <NextWebURL>../NewOrder.html</NextWebURL>
          </mapping>
          <mapping>
              <DTMFCode>2</DTMFCode>
              <Text>Track Order</Text>
              <NextWebURL>../TrackOrder.html</NextWebURL>
          </mapping>
          <mapping>
              <DTMFCode>0</DTMFCode>
              <Text>Customer Care</Text>
              <NextWebURL>../Support</NextWebURL>
          </mapping>
      </CurrentWebURL>
      <CurrentWebURL url=”../NewOrder.html” index=”3”>
          <mapping>
              <DTMFCode>1</DTMFCode>
              <Text>Pizza</Text>
              <NextWebURL>../NewOrder_Pizza.html</NextWebURL>
          </mapping>
          <mapping>
              <DTMFCode>2</DTMFCode>
              <Text>Breads</Text>
              <NextWebURL>../NewOrder_Breads.html</NextWebURL>
          </mapping>
      </CurrentWebURL>
   </business>
</visual-ivr-mapping>
```

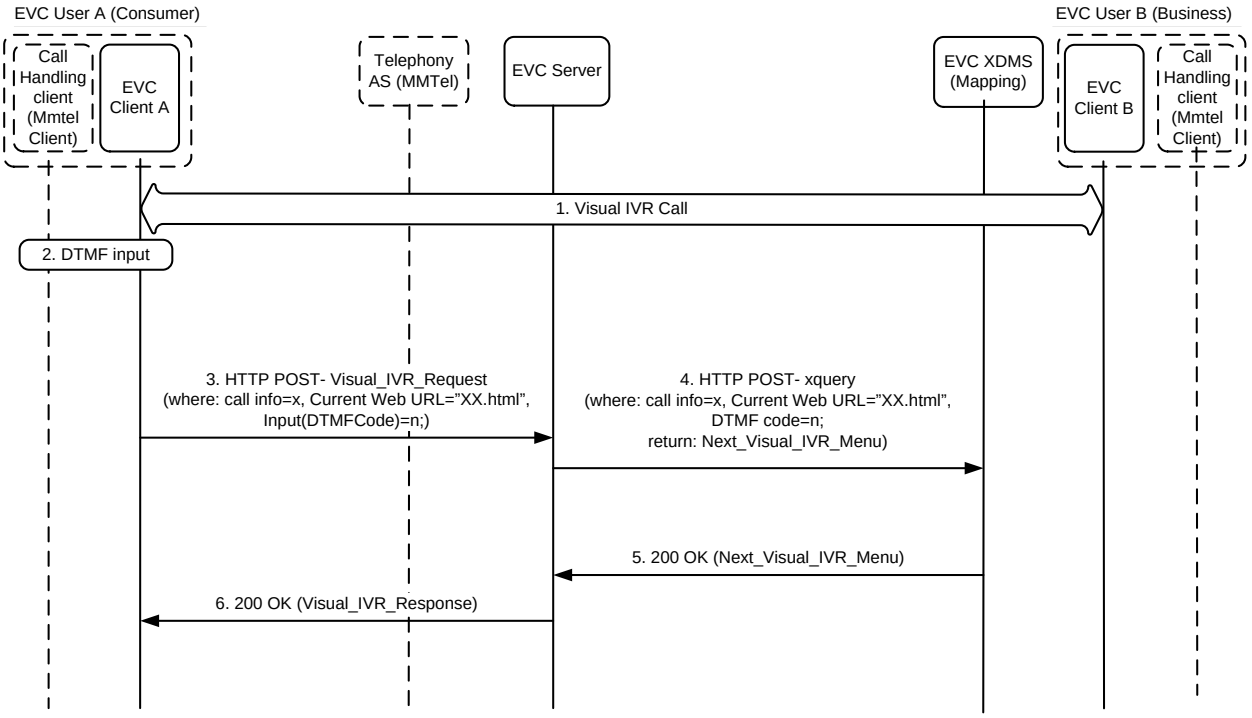
Appendix C. High Level Flows

C.1 First Visual IVR Menu



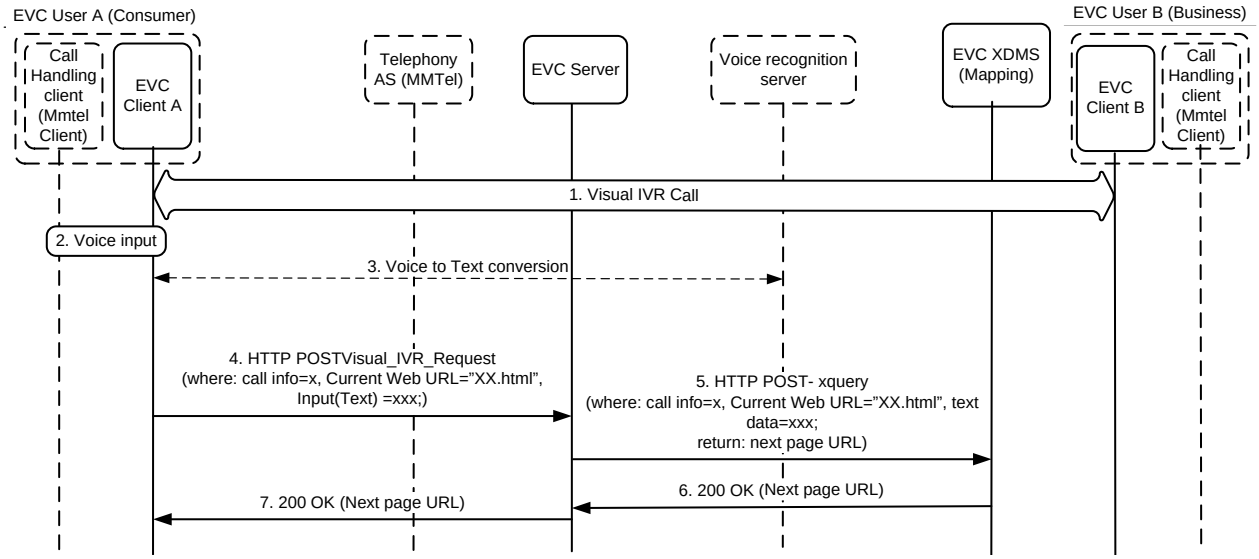
1. EVC User initiates call setup towards EVC User B (Business)
2. EVC Client A forms a request as defined in [XSD-EVC-VisualIVRInfoReq], with call correlation info and, Current Web URL and Input as 'NULL'.
3. EVC Server in turn posts an xquery to EVC XDMS.
4. EVC XDMS returns First Visual IVR Menu URL to the EVC Server.
5. EVC Server forms a response as defined in [XSD-EVC-VisualIVRInfoRes] and returns it to the EVC Client.

C.2 Next Visual IVR Menu – DTMF Input



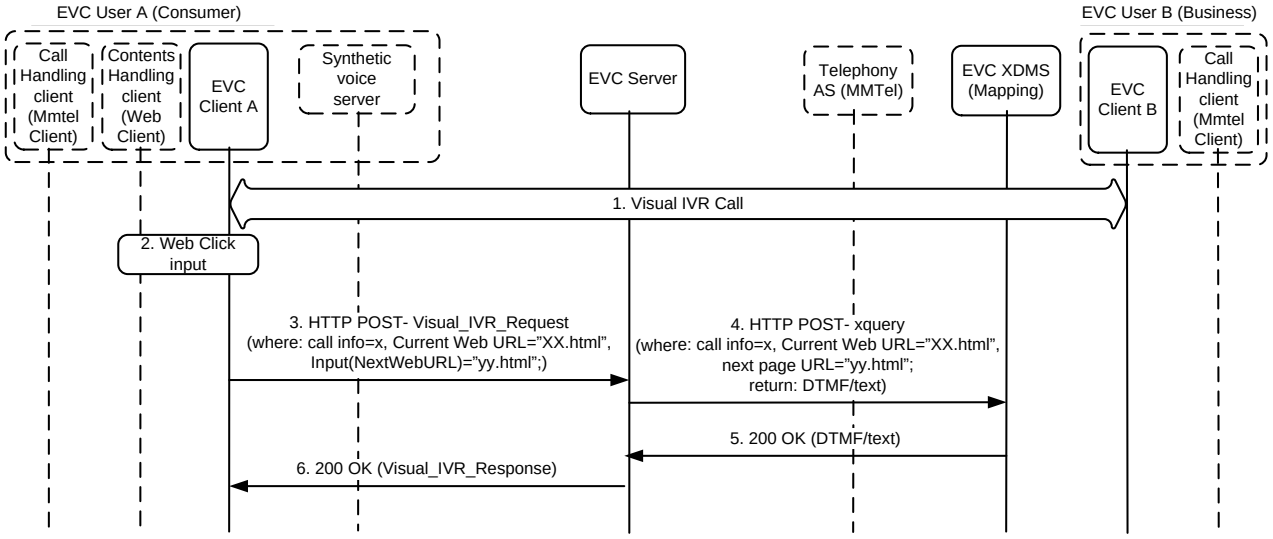
1. Visual IVR Call is ongoing between EVC User A and EVC User B (business)
2. EVC User inputs a DTMF code.
3. EVC Client A forms a request as defined in [XSD-EVC-VisualIVRInfoReq], with call correlation info, Current Web URL and Input type as 'DTMFCode' set to EVC User A's DTMF input.
4. EVC Server in turn posts an xquery to EVC XDMS.
5. EVC XDMS returns Next Visual IVR Menu URL to the EVC Server.
6. EVC Server forms a response as defined in [XSD-EVC-VisualIVRInfoRes] and returns it to the EVC Client.

C.3 Next Visual IVR Menu – Voice Input



1. Visual IVR Call is ongoing between EVC User A and EVC User B (business)
2. EVC User inputs using voice.
3. EVC Client passes the voice input to voice recognition server (which might be part of EVC User's device itself) and gets the voice input converted to text.
4. EVC Client A forms a request as defined in [XSD-EVC-VisualIVRInfoReq], with call correlation info, Current Web URL and Input type as 'Text' set to EVC User A's Voice input, converted to text.
5. EVC Server in turn posts an xquery to EVC XDMS.
6. EVC XDMS returns Next Visual IVR Menu URL to the EVC Server.
7. EVC Server forms a response as defined in [XSD-EVC-VisualIVRInfoRes] and returns it to the EVC Client.

C.4 Next Visual IVR Menu – Web-Click Input



1. Visual IVR Call is ongoing between EVC User A and EVC User B (business)

2. EVC User inputs using web click.
3. EVC Client A forms a request as defined in [XSD-EVC-VisualIVRInfoReq], with call correlation info, Current Web URL and Input type as 'NextWebURL' set to Next Visual IVR Menu URL corresponding to EVC User's web click.
4. EVC Server in turn posts an xquery to EVC XDMS.
5. EVC XDMS returns either DTMF/Text to the EVC Server, based on the system-type of EVC User B's business.
6. EVC Server forms a response as defined in [XSD-EVC-VisualIVRInfoRes] and returns it to the EVC Client. In-case the EVC Server returns text as response, EVC Client A can utilize Synthetic voice server to get it converted to voice again.