ETSI TS 131 220 V16.0.0 (2020-07)

Universal Mobile Telecommunications System (UMTS);
LTE;
Characteristics of the Contact Manager for 3GPP UICC applications
(3GPP TS 31.220 version 16.0.0 Release 16)

Reference
RTS/TSGC-0631220vg00

Keywords
LTE,UMTS

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (https://ipr.etsi.org/).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

Legal Notice

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities. These shall be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between 3GPP and ETSI identities can be found under http://webapp.etsi.org/key/queryform.asp.

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

Y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

The present document defines the external interface characteristics of the Contact Manager for 3GPP UICC applications (e.g. USIM [3] and ISIM [4]). The Contact Manager provides an interface for the management of contact information including rich content without any structural limitations.

The Contact Manager Server application resides on the UICC, an IC card specified in TS 31.101 [2]. TS 31.101 [2] specifies the application independent properties of the UICC/terminal interface such as the physical characteristics.

The external interface between the Contact Manager Server application on the UICC and the Contact Manager Client application on the ME enables the synchronization of the contact information, contacts grouping, configuration of contact structure, configuration of the triggering mechanism, and configuration of user actions which may be performed using contact information.

1 Scope

The present document defines the Contact Manager for 3GPP UICC applications based on OMA DS [7].

The present document specifies the external interface between the Contact Manager Server in the UICC and the Contact Manager External Client in the ME;

Any internal technical realization of either the Contact Manager Server or clients is only specified where these are reflected over the interfaces.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 31.101: "UICC-Terminal Interface, Physical and Logical Characteristics".

[3] 3GPP TS 31.102: "Characteristics of the Universal Subscriber Identity Module (USIM) application".

[4] 3GPP TS 31.103: "Characteristics of the IP Multimedia Services Identity Module (ISIM) application".

[5] 3GPP TS 31.111: "USIM Application Toolkit (USAT)".

[6] OMA SCWS: "OMA TS Smartcard Web Server v1_0-20070209-C", www.openmobilealliance.org

[7] OMA DS: "OMA TS DS Protocol V1.2", www.openmobilealliance.org

[8] OMA vObject Profile: "OMA TS vObject OMA Profile V1.0", www.openmobilealliance.org

[9] ETSI TS TS 102 483 V8.1.0: "UICC-Terminal interface; Internet Protocol connectivity between UICC and Terminal"

[10] OMA DS Folder: "Folder data object specification v1.2", www.openmobilealliance.org

[11] OMA DS File: "File data object specification v1.2", www.openmobilealliance.org

[12] OMA SAN: "SyncML Server Alerted Notification v1.2", http://www.openmobilealliance.org

[13] IETF RFC 3629: "UTF-8, a transformation format of ISO 10646".

[14] Void

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

Contact Manager External Client: The Contact Manager client application that resides on the ME. This client application acts as an OMA DS client.

Contact Manager Server: An application residing on the UICC that provides services to the External clients. It acts as an OMA DS server for the Contact Manager External Client.

Contact Manager External Interface: the interface between the Contact Manager Server residing on the UICC and the Contact Manager External Client.

3.2 Symbols

For the purposes of the present document, the following symbols apply:

|| Concatenation

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

DS	Data Synchronization
DTD	Document Type Definition
OMA	Open Mobile Alliance
PIN	Personal Identification Number
SCWS	Smart Card Web Server
URL	Universal Resource Location
XML	eXtensible Markup Language

4 Contact Manager External interface characteristics

4.1 Reference model

The following figure shows the architecture of the interface between the Contact Manager Server and the Contact Manager External Client.

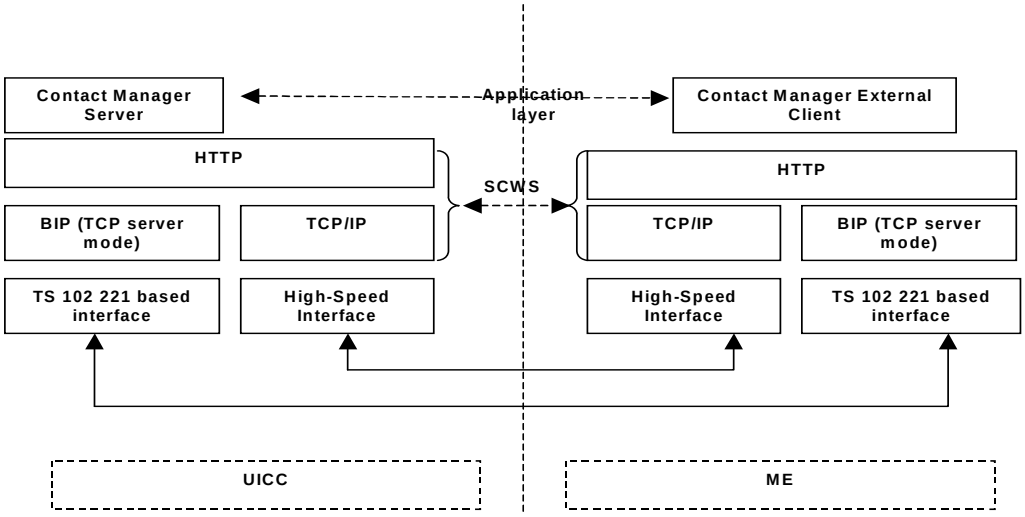

Figure 1: External interface reference model

4.2 External interface definition

4.2.1 General

This clause defines the Contact Manager External Interface.

In case both the ME and the 3GPP UICC application support both the 3G Phone Book (i.e. as defined in TS 31.102 [3]) and the Contact Manager, the Contact Manager should be used.

4.2.2 Contact Manager Server capabilities

The Contact Manager Server shall implement the mandatory OMA DS server functionalities defined in OMA DS [7]. The Contact Manager Server shall also support the following functionalities:

- The Contact Manager Server shall support at least two External clients.
- The Contact Manager Server shall use the same contact database account if more than one client is used.

4.2.3 Contact Manager External client capabilities

The Contact Manager External client shall implement the mandatory OMA DS client functionalities defined in OMA DS [7]. The Contact Manager client shall also support the following functionalities:

- The Contact Manager External client shall support an automatic triggering mechanism based on a policy. A default policy may be based either on time or on number of updated contacts. The default policy parameters shall be stored in "Provisioning.xml". If the default policy parameters are present in "Provisioning.xml" they shall be used unless otherwise configured by the user. Otherwise, the triggering mechanism shall be based on ME local policy. The synchronization initiated by this mechanism shall be totally transparent for the end-user (i.e. without any display, popup or progress bar).

4.2.4 Contact Manager Server and External Client capabilities

Both the Contact Manager Server and the Contact Manager External Client shall support the following functionalities:

- The Contact Manager Server and External client shall support the Field Level Filtering functionality as defined in OMA DS [7].
- The Contact Manager Server and External Client shall support and use the Device Memory Management mechanism defined in OMA DS [7]. The Contact Manager Server and External Client shall indicate their dynamic memory capabilities using <FreeMem> and <FreeId> elements as described in OMA DS [7]. The Contact

Manager Server and External Client shall indicate their permanent memory capabilities using <DSMem>, <MaxMem> and <MaxID> elements as described in OMA DS [7].

- The Contact Manager Server and External Client shall comply with the vCard2.1 Minimum Interoperability Profile guidelines specified in OMA vObject Profile [8]. The vCard profile shall also comply with the implementation requirements in Annex D.

- The Contact Manager Server and External Client should comply with vCard 3.0. If vCard 3.0 is supported, the Contact Manager Server and External Client shall comply with the vCard2.1 Minimum Interoperability Profile guidelines specified in OMA vObject Profile [8]. The vCard profile shall also comply with the implementation requirements in Annex D.

- The Contact Manager Server and External Client shall specify the <MaxOccur> and <MaxSize> elements in their Device Information for the vCard Properties. The receiving device shall not send more than the specified number of property values/bytes for this property.

- The Contact Manager Server and External Client shall support the HTTP transport binding as defined in OMA DS [7].

- The Contact Manager Server and External Client shall support the Smart Card Web Server as defined in OMA SCWS [6].

- For the support of the exchange of device capabilities functionality as defined in OMA DS [7], the following requirements apply:

  - The Contact Manager Client shall be able to process and use the server device information.

  - The Contact Manager Server and Client shall send all its content type capabilities with each of its supported properties, e.g.: it shall send all its supported properties name and value of vCard 2.1.

  - The Contact Manager Server shall not send all its device specific data if it is clear that the Contact Manager External Client cannot utilize it. E.g., if the client indicates that it does not support the vCard3.0 content format, the server shall not send the supported properties of vCard3.0 although the server supports it.

4.3 Access rules

The Contact Manager Server may be associated with one or several UICC applications by including the associated UICC applications AIDs in "Provisioning.xml".

If the access conditions of one of the associated UICC applications are fulfilled (e.g. PIN disabled or PIN verified), the Contact Manager Server shall not initiate an MD5 Digest authentication with the client (see OMA DS [7]).

If none of the associated UICC applications corresponding to the Contact Manager is activated, and if the PIN is not disabled, the Contact Manager Client shall successfully verify the PIN of one of the associated UICC applications.

4.4 Server configuration

The device type of the Contact Manager Server shall be set to "3GPPCM": <DevTyp>3GPPCM </DevTyp>

The device identifier of the Contact Manager Server shall be set to the "ICCID": <DevID>ICCID</DevID>. The ICCID shall be encoded as described in TS 31.101 [2].

The relative contacts database URI of the Contact Manager Server shall be set to "./contacts/3GPPCM": <LocURI>./contacts/3GPPCM </LocURI>.

The absolute Contact Manager Server address shall be set to http://[SCWS @]/3GPPCM. For example, when the external interface is implemented over the APDU interface, the server address is: http://127.0.0.1:3516/3GPPCM.

The Contact Manager configuration parameters shall not be editable by the user.

The absolute Contact Manager Server address and other provisioning parameters may be configured using OMA CP SmartCard Provisioning or OMA DM SmartCard bootstrapping mechanism as described in OMA DS [7].

4.5 External Client configuration

4.5.1 Framework

The Contact Manager Server and External Client shall support:

- the OMA DS Folder [10] and OMA DS File [11].

- the Large Object handling functionality as defined in OMA DS [7].

The 3GPPCM folder is organized as depicted hereafter:

3GPPCM/
|_____ Provisioning.xml
|
|_____ Actions.xml
|
|_____ GroupsDefinition.xml

4.5.2 Basic configuration

When present, the "Provisioning.xml" file shall be accessible under "3GPPCM/". This file shall be "readable" only. The "cctype" (see OMA DS File [11]) shall be set to "text/xml".

This file contains the triggering mechanisms parameters, the associated UICC applications AIDs and the contacts structure.

If the ME supports the "vCardProperties" element defined in "Provisioning.xml" (see annex A), the Contact Manager External Client shall:

- only use the properties that are provided in "vCardProperties" element and that are supported by the ME

- use the Labels provided in the "vCardProperties" element

- display the contact fields in the order of their appearance in the "vCardProperties" element.

The DTD of the "Provisioning.xml" file is provided in annex A of the present document.

4.5.3 User Actions configuration

When present, the "Actions.xml" file shall be accessible under "3GPPCM/". This file shall be "readable" only. The "cctype" (see OMA DS File [11]) shall be set to "`text/xml`".

If the Contact Manager External client supports the User Actions configuration, and if the ME supports one or more applications required for the execution of these actions, it shall present the supported actions to the user when the contact is selected.

The DTD of the "Actions.xml" file is provided in annex B of the present document.

4.6 Contacts grouping

When present, the "GroupsDefinition.xml" file shall be accessible under "3GPPCM/". This file shall be "readable" and "writable" only. The "cctype" (see OMA DS File [11]) shall be set to "text/xml".

A group definition shall at least contain a Unique Identifier and a Label. A group definition may additionally contain multimedia elements or links to multimedia elements (e.g. a picture, a ring tone, a voice tag and/or a video). The DTD of the "GroupsDefinition.xml" file is provided in annex C of the present document.

3GPP-specific vCard Type may be used to associate a vCard with a group defined in "GroupsDefinition.xml". For that purpose, the "X-3GPP-GroupUID" Type shall be inserted in the vCard to point to the corresponding group definition in the "GroupsDefinition.xml" file.

If "X-3GPP-GroupUID" contains a group Unique Identifier that does not exist in "GroupsDefinition.xml" (e.g. because it was deleted), then the Contact Manager External Client shall remove "X-3GPP-GroupUID" from the vCard(s).

"X-3GPP-GroupUID" is defined in Annex D.

The DTD of the "GroupsDefinition.xml" file is provided in annex C of the present document.

4.7 3GPP specific contacts elements

3GPP-specific vCard Types may be used to associate additional multimedia elements to a vCard (e.g. a ring tone, a voice tag and/or a video) or to store additional contact information in a vCard (e.g. SIP URI, TEL URI). In this case, the 3GPP-specific vCard Types are used.

The 3GPP-specific vCard Types are defined in Annex D.

4.8 Synchronization with an external device

The support of synchronization with an external device (e.g. a Laptop Computer connected to the ME through a local link) is optional.

An ME supporting synchronization with an external device shall play the role of an IP router (i.e. port forwarding and address translation in IPv4), as described in TS 102 483 [9].

Annex A (normative): Contact Manager Provisioning DTD

A.1 Document Type Definition

The Document Type Definition, according to XML syntax definitions, is defined hereafter:

```
<?xml version="1.0" encoding="UTF-8"?>
<!—DTD for the Provisioning XML file. →
<!ELEMENT 3GPPCMProv (UICC_App_Id +, Triggering?, vCardProperties*)>
<!ELEMENT UICC_App_Id (#PCDATA)>
<!ELEMENT Triggering (Type, Parameter)>
<!ELEMENT Type (#PCDATA)>
<!ELEMENT Parameter (#PCDATA)>
<!ELEMENT vCardProperties (Property+)>
<!ELEMENT Property (Label?, Descriptor+)>
<!ELEMENT Label (#PCDATA)>
<!ELEMENT Descriptor (#PCDATA)>
<!—End of DTD Definition →
```

A.2 DTD Description

This sub-clause describes the elements of the Contact Manager Provisioning Document Type Definition as defined in A.1.

<3GPPCMProv>: This is the root element of the Provisioning XML body. It shall always be present. The version described in the present document is 1.

<UICC_App_Id>: Contains the associated UICC application AID, which is encoded as a text string (see TS 31.101 [2]).

<Triggering>: Contains the Type of the triggering mechanism and its corresponding Parameter.

<Type>: Contains the type of the triggering mechanism, which is encoded as a text string. It shall have one the following values: ME_POLICY, TIME, EVENT.

<Parameter>: Contains the triggering mechanism parameter, which is encoded as a text string representing an integer. For TIME Type, the parameter represents the time interval in minutes. For EVENT Type, the parameter represents the number of updated contacts.

<vCardProperties>: It describes the vCards structure.

<Property>: Contains the Label (optional) and the Descriptor of a contact.

<Label>: A text string, which contains the Label to be displayed to the user.

<Descriptor>: A text string, which contains the field descriptor. It shall be encoded as a vCard Property.

Annex B (normative): User Actions DTD

B.1 Document Type Definition

The Document Type Definition, according to XML syntax definitions, is defined hereafter:

```
<?xml version="1.0" encoding="UTF-8"?>
<!—DTD for the User Actions XML file. →
<!ELEMENT Action (Label, ActionCode, Parameter*, GroupUID*)>
<!ELEMENT Parameter (Name, Value)>
<!ELEMENT Label (#PCDATA)>
<!ELEMENT ActionCode (#PCDATA)>
<!ELEMENT Name (#PCDATA)>
<!ELEMENT Value (#PCDATA)>
<!ELEMENT GroupUID (#PCDATA)>
<!—End of DTD Definition →
```

B.2 DTD Description

This sub-clause describes the elements of the User Actions Document Type Definition as defined in B.1.

<Action>: This is the root element of the Groups Definition XML body. It shall always be present. The version described in the present document is 1.

<Label>: A text string, which contains the Label to be displayed to the user. This Label is displayed to the user as part of the actions that may be performed using the selected contact information.

<ActionCode>: Contains a text string representing an integer defining the mobile application to be launched when the user selects this action menu.

<Parameter>: Describes an input parameter passed to the application when the action is launched. The number of parameters depends on the mobile application to launch. The table below defines for each application the expected parameters and their corresponding names and values.

<Name>: Contains a text string, which represents the name of an input parameter. It allows the mobile application to recognize the parameter. If the Name field begins with the character "@", the corresponding value shall be input by the user. The string text following the "@" shall be used as a label to prompt the user.

<Value>: Contains a text string, which represents the value of a parameter. The parameter value can mix constant text and references to variables. The references to variables are placed between curly brackets ({}) and encoded as a vCard Property. The ME shall replace the variable references with the vCard Property value of the selected contact. If the vCard property value is a concatenation of several fields, the value inside the curly brackets could be suffixed with "-x", where x is the field number (e.g. {N-2} will refer to the second field of N property which is the given name; {ADR;HOME-3} will refer to the third field of ADR property, which is the street name).

<GroupUID>: Contains the unique identifier of a group, which is encoded as a text string representing an integer value. If this element is present in the action description, the corresponding action shall only be

applied to the contacts that belong to this group (i.e. to the contacts with a vCard containing a X-3GPP-GroupUID that is set to the same integer value as the GroupUID).

Table 1: Action codes and parameters

Action Code	Mobile application to launch	Expected Parameter(s)	
		Name(s)	**Value(s)**
1	Browser	"url"	url to browse
2	Application to send an SMS	"Phone number", "text"	Phone number and text to send.
3	Application to send an MMS	"Phone number", "subject", "text", "multimedia"	Phone number, subject, text to send, local url(s) of multimedia elements to attach to the MMS.
4	Instant messaging	"Phone number", "text", "multimedia"	Phone number, text to send, local url(s) of multimedia elements to attach to the Instant Message.
5	Application to send an email	"TO", "CC", "BCC", "subject", "text", "multimedia"	Email destination address, subject, text to send, local url(s) of multimedia elements to attach to the EMAIL

Annex C (normative): Groups definition DTD

C.1 Document Type Definition

The Document Type Definition, according to XML syntax definitions, is defined hereafter:

```
<?xml version="1.0" encoding="UTF-8"?>
<!—DTD for the Groups Definition XML file. →
<!ELEMENT 3GPPCMGroups (UID, Label, Photo?, Multimedia*)>
<!ELEMENT UID (#PCDATA)>
<!ELEMENT Label (#PCDATA)>
<!ELEMENT Photo (#PCDATA)>
<!ELEMENT Multimedia (#PCDATA)>
<!—End of DTD Definition →
```

C.2 DTD Description

This sub-clause describes the elements of the Contact Structure Document Type Definition as defined in E.1.

<3GPPCMGroups>: This is the root element of the Groups Definition XML body. It shall always be present. The version described in the present document is 1.

<UID>: Contains the unique identifier of a group, which is encoded as a text string representing an integer value. The vCards that belong to a particular group shall contain a X-3GPP-GroupUID that is set to the same integer value as the UID of this group.

<Label>: Contains a label representing the group, which is encoded as a text string.

<Photo>: Contains the icon (or a link to the icon) to be displayed to the user. It shall be encoded as vCard 2.1 PHOTO Property in a text string format.

<Multimedia>: Contains a link to a multimedia element that is associated with a group (e.g. ring tone, voice tag, video). It shall be encoded as a text string using the same syntax as a vCard Property. The following Properties may be used to indicate the type of the multimedia element: RINGTONE, VOICETAG, VIDEO. The VALUE property shall be used to indicate the URL of the Multimedia file, which may be located in the UICC Multimedia File System or in the SCWS.

Annex D (normative): vCard properties requirements and extensions

D.1 vCard properties requirements

If a property does not have a value, the Contact Manager Server and External Client shall not include it in the corresponding vCard object.

Note: OMA DS protocol ensures the uniqueness of contacts. The use of the UID property in vCards as an OMA DS LUID results in contacts duplication.

The Contact Manager External Client shall support the BDAY property.

If the ME supports JPEG files, the Contact Manager External Client shall support the PHOTO property.

A Contact Manager External Client supporting vCard 3.0 shall support the following vCard Types: Geographical Types, Nickname Type and Sort String Type.

D.2 vCard 3GPP extensions

The Contact Manager Server and External Client should support the 3GPP-specific vCard Types, which are defined hereafter:

- "X-3GPP-Multimedia":

  The following Properties may be used to indicate the type of the multimedia elements: RINGTONE, VOICETAG, VIDEO. The VALUE property shall be used to indicate the URL of the Multimedia File which may be located in the UICC Multimedia File System or in the SCWS (e.g. X-3GPP-Multimedia;RINGTONE;VALUE=URL:http://127.0.0.1:3516/pub/files/ringtone10.wav). This Type encoding shall be 8bit. A vCard may contain several X-3GPP-Multimedia entries with different types (e.g. a ring tone and a voice tag).

- "X-3GPP-GroupUID":

  This Type is used to specify a value that represents a unique identifier of the Group to which this vCard belongs (see Annex E). This Type encoding shall be 8bit. This Type value shall be an integer (e.g. X-3GPP-GroupUID:19).

- "X-3GPP-IM-Id":

  This Type is used to store the IM address in a vCard. Coded as vCard 2.1 EMAIL type.

- "X-3GPP-SIP-URI":

  This Type is used to store the SIP number in a vCard. This Type encoding shall be 8bit. This Type value shall be a sting representing a SIP URI.

- "X-3GPP-TEL-URI":

  This Type is used to store the TEL URI in a vCard. This Type encoding shall be 8bit. This Type value shall be a sting representing a TEL URI.

Annex E (informative): Mapping of OMA DS functionalities and the Contact Manager

The following table lists the optional OMA DS functionalities that are required for the Contact Manager implementation.

Table 1: Mapping of optional OMA DS 1.2 functionalities and Contact Manager

Functionality	DS 1.2		Contact Manager		Comments
	Server	Client	Server	Client	
HTTP Bindings	O	O	M	M	HTTP Bindings are required for the transmission of DS protocol messages over the Contact Manager external interface.
Field level Filtering	O	O	M	M	The UICC is a device with limited resources. The amount of free memory available for the Contact Manager can vary from few tenth of Kbytes to hundred of megabytes. This functionality enables the UICC to indicate to the ME what vCard elements shall be synchronized according to the amount of available memory and network operator policy. In case this function is not implemented, the ME needs to implement a proprietary filtering mechanism.
Vcard 2.1 Minimum Interoperability Profile	O	O	M	M	This is to address well-known interoperability issues that motivated the development of this profile.
Folders and Files Data Objects	O	O	M	M	This is to enable Contact Manager configuration and contacts grouping.
Sending Large Object	O	O	M	M	This is required for the optimal support of Folders and Files Data Objects since the DS server in the UICC have limited resources.
Receiving Large Object	M	O	M	M	This is required for the optimal support of Folders and Files Data Objects since the DS server in the UICC have limited resources.
Device Memory Management	O	O	M	M	Highly recommended in OMA DS. This is required because the UICC is a device with limited resources.
<FreeMem> and <FreeId> elements	O	O	M	M	This is related to Device Memory Management (see above).
Device Information processing/Capabilities Exchange	O	O	M	M	Highly recommended in OMA DS. This is required to avoid interoperability problems.
'Device Information' elements					
CTCap	M	M	M	M	The Server and Client shall declare all content-type it supports. This is required to avoid interoperability problems.
DSMem	O	O	M	M	This is related to Device Memory Management (see above).
MaxID	O	O	M	M	This is related to Device Memory Management (see above).
MaxMem	O	O	M	M	This is related to Device Memory Management (see above).
MaxOccur	M	O	M	M	This is required to avoid contacts information loss in case of mismatch between server and client capabilities.
MaxSize	M	O	M	M	This is required to avoid contacts information loss in case of mismatch between server and client capabilities.
O: Optional M: Mandatory N/A: Not Applicable					

Annex F (informative): Contact Manager XML files examples

F.1 Provisioning XML file example

The example hereafter indicates that the Contact Manager Server should be triggered each 120 minutes. The Contact Manager is associated with a USIM and an ISIM. This example also shows a contact structure comprising a Name and a Cell Phone.

```
<3GPPCMProv>
   <UICC_App_Id>A0000000871002000000000011223399</UICC_App_Id>
   <UICC_App_Id>A0000000871004000000000011223399</UICC_App_Id>
   <Triggering>
     <Type>TIME</Type>
     <Parameter>120</Parameter>
   </Triggering>
   <vCardProperties>
     <Property>
        <Label>Name</Label>
        <Descriptor>N</Descriptor>
     </Property>
     <Property>
       <Label>Mobile</Label>
       <Descriptor>TEL;CELL</Descriptor>
     </Property>
   </vCardProperties>
</3GPPCMProv>
```

F.2 User Actions XML file example

The example hereafter shows a User Actions XML file.

```
<Action>
        <Label>send greeting SMS?</Label>
        <ActionCode>2</ActionCode>
        <Parameter>
                <Name>phone number</Name>
                <Value>{TEL;CELL}</Value>
```

```
        </Parameter>
        <Parameter >
            <Name>text</Name>
           <Value>Merry Christmas {N-2} and happy new year</Value>
        </Parameter>
 </Action>
  <Action>
        <Label>Locate your contact?</Label>
        < ActionCode>1</ActionCode>
        <Parameter>
              <Name>url</Name>
              <Value>
              http://www.map.fr/search_map?street={ADR;HOME-3}&locality={ADR;HOME-4}
              </Value>
         </Parameter>
 </Action>
```

F.3 Groups Definition XML file

The example hereafter shows a Groups Definition file.

```
<3GPPCMPGroup>
   <UID>19</UID>
   <Label>My 3GPP CT6 colleagues</Label>
   <Icon>PHOTO;ENCODING=BASE64;TYPE=JPEG:R05G0Dfkjhgfdtrolki</Icon>
   <Multimedia>
   RINGTONE;VALUE=URL:http://127.0.0.1:3516/pub/files/ringtone10.wav
   </Multimedia>
</3GPPCMProv>
```

Annex G (informative): Change history

Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	New
2008-03	CT #39	CP-080165			Presentation for approval at CT #39	8.0.0
2009-12	CT #46	CP-091011	001	-	References update	8.1.0
2009-12	CT #46	-	-	-	Upgrade of the specification to Rel-9	9.0.0
2010-03	CT #47	CP-100183	003	1	Correction of wrong reference pointer and clarification	9.1.0
2011-03	SP #51				Upgrade of the specification to Rel-10	10.0.0
2012-09	CT #57	CP-120622	007		Removal of unused reference to ASN.1 coding specification	11.0.0
2014-10	SP #65				Upgrade of the specification to Rel-12	12.0.0
2015-12	SP #70				Upgrade of the specification to Rel-13	13.0.0
2017-03	SA-75	-	-	-	Update to Rel-14 version (MCC)	14.0.0
2018-07	SA-80				Update to Rel-15 version (MCC)	15.0.0
2020-07	CT#88e	-	-	-	Update to Rel-16 version (MCC)	16.0.0

History

Document history		
V16.0.0	July 2020	Publication