**3GPP TSG-CT WG1 Meeting #128-eC1-21xxxx**

**Electronic meeting, 25-February – 5 March 2021 (was C1-211167)**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **24.282**  | **CR** | **0207** | **rev** | **2** | **Current version:** | **17.1.0** |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

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|  |
| ***Title:***  | MCData service binding |
|  |  |
| ***Source to WG:*** | FirstNet |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | MCProtoc17 |  | ***Date:*** | 25 February 2021 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-17 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)Rel-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)* |
|  |  |
| ***Reason for change:*** | MCData service binding text in 7.3.3 needs to take into account bindings on another MCData client. The MCPTT (TS 24.379) and MCVideo (TS 24.281) services have already been updated per the changes in this CR. |
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| ***Summary of change:*** | Aligned 7.3.3 step 5 with equivalent text in TS 24.379 and TS 24.281. |
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| ***Consequences if not approved:*** | Handling of multiple bindings will not be supported in MCData. |
|  |  |
| ***Clauses affected:*** | 7.2.1, 7.3.2, 7.3.3, D.1.2, D.1.3 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | Rev 1:* Corrected new step C in 7.3.3 to use: identified by the "+g.3gpp.registration-token" header field parameter"

Rev 2:* Added corrections to 7.2.1, 7.3.2, 7.3.3 to include SIP REGISTER changes supporting multiple registrations for the same MCPTT ID
* Added <multiple-devices-ind> to the XML schema in D.1.2
* Following recent practices, anyExt elements for "mcdata-ParamsType" are now shown in the XML schema in D.1.2 with a leading comment to show their logical position in the structure
* In D.1.3, added <multiple-devices-ind> in the list of anyExt elements and deleted text that indicated the elements in the list are not shown in the XML schema in D.1.2.
* Corrected a reference to the mcdata-info+xml schema from F.1 to D.1.
* Ticked the "ME" box on the coversheet.
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**\* \* \* \* \* FIRST CHANGE \* \* \* \* \***

### 7.2.1 SIP REGISTER request for service authorisation

When the MCData client performs SIP registration for service authorisation the MCData client shall perform the registration procedures as specified in 3GPP TS 24.229 [5].

The MCData client shall include the following media feature tags in the Contact header field of the SIP REGISTER request:

1) the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata";

2) if SDS is supported then:

a) the g.3gpp.mcdata.sds media feature tag; and

b) the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"; and

3) if FD service is supported then:

a) the g.3gpp.mcdata.fd media feature tag; and

b) the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd".

NOTE 1: If the MCData client logs off from the MCData service but the MCData UE remains registered the MCData UE performs a re-registration as specified in 3GPP TS 24.229 [5] without the supported g.3gpp.mcdata media feature tags and the g.3gpp.icsi-ref media feature tag containing the supported MCData service ICSIs in the Contact header field of the SIP REGISTER request.

If the MCData client, upon performing SIP registration:

1) has successfully finished the user authentication procedure as described in 3GPP TS 24.482 [24];

2) has available an access-token;

3) based on implementation decides to use SIP REGISTER for service authorization;

4) confidentiality protection is disabled as specified in subclause 6.5.2.3.1; and

5) integrity protection is disabled as specified in subclause 6.5.3.3.1;

then the MCData client shall include in the SIP REGISTER request an application/vnd.3gpp.mcdata-info+xml MIME body as defined in Annex D.1 with:

1) the <mcdata-access-token> element set to the value of the access token received during the user authentication procedures; and

2) the <mcdata-client-id> element set to the value of the MCData client ID of the originating MCData client.

NOTE 2: the access-token contains the MCData ID of the user.

If the MCData client, upon performing SIP registration:

1) has successfully finished the user authentication procedure as described in 3GPP TS 24.482 [24];

2) has an available access-token;

3) based on implementation decides to use SIP REGISTER for service authorization; and

4) either confidentiality protection is enabled as specified in subclause 6.5.2.3.1 or integrity protection is enabled as specified in subclause 6.5.3.3.1;

then the MCData client:

1) shall include an application/mikey MIME body with the CSK as MIKEY-SAKKE I\_MESSAGE as specified in 3GPP TS 33.180 [26] in the body of the SIP REGISTER request;

2) if confidentiality protection is enabled as specified in subclause 6.5.2.3.1, shall include in the body of the SIP REGISTER request an application/vnd.3gpp.mcdata-info+xml MIME body with the following clarifications:

a) shall encrypt the received access-token using the client server key (CSK) and include the <mcdata‑access‑token> element set to the encrypted access-token, as specified in subclause 6.5.3.3.1; and

b) shall encrypt the MCData client ID of the originating MCData client and include the <mcdata‑client‑id> element set to the encrypted MCData client ID;

3) if confidentiality protection is disabled as specified in subclause 6.5.2.3.1, shall include an application/vnd.3gpp.mcdata-info+xml MIME body as defined in Annex D.1 with:

a) the <mcdata-access-token> element set to the value of the access token received during the user authentication procedures; and

b) the <mcdata-client-id> element set to the value of the MCData client ID of the originating MCData client; and

4) if integrity protection is enabled as specified in subclause 6.5.3.3.1, shall use the CSK to integrity protect the application/vnd.3gpp.mcdata-info+xml MIME body by following the procedures in subclause 6.6.3.3.3.

**\* \* \* \* \* NEXT CHANGE \* \* \* \* \***

### 7.3.2 SIP REGISTER request for service authorisation

The MCData server shall support obtaining service authorization specific information from the SIP REGISTER request sent from the MCData client and included in the body of a third-party SIP REGISTER request.

NOTE 1: 3GPP TS 24.229 [5] defines how based on initial filter criteria the SIP REGISTER request sent from the UE is included in the body of the third-party SIP REGISTER request.

Upon receiving a third party SIP REGISTER request with a message/sip MIME body containing the SIP REGISTER request sent from the MCData client containing an application/vnd.3gpp.mcdata-info+xml MIME body with an <mcdata-access-token> element and an <mcdata-client-id> element within a message/sip MIME body of the SIP REGISTER request sent from the MCData client, the MCData server:

1) shall identify the IMS public user identity from the third-party SIP REGISTER request;

2) shall identify the MCData ID from the SIP REGISTER request sent from the MCData client and included in the message/sip MIME body of the third-party SIP REGISTER request by following the procedures in subclause 7.3.1A;

2A) shall check if the number of maximum simultaneous authorizations supported for the MCData user as specified in the <max-simultaneous-authorizations> element of the <anyExt> element contained in the <OnNetwork> element of the MCData service configuration document (see the service configuration document in 3GPP TS 24.484 [12]) has been reached. If reached, the MCData server shall not continue with the rest of the steps in this subclause;

3) shall perform service authorization for the identified MCData ID as described in 3GPP TS 33.180 [26]; and

4) if service authorization was successful, shall bind the MCData ID to the IMS public user identity.

4a) if service authorization was successful and if the service authorization request was from an MCData user who is previously MCData service authorized on another MCData client, keep the current bindings and create a new binding between the MCData ID and the IMS public user identity;

NOTE 2: The MCData server will store the binding MCData ID, IMS public user identity and an identifier addressing the MCData server in an external database.

5) if a Resource-Share header field with the value "supported" is contained in the "message/sip" MIME body of the third-party REGISTER request, shall bind the MCData ID to the identity of the MCData UE identified by the "+g.3gpp.registration-token" header field parameter in the Contact header field of the incoming third-party REGISTER request; and

6) if more than one binding exists for the MCData ID, shall include in the SIP 200 (OK) response an application/vnd.3gpp.mcdata-info+xml MIME body as specified in annex D.1 with an <multiple-devices-ind> element containing an <mcdataBoolean> element set to a value of "true".

**\* \* \* \* \* NEXT CHANGE \* \* \* \* \***

### 7.3.3 SIP PUBLISH request for service authorisation and service settings

The MCData server shall support obtaining service authorization specific information from a SIP PUBLISH request for MCData server settings.

Upon receiving a SIP PUBLISH request containing:

1) an Event header field set to the "poc-settings" value;

2) an application/poc-settings+xml MIME body; and

3) an application/vnd.3gpp.mcdata-info+xml MIME body containing an <mcdata-access-token> element and an <mcdata-client-id> element;

the MCData server:

1) shall identify the IMS public user identity from the P-Asserted-Identity header field;

2) shall perform the procedures in subclause 7.3.1A;

3) if the procedures in subclause 7.3.1A were not successful shall send a SIP 403 (Forbidden) response towards the MCData client with the warning text set to: "140 unable to decrypt XML content " in a Warning header field as specified in subclause 4.9, and not continue with the rest of the steps in this subclause;

3A) shall check if the number of maximum simultaneous authorizations supported for the MCData user as specified in the <max-simultaneous-authorizations> element of the <anyExt> element contained in the <OnNetwork> element of the MCData service configuration document (see the service configuration document in 3GPP TS 24.484 [12]) has been reached. If reached, the MCData server shall send a SIP 486 (Busy Here) response towards the MCData client with the warning text set to: "228 maximum number of service authorizations reached" in a Warning header field as specified in subclause 4.9 and shall not continue with the rest of the steps in this clause;

4) shall perform service authorization for the identified MCData ID as described in 3GPP TS 33.180 [26];

5) if service authorization was successful:

a) shall bind the MCData ID to the IMS public user identity.

b) if the service authorization request was from an MCData user who is previously MCData service authorized on another MCData client, keep the current bindings and create a new binding between the MCData ID and the IMS public user identity; and

c) if a Resource-Share header field with the value "supported" was included in the "message/sip" MIME body of the third-party REGISTER request, shall bind the MCData ID to the identity of the MCData UE identified by the "+g.3gpp.registration-token" header field parameter in the Contact header field of the third-party REGISTER request that contained this IMS public user identity;

NOTE 1: The MCData server will store the binding MCData ID, IMS public user identity and an identifier addressing the MCData server in an external database.

6) if service authorization was not successful, shall send a SIP 403 (Forbidden) response towards the MCData client with the warning text set to: "101 service authorisation failed" in a Warning header field as specified in subclause 4.9, and not continue with the rest of the steps in this subclause;

7) shall process the SIP PUBLISH request according to rules and procedures of IETF RFC 3903 [34] and if processing of the SIP request was not successful, do not continue with the rest of the steps;

8) shall cache the received MCData service settings until the MCData service settings expiration timer expires;

9) if more than one binding exists for the MCVideo ID, shall send a SIP 200 (OK) response according to 3GPP TS 24.229 [5] with:

a) an application/vnd.3gpp.mcdata-info+xml MIME body as specified in annex D.1 with an <multiple-devices-ind> element containing an <mcdataBoolean> element set to a value of "true";

10) shall download the MCData user profile from the MCData user database as defined in 3GPP TS 29.283 [37] if not already stored at the MCData server and use the <selected-user-profile-index> element of the poc-settings event package if included to identify the active MCData user profile for the MCData client;

NOTE 2: If the <selected-user-profile-index> element of the poc-settings event package is included then only that MCData user profile is needed to be downloaded from the MCData user database.

11) if there is no <selected-user-profile-index> element included in the poc-settings event package then if multiple MCData user profiles are stored at the MCData server or downloaded for the MCData user from the MCData user database, shall determine the pre-selected MCData user profile to be used as the active MCData user profile by identifying the MCData user profile (see the MCData user profile document in 3GPP TS 24.484 [12]) in the collection of MCData user profiles that contains a <Pre-selected-indication> element; and

NOTE 3: If only one MCData user profile is stored at the MCData server or only one MCData user profile is downloaded from the MCData user database, then by default this MCData user profile is the pre-selected MCData user profile.

12) if an <ImplicitAffiliations> element is contained in the <OnNetwork> element of the MCData user profile document with one or more <entry> elements containing an MCData group ID (see the MCData user profile document in 3GPP TS 24.484 [12]) for the served MCData ID, shall perform implicit affiliation as specified in subclause 8.3.2.15.

**\* \* \* \* \* NEXT CHANGE \* \* \* \* \***

## D.1.2 XML schema

<?xml version="1.0" encoding="UTF-8"?>

<xs:schema

 xmlns:xs="http://www.w3.org/2001/XMLSchema"

 targetNamespace="urn:3gpp:ns:mcdataInfo:1.0"

 xmlns:mcdatainfo="urn:3gpp:ns:mcdataInfo:1.0"

 elementFormDefault="qualified"

 attributeFormDefault="unqualified"

 xmlns:xenc="http://www.w3.org/2001/04/xmlenc#">

 <xs:import namespace="http://www.w3.org/2001/04/xmlenc#"/ schemaLocation="http://www.w3.org/TR/xmlenc-core/xenc-schema.xsd">

 <!-- root XML element -->

 <xs:element name="mcdatainfo" type="mcdatainfo:mcdatainfo-Type" id="info"/>

 <xs:complexType name="mcdatainfo-Type">

 <xs:sequence>

 <xs:element name="mcdata-Params" type="mcdatainfo:mcdata-ParamsType" minOccurs="0"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdatainfo:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="mcdata-ParamsType">

 <xs:sequence>

 <xs:element name="mcdata-access-token" type="mcdatainfo:contentType" minOccurs="0"/>

 <xs:element name="request-type" type="xs:string" minOccurs="0"/>

 <xs:element name="mcdata-request-uri" type="mcdatainfo:contentType" minOccurs="0"/>

 <xs:element name="mcdata-calling-user-id" type="mcdatainfo:contentType" minOccurs="0"/>

 <xs:element name="mcdata-called-party-id" type="mcdatainfo:contentType" minOccurs="0"/>

 <xs:element name="mcdata-calling-group-id" type="mcdatainfo:contentType" minOccurs="0"/>

 <xs:element name="alert-ind" type="mcdatainfo:contentType" minOccurs="0"/>

 <xs:element name="originated-by" type="mcdatainfo:contentType" minOccurs="0"/>

 <xs:element name="mcdata-client-id" type="mcdatainfo:contentType" minOccurs="0"/>

 <xs:element name="mcdata-controller-psi" type="mcdatainfo:contentType" minOccurs="0"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdatainfo:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

<!-- anyExt elements for complexType name="mcdata-ParamsType" -->

 <xs:element name="pre-established-session-ind" type="xs:Boolean" minOccurs="0"/>

 <xs:element name="mcdata-communication-state" type="xs:string" minOccurs="0"/>

 <xs:element name="emergency-ind" type="xs:Boolean" minOccurs="0"/>

 <xs:element name="alert-ind-rcvd" type="xs:Boolean" minOccurs="0"/>

 <xs:element name="mc-org" type="xs:string" minOccurs="0"/>

 <xs:element name="multiple-devices-ind" type="mcvideoinfo:contentType" minOccurs="0"/>

 <xs:simpleType name="protectionType">

 <xs:restriction base="xs:string">

 <xs:enumeration value="Normal"/>

 <xs:enumeration value="Encrypted"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:complexType name="contentType">

 <xs:choice>

 <xs:element name="mcdataURI" type="xs:anyURI"/>

 <xs:element name="mcdataString" type="xs:string"/>

 <xs:element name="mcdataBoolean" type="xs:boolean"/>

 <xs:any namespace="##other" processContents="lax"/>

 <xs:element name="anyExt" type="mcdatainfo:anyExtType" minOccurs="0"/>

 </xs:choice>

 <xs:attribute name="type" type="mcdatainfo:protectionType"/>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="anyExtType">

 <xs:sequence>

 <xs:any namespace="##any" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 </xs:sequence>

 </xs:complexType>

</xs:schema>

**\* \* \* \* \* NEXT CHANGE \* \* \* \* \***

## D.1.3 Semantic

Editor’s note: In the current release, support for emergency groups and emergency group communications (in particular the use of the <emergency-ind> element) may be absent, partial or limited, namely only provided to the extent of facilitating emergency alert functionality.

The <mcdatainfo> element is the root element of the XML document. The <mcdatainfo> element can contain subelements.

NOTE 1: The subelements of the <mcdata-info> are validated by the <xs:any namespace="##any" processContents="lax" minOccurs="0" maxOccurs="unbounded"/> particle of the <mcdata-info> element

If the <mcdatainfo> contains the <mcdata-Params> element then:

1) the <mcdata-access-token>, <mcdata-request-uri>, <mcdata-controller-psi>, <mcdata-calling-user-id>, <mcdata-called-party-id>, <mcdata-calling-group-id>, <alert-ind>, <originated-by> and <mcdata-client-id> can be included with encrypted content;

2) for each element in 1) that is included with content that is not encrypted:

a) the element has the "type" attribute set to "Normal";

b) if the element is the <mcdata-request-uri>, <mcdata-calling-user-id>, <mcdata-called-party-id> or <mcdata-calling-group-id> or <originated-by> then the <mcdataURI> element is included;

c) if the element is the <mcdata-access-token> or <mcdata-client-id>, then the <mcdataString> element is included; and

d) if the element is <alert-ind> then the <mcdataBoolean> element is included; and

3) for each element in 1) that is included with content that is encrypted:

a) the element has the "type" attribute set to "Encrypted";

b) the <xenc:EncryptedData> element from the "[http://www.w3.org/2001/04/xmlenc#](http://www.w3.org/2001/04/xmlenc)" namespace is included and:

i) can have a "Type" attribute can be included with a value of "<http://www.w3.org/2001/04/xmlenc#Content>";

ii) can include an <EncryptionMethod> element with the "Algorithm" attribute set to value of "http://www.w3.org/2009/xmlenc11#aes128-gcm";

iii) can include a <KeyInfo> element with a <KeyName> element containing the base 64 encoded XPK-ID; and

iv) includes a <CipherData> element with a <CipherValue> element containing the encrypted data.

NOTE 2: When the optional attributes and elements are not included within the <xenc:EncryptedData> element, the information they contain is known to sender and the receiver by other means.

If the <mcdatainfo> contains the <mcdata-Params> element then:

1) the <mcdata-access-token> can be included with the access token received during authentication procedure as described in 3GPP TS 24.382 [49];

2) the <request-type> can be included with:

a) a value of "one-to-one-sds" to indicate that the MCData client wants to initiate a one-to-one SDS request;

b) a value of "group-sds" to indicate the MCData client wants to initiate a group SDS request;

c) a value of "one-to-one-fd" to indicate that the MCData client wants to initiate a one-to-one FD request;

d) a value of "group-fd" to indicate that the MCData client wants to initiate a group FD request;

e) a value of "msf-disc-req" to indicate that the MCData client wishes to discover the absoluteURI of the media storage function for HTTP requests;

f) a value of "msf-disc-res" when the participating MCData function sends the absolute URI to the MCData client;

g) a value of "notify" when the controlling MCData function needs to send a notification to the MCData client;

h) a value of "one-to-one-sds-session" to indicate that the MCData client wants to initiate a one-to-one SDS session; or

i) a value of "group-sds-session" to indicate the MCData client wants to initiate a group SDS session;

3) the <mcdata-request-uri> can be included with an MCData group ID;

4) the <mcdata-calling-user-id> can be included, set to MCData ID of the originating user;

5) the <mcdata-called-party-id> can be included, set to the MCData ID of the terminating user;

6) the <mcdata-calling-group-id> can be included to indicate the MCData group identity to the terminating user;

7) the <alert-ind> can be:

a) set to "true" to indicate that an alert to be sent; or

b) set to "false" to indicate that an alert to is be cancelled;

8) the <originated-by> can be included, set to the MCData ID of the originating user of an MCData emergency alert when being cancelled by another authorised MCDATA user;

9) the <mcdata-client-id>: can be included, set to the MCData client ID of the MCData client that originated a SIP INVITE request, SIP REFER request or SIP MESSAGE request;

10) the <mcdata-controller-psi> can be included, set to the PSI of the controlling MCData function that handled the one-to-one or group MCData data request; and

11) the <anyExt> can be included with the following elements:

a) a <pre-established-session-ind> of type "xs:Boolean":

i) set to a value of "true" by MCData client in pre-established session setup request to indicate MCData participating function about initiation of pre-established session;

b) a <mcdata-communication-state> of type "xs:string" can be included to indicate state of MCData communication within pre-established session. The <mcdata-communication-state> can be set to:

i) a value of "establish-request" by MCData participating function to indicate to the MCData client about MCData communication establishement request within pre-established session;

ii) a value of "establish-success" by MCData participating function or MCData client to indicate that the MCData communication is established successfully;

iii) a value of "establish-fail" by MCData participating function or MCData client to indicate that the MCData communication establishement is failed or rejected;

iv) a value of "terminate-request" by MCData participating function to indicate to the MCData client about MCData communication termination request within pre-established session; or

v) a value of "terminated" by MCData participating function or MCData client to indicate MCData communication is terminated;

c) an <emergency-ind> of type "xs:Boolean" can be included and set to:

i) "true" to indicate that the communication that the MCData client is initiating is an emergency MCData communication; or

ii) "false" to indicate that the MCData client is cancelling an emergency MCData communication (i.e. converting it back to a non-emergency communication);

d) an <alert-ind-rcvd> of type "xs:Boolean":

i) may be set to “true” and included in a SIP MESSAGE to indicate that the emergency alert or cancellation was received successfully; and

e) an <mc-org> of type “xs:string” may be:

i) set to the MCData user's Mission Critical Organization and included in an emergency alert sent by the MCData server to terminating MCData clients.

f) an <multiple-devices-ind> of type "mcdatainfo:contentType":

i) may be included with an <mcdataBoolean> element set to "true" in a SIP 200 (OK) response to indicate that more than one binding (between the MCData ID and the IMS public user identity) exists for the MCData ID.

The recipient of the XML ignores any unknown element and any unknown attribute.

**\* \* \* \* \* END CHANGES \* \* \* \* \***