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*Technical Specification*

**Digital cellular telecommunications system (Phase 2+);  
Universal Mobile Telecommunications System (UMTS);  
LTE;  
Open Service Access (OSA);  
Parlay X web services;  
Part 21: Content management  
(3GPP TS 29.199-21 version 8.1.0 Release 8)**



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## Foreword

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## Introduction

The present document is part 21 of a multi-part deliverable covering the 3<sup>rd</sup> Generation Partnership Project; Technical Specification Group Core Network and Terminals; Open Service Access (OSA); Parlay X Web Services, as identified below:

Part 1:	"Common"
Part 2:	"Third party call"
Part 3:	"Call Notification"
Part 4:	"Short Messaging"
Part 5:	"Multimedia Messaging"
Part 6:	"Payment"
Part 7:	"Account management"
Part 8:	"Terminal Status"
Part 9:	"Terminal location"
Part 10:	"Call handling"
Part 11:	"Audio call"
Part 12:	"Multimedia conference"
Part 13:	"Address list management"
Part 14:	"Presence"
Part 15:	"Message Broadcast"
Part 16:	"Geocoding"
Part 17:	"Application driven Quality of Service (QoS)"
Part 18:	"Device capabilities and configuration"
Part 19:	"Multimedia streaming control"
Part 20:	"Multimedia multicast session management"
<b>Part 21:</b>	<b>"Content management"</b>
Part 22:	"Policy"

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# 1 Scope

The present document is Part 21 of the Stage 3 Parlay X Web Services specification for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e. the OSA APIs. The concepts and the functional architecture for the OSA are contained in 3GPP TS 23.198 [3]. The requirements for OSA are contained in 3GPP TS 22.127 [2].

The present document specifies the Multimedia multicast session management Web Service aspects of the interface. All aspects of the Multimedia multicast session management Web Service are defined here, these being:

- Name spaces.
- Sequence diagrams.
- Data definitions.
- Interface specification plus detailed method descriptions.
- Fault definitions.
- Service policies.
- WSDL description of the interfaces.

The present document has been defined jointly between 3GPP TSG CT WG5, ETSI TISPAN and The Parlay Group.

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# 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 22.127: "Service Requirement for the Open Services Access (OSA); Stage 1".

[3] 3GPP TS 23.198: "Open Service Access (OSA); Stage 2".

[4] 3GPP TS 22.101: "Service aspects; Service principles".

[5] W3C Recommendation (2 May 2001): "XML Schema Part 2: Datatypes".

NOTE: Available at <http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/>.

[6] 3GPP TS 29.199-1: "Open Service Access (OSA); Parlay X web services; Part 1: Common".

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## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and in 3GPP TS 29.199-1 [6] apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

### 3.2 Abbreviations

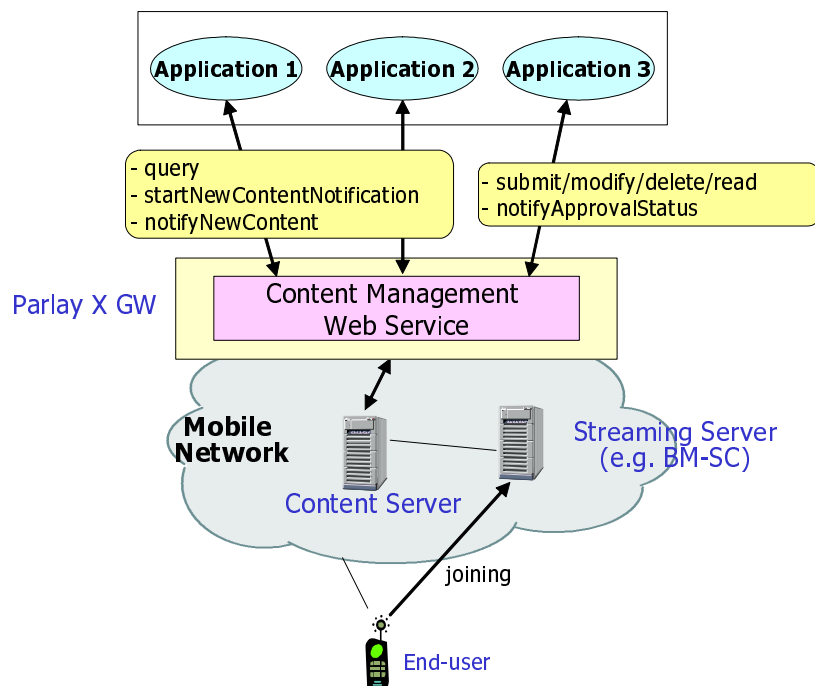
For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and in 3GPP TS 29.199-1 [6] apply.



## 4 Detailed service description

The content management web service enables uploading content into the network (or a third party content provider) and consuming content from the network (or a third party content provider). This functional element stores and manages the meta-data associated with content elements. It provides interfaces to submit, modify and delete content entries. It also provides interfaces to query for content items including content identifier, meta data, control data and content upload date (matching specific criteria).

The network entities composed of content management web service are service portal, parlay X gateway, content server, streaming server and end user. End user uses the service portal that provides or consumes contents. The content server functions as a content storage and a management system in the network.



**Figure 4.1: Content management web service architecture**

Figure 4.1 shows the architecture of content management web service. An application 3 submits 'content1'. The submit operation doesn't mean a content provider to upload content in the network directly. Content management web service uploads the meta-data of content to the network. And the content server gets and stores the content from location which content exists. After content1 is stored in the content server, the application 3 is notified of the result of submitting the content using notifyApprovalStatus message. The application 3 can modify/delete/read 'content1'. An application 1 and an application 2 query 'content1'. They set up the notification for informing them of the uploading of content which meets the application's criteria.

---

## 5 Namespaces

The ContentManagement interface uses the namespace:

[http://www.csapi.org/wsdl/parlayx/content\\_management/v4\\_0](http://www.csapi.org/wsdl/parlayx/content_management/v4_0)

The ContentNotification interface uses the namespace:

[http://www.csapi.org/wsdl/parlayx/content\\_management/notification/v4\\_0](http://www.csapi.org/wsdl/parlayx/content_management/notification/v4_0)

The ContentNotificationManager interface uses the namespace:

[http://www.csapi.org/wsdl/parlayx/content\\_management/notification\\_manager/v4\\_0](http://www.csapi.org/wsdl/parlayx/content_management/notification_manager/v4_0)

The data types are defined in the namespace:

[http://www.csapi.org/schema/parlayx/content\\_management/v4\\_0](http://www.csapi.org/schema/parlayx/content_management/v4_0)

The 'xsd' namespace is used in the present document to refer to the XML Schema data types defined in XML Schema(3GPP TS 29.199-1 [6]) . The use of the name 'xsd' is not semantically significant.

## 6 Sequence diagrams

### 6.1 Content Handling

Application can handle content with submit, read, modify, delete, and query operations. When an application submits a content, the application is notified of the result of submitting using notifyApprovalStatus message.

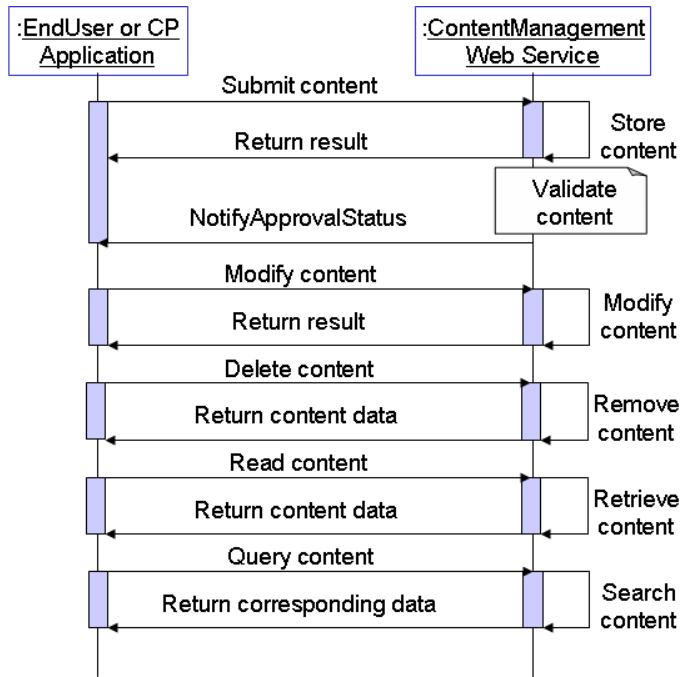


Figure 6.1: Content Handling

## 6.2 New Content Notification

An application can be notified of the uploading of the content which it is interested in. When a matching event occurs; a notification message will be sent to the application.

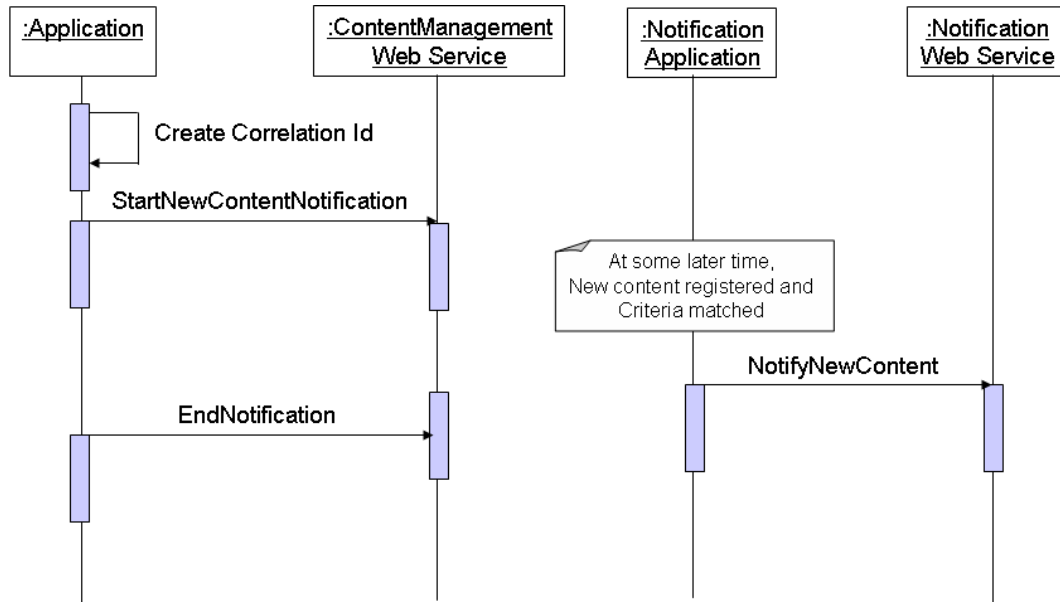


Figure 6.2: New Content Notification

## 7 XML Schema data type definition

### 7.1 Content structure

The data structure for the content stored in the content server.

Name	Type	Optional	Description
ContentIdentifier	xsd:string	No	Globally unique ContentIdentifier, generated by Content Management Web Service
ContentMetaData	ContentData	Yes	Content description information about content location, content name, content description, content provider, content version, keywords and IsDerivative.
ContentMediaData	ContentMedia	Yes	Data related to content media, including content type, duration and file size.
ContentControlData	ContentControl	Yes	Data related to content control, including content access restrictions, content charging and content validity.
ContentState	xsd:string	Yes	Content state is defined externally (visible, invisible, retired)
ContentUploadDate	xsd:dateTime	No	Content upload date is generated by the content server.

### 7.2 ContentData structure

The structure of content data stored in the content server.

Name	Type	Optional	Description
ContentLocation	xsd:anyURI	No	Location which content exists. Where a content item consists of multiple parts (e.g. a Java game - .jar .jad files), it may be necessary to specify multiple locations.
ContentName	xsd:string	Yes	Human-readable name for the content
ContentDescription	xsd:string	Yes	Human-readable description of the content
ContentProvider	xsd:anyURI	No	Entity that provides the content, which is distinct from the content owner (e.g. the record company or movie studio)
ContentVersion	xsd:decimal	Yes	Content version, larger number represents later versions. 1.0 is the canonical first version
Keywords	xsd:string[0..unbounded]	Yes	Content keywords which is used to provide search expressions
IsDerivative	xsd:boolean	No	Boolean flag whether allows the manipulation of original content. If this flag is true, the manipulation of original content is permitted. If not present, default value is true.

### 7.3 ContentMedia structure

The structure of content media stored in the content server.

Name	Type	Optional	Description
ContentType	xsd:string	Yes	MIME Type e.g. audio, video, code etc
ContentLength	xsd:int	Yes	Content length how long does it run
ContentFileSize	xsd:decimal	Yes	Content file size how much space does it take up

## 7.4 ContentControl structure

The structure of control data related to content & charging.

Name	Type	Optional	Description
ContentAccessRestrictions	xsd:string	Yes	Some pre-defined coding, e.g. MPAA rating (e.g. U,PG, PG-12,R, NC-17), ICRA or RSACi ratings (e.g. lc, lz)
ContentCharging	common:ChargingInformation	Yes	Note: not a currency amount, but 10 units, 20 units etc. Envisaged that the optional 'code' parameter of ChargingInformation structure will be used
ContentValidity	xsd:dateTime	Yes	The available period of the content

## 8 Web Service interface definition

### 8.1 Interface: ContentManagement

#### 8.1.1 Operation: submitContent

The application invokes the **submitContent** operation to submit a content into the network. This operation doesn't mean a content provider to upload content in the network directly. Content management web service uploads the meta-data of the content to the network and content server gets and stores the content from location which content exists. After completing this content approval process, the application is notified of the result of submitting the content using **notifyApprovalStatus** message.

**ContentMetaData** is the content description information about content location, content name, content description, content provider, content version, keywords and IsDerivative.

**IsDerivative** field is the Boolean flag whether allows the manipulation of original content. For delivering content to end-user's terminal adaptively (e.g. MMS, multimedia stream, MBMS data), it is essential for network provider to manipulate content to support the content adaptation and multiple selection. If this flag is true, the manipulation of original content is permitted. If not present, default value is true.

**ContentMediaData** specifies the content type, length and file size.

**ContentControlData** specifies the content access restrictions, content charging and content validity.

**Reference** specifies the application endpoint, interfaceName and correlator that will be used to notify the application when the content is stored in the network.

**Result** is the ContentIdentifier specified in the response message associated with each submit operation. The application can use it to modify, delete and read content.

##### 8.1.1.1 Input message: submitContentRequest

Part Name	Part Type	Optional	Description
ContentMetaData	ContentData	No	Content description information about content location, content name, content description, content provider, content version, keywords and IsDerivative.
ContentMediaData	ContentMedia	Yes	Data about content media, including content type, length and file size.
ContentControlData	ContentControl	Yes	Data about content control, including content access restrictions, content charging and content validity.
Reference	common:SimpleReference	Yes	It defines the application endpoint, interface and correlator that will be used to notify the application of the result of uploading the content.

##### 8.1.1.2 Output message: submitContentResponse

Part Name	Part Type	Optional	Description
result	xsd:string	No	Globally unique ContentIdentifier, generated by Content Management Web Service

### 8.1.1.3 Referenced Faults

ServiceException from 3GPP TS 29.199-1 [6]:

- SVC0001 - Service error.
- SVC0002 - Invalid input value.

PolicyException from 3GPP TS 29.199-1 [6]:

- POL0001 - Policy error.

## 8.1.2 Operation: modifyContent

This operation allows a content provider to update previously submitted content and meta data. Content server restricts modification to the submitted owner and puts the content into an invisible state until completes content approval.

### 8.1.2.1 Input message: modifyContentRequest

Part Name	Part Type	Optional	Description
ContentIdentifier	xsd:string	No	Globally unique ContentIdentifier, generated by Content Management Web Service
ContentMetaData	ContentData	No	Content description information about content location, content name, content description, content provider, content version, keywords, IngestionRequired and IsDerivative.
ContentMediaData	ContentMedia	Yes	Data related to content media, including content type, duration and file size.
ContentControlData	ContentControl	Yes	Data related to content control, including content access restrictions, content charging and content validity.
ContentState	xsd:String	Yes	visible, invisible, retired

### 8.1.2.2 Output message: modifyContentResponse

Part Name	Part Type	Optional	Description
Result	xsd:string	No	ContentIdentifier returned if modification is succeeded

### 8.1.2.3 Referenced Faults

ServiceException from 3GPP TS 29.199-1 [6]:

- SVC0001 - Service error.
- SVC0002 - Invalid input value.

PolicyException from 3GPP TS 29.199-1 [6]:

- POL0001 - Policy error.



### 8.1.3 Operation: deleteContent

This operation allows a content provider to delete content. Note that the content provider may request that a batch of content items is deleted.

#### 8.1.3.1 Input message: deleteContentRequest

Part Name	Part Type	Optional	Description
ContentIdentifier	xsd:string [1..unbounded]	No	List of globally unique content identifiers to be deleted by Content Management Web Service

#### 8.1.3.2 Output message: deleteContentResponse

Part Name	Part Type	Optional	Description
Result	xsd:string [1..unbounded]	No	List of ContentIdentifiers returned if succeeded

#### 8.1.3.3 Referenced Faults

ServiceException from 3GPP TS 29.199-1 [6]:

- SVC0001 - Service error.
- SVC0002 - Invalid input value.

PolicyException from 3GPP TS 29.199-1 [6]:

- POL0001 - Policy error.

## 8.1.4 Operation: readContent

This operation allows a content provider to read the meta data of previously submitted content. Request may include multiple content identifiers.

**Result** is the Content specified in the response message associated with each read operation. It includes content identifier, content meta data, content media data, content control data, content state and content upload date

### 8.1.4.1 Input message: readContentRequest

Part Name	Part Type	Optional	Description
ContentIdentifier	xsd:string[1..unbounded]	No	Globally unique content identifier(s), generated by Content Management Web Service

### 8.1.4.2 Output message: readContentResponse

Part Name	Part Type	Optional	Description
result	Content[1..unbounded]	No	Details of Content Item(s) requested

### 8.1.4.3 Referenced Faults

ServiceException from 3GPP TS 29.199-1 [6]:

- SVC0001 - Service error.
- SVC0002 - Invalid input value.

PolicyException from 3GPP TS 29.199-1 [6]:

- POL0001 - Policy error.

## 8.1.5 Operation: queryContent

This operation allows application to query for the meta data of contents of which keywords are matched with specified keywords.

### 8.1.5.1 Input message: queryContentRequest

Part Name	Part Type	Optional	Description
Keywords	xsd:string[1..unbounded]	No	Search keywords for query

### 8.1.5.2 Output message: queryContentResponse

Part Name	Part Type	Optional	Description
result	Content[1..unbounded]	No	Content Item(s) matching supplied search criteria

### 8.1.5.3 Referenced Faults

ServiceException from 3GPP TS 29.199-1 [6]:

- SVC0001 - Service error.
- SVC0002 - Invalid input value.

PolicyException from 3GPP TS 29.199-1 [6]:

- POL0001 - Policy error.

## 8.2 Interface: ContentNotification

### 8.2.1 Operation: notifyApprovalStatus

This operation is to inform content provider of the result of content submitting. This is sent to the endpoint specified in reference of submitContent operation.

#### 8.2.1.1 Input Message: notifyApprovalStatusRequest

Part Name	Part Type	Optional	Description
ContentIdentifier	xsd:string	No	The content identifier provided in the submitContent message
ApprovalDecision	xsd:boolean	No	Boolean flag whether content server gets and stores the content from location which content exists. If this flag is true, content server stored the submitted content successfully.
ApprovalDecisionReason	xsd:string	Yes	The reason why content server can't store the submitted content.

#### 8.2.1.2 Output Message: notifyApprovalStatusResponse

Part Name	Part Type	Optional	Description
None			

#### 8.2.1.3 Referenced Faults

None.

## 8.2.2 Operation: notifyNewContent

This operation allows content consumers to receive the notification when new content which meets consumer's criteria is uploaded.

Compared with notifyApprovalStatus operation for content submitting, notifyNewContent operation is for content consumers and it corresponds to startNewContentNotification operation.

### 8.2.2.1 Input Message: notifyNewContentRequest

Part Name	Part Type	Optional	Description
Correlator	xsd:string	No	Correlator provided in request to set up this notification
Keywords	xsd:string [1..unbounded]	No	The matched keywords among specified keywords in StartNewContentNotification message.
ContentItem	Content	No	Content Information

### 8.2.2.2 Output Message: notifyNewContentResponse

Part Name	Part Type	Optional	Description
None			

### 8.2.2.3 Referenced Faults

None.

## 8.3 Interface: ContentNotificationManager

### 8.3.1 Operation: startNewContentNotification

This operation sets up the notification for informing an application of the uploading of content which meets the application's criteria. When new content registered, application is notified with corresponding criteria. The criteria hold a list of keyword which expresses user's preference.

#### 8.3.1.1 Input Message: startNewContentNotificationRequest

User's preference is parameterized in keywords. They should be treated with priority by the network. After the maximum number of notification sent, this notification request should be deactivated by the network.

Part Name	Part Type	Optional	Description
Reference	Common :SimpleReference	No	The application endpoint, interfaceName and correlator that will be used to notify application when the new content is submitted.
Keywords	xsd:string [1..unbounded]	No	Keywords to match against to determine the application to receive the notification. These keywords are matched against the keywords of the submitted contents.
Count	xsd:decimal	Yes	number of Maximum notification

#### 8.3.1.2 Output Message: startNewContentNotificationResponse

Part Name	Part Type	Optional	Description
None			

#### 8.3.1.3 Referenced Faults

ServiceException from 3GPP TS 29.199-1 [6]:

- SVC0001 - Service error.
- SVC0002 - Invalid input value.

PolicyException from 3GPP TS 29.199-1 [6]:

- POL0001 - Policy error.

## 8.3.2 Operation: endNotification

This operation stops the registered content management notification.

### 8.3.2.1 Input Message: endNotificationRequest

Part Name	Part Type	Optional	Description
Correlator	xsd:string	No	correlator request to end notification

### 8.3.2.2 Output Message: endNotificationResponse

Part Name	Part Type	Optional	Description
None			

### 8.3.2.3 Referenced Faults

ServiceException from 3GPP TS 29.199-1 [6]:

- SVC0001 - Service error.
- SVC0002 - Invalid input value.

PolicyException from 3GPP TS 29.199-1 [6]:

- POL0001 - Policy error.

---

## 9 Fault definitions

There are no service-specific fault definitions for this service.

---

## 10 Service policies

Name	Type	Description
MaximumNumberOfQueryResults	xsd:int	Maximum number of content which is the result to read and query

---

## Annex A (normative): WSDL for Content Management

The document/literal WSDL representation of this interface specification is compliant to 3GPP TS 29.199-1 [6] and is contained in text files;

- parlayx\_common\_faults\_4\_0.wsdl
- parlayx\_common\_types\_4\_0.xsd
- parlayx\_cm\_management\_interface\_4\_0.wsdl
- parlayx\_cm\_management\_service\_4\_0.wsdl
- parlayx\_cm\_notification\_interface\_4\_0.wsdl
- parlayx\_cm\_notification\_manager\_interface\_4\_0.wsdl
- parlayx\_cm\_notification\_manager\_service\_4\_0.wsdl
- parlayx\_cm\_notification\_service\_4\_0.wsdl
- parlayx\_cm\_types\_4\_0.xsd

which accompany the present document.

The WSDL files have been verified using the following files:

- 21\_wsd2Java\_axis-1\_4.bat
- 21\_wsd2Java\_axis2-1\_4\_1.bat

which accompany the present document.



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## Annex B (informative): Description of Parlay X Web Services Part 21: Content management for 3GPP2 cdma2000 networks

This annex is intended to define the OSA Parlay X Web Services Stage 3 interface definitions and it provides the complete OSA specifications. It is an extension of OSA Parlay X Web Services specifications capabilities to enable operation in cdma2000 systems environment. They are in alignment with 3GPP2 Stage 1 requirements and Stage 2 architecture defined in:

- [1] 3GPP2 X.S0011-D: "cdma2000 Wireless IP Network Standard ", Version 1.1
- [2] 3GPP2 S.R0037-0: "IP Network Architecture Model for cdma2000 Spread Spectrum Systems", Version 3.0
- [3] 3GPP2 X.S0013-A: "All-IP Core Network Multimedia Domain"

These requirements are expressed as additions to and/or exclusions from the 3GPP Release 8 specification.

The information given here is to be used by developers in 3GPP2 cdma2000 network architecture to interpret the 3GPP OSA specifications.

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### B.1 General Exceptions

The terms 3GPP and UMTS are not applicable for the cdma2000 family of standards. Nevertheless these terms are used (3GPP TR 21.905 [1]) mostly in the broader sense of "3G Wireless System". If not stated otherwise there are no additions or exclusions required.

CAMEL mappings are not applicable for cdma2000 systems.

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### B.2 Specific Exceptions

#### B.2.1 Clause 1: Scope

There are no additions or exclusions.

#### B.2.2 Clause 2: References

There are no additions or exclusions.

#### B.2.3 Clause 3: Definitions and abbreviations

There are no additions or exclusions.

#### B.2.4 Clause 4: Detailed service description

There are no additions or exclusions.

#### B.2.5 Clause 5: Namespaces

There are no additions or exclusions.

## B.2.6 Clause 6: Sequence diagrams

There are no additions or exclusions.

## B.2.7 Clause 7: XML Schema data type definition

There are no additions or exclusions.

## B.2.8 Clause 8: Web Service interface definition

There are no additions or exclusions.

## B.2.9 Clause 9: Fault definitions

There are no additions or exclusions.

## B.2.10 Clause 10: Service policies

There are no additions or exclusions.

## B.2.11 Annex A (normative): WSDL for content management

There are no additions or exclusions.

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## Annex C (informative): Change history

Change history								
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Cat	Old	New
Mar 2008	C5-42	C5-080052	--	--	v100 agreed for CT#40 Information + Approval	--	0.0.1	1.0.0
May 2008	CT-40	CP-080257	--	--	Submitted for CT#40 Information + Approval	--	1.0.0	8.0.0
Sep 2009	CT-45	CP-090609	0001	--	Completion of Parlay X Part 21 for Release 8	F	8.0.0	8.1.0

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# History

<b>Document history</b>		
V8.0.0	January 2009	Publication
V8.1.0	October 2009	Publication