



Client-Server Protocol Binary XML Definition and Examples

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1. Scope

The Instant Messaging and Presence Service (IMPS) includes four primary features:

- Presence
- Instant Messaging
- Groups
- Shared Content

Presence is the key enabling technology for IMPS. It includes client device availability (my phone is on/off, in a call), user status (available, unavailable, in a meeting), location, client device capabilities (voice, text, GPRS, multimedia) and searchable personal statuses such as mood (happy, angry) and hobbies (football, fishing, computing, dancing). Since presence information is personal, it is only made available according to the user's wishes - access control features put the control of the user presence information in the users' hands.

Instant Messaging (IM) is a familiar concept in both the mobile and desktop worlds. Desktop IM clients, two-way SMS and two-way paging are all forms of Instant Messaging. Wireless Village IM will enable interoperable mobile IM in concert with other innovative features to provide an enhanced user experience.

Groups or chat are a fun and familiar concept on the Internet. Both operators and end-users are able to create and manage groups. Users can invite their friends and family to chat in group discussions. Operators can build common interest groups where end-users can meet each other online.

Shared Content allows users and operators to setup their own storage area where they can post pictures, music and other multimedia content while enabling the sharing with other individuals and groups in an IM or chat session.

These features, taken in part or as a whole, provide the basis for innovative new services that build upon a common interoperable framework.

2. References

2.1 Normative References

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- [IOPPROC] "OMA Interoperability Policy and Process Version 1.1", OMA-IOP-Process-V1_1, Open Mobile Alliance™, URL: <http://www.openmobilealliance.org>
- [ISO8601] ISO 8601 International Standard, Second Edition. Data elements an interchange formats – Information interchange – Representation of dates and times. URL: <http://www.iso.ch/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=26780>
- [PA] "Presence Attributes Version 1.3", OMA-TS-IMPS-PA-V1_3. Open Mobile Alliance™. URL: <http://www.openmobilealliance.org>
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- [WBXML] "WAP Binary XML Content Format, Version 1.3, 25 July 2001", WAP-192-WBXML, WAP Forum, July 2001. URL: <http://www.openmobilealliance.org>

2.2 Informative References

- [Arch] "IMPS Architecture Version 1.3", OMA-AD-IMPS-V1_3. Open Mobile Alliance™. URL: <http://www.openmobilealliance.org>
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- [SSP Syntax] "Server-Server Protocol XML Syntax Version 1.3", OMA-TS-IMPS-SSP_Syntax-V1_3. Open Mobile Alliance™. URL: <http://www.openmobilealliance.org>
- [SSP Trans] "Server-Server Protocol Transport Binding Version 1.3", OMA-TS-IMPS-SSP_Transport-V1_3. 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”, are normative, unless they are explicitly indicated to be informative.

3.2 Definitions

None.

3.3 Abbreviations

OMA	Open Mobile Alliance
WV	Wireless Village

4. Token definitions

4.1 Public document identifier

The public document identifier for IMPS 1.3 WBXML is 0x12. This value has been registered with OMNA.

4.2 Tag code pages

The global code page is too small to put all of the tokens into the same tag code page. The tags are divided into smaller code pages:

1. Code page 0x00 contains the common tags, which are used in several transactions. (Continued on code page 0x09)
2. Code page 0x01 contains the access and fundamental primitive-related tags. (Continued on code page 0x0A)
3. Code page 0x02 contains the service negotiation related tags. (Continued on code page 0x08.)
4. Code page 0x03 contains the client capability negotiation related tags.
5. Code page 0x04 contains the presence primitive related tags.
6. Code page 0x05 contains the presence attribute related tags.
7. Code page 0x06 contains the messaging service related tags.
8. Code page 0x07 contains the group service related tags.
9. Code page 0x08 contains the service negotiation related tags. (Continued from code page 0x02.)
10. Code page 0x09 contains common tags (Continued from code page 0x00).
11. Code page 0x0A contains the access and fundamental primitive-related tags (Continued from code page 0x01).
12. Code pages in the 0x50 - 0x5F range, are reserved for extended elements.

4.2.1 Common code page (0x00)

The following tokens are defined in the common tag code page (0x00):

Tag name	Token
Acceptance	05
AddList	06
AddNickList	07
ClientID	0A
Code	0B
ContactList	0C
ContentData	0D
ContentEncoding	0E
ContentSize	0F
ContentType	10
DateTime	11
Description	12
DetailedResult	13
EntityList	14
Group	15
GroupID	16
GroupList	17
InUse	18
Logo	19
MessageCount	1A
MessageID	1B
MessageURI	1C
MSISDN	1D
Name	1E
NickList	1F
NickName	20
Poll	21
Presence	22
PresenceSubList	23
PresenceValue	24
Property	25
Qualifier	26
Recipient	27
RemoveList	28
RemoveNickList	29
Result	2A
ScreenName	2B
Sender	2C
Session	2D
SessionDescriptor	2E
SessionID	2F
SessionType	30
SName	08
Status	31
Transaction	32
TransactionContent	33

TransactionDescriptor	34
TransactionID	35
TransactionMode	36
URL	37
URLList	38
User	39
UserID	3A
UserList	3B
Validity	3C
Value	3D
WV-CSP-Message	09

Table 1: Common code page (0x00)

Note that the table continues in code page 0x09 (See Chapter 4.2.10).

4.2.2 Access code page (0x01)

The following tokens are defined in the service access tag code page (0x01):

Tag name	Token
AgreedCapabilityList	3A
AllFunctions	05
AllFunctionsRequest	06
CancelInvite-Request	07
CancelInviteUser-Request	08
Capability	09
CapabilityList	0A
CapabilityRequest	0B
ClientCapability-Request	0C
ClientCapability-Response	0D
CompletionFlag	34
DigestBytes	0E
DigestSchema	0F
Disconnect	10
Extended-Request	38
Extended-Response	39
ExtendedData	3B
Functions	11
GetSPInfo-Request	12
GetSPInfo-Response	13
InviteID	14
InviteNote	15
Invite-Request	16
Invite-Response	17
InviteType	18
InviteUser-Request	19
InviteUser-Response	1A
KeepAlive-Request	1B
KeepAlive-Response	29
KeepAliveTime	1C
Login-Request	1D
Login-Response	1E
Logout-Request	1F
Nonce	20
OtherServer	3C
Password	21
Polling-Request	22
PresenceAttributeNSName	3D
ReceiveList	36
ResponseNote	23
SearchElement	24
SearchFindings	25
SearchID	26
SearchIndex	27
SearchLimit	28
SearchPairList	2A

Search-Request	2B
Search-Response	2C
SearchResult	2D
SearchString	33
Service-Request	2E
Service-Response	2F
SessionCookie	30
SessionNSName	3E
StopSearch-Request	31
TimeToLive	32
TransactionNSName	3F
VerifyID-Request	37

Table 2: Access code page (0x01)

Note that the table continues in code page 0x0A (See Chapter 4.2.11).

4.2.3 Service code page (0x02)

The following tokens are defined in the service negotiation tag code page (0x02):

Tag name	Token
ADDGM	05
BLENT	07
CAINV	09
CCLI	0B
ContListFunc	0C
CREAG	0D
DCLI	0F
DELGR	10
FundamentalFeat	11
FWMSG	12
GCLI	14
GETGM	15
GETGP	16
GETLM	17
GETM	18
GETPR	19
GETSPI	1A
GETWL	1B
GLBLU	1C
GRCHN	1D
GroupAuthFunc	1E
GroupFeat	1F
GroupMgmtFunc	20
GroupUseFunc	21
IMAuthFunc	22
IMFeat	23
IMReceiveFunc	24
IMSendFunc	25
INVIT	26
InviteFunc	27
MBRAC	28
MCLS	29
MF	3D
MG	3E
MM	3F
MDELIV	2A
NEWM	2B
NOTIF	2C
PresenceDeliverFunc	2E
PresenceFeat	2F
REJCM	31
REJEC	32
RMVGM	33
SearchFunc	34
ServiceFunc	35
SETD	36

SETGP	37
SRCH	38
STSRC	39
SUBGCN	3A
UPDPR	3B
WVCSPPeat	3C

Table 3: Service code page (0x02)

Note that the table continues in code page 0x08 (See Chapter 4.2.9).

4.2.4 Client capability code page (0x03)

The following tokens are defined in the client capability tag code page (0x03):

Tag name	Token
AcceptedContentType	07
AcceptedPullLength	16
AcceptedPushLength	17
AcceptedRichContentLength	18
AcceptedTextContentLength	19
AcceptedTransferEncoding	08
AnyContent	09
CIRHTTPAddress	14
CIRSMSAddress	20
ContentPolicy	23
ContentPolicyLimit	24
DefaultLanguage	0A
InitialDeliveryMethod	0B
MultiTrans	0C
MultiTransPerMessage	21
OfflineEEMHandling	1A
OnlineEEMHandling	22
PlainTextCharset	1B
ParserSize	0D
ServerPollMin	0E
SessionPriority	1C
SupportedBearer	0F
SupportedCIRMethod	10
SupportedOfflineBearer	1D
TCPAddress	11
TCPPort	12
UDPAddress	15
UDPPort	13
UserSessionLimit	1F

Table 4: Client capability code page (0x03)

4.2.5 Presence primitive code page (0x04)

The following tokens are defined in the presence primitive tag code page (0x04):

Tag name	Token
ContactListProperties	06
CreateAttributeList-Request	07
CreateList-Request	08
CreateList-Response	21
DefaultAttributeList	09
DefaultContactList	0A
DefaultList	0B
DeleteAttributeList-Request	0C
DeleteList-Request	0D
GetAttributeList-Request	0E
GetAttributeList-Response	0F
GetList-Request	10
GetList-Response	11
GetPresence-Request	12
GetPresence-Response	13
GetWatcherList-Request	14
GetWatcherList-Response	15
ListManage-Request	16
ListManage-Response	17
PresenceNotification-Request	1B
SubscribePresence-Request	1D
UnsubscribePresence-Request	18
UpdatePresence-Request	1C

Table 5: Presence primitive code page (0x04)

4.2.6 Presence attribute code page (0x05)

The following tokens are defined in the presence attribute tag code page (0x05):

Tag name	Token
Accuracy	05
Address	06
AddrPref	07
Alias	08
Altitude	09
Building	0A
Caddr	0B
Cap	2F
City	0C
ClientContentLimit	3B
ClientIMPriority	3C
ClientInfo	0D
ClientProducer	0E
ClientType	0F
ClientVersion	10
Cname	30
CommC	11
CommCap	12
Contact	31
ContactInfo	13
ContainedvCard	14
Country	15
Cpriority	32
Crossing1	16
Crossing2	17
Cstatus	33
DevManufacturer	18
DirectContent	19
FreeTextLocation	1A
GeoLocation	1B
Inf_link	37
InfoLink	38
Language	1C
Latitude	1D
Link	39
Longitude	1E
MaxPullLength	3D
MaxPushLength	3E
Model	1F
NamedArea	20
Note	34
OnlineStatus	21
PLMN	22
PrefC	23
PreferredContacts	24
PreferredLanguage	25

ReferredContent	26
ReferredvCard	27
Registration	28
StatusContent	29
StatusMood	2A
StatusText	2B
Street	2C
Text	3A
TimeZone	2D
UserAvailability	2E
Zone	35

Table 6: Presence attribute code page (0x05)

4.2.7 Messaging code page (0x06)

The following tokens are defined in the messaging service tag code page (0x06):

Tag name	Token
BlockList	05
BlockEntity-Request	06
DeliveryMethod	07
DeliveryReport	08
DeliveryReport-Request	09
DeliveryTime	1A
ForwardMessage-Request	0A
ForwardMessage-Response	21
GetBlockedList-Request	0B
GetBlockedList-Response	0C
GetMessageList-Request	0D
GetMessageList-Response	0E
GetMessage-Request	0F
GetMessage-Response	10
GrantList	11
MessageDelivered	12
MessageInfo	13
MessageInfoList	20
MessageNotification	14
NewMessage	15
RejectMessage-Request	16
SendMessage-Request	17
SendMessage-Response	18
SetDeliveryMethod-Request	19

Table 7: Messaging code page (0x06)

4.2.8 Group code page (0x07)

The following tokens are defined in the group service tag code page (0x07):

Tag name	Token
AddGroupMembers-Request	05
Admin	06
AdminMapList	26
AdminMapping	27
CreateGroup-Request	07
DeleteGroup-Request	08
GetGroupMembers-Request	09
GetGroupMembers-Response	0A
GetGroupProps-Request	0B
GetGroupProps-Response	0C
GetJoinedUsers-Request	24
GetJoinedUsers-Response	25
GroupChangeNotice	0D
GroupProperties	0E
Joined	0F
JoinGroup	21
JoinedBlocked	2C
JoinedRequest	10
JoinGroup-Request	11
JoinGroup-Response	12
LeaveGroup-Request	13
LeaveGroup-Response	14
Left	15
LeftBlocked	2D
Mapping	28
MemberAccess-Request	16
Mod	17
ModMapping	29
OwnProperties	18
RejectList-Request	19
RejectList-Response	1A
RemoveGroupMembers-Request	1B
SetGroupProps-Request	1C
SubscribeGroupNotice-Request	1D
SubscribeGroupNotice-Response	1E
SubscribeNotification	22
SubscribeType	23
UserMapList	2A
UserMapping	2B
Users	1F
WelcomeNote	20

Table 8: Group code page (0x07)

4.2.9 Service code page – continued (0x08)

The following tokens are defined in the service negotiation (continued) tag code page (0x08):

Tag name	Token
ADVSR	0E
EXCON	0C
GETAUT	06
GETJU	07
GETMAP	0A
MP	05
OFFNOTIF	0D
SGMNT	0B
VRID	08
VerifyIDFunc	09

Table 9: Service code page – continued (0x08)

4.2.10 Common code page – continued (0x09)

The following tokens are defined in the common (continued) tag code page (0x09):

Tag name	Token
AnswerOption	1B
AnswerOptionID	1C
AnswerOptions	1D
ApplicationID	1E
AuthorizeAndGrant	1F
ChosenOptionID	20
CIR	05
ClearPublicProfile	19
Color	13
ContactListNotify	21
ContentName	14
DefaultNotify	22
Domain	06
ExtBlock	07
ExtBlockETEM	39
ExtendConversationID	36
ExtendConversationUserID	23
Font	10
FriendlyName	18
GetMap-Request	34
GetMap-Response	35
GroupContentLimit	3A
HistoryPeriod	08
IDList	09
InText	24
Map	15
MaxWatcherList	0A
MessageTotalCount	3B
NotificationType	16
NotificationTypeList	17
PublicProfile	1A
RequiresResponse	38
SegmentCount	25
SegmentID	26
SegmentInfo	27
SegmentReference	28
Size	11
Style	12
SystemMessage	29
SystemMessageID	2A
SystemMessageList	2B
SystemMessageResponse	2C
SystemMessageResponseList	2D
SystemMessageResponse	2E
SystemMessageText	2F
TryAgainTimeout	30

UnrecognizedUserID	3C
UserIDPair	3D
UserNotify	31
ValidUserID	3E
VerificationKey	32
VerificationMechanism	33
Watcher	0E
WatcherCount	37
WatcherStatus	0F

Table 10: Common code page – continued (0x09)

4.2.11 Access code page – continued (0x0A)

The following tokens are defined in the access (continued) tag code page (0x0A):

Tag name	Token
AdvancedCriteria	0B
DropSegment-Request	10
ExtendConversation-Response	11
ExtendConversation-Request	12
GetPublicProfile-Request	0D
GetPublicProfile-Response	0E
GetSegment-Request	13
GetSegment-Response	14
Notification-Request	0A
PairID	0C
SearchPair	17
SubscribeNotification-Request	08
SystemMessage-Request	15
SystemMessage-User	16
UpdatePublicProfile-Request	0F
UnsubscribeNotification-Request	09
WV-CSP-VersionDiscovery-Request	05
WV-CSP-VersionDiscovery-Response	06
VersionList	07

Table 11: Access code page – continued (0x0A)

4.3 Attribute start tokens

The following attribute start tokens are defined in the common code page (0x00):

Attribute name	Attribute Value Prefix	Token
xmlns	http://www.wireless-village.org/CSP	05
xmlns	http://www.wireless-village.org/PA	06
xmlns	http://www.wireless-village.org/TRC	07
xmlns	http://www.openmobilealliance.org/DTD/W V-CSP	08
xmlns	http://www.openmobilealliance.org/DTD/W V-PA	09
xmlns	http://www.openmobilealliance.org/DTD/W V-TRC	0A
xmlns	http://www.openmobilealliance.org/DTD/I MPS-CSP	0B
xmlns	http://www.openmobilealliance.org/DTD/I MPS-PA	0C
xmlns	http://www.openmobilealliance.org/DTD/I MPS-TRC	0D

Table 12: Attribute start tokens

4.4 Element value tokens

Element value tokens MUST be encoded by the combination of:

- the EXT_T_0 token followed by an *mb_u_int32* based on one of the values from the tables defined in this chapter, or
- the STR_I token followed by an inline string and *termstr*, or
- the STR_T token followed by a string table reference, which is an *mb_u_int32*.

The STR_T and STR_I tokens MAY be used - as defined in [WBXML] - to encode strings that are not listed in any of the tables defined in this chapter.

The tables defined in this chapter include values that might not be used directly in a WBXML document. According to [WBXML] these values are those that are greater than 0x7F. Values that are greater than 0x7F MUST be properly encoded to *mb_u_int32* when the value is added to the WBXML document.

4.4.1 Common value tokens

Please note that:

- Values ‘T’ and ‘F’ are Boolean values representing “True” and “False” (or “Yes” and “No” in some circumstances) respectively.
- Values ‘AP’, ‘GR’, ‘IM’, ‘PR’, ‘SC’, ‘GM’, ‘EC’, ‘EG’ and ‘US’ are enumerated values representing “Application”, “Group”, “Instant Messaging”, “Presence”, “Shared Content”, “Group membership”, “ExtendConversation”, “ExtendGroup” and “User” respectively.
- Values ‘ATCL’, ‘AC’, ‘ANC’, ‘AND’, ‘ANU’, ‘BLC’, ‘BLUC’, ‘CLCR’, ‘CLC’, ‘CLD’, ‘GLC’, ‘GLUC’, ‘GC’, ‘GD’, ‘GMAU’, ‘GMG’, ‘GMR’, ‘GMU’, ‘GR’, ‘IA’, ‘IC’, ‘IR’, ‘OEU’, ‘PPU’ and ‘SPA’ are enumerated values representing “Added-To-Contact-List”, “Authorization-Changed”, “Authorization-Needed-Contact-List”, “Authorization-Needed-Default-List”, “Authorization-Needed-User”, “Block-List-Changed”, “Block-List-UsageChange”, “Contact-List-Created”, “Contact-List-Changed”, “Contact-List-Deleted”, “Grant-List-Changed”, “Grant-List-UsageChange”, “Group-Created”, “Group-Deleted”, “Group-MemberAccess-Updated”, “Group-Membership-Granted”, “Group-Membership-Revoked”, “Group-Members-Updated”, “Group-Removed”, “Invitation-Accepted”, “Invitation-Cancelled”, “Invitation-Rejected”, “OnlineETEMHandling-Updated”, “PublicProfile-Updated” and “Session-Priority-Adjusted” respectively.
- Values ‘G’, ‘S’ and ‘U’ are enumerated values representing “Get”, “Set” and “Unset” respectively
- Values ‘N’ and ‘P’ are enumerated values representing “Notify/Get” and “Push” respectively

Element value	Number
AC	52
AccessType	00
ActiveUsers	01
Admin	02
ANC	3C
AND	51
ANU	5A
AP	68
application/	03
application/vnd.wap.mms-message	04
application/x-sms	05
Aqua	8F
ATCL	90
AutoDelete	31
AutoJoin	06
BASE64	07
Big	7B
Black	80
BLC	53
BLUC	54
Blue	8D
Bold	7D
CLC	91
CLCR	55
CLD	56
Closed	08
Default	09
DENIED	34
DETECT	AB
DisplayName	0A

DoNotNotify	A6
EC	A0
EG	BA
F	0B
FORKALL	AC
Fuchsia	87
G	0C
GC	57
GD	58
GLC	59
GLUC	A1
GM	32
GMAU	A7
GMG	A8
GMR	A9
GMU	AA
GR	0D
GRANTED	35
Gray	82
Green	88
http://	0E
https://	0F
Huge	7C
IA	A2
IC	A3
image/	10
Inband	11
IM	12
IR	9F
Italic	7E
Lime	89
Maroon	84
MaxActiveUsers	13
Medium	7A
Mod	14
Name	15
Navy	8C
None	16
N	17
OEU	AD
Olive	8A
Open	18
Outband	19
PENDING	36
PPU	3A
PR	1A
Private	1B
PrivateMessaging	1C
PrivilegeLevel	1D
Public	1E

Purple	86
P	1F
Red	85
Request	20
Response	21
Restricted	22
RequireInvitation	38
ScreenName	23
Searchable	24
S	25
SC	26
SERVERLOGIC	AE
ShowID	37
Silver	81
Small	79
SPA	3B
Teal	8E
text/	27
text/plain	28
text/x-vCalendar	29
text/x-vCard	2A
Tiny	39
Topic	2B
T	2C
Type	2D
U	2E
Underline	7F
US	2F
Validity	33
White	83
www.openmobilealliance.org	78
www.wireless-village.org	30
Yellow	8B

Table 13: Common value tokens

4.4.2 Access value tokens

Attribute value	Token
GROUP_ID	3D
GROUP_NAME	3E
GROUP_TOPIC	3F
GROUP_USER_ID_JOINED	40
GROUP_USER_ID_AUTOJOIN	50
GROUP_USER_ID_OWNER	41
HTTP	42
PP_AGE	AF
PP_CITY	B0
PP_COUNTRY	B1
PP_FRIENDLY_NAME	B2
PP_FREE_TEXT	B3
PP_GENDER	B4
PP_INTENTION	B5
PP_INTERESTS	B6
PP_MARITAL_STATUS	B7
PRIORITYREJECT	9A
PRIORITYSTORE	9B
REJECT	9C
SENDREJECT	9D
SENDSTORE	9E
SHTTP	A4
SMS	43
SSMS	A5
STCP	44
SUDP	45
USER_AGE_MAX	B8
USER_AGE_MIN	B9
USER_ALIAS	46
USER_CITY	93
USER_COUNTRY	94
USER_EMAIL_ADDRESS	47
USER_FIRST_NAME	48
USER_FRIENDLY_NAME	95
USER_GENDER	96
USER_ID	49
USER_INTENTION	97
USER_INTERESTS_HOBBIES	98
USER_LAST_NAME	4A
USER_MARITAL_STATUS	99
USER_MOBILE_NUMBER	4B
USER_ONLINE_STATUS	4C
WAPSMS	4D
WAPUDP	4E
WSP	4F

Table 14: Access value tokens

4.4.3 Presence value tokens

Attribute value	Token
ANGRY	5B
ANXIOUS	5C
ASHAMED	5D
AUDIO_CALL	5E
AVAILABLE	5F
BORED	60
CALL	61
CLI	62
COMPUTER	63
DISCREET	64
EMAIL	65
EXCITED	66
HAPPY	67
IM_OFFLINE	69
IM_ONLINE	6A
IN_LOVE	6B
INVINCIBLE	6C
JEALOUS	6D
MMS	6E
MOBILE_PHONE	6F
NOT_AVAILABLE	70
OTHER	71
PDA	72
SAD	73
SLEEPY	74
SMS	75
VIDEO_CALL	76
VIDEO_STREAM	77

Table 15: Presence value tokens

4.5 Extended presence

Extension presence attributes and extension presence fields should be encoded using the WBXML LITERAL construct, since token values cannot be pre-assigned for this purpose.

5. Data types

All data types described in this chapter are mandatory to follow, thus for example an integer number cannot be encoded as a string. Proprietary extensions may reuse the defined information elements (and tags). New proprietary data type(s)/encoding(s) shall be described in the documents related to the proprietary extension – those are not in the scope of this document.

5.1 Character

A single character is encoded as ENTITY (0x02) followed by a `mb_u_int32` containing the entity number.

0 x 0 2	<i>mb_u_int32</i>
------------------	-------------------

Example: The ‘á’ character (code is 160) would be encoded as:

0 x 0 2	<i>0x81</i>	<i>0x20</i>
------------------	-------------	-------------

5.2 Integer

An integer number is encoded as OPAQUE (0xC3) followed by an `mb_u_int32` that contains the length of the integer, then the actual bytes of the integer in big-endian order (most significant bytes first).

0x C 3	<i>mb_u_int32</i>	... bytes ...
--------------	-------------------	---------------

Which means that a 1-byte integer would look like this:

0x C 3	<i>0x01</i>	byte
--------------	-------------	------

A 2-byte integer would look like this:

0x C 3	<i>0x02</i>	byte	byte
--------------	-------------	------	------

A 4-byte integer would look like this:

0x C 3	<i>0x04</i>	byte	byte	byte	byte
--------------	-------------	------	------	------	------

Example: The 2001 (0x07D1) number would be encoded as:

0x C 3	<i>0x02</i>	<i>0x07</i>	<i>0xD1</i>
--------------	-------------	-------------	-------------

5.3 Boolean

The “T” and “F” values are encoded.

See table Common value tokens on page 27.

5.4 String

WBXML already includes the definition:

- Inline string: STR_I (0x03) followed by the string and the terminating character (0x00), or
- String table: STR_T (0x83) followed by a `mb_u_int32` which is the string table offset from the first character of the first string in the table (not a character offset!).

Inline string:

0	...character data ...	0
x		x
0		0
3		0

String table reference:

0	<code>mb_u_int32</code>
x	
8	
3	

Example: The “This is a string!” string would be encoded as (inline string):

0x03	'T'	'h'	'i'	's'	' '	'i'	's'	' '	'a'	' '	's'	't'	'r'	'i'	'n'	'g'	'!'	0x00
------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	------

5.5 Binary data

Binary data is encoded as OPAQUE (0xC3) followed by an `mb_u_int32` that contains the length of the binary stream, then the actual bytes of the binary stream.

0xC3	<code>mb_u_int32</code>	... bytes ...
------	-------------------------	---------------

Example: A GIF file that is 22368 bytes long would be encoded as:

0xC3	0x81	0xAE	0x60	0x47	0x49	0x46	0x38	0x39	0x61	...(truncated)
------	------	------	------	------	------	------	------	------	------	----------------

5.6 Date and time

Date and time are encoded as OPAQUE data

The OPAQUE global token (0xC3) is followed by an `mb_u_int32` that contains the length of the date bytes, then the actual bytes of the encoded date. The time is always in 24-hour format; there is no need to indicate a.m. or p.m.

0xC3	<code>mb_u_int32</code>	... bytes ...
------	-------------------------	---------------

3		
---	--	--

The encoding of the date bytes is as follows:

- 13. The first 2 bits are reserved, and both **must** be 0.
- 14. Year is encoded by 12 bits (0 to 4095)
- 15. Month is encoded by 4 bits (1 to 12)
- 16. Day is encoded by 5 bits (1 to 31)
- 17. Hour is encoded by 5 bits (0 to 23)
- 18. Minute is encoded by 6 bits (0 to 59)
- 19. Second is encoded by 6 bits (0 to 59)
- 20. Time zone is encoded in 1 byte [ISO8601].

Bits 47, 46 reserved	Bits 45-34 year	Bits 33-30 month	Bits 29-25 day	Bits 24-20 hour	Bits 19-14 minute	Bits 13-8 second	Bits 7-0 TimeZone
-------------------------	--------------------	---------------------	-------------------	--------------------	----------------------	---------------------	----------------------

This takes exactly 6 bytes (48 bits).

The length is always 6 bytes. It is encoded as:

0x C 3	0 x 0 6	byte	byte	byte	byte	byte	byte
-----------------------	------------------	------	------	------	-------------	------	------

Example: The date and time at 16:58:59 on the 25th of September in 2001 in time zone ‘Z’ would be encoded as:

0 x C 3	0x06	0x1F	0x46	0x73	0x0E	0xBB	0x5A
----------------------------	------	------	------	------	------	------	------

5.7 Structures

The syntax itself is specified in [WBXML].

The structure of the tags is as specified in [CSP XMLS].

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 1.3 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-IMPS-WV-CSP_WBXML-V1_3	31 Dec 2004	All	<ul style="list-style-type: none"> - Taken OMA-IMPS-Enabler-Package-V1_2-20041217-C package as baseline. - Updated references to 1.3 specs - also removed SCR references as those documents are going to be discontinued. - Removed WV tags from document IDs. - Replaced WXML references from 1.2 to 1.3, and updated the examples as well. - Removed empty rows and obsolete entries from the tables. - Corrected missing values. - Added CR OMA-IMPS-2003-0106-COMVERSE-NAT-UDP_CIR.
	28 Jan 2005	All	<ul style="list-style-type: none"> - Updated references. - Typo corrections.
Draft Versions OMA-IMPS-CSP_WBXML-V1_3	04 Feb 2005	All	<ul style="list-style-type: none"> - Applied OMA 2005 template - Added value token definitions that are needed for the OMA 2005 DTD template.
	19 Apr 2005	Section 4 Appendix C	Updated with accepted CRs OMA-IM-2005-0038-FriendlyName-WBXML (Note: code moved due to full table) OMA-IM-2005-0069R01-IMPS-1.3-CSP-WBXML-Changes-for-Content-Font-Formatting OMA-IM-2005-0101-IMPS13-ExMove_CSP_WBXML OMA-IM-2005-0111R01-IMPS13_MMCName-CSP_WBXML (Note: ContentName moved to table 0x09) OMA-IM-2005-0115-IMPS13_PrAuth-CSP_WBXML OMA-IM-2005-0143-IMPS13_ShowMap-CSP_WBXML OMA-IM-2005-0160-IMPS13-Add-Contact-By-User-ID-WBXML (Note: codes moved due to conflict)
	25 Apr 2005	Section 4	OMA-IM-2005-0184-IMPS13_AdvSrc_CSP_WBXML OMA-IM-2005-0201-IMPS13_PublicProfile_CSP_WBXML OMA-IM-2005-0214-IMPS13_LowMem_CSP_WBXML OMA-IM-2005-0245-IMPS13_InviteApp_WBXML OMA-IM-2005-0248-IMPS13_MsgCapBound_CSP_WBXML OMA-IM-2005-0252R01-WBXML-ADC2 OMA-IM-2005-0262-IMPS13_SysMsgOZContinue_CSP_WBXML OMA-IM-2005-0272-IMPS13_OffMsgSiemensContinue_CSP_WBXML OMA-IM-2005-0280-IMPS13-Extend-IM-and-PGC-WBXML OMA-IM-2005-0295-IMPS13_MultiSessionApp_CSP_WBXML OMA-IM-2005-0304-IMPS13_PrAuth_CSP_WBXML
	26 Apr 2005	Section 4	OMA-IM-2005-0285R01-CR-Presence-Authorization-Model-CSP-WBXML

Document Identifier	Date	Sections	Description
Draft Versions OMA-TS-IMPS-CSP_WBXML-V1_3	25 Jun 2005	Appendix C 2.1 4 2.2	Changed font for examples Removed unused normative references Added Table Captions Implemented OMA-IM-2005-0363-IMPS13-ArchRef-CSP_WBXML
	8 Aug 2005	Appendix C 4	Removed empty table rows Implemented CRs OMA-IM-2005-0434R01-IMPS-13-CIRSMSAddress-WBXML OMA-IM-2005-0446R02-IMPS13_WBXML_Missing_Tokens OMA-IM-2005-0454R01-IMPS13_ValueTableClr-WBXML OMA-IM-2005-0463-IMPS-13-ExtendConversation-ID-WBXML OMA-IM-2005-0523-IMPS13_DocUpdateAI-CSP_WBXML OMA-IM-2005-0530-IMPS-13-WBXML-MulitTransPerMessage OMA-IM-2005-0536-IMPS-13-WBXML-SAPSessionLimitRemoved OMA-IM-2005-0540-IMPS-13-WBXML-MaxWatcherList OMA-IM-2005-0551-CSP_WBXML_Registered_Identifiers OMA-IM-2005-0556-IMPS13_AIs_CSP_WBXML OMA-IM-2005-0574-IMPS13_SysMsgReqResp_CSP-WBXML OMA-IM-2005-0586-IMPS-1_3-CSP-WBXML-autosub
	26 Aug 2005	2 4	Fixed references Added missing element SearchPair Implemented CR OMA-IM-2005-0629-IMPS-13-SearchOnAge-WBXML
	18 Sep 2005	4	Implemented CR OMA-IM-2005-0654-IMPS-13-ExtendConversationFixes-WBXML OMA-IM-2005-0643-IMPS13_PostRnAFixes-CSP_WBXML
Candidate Versions OMA-TS-IMPS-CSP_WBXML-V1_3	11 Oct 2005	n/a	Status changed to Candidate by TP TP ref # OMA-TP-2005-0279R01-IMPS-V1_3-for-Candidate-approval

Appendix B. Static Conformance Requirements (Normative)

The notation used in this section is specified in [IOPPROC].

B.1 XML encoding requirements

B.1.1 Clients

Item	Function	Reference	Status	Requirement
XML-C-1	XML encoding is well-formed	[XML]	M	
XML-C-2	XML encoding follows the DTD	[CSP]	M	
XML-C-3	XML encoding tolerates protocol extension	[CSP]	M	
XML-C-4	The namespace identifier for the session and transaction structure is "http://www.openmobilealliance.org/DTD/IMPS-CSP1.3"	[CSP XMLS]	M	
XML-C-5	The namespace identifier for the transaction content realising the defined WV functionality is "http://www.openmobilealliance.org/DTD/IMPS-TRC1.3"	[CSP XMLS]	M	
XML-C-6	The namespace identifier for the WV defined presence attributes is "http://www.openmobilealliance.org/DTD/IMPS-PA1.3"	[CSP XMLS] and [PA XMLS]	M	
XML-C-7	The primitives are encoded using binary XML format	[CSP WBXML]	O	
XML-C-8	The primitives are encoded using textual XML format	[CSP XMLS]	O	
XML-C-9	The primitives are encoded using either the textual XML format or the binary XML format	[CSP]	M	C-7 OR C-8 OR (C-7 AND C-8)

B.1.2 Servers

Item	Function	Reference	Status	Requirement
XML-S-1	XML encoding is well-formed	[XML]	M	
XML-S-2	XML encoding follows the DTD	[CSP]	M	
XML-S-3	XML encoding tolerates protocol extension	[CSP]	M	
XML-S-4	The namespace identifier for the session and transaction structure is "http://www.openmobilealliance.org/DTD/IMPS-CSP1.3"	[CSP XMLS]	M	
XML-S-5	The namespace identifier for the transaction content realising the defined WV functionality is "http://www.openmobilealliance.org/DTD/IMPS-TRC1.3"	[CSP XMLS]	M	

Item	Function	Reference	Status	Requirement
XML-S-6	The namespace identifier for the WV defined presence attributes is "http://www.openmobilealliance.org/DTD/IMPS-PA1.3"	[CSP XMLS] and [PA XMLS]	M	
XML-S-7	The primitives are encoded using binary XML format	[CSP WBXML]	M	
XML-S-8	The primitives are encoded using textual XML format	[CSP XMLS]	M	

Appendix C. Binary XML Examples

(Informative)

C.1 Status primitive with details

Token stream	Description
03	Version number – WBXML version 1.3
12	Wireless Village public document identifier
6A	Charset=UTF-8 (MIBEnum is 106)
00	String table length
C9	START WV-CSP-Message
0B	xmlns="http://www.openmobilealliance.org/DTD/IMPS-CSP"
03	Inline string follows
31 2E 33	"1.3"
00	String terminator
01	END xmlns attribute
6D	START Session
6E	START SessionDescriptor
70	START SessionType
80	EXT_T_0
11	Inband
01	END SessionType
6F	START SessionID
03	Inline string follows
69 6D 2E 75 73 65 72 2E 63 6F 6D 23 34 38 38 31 35 40 73 65 72 76 65 72 2E 63 6F 6D	"im.user.com#48815@server.com"
00	String terminator
01	END SessionID
01	END SessionDescriptor
72	START Transaction
74	START TransactionDescriptor
76	START TransactionMode
80	EXT_T_0
21	Response
01	END TransactionMode
75	START TransactionID
03	Inline string follows
49 4D 41 70 70 30 31 23 31 32 33 34 35 40 4E 4F 4B 35 31 31 30	"IMApp01#12345@NOK5110"
00	String terminator
01	END TransactionID
01	END TransactionDescriptor
F3	START TransactionContent
0D	xmlns="http://www.openmobilealliance.org/DTD/IMPS-TRC"
03	Inline string follows
31 2E 33	"1.3"
00	String terminator
01	END xmlns attribute
71	START Status
6A	START Result
4B	START Code
C3	Opaque data starts
01	Length of data is 1 byte
C9	Big endian 201
01	END Code
52	START Description
03	Inline string follows
50 61 72 74 69 61 6C 6C 79 20 73 75 63 63 65 73 73 66 75 6C 2E	"Partially successful."
00	String terminator
01	END Description

53	START DetailedResult
4B	START Code
C3	Opaque data starts
02	Length of data is 2 bytes
02 13	Big endian 531
01	END Code
52	START Description
03	Inline string follows
55 6E 6B 6E 6F 77 6E 20 75 73 65 72 2E	“Unknown user.”
00	String terminator
01	END Description
7A	START UserID
03	Inline string follows
77 76 3A 62 61 64 5F 75 73 65 72 31 40 69 6D 2E 63 6F 6D	“wv:bad_user1@im.com”
00	String terminator
01	END UserID
7A	START UserID
03	Inline string follows
77 76 3A 62 61 64 5F 75 73 65 72 32 40 69 6D 2E 63 6F 6D	“wv:bad_user2@im.com”
00	String terminator
01	END UserID
01	END DetailedResult
53	START DetailedResult
4B	START Code
C3	Opaque data starts
02	Length of data is 2 bytes
02 14	Big endian 532
01	END Code
52	START Description
03	Inline string follows
42 6C 6F 63 6B 65 64 2E	“Blocked.”
00	String terminator
01	END Description
7A	START UserID
03	Inline string follows
77 76 3A 62 61 64 5F 75 73 65 72 33 40 69 6D 2E 63 6F 6D	“wv:bad_user3@im.com”
00	String terminator
01	END UserID
7A	START UserID
03	Inline string follows
77 76 3A 62 61 64 5F 75 73 65 72 34 40 69 6D 2E 63 6F 6D	“wv:bad_user4@im.com”
00	String terminator
01	END UserID
01	END DetailedResult
01	END Result
01	END Status
01	END TransactionContent
01	END Transaction
61	START Poll
80	EXT_T_0
0B	F - No (False)
01	END Poll
01	END Session
01	END WV-CSP-Message

C.2 Polling-Request primitive

Token stream	Description
03	Version number – WBXML version 1.3

12	Wireless Village public document identifier
6A	Charset=UTF-8 (MIBEnum is 106)
00	String table length
C9	START WV-CSP-Message
0B	xmlns="http://www.openmobilealliance.org/DTD/IMPS-CSP"
03	Inline string follows
31 2E 33	"1.3"
00	String terminator
01	END xmlns attribute
6D	START Session
6E	START SessionDescriptor
70	START SessionType
80	EXT_T_0
11	Inband
01	END SessionType
6F	START SessionID
03	Inline string follows
69 6D 2E 75 73 65 72 2E 63 6F 6D 23 34 38 38 31 35 40 73 65 72 76 65 72 2E 63 6F 6D	"im.user.com#48815@server.com"
00	String terminator
01	END SessionID
01	END SessionDescriptor
72	START Transaction
74	START TransactionDescriptor
76	START TransactionMode
80	EXT_T_0
20	Request
01	END TransactionMode
35	EMPTY TransactionID
01	END TransactionDescriptor
F3	START TransactionContent
0D	xmlns="http://www.openmobilealliance.org/DTD/IMPS-TRC"
03	Inline string follows
31 2E 33	"1.3"
00	String terminator
01	END xmlns attribute
00	Switch code page to
01	Access code page
22	EMPTY Polling-Request
01	END TransactionContent
01	END Transaction
01	END Session
01	END WV-CSP-Message

C.3 2-way login transaction

C.3.1 Login-Request primitive

Token stream	Description
03	Version number – WBXML version 1.3
12	Wireless Village public document identifier
6A	Charset=UTF-8 (MIBEnum is 106)
00	String table length
C9	START WV-CSP-Message
0B	xmlns="http://www.openmobilealliance.org/DTD/IMPS-CSP"
03	Inline string follows
31 2E 33	"1.3"

00	String terminator
01	END xmlns attribute
6D	START Session
6E	START SessionDescriptor
70	START SessionType
80	EXT_T_0
19	Outband
01	END SessionType
01	END SessionDescriptor
72	START Transaction
74	START TransactionDescriptor
76	START TransactionMode
80	EXT_T_0
20	Request
01	END TransactionMode
75	START TransactionID
03	Inline string follows
49 4D 41 70 70 30 31 23 31 32 33 34 35 40 4E 4F 4B 35 31 31 30	"IMApp01#12345@NOK5110"
00	String terminator
01	END TransactionID
01	END TransactionDescriptor
F3	START TransactionContent
0D	xmlns="http://www.openmobilealliance.org/DTD/I MPS-TRC
03	Inline string follows
31 2E 33 22	"1.3"
00	String terminator
01	END xmlns attribute
00	Switch code page to
01	Access code page
5D	START Login-Request
00	Switch code page to
00	Common code page
7A	START UserID
03	Inline string follows
77 76 3A 75 73 65 72 40 69 6D 2E 63 6F 6D	"wv:user@im.com"
00	String terminator
01	END UserID
4A	START ClientID
77	START URL
80	EXT_T_0
0E	http://
03	Inline string follows
32 30 36 2E 32 32 36 2E 32 30 2E 32 35 3A 38 30 2F 49 4D 50 53 41 50 50	"206.226.20.25:80/IMPSAPP"
00	String terminator
01	END URL
01	END ClientID
00	Switch code page to
01	Access code page
61	START Password
03	Inline string follows
31 6D 79 32 70 61 73 73 33 77 6F 72 64	"1my2pass3word"
00	String terminator
01	END Password
72	START TimeToLive
C3	Opaque data starts
01	Length of data is 1 byte
78	Big endian 120
01	END TimeToLive
70	START SessionCookie

03	Inline string follows
69 6D 2E 75 73 65 72 2E 63 6F 6D 23 32 30 30 32 30 31 32 38 23 33 32 38 37 34 36 32 39 33	“im.user.com#20020128#328746293”
00	String terminator
01	END SessionCookie
01	END Login-Request
01	END TransactionContent
01	END Transaction
01	END Session
01	END WV-CSP-Message

C.3.2 Login-Response primitive

Token stream	Description
03	Version number – WBXML version 1.3
12	Wireless Village public document identifier
6A	Charset=UTF-8 (MIBEnum is 106)
00	String table length
C9	START WV-CSP-Message
0B	xmlns=”http://www.openmobilealliance.org/DTD/IMP S-CSP
03	Inline string follows
31 2E 33	“1.3”
00	String terminator
01	END xmlns attribute
6D	START Session
6E	START SessionDescriptor
70	START SessionType
80	EXT_T_0
19	Outband
01	END SessionType
01	END SessionDescriptor
72	START Transaction
74	START TransactionDescriptor
76	START TransactionMode
80	EXT_T_0
21	Response
01	END TransactionMode
75	START TransactionID
03	Inline string follows
49 4D 41 70 70 30 31 23 31 32 33 34 35 40 4E 4F 4B 35 31 31 30	“IMApp01#12345@NOK5110”
00	String terminator
01	END TransactionID
01	END TransactionDescriptor
F3	START TransactionContent
0D	xmlns=”http://www.openmobilealliance.org/DTD/IMP S-TRC
03	Inline string follows
31 2E 33	“1.3”
00	String terminator
01	END xmlns attribute
00	Switch code page to
01	Access code page
5E	START Login-Response
00	Switch code page to
00	Common code page
4A	START ClientID
77	START URL
80	EXT_T_0
0E	http://

03	Inline string follows
32 30 36 2E 32 32 36 2E 32 30 2E 32 35 3A 38 30 2F 49 4D 50 53 41 50 50	“206.226.20.25:80/IMPSAPP”
00	String terminator
01	END URL
01	END ClientID
6A	START Result
4B	START Code
C3	Opaque data starts
01	Length of data is 1 byte
C8	Big endian 200
01	END Code
52	START Description
53 75 63 63 65 73 73 66 75 6C 6C 79 20 6C 6F 67 67 65 64 20 69 6E 2E	“Successfully logged in.”
00	String terminator
01	END Description
01	END Result
6F	START SessionID
03	Inline string follows
69 6D 2E 75 73 65 72 2E 63 6F 6D 23 34 38 38 31 35 40 73 65 72 76 65 72 2E 63 6F 6D	“im.user.com#48815@server.com”
00	String terminator
01	END SessionID
00	Switch code page to
01	Access code page
5C	START KeepAliveTime
C3	Opaque data starts
01	Length of data is 1 byte
78	Big endian 120
01	END KeepAliveTime
4B	START CapabilityRequest
80	EXT_T_0
2C	T - Yes (True)
01	END CapabilityRequest
01	END Login-Response
01	END TransactionContent
01	END Transaction
00	Switch code page to
00	Common code page
61	START Poll
80	EXT_T_0
0B	F - No (False)
01	END Poll
01	END Session
01	END WV-CSP-Message

C.4 4-way login transaction

C.4.1 Login-Request primitive

Token stream	Description
03	Version number – WBXML version 1.3
12	Wireless Village public document identifier
6A	Charset=UTF-8 (MIBEnum is 106)
00	String table length
C9	START WV-CSP-Message
0B	xmlns=”http://www.openmobilealliance.org/DTD/I MPS-CSP
03	Inline string follows

31 2E 33	“1.3”
00	String terminator
01	END xmlns attribute
6D	START Session
6E	START SessionDescriptor
70	START SessionType
80	EXT_T_0
19	Outband
01	END SessionType
01	END SessionDescriptor
72	START Transaction
74	START TransactionDescriptor
76	START TransactionMode
80	EXT_T_0
20	Request
01	END TransactionMode
75	START TransactionID
03	Inline string follows
49 4D 41 70 70 30 31 23 31 32 33 34 35 40 4E 4F 4B 35 31 31 30	“IMApp01#12345@NOK5110”
00	String terminator
01	END TransactionID
01	END TransactionDescriptor
F3	START TransactionContent
0D	xmlns=“http://www.openmobilealliance.org/DTD/IMPS-TRC”
03	Inline string follows
31 2E 33	“1.3”
00	String terminator
01	END xmlns attribute
00	Switch code page to
01	Access code page
5D	START Login-Request
00	Switch code page to
00	Common code page
7A	START UserID
03	Inline string follows
77 76 3A 75 73 65 72 40 69 6D 2E 63 6F 6D	“wv:user@im.com”
00	String terminator
01	END UserID
4A	START ClientID
77	START URL
80	EXT_T_0
0E	http://
03	Inline string follows
32 30 36 2E 32 32 36 2E 32 30 2E 32 35 3A 38 30 2F 49 4D 50 53 41 50 50	“206.226.20.25:80/IMPSAPP”
00	String terminator
01	END URL
01	END ClientID
00	Switch code page to
01	Access code page
4F	START DigestSchema
03	Inline string follows
50 57 44	“PWD”
00	String terminator
01	END DigestSchema
4F	START DigestSchema
03	Inline string follows
53 48 41	“SHA”
00	String terminator
01	END DigestSchema

4F	START DigestSchema
03	Inline string follows
4D 44 34	“MD4”
00	String terminator
01	END DigestSchema
4F	START DigestSchema
03	Inline string follows
4D 44 35	“MD5”
00	String terminator
01	END DigestSchema
4F	START DigestSchema
03	Inline string follows
4D 44 36	“MD6”
00	String terminator
01	END DigestSchema
70	START SessionCookie
03	Inline string follows
69 6D 2E 75 73 65 72 2E 63 6F 6D 23 32 30 30 32 30 31 32 38 23 33 32 38 37 34 36 32 39 33	“im.user.com#20020128#328746293”
00	String terminator
01	END SessionCookie
01	END Login-Request
01	END TransactionContent
01	END Transaction
01	END Session
01	END WV-CSP-Message

C.4.2 Login-Response primitive

Token stream	Description
03	Version number – WBXML version 1.3
12	Wireless Village public document identifier
6A	Charset=UTF-8 (MIBEnum is 106)
00	String table length
C9	START WV-CSP-Message
0B	xmlns=”http://www.openmobilealliance.org/DTD/IM PS-CSP
03	Inline string follows
31 2E 33	“1.3”
00	String terminator
01	END xmlns attribute
6D	START Session
6E	START SessionDescriptor
70	START SessionType
80	EXT_T_0
19	Outband
01	END SessionType
01	END SessionDescriptor
72	START Transaction
74	START TransactionDescriptor
76	START TransactionMode
80	EXT_T_0
21	Response
01	END TransactionMode
75	START TransactionID
03	Inline string follows
49 4D 41 70 70 30 31 23 31 32 33 34 35 40 4E 4F 4B 35 31 31 30	“IMApp01#12345@NOK5110”
00	String terminator
01	END TransactionID
01	END TransactionDescriptor

75	START TransactionContent
0D	xmlns="http://www.openmobilealliance.org/DTD/IMPS-TRC
03	Inline string follows
31 2E 33	"1.3"
00	String terminator
01	END xmlns attribute
00	Switch code page to
01	Access code page
5E	START Login-Response
00	Switch code page to
00	Common code page
4A	START ClientID
77	START URL
80	EXT_T_0
0E	http://
03	Inline string follows
32 30 36 2E 32 32 36 2E 32 30 2E 32 35 3A 38 30 2F 49 4D 50 53 41 50 50	"206.226.20.25:80/IMPSAPP"
00	String terminator
01	END URL
01	END ClientID
6A	START Result
4B	START Code
C3	Opaque data starts
01	Length of data is 1 byte
C8	Big endian 200
01	END Code
52	START Description
03	Inline string follows
53 75 63 63 65 73 73 66 75 6C 6C 79 20 6C 6F 67 67 65 64 20 69 6E 2E	"Successfully logged in."
00	String terminator
01	END Description
01	END Result
00	Switch code page to
01	Access code page
60	START Nonce
03	Inline string follows
6B 73 6A 66 79 68 61 6F 69 79 73 72 34 6F 68 74 39 73 61 64 6F 67 66 73 61 64 66 67 79 39	"ksjfyhaoiysr4oht9sadogfsadfg9"
00	String terminator
01	END Nonce
4F	START DigestSchema
03	Inline string follows
4D 44 36	"MD6"
00	String terminator
01	END DigestSchema
01	END Login-Response
01	END TransactionContent
01	END Transaction
61	START Poll
80	EXT_T_0
0B	F - No (False)
01	END Poll
01	END Session
01	END WV-CSP-Message

C.4.3 Login-Request primitive

Token stream	Description
03	Version number – WBXML version 1.3
12	Wireless Village public document identifier
6A	Charset=UTF-8 (MIBEnum is 106)
00	String table length
C9	START WV-CSP-Message
0B	xmlns="http://www.openmobilealliance.org/DTD/I MPS-CSP
03	Inline string follows
31 2E 33	"1.3"
00	String terminator
01	END xmlns attribute
6D	START Session
6E	START SessionDescriptor
70	START SessionType
80	EXT_T_0
19	Outband
01	END SessionType
01	END SessionDescriptor
72	START Transaction
74	START TransactionDescriptor
76	START TransactionMode
80	EXT_T_0
20	Request
01	END TransactionMode
75	START TransactionID
03	Inline string follows
49 4D 41 70 70 30 31 23 31 32 33 34 35 40 4E 4F 4B 35 31 31 30	"IMApp01#12345@NOK5110"
00	String terminator
01	END TransactionID
01	END TransactionDescriptor
F3	START TransactionContent
0D	xmlns="http://www.openmobilealliance.org/DTD/I MPS-TRC
03	Inline string follows
31 2E 33	"1.3"
00	String terminator
01	END xmlns attribute
00	Switch code page to
01	Access code page
5D	START Login-Request
00	Switch code page to
00	Common code page
7A	START UserID
03	Inline string follows
77 76 3A 75 73 65 72 40 69 6D 2E 63 6F 6D	"wv:user@im.com"
00	String terminator
01	END UserID
4A	START ClientID
77	START URL
80	EXT_T_0
0E	http://
03	Inline string follows
32 30 36 2E 32 32 36 2E 32 30 2E 32 35 3A 38 30 2F 49 4D 50 53 41 50 50	"206.226.20.25:80/IMPSAPP"
00	String terminator
01	END URL
01	END ClientID
00	Switch code page to

01	Access code page
4E	START DigestBytes
03	Inline string follows
6D 73 61 64 66 62 6B 77 69 6E 6C 77 70 6F 6D 76 6D 73 70 6F 65 70 77 65	“msadfbkwinlpomvmspoepwe”
00	String terminator
01	END DigestBytes
72	START TimeToLive
C3	Opaque data starts
01	Length of data is 1 byte
78	Big endian 120
01	END TimeToLive
70	START SessionCookie
03	Inline string follows
69 6D 2E 75 73 65 72 2E 63 6F 6D 23 32 30 30 32 30 31 32 38 23 33 32 38 37 34 36 32 39 33	“im.user.com#20020128#328746293”
00	String terminator
01	END SessionCookie
01	END Login-Request
01	END TransactionContent
01	END Transaction
01	END Session
01	END WV-CSP-Message

C.4.4 Login-Response primitive

Token stream	Description
03	Version number – WBXML version 1.3
12	Wireless Village public document identifier
6A	Charset=UTF-8 (MIBEnum is 106)
00	String table length
C9	START WV-CSP-Message
0B	xmlns=”http://www.openmobilealliance.org/DTD/IMP S-CSP
03	Inline string follows
31 2E 33	“1.3”
00	String terminator
01	END xmlns attribute
6D	START Session
6E	START SessionDescriptor
70	START SessionType
80	EXT_T_0
19	Outband
01	END SessionType
01	END SessionDescriptor
72	START Transaction
74	START TransactionDescriptor
76	START TransactionMode
80	EXT_T_0
21	Response
01	END TransactionMode
75	START TransactionID
03	Inline string follows
49 4D 41 70 70 30 31 23 31 32 33 34 35 40 4E 4F 4B 35 31 31 30	“IMApp01#12345@NOK5110”
00	String terminator
01	END TransactionID
01	END TransactionDescriptor
F3	START TransactionContent
0D	xmlns=”http://www.openmobilealliance.org/DTD/IMP S-TRC

03	Inline string follows
31 2E 33	“1.3”
00	String terminator
01	END xmlns attribute
00	Switch code page to
01	Access code page
5E	START Login-Response
00	Switch code page to
00	Common code page
4A	START ClientID
77	START URL
80	EXT_T_0
0E	http://
03	Inline string follows
32 30 36 2E 32 32 36 2E 32 30 2E 32 35 3A 38 30 2F 49 4D 50 53 41 50 50	“206.226.20.25:80/IMPSAPP”
00	String terminator
01	END URL
01	END ClientID
6A	START Result
4B	START Code
C3	Opaque data starts
01	Length of data is 1 byte
C8	Big endian 200
01	END Code
52	START Description
03	Inline string follows
53 75 63 63 65 73 73 66 75 6C 6C 79 20 6C 6F 67 67 65 64 20 69 6E 2E	“Successfully logged in.”
00	String terminator
01	END Description
01	END Result
6F	START SessionID
03	Inline string follows
69 6D 2E 75 73 65 72 2E 63 6F 6D 23 34 38 38 31 35 40 73 65 72 76 65 72 2E 63 6F 6D	“im.user.com#48815@server.com”
00	String terminator
01	END SessionID
00	Switch code page to
01	Access code page
5C	START KeepAliveTime
C3	Opaque data starts
01	Length of data is 1 byte
78	Big endian 120
01	END KeepAliveTime
4B	START CapabilityRequest
80	EXT_T_0
2C	T - Yes (True)
01	END CapabilityRequest
01	END Login-Response
01	END TransactionContent
01	END Transaction
61	START Poll
80	EXT_T_0
0B	F - No (False)
01	END Poll
01	END Session
01	END WV-CSP-Message

C.5 Service negotiation transaction

C.5.1 Service-Request primitive

Token stream	Description
03	Version number – WBXML version 1.3
12	Wireless Village public document identifier
6A	Charset=UTF-8 (MIBEnum is 106)
00	String table length
C9	START WV-CSP-Message
0B	xmlns="http://www.openmobilealliance.org/DTD/IMPS-CSP"
03	Inline string follows
31 2E 33	"1.3"
00	String terminator
01	END xmlns attribute
6D	START Session
6E	START SessionDescriptor
70	START SessionType
80	EXT_T_0
11	Inband
01	END SessionType
7F	START SessionID
03	Inline string follows
69 6D 2E 75 73 65 72 2E 63 6F 6D 23 34 38 38 31 35 40 73 65 72 76 65 72 2E 63 6F 6D	"im.user.com#48815@server.com"
00	String terminator
01	END SessionID
01	END SessionDescriptor
72	START Transaction
74	START TransactionDescriptor
76	START TransactionMode
80	EXT_T_0
20	Request
01	END TransactionMode
75	START TransactionID
03	Inline string follows
49 4D 41 70 70 30 31 23 31 32 33 34 35 40 4E 4F 4B 35 31 31 30	"IMApp01#12345@NOK5110"
00	String terminator
01	END TransactionID
01	END TransactionDescriptor
F3	START TransactionContent
0D	xmlns="http://www.openmobilealliance.org/DTD/IMPS-TRC"
03	Inline string follows
31 2E 33 22	"1.3"
00	String terminator
01	END xmlns attribute
00	Switch code page to
01	Access code page
6E	START Service-Request
00	Switch code page to
00	Common code page
51	START Functions
00	Switch code page to
02	Service code page
7C	START WVCSPFeat
11	EMPTY FundamentalFeat
2F	EMPTY PresenceFeat
23	EMPTY IMFeat
01	END WVCSPFeat

01	END Functions
00	Switch code page to
01	Access code page
46	START AllFunctionsRequest
80	EXT_T_0
2C	T Yes
01	END AllFunctionsRequest
01	END Service-Request
01	END TransactionContent
01	END Transaction
01	END Session
01	END WV-CSP-Message

C.5.2 Service-Response primitive

Token stream	Description
03	Version number – WBXML version 1.3
12	Wireless Village public document identifier
6A	Charset=UTF-8 (MIBEnum is 106)
00	String table length
C9	START WV-CSP-Message
0B	xmlns="http://www.openmobilealliance.org/DTD/I MPS-CSP
03	Inline string follows
31 2E 33	"1.3"
00	String terminator
01	END xmlns attribute
6D	START Session
6E	START SessionDescriptor
70	START SessionType
80	EXT_T_0
11	Inband
01	END SessionType
7F	START SessionID
03	Inline string follows
69 6D 2E 75 73 65 72 2E 63 6F 6D 23 34 38 38 31 35 40 73 65 72 76 65 72 2E 63 6F 6D	"im.user.com#48815@server.com"
00	String terminator
01	END SessionID
01	END SessionDescriptor
72	START Transaction
74	START TransactionDescriptor
76	START TransactionMode
80	EXT_T_0
21	Response
01	END TransactionMode
75	START TransactionID
03	Inline string follows
49 4D 41 70 70 30 31 23 31 32 33 34 35 40 4E 4F 4B 35 31 31 30	"IMApp01#12345@NOK5110"
00	String terminator
01	END TransactionID
01	END TransactionDescriptor
F3	START TransactionContent
0D	xmlns="http://www.openmobilealliance.org/DTD/I MPS-TRC
03	Inline string follows
31 2E 33	"1.3"
00	String terminator
01	END xmlns attribute
00	Switch code page to

01	Access code page
6C	START Service-Response
00	Switch code page to
00	Common code page
51	START Functions
00	Switch code page to
02	Service code page
7C	START WVCSPFeat
51	START FundamentalFeat
34	EMPTY SearchFunc
01	END FundamentalFeat
01	END WVCSPFeat
01	END Functions
00	Switch code page to
01	Access code page
41	START AllFunctions
00	Switch code page to
02	Service code page
3C	EMPTY WVCSPFeat
01	END AllFunctions
01	END Service-Response
01	END TransactionContent
01	END Transaction
61	START Poll
80	EXT_T_0
0B	F - No (False)
01	END Poll
01	END Session
01	END WV-CSP-Message