WV-025 Client-Server Protocol Data Types

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Open Mobile Alliance
OMA-WV-CSP_DataTypes-V1_1-20021001-A

Continues the Technical Activities
Originated in the Wireless Village Initiative

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1. Scope

The Wireless Village 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.

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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

None

4. Basic Types

4.1 Character

A character is single UTF-8 encoded character.

4.2 Integer

An integer is a number from 0-4294967295 expressed in decimal format.

4.3 Boolean

A Boolean value indicates either true or false.

In XML: it has been encoded to a single character, the following values are defined:

- T – indicating yes or true (UTF-8 encoded character)
- F – indicating no or false (UTF-8 encoded character)

These values are case insensitive.

4.4 String

A string of UTF-8 encoded characters.

4.5 Date and time

Expressed as a string, the format follows the [ISO8601] specification. The date and time format used shall be the complete date and time using the basic format. There shall be no time-zone indications, but the time may indicate if the time is Coordinated Universal Time (UTC) or local time. Examples are:

20011019T125031

for local time, and

20011019T095031Z

for UTC time.

4.6 Binary data

The binary data must be encoded according to BASE64 encoding [RFC2045].

4.7 Derived types

4.7.1 Enumerated

The enumerated type is a type derived from the basic types that limit the values to certain, defined values. Examples of this are enumerated string, enumerated character and enumerated integer.

In the case of enumerated string and enumerated characters, the values shall be case insensitive.

4.7.2 Structure

The structure type allows the definition of an information element as a structure of basic types. The structure itself is defined in an XML DTD Element.

5. Data Type Assignments for XML ELEMENTS

5.1 XML Element Assignment for CSP Information Elements

Information Element	XML Element
Acceptance	Acceptance
Accepted-Content-Length	ContentSize
Add-Nick-List	AddNickList
Add-Users-List	AddList
Agreed-Capabilities	CapabilityList
All-Functions	AllFunctions
All-Functions-Request	AllFunctionsRequest
Attribute-Association-List	AttributeList+
Blocked-Entity-List	BlockList(EntityList)
Blocked-List-Inuse	BlockList(InUse)
Block-Entity-List	BlockList(EntityList)
ClientCapability-Request	CapabilityRequest
Client-ID	ClientID
Code	Code
Completion-Flag	CompletionFlag
Contact-List-ID	ContactList
Contact-List-ID-List	ContactList+
Contact-List-Props	ContactListProperties
Content	ContentData
Session-Cookie	Not in DTD yet
Default-CList-ID	DefaultContactList
Default-List	DefaultList
Default-Attribute-List	DefaultAttributeList
Delivery-Method	DeliveryMethod
Delivery-Report-Request	DeliveryReport
Delivery-Time	DeliveryTime
Description-Text	Description
Digest-Schema	DigestSchema

Digest-Bytes	DigestBytes
Granted-Entity-List	GrantList(EntityList)
Granted-List-Inuse	GrantList(InUse)
Grant-Entity-List	GrantList(EntityList)
Group-ID	GroupID
Group-Props	GroupProperties
Invite-Acceptance	Acceptance
Invite-Content	URLList
Invite-Group	GroupID
Invite-ID	InviteID
Invite-Presence	AttributeList
Invite-Reason	InviteNote
Invite-Response	InviteNote
Invite-Type	InviteType
Join-Group	JoinGroup
Joined-Request	JoinedRequest
Joined-Users-List	Joined
Keep-Alive-Time	KeepAliveTime
Left-Users-List	Left
Logo	Logo
Message-Count	MessageCount
Message-ID	MessageID
Message-ID-List	MessageID+
Message-Info	MessageInfo
Message-Info-List	MessageInfo+
Message-URI	MessageURI
Name	Name
Nonce	Nonce
Not-Available-Functions	Functions
Own-Props	OwnProperties
Own-Screen-Name	ScreenName

Password-String	Password
Presence-Attribute-List	PresenceSubList
Presence-Value-List	Presence
Recalled-Content	URLList
Recall-Reason	InviteNote
Recipients	Recipient
Remove-Nick-List	RemoveNickList
Remove-Users-List	RemoveList
Requested-Capabilities	CapabilityList
Requested-Functions	Functions
Result	Result
Screen-Name	ScreenName
Screen-Names	ScreenName+
Search-Criteria	SearchCriteria
Search-Findings	SearchFindings
Search-ID	SearchID
Search-Index	SearchIndex
Search-Limit	SearchLimit
Search-Pair-List	SearchPairList
Search-Results	SearchResult
Sender	Sender
Session-Cookie	SessionCookie
Session-ID	SessionID
Subscribe-Notif	SubscribeNotification
Subscribe-Type	SubscribeType
Subscription-State	Value
Supported-Digest-Schema	Digest-Schema
Text	Description
Time-To-Live	TimeToLive
Transaction-ID	TransactionID
Unblock-Entity-List	BlockList(RemoveList)

Ungrant-Entity-List	GrantList(RemoveList)
Update-Value-List	PresenceValueList
URL	URL
User-ID	UserID
User-ID-List	UserList
User-List	Users
User-List-Adm	Admin
User-List-Mod	Mod
User-Nick-List	NickList
Validity	Validity
Welcome-Text	WelcomeNote

5.2 Data Types for XML Terminal Elements

XML PCDATA	Acceptance
Data type	Boolean
Format	Defined in section 4.3.
Description	Indicates acceptance.
Range	Defined in section 4.3.

Table 1. Acceptance

XML PCDATA	AcceptedCharSet
Data type	Integert
Format	MIBenum number as defined in [IANA].
Description	Character set that the client supports.
Range	Any of the valid character sets.

Table 2. AcceptedCharSet

XML PCDATA	AcceptedContentLength
Data type	Integer
Format	Defined in section 4.2.
Description	The character (byte) count of the content inside a message.
Range	Defined in section 4.2.

Table 3. AcceptedContentLength

XML PCDATA	AcceptedContentType
Data type	String
Format	MIME type as defined in [RFC2045] and [RFC2046].
Description	MIME type that the client supports.
Range	All MIME-types

Table 4. AcceptedContentType

XML PCDATA	AcceptedTransferEncoding
Data type	String
Format	Text string
Description	Transfer encoding scheme that the client supports. Currently there is BASE64 only.
Range	BASE64

Table 5. AcceptedTransferEncoding

XML PCDATA	AllFunctionsRequest
Data type	Boolean
Format	Defined in section 4.3.
Description	Indicates if the list of all functions is requested.
Range	Defined in section 4.3.

Table 6. AllFunctionsRequest

XML PCDATA	AnyContent
Data type	Boolean
Format	Defined in section 4.3.
Description	Indicates if the client accepts all types of contents.
Range	Defined in section 4.3.

Table 7. AnyContent

XML PCDATA	CapabilityRequest
Data type	Boolean
Format	Defined in section 4.3.
Description	Indicates if client capability negotiation is needed.
Range	Defined in section 4.3.

Table 8. CapabilityRequest

XML PCDATA	ClientType
Data type	Enumerated string
Format	Defined in [WV-PA], Table 7.
Description	The type of the client.
Range	Defined in [WV-PA], Table 7.

Table 9. ClientType

XML PCDATA	Code
Data type	Integer
Format	Defined in section 4.2.
Description	Status code.
Range	Defined in [WV-CSP].

Table 10. Code

XML PCDATA	CompletionFlag
Data type	Boolean
Format	Defined in section 3.3.
Description	Indicates whether if the client can expect new results. 'F' if server may provide new results (still searching), 'T' if new results will not be provided.
Range	Defined in section 3.3.

Table 11. CompletionFlag

XML PCDATA	ContactList
Data type	String
Format	Defined in [WV-CSP]. The contact-list-ID is not case sensitive.
Description	Unique identifier of a user's contact list.
Range	Max 100 characters.

Table 12. ContactList

XML PCDATA	ContentData
Data type	String or Binary data.
Format	See Table 14. ContentEncoding
Description	The actual content.
Range	

Table 13. ContentData

XML PCDATA	ContentEncoding
Data type	String
Format	Text string
Description	Indicates the transfer encoding used on the content.
Range	None | BASE64

Table 14. ContentEncoding

XML PCDATA	ContentSize
Data type	Integer
Format	Defined in section 4.2.
Description	Indicates the size of the content. If the content is binary data, it indicates the size after the BASE64 encoding.
Range	Defined in section 4.2.

Table 15. ContentSize

XML PCDATA	ContentType
Data type	String
Format	MIME-Type as defined in [RFC2045] and [RFC2046].
Description	Indicates the MIME-type of the content.
Range	All MIME-types

Table 16. ContentType

XML PCDATA	DateTime
Data type	Date and Time
Format	Defined in section 4.5.
Description	Date and time.
Range	Defined in section 4.5.

Table 17. DateTime

XML PCDATA	DefaultContactList
Data type	String
Format	See Table 12. ContactList.
Description	Identifies the default contact list.
Range	See Table 12. ContactList.

Table 18. DefaultContactList

XML PCDATA	DefaultLanguage
Data type	Enumerated string
Format	Three-letter language code as specified in [ISO639-2].
Description	The current language setting in the client. The language code is specifying that the client prefers to receive text information in the indicated language from the server. The information is optional – it is used to override the user profile/presence info language preference.
Range	Any of the valid three-letter language codes.

Table 19. DefaultLanguage

XML PCDATA	DefaultList
Data type	Boolean
Format	Defined in section 4.3.
Description	Indicates if the default attribute list should be used in transaction.
Range	Defined in section 4.3.

Table 20. DefaultList

XML PCDATA	DeliveryMethod
Data type	Enumerated character
Format	Text character
Description	The delivery method setting. **N**otify/Get or **P**ush.
Range	N | P

Table 21. DeliveryMethod

XML PCDATA	DeliveryReport
Data type	Boolean
Format	Defined in section 4.3.
Description	Indicates if delivery method is requested or not.
Range	Defined in section 4.3.

Table 22. DeliveryReport

XML PCDATA	DeliveryTime
Data type	DateTime
Format	Defined in section 3.5
Description	The date and time of delivery of a message
Range	Defined in section 3.5

Table 23. DeliveryTime

XML PCDATA	Description
Data type	String
Format	Text string
Description	Short desciptive text.
Range	Max 200 characters

Table 24. Description

XML PCDATA	DigestBytes
Data type	String
Format	BASE64 encoded
Description	Digest bytes to use with DigestSchema.
Range	Max 200 characters

Table 25. DigestBytes

XML PCDATA	DigestSchema
Data type	Enumerated string
Format	Text string
Description	Digest schema used in hash.
Range	PWD | SHA | MD4 | MD5 | MD6

Table26. DigestSchema

XML PCDATA	GroupID
Data type	String
Format	Defined in [WV-CSP]. The group-ID is not case sensitive.
Description	Unique identifier of a group.
Range	Max 50 characters

Table 27. GroupID

XML PCDATA	InitialDeliveryMethod
Data type	Refer to Table 21. DeliveryMethod.
Format	Refer to Table 21. DeliveryMethod.
Description	Refer to Table 21. DeliveryMethod.
Range	Refer to Table 21. DeliveryMethod.

Table 28. InitialDeliveryMethod

XML PCDATA	InUse
Data type	Boolean
Format	Defined in section 4.3.
Description	Indicates if the requested functionality is in use or not.
Range	Defined in section 4.3.

Table 29. InUse

XML PCDATA	InviteID
Data type	String
Format	Text string. The invite-ID is case sensitive.
Description	Identifies an invitation so that it may be cancelled later on.
Range	Unique in the scope of the server domain. Max 100 character.

Table 30. InviteID

XML PCDATA	InviteNote
Data type	String
Format	Text string
Description	Short desciptive text for invitation.
Range	Max 400 characters

Table31. InviteNote

XML PCDATA	InviteType
Data type	Enumerated string
Format	Text string
Description	Indicates the type of the invitation.
Range	GR | IM | PR | SC

Table 32. InviteType

XML PCDATA	JoinGroup
Data type	Boolean
Format	Defined in section 4.3.
Description	Indicates that the newly created group is joined (or not) at creation time.
Range	Defined in section 4.3

Table 33. JoinGroup

XML PCDATA	JoinedRequest
Data type	Boolean
Format	Defined in section 4.3.
Description	Indicates if the list of currenty joined group members is requested.
Range	Defined in section 4.3.

Table 34. JoinedRequest

XML PCDATA	KeepAliveTime
Data type	Integer
Format	Defined in section 4.2.
Description	Indicates for how many seconds should the session be kept alive. (And how often should the KeepAlive transaction occur if no other transactions are done in the meantime.)
Range	Defined in section 4.2.

Table35. KeepAliveTime

XML PCDATA	MessageCount
Data type	Integer
Format	Defined in section 4.2.
Description	Indicates the number of messages.
Range	Defined in section 4.2.

Table36. MessageCount

XML PCDATA	MessageID
Data type	String
Format	Text string. The message-ID is case sensitive.
Description	Identifies an instant message.
Range	Max 50 characters

Table 37. MessageID

XML PCDATA	MessageURI
Data type	String
Format	URI
Description	See [RFC2396].
Range	Max 100 characters

Table 38. MessageURI

XML PCDATA	MSISDN
Data type	String
Format	International mobile number
Description	Defined in [E.164].
Range	As defined in [E.164].

Table 39. MS ISDN

XML PCDATA	MultiTrans
Data type	Integer
Format	Defined in section 4.2.
Description	Indicates the maximum number of primitives that the client can handle within the same transport message, as well as the maximum number of open transactions from both client and server side at any given time.
Range	The value must be higher than zero.

Table 40. MultiTrans

XML PCDATA	Name
Data type	String
Format	Text string. Case sensitive.
Description	Name of an attribute.
Range	Max 50 characters

Table 41. Name

XML PCDATA	Nonce
Data type	String
Format	Text string. Case sensitive.
Description	Random string for password digest.
Range	Max 200 characters

Table 42. Nonce

XML PCDATA	ParserSize
Data type	Integer
Format	Defined in section 4.2.
Description	Indicates the maximum character (byte) count of XML message size that the parser can handle.
Range	Defined in section 4.2.

Table 43. ParserSize

XML PCDATA	Password
Data type	String
Format	Text string
Description	The password corresponding to the password digest.
Range	Max 50 characters

Table 44. Password

XML PCDATA	Poll
Data type	Boolean
Format	Defined in section 4.3.
Description	Indicates whether if the server has something to send or not.
Range	Defined in section 4.3.

Table 45. Poll

XML PCDATA	PresenceSubList
Data type	String
Format	As defined in the referred namespace.
Description	Presence attribute list with or without values. This element is used to give reference to the namespace (DTD) to be used under this specific tag.
Range	The namespace attribute points to a valid Wireless Village presence namespace.

Table 46. PresenceSubList

XML PCDATA	ResponseNote
Data type	String
Format	Text string
Description	Short descriptive text for invitation response.
Range	Max 400 characters

Table 47 ResponseNote

XML PCDATA	SearchElement
Data type	Enumerated string
Format	Text string
Description	Indicates what should be searched for *SearchString.*
Range	USER_ID | USER_FIRST_NAME | USER_LAST_NAME | USER_EMAIL_ADDRESS | USER_ALIAS | USER_ONLINE_STATUS | USER_MOBILE_NUMBER | GROUP_ID | GROUP_NAME | GROUP_TOPIC | GROUP_USER_ID_JOINED | GROUP_USER_ID_OWER

Table 48. SearchElement

XML PCDATA	SearchFindings
Data type	Integer
Format	Defined in section 4.2.
Description	Indicates the number of matches found in a search request.
Range	Defined in section 4.2.

Table 49. SearchFindings

XML PCDATA	SearchID
Data type	Integer
Format	Defined in section 4.2.
Description	Identifies a search request, so that it may be continued later on.
Range	Defined in section 4.2.

Table 50. SearchID

XML PCDATA	SearchIndex
Data type	Integer
Format	Defined in section 4.2.
Description	Indicates from which point should the search continue.
Range	Defined in section 4.2.

Table 51. SearchIndex

XML PCDATA	SearchLimit
Data type	Integer
Format	Defined in section 4.2.
Description	Indicates the maximum number of result to be retrieved at a time.
Range	Defined in section 4.2.

Table 52. SearchLimit

XML PCDATA	SearchString
Data type	String
Format	Text string
Description	*SearchElement* is searches for this (sub)string.
Range	Max 100 characters.

Table 53. SearchString

XML PCDATA	ServerPollMin
Data type	Integer
Format	Defined in section 4.2.
Description	Indicates the minimum time period that must pass between two subsequent PollingRequest transactions. The value indicates the time in seconds.
Range	The value must be higher than zero.

Table 54. ServerPollMin

XML PCDATA	SessionCookie
Data type	String
Format	Text string
Description	A client-generated cookie provided during login phase.
Range	Max 50 characters.

Table 55. SessionCookie

XML PCDATA	SessionID
Data type	String
Format	Text string that is unique in the scope of the user. The session-ID is case sensitive.
Description	Identifies a session.
Range	Max 50 characters.

Table 56. SessionID

XML PCDATA	SessionType
Data type	Enumerated string
Format	Text string
Description	Describes the nature of the session. Inband if a there is an open session (and session-ID can be provided), otherwise Outband.
Range	Inband | Outband

Table 57. SessionType

XML PCDATA	SName
Data type	String
Format	Text string. Not case sensitive.
Description	The “name” part of the screen name.
Range	Max 50 characters.

Table 58. SName

XML PCDATA	SubscribeNotification
Data type	Boolean
Format	Defined in section 4.3.
Description	Indicates that the particular group’s group change notification is subscribed or not (turned on or off).
Range	Defined in section 4.3

Table 59. SubscribeNotification

XML PCDATA	SubscribeType
Data type	String
Format	Text character
Description	The type of the subscription request. It is **G**et, **S**et, or **U**nset.
Range	G | S | U

Table 60. SubscribeType

XML PCDATA	SupportedBearer
Data type	Enumerated string
Format	Text string
Description	Bearer that the client supports.
Range	SMS | WSP | HTTP | HTTPS

Table 61. SupportedBearer

XML PCDATA	SupportedCIRMethod
Data type	Enumerated string
Format	Text string
Description	Communiction Intitiation Request method that the client supports.
Range	WAPSMS – for WAP 1.2/2.0 WSP unit push over SMS WAPUDP – for WAP 1.2/2.0 WSP unit push over UDP/IP SUDP – for Standalone UDP/IP STCP – for Standalone TCP/IP

Table 62. SupportedCIRMethod

XML PCDATA	TCPAddress
Data type	String
Format	Defined in section 4.2.
Description	The client may indicate that it wants to use a different IP address for standalone TCP/IP CIR method.
Range	Defined in section 4.2.

Table 63. TCPAddress

XML PCDATA	TCPPort
Data type	Integer
Format	Defined in section 4.2.
Description	The client may indicate that it supports other than the default port for the standalone TCP/IP CIR method.
Range	Defined in section 4.2.

Table 64. TCPPort

XML PCDATA	TimeToLive
Data type	Integer
Format	Defined in section 4.2.
Description	Indicates the interval in which the server expects the KeepAliveRequest message in order to keep a session alive. (And how often should the KeepAlive transaction occur if no other transactions are done in the meantime.) Indicated in seconds.
Range	Defined in section 4.2.

Table 65. TimeToLive

XML PCDATA	TransactionContent
Data type	String
Format	As defined in the referred namespace.
Description	The transaction itself. This element is used to give reference to the namespace (DTD) to be used under this specific tag.
Range	The namespace attribute points to a valid Wireless Village transaction namespace

Table 66. TransactionContent

XML PCDATA	TransactionID
Data type	String
Format	Text string that is unique for each transaction in the scope of the session. The transaction-ID is case sensitive.
Description	Identifies a transaction. The initiating party assigns this ID.
Range	Max 50 characters

Table 67. TransactionID

XML PCDATA	TransactionMode
Data type	Enumerated string
Format	Text string
Description	Describes the nature of the transaction. Request if a new transaction is started, otherwise Response.
Range	Request | Response

Table 68. TransactionMode

XML PCDATA	UDPPort
Data type	Integer
Format	Defined in section 4.2.
Description	The client may indicate that it supports other than the default port for the standalone UDP/IP CIR method.
Range	Defined in section 4.2.

Table 69. UDPPort

XML PCDATA	URL
Data type	String
Format	URL
Description	See [RFC2396].
Range	Max 200 characters

Table 70. URL

XML PCDATA	UserID
Data type	String
Format	Defined in [WV-CSP]. The user-ID is not case sensitive.
Description	Unique identifier of a single user.
Range	Max 50 characters

Table 71. UserID

XML PCDATA	Validity
Data type	Integer
Format	Defined in section 4.2.
Description	Indicates the interval in seconds during which the message is valid.
Range	Defined in section 4.2.

Table 72. Validity

XML PCDATA	Value
Data type	String
Format	Text string
Description	Used for multiple purposes, see [WV-CSP] for further information about the particular case.
Range	Max 50 characters

Table 73. Value

Appendix A. Static Conformance Requirements (Normative)

The static conformance requirements for this specification is specified in [CSP SCR] and [SSP SCR].

Appendix B. Change History (Informative)

Type of Change	Date	Section	Description
Class 0	2002-10-25		The initial version of this document.