FOUNDATION FOR INTELLIGENT PHYSICAL AGENTS

FIPA ACL Message Representation in XML Specification

Document title	FIPA ACL Message Representation in XML Specification		
Document number	XC00071C	**Document source**	FIPA Agent Management
Document status	Experimental	**Date of this status**	2001/08/10
Supersedes	FIPA00024		
Contact	fab@fipa.org		
Change history			
2000/06/13	Approved for Experimental		
2001/08/10	Line numbering added		

© 2000 Foundation for Intelligent Physical Agents - http://www.fipa.org/

Geneva, Switzerland

Foreword

The Foundation for Intelligent Physical Agents (FIPA) is an international organization that is dedicated to promoting the industry of intelligent agents by openly developing specifications supporting interoperability among agents and agent-based applications. This occurs through open collaboration among its member organizations, which are companies and universities that are active in the field of agents. FIPA makes the results of its activities available to all interested parties and intends to contribute its results to the appropriate formal standards bodies.

The members of FIPA are individually and collectively committed to open competition in the development of agent-based applications, services and equipment. Membership in FIPA is open to any corporation and individual firm, partnership, governmental body or international organization without restriction. In particular, members are not bound to implement or use specific agent-based standards, recommendations and FIPA specifications by virtue of their participation in FIPA.

The FIPA specifications are developed through direct involvement of the FIPA membership. The status of a specification can be either Preliminary, Experimental, Standard, Deprecated or Obsolete. More detail about the process of specification may be found in the FIPA Procedures for Technical Work. A complete overview of the FIPA specifications and their current status may be found in the FIPA List of Specifications. A list of terms and abbreviations used in the FIPA specifications may be found in the FIPA Glossary.

FIPA is a non-profit association registered in Geneva, Switzerland. As of January 2000, the 56 members of FIPA represented 17 countries worldwide. Further information about FIPA as an organization, membership information, FIPA specifications and upcoming meetings may be found at http://www.fipa.org/.

Contents

1   Scope

This document is part of the FIPA specifications and deals with message transportation between inter-operating agents. This document also forms part of the FIPA Agent Management Specification [FIPA00023] and contains specifications for:

Syntactic representation of ACL in XML form (see [W3Cxml]).

51   **2 XML ACL Representation**

52 This document defines the message transport syntax for an XML based representation of ACL. It should be noted that
53 some grammatical information is expressed in the comments of the DTD. These additions are normative aspects of the
54 definition even though they are not checked by the XML parser.
55

56   **2.1 Component Name**

57 The name assigned to this component is:
58

59 `fipa.acl.rep.xml.std`
60

61   **2.2 Syntax**

```
62  <!-- Document Type: XML DTD
63      Document Purpose: Encoding of FIPA ACL messages in XML
64      (see [FIPA00067]) and http://www.fipa.org/)
65      Last Revised: 2000/03/07
66  -->
67
68  <!-- Possible FIPA Communicative Acts. See [FIPA00037] for a
69      full list of valid performatives.
70  -->
71  <!ENTITY % communicative-acts
72                  "accept-proposal|agree|cancel|cfp|confirm
73                  |disconfirm|failure|inform|not-understood
74                  |propose|query-if|query-ref|refuse
75                  |reject-proposal|request|request-when
76                  |request-whenever|subscribe|inform-if
77                  |inform-ref|proxy|propagate">
78
79  <!-- The FIPA message root element, the communicative act is
80      an attribute - see below and the message itself is a list
81      of parameters. The list is unordered. None of the elements
82      should occur more than once except receiver.
83  -->
84  <!ENTITY %msg-param
85          "receiver|sender|content|language|content-language-encoding|ontology|
86          protocol|reply-with|in-reply-to|reply-by|reply-to|conversation-id">
87
88  <!ELEMENT fipa-message (%msg-param;)*>
89
90  <!-- Attribute for the fipa-message - the communicative act itself and
91      the conversation id (which is here so an ID value can be used).
92  -->
93  <!ATTLIST fipa-message act (%communicative-acts;) #REQUIRED
94                        conversation-id ID #IMPLIED>
95
96  <!-- The agent identifier of the sender.
97  -->
98  <!ELEMENT sender (agent-identifier)>
99
100 <!-- The agent identifier(s) of the receiver.
101 -->
102 <!ELEMENT receiver (agent-identifier)>
103
104 <!-- The message content.
105     One can choose to embed the actual content in the message,
106     or alternatively refer to a URI which represents this content
107 -->
```

```
108    <!ELEMENT content (#PCDATA)>
109    <!ATTLIST content href CDATA #IMPLIED>
110
111    <!-- The content language used for the content.
112         The linking attribute href associated with language can be used
113         to refer in an unambiguous way to the (formal) definition of the
114         standard/fipa content language.
115    -->
116    <!ELEMENT language (#PCDATA)>
117    <!ATTLIST language href CDATA #IMPLIED>
118
119    <!-- The encoding used for the content language.
120         The linking attribute href associated with encoding can be used
121         to refer in an unambiguous way to the (formal) definition of the
122         language encoding.
123    -->
124    <!ELEMENT content-language-encoding (#PCDATA)>
125    <!ATTLIST content-language-encoding href CDATA #IMPLIED>
126
127    <!-- The ontology used in the content.
128         The linking attribute href associated with ontology can be used
129         to refer in an unambiguous way to the (formal) definition of the
130         ontology.
131    -->
132    <!ELEMENT ontology (#PCDATA)>
133    <!ATTLIST ontology href CDATA #IMPLIED>
134
135    <!-- The protocol element.
136         The linking attribute href associated with protocol can be used
137         to refer in an unambiguous way to the (formal) definition of the
138         protocol.
139    -->
140    <!ELEMENT protocol (#PCDATA)>
141    <!ATTLIST protocol href CDATA #IMPLIED>
142
143    <!-- The reply-with parameter.
144    -->
145    <!ELEMENT reply-with (#PCDATA)>
146    <!ATTLIST reply-with href CDATA #IMPLIED>
147
148    <!-- The in-reply-to parameter.
149    -->
150    <!ELEMENT in-reply-to (#PCDATA)>
151    <!ATTLIST in-reply-to href CDATA #IMPLIED>
152
153    <!-- The reply-by parameter.
154    -->
155    <!ELEMENT reply-by EMPTY>
156
157    <!-- See [FIPA00071] for the definition of time.
158    -->
159    <!ATTLIST reply-by time CDATA #REQUIRED
160             href CDATA #IMPLIED>
161
162    <!-- The reply-to parameter.
163    -->
164    <!ELEMENT reply-to (agent-identifier)>
165
166    <!-- The conversation-id parameter.
167    -->
168    <!ELEMENT conversation-id (#PCDATA)>
169    <!ATTLIST conversation-id href CDATA #IMPLIED>
170
171    <!ELEMENT agent-identifier (name, addresses?, resolvers?, user-defined*)>
```

```
172
173    <!ELEMENT name EMPTY>
174
175    <!-- An id can be used to uniquely identify the name of the agent.
176         The refid attribute can be used to refer to an already defined
177         agent name, avoiding unnecessary repetition. Either the id
178         OR refid should be specified, (both should not be present at the
179         same time)
180    -->
181    <!ATTLIST name id ID #IMPLIED
182             refid IDREF #IMPLIED>
183
184    <!ELEMENT addresses (url+)>
185    <!ELEMENT url EMPTY>
186    <!ATTLIST url href CDATA #IMPLIED>
187
188    <!ELEMENT resolvers (agent-identifier+)>
189
190    <!ELEMENT user-defined (#PCDATA)>
191    <!ATTLIST user-defined href CDATA #IMPLIED>
192
193
```

193 **3   References** 5

194 [FIPA00023]   FIPA Agent Management Specification. Foundation for Intelligent Physical Agents, 2000.
195   `http://www.fipa.org/specs/fipa00023/`
196 [FIPA00037]   FIPA Communicative Act Library Specification. Foundation for Intelligent Physical Agents, 2000.
197   `http://www.fipa.org/specs/fipa00037/`
198 [FIPA00067]   FIPA Agent Message Transport Service Specification. Foundation for Intelligent Physical Agents, 2000.
199   `http://www.fipa.org/specs/fipa00067/`
200 [W3Cxml]   Extensible Markup Language (XML) 1.0 Recommendation. World Wide Web Consortium, 1998.
201   `http://www.w3c.org/TR/REC-xml`
202