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2 **FOUNDATION FOR INTELLIGENT PHYSICAL AGENTS**
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5 # FIPA ACL Message Representation
6 # in XML Specification

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Document title	FIPA ACL Message Representation in XML Specification		
Document number	SC00071E	Document source	FIPA TC Agent Management
Document status	Standard	Date of this status	2002/12/03
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Contact	fab@fipa.org		
Change history	See *Informative Annex A — ChangeLog*		

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18 http://www.fipa.org/
19 *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 where appropriate.

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.

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FIPA is a non-profit association registered in Geneva, Switzerland. As of June 2002, the 56 members of FIPA represented many countries worldwide. Further information about FIPA as an organization, membership information, FIPA specifications and upcoming meetings may be found on the FIPA Web site at http://www.fipa.org/.

Contents

1   Scope

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

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

53 **2 XML ACL Representation**

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

57

58 **2.1 Component Name**

59 The name assigned to this component is:

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

62

63 **2.2 Syntax**

```
64  <!-- Document Type: XML DTD
65      Document Purpose: Encoding of FIPA ACL messages in XML
66      (see [FIPA00067]) and http://www.fipa.org/)
67      Last Revised: 2002/05/10 -->
68
69  <!-- Possible FIPA Communicative Acts. See [FIPA00037] for a
70      full list of valid performatives. -->
71  <!ENTITY    %communicative-acts            "accept-proposal
72                                             | agree
73                                             | cancel
74                                             | cfp
75                                             | confirm
76                                             | disconfirm
77                                             | failure
78                                             | inform
79                                             | not-understood
80                                             | propose
81                                             | query-if
82                                             | query-ref
83                                             | refuse
84                                             | reject-proposal
85                                             | request
86                                             | request-when
87                                             | request-whenever
88                                             | subscribe
89                                             | inform-if
90                                             | inform-ref
91                                             | proxy
92                                             | propagate">
93
94  <!-- The FIPA message root element, the communicative act is
95      an attribute - see below and the message itself is a list
96      of parameters. The list is unordered. None of the elements
97      should occur more than once except receiver. -->
98  <!ENTITY    %msg-param                     "receiver
99                                             | sender
100                                            | content
101                                            | language
102                                            | encoding
103                                            | ontology
104                                            | protocol
105                                            | reply-with
106                                            | in-reply-to
107                                            | reply-by
108                                            | reply-to
109                                            | conversation-id
```

```
110                                                      | user-defined">
111
112   <!ELEMENT   fipa-message              ( %msg-param; )*>
113
114   <!-- Attribute for the fipa-message - the communicative act itself and
115        the conversation id (which is here so an ID value can be used). -->
116   <!ATTLIST   fipa-message              act ( %communicative-acts; ) #REQUIRED
117                                         conversation-id ID #IMPLIED>
118
119   <!ELEMENT   sender                    ( agent-identifier )>
120
121   <!ELEMENT   receiver                  ( agent-identifier+ )>
122
123   <!-- The message content.
124        One can choose to embed the actual content in the message,
125        or alternatively refer to a URI which represents this content. -->
126   <!ELEMENT   content                   ( #PCDATA )>
127   <!ATTLIST   content                   href CDATA #IMPLIED>
128
129   <!-- The content language used for the content.
130        The linking attribute href associated with language can be used
131        to refer in an unambiguous way to the (formal) definition of the
132        standard/fipa content language. -->
133   <!ELEMENT   language                  ( #PCDATA )>
134   <!ATTLIST   language                  href CDATA #IMPLIED>
135
136   <!-- The encoding used for the content language.
137        The linking attribute href associated with encoding can be used
138        to refer in an unambiguous way to the (formal) definition of the
139        language encoding. -->
140   <!ELEMENT   encoding   ( #PCDATA )>
141   <!ATTLIST   encoding    href CDATA #IMPLIED>
142
143   <!-- The ontology used in the content.
144        The linking attribute href associated with ontology can be used
145        to refer in an unambiguous way to the (formal) definition of the
146        ontology. -->
147   <!ELEMENT   ontology                  ( #PCDATA )>
148   <!ATTLIST   ontology                  href CDATA #IMPLIED>
149
150   <!-- The protocol element.
151        The linking attribute href associated with protocol can be used
152        to refer in an unambiguous way to the (formal) definition of the
153        protocol. -->
154   <!ELEMENT   protocol                  ( #PCDATA )>
155   <!ATTLIST   protocol                  href CDATA #IMPLIED>
156
157   <!ELEMENT   reply-with                ( #PCDATA )>
158   <!ATTLIST   reply-with                href CDATA #IMPLIED>
159
160   <!ELEMENT   in-reply-to               ( #PCDATA )>
161   <!ATTLIST   in-reply-to               href CDATA #IMPLIED>
162
163   <!ELEMENT   reply-by                  EMPTY>
164   <!ATTLIST   reply-by                  time CDATA #REQUIRED
165                                         href CDATA #IMPLIED>
166
167   <!ELEMENT   reply-to                  ( agent-identifier+ )>
168
169   <!ELEMENT   conversation-id           ( #PCDATA )>
170   <!ATTLIST   conversation-id           href CDATA #IMPLIED>
171
172   <!ELEMENT   agent-identifier          ( name,
173                                         addresses?,
```

```
174                                             resolvers?,
175                                             user-defined* )>
176
177    <!ELEMENT    name                        EMPTY>
178
179    <!-- An id can be used to uniquely identify the name of the agent.
180        The refid attribute can be used to refer to an already defined
181        agent name, avoiding unnecessary repetition. Either the id
182        OR refid should be specified, (both should not be present at the
183        same time). -->
184    <!ATTLIST    name                        id ID #IMPLIED
185                                             refid IDREF #IMPLIED>
186
187    <!ELEMENT    addresses                   ( url+ )>
188
189    <!ELEMENT    url                         EMPTY>
190    <!ATTLIST    url                         href CDATA #IMPLIED>
191
192    <!ELEMENT    resolvers                   ( agent-identifier+ )>
193
194    <!ELEMENT    user-defined                ( #PCDATA )>
195    <!ATTLIST    user-defined                href CDATA #IMPLIED>
196
```

197   **3   References**

198   [FIPA00023]   FIPA Agent Management Specification. Foundation for Intelligent Physical Agents, 2000.
199   http://www.fipa.org/specs/fipa00023/
200   [FIPA00037]   FIPA Communicative Act Library Specification. Foundation for Intelligent Physical Agents, 2000.
201   http://www.fipa.org/specs/fipa00037/
202   [FIPA00067]   FIPA Agent Message Transport Service Specification. Foundation for Intelligent Physical Agents, 2000.
203   http://www.fipa.org/specs/fipa00067/
204   [W3Cxml]   Extensible Mark-up Language (XML) 1.0 Recommendation. World Wide Web Consortium, 1998.
205   http://www.w3c.org/TR/REC-xml
206

4   Informative Annex A — ChangeLog

207

4.1   2002/11/01 - version D by TC X2S

208

209	Page 2, line 63:	Improved readability of the XML
210	**Page 2, line 86**:	**Extended the `msg-params` definition to allow user-defined fields**
211	**Page 2, line 104:**	**Changed the cardinality of `receiver` definition to one or more (+)**
212	**Page 3, line 166:**	**Changed the cardinality of `reply-to` definition to one or more (+)**

213

4.2   2002/12/03 - version E by FIPA Architecture Board

214

215	Entire document:	Promoted to Standard status

216