

# FOUNDATION FOR INTELLIGENT PHYSICAL AGENTS

## FIPA Request When Interaction Protocol Specification

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~~http://www.fipa.org/~~

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27 parties and intends to contribute its results to the appropriate formal standards bodies [where appropriate](#).

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37 be found ~~in the FIPA List of Specifications. A list of terms and abbreviations used in the FIPA specifications may be  
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41 FIPA specifications and upcoming meetings may be found [on the FIPA Web site](#) at <http://www.fipa.org/>.

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# 1 FIPA Request When Interaction Protocol

54  
 55 The FIPA Request When Interaction Protocol (IP) provides a framework for the `request-when` communicative act  
 56 (see [FIPA00037]). The initiator uses the `request-when` action to request that the participant do some  
 57 action at the time once a given precondition becomes true. If the requested agent understands the request and does  
 58 not initially refuse, it will agree (see [FIPA00037]) and wait until the precondition occurs. Then, it will attempt to perform  
 59 the action and notify the requester accordingly. If after the initial agreement the participant is no longer able to perform  
 60 the action, it will send a `refuse` action (see [FIPA00037]) to the initiator.

61  
 62 The representation of this IP is given in *Figure 1* which is based on extensions to UML1.x. [Odell2001] This protocol is  
 63 identified by the token `fipa-request-when` as the value of the protocol parameter of the ACL message.  
 64

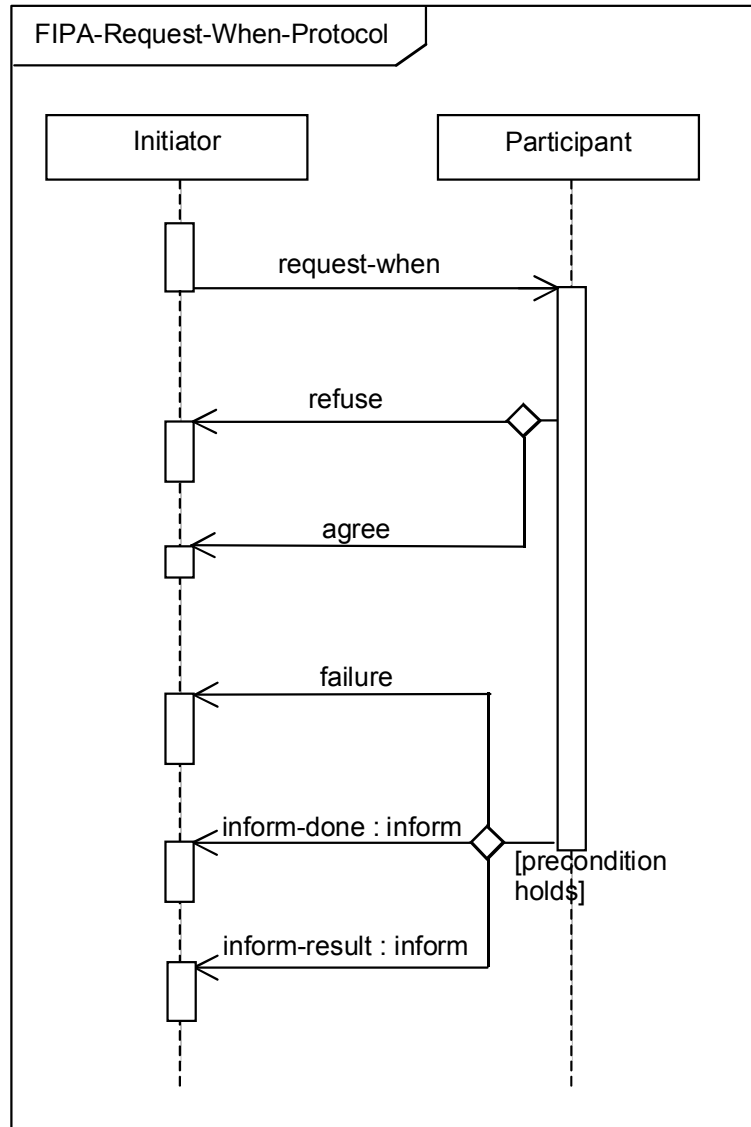


Figure 1: FIPA Request When Interaction Protocol

65  
 66  
 67  
 68

## 1.1 Explanation of the Protocol Flow

70 The initiator uses the `request-when` action to request that the participant do some action once a given precondition  
 71 becomes true. If the requested agent understands the request and does not initially refuse, it will agree (see  
 72 [FIPA00037]) and wait until the precondition occurs. Then, it will attempt to perform the action and notify the requester

73 accordingly. If after the initial agreement the participant is no longer able to perform the action, it will send a failure  
74 action (see [FIPA00037]) to the initiator. Once the action has completed and the failure, inform-done, or  
75 inform-result has been sent, the conversation ends.

76 Any interaction using this interaction protocol is identified by a globally unique, non-null conversation-id, assigned  
77 by the Initiator. The agents involved in the interaction must tag all of its ACL messages with this conversation identifier.  
78 This enables each agent to manage its communication strategies and activities, e.g. it allows an agent to identify  
79 individual conversations and to reason across historical records of conversations.  
80

81 **4.41.2 Exceptions to Interaction Protocol Flow**

82 At any point in the IP, the receiver of a communication can inform the sender that it did not understand what was  
83 communicated. This is accomplished by returning a not-understood communication. As such, the figure above  
84 does not depict a not-understood communication as it can occur after any communication. The communication of a  
85 not-understood within an interaction protocol may terminate the entire IP. Termination of the interaction may imply  
86 that any commitments made during the interaction are null and void.  
87

88 At any point in the IP, the initiator of the IP may cancel the interaction protocol by initiating the meta-protocol shown in  
89 Figure 2. The conversation-id of the cancel interaction is identical to the conversation-id of the interaction that the  
90 Initiator intends to cancel. The semantics of the cancel should roughly be interpreted as meaning that the initiator is no  
91 longer interested in continuing the interaction, and that it should be terminated in a manner acceptable to both the  
92 Initiator and the Participant. The Participant either informs the Initiator that the interaction is done using an inform-  
93 done, or indicates the failure of the cancellation using a failure.  
94

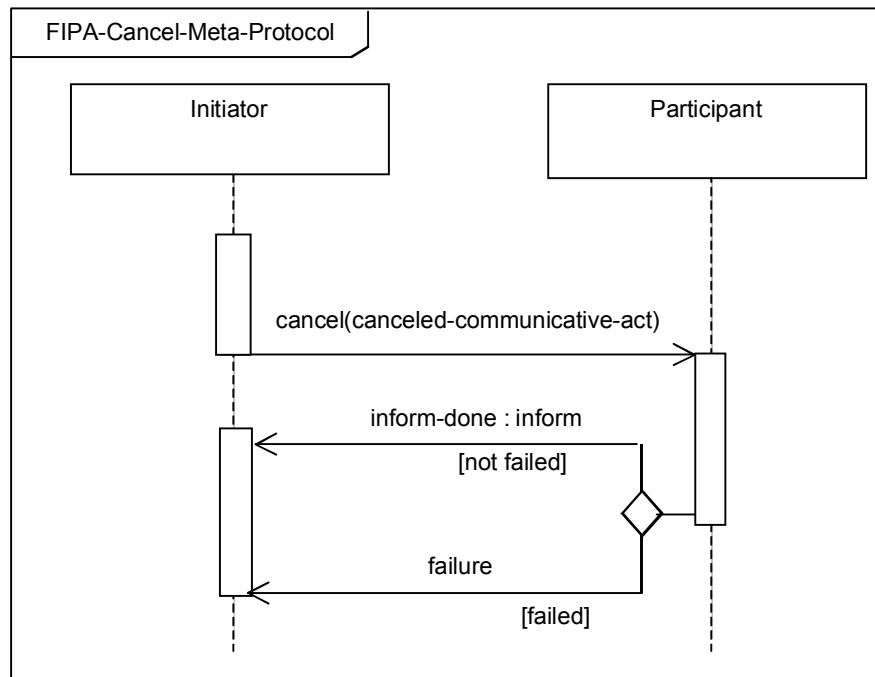


Figure 2: FIPA cancel meta-protocol

95 This IP is a pattern for a simple interaction type. Elaboration on this pattern will almost certainly be necessary in order  
96 to specify all cases that might occur in an actual agent interaction. Real world issues such as the effects of cancelling  
97 actions, asynchrony, abnormal or unexpected IP termination, nested IPs, and the like, are explicitly not addressed  
98 here.

99 This IP is a pattern for a simple interaction type. Elaboration on this pattern will almost certainly be necessary in order  
100 to specify all cases that might occur in an actual agent interaction. Real world issues of cancelling actions, asynchrony,  
101 abnormal or unexpected IP termination, nested IPs, and the like, are explicitly not addressed here.  
102  
103  
104  
105  
106

106 **2 References**

107 [FIPA00037] FIPA Communicative Act Library Specification. Foundation for Intelligent Physical Agents, 2000.  
108 <http://www.fipa.org/specs/fipa00037/>

109 [Odell2001] Odell, James, H. Van Dyke Parunak, and Bernhard Bauer. "Representing Agent Interaction Protocols  
110 in UML," *Agent-Oriented Software Engineering*, Paolo Ciancarini and Michael Wooldridge ed.,  
111 Springer, Berlin, 2001, pp. 121-140. <http://www.fipa.org/docs/input/f-in-00077>.

112

### 112 3 Informative Annex A — ChangeLog

#### 113 3.1 2002/05/10 - version G by FIPA Architecture Board

- 114 Page 1, figure 1: The communication labeled «inform-ref» was changed to «inform-result» for clarity. The
- 115 purpose of this communication is to inform the initiator of a results. Inform-result implies
- 116 inform-done.
- 117 Page 1, figure 1 : The not-understood communication was removed.
- 118 Page 1, Figure 1 : To conform to UML 2, the protocol name was placed in a boundary, « x » is removed from
- 119 the diamonds (xor is now the default), and the template box was removed.
- 120 Page 1, line 43 : Moved a portion of the section introduction to the new section 1.1.
- 121 Page 1, line 56 : Added a new section 1.1, entitled « Explanation of the Protocol Flow ».
- 122 Page 1, line 56 : Renumbered old section 1.1 to section 1.2. Added a paragraph explaining the not-
- 123 understood communication and its relationship with the IP.
- 124 Page x, line y: <blah>
- 125