

FOUNDATION FOR INTELLIGENT PHYSICAL AGENTS

FIPA Request When Interaction Protocol Specification

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37 represented many countries worldwide. Further information about FIPA as an organization, membership information,
38 FIPA specifications and upcoming meetings may be found on the FIPA Web site at <http://www.fipa.org/>.

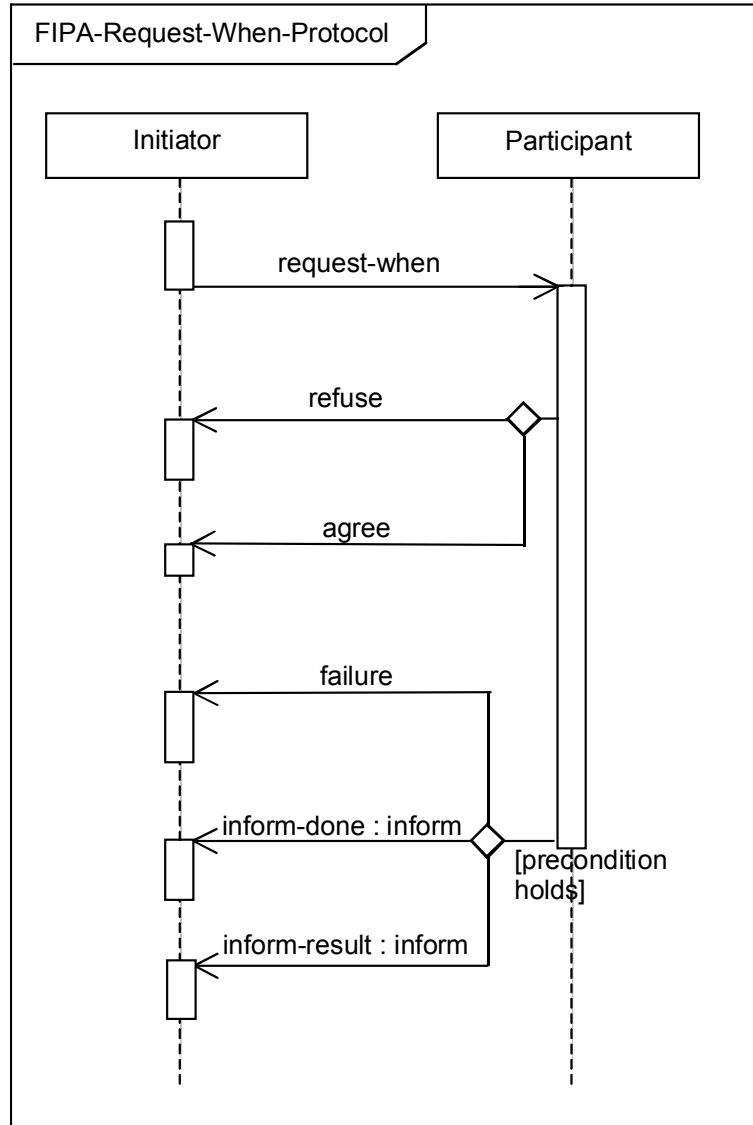
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47 1 FIPA Request When Interaction Protocol

48 The FIPA Request When Interaction Protocol (IP) allows an agent to request that the receiver perform some action at
49 the time a given precondition becomes true. This IP provides a framework for the `request-when` communicative act
50 (see [FIPA00037]).

51
52 The representation of this IP is given in *Figure 1* which is based on extensions to UML1.x. [Odell2001]. This protocol is
53 identified by the token `fipa-request-when` as the value of the `protocol` parameter of the ACL message.
54



55
56
57 **Figure 1:** FIPA Request When Interaction Protocol
58

59 1.1 Explanation of the Protocol Flow

60 The initiator uses the `request-when` action to request that the participant do some action once a given precondition
61 becomes true. If the requested agent understands the request and does not initially refuse, it will `agree` (see
62 [FIPA00037]) and wait until the precondition occurs. Then, it will attempt to perform the action and notify the requester
63 accordingly.
64

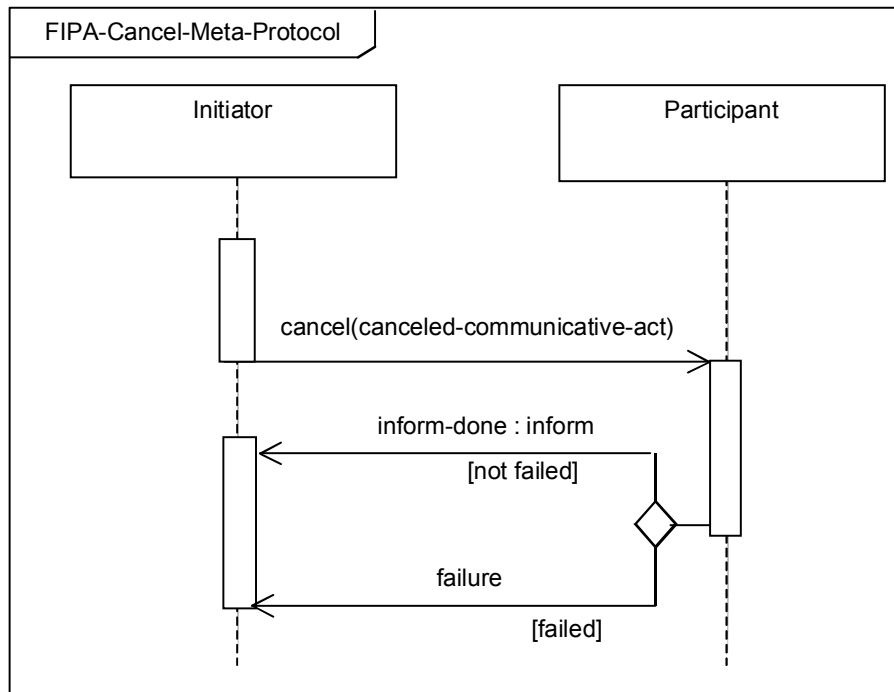
65 If after the initial agreement the participant is no longer able to perform the action, then it will send a failure action
66 (see [FIPA00037]) to the initiator. Once the action has completed and the failure, inform-done, or inform-
67 result has been sent, the conversation ends.
68

69 Any interaction using this interaction protocol is identified by a globally unique, non-null conversation-id parameter,
70 assigned by the Initiator. The agents involved in the interaction must tag all of its ACL messages with this conversation
71 identifier. This enables each agent to manage its communication strategies and activities, for example, it allows an
72 agent to identify individual conversations and to reason across historical records of conversations.
73

74 1.2 Exceptions to Interaction Protocol Flow

75 At any point in the IP, the receiver of a communication can inform the sender that it did not understand what was
76 communicated. This is accomplished by returning a not-understood message. As such, Figure 1 does not depict a
77 not-understood communication as it can occur at any point in the IP. The communication of a not-understood
78 within an interaction protocol may terminate the entire IP and termination of the interaction may imply that any
79 commitments made during the interaction are null and void.
80

81 At any point in the IP, the initiator of the IP may cancel the interaction protocol by initiating the meta-protocol shown in
82 Figure 2. The conversation-id parameter of the cancel interaction is identical to the conversation-id parameter
83 of the interaction that the Initiator intends to cancel. The semantics of cancel should roughly be interpreted as meaning
84 that the initiator is no longer interested in continuing the interaction and that it should be terminated in a manner
85 acceptable to both the Initiator and the Participant. The Participant either informs the Initiator that the interaction is done
86 using an inform-done or indicates the failure of the cancellation using a failure.
87



88 **Figure 2: FIPA Cancel Meta-Protocol**

89
90
91 This IP is a pattern for a simple interaction type. Elaboration on this pattern will almost certainly be necessary in order to
92 specify all cases that might occur in an actual agent interaction. Real world issues such as the effects of cancelling
93 actions, asynchrony, abnormal or unexpected IP termination, nested IPs, and the like, are explicitly not addressed here.
94

95 **2 References**

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

98 [Odell2001] Odell, James, Van Dyke Parunak, H. and Bauer, B., *Representing Agent Interaction Protocols in UML*.
99 In: Agent-Oriented Software Engineering, Ciancarini, P. and Wooldridge, M., Eds., Springer, pp. 121-
100 140, Berlin, 2001.
101 <http://www.fipa.org/docs/input/f-in-00077/>
102

103 3 Informative Annex A — ChangeLog

104 3.1 2002/11/01 - version G by TC X2S

- 105 Page 1, Figure 1: The communication labeled `inform-ref` was changed to `inform-result` for clarity; the
- 106 purpose of this communication is to inform the initiator of a result and `inform-result`
- 107 implies `inform-done`
- 108 Page 1, Figure 1: The `not-understood` communication was removed
- 109 Page 1, Figure 1: To conform to UML 2, the protocol name was placed in a boundary, `x` is removed from the
- 110 diamonds (`xor` is now the default) and the template box was removed
- 111 Page 1, line 42: Reworked and expanded the section description of the IP
- 112 Page 1, line 56: Added a new section on Explanation of Protocol Flow
- 113 Page 1, line 56: Reworked and expanded the section on Exceptions of Protocol Flow to incorporate a meta-
- 114 protocol for cancel
- 115 Page 1, line 56: Added a paragraph explaining the `not-understood` communication and its relationship with
- 116 the IP
- 117

118 3.2 2002/12/03 - version H by FIPA Architecture Board

- 119 Entire document: Promoted to Standard status
- 120