

FOUNDATION FOR INTELLIGENT PHYSICAL AGENTS

FIPA Propose Interaction Protocol Specification

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<http://www.fipa.org/>
Geneva, Switzerland

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1 FIPA Propose Interaction Protocol

The FIPA Propose Interaction Protocol (IP) allows an agent to propose to receiving agents that the initiator will do the actions described in the `propose` communicative act (see [FIPA00037]) when the receiving agent accepts the proposal.

The representation of this IP is given in *Figure 1* which is based on an extension of UML 1.x. [Odell2001]. This protocol is identified by the token `fipa-propose` as the value of the `protocol` parameter of the ACL message.

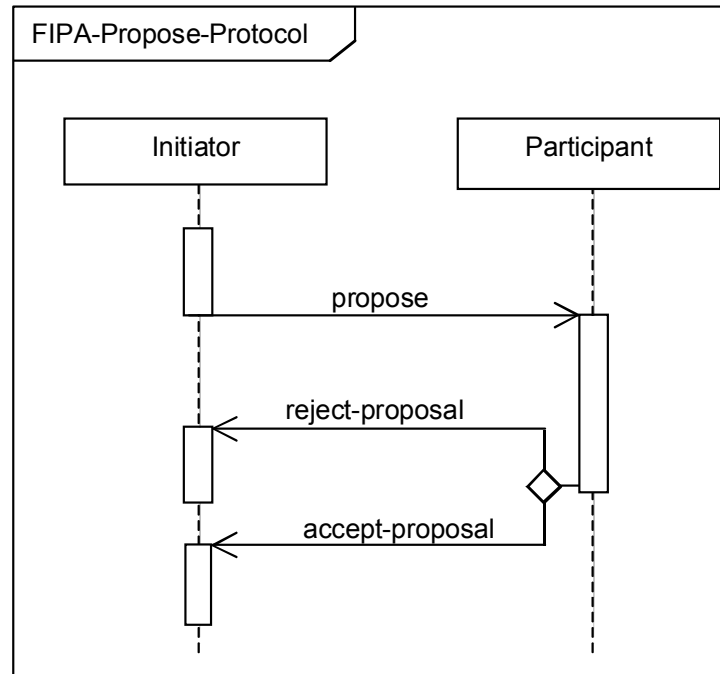


Figure 1: FIPA Propose Interaction Protocol

1.1 Explanation of the Interaction Protocol Flow

The Initiator sends a `propose` message to the Participant indicating that it will perform some action if the Participant agrees. The Participant responds by either accepting or rejecting the proposal, communicating this with the `accept-proposal` or `reject-proposal` communicative act, accordingly. Completion of this IP with an `accept-proposal` act (see [FIPA00037]) would typically be followed by the performance by the Initiator of the proposed action and then the return of a status response.

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

1.2 Exceptions to Interaction Protocol Flow

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

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

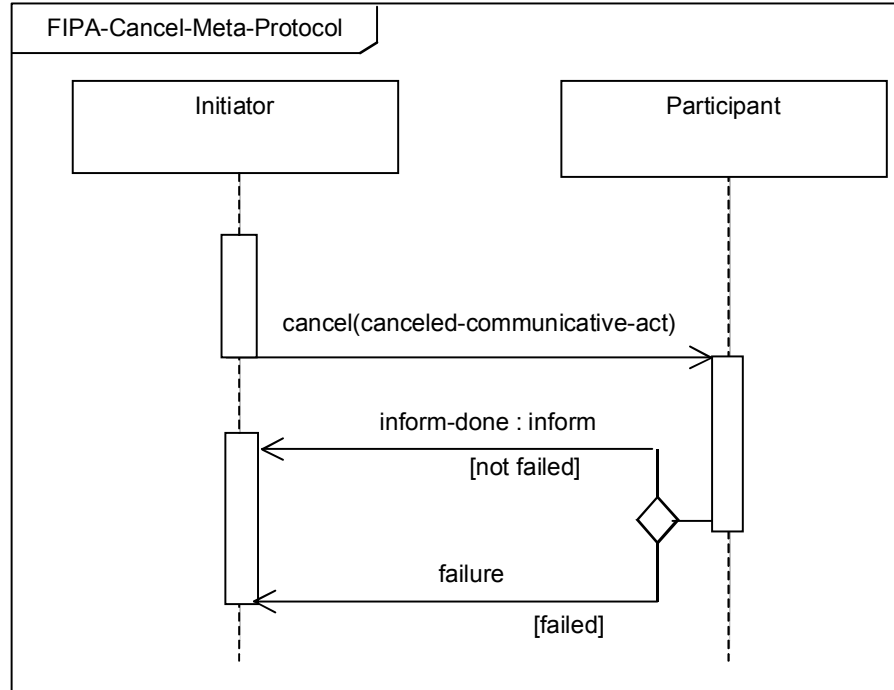


Figure 2: FIPA Cancel Meta-Protocol

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

2 References

- [FIPA00037] FIPA Communicative Act Library Specification. Foundation for Intelligent Physical Agents, 2000.
<http://www.fipa.org/specs/fipa00037/>
- [Odell2001] Odell, James, Van Dyke Parunak, H. and Bauer, B., *Representing Agent Interaction Protocols in UML*.
In: Agent-Oriented Software Engineering, Ciancarini, P. and Wooldridge, M., Eds., Springer, pp. 121-140, Berlin, 2001.
<http://www.fipa.org/docs/input/f-in-00077/>

3 Informative Annex A — ChangeLog

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

Page 1, Figure 1: The `not-understood` communication was removed
Page 1, line 42: Reworked and expanded the section description of the IP
Page 1, line 54: Added a new section on Explanation of Protocol Flow
Page 1, line 54: Reworked and expanded the section on Exceptions of Protocol Flow to incorporate a meta-protocol for cancel
Page 1, line 54: Added a paragraph explaining the `not-understood` communication and its relationship with the IP

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

Entire document: Promoted to Standard status