B

Descriptor Forms

This appendix contains each of the descriptors, with all their fields. Templates can be downloaded from http://www.cs.rmit.edu.au/agents/prometheus. The web site also contains printable versions, which are suitable for printing out and using in classes or workshops for paper-based design work. An alternative to using paper or electronic templates is to use the Prometheus Design Tool (PDT) that can be freely downloaded from http://www.cs.rmit.edu.au/agents/pdt.

Many of the fields in these forms are redundant with respect to the diagrams. For example, given the system overview diagram, one can determine for each agent what percepts it handles, what actions it performs, what messages it sends to other agents and which agents these messages are sent to and what external data it accesses. By using the Prometheus Design Tool, the contents of such fields can be automatically derived.
Goal Descriptor

Name:
Description:
Subgoals:

Functionality Descriptor

Name:
Description:
Triggers:
Actions:
Information Used:
Information Produced:
Goals:

Agent Descriptor

Name:
Description:
Cardinality: (min-max)
Lifetime:
Initialisation:
Demise:
Incoming and Outgoing Messages: For each indicate the source and destination,
e.g. acknowledge (AnAgent → AnotherAgent)
Internal Messages: For each indicate the source and destination,
e.g. CheckAvailability (MyPlan → MyCapability)
Percepts:
Actions:
Uses data:
Produces data:
Internal data:
Goals:
Functionalities:
Protocols:
Included plans:
Included capabilities:
**Capability Descriptor**

Name:
Description:
Goals:
Processes:
Protocols:
Incoming and Outgoing Messages: For each indicate the source and destination, e.g. acknowledge (ACapability → AnotherCapability)
Internal Messages: For each indicate the source and destination, e.g. CheckAvailability (MyPlan → MyCapability)
Percepts:
Actions:
Uses data:
Produces data:
Internal data:
Included plans:
Included capabilities:
Notes:

**Plan Descriptor**

Name:
Description:
Trigger:
Context:
Incoming and Outgoing Messages: For each indicate the source and destination, e.g. acknowledge (APlan\(_P\) → AgentX\(_a\)) message2 (APlan\(_P\) → AnotherPlan\(_P\))
Percepts:
Actions:
Uses data:
Produces data:
Goal:
Failure:
Failure Recovery:
Procedure:
Percept Descriptor
Name:
Description:
Information Carried:
Knowledge Updated:
Source:
Processing:
Agents responding:
Expected Frequency:

Action Descriptor
Name:
Description:
Parameters:
Duration:
Failure:
Partial Change:
Side Effects:

Message Descriptor
Name:
Description:
Distribution: List of Sender → Receiver pairs.
Purpose:
Carried Information:
Coverage & Overlap: A message is covered if there will always be at least one applicable plan to handle it; otherwise it is uncovered. A message has no overlap if there is always at most one applicable plan to handle it; otherwise it has overlap.

Data Descriptor
Name:
Description:
Data type:
Included fields/aspects:
Persistent: (yes/no)
External to system: (yes/no)
Produced by:
Used by:
Used when:
**Protocol Descriptor**

Name:

Description:

Included Messages: For each indicate the source and destination, e.g. request (AnAgent → AnotherAgent)

Scenarios:

Agents:

Notes:

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**Scenario Descriptor**

Name:

Description:

Trigger:

Steps: Type is one of ACTION, PERCEPT, GOAL, SCENARIO or OTHER

<table>
<thead>
<tr>
<th>#</th>
<th>Type</th>
<th>Name</th>
<th>Functionality</th>
<th>Description</th>
<th>Data produced</th>
<th>Data used</th>
</tr>
</thead>
</table>

Variations:

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**Process Descriptor**

Name:

Description:

Triggers:

Activities:

Messages: For each message type give the destination

Protocols:

Capabilities: