FIPA-OS Overview

http://fipa-os.sf.net
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FIPA-OS in a Nutshell

- A ‘reference implementation’ of the FIPA open standard for agent interoperability
  - Enables adoption of FIPA without the need to implement the specifications
- **Open Source. Royalty Free** for commercial use.
- Component-based toolkit enabling rapid development of FIPA compliant agents.
- Supports the majority of the FIPA Experimental specifications
- Continuously improved as a managed Open Source project
- Developed using sound software engineering principals, e.g.
  - Design Patterns
  - Coding standard
  - Software reuse
- Started in August 1999, 14+ formal releases to date (40,000+ downloads)
- Easy to use and extend
FIPA-OS & emorphia

- emorphia manage the Open Source project
  - Generate formal releases
- FIPA-OS is developed/tested by emorphia & a growing list of contributors
  - See http://fipa-os.sf.net/contributors.htm for details
  - Defined process for contributors
- emorphia employ the initial developers of FIPA-OS from Nortel Networks
FIPA-OS Features

- API available for JDK1.1 and JDK1.2 (100% pure Java)
- Agent deployment for small footprint devices and PCs
- Integration with commercial database & messaging solutions
- Integration with JESS
- Suite of developer tools:
  - Automatic installer
  - Configuration Wizard
  - Agent Loader (manage start-up/shutdown of agents)
  - MessageSpy (provides graphical representation of messages exchanged)
  - IOTestAgent (manual debug tool for agent comms)
  - Task generator (reduces coding required)
  - DF GUI (visualises registered agents)
- Comprehensive documentation, including:
  - Developer’s Guide
  - Range of Tutorials
- Runtime FIPA platform, including AMS & DF
Who is using FIPA-OS?

- Numerous European projects, including:
  - CRUMPET
  - SHUFFLE
  - PATTERNS
  - NGNi - SMONET
  - AgentCities
- Commercial organisations, including:
  - MITRE
  - Jefferson labs
  - Fiat
  - emorphia
- Universities around the world, including:
  - University of Helsinki
  - University of Saskatchewan
  - University of Ottawa
  - Carleton University
  - Nottingham Trent, UK
  - QM-UL, UK
  - Czech Technical University
  - Universidad Complutense de Madrid
  - Informatics Institute of Computer Studies
  - Saarland University
  - University of York
How to use FIPA-OS

1. Download from fipa-os.sf.net
2. Run the Installer
3. Use Task Generator tool to produce skeleton tasks
   - All agents extend the AgentShell through the implementation of Tasks
4. Complete the domain specific tasks (Java coding)
5. Run & test your agent system with the Agent Loader
Developing agents & services

- Specify the agent architecture, agent organisation & roles
- Specify service Interface & Implementation
- Handle, parse & transmit ACL messages
- Set transport encoding, content languages
- Support mandatory services: Naming, directory, transport
- Interlink agent platforms and services
FIPA-OS Conversation Manager
FIPA-OS: Task Manager

- Separates agent ‘tasks’ into distinct objects
- Messages are automatically routed to the correct state
- Inter-task events are possible
FIPA-OS Summary

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• **Open Source. Royalty Free** for commercial use.

• supports the majority of the FIPA Experimental specifications

• Started in August 1999, 14+ formal releases to date (40,000+ downloads)

• Easy to use and extend

Downloads & documentation available from:
  [http://fipa-os.sf.net](http://fipa-os.sf.net)
Backup
High Level Architecture of FIPA-OS Agent Shell

- Agent Implementation
  - JESS Agent Shell
  - Agent Shell
  - Task Manager
  - Conversation Manager
  - Message Transport Service
  - Message Transport Protocols

KEY
- Mandatory Component
- Switchable Implementation
- Optional Component
FIPA-OS Tools

- IOTestAgent
- FIPA-OS
- DFGUI
- Agent Loader
- Task Generator
- Message Spy

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Configuration Wizard

Stand-alone for simple development

Distributed platform for serious development
Starting Up

• By starting the Agent Loader, the platform agents (DF, AMS) will start up
• New agents can be started by selecting them in the right list, and clicking “Start”
• Unlisted agents can be started by selecting “Start other…”

• Exercise
  – Install and Configure FIPA-OS using the Wizard for a ‘stand alone platform’
  – Install the Tutorial agents
  – Start-up the platform using the AgentLoader (StartFIPA-OS)