

# AgentBuilder®

## An Integrated Toolkit for Constructing Intelligent Software Agents

AgentBuilder is an integrated software toolkit that allows software developers to quickly and easily develop intelligent software agents and agent-based applications. AgentBuilder reduces development time and cost and simplifies the development of high-performance, robust agent-based systems.

### What Is An Intelligent Agent?

An intelligent software agent is a powerful software abstraction that significantly simplifies the process of building complex software systems. Intelligent agents can: find and filter information, negotiate for services, easily automate complex tasks, and communicate and collaborate with other software agents to solve complex problems

### AgentBuilder Features

- Makes it easy to create intelligent software agents
- Requires no special expertise in intelligent agent technology or network communications
- Constructs agents with built-in capabilities for autonomous operation, monitoring their environments, reasoning, and communicating with other agents and users
- Provides a suite of graphical programming tools for specifying agent behavior and operation
- Utilizes a high-level, agent-oriented programming language. Programming is accomplished by specifying intuitive concepts such as beliefs, commitments and actions
- Provides tools for analyzing the problem domain
- Provides tools for defining agencies - collections of intelligent agents and their interactions
- Provides tools for testing and debugging agents and agencies
- Is a Java-based, cross-platform toolkit for creating cross-platform, agent-based applications. Creates agents that are Java programs
- Supports easy integration and use of existing software libraries (Java, C and C++)
- Built-in KQML Agent Communication Language (ACL)
- Supports CORBA and IIOP protocols
- Supports TCP/IP sockets

### Intelligent Agent Applications

Software developers are building larger and more complex software applications. New systems must link multiple organizations and multiple application platforms into a unified information management system that uses the World Wide Web and distributed object technologies. Agent-based applications include Internet information location and retrieval, electronic commerce, office automation, telecommunications and enterprise-wide network applications.

Developing these highly sophisticated applications requires powerful new methods for conceptualizing and implementing software systems. Intelligent software agents provide a powerful problem-solving paradigm that is well-suited to developing these complex enterprise applications.

### AgentBuilder Development Tools

AgentBuilder provides graphical tools to support all phases of the agent construction process. Programming software agents (sometimes called Agent-Oriented Programming) is accomplished by specifying intuitive concepts such as the beliefs, commitments, and actions of the agent.

AgentBuilder provides a comprehensive set of tools for programming software agents. These include: organization and control of the development project, problem domain analysis, agency architecture definition, agent role assignment, agent communications protocol development, agent behavior specification, creation of run-time executable agents, and viewing and debugging of agents.

### Project Accessory Classes (PACs)

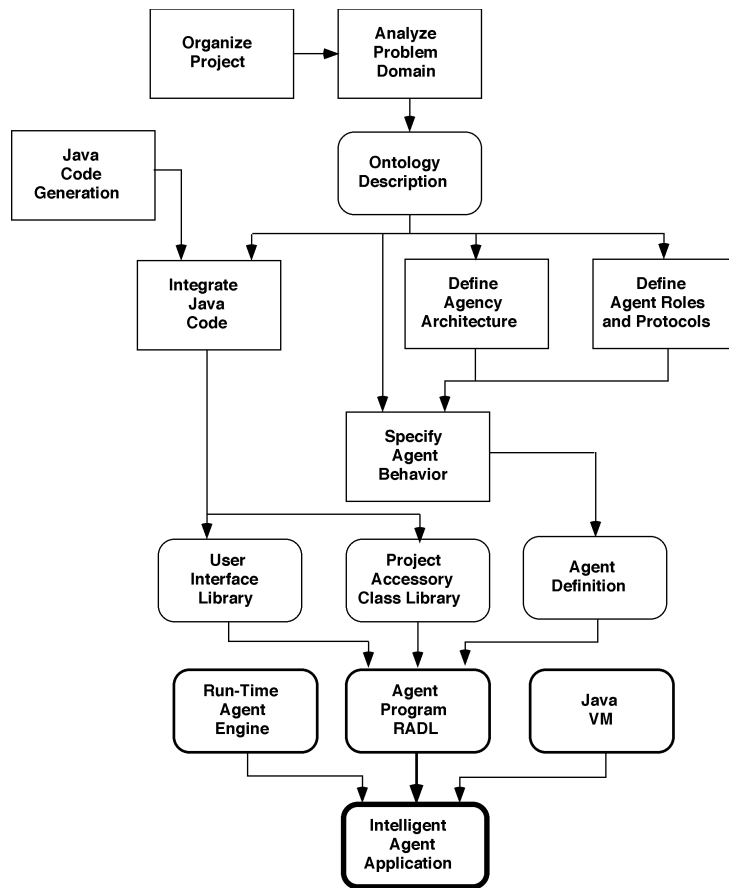
Project Accessory Class (PAC) Libraries contain the problem-specific code that each agent requires for its operation. For example, a database agent might have a PAC for performing SQL queries. PACs can be made up of classes and packages from a variety of sources including legacy and off-the-shelf software. PACs can be coded in Java, C or C++. PACs currently available for use with AgentBuilder include FTP access, NNTP access and basic email functions.

AgentBuilder makes it easy to add a graphical user interface to an agent or an agent-enabled application. Class libraries are provided that support development of user interfaces and user interface agents.

### Run-Time System

The run-time system consists of the agent program and the run-time agent engine (included with AgentBuilder). The agent program is a combination of the agent definition and the private action library (i.e. agent actions and user interface libraries). The agent program is executed by AgentBuilder's run-time agent engine. The combination of the agent program and the agent engine create an executable agent.





**Agent Construction Process**

### System Requirements

AgentBuilder is coded in Java and produces Java-based agents. AgentBuilder is distributed with the latest JRE (Java Runtime Environment) for each supported platform. Both the AgentBuilder toolkit and the run-time system execute on the Java Virtual Machine (VM) included with the JRE.

AgentBuilder distributions are available for the following platforms:

- Microsoft Windows NT/2000/XP
- LINUX
- Sun Solaris

Moreover, AgentBuilder will run on any platform with a Java Virtual Machine.

Minimum AgentBuilder development environment requirements are a 266 MHz Pentium-class machine with 128 MB of RAM. The run-time engines are lightweight processes requiring less than 300K bytes of RAM

### AgentBuilder Product Family

AgentBuilder is available in two different versions to meet a wide variety of developer needs. These versions are AgentBuilder Lite and AgentBuilder Pro. Academic versions of both Lite and Pro are available for students and faculty at accredited universities.

#### AgentBuilder Lite

AgentBuilder Lite is the entry-level product for agent software developers. It provides tools for constructing single-agent stand-alone applications and small agencies of agents. AgentBuilder Lite provides:

- Project control tools including a Project Manager for process management
- Ontology tools including concept mapping and object modeling tools
- Agent manager tools for creating agent programs using an Agent Definition Language (ADL)
- Agent debugger with capability to debug a single agent
- Run-time engine
- Sample PACs available for download
- Support via email or by telephone

#### AgentBuilder Pro

AgentBuilder Pro is the ideal tool for developers building multi-agent applications. AgentBuilder Pro includes all of the tools in AgentBuilder Lite plus:

- Agency manager provides tools for creating and managing multiple software agents
- Agency viewer tools allow real-time examination of remote agent operation
- Role editor defines roles for agents
- Protocol editors specify inter-agent conversations
- Agency debugging support
- Support for integrating a variety of learning and planning modules

#### AgentBuilder Product Family

##### Lite

Ideal for building single-agent, stand-alone applications and small agencies

##### Pro

Provides additional graphical tools for building, debugging and monitoring multi-agent systems.



#### For More information Contact:

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