



*Mission Oriented Architectural
Legacy Evolution*



*Self-Improving Reflective
Reasoner Integrating
Noteworthy Experience*

Program Description

SIRRINE is a tool for describing software systems capable of reasoning about their own behavior and performance. By describing systems in this way, it supports complex learning of new or improved capabilities. A system which understands what it does and how it works can potentially alter itself. A variety of applications of such a tool are apparent. Two such applications we have focused on are:

- Intelligent agents capable of adapting to new functional requirements.
- Relatively simple self-aware "mock-ups" of existing software systems. If one views these mock-ups as architectural descriptions of the legacy system, then learning done by the SIRRINE tool serves as a plan for evolutionary redesign of the legacy system.

Program Features

SIRRINE treats learning as a design task: a reasoner is viewed as an abstract device, and the learning process involves redesign of the device. Some of the advantages of this approach include:

- Learning is situated within the context of reasoning;
- Reasoning goals drive the strategies and methods used for learning;
- There is a large body of research in the area of the design of physical devices that can be transferred into the design of automated reasoning systems;
- Reasoning is formulated as the combination and interaction of different components, i.e. primitive building blocks of cognition which occur in a wide variety of different strategies for different problems.

MORALE

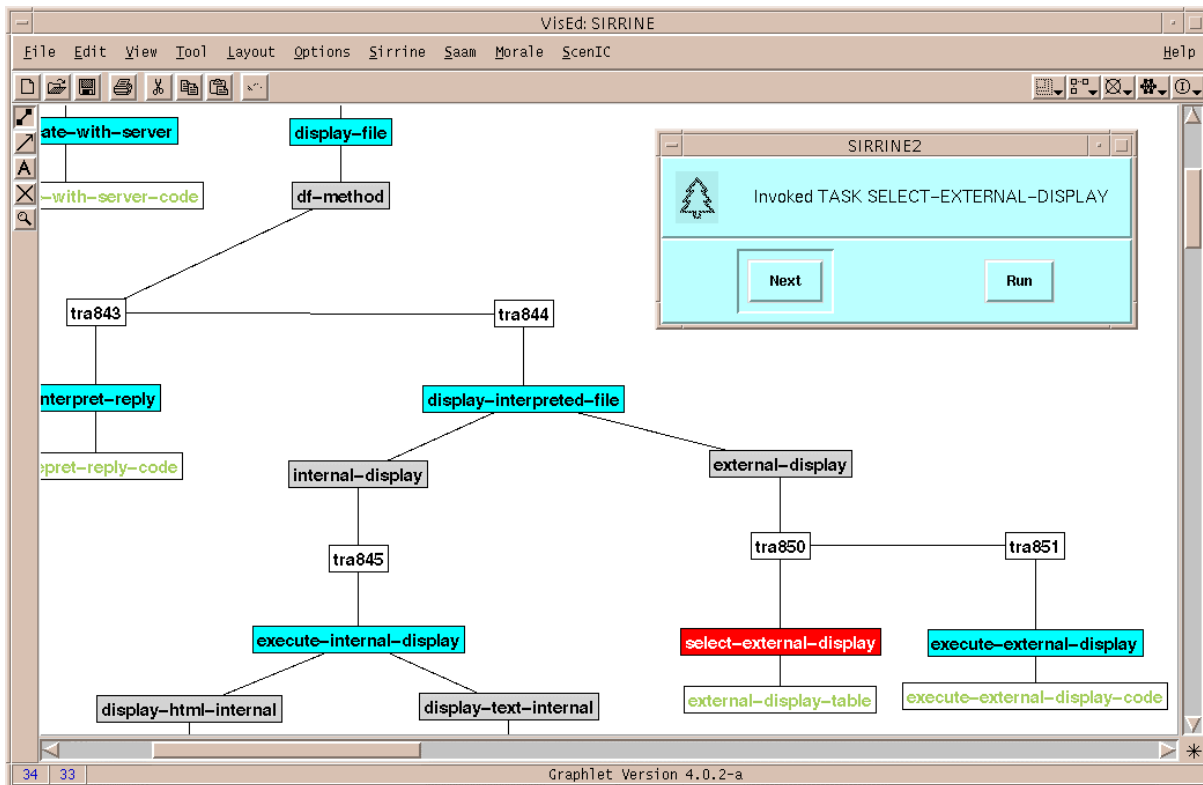
SIRRINE supports the Mission Oriented Architectural Legacy Evolution (MORALE) reengineering process. The goal of the MORALE project is to facilitate the evolution of legacy software systems. Facilitation takes the form of improved quality by requirements validation, reduced risk via architectural evaluation and assessment, and increased productivity from maintenance and access to design rationale and from high level reuse of architectural components.



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SIRRINE Sample Screen

The screen shot below shows SIRRINE browsing a model of the Mosaic web browser. The portion of the model under analysis includes the most abstract levels of the process of displaying a file after it has been retrieved from a server. The general method of displaying a file is divided into two tasks: interpreting the reply (using MIME) and then displaying the interpreted file given the interpretation (a MIME type, such as HTML or postscript). The display of a file may, in turn, be accomplished by two different methods. The internal display method is applicable to those MIME types for which Mosaic is able to directly display (e.g., HTML, text). The external display method is applicable to MIME types for which Mosaic must, instead, use an external browser (such as Ghostview) to display. The SIRRINE window shown allows the user to statically examine the model and display the dynamics of the system as it steps through the model one element at a time during an execution.



Availability

The current version of SIRRINE is SIRRINE2, Beta 0.5. This version is available for downloading at <http://www.cc.gatech.edu/morale/tools/sirriner/>.

System Requirements

SIRRINE2 consists of a set of core features plus optional packages to interface with VisEd and ACME Server. The core features run under both SunOS 4.1 and Solaris. The optional interface packages only run on Solaris. SIRRINE2 requires Harlequin LispWorks 3.2.2 or later and Tcl/Tk 8.0 or later. The optional interface features also require Expect 5.26 or later.

Contact Information

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