



## Automatic Code Synchronization

### Features:

- ✓ **Automatic synchronization** of design and code.
- ✓ **Works in the background**, without user direction.
- ✓ **Incremental generator**, avoids needless recompilation.
- ✓ **Flexible and configurable**, template-based technology.
- ✓ **Fast code generation**, runs as a DLL.

Use ARTiSAN Studio to automatically generate and synchronize your source code and model with its new 'Automatic Code Synchronization' (ACS) technology, known as Shadow. It fits perfectly into a Model-Driven Development (MDD) process, working in the background, ensuring your code and models are always synchronized

This enterprising approach removes the need for a separate code generation or resynchronization phase. You don't have to worry about the model becoming out-of-step with the design; drift is prevented because synchronization is instantaneous and automatic. You don't have to configure your code separately since it is contained within the model and can be regenerated at any time.

ACS also acts as a mentor, instilling a mastery of the mapping between design and code. It helps you to understand that the model and code are just two views of the same artifact. When you change the design in the model, the corresponding change will be reflected in the code. You can use your 'best of breed' ARTiSAN Studio to architect the system design, while using your 'best of breed' Integrated Development Environment (IDE) to edit the code. You can have the best of both worlds.

### B E N E F I T S

#### Dramatically reduces time-to-market

No need for a separate coding or resync phase. The model and code are two views of the same project. This increases predictability and reduces your time-to-market.

#### Production source code is always available

Generated code is available very early in the project and can be checked against your real target compiler and in-house coding standards.

#### Learn UML faster and more effectively

Shadow acts as a mentor to UML. Every change is promptly reflected in generated code, enabling you to immediately see the consequences of your modeling decisions.

#### Tune your existing language templates

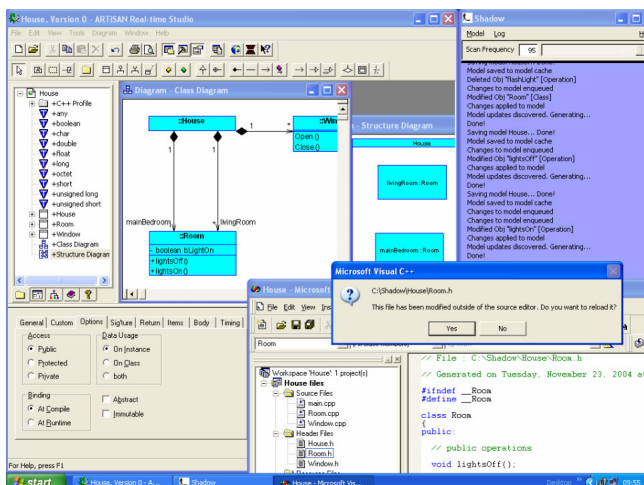
Works with ARTiSAN's existing language templates including user-customized templates. Enables you to interactively validate template changes, as you make them.

#### Works in harmony with existing technology

Existing RtS reverse engineering synchronizers can still be used, for example, to selectively resynchronize with code that has been worked on outside of RtS.

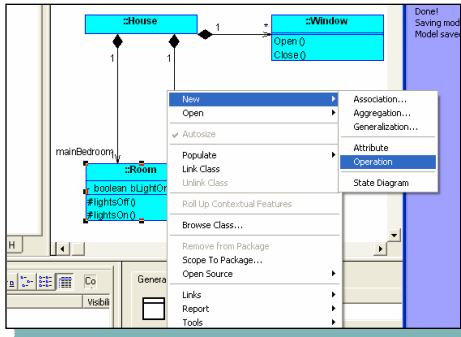
#### Reduce risk and retain your preferred IDE

Continue working in your favorite IDE, retaining the context and language-sensitive features to which you're accustomed. 'Best of breed' for both code and design.



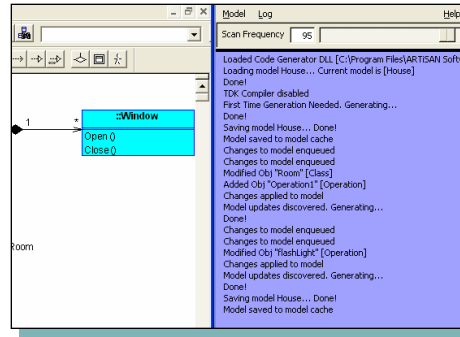
ACS works in the background, keeping the design and model continuously synchronized.

### 1. Architect your design using ARTiSAN Studio.



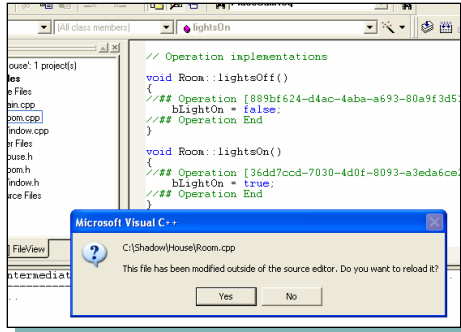
- ✓ Architect your design in UML.
- ✓ Use Studio's rich model navigation and metamodel checking.

### 2. Model changes are automatically detected...



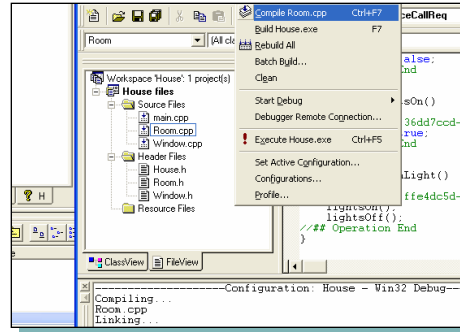
- ✓ Changes trigger the incremental generator to assess if code changes are required.
- ✓ Only regenerates code if it needs to, avoiding needless recompilation.

### 3. ... code is regenerated from the model.



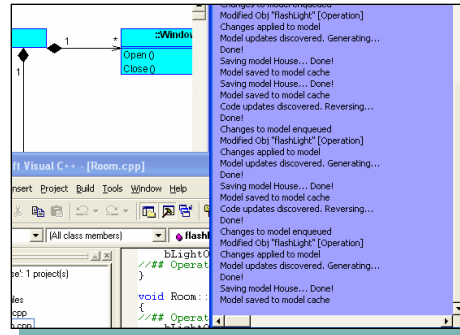
- ✓ Executes in memory, generating the code in the CPU idle time.
- ✓ Acts as a mentor, enabling quick mastery the UML to code mapping.

### 4. Edit code in your preferred IDE/code editor.



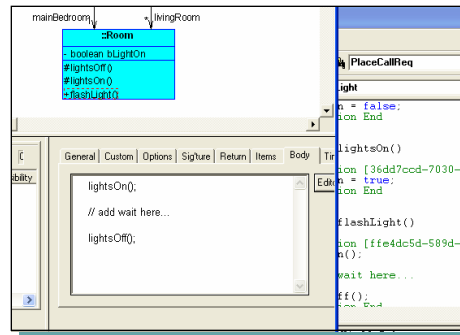
- ✓ Retain the syntax and semantic checking of your favorite IDE.
- ✓ Code is available for validation by a compiler or static code checker.

### 5. Code changes are automatically detected...



- ✓ Code changes are reversed each time a source code file is saved.
- ✓ It takes care of synchronization for you.
- ✓ Easy to learn and deploy.

### 6. ... code is round-tripped into the model.



- ✓ Model is always up-to-date and consistent with the code.
- ✓ Best of both worlds. A true model-driven paradigm, with complete flexibility at code level.

#### Other features:

- ✓ Use with existing synchronizers, for example, to diverge code and design and resync later.
- ✓ Runs as an executable (DLL), rather than as an interpreter, hence it's fast.
- ✓ Works with existing C, C++, Ada, Spark Ada and Java templates (with minor modifications).
- ✓ Works on both new and existing projects.
- ✓ The template development kit (TDK) turns user-customized templates into the DLL that it used to fast generate the code.

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#### About ARTiSAN Software Tools

ARTiSAN is the leading supplier of collaborative modeling tools for requirements analysis, specification, design and development of complex applications. The company provides standards-based, multi-user tool support from architectural frameworks through systems design to software implementation. ARTiSAN offers products, services and a process for systems and software modeling to accelerate the development of next-generation real-time systems while ensuring that they always meet requirements. ARTiSAN enables engineering teams to visualize, design and validate systems before building them, and simplifies implementation with code generation and software reuse Winner of the 2005 SD Times 100 award in the Modeling category for bringing UML and SysML to real-time embedded systems, ARTiSAN offers the most advanced tools for complex applications development.