



## Ada Synchronizer for ARTiSAN Real-time Studio®

ARTiSAN's Ada Synchronizer supports code generation, reverse engineering and structural comparison between UML class models developed with Real-time Studio Professional and Ada source code.

The Ada Synchronizer, which supports Ada 95, SPARK 95, Ada 83 and SPARK 83, is an additional component in Real-time Studio, ARTiSAN's suite of development tools.

With Geodetic\_Point;  
With Aircraft;

```

Package Waypoint is
  Type access_Geodetic_point is
    access Geodetic_Point.Object;
  Type Object is private;
  procedure add_point(
    Self : out Object;
    Point : in Geodetic_Point.Object);
private
  Type Object is
  record
    Point: access_Geodetic_point;
    Owner: String(
      Aircraft.Display_Size );
  end record;
end Waypoint;
    
```

### BENEFITS

#### Robust solution

Ada is finding increasing use beyond traditional military applications and is becoming a language of choice for high reliability applications in the transportation, energy, telecommunications and medical industries.

ARTiSAN is well known for the strength of its UML-based systems and software engineering support for large teams developing mission critical applications. These

teams are replacing older design methodologies with UML in many cases while maintaining their commitment to the Ada language. ARTiSAN's Ada Synchronizer automates the implementation of design models in Ada.

#### Mapping UML to Ada

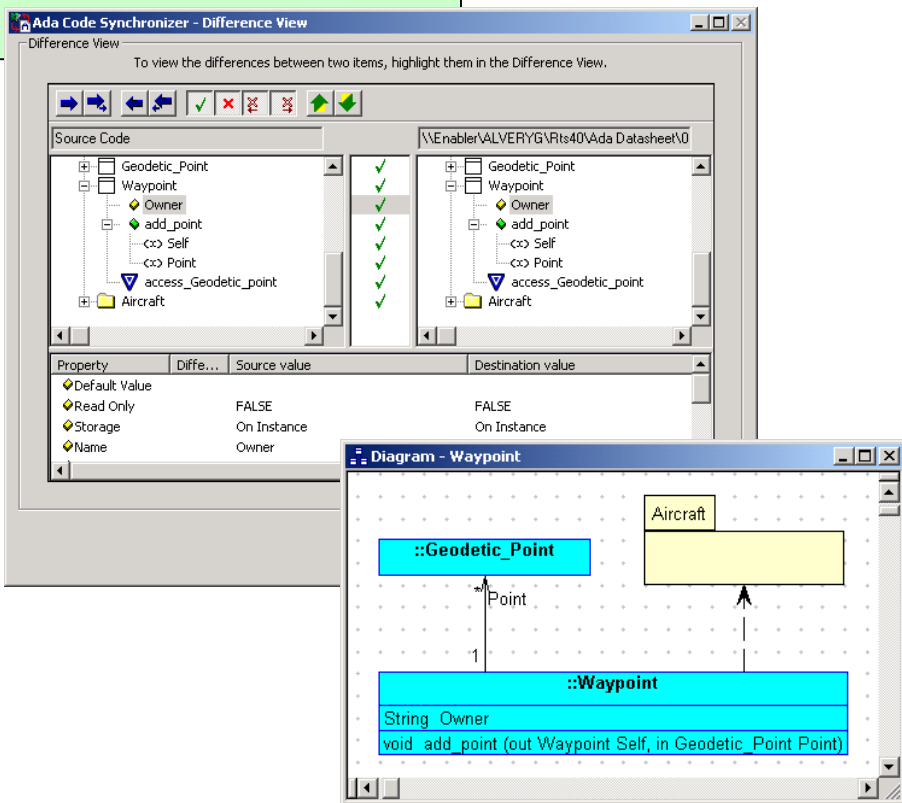
Real-time Studio is uniquely designed to allow easy modification of the code synchronizer's mapping between design artifacts and code, providing the critical flexibility required to tune the code generation strategy to company or project specific needs.

Templates for both SPARK and Ada variants can be used as delivered or tailored to control how specific UML constructs are mapped to Ada source. The Ada synchronizer also recognizes stereotypes and uses them in the model for further customization.

Sensible namespace handling is essential to allow a natural translation of UML designs to well scoped Ada packages, avoiding naming conflicts that can compromise models. The user can choose whether an Ada package is represented as a UML Class or Package.

#### Synchronization

The Ada Synchronizer manages the model to code relationship through forward generation, reverse engineering and structural comparison. This helps to maintain consistency between the model and the code, whether the project starts from a new design or is re-structuring legacy code.



## Additional ARTiSAN Products

- ARTiSAN Real-time Studio Professional
- Tasc: Estimator – ARTiSAN RtS edition
- ARTiSAN RtS EXITE® Integration
- PVCS/Dimensions Interface for ARTiSAN RtS

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## FEATURES

### Round-trip Engineering

The round-trip approach allows users to maintain models that accurately reflect their code, including the relationships to library packages. This way, the model accurately documents the source code in its environment. The approach also eases the maintenance of legacy code, including the common situation in which only parts of the application need to be re-developed.

The synchronizer offers a structural comparison view that allows complete or partial re-generation and reverse engineering of Ada. Working from the comparison view ensures that the user is presented with a full picture when implementing changes.

### SPARK and Ada support

Both the SPARK® and Ada languages are widely used in safety related applications. Praxis has audited Real-time Studio's SPARK support.

#### Multi-template support –

Templates are provided to support various language versions:

- Ada 95
- SPARK 95
- Ada 83
- SPARK 83

**Compiler support** – The generated Ada code will compile with any ISO standard compiler, and we have tested our language templates with the DDC-I, Irvine and GNAT compilers.

### ARTiSAN Real-time Studio Professional

ARTiSAN Real-time Studio is a multi-user suite of development tools developed around the UML standard.

Using Real-time Studio products, design teams can capture software and system design, automate these captured designs, and integrate them into a complete process, without disrupting existing development environments.

Real-time Studio Professional coordinates team efforts to quickly define, design, and document efficient real-time systems that meet requirements and are highly maintainable. Consisting of UML-based modeling with numerous real-time extensions, Professional enables your team to quickly agree on system functional requirements and system and software architectures — before implementation — resulting in far less re-work and debugging, improved schedule predictability, and reusable software components for future projects.

In addition, Professional allows you to validate system and software behavior by animating sequence diagrams, simulating state models, and integrating graphic panel displays from Altia®. Professional's powerful synchronizers enable software engineers to generate and reverse engineer C, C++, and Java code, keeping source consistent with the design model. ARTiSAN's DOORS Synchronizer and RTM Integration extends bi-directional traceability from original requirements through design and code.

Real-time Studio Professional enables your team to correct design problems before the system is built, uses your design to automatically maintain the code, and provides superior project control.



[www.artisansw.com](http://www.artisansw.com)

## About ARTiSAN Software Tools

*ARTiSAN Software Tools provides electronic product development teams with the "fastest path to the right product." The company 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 meet requirements. ARTiSAN enables engineering teams to visualize, design and validate systems before building them, and simplifies implementation with code generation and software reuse. ARTiSAN is a practical partner offering easy-to-adopt, down-to-earth solutions. ARTiSAN Software Tools Inc., founded in March 1997, is privately held with headquarters in Portland, Oregon and Cheltenham, UK. The company has regional offices and distributors throughout the world.*

SPARK is a language developed by Praxis Critical Systems ([www.praxis-cs.co.uk](http://www.praxis-cs.co.uk)) for development of software where correct operation is vital either for reasons of safety or business integrity. ARTiSAN offers templates that restrict themselves to generating constructs in SPARK from suitable UML models, as well as full Ada.