



**PathMATE**

**Model Automation & Transformation  
Environment for Embedded Systems**



**Pathfinder**  
*Solutions*

**Put MDA to Work**

## Transforming Embedded Software Development with MDA®



*“Compared to MDA development,  
manual-coding is like talking  
and having to spell every word.  
It’s painful, slow and distracts  
from the real content.”*

*Lead Analyst  
Factory Control  
Solution Provider*

Thousands of development organizations rely on UML to capture detailed application specifications and improve understanding of system architecture and function team-wide. Recently, the OMG® created the Model Driven Architecture framework (MDA®), which takes UML to a new level and is revolutionizing the way embedded software teams produce solutions.

Pathfinder Solution’s PathMATE is an MDA environment used to execute and test platform-independent UML models (PIMs) and automatically transform them into platform-specific C, C++, or Java applications, which are highly optimized for resource-constrained and high-performance embedded environments. Embedded software teams using PathMATE have documented dramatic benefits:

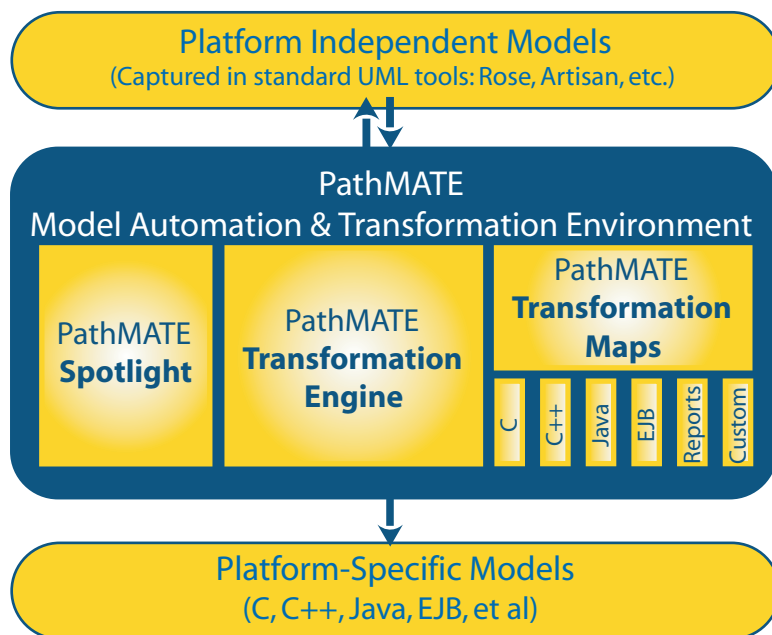
- 30% faster development
- 90% fewer software defects reported
- Lower development & test hardware costs
- Large-scale software reuse
- Faster response to changing requirements
- C, C++ & Java coded consistently across the organization
- Automatic architectural evolution and platform migration

Companies who have achieved benefits like these using PathMATE include:

- Canon
- Ricoh
- Raytheon
- Textron
- Boeing
- General Motors
- E.F. Johnson
- Cytyc
- Abbott Labs
- And many others

## The PathMATE Solution

PathMATE Model Automation and Transformation Environment from Pathfinder Solutions is a comprehensive MDA tool suite, integrating best-of-breed MDA automation & transformation technology with leading UML editors such as Rational Rose and Artisan Real-time Studio®.



Leading embedded software developers have made PathMATE their MDA solution of choice because of its unique abilities:

- **Architectural control**—transform models into different application architectures with the “flip of a switch”
- **Customizable Transformation Maps**—easily extend PathMATE transformation templates with project-specific code optimizations, patterns and standards
- **Separation of model and code**—PathMATE models are implementation code-free, maximizing deployment flexibility and migration options
- **Configurable model-level testing**—get high-fidelity test results, whether you execute models on development or deployment platforms
- **Value Preservation**—PathMATE preserves your existing UML investment by integrating with your current UML editor
- **Speed**—component-focused transformations take just seconds, enabling highly iterative model development, transformation and test cycles

### Transformation Engine

The Engine plugs into major UML editing tools and rapidly transforms platform independent MDA models (PIMs) into high-performance embedded software applications.

### Transformation Maps

Ready-to-use, customizable code templates which drive the Engine’s transformation of PIMs into system documentation or consistently implemented, high-performance embedded C, C++ or Java software running on a variety of platforms.

### Spotlight

Spotlight is the most advanced model-level testing solution available. You verify and debug applications at the model level—during the design phase, which speeds development and increases quality.

*“PathMATE cut defect reports by 90% and virtually eliminated the time we used to spend integration testing; it’s given us a tremendous productivity and quality advantage.”*

*Project Leader  
Defense Systems Developer*

## Thought Leadership & Proven Technology



*“No one in-house provides more expert guidance than Pathfinder Solutions when it comes to OO tools & methodologies.”*

*Tech Lead  
Testing & Interconnection  
Solutions Provider*

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Pathfinder Solutions and PathMATE have been instrumental in the successful implementation of the model-driven approach in a variety of industries and applications:

#### DEFENSE & AVIONICS

- Satellite communications
- Radar & surveillance

#### MEDICAL INSTRUMENTATION

- Sample testing & analysis
- Assay equipment
- X-Ray analytics

#### AUTOMOTIVE

- Device control

#### MANUFACTURING

- Factory process control systems
- Test equipment

#### TELECOMMUNICATIONS

- Network switching
- Cellular telephone products

#### CONSUMER ELECTRONICS

- Office automation equipment
- Interactive television

PathMATE is proven technology based on state-of-the-art research in test automation, executable analysis modeling and high-performance template-based model transformation. Pathfinder Solutions is an OMG Platform Member and continues to help lead the evolution of MDA standards and technology.

### **Ensuring Success with PathMATE MDA Mentor Services**

MDA is a fundamental shift from code-focused programming to architecture focused embedded software engineering. To ensure fast, maximum return on your MDA investment and to mitigate key technology risks, you need guidance from experts with extensive experience in the field. Whether you're new to UML and MDA or you're pushing the MDA envelope, PathMATE MDA Mentor Services can equip you with time-proven methodologies, training, consulting and technical support.

### **Next Steps**

If you would like to learn more about MDA and PathMATE or to find out if Pathfinder Solutions has helped an organization like yours benefit from MDA, please contact us or visit [www.PathfinderMDA.com](http://www.PathfinderMDA.com) to access white papers, see demos or to request product evaluations—we look forward to working with you.