Tutorial Form

Title	*Real-Time Java for Ada Programmers*
Presenter	Ben Brosgol
Contact name	Ben Brosgol
Contact address	Ada Core Technologies; 79 Tobey Road; Belmont, Mass. 02478; USA
Contact phone	+1-617-489-4027
Contact fax	+1-617-489-4009
Contact email	brosgol@gnat.com
Requested level	Intermediate
Background	Audience should be familiar with Ada 95 and have a basic knowledge of Java

Abstract

Although the term "real-time Java" may sound self-contradictory, serious technical activity has been underway since early 1999 on extending the Java platform to satisfy the requirements for real-time systems, and several implementations exist. This work is relevant to the Ada community as both a challenge and an opportunity: on the one hand, it may compete with Ada in the real-time marketplace, but on the other hand some of its ideas may be worthy of consideration in a future version of the Ada language.

This tutorial will focus on the Real-Time Specification for Java ("RTSJ"), which was developed by the Real-Time for Java Expert Group under the auspices of Sun Microsystems' Java Community Process. The tutorial will analyze/critique the Java platform with respect to real-time support, summarize/illustrate the main elements of the RTSJ, and compare/contrast the design with Ada's real-time features (both in Ada 95 and under consideration for Ada 05). The tutorial will also outline the main aspects of the J-Consortium's "Core Extensions" (a competing real-time Java approach), will summarize a proposed high-integrity profile for the RTSJ, and will provide a status update on the real-time Java work and its usage and prospects.

Presenter summary

Dr. Brosgol has over 25 years of experience in the computer software industry, with a focus on programming languages, software development methods, and real-time systems. He was a primary member of the Real-Time for Java Expert Group and a coauthor of the *Real-Time Specification for Java.* He is currently a member of the Technical Interpretations Committee for the RTSJ, and he has also served as a reviewer of the J-Consortium's Core Extensions. He has been delivering Java-related tutorials and courses since 1997.

Dr Brosgol is an internationally-recognized expert on Ada. He participated in both the initial language design and the Ada 95 revision, and he is the past chairman of the ACM's Special Interest Group on Ada (SIGAda). He has published numerous papers on Ada, has delivered presentations and tutorials at many Ada Europe and SIGAda conferences, and has been conducting courses on real-time programming in Ada since the late 1980s. Most recently he was an invited keynote speaker at the 2003 SIGAda conference, where his topic was *Ada and Real-Time Java: Cooperation, Competition, or Cohabitation?* He is a senior member of AdaCore's technical staff in the US, in the Boston area.

Why you should participate in this tutorial? Because you will learn the pros and cons of the Java thread model, both in general and for real-time applications. You will see how real-time Java addresses the apparent "show stopper" problem of garbage collection. You will be able to judge whether real-time requirements can be met by a "pure" Object-Oriented Language. You will understand the effect of a dynamic and flexible scheduling approach, in terms of expressibility, predictability, and performance. Finally you will also discover who is using real-time Java, and for what sorts of applications