

Position Paper: Update of ISO/IEC TR 15942, Programming Languages - Guide for the Use of the Ada Programming Language in High Integrity Systems

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Introduction

In 1997, ISO/IEC TR 15942 was published to provide guidance on the use of Ada when programming high integrity systems. This document was developed due the increasing use of software in the development of high integrity systems such as fly-by-wire aircraft as well as security systems and financial systems. Of the past 18 years, the use of software in high integrity systems has increased. The vulnerabilities of software are being exploited in many more and different ways. And a new edition of the Ada programming language standard, ISO/IEC 8652: 2012, has been published with features and enhancements that aid in the development of complex, high-integrity systems in a predictable and reliable way.

Position

The original work done to develop the Guide for the Use of the Ada Programming in High Integrity Systems was largely the result of the efforts and enthusiasm of the International Real-Time Ada Working Group (IRTAWG). Over the years, this community has continued to develop and mature concepts vital to the development of high integrity systems. The IRTAWG has also influenced many of the changes and upgrades to the Ada Programming Languages.

A new edition of the Technical Report is needed to identify what features and guidance has been subsumed by the new revision of the Ada programming language standard. Additionally, the Technical Report needs to be updated to provide guidance in the use of the new features as well as guidance to address the changes in the expectations and demands of High Integrity Systems.

Recommendation

The IRTAWG has the best knowledge and insight into High Integrity Systems and the Ada Programming Language to develop the new revision of TR 15942.