

Project Proposal to ECMA TC39 for “C[#]” and Common Language Infrastructure

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A. Introduction

In accordance with item three of TC39’s programme of work (“to evaluate and consider proposals for complementary or additional technology”), Microsoft Corporation (hereafter the “Sponsor”) asks TC39 to consider adding two related projects to enhance the current ECMAScript mission and to generalize TC39’s status as the key technical committee for platform-neutral, vendor-neutral, web-centric programming language standardization.

This document summarizes our proposal and provides a suggested roadmap for TC39’s considerations and decisions on this proposal.

B. Project Summary

The Sponsor plans to submit draft specifications in two areas: (1) a specification for a new programming language called “C[#]” (pronounced “C sharp”); (2) specifications for a common language infrastructure (CLI) for use by C[#] that could also be used by ECMAScript and other languages.

1. C[#] Programming Language

We propose standardization of a new programming language called C[#], a simple, modern, object oriented, and type-safe programming language derived from C and C++. C[#] is firmly planted in the C and C++ family tree of languages, and will immediately be familiar to C and C++ programmers. C[#] is designed to bring rapid development to the C++ programmer without sacrificing the power and control that have been a hallmark of C and C++.

A preliminary version of the C[#] specification can be downloaded from a link found on <http://msdn.microsoft.com/vstudio/nextgen>.

2. Common Language Infrastructure (CLI)

We propose a single, rich language infrastructure to support C[#] and (optionally) ECMAScript and other modern languages. The CLI effort would include specification of the following:

- A common set of datatypes used across all supported programming languages
- A standard XML-based declarative syntax for specifying objects, methods, and datatypes
- A small set of base classes that provide language support and basic application portability
- A common intermediate language format for code download and execution, along with metadata that describes the requirements and capabilities of the code
- A common code verification and execution model with capability limitations depending on context

There are no preliminary specifications available for the CLI as of this date. Information on the CLI will be made available according to the schedule outlined below in section D.

C. Recommended Enhancements to TC39

The Sponsor recommends that TC39 create two new Task Groups (TGs), each with its own convenor and specification editor. One new TG would deal with C[#] and its language bindings to the CLI; the other TG would handle the CLI. The existing work on ECMAScript logically could then move to its own TG, resulting in a total of three TGs to undertake the expanded work of TC39.

The Sponsor also recommends that TC39 modify its terms of reference (Scope and Programme of Work) to remove the references to “scripting” and generally to encompass these broader initiatives. These changes are necessary in any case based on the increased breadth and depth of ECMAScript itself. For example, the Scope could be modified to read, “To standardize the syntax and semantics of general purpose, cross platform, vendor-neutral programming languages and associated technologies.”

D. Proposed Timeline

The Sponsor plans to submit full draft technical specifications in October 2000. In preparation for those submissions, the Sponsor proposes the following timeline of activities:

July 13th TC39 technical meeting (Orlando, Florida, USA): Distribution to attendees of more detailed technical information regarding the proposed submissions. No formal discussion of this proposal, but informal discussions possible and welcomed.

September 26th (Bath, England): If there is sufficient interest from TC39 members, an optional one-day detailed briefing by Sponsor on the technology underlying the proposal.

September 27-28th TC39 plenary meeting (Bath, England): Formal presentation of this proposal, including a one hour technical overview. Request for TC39 consensus on proposed new TGs, new TG officers, and proposed changes to terms of reference. Confirmation by Sponsor of draft specification submission schedule and consensus on future TG meeting schedules.

October 15th (approximate): Submission by email of all draft technical specifications. TG meetings would begin several weeks later.

October 26-27th: Coordinating Committee meeting at which proposed changes to TC39 terms of reference are discussed and confirmed.

November 2000 through October 2001: Monthly technical meetings of the new TGs. The Sponsor expects this effort to take no more than one calendar year.

November 1, 2001: Final version 1.0 specifications submitted to the GA for approval at the December 2001 meeting.

E. Conclusion

The Sponsor looks forward to providing this important new set of technical projects, along with editorial and other support. We believe that these new projects compliment and support work already planned in TC39, such as binary format for executable code as needed to meet the requirements raised by WMLScript. Moreover, TC39 has shown an impressive ability to get important technical work done rapidly in a very positive atmosphere despite strong competitive market pressures surrounding implementations of ECMAScript technology. We hope and expect that positive spirit to continue as the scope and importance of TC39 increase with these proposed efforts.