

Minutes of the 10th meeting of TC39 held in Bristol/UK on 28th September 2000

Chairman: Mr. A. Clinick (Microsoft)

Vice-Chairman: Mr. C. Lewis (Netscape)

Secretary: Mr. J. van den Beld (SG ECMA)

Attending: Mr. Beard (Netscape), Mr. Cowlshaw (IBM), Mr. Daniels (HP), Mr. Deese (Microsoft), Mr. Dollin (HP), Mr. Dyer (Compiler CO), Mr. Gibbons (Pixo), Mr. Goodhew (Microsoft), Mr. Hejlsberg (Microsoft), Mr. Horwat (Netscape), Mr. Iarrobino (SUN Microsystems), Mr. Jaeschke (Microsoft), Mr. Marcey (Intel), Mr. Miller (Microsoft), Mr. Montgomery (Microsoft), Mr. Raggett (HP), Mr. Reed (SUN Microsystems), Mr. Ruby (IBM), Ms. Taylor (SHARE), Mr. Theran (Nokia), Ms. Thompson (HP), Mr. Vartiainen (Phone.com), Mr. Venter (Microsoft)

1 Opening, welcome and roll call

Mr. Clinick, Chairman of TC39, opened the meeting. A roll call was held.

2 Adoption of the agenda (00/5 Rev.1)

The agenda was adopted after posting the following document:

- 00/2 to item 7.1

3 Approval of the minutes of the 9th meeting (99/12)

The minutes were approved.

4 Matters arising from the minutes not covered elsewhere

The 4th Edition of ECMA-262 on ECMAScript is under preparation. The goal is to have it balloted by the ECMA General Assembly on 28th June 2001: to achieve this the final draft must be available no later than 28th April 2001.

5 Reports / actions, if any

5.1 GA and CC (GA/00/70 and GA/00/43, resp.)

The GA and CC minutes are available to the members of all TCs and TGs in the folder COMMON.

There were no comments to the TC39 Chairman's report (00/1).

5.2 Status report on ECMAScript

Mr. Ruby gave a brief report on the lively meeting held on 27th September 2000: see 00/6. The target is to approve the final draft in the TC39 meeting in March 2001.

Mr. Vartiainen brought up the need for a true subset of ECMAScript as a profile for mobile phones including WAP-enabled phones. **Mr. Raggett** volunteered to chair a Working Group to prepare a draft. It will be decided at a later moment in time whether the subset will be published as a (normative) annex within the 4th edition of ECMA-262 or as a TR. The TC39 Chairman will announce the new Working Group and will send out an invitation to TC39 experts to participate in this WG.

The results of the fast-track ballot of the current edition of ECMA-262 in ISO/IEC JTC 1 are available: see 00/8. The main comments come from the Japanese National Body (JNB). **Mr. Clinick** will prepare a draft Resolution of Comments (RoC) Report to resolve the ballot results: a meeting for the ballot resolution is not needed. If this is acceptable to JTC 1/SC22 (which includes JNB) then the draft will become the final RoC Report, and an SC22 document number will be assigned to it. **Mr. Clinick** will also prepare the so-called Final DIS (Draft International Standard) text which includes the result of the ballot resolution; to this an SC22 document number will be assigned as well. The RoC Report and the Final DIS text will be sent by the ECMA Secretariat to ISO/IETF which takes care of the publication by ISO/IEC of the new edition of ISO/IEC 16262.

6 Presentation and discussion of new work item proposals

6.1 Presentation of C[#] and CLI (00/4)

Mr. Goodhew gave this presentation. There are several implementations, e.g., for CLI within Microsoft and other companies, currently for 17 languages. There are currently two rather independent (only some code overlap for the class libraries) implementations for C[#] within Microsoft. First drafts on the two subjects will be submitted by Microsoft around mid November 2000.

Four ECMA Member Companies sponsor the new work items: Fujitsu, HP, Intel and Microsoft.

6.2 Discussion

Mr. Cowlshaw opened the discussion by asking what TC39 can do on the C[#] specification. **Mr. Goodhew** responded that TC39 should follow the normal ECMA process, i.e., vetting and improving the draft standard by working on successive drafts and processing all contributions with respect to these drafts until the final draft is approved by TC39 and forwarded to the GA for vote. The standard is to become the document that is defining the language. It would be good if a C[#] implementation were done by another company as well, according to **Mr. Goodhew**: Microsoft is interested in working with other companies to encourage the development of other implementations. Microsoft is considering the option of doing an open source implementation of both standards. It is the intention of the sponsors to author a fully documented specification and, thus, there should be no need for a reference implementation. All ambiguities should be solved by the standard, and not by reference to any implementation. Starting from the specification an implementation will roughly take between two and four man-years. Microsoft has spent 10 to 12 man-years to develop the language and a compiler for C[#]. **Mr. Miller** clarified that most of the work was in the class libraries. CLI involves a class loader, a garbage collector and, optionally, a just-in-time compiler. The JIT compiler may take about two man-years for people with previous experience. CLI in total, currently with about 600 classes, is a much bigger effort than C[#].

Ms. Taylor, coming from the user organization SHARE with members from most Fortune 500 companies, expressed SHARE's interest in the new work, in particular with respect to interoperability of software and platform independence. However, positioning CLI - for which platform independence is claimed - in an existing ECMA TC instead of a new TC does not seem justified with respect to the importance of the project. Can this be clarified? **Mr. Goodhew** responded that Microsoft sees a strong overlap between the goals for CLI and ECMAScript. CLI is not a mandatory requirement for ECMAScript in general: however, the Microsoft implementation of ECMAScript uses CLI. **Mr. Horwat** joined the discussion by stating that CLI does not appear to be intended to support dynamic languages; at least, currently CLI does not provide such support for ECMAScript although Netscape considers this of high importance. **Mr. Clinick** said that Microsoft recognizes the importance of dynamic aspects of ECMAScript. He believes that an important role for the ECMAScript group is to determine the requirements for such dynamic aspects and to submit these to the CLI group: in fact, this is a very good reason to bring both parties together. **Mr. Miller** confirmed that Microsoft is indeed interested in ensuring that CLI is/becomes appropriate for dynamic languages. There are a 'few corners to round off' in the class libraries: Microsoft would like to deal with these in the second edition. **Mr. Lewis** stated that ECMAScript is a success story but that Netscape is concerned that putting the large work items for CLI and C[#] in TC39 may put the work on ECMAScript in TC39 at risk. Currently,

TC39 is focusing completely on scripting languages. During the past year CLI and C[#] which have now become visible via the proposal as new work items in TC39 have hampered the progress of the work on ECMAScript. Currently, there is indeed not much CLI support for ECMAScript. Therefore, Netscape is worried that these ill effects will continue and acerbate. At the other hand Netscape is supporting the new work items and shares Microsoft's interest to work on these in ECMA. Netscape has no interest to block the work and wants to expedite it. However, Netscape requests to seriously consider migration of the new work to a new TC (or two TCs) in the future but accepts the work to start in TC39. **Mr. Reed** expressed similar concerns on behalf of SUN Microsystems. He also emphasized that it is also harder to change a certain organization of the work once it has been going on in a certain way during some time. **Mr. Deese** did not see objections *to (re)consider* the organization of the work in TC39 in the future but could not see any justification for a decision already now in TC39 to migrate the new work items to a new TC in the future. **Mr. van den Beld** confirmed that it fits well in the normal way of operation of a TC to reconsider its ToR from time to time, e.g. once a year. He also clarified that TGs within a TC can work very independent from each other: they have their own officers, meeting scheme, email reflector, ftp folder, etc. TG agenda and minutes are given the same broad distribution as those in a TC. It is the prerogative of a TC to create/disband TGs. A new TC requires approval by the GA. The meeting agreed to accommodate the concerns expressed in a resolution to be reviewed and discussed later in the meeting after having dealt with item 7.

Ms. Taylor further asked whether CLI is available on non-Wintel platforms. **Mr. Goodhew** answered that this is indeed the case but that Microsoft is not in a position to comment on this at this time. It would be highly appreciated to see other companies involved.

Mr. Horwat asked whether there exists an approach on the standardization of the 600⁺ classes in CLI, e.g., by developing a standard for each class or group of classes. **Mr. Miller** answered that it is left to the committee to decide. Maybe the most practical approach would be to start 'small' and follow a sort of layered-cake approach.

Mr. Cowlshaw asked whether there is any intent to align the data types with, for example, XML Schema? **Mr. Miller** answered that this sounds a valuable idea.

Mr. van den Beld said that a group of four sponsors is sufficient to start new work in ECMA, but that it would be interesting to hear whether other companies had already made a decision with respect to support or participation in the new work. The following ECMA members declared their interest to participate in the work as well:

- IBM
- Netscape
- Pixo
- SHARE
- SUN Microsystems

TC39 accepted the new work items by unanimous consent.

6.3 Actions

(This item was only completed after item 7 of the agenda)

TC39 approved unanimously the following resolution, as modified:

'TC39 agrees to undertake into its Programme of Work the development of standards for C[#] and CLI as proposed in TC39/2000/2 and further clarified by TC39/2000/4. Furthermore, and recognizing that the undertaking of this new work will likely result in substantial additional resources being added to the Committee, TC39 anticipates the need to create TGs within its structure to facilitate both the rapid deployment of the new work and the continued emphasis on its current work. TC39 resolves to implement such a new structure in a manner as to cause minimal impact to its organization and ongoing Work Items. Finally, TC39 resolves to review both its structure and its terms of reference and to make recommendations respecting amendments, if appropriate, by way of the Chairman's Report to the CC not later than May 2001.'

7 Structuring of TC39

7.1 Creation of Task Groups (00/2)

The Chairman proposed to set up three Task Groups within TC39, as follows:

- TG1: Dynamic Scripting Languages
- TG2: C[#]
- TG3: Common Language Infrastructure (CLI)

This proposal was approved unanimously. **Mr. Daniels** observed that the work may benefit from synergy between the Task Groups. The TC39 Chairman will provide new Terms of Reference (Scopes, PoWs) for TC39 and for the new Task Groups, as attachments to his Chairman's Report to the Co-ordinating Committee. The CC meeting will be held in Geneva on 26th – 27th October 2000.

7.2 Appointment of Officers

The Chairman proposed to appoint the following Officers for the Task Groups:

- TG 1: Dynamic Scripting Languages
 - Convenor: **Mr. Lewis** (Netscape)
 - Editor: Vacancy
- TG2: C[#]
 - Convenor: **Ms. Thompson** (HP)
 - Editor: **Mr. Jaeschke** (Microsoft)
- TG3: Common Language Infrastructure (CLI)
 - Convenor: **Mr. Ruby** (IBM)
 - Editor: **Mr. Miller** (Microsoft)

The proposal was accepted by TC39 by unanimous consent.

8 Any other business

Two very lively technical presentations were given immediately after closure of the meeting:

- CLI, by **Mr. Miller**
- C[#], by **Mr. Hejlsberg**

They are available from the TC39 ftp folder as documents 00/9 and 00/10, resp.

9 Date and place of next meeting(s)

No. 11: Redmond/USA, 13th March 2001, starting at 09.00 on kind invitation by Microsoft.

10 Closure

The ECMA Secretary General thanked HP for their excellent hosting of the 10th meeting of TC39, and Microsoft for the very enjoyable dinner offered to all participants.

The Chairman closed the meeting at 13.55.