

**Minutes of the 4th meeting of TC39
held in Mountain View, USA, on 15th - 16th July 1997**

- Chairman:** Mr. G.S. Robinson (Sun)
- Vice-Chairmen:** Mr. C. Cargill (Netscape), Mr. Wiltamuth (Microsoft)
- Secretary:** Mr. J. van den Beld (SG ECMA)
- Attending:** Mr. Anderson (Netscape), Mr. Clinick (Microsoft), Ms. Converse (Netscape), Mr. Espinosa (Apple), Mr. Fisher (NIST), Mr. Katzenberger (Microsoft), Mr. Lenkov (HP), Mr. Lewis (Netscape), Ms. Nguyen (Netscape), Mr. Singer (IBM), Mr. van Tricht (KPN), Mr. Urquhart (Sun), Mr. Weight (Microsoft), Mr. Willingmyre (Microsoft), Mr. Yu (Microsoft)
- Guests:** Mr. Mathis (JTC 1/SC22 JSG), Mr. Mischkinisky (Visigenic), Mr. Trezzo (Oracle)
- Excused:** Mr. Ksar (HP), Mr. Turyn (Nombas)

1 Opening of the meeting and adoption of the agenda (97/29)

Mr. Chairman, **Mr. Robinson**, opened the meeting with a special welcome to those attending for the first time. A roll call was held.

2 Approval of the minutes of the 3rd meeting (97/18)

The minutes were approved.

3 Matters arising from the minutes not covered elsewhere

None.

4 Reports

Mr. van den Beld presented the results of the 73rd GA meeting, as minuted in GA/97/63. Some questions for clarification were answered.

5 Copyrights, trademarks, patents

Mr. Anderson gave an interesting presentation on several aspects of these topics, with a focus on the situation in USA.

USA has a grace period of one year to file a patent application: this allows, for example, that a product is put on the market that uses the patent information mentioned in the application during the grace period without putting the application at risk. Europe has the so-called 'absolute novelty' approach: this implies that once a product is put on the market it is no longer possible to patent it unless the inventor can prove that his IPR-to-be-patented dates from before the marketing of this product.

The following slides were presented:

What are IP Rights ?

Property:

“every species of valuable right or interest that is subject to ownership, has an exchangeable value, or adds to one’s wealth or estate”

“one’s exclusive right to possess, use, and dispose of a thing”

Kinds of IP Rights

Patent

Trademark

Copyright

Trade Secret

Right of Publicity

Patent Rights: 35 USC 101, 102

Patents protect ideas which have been reduced to practice as articles of manufacture, devices, plans and methods which are:

- useful
- novel
- non obvious

Patent Protection

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| <ul style="list-style-type: none">• Based on priority of invention (conception & reduction to practice)• Acquired only through statutory patent process & filing application w/USPTO• Patents provide right to “exclude others from making, using, or selling” the patented device |
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Trademarks: 15 USC 1051, 1058

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| <ul style="list-style-type: none">• Anything that identifies or distinguishes an entity as the source of goods/services• represents to the consumer a level of quality associated with a specific source, which translates into goodwill• no important that consumers know who the source is, just that the branded goods come from the same source |
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Trademark Rights

- | |
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| <ul style="list-style-type: none">• Founded in common law• Acquired & perfected only by use of the trademark in commerce “in connection” with the goods or services• Based on priority of use• Federal Registration provides constructive use nationally |
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Copyright: 17 USC 102

- Protects the expression of an idea in a tangible medium: Attaches at the time of creation
- Cannot protect ideas, procedure, process, concept, principle - only the expression
- Protectable works: literary. Musical, dramatic, pictorial, graphic, sound recordings

Rights in Copyrighted Works

- Reproduce
- Prepare derivative works
- Distribute copies
- Performance
- Display
- Sound Recordings: digital audio transmission
- Attribution rights for visual arts

Trade Secrets

- Can be anything, but must be kept secret
- Defined by state law, highly codified
- Uniform Trade Secrets Act
- No protection against independent discovery, invention, or lawful disclosure

6 The standardization process

Mr. Cargill gave a short presentation on the rather complex organizational structure and the procedures for international standardization.

There are three de jure international standardization bodies: ISO, IEC and ITU. An organization like ISO has around 200 international TCs and one joint TC (JTC 1) with IEC. Members of the TCs are National Bodies (NBs), e.g. ANSI, BSI, DIN, AFNOR, etc.

There are about 30 NBs in JTC 1. Several organizations have liaisons with JTC 1 and one or more TCs. Liaison types, in decreasing order of importance, are A, B and C.

ISO/IEC JTC 1 deals with generic information technology. JTC 1 has about 20 Sub-Committees. Examples of SCs of JTC 1 are:

- SC2: Coded character sets
- SC6: Lower layer networking, LANs
- SC22: Programming languages and operating system environments
- SC23: Optical media (CD, DVD, etc.)
- SC27: Security
- SC29: Picture coding (MPEG, etc.)

Most SCs of JTC 1 have one or more Working Groups (WGs).

ECMA is one of the three currently existing A-liaisons of JTC 1, the other two A-liaisons are ITU and EC.

The basic process in ISO/IEC JTC 1 consists of five stages:

- NP: new work item proposal
- WD: working draft, resulting from an iterative process
- CD: committee draft, also resulting from an iterative process
- DIS: draft international standard, providing an almost complete level of stability
- IS: international standard, i.e. the final document that is published.

The so-called fast-track process and the PAS (Publicly Available Specification) process enter the basic process at DIS level, and consists of a 6-month letter ballot by all NBs in JTC 1. The only organizations which have the right to apply the fast-track process are the NBs in JTC 1 and the three A-liaisons.

The right to submit a PAS has to be obtained, for a period of two years, by becoming formally recognized by JTC 1 as a PAS submitter by means of a 4-month letter ballot by the NBs in JTC 1.

ECMA will submit ECMA-262 to JTC 1 for adoption under the fast-track procedure. JTC 1/SC22 is the directly involved SC in JTC 1 in the field of ECMAScript.

Mr. Mathis, US participant in SC22, gave a short report from the Java Study Group (JSG) he is chairing within SC22, with respect to ECMA-262:

1. When ECMA fast-tracks ECMA-262, then SC22 has to be specified as the relevant SC.
2. SC22/JSG is prepared to lead any required ballot resolution.
3. SC22/JSG has not yet reviewed ECMA-262 and, therefore, could not yet endorse it.
4. SC22/JSG recommends TC39 to continue the maintenance of ECMA-262.
5. Most JSG members have been able to (indirectly) participate via their companies which are ECMA members.

7 Technical reports relating to ECMA-262

7.1 Web scripting language proposal in OMG

Mr. Trezza gave a presentation on the plans for a CORBscripting language, based on ECMA-262, by providing the following slides:

CORBA Component Scripting

- Today CORBA provides a powerful distributed object environment
- Desire to make technology approachable to a wider audience (beyond expert programmers)
- Approach: CORBA components assembled by casual developers

Component Assembly Requirements

- Component model with:
 - design-time/run-time interrogation of external interfaces (methods, properties and events)
 - standard scripting language to dynamically “glue” components together into applications and business systems

Scripting Requirements

- Fits naturally into the CORBA object and component model
 - Object-oriented
 - Interact with and control components
- A proven language that meets the needs of target audience
- Based on well defined stable standard
- Supports both visual run-time and non-visual server needs

Current Status
<ul style="list-style-type: none">• IBM, Netscape, Oracle, Sunsoft and Visigenic (plus others) will respond to OMG's RFP for a component scripting language• ECMAScript/JavaScript will provide the basis• Much will be learned as we flesh out a complete component development/run-time environment

TC39/97/31 provides the Request for Proposal (RFP) for the CORBA scripting language, and explanatory information. See also the URL of OMG:

<http://www.omg.org>

Mr. Mischkinsky presented the following information on OMG itself, the so-called OMG Charter:

OMG CHARTER
<ul style="list-style-type: none">• Largest Industry Consortia<ul style="list-style-type: none">• over 100 corporate members• over 700 members• Home for "Objects"• Adopts and Publishes Specifications• Provides an OO Forum

Structure
<ul style="list-style-type: none">• Board of Directors<ul style="list-style-type: none">Adopts Technology Specifications• Technical Committee<ul style="list-style-type: none">Recommends Technology SpecificationsAdoption requires 2/3 vote of Corporate Members• Task Forces<ul style="list-style-type: none">Do the “real work”Evaluate submissions, recommend to TC• Special Interest Groups (SIG)• End User SIG

Technology Adoption Process
<ul style="list-style-type: none">• Process Intent<ul style="list-style-type: none">• Relatively quick (12-18 months)• Consensus building• But, can force a real choice• Issue RFP• Letter of Intent (LOI)• Initial Submissions<ul style="list-style-type: none">• Commits submitter to comply with Commercial Availability Requirement• Submitter, not OMG, owns and controls proposals

Technology Adoption Process (cont)
<ul style="list-style-type: none">• Revised Submissions<ul style="list-style-type: none">• Submitters encouraged to revise and merge• Recommendation by majority TF members• TF evaluates and recommends to TC• TC vote<ul style="list-style-type: none">• TC recommends to Board• 2/3's majority of TC Corporate Members must vote to adopt• Board<ul style="list-style-type: none">• Makes Commercial Availability determination• Votes on TC recommendation (normally just ratifies)

Timetable

LOI - Aug. 25, 1997

Voting List Close - Halloween (31 Oct 1997)

Initial Submission - New Brunswick - 3 weeks
(11 Nov 1997)

Revised Submission - Salt Lake - 3 weeks (20
Jan 1998)

- adjusted for change in meeting dates

7.2 Proposals for ECMAScript v2 from Microsoft

Mr. Wiltamuth presented a list of proposals for the further development of ECMAScript, provisionally called ECMAScript V2 (see 97/32).

V2 has to become a new standard, and not an annex to ECMA-262.

The number of incompatibilities has to be kept at a minimum. Backward compatibility is vital, the installed base shall not be touched. It is important to keep momentum, the working method and speed of the ad hoc editing group have proven to work very well in practice.

Microsoft assigns high value to further develop the technology and keep the standard in line with the technology - maybe with some hysteresis effect - without making the standard an experimental document from which functionality might have to be removed if it is not picked up by the market place. This approach is further discussed under the general discussion items on 'development strategy' and 'working method of TC39' (item 12 of these minutes).

The following statement ('pledge') was issued by Microsoft:

Microsoft Pledge on ECMAScript Standards

Microsoft views the Internet as the most exciting growth opportunity for the computing industry as a whole, and for our company specifically. We are committed to helping the industry grow as fast as possible; we appreciate the role that successful open standards can play in accelerating growth by letting every vendor participate.

ECMAScript (also known as Microsoft Jscript and Netscape JavaScript) is a crucial scripting language for the World Wide Web. Support for ECMAScript standards ensures that ECMAScript-based HTML content can be viewed as the creator intended, in any browser, on any platform. Agreement on ECMAScript is critical to interoperability and the continued growth of the community of authors creating active content with ECMAScript.

Previous proprietary ECMAScript extensions from a variety of vendors have confused the market and hampered interoperability.

Vendors interested in ECMAScript have unanimously agreed that ECMA is the best standards organization for advancing the core ECMAScript language and runtime. ECMA has proven itself as an effective standards body, providing a neutral forum for all interested parties, and keeping up with rapid innovation in this area. Because of this effectiveness, Microsoft is committed to work with ECMA to further advance the ECMAScript standard.

Microsoft agrees to:

- Bring new ideas that impact ECMAScript to the group's attention, as opposed to keeping them secret.
- Implement ideas that have achieved consensus in the group.
- Follow the architectural principles guiding the group, rather than release alternatives which ignore or contradict these principles.
- Not ship ECMAScript extensions without first submitting them to ECMA.
- Implement all ECMA-approved ECMAScript standards.
- Clearly identify any not-yet-approved ECMAScript features that we support as such.

Microsoft strongly encourages other vendors to take this pledge.

The slides used by **Mr. Wiltamuth** read as follows (the additional technical details are given in 97/32):

Moving forward

- Ways of working together
- Microsoft proposals for ECMAScript V2
 - The **switch** statement
 - Labelled **break** and **continue** statements
 - The **do...while** statement
 - The **===** and **!==** operators
 - Caller
 - Conditional compilation
- Moving forward

Status

- We accomplished much in version 1 ...
- ... but the language contains many flaws

Year 2000 problem	Í is not transitive
Existence of null and undefined	undefined Í null
No undefined keyword	typeof null Í “object”
ToNumber(“”) is zero, should be NaN	ToNumber(null) is zero, should be NaN
new Array(number) perf. Issues	arguments is not a keyword
Foo.length vs. Foo.arity	Widely varying string coercion rules
No standard for Date.parse	No formatting functions
No standard for Date’s toString	No standard for Date’s toLocaleString
No standard for Date’s toUTCString	&& and ° operator incompatibilities

The root of the problem

- Independent innovation without broad technical review
- When standardizing, we struggle to “fix” the problems in a variety of ways
 - Break compatibility with what has shipped
 - Swallow mistakes
 - Create parallel solutions (e.g. Date.getFullYear)
 - Generalize and formalize

A different way of working

- Microsoft’s ECMAScript standards pledge
 - We will bring new ideas that impact ECMAScript to the group’s attention, as opposed to keeping them secret.
 - We will implement ideas that have achieved consensus in the group.
 - We will follow the architectural principles guiding the group, rather than release alternatives which ignore or contradict these principles.
 - We will not ship ECMAScript extensions without first submitting them to ECMA.
 - We will implement all ECMA-approved ECMAScript standards.
 - We will clearly identify any not-yet-approved ECMAScript features that we support as such.

Mr. Clinick presented a proposal for conditional compile support, to be included in ECMAScript V2. See 97/33.

7.3 **Built-in Buffer object**

Mr. Turyn has made, by email only, a proposal on the above subject. See 97/34.

7.4 **Apple’s scripting approach**

Mr. Espinosa presented an outline of an Open Scripting Architecture, encompassing languages like:

- Apple Script
- Talk One
- TCL
- Perl
- Java
- ECMAScript

A big advantage of ECMAScript is that it is standardized, and “familiarized”. There is a massive support, both in learning/educational respect and in literature. This is offering an opportunity to attract vendors to use a system wide version.

According to **Mr. Espinosa** we need:

- Open, compatible availability from several vendors
- Stable, standard language definition
- Clear plan to integrate dynamic external objects
- Clear 'story' of Java integration for applets, Beans, applications

8 Development strategy

Mr. Urquhart tried to catch as many goals as possible from a brainstorming session by TC39 on the future development strategy for ECMAScript:

- Wide participation, both by implementors and users
- Speed remains relevant
- Technical excellence
- No fundamental blocks to implementation
- All implementations to be "bug" compatible: scripts must be portable.

A possible help, to get feedback from users, might be the creation of a special Web site at ECMA, which acts as a sort of ECMAScript SIG. Questions are: what do we want to add to the standard ? What about other contexts than browsers ? Should we try to replace, e.g. Perl, TCL ?

There are at least three sorts of pressure:

- need to put the language forward, by including the functions we need anyhow
- the time before users will respond: this may take quite some time
- other organizations might 'melt' with the TC39 approach, e.g. OMG.

The topic is further discussed, and decisions were made under agenda item 'Future way of working of TC39' (item 12 of these minutes).

9 The Millenium 2000 problem

Mr. Fisher gave a presentation on the year-2000 problem, and distributed two papers on the subject:

- DoD/NASA's Federal Acquisition Regulation on the Year 2000 compliance
- Recommended Year 2000 Contract Language. See 97/35.

Mr. Fisher stated that NIST will not be able to endorse ECMA-262 as long as there is a two-digit year specification allowed, even if it is an option which is deprecated and if its use is not recommended.

A problem is, of course, that any word processor, spreadsheet, etc. can specify a year by only using two digits. In case a year is specified by four digits, like in ECMAScript, then it is still always possible to cut off the first two digits, or circumvent the recommended 4-digit year specification.

After some discussion TC39 agreed to remove the 2-digit year option from ECMAScript V2, and put it in the informative annex that lists the differences between ECMA-262 and v2.

As a special action, ECMA could send in a proposal to remove the 2-digit option from the forthcoming ISO/IEC Standard as one of the possible ECMA comments to the fast-track process. The ad hoc editing group will decide on this.

10 Conformance testing

Mr. Fisher gave a presentation on conformance testing. See 97/36.

The question is how to verify whether an implementation, for which conformity to ECMA-262 is claimed, really conforms ?

ECMA is usually not specifying conformance test specifications, and is not directly involved in the execution of conformance tests. It 'helps' that there are no mutually exclusive or other options in ECMA-262.

In a later discussion in TC39 it was decided that **Mr. Fisher** will develop a draft set of test assertions.

11 Title of ECMA-262 / Name of the language

Recently it has become known that the name LiveScript is not available from Netscape. **Mr. Wiltamuth** and **Mr. Turyn** have prepared lists of possible names for the language.

Mr. Cargill proposed the name ECMAScript, because it is neutral, not owned by anybody, and because it puts everybody on equal footing.

Mr. Wiltamuth proposed RDScript ('Rapid Development Scripting Language), but also the name Jscript could be made available by Microsoft: the main objective is to select a name which will be broadly used, and can even be assigned to commodity products.

TC39 did not come to an agreement on a name, mainly because it is completely beyond the scope of TC39 to decide on the (commercial) value of a name. Moreover, a commercial name would have to be defended, protected and promoted, which is beyond the scope of a non-profit organization like ECMA.

Therefore, TC39 can only decide on the title of the standard, ECMA-262, where the title might contain a descriptive text only or a text with the name of the language, under the explicit condition that this name cannot be used for commercial purposes. What implementors/companies choose as (commercial) name for their product which conforms to ECMA-262 is their choice and beyond control of TC39. A clear distinction must be made between a standard and a product conforming to that standard. References to the standard are always possible by referring to ECMA-262 (or, after approval by fast-track, to ISO/IEC xxxxx).

TC39 concluded by:

- confirming that ECMA-262 shall be submitted for adoption under the fast-track procedure, with or without a name for the language in the title. The name ECMAScript is clearly marked as a placeholder;
- postponing the settling of a name to the next TC39 meeting;
- deciding to explore the (non)availability of the use of the name JavaScript.

Note from Secretary:

It is unlikely that the name JavaScript, which is already the name of an existing product, will become available for commercial use as name for other products, even if such products are conforming to ECMA-262.

However, crediting JavaScript as the originating technology underlying ECMA-262, may be allowed, either by referring to JavaScript in the 'Brief History' of ECMA-262, or by including it in the title of ECMA-262 as name-of-the-language only, or both.

12 Agreements on the steps to accomplish Version 2

- 1) Working Group agrees on the set of common items to work on.
- 2) WG generates drafts to the TC39 reflector via email and has meetings as necessary.
- 3) Goal of December 1997 for first draft for exposure to outside world via ECMA web site.
- 4) Accept feedback via ECMA web.
- 5) Allow period of time to mature draft.
- 6) WG recommends criteria for additional enhancements.
- 7) Approval criteria in TC39.
- 8) When draft version 2 has 'matured' it can be contributed as comment to ECMA-262 in fast-track process, or as ECMA Version 2, followed by fast-track.

13 Any other business

None.

14 Date and place of next meetings

No. 5: Nice, 16th - 17th September 1997

No. 6: Bay Area (USA), 19th November 1997, on kind invitation by Microsoft.