

# **Report from the TC39 Secretariat**

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*2024-02-06*

## Overview

- Appointment of Ecma Management and ExeCom
- Recognize TC39 Chairs and Editors
- Reminder for Ecma approval timelines 2024
- New Projects and Other Items
- Workshops
- Yearly Statistic
- Feedback on ES2023 PDF version solution

## Annex slides:

- List of latest relevant Ecma TC39 and GA documents
- TC39 standards download and access statistics
- TC39 meeting participation statistics
- Next TC39, GA and ExeCom meetings

The Ecma GA appointed the Ecma Officers for 2024 at the General Assembly on 5 December 2023.

## MANAGEMENT:

- President: **Jochen Friedrich (IBM)**
- Vice-President: **Daniel Ehrenberg (Bloomberg)**
- Treasurer: **Luoming Zhang (Huawei)**

## EXECUTIVE COMMITTEE:

- Chair: **Michael Saboff (Apple)**
- Members:

From the Ordinary members:

- ***Vacant***

From the Non-Ordinary members:

- **Touradj Ebrahimi (EPFL)**
- **Peter Hoddie (Moddable)**

## Chair group:

- Chris de Almeida (**IBM**)
- Rob Palmer (**Bloomberg**)
- Ujjwal Sharma (**Igalia**)

## Editors:

### **ECMA-262**

- Kevin Gibbons (**F5Networks**)
- Shu-yu Guo (**Google**)
- Michael Ficarra (**F5Networks**)

### **ECMA-402**

- Richard Gibson (**Agoric**)
- Ujjwal Sharma (**Igalia**)

### **ECMA-404 (JSON)**

- Chip Morningstar (**Agoric**)

### **ECMA-414 (Suite)**

### **ECMA TR/104 "Test-262"**

## ECMA-262 Approval Timelines:

- ExeCom 24-25 April
- 60-day Opt-out period (*RF Policy*)
- 60-day Review Publication period
- *Suggestion*: late-March or early-April to freeze specification
- Approval at GA 26-27 June 2024
  - ECMA-262 **15th** edition – ECMAScript® 2024 Language Specification
  - ECMA-402 **11th** edition – ECMAScript® 2024 Internationalization API specification

***Two approval possibilities at Ecma General Assemblies in June and December  
(or letter ballot at any time in between upon GA approval)***

- New TC54 Software and system transparency (Cyclone/DX)
- New Proposal TC55 WinterCG (ExeCom)
- New TC39 TG5 (TC39) Experiments in Programming Language Standardization (Mozilla and University of Bergen)
- Pending New Members:
  - *Replay.io (SPC)*
  - *HeroDevs (SME)*
  - *Sentry (AM)*
  - *Open Source Software Business Association (OSBA) (NFP)*
  - *Vrije Universiteit Amsterdam (NFP)*
- Ad hoc “Ecma Growth”, continues in 2024 looking at future activities and strategy
  - *Voting*
  - *Membership*
  - *Governance*

Embedded software is critical to the many digital devices in our world. For decades, the development of embedded software has relied on ad-hoc solutions, often based on fragile and proprietary technologies. This approach has been stretched to the breaking point by the many demands of the Internet of Things. Standardization is the solution. Standardizing software interfaces, allows embedded software to reap the benefits of a rich ecosystem, as software development has achieved on the web, desktops, servers, and mobile.

The participants explored proposals and various aspects of embedded JavaScript standardization. These discussions encompassed new APIs, interoperability, packaging, and the concept of Hardened JavaScript (aka Secure ECMAScript).

The presenters are contributors to ECMA-419:

- Donovan Buck, BrandExtract
- Nick Hehr, Viam
- Peter Hoddie, Moddable
- Mark Miller, Agoric
- Carlos Montalvo, LytEn
- Josh Siegel, Michigan State University
- Patrick Soquet, Moddable

# Workshop on opportunities for data and cloud standardization

7 December 2023 from 9:00 – 12:00 Pacific Standard Time (PST) ***To be rescheduled***

This live hybrid event will kick-off a discussion on Ecma International as the ideal home for members to develop standards, and then fast-track into formal European standards or promote for acceptance as open interoperability specifications.

The requirements of the Draft EU Data Act will be highlighted, in particular the need for standards to support the implementation of the Data Act and to achieve and demonstrate compliance.

Areas to be covered:

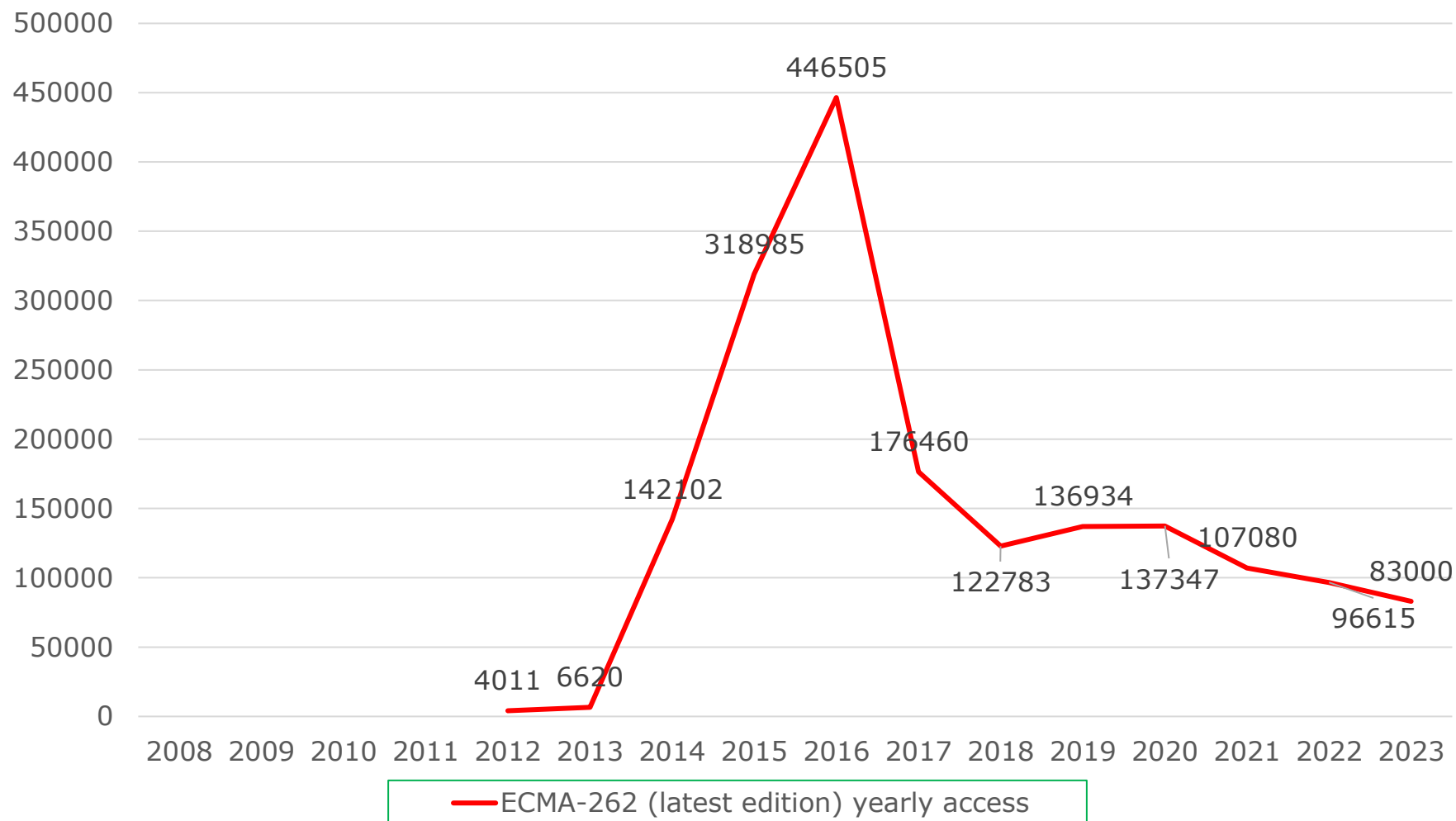
- Regulating cloud services
- Market access requirements for Cloud interoperability
- Cloud switching and Cloud portability

Ecma can be instrumental in addressing the upcoming challenges:

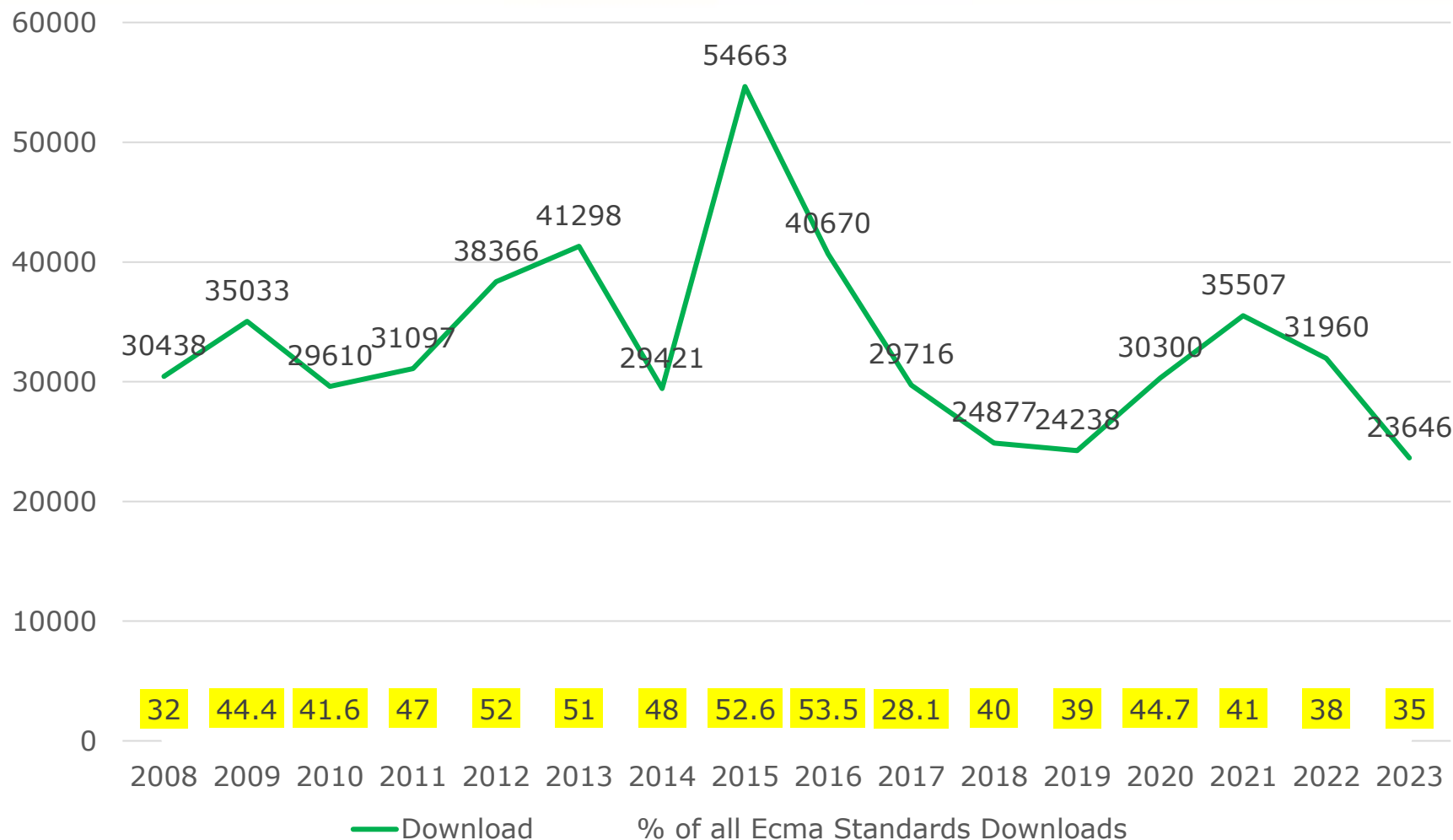
- Members can better leverage Ecma's fast and effective process for developing standards;
- Members can work under the respective commonly agreed Ecma IPR policy option; and,
- Members can engage and collaborate with other standards bodies to support their efforts to address the upcoming requirement of Draft EU Data Act.



# ECMA-262 (latest Edition) Access 2012-2023



# ECMA-262 (all Editions) Download 2008-2023



For ES2024 and beyond a solution is needed

- *Feedback on the recommendations and procedures*
- *What are the next steps?*

# Annex

*(As a reminder....)*

- GA documents provide general Ecma information (policy matters, activities of other TCs, liaison with other SDOs, etc.).
- GA documents are not automatically available to TC39 members. Ask your GA Representative for copy.
- Ecma TC39 documents are the “official” Ecma TC39 documentation within Ecma (both for “long-term archival” and as information to other Ecma TC and GA members).
- It is linked to TC39 as an Ecma TC (includes new formal Ecma members in TC39, status of ES20xx approval in Ecma etc.)

*There are overlaps to what is also available on TC39 GitHub*

- Ecma/TC39/2023/043 Slides and technical notes for the 98th TC39 meeting, Sept 2023 (Rev. 2)
  - Ecma/TC39/2023/044 Venue for the 99th TC39 virtual meeting, November 2023
  - Ecma/TC39/2023/045 TC39 chair group's report to the ExeCom, October 2023 (Rev. 1)
  - Ecma/TC39/2023/046 Minutes of the 98th TC39 meeting, Tokyo, September 2023 (Rev. 2)
  - Ecma/TC39/2023/047 Agenda for the 99th TC39 virtual meeting, November 2023 (Rev. 1)
  - Ecma/TC39/2023/048 Report from the TC39 Secretariat, November 2023
  - Ecma/TC39/2023/049 Responses to the Ecma Contribution License Agreement (CLA), 24 Nov 2023
  - Ecma/TC39/2023/050 Slides for the 99th TC39 virtual meeting, November 2023 (Rev. 1)
  - Ecma/TC39/2023/051 Minutes of the 99th TC39 virtual meeting, November 2023 (Rev. 1)
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- Ecma/TC39/2024/001 Venue for the 100th TC39 meeting, San Diego, February 2024
  - Ecma/TC39/2024/002 Agenda for the 100th TC39 meeting, San Diego, February 2024

- Ecma/GA/2023/035 Ecma TC39 extensive meeting notes – guidelines for implementation
- Ecma/GA/2023/108 Ecma Recognition Award nominations from TC39
- Ecma/GA/2023/109 (Rev. 1) Draft scope and PoW for a new TC on Software and system transparency
- Ecma/GA/2023/110 Ad hoc Group report and status of possible new work areas, Nov 2023
- Ecma/GA/2023/115 Minutes of the 99th TC39 virtual meeting, November 2023 (Rev. 1)
- Ecma/GA/2023/118 Minutes of the 126th General Assembly, Cupertino, December 2023
  
- Ecma/GA/2024/001 Ecma Web statistics for 2023
- Ecma/GA/2024/003 Agenda for the 100th TC39 meeting, San Diego, February 2024

# Top 5 Download Ecma Standards

## 1 Jan – 31 Dec 2023

| Standard  | (1 Jan-28 Feb) | (1 Jan-31 May) | (1 Jan-31 Aug) | (1 Jan-31 Oct) | (1 Jan-31 Dec) |
|---|----------------|----------------|----------------|----------------|----------------|
| • ECMA-262 ECMAScript Language Specification                    | 4'778          | 11'814         | 17'794         | 20'615         | 23'646         |
| • ECMA-404 The JSON Data Interchange Format                     | 1'972          | 5'063          | 7'633          | 8'711          | 10'108         |
| • ECMA-376 Office Open XML File Formats, all parts and editions | 1'808          | 4'699          | 7'054          | 8'480          | 9'675          |
| • ECMA-334 C# Language Specification                            | 677            | 1614           | 2308           | 2787           | 3117           |
| • ECMA-335 Common Language Infrastructure (CLI)                 | 607            | 1492           | 2323           | 2674           | 3203           |
| <b>Total</b>  | <b>9'842</b>   | <b>24'682</b>  | <b>37'112</b>  | <b>43'267</b>  | <b>49'749</b>  |
| <b>Total Downloads - All Standards</b>                          | <b>13'058</b>  | <b>32'659</b>  | <b>49'341</b>  | <b>58'303</b>  | <b>66'976</b>  |



# TC39 Meeting Participation

| Meeting 2019-2023            | Total | Local | Remote | Companies |
|------------------------------|-------|-------|--------|-----------|
| July2019 Redmond Hybrid      | 76    | 46    | 30     | 24        |
| Oct2019 New York Hybrid      | 70    | 46    | 24     | 26        |
| Dec2919 San Francisco Hybrid | 73    | 52    | 21     | 28        |
| Feb2020Honolulu Hybrid       | 58    | 27    | 31     | 23        |
| April2020 Remote             | 73    | 0     | 73     | 28        |
| June2020 Remote              | 66    | 0     | 66     | 21        |
| July2020 Remote              | 76    | 0     | 76     | 28        |
| Sept2020 Remote              | 66    | 0     | 66     | 25        |
| Nov2020 Remote               | 62    | 0     | 62     | 22        |
| Jan2021 Remote               | 95    | 0     | 95     | 27        |
| March2021 Remote             | 80    | 0     | 80     | 25        |
| April2021 Remote             | 81    | 0     | 81     | 26        |
| May2021 Remote               | 74    | 0     | 74     | 27        |
| July2021 Remote              | 57    | 0     | 57     | 23        |
| Aug2021 Remote               | 80    | 0     | 80     | 28        |
| Oct2021 TRemote              | 54    | 0     | 54     | 22        |
| Dec2021 Remote               | 69    | 0     | 69     | 24        |
| Jan2022 Remote               | 66    | 0     | 66     | 29        |
| March2022 Remote             | 92    | 0     | 92     | 30        |
| June2022 Remote              | 59    | 0     | 59     | 23        |
| July2022 SanFran Hybrid      | 62    | 19    | 43     | 24        |
| Sept2022 Remote              | 44    | 0     | 44     | 20        |
| Nov2022 A Coruña Hybrid      | 62    | 19    | 43     | 23        |
| Jan2023 Remote               | 68    | 0     | 68     | 27        |
| March2023 Seattle Hybrid     | 65    | 20    | 45     | 24        |
| May2023 Remote               | 61    | 0     | 61     | 27        |
| July2023 Bergen Hybrid       | 55    | 32    | 23     | 20        |
| Sept2023 Toyko Hybrid        | 57    | 25    | 31     | 23        |
| Nov2023 Remote               | 57    | 0     | 57     | 20        |

# TC39 Plenary Schedule 2024

| Meeting    | Dates                           | Location                | Host                       |
|------------|---------------------------------|-------------------------|----------------------------|
| <b>100</b> | <b>2024-02-06 to 2024-02-08</b> | <b>San Diego, US</b> 🇺🇸 | <b>ServiceNow</b>          |
| 101        | 2024-04-08 to 2024-04-11        | Remote: "Baltimore"     | n/a                        |
| 102        | 2024-06-11 to 2024-06-13        | Helsinki, Finland 🇫🇮    | Mozilla & Aalto University |
| 103        | 2024-07-29 to 2024-08-01        | Remote: "Los Angeles"   | n/a                        |
| 104        | 2024-10-08 to 2024-10-10        | Tokyo, Japan 🇯🇵         | Sony                       |
| 105        | 2024-12-02 to 2024-12-05        | Remote: "Albuquerque"   | n/a                        |

- 6 meetings per-year
- 3 remote, 3 hybrid (one US, one Europe, one Asia)
- Remote meetings are up to four days  
...and sometimes we rejoice when we can end early and claim a day back
- In-person meetings are three days  
...to permit Monday/Friday as travel days

# GA dates and venue ExeCom dates and venue

- **GA 127: 26-27 June 2024** (Geneva, Switzerland)
- **GA 128: 11-12 December 2024** (US, TBD)

## **ExeCom:**

- **24-25 April 2024**, Geneva
- **1-2 October 2024**, Geneva

*Starting at 9:00. TC Chairs are invited to report on their activities.*

## **Recommendations::**

- “Summary and Conclusion” of each contribution at the plenary meeting should be included both in the Minutes of the TC39 meeting and in the Technical Notes. It is needed for accurate meeting Minutes.
- *It is also convenient for all to see the key points and next steps as agreed by the committee during the plenary meeting.*
- “Summary and Conclusion” text should be completed at the plenary with the support of the contributor and agreement of the committee.

- **ECMA-262** is authored on GitHub in a plaintext source format **Ecm Markup**.
  - *Ecm Markup is an HTML and Markdown dialect that provides a framework and toolset for authoring ECMAScript specifications in plaintext and processing the specification into a full-featured HTML rendering that follows the editorial conventions for this document.*
  - *Ecm Markup builds on and integrates a number of other formats and technologies including Grammarkdown for defining syntax and Ecm Markdown for authoring algorithm steps.*
- **ECMA-262** is currently published in **interactive html** and in a **book-like PDF format**. The yearly download of the PDF version is between 30-40K
  - *html format is built in the process*
  - **PDF format** is a manual process
- **ECMA-262** is in need of a solution to produce a **book-like PDF format**.

# Download of Ecma Standards

## 1 Jan–31 Dec 2023

|    |                 |  |       |
|----|-----------------|--|-------|
|    |                 | Total Standards 2023   | 66976 |
| 1  | ECMA-262        | ECMAScript® Language Specification   | 23646 |
| 2  | ECMA-404        | The JSON Data Interchange Syntax   | 10108 |
| 3  | ECMA-376        | Office Open XML File Formats   | 9675  |
| 4  | ECMA-335        | Common Language Infrastructure (CLI)   | 3203  |
| 5  | ECMA-334        | C# Language Specification  | 3017  |
| 6  | ECMA-48         | Control Functions for Coded Character Sets   | 1040  |
| 7  | ECMA-74         | Measurement of Airborne Noise emitted by Information Technology and Telecommunications Equipment                           | 935   |
| 8  | ECMA-418        | Psychoacoustic metrics for ITT equipment — Part 1 (prominent discrete tones) and Part 2 (models based on human perception) | 846   |
| 9  | ECMA-388        | Open XML Paper Specification   | 771   |
| 10 | ECMA-370        | TED - ECO declaration  | 605   |
| 11 | ECMA-402        | ECMAScript® Internationalization API Specification   | 601   |
| 12 | ECMA-422        | C# Specification Suite   | 598   |
| 13 | ECMA-414        | ECMAScript® Specification Suite  | 583   |
| 14 | ECMA-119        | Volume and File Structure of CDROM for Information Interchange   | 463   |
| 15 | ECMA-408        | Dart Programming Language Specification  | 380   |
| 16 | ECMA-340        | Near Field Communication Interface and Protocol (NFCIP-1)  | 301   |
| 17 | ECMA-363 4th ed | Universal 3D File Format   | 299   |
| 18 | ECMA-423        | Holographic Data Storage Disk (HDSD) – Capacity: 1 Tbyte per disk  | 295   |
| 19 | ECMA-6          | 7-Bit Coded Character Set  | 272   |
| 20 | ECMA-372        | C++/CLI Language Specification   | 254   |
| 21 | ECMA-323        | XML Protocol for CSTA Phase III  | 253   |
| 22 | ECMA-35         | Character Code Structure and Extension Techniques  | 240   |
| 23 | ECMA-419        | ECMAScript® embedded systems API specification   | 221   |
| 24 | ECMA-357        | ECMAScript for XML (E4x) specification   | 198   |
| 25 | ECMA-417        | Architecture for a distributed real-time access system   | 164   |
| 26 | ECMA-269        | Services for CSTA Phase III  | 164   |
| 27 | ECMA-130        | Data Interchange on Read-only 120 mm Optical Data Disks (CD-ROM)   | 163   |
| 28 | ECMA-182        | Data interchange on 12,7 mm 48-track magnetic tape cartridges - DLT1 format  | 156   |
| 29 | ECMA-287        | Safety of electronic equipment   | 141   |
| 30 | ECMA-328        | Determination of Chemical Emission Rates from Electronic Equip.  | 113   |

# Wednesday Presentation

The 5 December 2023 Ecma GA has granted, for their contributions and services to Ecma, the following TC39 award recipients with the “Ecma Recognition Award”:

- ***Myles Borins***
- ***Shane F. Carr***
- ***Mark Miller***



## *Myles Borins for contributions to TC39 and Ecma*

*Myles Borins joined TC39 in 2018 and since then has been an author and champion on proposals including Top-Level Await, Import Assertions and JSON modules. Importantly, his experience in the wider JavaScript ecosystem acting as Lead of the Node Modules Working Group meant that he was able to operate as a liaison between TC39 and the most widely used JavaScript server runtime. This leadership is arguably the primary reason that ECMAScript modules have become viable in the wider JavaScript package management ecosystem.*

*Myles served as Vice President of Ecma, served on the Executive Committee of Ecma, and became Co-Chair of TC39. In 2020 whilst acting as Co-Chair he was instrumental in enacting new processes to improve transparency and inclusion which became critical to allowing key members to continue participating in Ecma. 2020 was a challenging year to chair a TC due to the change from hybrid plenary meetings to all remote meetings. This shift was executed very smoothly thanks to the care and attention Myles paid.*

## *Shane F. Carr for contributions to TC39*

*Shane F. Carr, a senior i18n engineer at Google, has been the driving force behind TC39's TG2 since nearly the creation of the task group itself. As TG2 Convenor, he has skillfully guided the development of the ECMA-402 standard championing proposals including Intl.NumberFormat v3, Temporal and the NumberFormat Unified API, and beyond this proving himself indispensable in shepherding through many other major improvements to i18n in ECMAScript over the years. Shane has additionally played a key role in improving i18n on the web more generally through his work as ICU4X chair.*

*Few people have done as much work as Shane has on ensuring that the web is ready for the next billion users.*

*Since joining in 2008:*

*His contributions to ECMAScript and TC39 are numerous and represent a sustained period of activity that few individuals have matched. He has been one of the most influential drivers of the evolution of ECMAScript, and continues to be an active participant, providing insightful feedback at plenary meetings as well as other TC39 meetings such as TC39-TG3 and Security Strategy.*

*Some highlights of contributions at a high level include meta programming, asynchronous programming, tamper prevention, and security – particularly via Secure ECMAScript (SES, Hardened JS). In addition, he is an active contributor to Ecma TC53.*

# the 100<sup>th</sup>... and some History

The TC39 organizing meeting took place **November 21-22, 1996, at the Netscape offices in Mountain View, California.** The minutes record that there were **thirty attendees.**

The meeting opened with welcomes from Jan van den Beld on behalf of Ecma and David Stryker, the Netscape VP of Core Technologies.

**Acting Chairman:** Mr. J. van den Beld

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

**Attending:** Mr. Cargill (**Netscape**), Ms. Converse (**Netscape**), Mr. Eich (**Netscape**), Mr. Fisher (**NIST**), Mr. Gardner (**Borland**), Mr. Krull (**Borland**), Mr. Ksar (**HP**), Mr. Lenkov (**HP**), Mr. Lie (**W3C**), Mr. Luu (**Mainsoft**), Mr. Mathis (**Pithecanthropus, JTC1/SC22**), Mr. Matzke (**Apple**), Mr. Murarka (**Spyglass**), Ms. Nguyen (**Netscape**), Mr. Noorda (Nombas), Mr. Palay (Silicon Graphics), Mr. Reardon (**Microsoft**), Mr. Robinson (**Sun**), Mr. Singer (**IBM**), Mr. Smilonich (**Unysis**), Mr. Smith (**Digital**), Mr. Stryker (**Netscape**), Ms. Thompson (**Unisys**), Mr. Urquhart (**Sun**), Mr. Veale (**Borland**), Mr. Welland (**Microsoft**), Mr. White (**AAC Group, Microsoft**), Mr. Willingmyre (**GTW Associates, Microsoft**), Mr. Wiltamuth (**Microsoft**).

**Excused:** Mr. Huffadine (**Callscan**)

## Officers Elected at First TC39 Meeting:

Chairman: Mr. G. Robinson (**Sun**)

Vice-Chairman: Mr. C. Cargill (**Netscape**)

Vice-Chairman: Mr. S. Wiltamuth (**Microsoft**)

Principal editor: Mr. M. Gardner (**Borland**) (to be confirmed)

Assistant editor: Mr. A. Murarka (**Spyglass**) (to be confirmed)

- **ECMAScript 1** (June 1997): First version of the standard.
- **ECMAScript 2** (June 1998): Small update to keep ECMA-262 in sync with the ISO standard.
- **ECMAScript 3** (December 1999): *Adds many core features – “[...] regular expressions, better string handling, new control statements [do-while, switch], try/catch exception handling, [...]”*
- **ECMAScript 4** (*abandoned in July 2008*): Would have been a massive upgrade (with static typing, modules, namespaces, and more), but ended up being too ambitious and dividing the language’s stewards.
- **ECMAScript 5** (December 2009): Brought minor improvements – a few standard library features and *strict mode*.
- **ECMAScript 5.1** (June 2011): Another small update to keep Ecma and ISO standards in sync.
- **ECMAScript 6** (June 2015): A large update that fulfilled many of the promises of ECMAScript 4. This version is the first one whose official name – *ECMAScript 2015* – is based on the year of publication.
- **ECMAScript 2016** (June 2016): First yearly release. The shorter release life cycle resulted in fewer new features compared to the large ES6.
- **Subsequent ECMAScript** versions (ES2017,....ES2023 etc.) are always ratified in June by the Ecma General Assembly.

**The book:**

**"JavaScript: The First 20 Years".**

ALLEN WIRFS-BROCK, Wirfs-Brock Associates, Inc., USA

BRENDAN EICH, Brave Software, Inc., USA

It's can be downloaded from

<https://dl.acm.org/doi/abs/10.1145/3386327>

**The blog:**

<https://blog.sigplan.org/2020/06/25/hopl-not-an-ordinary-conference/>

**The ECMA archive:**

<https://ecma-international.org/ecmascript-development-archive/>

**Other link:**

<https://brendaneich.com/>

***Next Chapter...where will take us?***

- Celebrate the 100th meeting

*Thank you Shu-yu Guo*





# Thank you