Ecma International

- Technical Committees
- Process (overview)
- Members
- Liaisons
TC12 (Safety)

- To consider national and international safety regulations to establish appropriate safety standards for information technology equipment so that they are intrinsically safe and safe for operating and maintenance personnel.

TC20 (EMC and EMF)

- Electromagnetic Compatibility and Electromagnetic Fields related to ICT and CE equipment.

TC26 (Acoustics)

- To recommend standards for determining the noise outputs of different categories of individual items of information technology equipment intended for use in defined working environments; standards for determining total noise levels in the said working environments, these standards to include corresponding methods of measurement; preferred methods of predicting total levels if units of known noise output are installed together.
TC31 (Information Storage)

- To identify and develop the minimum number of standards necessary for data interchange and/or storage by means of digitally recorded systems, e.g. optical, magnetic and holographic systems (such as disks, cartridges,...), and standards necessary for determining the life expectancy of such media.

- To study existing Ecma and ISO/IEC labeling / volume and file structure standards and, where necessary, initiate and pursue the development of volume and file structure standards.

TC32 (Multimedia Coding and Communications)

- To maintain an overall view and strategy for standardisation and to prepare and maintain Ecma Standards and Technical Reports required in the field of multimedia coding and communications, including transmission.

- To monitor, coordinate and pursue standardisation at a global level with regard to ISO/IEC JTC 1, including its SC 6 and SC 29, and the international standardisation world in general.

- To work together with ETSI within the framework for standardisation under the terms of the Co-operation Agreement between ETSI and Ecma, for publication of European standards and technical reports.

- To promote unified international standards.
TC38 (Product-related environmental attributes)

- To identify and describe the environmental attributes related to ICT (Information and Communication Technology) and CE (Consumer Electronics) products, during their entire life cycle, from conception to end-of-life treatment.

TC39 (ECMAScript)

- Standardization of the general purpose, cross platform, vendor-neutral programming language ECMAScript. This includes the language syntax, semantics, and libraries and complementary technologies that support the language.

TC43 (Universal 3D)

- To facilitate the reuse of 3D CAD data by developing global 3D standards intended for downstream 3D visualization applications.

TC45 (Office Open XML Formats)

- The goal of the Technical Committee is to produce a formal standard for office productivity applications within the Ecma International standards process which is fully compatible with the Office Open XML Formats. The aim is to enable the implementation of the Office Open XML Formats by a wide set of tools and platforms in order to foster interoperability across office productivity applications and with line-of-business systems. The Technical Committee will also be responsible for the ongoing maintenance and evolution of the standard.
TC46 (Open XML Paper Specification (OpenXPS))

- The goal of the Technical Committee is to produce a formal standard for an XML-based electronic paper format and XML-based page description language which is consistent with existing implementations of the format called the Open XML Paper Specification (OpenXPS). The Technical Committee will use the format called the Open XML Paper Specification (OpenXPS) as a starting point with the aim to provide a standard, secure, and highly trustworthy format that enables a wide set of applications, devices, tools and platforms to implement compatible paginated-document workflows. An additional goal will be to enable the interoperability of independently created software and hardware systems that produce, consume or otherwise process XPS content. The Technical Committee will be responsible for the ongoing maintenance and evolution of the standard.

TC47 (Near Field Communications)

- To develop Standards and Technical Reports for Near Field Communication Systems, for the realization of simple wireless communication between close coupled devices for network products and consumer equipment.

TC48 (High Rate Wireless Communications)

- To develop Standards and Technical Reports for high rate wireless communications.
TC49 (Programming Languages)

To standardize:
• the programming language C# (C "sharp")
• the programming language Eiffel
• a Common Language Infrastructure (CLI)
• a CLI binding for C++
• additional programming languages with cross-language bindings
• additional vendor-neutral, cross-language programming platforms

TC50 (Close Proximity Electric Induction Data Transfer)

• High-Speed Close Proximity Wireless Communications using Longitudinal Electric Induction Coupling
TC51 (Access Systems)

- Access System specifies a common language, modular architecture template, interfaces and protocols for the interoperability between (distributed) modules and sub-systems for access to assets.
- Such assets may be physical such as buildings, transport means, care centres, computers or digitised assets and services e.g. health care.
- The Access System specification is a generic template for existing and new systems that provide access to specific assets.

TC52 (Dart)

- To standardize the syntax and semantics of a modern, object oriented programming language called Dart as well as standardizing core libraries and complementary technologies that support the language. This work should not use patents or if so then only royalty free patents. To aid in achieving that objective, this TC will use an experimental TC52 RF patent policy similar that has been developed for use by TC39.
**ECMAScript** or **ECMA-262**, is the foundation for web sites that do more than display text and images.

**Work is in progress on further development of the language**

- After intensive work, TC39 completed **ECMAScript 5** which was adopted by the General Assembly in December 2009.

**ECMA-357** extends **ECMAScript 4** Native XML (**E4X**) support to create, manipulate and navigate XML data without programmers having to learn XML.

Both standards are also published as ISO/IEC standards.
● Is a high-speed wireless networking standard for use in the Television White Spaces: broadcast television spectrum not being used by licensed services at a given location;
● takes advantage of the superior propagation characteristics of the UHF-TV bands;
● Delivers more robust wireless connectivity, extend the coverage range and result in cost effective networking solutions, both indoors and outdoors.
● Complies with personal/portable device FCC rules to allow unlicensed radio transmitters to operate in spectrum white spaces. Others, e.g. OFCOM in the UK, are working on similar regulations;
● Uses cognitive radio technology to avoid interference with licensed services and other incumbent users; and
● Is based on the contribution from Cognitive Networking Alliance (CogNeA) that promotes white space devices in a collaborative and complementary fashion with Ecma’s standard development.
Television white spaces will provide more widely available and cost effective access to the internet in underserved markets.

The superior propagation characteristics provide much greater coverage range than existing unlicensed technologies.

Source: Microsoft (adapted)
• Television white spaces will enable wireless distribution of high-quality high-definition television for whole home, vastly improving the DTV experience.

• The new standard will provide reliable and robust coverage anywhere in a home, while consuming much lower power.
**TC32-TG21** Network Proxy

**Goals**

- **Proxies maintain Network presence so sleeping, higher powered, ICT Hosts reduce energy consumption:**
  - **Goals:**
    - Specify Proxy behavior in Ecma/ISO/IEC Worldwide standard
    - Adoption by US Energy Star (Computers) v06 in 2010/11
    - EU Lot 26 Sleep State Regulations

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Experts from Terra Novum (Chair), LBNL (Vice Chair), Intel (Editor), Hitachi, AMD, Microsoft, Sony, Realtek, Apple, Oce, Lexmark….
C# language and CLI

Several CLI and C# implementations

• .NET Framework and Visual Studio .NET
• “SSCLI” – Shared source on XP, FreeBSD, OS X
• “Mono” – Open source on Linux

Highlights

• Generics support in C# and CLI
• Binding of C++ and CLI
CSTA application-based communication control and monitoring:

- Object model in Unified Modelling Language (UML)
- Call control enhancements – advanced conferencing & collaboration
- Geographic location-based features
- Unified Multi media Communications
- Web-Services

Next Generation Corporate Networks (NGCN)

- Interconnection with Next Generation carrier Networks (NGN) using SIP-based signaling;
- Mobile business communications, including mobility aspects of intra-NGCN connections and NGCN-NGCN, NGCN-NGN interconnections;
- NGCN-NGCN interconnection using peering & federations.

Collaboration with ETSI, ISO/IEC JTC 1, ITU-T & IETF
 Incident Based Safety engineering

1. Incident happens
2. Analyse incident
3. Patch construction that avoids incident or mitigates undesired results
4. Measure effectiveness
   - Construction Effective?
     - no
     - yes
       - Standardise construction
1) Energy source
2) Hazardous Energy Source
3) Energy Transfer Mechanism
4), 5) Safeguard by Preventing, deflecting and/or attenuating Hazardous energy flow
6) Safeguarded Body Part

Identify Energy source

Is source Hazardous?

yes

no

Identify Means by which Energy source can be Transferred to a body part

Design safeguard that prevents transfer

Measure effectiveness

Safeguard Effective?

no

no

done

yes
**TC20** standardises:

- **Limits and measuring methods** for high and low frequency interferences generated by IT and CE equipment.
- **Levels and measuring methods** for immunity of IT and CE equipment to radio-frequency interferences.
- **Assessment methods** for compliance of IT and CE equipment with requirements limiting human exposure to electromagnetic fields (EMF)

Current work, TC20:

- Uses A-liaison with CISPR for more direct contributions
- Prepares IT and CE industry positions for CISPR, IEC TC77 and CENELEC TC 210 for the maintenance of CISPR 13, 20, 22 and 24
- Contributions to the future CISPR 32 and 35
- Finalised 1st draft Guide for Assessment of Human Exposure to Electromagnetic Fields (EMF) from Multimedia Products in accordance with IEC/EN 62311 – in close cooperation with Japanese Industry (VCCI and JEITA/EMF)
Near Field Communication (NFC) at 13.56 MHz for interconnection of peripherals and computers (akin to Radio Frequency Identification or RFID).


**ECMA-352**, NFCIP-2, 2003, to bridge ISO/IEC 18092, 14443 and 15693


**ECMA-373**, NFC-WI, 2007, two-wire Interface between a frontend and a transceiver; finalised NFC-FEC: front end commands for ECMA-373

NFC-SEC(urity) Services and Protocol and cryptography suite

Finalised **Memory Spot IP-1**: closely coupled devices @ 2.4 GHz

Developing **Visual Light** NFC
General characteristics
• Wavelength: between ~400nm (750THz) - ~700nm (428THz);
• Unregulated;
  • Visibility: Aesthetically pleasing;
  • Security: What You See Is What You Send;
  • Safe: Harmless for human body;
  • Line of Sight: Non-interference with other devices
• High data rates:

Coverage (cm)
Distance (cm)

120 Mbps

240 Mbps

320 Mbps

-log (BER)
Personal Area Network (PAN)
Network connecting devices in the close vicinity of a person/personal entity → local scope

Personal Network (PN)
Network that connects all nodes (of all PANs) of a person or private entity

- **User centred**
- **Secure and trustworthy**
- **Virtual vicinity** of local and remote resources
- **Self-organisation** of network connections
- **Heterogeneity** of technologies
Example: PNs & federations
60 GHz Communications

- Wireless very high rate short range (up to 10 meters) – see ECMA-387
- To exploit low cost technology for up to 10 gigabit/second
- Focus on coexistence and interoperability between 3 device types ranging from lowest cost point-to-point to networked devices with trainable antennas, see White Paper.

Ultra WideBand (UWB) Communications

- Updates in 2008 for better support of Bluetooth to ECMA-368, High Rate UWB PHY and MAC (ISO/IEC 26907)
- Detect and Avoid enhancements to use available spectrum
Environmental Design considerations **ECMA-341**

- Material & Energy Efficiency;
- Consumables & Batteries;
- Chemical Emission & Substances and Preparations needing special attention;
- Extension of Product Life Time & End of Life;
- Documentation & Design Checklist (e.g. ECMA TR/70).

2nd edition (aligned with IEC ECD guide 114, recent EC Directives, legislation and ECMA TR/70 3rd edition) adds:

- More granular (energy saving) modes;
- Updates on batteries and consumables;
- Guidance to reduce acoustic emissions.

IEC and published the 2nd edition as IEC 62075; with which the 3rd edition 341 that in turn is fully aligned for further revision.
Determination of chemical emission rates (ECMA-328, ISO/IEC 28360)

- TC38-TG1 is integrating Measurement Methods on Ultrafine Particle Emissions considering actual findings of industrial and governmental research in the 5th edition

ECMA-370, TED or THE ECO DECLARATION in TC38-TG2

- Following publication of the 3rd edition of ECMA TR/70 “environmental attributes”, Ecma TC38 harmonised TR/70 with the IT ECO declaration into ECMA-370

- extending the applicability to more geographic regions in JP-GO-370 WG for Japanese specifics attributes and legal references

- See also TC38’s strategy plan
Compilation of an **Energy efficiency standard** with initial focus on desktop and notebook computers

**Innovative Approach: Considering computer Energy Efficiency Performance rather than only energy consumption.**

Definition of **PC standard configuration** (RAM, HDD capacity, graphic, network boards, etc...) for a given model or application or product segment or typical usage
Universal 3D (U3D)

A new set of standards and TRs on a common extensible open file format and infrastructure for 3D CAD data which are repurposed for downstream visualisation applications. Such applications are focused on non-engineering and non-design use, e.g., training, sales/marketing, documentation, etc., further increasing the value of CAD.

Characteristics of U3D are:

- Execution architecture to optimize run-time modification of geometry, reducing the need for data computation
- Model complexity can be adapted to the deeded quality of performance
- Domain-specific compression, reducing file sizes
- Progressive data streaming and playback
- Key-frame and bones-based animation
- Extensibility of the U3D file format and run-time environment
- **ECMA-363** is the first standard for the Universal 3D file format.
Holographic Information Storage Systems (HISS)

Standards for HVD-ROM disk and HVD Recordable Cartridges were published at 12/2006 and 05/2007. Media with Permanent Holographic Information (PHI) are called media of the Phi-Type.

First generation media support capacities from 30 Gbytes (Cards/HVC) to 200 Gbytes (Disks): HVD-R (100 Gbytes) and HVD-ROM (200 Gbytes). Future media is expected to have capacities of 1 Tbyte and more.

ECMA-375, ECMA-377 and ECMA-378

Office Open XML Document Formats

• Designed to **represent all information of .doc, .ppt and .xls in XML**
• Default file format for Office 12
• Proposals for complementary or additional technology are considered for the evolution of the standard, under the provision of insured backward compatibility.

ECMA-376 Edition 3 was approved in June 2011 and is technically aligned with ISO/IEC 29500 2nd edition.
XML Paper Specification

Scope:

• produce a formal standard for an XML-based electronic paper format and *XML-based page description language* consistent with existing implementations of the XPS format

• enable the interoperability of independently created software and hardware systems that produce, consume or otherwise process XPS content

• build a framework for the ongoing evolution and maintenance of the standard

This standard was approved as **ECMA-388** in June 2009.
TC38 Smart Data Centre

Monitoring and Control to optimise IT, power and cooling resources in data centres while guaranteeing the service levels for computing:

- **Management Function(s)**
- **Smart Client**
  - **Messages**
    - **Commands**
    - **Data Centre**
  - **Responses/Events**
- **In Scope**
- **Resources**
  - **IT & facility equipment, systems and components**
TC38 Business Video Conferencing

To improve interoperability and use of heterogeneous - high-end and CE - video conferencing systems:

1990s 2000s 2012 2013 2014

Existing products (not updatable on profiles)
- H323 (H264, initial version)

Legacy video protocol products
- H320 (H263)
- H320 (H261)

Non-video-conference products
- Mobile phone (H324M)
- Conventional telephone

Transcoder
Gateway
Gateway

New telepresence products and existing H323/SIP products (updatable on profiles)

Universal interoperability
Cross-vendor interoperability
Cross-product interoperability

Mobile phone (H324M)
Conventional telephone Gateway

Existing products (not updatable on profiles)
- H323 (H264, initial version)

Legacy video protocol products
- H320 (H263)
- H320 (H261)

Non-video-conference products
- Mobile phone (H324M)
- Conventional telephone

Transcoder
Gateway
Gateway

Universal interoperability
Cross-vendor interoperability
Cross-product interoperability
Two staged efficient process

- Work Item
- Development in a Technical Committee
- Final Draft
- Vote in the General Assembly
- ECMA-xxx

Electronic working methods

Hands-on Guidance

Time Proven (since 1961) Rules and (IPR) Policy

Systems, Support, Procedures and Practices

Effective liaisons
In short:

1. **Work Item**
2. **Development in a Technical Committee**
3. **Final Draft**
4. **Vote in the General Assembly**
5. **ECMA-xxx**
Ordinary (Full) Members

Adobe
AMD
eBay
Google
HP
Hitachi
INVENT
Yahoo!

Associate Members

Apple
Canon
Facebook
Fujitsu
JRE
Netflix
Toshiba

SME Members

China IWNCMM
METEOR
SWISSAUDIC

SPC Members

Knowledge Initiatives
NEW AUDIO TECHNOLOGY
QUADRAC

Ecma International Liaisons

ISO JTC1 IEC
International Technology Standards

ITU
International Organization for Standardization

CEN

CENELEC

ETSI
World Class Standards
Thank you!