



INTERNATIONAL

Ecma TC43: Universal 3D

Companies are seeking better ways

- *to communicate ideas, concepts, new products*
- *improve product quality*
- *reduce costs of production*
- *improve time to market*
- *support products throughout product life cycle*

Interactive 3D is recognized as a powerful training and education tool

Powerful servers, desktop and laptop computers that can run these applications are readily available today

Bandwidth and streaming pipeline are available as well

...stars are aligned...

Establish 3D as a common media for communication

- *Pictures are the "lingua franca" for the worldwide economy*
- *3D is international business language*

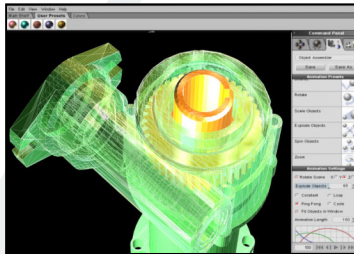
Interactive 3D is recognized as a powerful training and education tool

- *U3D format (Universal 3D) as the "JPEG for 3D"*
- *Brings the 3D domain to nontraditional users – low cost, lightweight, non-technical*

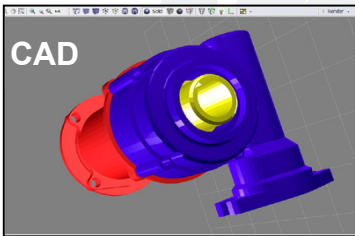
Assist companies in capitalizing on significant IP and hardware assets

What has held 3D back?

1. Bandwidth constraints
2. Requires certain skills to repurpose 3D content/assets
3. No easy repurpose path
4. Industry is fragmented



Visualization/
Simulation

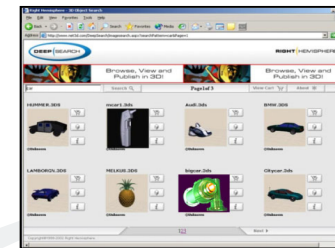


Design /
Manufacturing

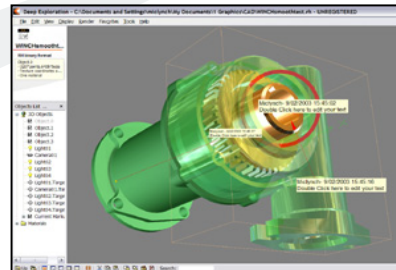
Repurpose



Sales & Marketing



Data Management



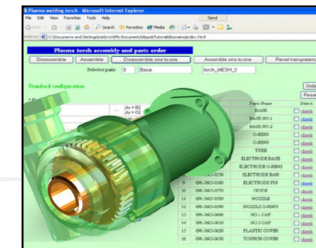
Collaboration



Training / Maintenance



Documentation



Config / Bill of Materials

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Bringing 3D to the Mainstream

Task

- *Communication*
- *Visualization*
- *Instruction*
- *eDocumentation*

Hardware Requirements

- *PCs/Laptops/Servers/Handhelds*

Software Requirements

- *Internet browser/free plug in*

Investment Required

- *Viewing devices – low*
- *Licenses – low, if any*
- *Training – negligible*
- *Installation – negligible*

Benefits

- *Ubiquitous communication and access to data*
- *Reduced production errors*
- *Improved time to market opportunities*
- *Increased value of CAD*
- *Lightweight and internet deliverable*

***Bringing 3D
to the
Mainstream***

Industry Collaboration

- *3D Industry Forum (3DIF)*

Single visualization format global standard

- *Universal 3D*

Enabling Technologies

- *Run Time Libraries (RTL)*
- *Sample Implementation (in 3DIF)*
- *Extensibility*

Strategy for Adoption

- *Marketing efforts through 3DIF*
- *Committed implementations by users & ISVs*
- *ISO Standardization*



Establish a common extensible open format for downstream 3D CAD repurposing and visualization

- *Universal 3D (U3D) Open File format specification*
- *Run-Time Libraries*

**Consists of major players in 3D ecosystem
We welcome others interested in 3D to join TC43!**

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

Programme of Work:

- 1. To standardize a Universal 3D extensible file format and infrastructure focused on the repurposing of 3D CAD data for non-engineering and non-design applications, e.g. training and visualization applications. Notable U3D features include binary encoding, domain-specific compression, continuous level of detail, progressive data representation, animation support, and extensibility to address evolving market needs.**
- 2. To develop a usage and implementation strategy guide for users of U3D to be published as an Ecma Technical Report (TR).**

- 3. To contribute the Ecma U3D standards to ISO/IEC JTC 1 for approval and adoption by ISO and IEC.**
- 4. To establish and maintain liaison with other standards organizations in order to present Ecma U3D proposals to them and to make comments on their proposals.**
- 5. Upon completion of items 1 - 3, to investigate the future direction of 3D standards, and to evaluate and consider proposals for complementary or additional technology, e.g. support for advanced physics based lighting and rendering applications.**
- 6. To assume responsibility for the maintenance of Ecma Standards prepared by TC43.**

Execution architecture that facilitates optimal run-time modification of geometry

- *Increased performance due to reduced need for data computation*

Continuous-level-of-detail

- *Enables applications to increase or decrease model complexity based on needed quality or performance*

Domain-specific compression

- *Allows for reduced file sizes*

Progressive data streaming & playback

- *Handles real-world usage scenarios for improved end-user experience*

Key-frame and bones-based animation

- *Facilitates animation for applications that repurpose CAD data*

Extensibility of U3D format and run-time

- *Allows for ecosystem development and market needs to be quickly addressed*



Ecma/TC43

Join us to make Universal 3D a reality