

# Ecma TC43: Universal 3D

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## Why U3D Now?

#### **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



# **Challenges of Repurposing 3D CAD**





# **U3D Target Environment**

# Bringing 3D to the Mainstream

Task

- Communication
- Visualization
- Instruction
- eDocumentation

#### **Hardware Requirements**

- PCs/Laptops/Servers/Handhelds
- **Software Requirements** 
  - Internet browser/free plug in



# **U3D Target Environment**

#### **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



# So...what's needed?

### **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



## Membership



### 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

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