WG 8 Overview and Roadmap

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<u>Official Title</u>

 Environmental Data Representation

<u>Aim</u>

To provide a forum for developing Environmental Data standards that are:

- **Universal – apply to ocean, terrain (including urban environments), atmosphere and space**
- **Integrative – can accommodate data for different uses, applications, and domains**
- **Unambiguous**
- **Interchangeable**

Current WG 8 Standards

- **SEDRIS standards support the aims of WG 8**
- **SEDRIS Technology forms the basis of the WG 8 Standards**
- **WG 8 Standards, published between 2005 and 2014, are:**

- ISO/IEC 18023-1, SEDRIS -- Part 1: Functional specification (Edition 1, Amd 1)
- ISO/IEC 18023-2, SEDRIS -- Part 2: Abstract transmittal format (Edition 1)
- ISO/IEC 18023-3, SEDRIS -- Part 3: Transmittal format binary encoding (Edition 1, Amd 1)
- ISO/IEC 18024-4, SEDRIS language bindings -- Part 4: C (Edition 1, Amd 1)
- ISO/IEC 18025, Environmental Data Coding Specification (EDCS) (Edition 2)
- ISO/IEC 18026, Spatial Reference Model (SRM) (Edition 2)
- ISO/IEC 18041-4, EDCS language bindings -- Part 4: C (Edition 2)
- ISO/IEC 18042-4, SRM language bindings -- Part 4: C (Edition 1, Amd 1)

Why is SEDRIS Needed?

- **For most Modeling and Simulation applications, 3D Visualization was initially all that was required. Many people still think that way for many applications of environmental data.**

- **This approach resulted in environmental databases that could not be interchanged and thus became proprietary material**

- **To enable environmental data to be used for any type of application, for example, Cartography, Smart Cities, IoT, as well as being interchangeable and non-proprietary, SEDRIS developed standards so the data was understandable and could be analyzed.**

Key SEDRIS Concepts

SEDRIS therefore specifies:

- **The relationships between environmental objects using a**
  Data Representation Model (DRM)

- **The necessary characteristics and identifiers for**
  environmental objects, using an
  Environmental Data Coding Specification (EDCS)

- **An unambiguous definition of position & orientation, using a**
  Spatial Reference Model (SRM)

- **SEDRIS provides this, while also being**
  Universal, Unambiguous, Integrative, and Interchangeable

Today's Challenges

- **To define environmental data unambiguously that can be used by multiple applications is a complex task. SEDRIS achieves this and, as a result, is more complex than many people expect**

- **The aim of this brief presentation is to show that, because of the information it specifies, SEDRIS is well suited to a range of applications. In particular, the developing technologies of:**
  - **Mixed and augmented reality (MAR)**
  - **Smart Cities**
  - **Internet of Things (IoT)**

Status of WG 8 Standards

- The current WG 8 standards for SEDRIS Technology provide the full capability to define and interchange Environmental Data

- Available now, free-of-charge

- Complemented by an extensive online registry for EDCS and SRM

- An enhancement is planned for the SRM to provide a more unified and comprehensive definition of rotation and orientation. This is partially included in the current edition, as it is not an easy problem to resolve.

- Work has started on this enhancement, but is currently on hold due to funding

- However, the published SRM (Edition 2) is valid for all situations except for the most complex definitions of rotation and orientation

WG 8 Roadmap

WG 8 is working to extend the range of applications for which SEDRIS standards are used.

Current Efforts and Projects using SEDRIS standards

- **US Army database projects – SE Core**
- **Mixed and augmented reality (MAR)**
- **Reuse and Interoperation of Environmental Data and Processes (RIEDP) – A SISO project**
- **Work of OKTAL-SE in providing complex sensor representations**

Planned Projects

- **Smart Cities**
- **Internet of Things (IoT)**

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Any Questions?