

Overview of WG 8

Status and Highlights

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Official Title

Environmental Data Representation

- **Current WG 8 standards are based on SEDRIS Technology**
- **WG 8 focuses on the development of standards for representing and exchanging environmental data used in a variety of applications, such as visualization, simulation, analysis, training, VR, MAR**
- **SEDRIS provides a mechanism for the Re-use and Interchange of Environmental Data**

Why SEDRIS is Needed

- **Previous methods for environmental data representation were proprietary and, for visualization applications, they were usually specific to a particular image generator**
- **Even currently available systems that are called “Open” are often proprietary and managed by a Third Party**
- **SEDRIS is non-proprietary and provides freely available standards that are:**
 - Universal – apply to terrain (including urban areas), ocean, atmosphere and space
 - Comprehensive – accommodate data for different uses, applications, and domains – both real and virtual
 - Unambiguous
 - Interchangeable

Key Components of SEDRIS

Instead of representing environmental objects only by their visual or image appearance, SEDRIS also includes their various/alternate representations, their relationships, physical properties and characteristics

SEDRIS achieves this by representing:

- **The relationships between environmental objects using its [Data Representation Model \(DRM\)](#)**
- **The necessary characteristics and identifiers for environmental objects, using the [Environmental Data Coding Specification \(EDCS\)](#)**
- **An unambiguous definition of position & orientation, using the [Spatial Reference Model \(SRM\)](#)**

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**
- **Supported by an extensive online registry for the EDCS and SRM that provide a fast track for application-specific additions**
- **Complemented by freely available implementations of the standards in C/C++/Java, and in the form of software development kits (SDK) and tools/utilities**
- **An enhancement is planned for the SRM to provide a more unified and comprehensive definition of rotation and orientation.**
- **Although the enhancement for the SRM is on hold, the published SRM (Edition 2) is valid for all situations except the most complex definitions of rotation and orientation**

The Need for New Work Items

- **In June of this year, WG 8 was reminded by ISO that any Working Group with no items in its current Work Programme is considered to have completed its task and should be disbanded**
- **WG 8 is quite active in supporting various environmental data representation and exchange initiatives; but to adhere to ISO rules, it is therefore essential to raise New Work Items (NWIPs)**
- **The planned development for the progression of the SRM to Edition 3 cannot be resourced at present, so is not ready to be raised as an NWIP**

New Work Items

- **As a result of the on-going web based graphics work by the Korean National Body, a requirement has been identified for C++ language bindings to access the SEDRIS DRM and the EDCS**
- **NWIPs have therefore been prepared for:**
 - SEDRIS Part 1 Language Binding to C++
 - EDCS Language Binding to C++
- **These NWIPs will be presented for approval at the SC 24 Plenary meeting**
- **Other NWIPs may be raised after September to support web-based visualization initiatives**

Other Work during the Year

WG 8 continues to work with other standards groups in order to promote and increase the use of SEDRIS standards

In particular, WG 8 has been very active in:

- WG 9: Mixed and Augmented Reality (MAR) standards, such as the MAR Reference Model (18039)
- The SISO RIEDP project (Reuse and Interoperation of Environmental Data and Processes (RIEDP))
- The SG for System Integration Visualization (SIV) with respect to:
 - VR/AR for Education
 - Smart City Visualization, in liaison with JTC 1/WG 11 Smart Cities

Future Work

Scheduled Work

- SEDRIS LB to C++
- EDCS LB to C++

Planned Work

- Continued work with SG SIV
- Provide an X3D interface to the SEDRIS DRM
- Propose RIEDP based standards

Current WG 8 Standards

- **SEDRIS standards support the aims of WG 8**
- **SEDRIS Technology forms the basis of current WG 8 Standards**
- **WG 8 Standards published between 2005 and 2016 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)
 - ISO/IEC 9973, Procedures for Registration of Items (Edition 3)