

SEDRIS Organization Report
to
ISO/IEC JTC 1/SC 24 and WG 8
SC 24 and WG 8 Plenary (online) Meetings
11 July - 4 August 2022

Since the 2021 online SC 24 Plenary and Working Group meetings, SEDRIS Organization has continued its contributions to new and on-going work of SC 24 and its working groups, including monitoring work in the newly established WG 11, and contributing to new and existing work items in WG 8, WG 9, WG 10, as well as supporting SC 24-level activities.

Emanating from the Korean National Body's work to visualize SEDRIS data using X3D, two WG 8 work items associated with C++ language bindings for the application program interfaces (API) of EDCS and SRM are progressing. The Draft International Standard (DIS) ballot for the EDC C++ language bindings was completed in May 2022, and SEDRIS Organization supported the review and adjudication of the comments on the DIS ballot. ISO Editors provided all the DIS comments on EDCS C++ language bindings. Some of these comments noted necessary changes to comply with Directives, which in turn have a propagating effect through out all clauses of the standard because of the changes to sub-clause numbering and associated cross-links. Some comments were related to HTML nature of the document, for which there are no clear guidelines (SC 24 has raised these HTML-related issues in its previous resolutions over the last few years). One or two comments reflected a discontinuity in acknowledging the twenty-five year Cooperative Agreement and Liaison relation between the SEDRIS Organization and ISO, dating back to the formal establishment of the relationship in 1997! There are no digital records of the signed agreement, and the passage of time has made it very difficult to locate the paper records. The same issue has been raised with other SC 24 liaison organizations (including Web 3D Consortium) dating back to the same time frames. Fortunately, the paper trail exists within at least the annual Resolutions of SC 24 and other associated documents (although some of those also do not go as far back as 25 years). With regard to the EDC C++ language bindings comments, the issue was addressed in the comment resolution. SEDRIS Organization has also supported the review of pre-draft SRM C++ language bindings and has provided recommendations and support for making changes to the text based on existing SRM C++ implementation and documents.

Another C++ language binding, for SEDRIS Part 1 (DRM and STF), may also be initiated in the future. SEDRIS Organization will continue to support the development of these new (and upcoming) work items by reviewing the drafts and providing information on the concepts and documentation based on existing C++ software implementations of these APIs.

The Korean National Body had also reported working on a visualization tool that can take STF data as input and generate X3D content, as well as XML-based STF content. These may result in additional new work items, and therefore their technical details and potential challenges will need to be discussed and supported by SEDRIS Organization.

The productive and close cooperation with key geodesy experts at the US National Geospatial-Intelligence Agency (NGA) continues on various projects and efforts of mutual

interest. Under the leadership of NGA, SEDRIS Organization's work on Edition 3 of the ISO/IEC 18026 Spatial Reference Model (SRM) began in October 2021, and despite some challenges the development of the specification is progressing well. Some of the challenges encountered included the reconstitution of the last draft of the specification from 2012, while trying to leverage more modern equation editors. Generation of cross-linked multi-file PDF documents also has presented some challenges. The SRM Editors will highlight some of these and other related status during the WG 8 Working Session. A new work item for Edition 3 of the SRM, with accompanying committee draft text, will be submitted to SC 24 later in 2022. SEDRIS Organization expresses great appreciation for the diligent and hard work of Mr. Craig Rollins throughout the years. Craig recently retired from NGA, but continues to remain active with the SRM-related efforts. Supported by the significant efforts of Mr. Brian Gosling and Mr. Scott Spaunhorst (both of NGA), in 2020-21 Craig was instrumental in re-igniting the work on Edition 3 of the SRM. Mr. Ryan Neilson (also of NGA) has taken on Craig's responsibilities and continues with his contributions to the advancement of the SRM. As part of the SRM work, and in coordination with both Craig and Ryan, SEDRIS Organization has also held several technical exchange meetings with Open Geospatial Consortium's GeoPose Standards Working Group (co-chaired by Ms. Christine Perey) and will continue the close interchange of ideas on topics related to both the SRM and GeoPose.

Other WG 8 related efforts are the continued SEDRIS Organization's contributions to Simulation Interoperability Standards Organization's (SISO) standards being developed within SISO's Reuse and Interoperation of Environmental Data and Processes (RIEDP) Product Development Group (PDG) and the work of SISO's Environmental Data Representation Standards Product Support Group, which closely cooperates with WG 8 and provides a focal point for relevant SISO community activities on environmental data standards and topics. The RIEDP standards use and reference the SEDRIS standards, and are highly relevant to on-going work within WG 8 and SC 24. The first RIEDP PDG product, the *RIEDP Data Model Foundations*, was published in 2018 as the SISO Guidance Product SISO-GUIDE-007-2018. Work on the second product (the *RIEDP Detailed Features Descriptions*) continues, with contributions from experts in the simulation community on environmental characteristics associated with material, light, and sensor-related semantics.

SEDRIS Organization has continued its contributions to the development and review of WG 9 documents and standards on Mixed and Augmented Reality (MAR). The work of WG 9 remains of great interest. As noted in prior reports, and in order to enhance and strengthen the areas of work in WG 9, it is important that WG 9 increase seeking more of the direct involvement of practitioners in industry, ensuring the standards focus on providing capabilities and tested solutions that will address practical and existing problems.

SEDRIS Organization also continues its contributions to the work of WG 10. ISO/IEC DTS 5147 the Technical Specification *Guidelines for Representation and Visualization of Smart Cities* was released for CD ballot. Although SEDRIS Organization was not able to provide comments on the CD version, the document represents a methodical approach for representing and visualizing data and information in Smart City applications. The Technical Specification emphasizes the relevant uses of existing SC 24 standards in Smart City modeling and visualization applications. SEDRIS Organization contributed heavily to the development of this Technical Specification, and continues to support the important goals of WG 10.

In addition, SEDRIS Organization has been following and monitoring the work of recently established WG 11 on topics related to health, safety, security and usability of AR and VR; as well as the work of JWG 12 on VR/AR/MR based ICT Integration Systems (which is looking at such topics as use of these technologies for education and learning).

The emerging work in Smart Cities, the on-going work in MAR, and the use of (VR, AR, or traditional) visualization in training, education, and other applications are closely associated with the capabilities and standards developed during the last four decades for networked modeling and simulation (M&S) applications, in which live and virtual environments are combined and integrated. The experiences gained in the networked M&S domain, including the concepts and capabilities in SEDRIS technologies, are valuable assets in supporting SC 24 and JTC 1 efforts, contributing to the underlying data models, architectures, and representation techniques that are required.

SC 24 standards continue to play a key role in supporting JTC 1 Systems Integration initiatives, such as Big Data, Sensors, and Smart Cities. In line with these goals, it is critical that SC 24 visualization standards provide a richer support for bi-directional interaction between the user and the underlying data. In addition, it is also critical for all standards activities in SC 24 to clearly articulate what problem is being solved, why the problem is relevant and important, and what value the solutions offer to standardizing the methods or practice in the community. This important issue was first raised by SEDRIS Organization in 2017 and 2018, and tangentially resulted in further work on the SC 24 Roadmap. While the Roadmap is important, the core issues in clearly articulating “*what problems are being solved and why*” should also remain in focus.

During the past year, SEDRIS Organization also supported various SC 24 initiatives and activities. This included participation in the refinement of the SC 24 Roadmap, representing SC 24 in the vocabulary discussions of JTC 1/AG 18, review and coordination with other SCs, and providing support to both the US National Body and SC 24 in the planning and scheduling of the 2022 online Plenary and Working Group meetings.

SEDRIS Organization is grateful to Dr. Jack Cogman for his continuing involvement in SEDRIS, WG 8, and SC 24 activities since stepping down as the WG 8 Convenor. SEDRIS Organization also expresses great gratitude and appreciation to Mr. Gary Wentz and Mr. Tim Gifford for their continued support despite their retirement a few years ago after more than two decades of service to WG 8. SEDRIS Organization also expresses appreciation to Ms. Jean Stride, as the SC 24 Committee Manager, for all her hard work in updating and streamlining the processes in SC 24, and to Dr. Myeong Won Lee, as the SC 24 Chair, for her continued work in many projects within SC 24.

SEDRIS Organization looks forward to continued productive work with SC 24 and all its working groups, including the newly established JWG 12, in developing, progressing, and promoting the SC 24 standards.

Respectfully submitted,

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SEDRIS Organization
15 July 2022