**JTC 1/SC 24/WG8\_N0632**

**ISO/IEC JTC 1/SC 24**

**Working Group 8**

**34th WG 8 Plenary Meeting**

**Minutes of Plenary and Other Meetings**

**OKTAL-SE facilities
11, avenue du Lac
Vigoulet-Auzil, Toulouse, France
06 – 10 August 2018**

These minutes record the meetings of Working Group 8 that took place during the 2018 annual SC 24 meetings held at the OKTAL-SE Premises in Vigoulet-Auzil, Toulouse, France

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Access to WG 8 Presentations referenced in the Minutes

The presentations are stored in the WG 8 document Register and also in the ISO/LiveLink SC 24/WG 8 General Document folder. These may be accessed on-line using the following links:

[WG 8 Document Register](http://www.sedris.org/wg8home/document.htm)

[ISO/LiveLink SC 24/WG 8 General Documents](https://isotc.iso.org/livelink/livelink/open/jtc1sc24wg8)

**WG8\_N0630:** WG 8Convenor’s Report

**WG8\_N0631:** WG 8 Recommendations to SC 24

**WG8\_N0633:** SEDRIS Organization Liaison Report

**WG8\_N0634:** WG 8 Overview and Roadmap

**WG8\_N0635:** OKTAL-SE Corporate Overview

**WG8\_N0636:** RIEDP, SISO Standards for Environmental Data Sharing

**WG8\_N0637:** SEDRIS visualization using X3D

SC 24 documents referenced in the Minutes may be accessed at:

[SC 24 N-Documents List](http://isotc.iso.org/livelink/livelink?func=ll&objid=8916524&objaction=ndocslist)

* + - 1. Introduction

This document records the following meetings:

* Technical Presentations Session on Monday 6 August
* WG 8 Working Session on Wednesday 8 August
* WG 8 Plenary on Thursday 9 August
* Additional Items discussed during the Week

WG 8 members also attended the SC 24 Plenary meeting on Friday 10 August. SC 24 Resolutions resulting from this meeting have been issued as document **SC24 N4109**, available from the [SC 24 N-Documents List](http://isotc.iso.org/livelink/livelink?func=ll&objid=8916524&objaction=ndocslist).

A number of people participated remotely during the Technical Presentation Session and at other meetings, but for the WG8 meetings, nobody participated remotely, due to inconvenient times in many parts of the world.

* + - 1. Technical Presentation Session

**Monday 6 August 2018**

**08:30 – 17:30 OKTAL-SE, Toulouse, France**

Corresponding to:

14.30 – 23:30 Beijing, China

07.30 – 16.30 UK

02.30 – 11.30 USA (East Coast)

23.30 – 08.30 USA (Pacific) Sunday/Monday

**Chair: Farid Mamaghani**

Repeating the successful Joint Technical Session at the 2017 SC 24 Meetings in Arlington, the week began with a day dedicated to presentations from all sections of SC 24, as well as from TC 184/SC 4, OKTAL-SE, and SISO RIEDP. The agenda for the presentations is given in [Appendix A](#Appendix0). A subset of the presentations is highlighted here.

The session began with details of the site facilities and events planned for the week, given by the meeting hosts, Jean Latger and Carol Nissoux of OKTAL-SE.

Each of the WGs gave an overview of the work they are doing. The WG 8 overview is given by document **WG8 N0634**.

The following presentations were of particular relevance to WG 8:

Joint Working Group 16 (JWG 16) – Christophe Mouton

The Joint Working Group JWG 16 has been established by ISO TC 184/SC 4, and includes JTC 1/SC 24 and ISO TC 171/SC 2. JWG 16 was established to find a preferred way to visualize data generated by ISO 10303 (STEP). The ISO 10303 standard has been in existence for over 30 years and provides a method for specifying data relating to component parts of a system and their interconnections, such as for the components of an aircraft. As the data set is often very large, TC 184/SC 4 are looking for a standard that would allow them to visualize and possibly interrogate the data.

An outcome from the subsequent meetings that took place is that X3D is being considered as a suitable standard for visualizing STEP data, but no decision has yet been made. Although WG 8 does not have any visualization standards, there are similarities between the concepts in ISO 10303 and those of the SEDRIS standards. For this reason, and as a consequence of productive discussions during the week between WG 8 and JWG 16 members, WG 8 plans to keep in contact with TC 184/SC 4 and the JWG.

 SEDRIS Visualization using X3D – Prof. Myeong Won Lee

Myeong Won Lee, the SC 24 Chair, presented initial plans for a new project for visualizing the data in an STF (SEDRIS Transmittal Format) using X3D. The presentation was shown again during the WG 8 Working Session, where it was discussed in more detail (see [section 3.7](#Section37)). It is available as **WG 8 document 0637** from the [WG 8 Document Register](http://www.sedris.org/wg8home/document.htm) and the [ISO/LiveLink SC 24/WG 8 General Documents](http://isotc.iso.org/livelink/livelink?func=ll&objId=8916696&objAction=browse&viewType=1)

SISO RIEDP Standards Status and their Relationship to SC 24 – Farid Mamaghani

SC 24/WG 8 and in particular, Farid Mamaghani, have been working with the SISO development group for RIEDP (Reuse and Interoperation of Environmental Data and Processes) for the past few years. RIEDP is relevant to the field covered by SC 24 and in particular SC 24/WG 8, since it addresses the specification and processing of environmental data. It was explained that simulation is often mis-understood as relating only to imaginary data, as opposed to real world data.

A variation of this presentation was given by Jean-Louis Gougeat (RIEDP Chair) during the WG 8 Working Session, where it was discussed in more detail (see [section 3.8](#Section38)).

Technology Development at OKTAL-SE – Jean Latger

The hosts of the meeting, OKTAL-SE, gave this presentation about their company.

OKTAL was founded in 1989 with the aim of providing COTS software for physics based sensor simulation. As such, it produces its own set of tools that are collectively called SE-WORKBENCH. It addresses the markets for both Simulation - Man in the Loop, such as for training, and for Simulation in Research. To ensure that the environmental data is interchangeable, SEDRIS is used to represent and organize the data.

OKTAL-SE would like to participate in developing a common standard for areas in which it specializes, namely:

* Terrain modeler work data
* Spectral physical data
* Procedural data generation

Further details about these specialist areas are given in the presentation file, which is available as **WG 8 document 0635** from the [WG 8 Document Register](http://www.sedris.org/wg8home/document.htm) and the [ISO/LiveLink SC 24/WG 8 General Documents](http://isotc.iso.org/livelink/livelink?func=ll&objId=8916696&objAction=browse&viewType=1)

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* + - 1. WG 8 Working Session and Presentations

**Wednesday, 8 August 2018**

**08.30 – 12.00 OKTAL-SE, Toulouse, France**

Corresponding to:

14.30 – 18.00 Beijing (China Standard Time)

07.30 – 11.00 UK

02.30 – 06.00 USA (East Coast)

23.30 – 03.00 USA (Pacific)

**Chair: Jack Cogman**

**Introduction**

The attendees are shown in shown in [Appendix E](#AppendixD).

As part of the Working Session, two presentations were given that were considered relevant to the work of WG 8. A third external topic that was presented at the Monday Technical Session (JWG16) was also included in the agenda.

The Agenda is given in [Appendix B](#AppendixA).

Welcome and Introductions

The attendees at the meeting introduced themselves.

Jean Latger and Carole Nissoux from OKTAL-SE and Jean-Louis Gougeat from Sogitec and SISO were welcomed to the meeting.

 Pending Work Projects

There are currently 5 anticipated work projects. The 5 work projects represent plans for future work, although none of them exist as work programmes at present. Of these, the completion of SRM Edition 3 (18026) is considered the most important, since the other projects are dependent on it.

 Work Schedule

There have been no changes to individual work programmes or to the work schedule.

 EDCS Registry

There have been no changes to the contents of the EDCS Class of items in the SC 24 Registry.

Migration of WG 8 Documents to LiveLink

As from document WG8 N0593 (Minutes of the Seattle Plenary in August 2015), all subsequent documents are being uploaded to the [ISO/LiveLink SC 24/WG 8 General Documents](http://isotc.iso.org/livelink/livelink?func=ll&objId=8916696&objAction=browse&viewType=1) folder.

Action 31-02 covers the transfer of all WG 8 documents to LiveLink and is continuing.

Action 33-02 is to investigate whether persons other than the WG 8 convenor may edit the WG 8 document folder. The question has been asked to ISO LiveLink, but has not yet been resolved.

 JWG16: Formats for Visualization of Data

TC 184/SC 4 has established a Joint Working Group JWG 16, to identify a method for the web-based visualization of the data within its STEP standard (ISO 10303). STEP defines a standard way to specify all the properties and components related to manufacturing product components and assemblies, such as:

* Geometry
* Physical properties
* Relationship to other products
* Metadata

A joint meeting was held between JWG 16 and WG 6, at which the suitability of using X3D for the visualization was considered. No final decision was made.

Although the main interest for JWG 16 in SC 24 is X3D, the similarities between the function of the STEP standard and the SEDRIS standards were noted. A subsequent productive discussion between WG 8 and JWG 16 members explored and highlighted many of these similarities (and differences) in concepts, approach, and technical methods.

 “SEDRIS Visualization using X3D” – Prof. Myeong Won Lee

The presentation was a repeat of the presentation given by Prof. Myeong Won Lee during the Monday session. More time was allowed during the Working Session to enable a more detailed discussion to take place.

Visualization of STF data would have the benefit of providing a verification method for STF data, as well as providing richer data products for use in X3D visualizations. There was an incorrect assumption that since the implementation of the converter (from STF to X3D) software will be written in C++ and since the existing SEDRIS language binding standard was based on C, the converter software could not be implemented.

Farid Mamaghani explained that the SEDRIS language binding standard follows the object-oriented methodologies even when it was written over 20 years ago, when the C language was most widely used and C++ standardization was beginning. Furthermore, the software implementations of the SEDRIS API are provided in both C and C++ software development kits, and therefore it would be an easy task to write the C++ based converter software.

Jean Latger, based on OKTAL-SE’s market experience, commented that he saw good opportunities for the use of SEDRIS in Korea and that this should be followed up.

Farid Mamaghani noted that to improve the speed of the development work, it was important that further technical discussion between WG 8 and this SEDRIS Visualization development effort take place before further work proceeds, as it may not be aware, or take advantage, of existing SEDRIS software development capabilities.

**Action 34-02: WG 8 to discuss with the ‘SEDRIS Visualization using X3D’ development team before further work proceeds.**

The presentation is available as **WG 8 document 0637** from the [WG 8 Document Register](http://www.sedris.org/wg8home/document.htm) and the [ISO/LiveLink SC 24/WG 8 General Documents](http://isotc.iso.org/livelink/livelink?func=ll&objId=8916696&objAction=browse&viewType=1)

 “SISO RIEDP Project – Jean-Louis Gougeat (SISO, Sogitec)

The SISO RIEDP project addresses the Reuse and Interoperation of Environmental Data and Processes. During the Technical Presentation Session on Monday, a short overview presentation on RIEDP was given by Farid Mamaghani, an editor of RIEDP standards. The Working Session’s RIEDP presentation was given by Jean-Louis Gougeat, the RIEDP project leader.

Although both SEDRIS and RIEDP provide greater interoperability between databases generated by different producers, there are important differences. The RIEDP approach to interoperability is to use existing data formats for different types of content, to define a high-level standardized model for terrain database generation process, to specify how those existing formats should be organized on media, and to standardize the use of metadata, attributes, and feature classifications to use with those existing formats. For defining location data, RIEDP specifies the use of the SRM, and for using units of measure, classification, and attribute data, EDCS is specified as the primary standard. In contrast, SEDRIS defines standards for DRM, EDCS and SRM that integrate a wide range of environmental (terrain, ocean, atmosphere) data and provide interoperable data, from which users can generate environmental databases using their own processes.

The combination of Live, Virtual and Constructive simulations (LVC) puts a heavy constraint on environmental data to ensure a ‘fair fight’. One approach is to provide the same product, but unless this defines a fully comprehensive set of data in the same high detail, it will not result in interoperable databases or simulation systems. One feature of RIEDP is a very comprehensive definition of metadata, which amend the use of those existing formats.

Comparisons were made between CDB (Common Data Base) and RIEDP. This showed that RIEDP is more flexible and able to handle small, high detail areas.

RIEDP standard development consists of two documents:

* RIEDP Data Model Foundations, a SISO Guidance document, which is finalized and about to be published (**Post Meeting Note:** As of late September 2018, this document has been published as a formal SISO Guidance product)
* RIEDP Detailed Features Description, a SISO Standard, which is in development

In addition, test databases that conform to RIEDP specification will be available soon.

Further details on the RIEDP project are available from the presentation file, **WG 8 document 0636** from the [WG 8 Document Register](http://www.sedris.org/wg8home/document.htm) and the [ISO/LiveLink SC 24/WG 8 General Documents](http://isotc.iso.org/livelink/livelink?func=ll&objId=8916696&objAction=browse&viewType=1)

WG 8 Work Items related to other SCs and TCs

Members of WG 8 are involved in the Mixed and Augmented Reality (MAR) standards work of SC 24/ WG 9, which includes a Reference Model being developed by the joint programme of SC 24/WG 9 and SC 29/WG 11.

In addition to the SISO RIEDP project described above, WG 8 is also interested in JWG 16 and the use of X3D with SEDRIS.

Status of Action items

Existing Action Items

**Action 31-02**

Requirement:

Transfer all documents in the WG 8 Document Register to the WG 8 folder in ISO LiveLink and ensure the two registers are synchronized.

Current Status:

All WG 8 documents issued since May 2015 have been added to the LiveLink SC 24/WG 8 Document Folder, but no documents previous to that.

**Continuing**

**Action 31-03**

Requirement:

Investigate whether LiveLink has the capabilities to accommodate other web pages of the WG 8 web site, such as lists of meetings, “What’s New” page, etc.

Current Status:

No action to date.

**Continuing**

**Action 32-02**

Requirement:

Request the SC24 Secretariat to liaise with ISO to verify whether the liaison categories assigned to SC 24 Liaison Organizations correspond with the definitions of the categories redefined in 2017 by ISO. If they do not, then take the appropriate actions to correct them.

Current Status:

It was decided at the 2017 WG 8 Plenary (ref: **WG8 document N0619**) that the Action Item should be redefined to reflect more clearly what is required. This action item has therefore been closed and replaced by 34-01 to reflect the Liaison Categories specified in the 2018 edition of the ISO Directives.

**Closed**

**Action 33-01**

Requirement:

Update the front page of the SC 24 Registry to enable additional classes to have links to their contents.

Current Status:

No action to date.

**Continuing**

**Action 33-02**

Requirement:

Investigate whether persons other than the WG 8 Convenor may edit the LiveLink WG8 document folder.

Current Status:

It has been established that any person registered in the Convenor Support Team for WG8 may edit the WG 8 Document Folder, in addition to the Convenor. The current person is Tim Gifford.

**Post Meeting Note (2018-08-23):** As Tim Gifford has retiredWG 8, his name has been replaced by that of Farid Mamaghani.

**Closed**

Action Items raised during this Meeting

**Action 34-01 (Replaces 32-02)**

Requirement:

Investigate whether the SC 24 Liaisons stated on the ISO web site correspond with the current ISO Directives, namely:

ISO Directives Part 1 – 2018 (9th Edition) defines liaisons at the TC and SC level as;

Cat A: Organizations making a contribution

Cat B: Organizations wishing to be kept informed

And liaisons at the WG level as;

Cat C: Organizations making a technical contribution

Current Status:

At the time of the meeting, the status of this action was believed to be **Continuing**

**Post Meeting Note:** Subsequent to the meeting, the ISO SC 24 web page was inspected and it was found that the categories for SC 24 liaison organizations are now correct

**Closed (2018-11-05)**

**Action 34-02**

Requirement:

WG 8 to discuss with the SEDRIS Visualization using X3D development team before further work proceeds.

Current Status:

Action pending coordination with Myeong Won Lee and the developers of the converter tool.

**Continuing**

Review of the WG 8 Work Programme

As stated in 3.3, there has been no change in the last year to the WG 8 Work Programme, The table in [Appendix F](#AppendixE) shows the current status of all WG 8 standards, including anticipated future work programmes.

Draft WG 8 Recommendations to be forwarded to SC 24.

It was agreed that the Recommendations should include references to the following:

* The work on SEDRIS visualization using X3D
* JWG 16 for the visualization of the STEP standard (ISO 10303)

The final wording of the Recommendations was deferred to the WG 8 Plenary

The WG 8 Working Session concluded at 11.45 (local time).

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* + - 1. WG 8 Plenary

**Thursday 9 August 2018**

**08.30 – 10.00 OKTAL-SE, Toulouse, France**

Corresponding to:

14.30 – 16.00 Beijing (China Standard Time)

07.30 – 09.00 UK

02.30 – 04.00 USA (East Coast)

23.30 – 01.00 USA (Pacific)

**Chair: Jack Cogman**

The attendees at the meeting are shown in [Appendix E](#AppendixD). There were no participants via web conferencing, due to inconvenient times in many parts of the world.

The WG 8 Plenary Agenda is given in [Appendix C.](#AppendixB)

Welcome

The Convenor, Jack Cogman, welcomed people to the meeting.

Roll Call and Introductions

Each person attending the meeting introduced herself/himself.

Minutes of the 33rd WG 8 plenary meeting held in Arlington, USA

There were no comments, so the minutes of the last Plenary meeting were approved.

 Convenor’s Report

Jack Cogman gave a brief summary of the Convenor’s Report document, which is stored as **WG 8 document N0630** in the [WG 8 Document Register](http://www.sedris.org/wg8home/document.htm) and the [ISO/LiveLink SC 24/WG 8 General Documents](http://isotc.iso.org/livelink/livelink?func=ll&objId=8916696&objAction=browse&viewType=1).

 Summary of key topics from the WG 8 Working Session

JWG 16

An update was given in the Working Session on Joint Working Group 16 (JWG 16) that has been established by ISO TC 184/SC 4 to identify a method for the web-based visualization of the data within its STEP standard (ISO 10303). A joint meeting had been held between JWG 16 and WG 6, at which the suitability of using X3D for the visualization was considered. No final decision was made at the meeting. Although the main interest for JWG 16 in SC 24 is X3D, the similarities between the function of the STEP standard and the SEDRIS standards were noted.

SEDRIS Visualization using X3D

A summary of the work on the visualization of SEDRIS data using X3D, which was presented during the WG 8 Working Session, was provided. Subsequent discussion identified that existing SEDRIS SDK implementations (in C and C++) will support the work and a C++ language binding standard for SEDRIS part 1 is not required for this work to proceed.

Dick Puk pointed out that if a Javascript language binding were to be required, then ECMAScript should be used instead. ECMAScript is a standardized form of JavaScript defined by ECMA-262 and ISO/IEC 16262.

Details of the development of SEDRIS Visualization using X3D is given in the presentation file **WG 8 document N0637**, which may be downloaded from the [WG 8 Document Register](http://www.sedris.org/wg8home/document.htm) and the [ISO/LiveLink SC 24/WG 8 General Documents](http://isotc.iso.org/livelink/livelink?func=ll&objId=8916696&objAction=browse&viewType=1).

RIEDP

The SISO RIEDP project addresses the Reuse and Interoperation of Environmental Data and Processes. During the WG 8 Working Session, a presentation on RIEDP was given by Jean-Louis Gougeat, the RIEDP project leader. This complemented the presentation given during the Monday session by Farid Mamaghani. An emphasis was made on the importance of interoperability for ‘fair play’ in multi-player exercises.

Further details are given in the presentation file **WG 8 document N0636**, which may be downloaded from the [WG 8 Document Register](http://www.sedris.org/wg8home/document.htm) and the [ISO/LiveLink SC 24/WG 8 General Documents](http://isotc.iso.org/livelink/livelink?func=ll&objId=8916696&objAction=browse&viewType=1).

 National Body Reports

National body reports have been issued as the following SC 24 documents:

N4089 – Australia

N4099 – China

N4094 – Japan

N4087 – Korea

N4106 – UK

N4098 – USA

These documents may be obtained from the [SC 24 N-Documents List](http://isotc.iso.org/livelink/livelink?func=ll&objid=8916524&objaction=ndocslist) on LiveLink.

Liaison Reports

DGIWG

There was no liaison report from DGIWG, the Defence Geospatial Information Working Group.

SEDRIS

The SEDRIS liaison report has been issued as **WG 8 document N0635**, which may be downloaded from the [WG 8 Document Register](http://www.sedris.org/wg8home/document.htm) and the [ISO/LiveLink SC 24/WG 8 General Documents](http://isotc.iso.org/livelink/livelink?func=ll&objId=8916696&objAction=browse&viewType=1). It is also available as document SC24 N4100.

TC 211, Geospatial Report

The TC211 liaison, Chris Body, issued a Geospatial Report, **SC24 document N4112,** that covers not only TC 211, but also JTC 1/WG 11, JTC 1/WG 7 that is now SC 41, OGC, and UN Global Information Management. Chris noted that OGC have established a Domain Working Group for Interoperability and Gaming, which he will be reviewing, including the charter for the Working Group.

SISO

There was no report from SISO, the Simulation Interoperability Standards Organization.

OGC

In addition to the OGC update given by Chris Body in the Geospatial Report, a Liaison Report from OGC, **SC24 document N4103,** was presented by Marie-Françoise Voidrot at the SC 24 Plenary on the following day.

Other

There were no other Liaison Reports.

The SC 24 documents may be downloaded from the [SC 24 N-Documents List](http://isotc.iso.org/livelink/livelink?func=ll&objid=8916524&objaction=ndocslist) on LiveLink.

Editors Reports

There are currently no active programmes. Further work on several standards is anticipated, but has not begun. The third edition of SRM (18026) is considered the most critical, since revisions to some of the other standards depend upon it.

The proposal, by Craig Rollins, made at the Plenary Meeting in Arlington last year to seek funding for completion of the third edition of the SRM has not resulted in any offers, so it was decided to remove it from this year’s Recommendations to SC 24.

Report from the Registry Rapporteurs

SC 24 Register – General

The on-line SC 24 Register, which is the responsibility of WG 8, currently points to registration items only for the EDCS. Those for SEDRIS–Part 1 and SRM are indicated on the front page, but are not linked to their corresponding register sites. This needs to be corrected.

Bill Protzman pointed out that at least one BIIF profile will need to be updated and that WG 7 are developing BIIF profiles for FLEX and to support the African Union (Ref: SC 24 Resolutions 16 and 17) that will need to be added to the Register.

**Action 34-03: Update the SC 24 Register to:**

* **Add links to registered items for SEDRIS – Part 1**
* **Add links to registered items for SRM**
* **Update BIIF profiles, when requested**
* **Add new BIIF profiles, when available**

EDCS Registry

EDCS has about 300 items to address. As these were submitted a number of years ago and could not be resolved during the publishing of Edition 2 of the EDCS standard, the appropriate thing to do would be to either eliminate the items or resolve with the submitters based on Edition 2 of the EDCS standard.

SRM Registry

No items have been submitted to date.

SEDRIS DRM Registry

No items have been submitted to date.

Appointment of Registry Rapporteurs

The existing Registry Rapporteurs were re-appointed, with no objections, as shown below:

EDCS: Farid Mamaghani

SRM: Paul Berner

DRM: Farid Mamaghani

WG 8 Content of the SC 24 Business Report and Dashboard for 2018-2019

The Business Plan consists of a 4-page Business Report and a 1-page Dashboard. All WG activities, including those for WG 8, are reported in terms of Accomplishments, Deliverables and Strategies/Risks.

For WG 8 accomplishments, contributions to the MAR reference Model and other WG 9 standards efforts and to the RIEDP project will be noted. There have been no deliverables during the year and the Strategies/Risks section should include support for SISO RIEDP, as well as investigation into the use of WG 8 Standards in emerging areas, such as those being addressed by OKTAL-SE and the Study Group for Systems Integration Visualization (SIV).

The deadline for submission of the SC 24 Business Plan to JTC 1 is 24 Sep 2018.

Work Schedule

There has been no change in the status of WG 8 standards. The table in [Appendix F](#AppendixE) shows the current status of all WG 8 standards, including anticipated future work programmes.

 [Appendix F](#AppendixE).

Recommendations to SC 24

Based on the 2017 Recommendations to SC 24, the following changes were made to produce the 2018 Recommendations to SC 24. These changes were the result of items identified in the Working Session and at this meeting.

1. To make a clearer distinction with recommendation 4 (Support for New WG 8 Work), recommendation 3 (Proposed New Items) to be changed to Support for Enhancements to Existing WG 8 Work.
2. To reflect the information given about the development of SEDRIS Visualization using X3D, recommendation 4 to be amended to replace the existing bullet point about X3D with:
* Guidelines and Techniques for using X3D to portray SEDRIS data
* C++ and ECMAScript Language Bindings for SEDRIS Part 1
1. The representation of digital holographic data, also identified in recommendation 4, should be retained as it provides an application area for SEDRIS standards.
2. Since it is unlikely that the work on SRM Edition 3 will commence in the next 12 months, recommendation 5 should be removed.
3. Cooperation with TC 184/SC 4/JWG 16 needs to be added as a new recommendation.
4. Although the definition of Liaison Organizations has changed since 2017, Recommendation 10 given last year is still valid, namely that the SC 24 Secretariat to be requested to coordinate with ISO to ensure all SC 24 Liaisons are assigned the correct category on the LiveLink SC24 web pages.

The final 2018 Recommendations to SC 24 may be accessed as **WG 8 Document N0631** in the [WG 8 Document Register](http://www.sedris.org/wg8home/document.htm) and the [ISO/LiveLink SC 24/WG 8 General Documents](http://isotc.iso.org/livelink/livelink?func=ll&objId=8916696&objAction=browse&viewType=1).

Action Items

Existing Open Items

The status of the existing Action items 31-02, 31-03, 32-02, 33-01 and 3302 was resolved in the Working Session, [section 3.10](#Section310).

Amended and New Items

Resulting from this meeting and the Working Session, one action item replaces action 32-02 and two new ones were raised:

**Action 34-01: (Replaces 32-02)**

Investigate whether the SC 24 Liaisons stated on the ISO web site correspond with the current ISO Directives, namely:

ISO Directives Part 1 – 2018 (9th Edition) defines liaisons at the TC and SC level as;

Cat A: Organizations making a contribution

Cat B: Organizations wishing to be kept informed

And liaisons at the WG level as;

Cat C: Organizations making a technical contribution

**Action 34-02:**

WG 8 to discuss the technical approach with, and provide support to, the SEDRIS Visualization using X3D development team before further work proceeds.

**Action 34-03:**

Update the SC 24 Register to:

* Add links to registered items for SEDRIS – Part 1
* Add links to registered items for SRM
* Update BIIF profiles, when requested
* Add new BIIF profiles, when available

The updated action list is shown in [Appendix G](#AppendixG)

Adjourn

The Plenary meeting closed at 10:00 (local time).

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* + - 1. **Additional Items discussed during the Week**

In addition to the WG 8 meetings, other meetings held during the week highlighted issues considered to be of interest to WG8.

 JWG 16

A report on Joint Working Group 16 was given in the WG 8 Working Session (See [section 3.6](#Section46)). The JWG 16 plenary meeting was held at 13.00 on Thursday 9 August. Following the plenary, an informal meeting between Farid Mamaghani, Christophe Mouton, Jean Brange and Pierre Duchier was held, which proved to be very fruitful. It involved an exchange of ideas on many issues, including representation of metadata and alternative visualizations methods, for example, CAD, 3D models, diagrams with links and interactive interfaces. All four persons agreed to continue their exchange of ideas.

 Systems Integration Visualization (SIV) Study Group

This Study Group was proposed at the 2017 Plenary in Arlington and was approved at the JTC 1 Plenary in October 2017. It represents the SC 24 contribution to the JTC 1 recognition that standards are now more complex and require more of a matrix type relationship to exist between them. This matrix type relationship between TCs and SCs is referred to by JTC 1 as Systems Integration (Ref: Standing Document 24 (SD 24) Systems Integration Standardization Guidelines). The SIV study group is currently looking at (1) Smart City Visualization, (2) Architecture for 3D Virtual Training Systems, (3) Health Care Information Systems Integration, and (4) Virtual Training Components

 Development of an SC 24 Roadmap

At the HoD/C meeting on Tuesday 7 August, Farid Mamaghani pointed out that SC 24 needs to look ahead to the future to prevent its standards becoming irrelevant in 5, 10 or 20 years time. A road map needs to be defined that takes into account the trend towards closer integration between TCs and SCs, as has been recognized by the establishment of the SIV Study group.

The proposal was endorsed by SC 24. Resolution 30 of the SC 24 Resolutions (SC24 N4109) requests contributions from Working Group Convenors towards the development of a roadmap.

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# Appendix A

# Technical Presentations Agenda

**Monday 6th August 2018**

**08:30 – 17:30 (OKTAL-SE, Toulouse, France)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Time Slot** | **Duration** | **Start Time** | **Topic** | **Presenter** |
| 1 | 15 | **8:30** | Welcome / Introductions / Event Plans | Jean Latger / Carole Nissoux |
| 2 | 15 | **8:45** | SC 24 Overview / Update | M. Lee / C. Whitlock |
| 3 | 15 | **9:00** | WG 6 Overview / Activities / Roadmap | R. Puk |
| 4 | 15 | **9:15** | WG 7 Overview / Activities / Roadmap | W. Protzman |
| 5 | 15 | **9:30** | WG 8 Overview / Activities / Roadmap | J. Cogman |
| 6 | 15 | **9:45** | WG 9 Overview / Activities / Roadmap | G. Kim |
|   | 30 | **10:00** | ***Break*** |   |
| 7 | 15 | **10:30** | JTC 1 VR/AR for Education ad hoc Group status/activity | M. Lee, C. Whitlock |
| 8 | 15 | **10:45** | MAR Reference Model | G. Kim |
| 9 | 15 | **11:00** | Live Actor and Entity Representation in MAR | K. Yoo |
| 10 | 15 | **11:15** | Benchmarking of Vision-based Spatial Registration & Tracking for MAR | T. Kurata |
| 11 | 15 | **11:30** | Human health information systems integration  | M. Lee, Seung-Pyo Lee |
| 12 | 15 | **11:45** | Open Discussion | All |
|   | 60 | **12:00** | ***Lunch*** |   |
| 13 | 30 | **13:00** | Presentation from ISO/TC 184/SC 4 / JWG 16  | C. Mouton |
| 14 | 15 | **13:30** | Overview of the new Study Group on Visualization | P. Ryan |
| 15 | 20 | **13:45** | Smart city visualization | P. Ryan, M. Lee |
| 16 | 20 | **14:05** | Architecture for 3D virtual training systems | M. Lee |
| 17 | 15 | **14:25** | Virtual Training Components  | K. Yoo |
| 18 | 20 | **14:40** | SEDRIS Visualization using X3D  | M. Lee, Youngsoo Kwon |
|   | 30 | **15:00** | ***Break*** |   |
| 19 | 30 | **15:30** | Technology Development at OKTAL-SE  | C. Nissoux, J. Latger |
| 20 | 15 | **16:00** | SISO RIEDP Standards Status / Relation to SC 24 | F. Mamaghani |
| 21 | 15 | **16:15** | X3D 4 Development and Liaison Activities | Kwan-Hee Yoo for D. Brutzman |
| 22 | 15 | **16:30** | Data-driven Visualization | K. Yoo |
| 23 | 15 | **16:45** | 3D Human Internal Organ Representation Model | M. Lee |
| 24 | 15 | **17:00** | Respiratory Model Architecture | K. Yoo |
| 25 | 15 | **17:15** | Open Discussion | All |
|  |  | **17:30** | ***End*** |  |

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# Appendix B

# Working Session Agenda and Presentations

**Wednesday 8 August 2018**

**Wednesday, 8 August 2018**

**08.30 – 12.00 Toulouse, France**

corresponding to:

14.30 – 18.00 Beijing (China Standard Time)

07.30 – 11.00 UK

02.30 – 06.00 USA (East Coast)

23.30 – 03.00 USA (Pacific)

**Chair: Jack Cogman**

1. Welcome and Introductions
2. Pending Work Projects:
	* ISO/IEC 18023-1 Ed. 2, SEDRIS Part 1 Revision
	* ISO/IEC 18023-3 Ed. 2, SEDRIS Part 3 Revision
	* ISO/IEC 18024-4 Ed. 2, SEDRIS Language Binding Revision
	* ISO/IEC 18026 Ed. 3, SRM Revision
	* ISO/IEC 18042-4 Ed. 2, SRM Language Binding Revision

All the above projects are on hold at present, but the status of each will be reviewed.

1. Work Schedule
2. EDCS Registry
3. Migration of WG 8 Document Register to LiveLink
4. JWG16: Formats for Visualization and other derived forms of product data
5. “SEDRIS visualization using X3D” - Myeong Won Lee (University of Suwon) and Youngsoo Kwon (Intelli Korea Inc.)
6. “SISO RIEDP project (Reuse and Interoperation of Environmental Data and Processes)” – Jean Louis Gougeat (Sogitec)
7. WG 8 Work Items related to other SCs and TCs
8. Current status of Action Items
9. Review of the WG 8 work programme and revision, if necessary
10. Draft recommendations to be forwarded to the WG 8 Plenary meeting

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 **WG 8 Plenary Agenda**

**Thursday 9 August 2018**

**08.30 – 10.00 OKTAL-SE, Toulouse, France**

corresponding to:

14.30 – 16.00 Beijing (China Standard Time)

07.30 – 09.00 UK

02.30 – 04.00 USA (East Coast)

23.30 – 01.00 USA (Pacific)

**Chair: Jack Cogman**

1. Welcome
2. Roll call and introductions
3. Corrections to, and approval of, the minutes of the 33rd meeting held in Arlington, USA
4. Convenor's report
5. Summary of key topics from the Working Session
6. National body reports
7. Liaison reports
* DGIWG
* SEDRIS
* SISO
* Other
1. Editor reports
* ISO/IEC 9973
* EDCS and EDCS LB
* SRM and SRM LB
* SEDRIS Parts 1, 2, and 3
* SEDRIS LB
1. Reports from the registry rapporteurs
2. Appointment of registry rapporteurs
* EDCS
* SRM
* SEDRIS
1. Summary of WG 8 content in the draft SC 24 Business Plan for 2018-19
2. Work Schedule
3. Discussion and approval of recommendations to SC 24
4. Review action items
5. Adjourn

**Appendix D - Meeting Plan**

**Meeting Schedule for the 2018 SC 24 and Working Group Meetings**

**Held at OKTAL-SE, near Toulouse, France**

**6-10 August 2018**



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**Appendix E**

**List of Attendees**

|  |  |  |  |
| --- | --- | --- | --- |
| **NB/LO + Name** | **Affiliation** | **E-Mail** | **Attendance at Meetings** |
| **WG 8 Working Session**  | **WG 8 Plenary** | **SC 24 Plenary** |
| **Face-to-Face/****WebEx** | **Face-to-Face/ WebEx** | **Face-to-Face/ WebEx** |
| **SC 24 Officers** |  |  |  |  |  |
| Myeong Won Lee | SC 24 Chair, Suwon University | myongwonlee@gmail.com | Face-to-Face | Face-to-Face | Face-to-Face |
| Charles Whitlock | SC 24 Secretary, BSI | charles.whitlock@bsigroup.com |  |  | Face-to-Face |
| **Australia** |  |  |  |  |  |
| Chris Body | SA Australia | chris.body@iinet.net.au |  | Face-to-Face |  |
| Peter Ryan | DSTO Australia | peter.ryan@dsto.defence.gov.au | Face-to-Face | Face-to-Face | Face-to-Face |
| **China** |  |  |  |  |  |
| Cong Wang | CESI | wangcong@cesi.cn |  |  | Face-to-Face |
| Yue Liu | Beijing Institute of Technology | liuyue@bit.edu.cn |  | Face-to-Face | Face-to-Face |
| **France** |  |  |  |  |  |
| Jean Brange | TC 184/SC 4/JWG 16 |  | JWG 16 meetings |  |  |
| Pierre Duchier | TC 184/SC 4/JWG 16, Airbus | pierre.duchier.external@airbus.com | JWG 16 meetings  |  |  |
| Christophe Mouton | TC 184/SC 4/JWG 16, EDF | christophe.mouton@edf.fr | JWG 16 meetings  |  | Face-to-Face |
| **Korea** |  |  |  |  |  |
| Chanyoung, Ms Kim | KATS Republic of Korea | cykim@tta.or.kr |  | Face-to-Face | Face-to-Face |
| Choi, Jung-Ju | Ajou University | jungju@ajou.ac.kr |  |  | Face-to-Face |
| Gerard Kim | WG 9 Convenor | gjkim@korea.ac.kr |  |  | Face-to-Face |
| Kwan-Hee Yoo | Chungbuk University | khyoo@chungbuk.ac.kr |  |  | Face-to-Face |
| Byounghyun Yoo | Korea Institute of Science and Technology (KIST) | yoo@byoo.net |  |  | Face-to-Face |
| Kwan-Hee Yoo | Chungbuk University | khyoo@chungbuk.ac.kr |  | Face-to-Face | Face-to-Face |
| **Japan** |  |  |  |  |  |
| Masaki Aono | Toyohashi University of Technology | aono@tut.jp |  | Face-to-Face | Face-to-Face |
| Takeshi Kurata | AIST | t.kurata@aist.go.jp |  |  | Face-to-Face |
| **UK** |  |  |  |  |  |
| Jack Cogman | WG 8 Convenor | jack.cogman@datasim.net | Face-to-Face | Face-to-Face | Face-to-Face |
| Martin Smith | BSI | msmith1@talktalk.net |  |  | Face-to-Face |
| **US** |  |  |  |  |  |
| Bill Protzman | DCS Corp., US HoD | wprotzman@dcscorp.com | Face-to-Face | Face-to-Face | Face-to-Face |
| Dick Puk | WG 6 Convenor | puk@igraphics.com |  | Face-to-Face | Face-to-Face |
| Jason Smith | Harris Corp. | jason.smith@harris.com |  |  | Face-to-Face |
| **SEDRIS** |  |  |  |  |  |
| Jean Latger | OKTAL-SE | jean.latger@oktal-se.fr | Face-to-Face |  | Face-to-Face |
| Farid Mamaghani | SEDRIS Organization | farid@sedris.org | Face-to-Face | Face-to-Face | Face-to-Face |
| Carole Nissoux | SEDRIS/OKTAL-SE | carole.nissoux@oktal-se.fr | Face-to-Face |  |  |
| **SISO** |  |  |  |  |  |
| Jean-Louis Gougeat | Sogitec, SISO | jlgougeat@sogitec.fr | Face-to-Face |  |  |

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**Appendix F**

**WG 8 Work Schedule – Showing latest Versions of Standards and Anticipated Future Work**

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**Abbreviations**

**NWIP:** New Work Item Proposal

**CD:** Committee Draft

**PDAM:** PreliminaryDraft Amendment

**PDTR:** Preliminary Draft Technical Report

**DIS:** Draft International Standard

**FPDAM:** Final Preliminary Draft Amendment

**FDIS:** Final Draft International Standard

**FCD:** Final Committee Draft (No longer used)

**FDAM:** Final Draft Amendment

**DTR:** Draft Technical Report

**IS:** International Standard

**TR:** Technical Report

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**Appendix G**

**Action Items**

**ISO/IEC JTC 1/SC 24/WG 8**

**Meeting #34, Vigoulet-Auzil, Toulouse, France**

**9th August 2018**

**Shaded areas indicate action items that have been closed since the 2017 Plenary**

| No. | Action Item | Assigned to | Due | Done | Comment |
| --- | --- | --- | --- | --- | --- |
| 31-02 | Transfer all documents in the WG 8 Document Register to the WG 8 folder in ISO LiveLink and ensure the two registers are synchronized. | J.CogmanG. Wentz | March 2016 |  | 2016-Aug-25: Continuing.08-Aug-2017: All WG 8 documents issued since May 2015 have been uploaded to the ISO LiveLink WG 8 folder.**Continuing**2018-08-09: No action for documents before May 2015, as not considered urgent. **Continuing** |
| 31-03 | Investigate whether LiveLink has the capabilities to accommodate other web pages of the WG 8 web site, such as lists of meetings, “What’s New” page etc. | J.Cogman | March 2016 |  | 2016-Aug-25: **Continuing.**2017-Aug-08: No action to date.**Continuing**.2018-08-09: **Continuing** |
| 32-02 | Request the SC24 Secretariat to liaise with ISO to verify whether the liaison categories assigned to SC 24 Liaison Organizations correspond with the definitions of the categories redefined in 2017 by ISO. If they do not, then take the appropriate actions to correct them. | F. Mamaghani,J.Cogman | April 2017 | Aug 2018 | 2016-Aug-205: Contact has been made with Ms. Blandine Garcia and Ms. Maho Takahashi at ISO, but no changes have yet been implemented.2017-Aug-08: Definition of the Action Item changed from asking ISO to correct the information to SC 24 asking ISO to verify if existing liaison categories are valid and to correct if not. **Continuing.**2018-Aug-09: The ISO Liaison Categories have been changed by ISO directives Part 1, so this action needs to be re-addressed as a new action (34-01). **Closed** |
| 33-01 | Update the front page of the SC 24 Registry to enable additional classes to have links to their contents | F. Mamaghani,J. Cogman | April 2019 |  | 2018-08-09: **Continuing** |
| 33-02 | Investigate whether persons other than the WG 8 Convenor may edit the LiveLink WG8 document folder. | J. Cogman | April 2019 | Aug 2018 | 2018-08-09: Persons registered in the Convenor Support Team for WG8 may edit the WG 8 Document Folder. Current members: J. Cogman, T.Gifford2018-08-23: T.Gifford replaced by F.Mamaghani in the Convenor Support team. **Closed** |
| 34-01 | Investigate whether the SC 24 Liaisons stated on the ISO web site correspond with the current ISO Directives, namely:ISO Directives Part 1 – 2018 (9th Edition) defines liaisons at the TC and SC level as;Cat A: Organizations making a contributionCat B: Organizations wishing to be kept informedAnd liaisons at the WG level as;Cat C: Organizations making a technical contribution(Replaces 32-02) | F. Mamaghani,J. CogmanC. Whitlock | June 2019 |  | Existing SC 24 liaisons are now Cat A, while DGIWG and IHO are Cat C.2018-11-05: ISO web page for SC 24 inspected, confirming that the changes to the liaison categories are now accurately recorded.**Closed** |
| 34-02 | Before further work proceeds with the development of ‘SEDRIS Visualization using X3D’, WG 8 to discuss the way forward with the team. | F. Mamaghanii | April 2019 |  |  |
| 34-03 | Up: Update the SC 24 Register to:* Add links to registered items for SEDRIS – Part 1
* Add links to registered items for SRM
* Update BIIF profiles, when requested
* Add new BIIF profiles, when available
 | F. Mamaghani,J. CogmanC. Whitlock | June 2019 |  |  |

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