61st joint meeting of the CIDOC CRM SIG and ISO/TC46/SC4/WG9; 54th meeting of LRMoo SIG

14-17 October 2025

Foundation for Research and Technology – Hellas; Heraklion, Greece

Participants

Achille Felicetti (PIN-University of Florence, Italy); **Aleksandra Mitiukova** (Tsarskoe Selo museum and Heritage Site, Russia); **Athina Kritsotaki** (ICS-FORTH, Greece); **Athinais Mousoura** (University of West Attica, Greece); **Carlo Meghini** (ISTI CNR, Italy); **Christian-Emil Ore** (University of Oslo, Norway); **Chrysoula Bekiari** (ICS-FORTH, Greece); **Daria Hookk** (The State Hermitage Museum, Russia); **Dominic Oldman** (Kartography CIC, UK); **Eleni Makrygiorgou** (University of Teramo, Italy); **Eleni Tsouloucha** (ICS-FORTH, Greece); **Elias Tzortzakakis** ICS-FORTH, Greece); **Elisabeth Reuhl** (University of Cologne, Germany); **Emanuele Lenzi** (ISTI-CNR, Italy); **Erin Canning** (Univeristy of Oxford, UK); **George Bruseker** (Takin.solutions, Bulgaria); **Gerald Hiebel** (University of Innsbruck, Austria); **Giulia Biagioni** (TNO, The Netherlands); **Gudrun Schwenk** (IGSD, Germany); **Juliane Hamisch** (German National Museum, Germany); **Katharina Hefele** (German National Museum, Germany); **Kathrin Fischeidl** (German National Museum, Germany); **Maja Žumer** (University of Ljubliana, Slovenia); **Maliheh Dorkhosh** (Univeristy of Tehran, Iran); **Mariana Curado Malta** (University of Porto, Portugal); **Markos Katsianis** (Univeristy of Patras, Greece); **Martin Doerr** (ICS-FORTH, Greece); **Milena Peralta Friedbourg** (University of Innsbruck, Austria); **Pat Riva** (Concordia University, Canada); **Paul Walter** (University of Calgary, Canada); **Pavlos Fafalios** (ICS-FORTH & Technical University of Crete, Greece); **Puyu Wang** (University of Oxford, UK); **Rocio Jimenez** (Takin.solutions, Bulgaria); **Stephen Hart** (University of Bern, Switzerland); **Thomas Hänsli** (University of Zurich, Switzerland); **Trond Aalberg** (University of Oslo, Norway);

Contents

Tuesday 14 October 2025

Application for membership at the SIG.

- The SIG approved the application for membership at the CIDOC CRM SIG of Dennis Wuthrich, for Farallon Geographics, to be represented by himself. More info about Farallon Geographics can be found here.
- The SIG approved the application for membership at the CIDOC CRM SIG of Dominic Oldman, for Kartography CIC, to be represented by himself. More info about Kartography CIC can be found here.

[NEW ISSUE]: Managing CIDOC CRM SIG Membership

The membership list (see here for details) needs updating. Some of the organizations listed have not been active in this community for years. The SIG needs to reach out to member-institutions via their listed representatives and maintain consistent communications. Asking these institutions to designate a representative at the SIG and present their line of work and how it is relevant to the development of the CIDOC CRM and the SIG's activities is a way to do that.

The process needs to be monitored closely.

New membership should be encouraged.

Issue 682: List of externally maintained CRM Compatible Extensions on New Section of the CRM Site

The SIG reviewed GB's HW.

Proposal:

- to rename the CRM Compatible Extensions section to CRM Harmonized Ontologies (according to the new definition),
- to add a new section on the site where to list CIDOC CRM Compatible Ontologies (according to the new definition),
    - the ontologies featured in that section to be made available in a list and item view (with different sets of metadata for each one –see section CRM Harmonized/Compatible Extensions Metadata Requirements for the details). The checklist can be turned into a google form that interested parties can fill out.
- the appropriate definition (CIDOC CRM Harmonized Ontologies vs. CIDOC CRM Compatible Ontologies – see section Definitions for kinds of CRM Ontology Extensions) should be added to its corresponding section

N.b.: there already exists a short intro for *CIDOC CRM Harmonized Ontologies* (under the new definition), that should be kept as is. For *CIDOC CRM Compatible Ontologies* (under the new definition), the text found under the section Criteria can be used.

Discussion points:

- Offering a list of "CIDOC CRM Compatible Ontologies" sounds very reassuring, it means that anyone can use them freely. However, it's not a given that they are compatible with the entire set of CIDOC CRM harmonized extensions.
- The process whereby an ontology is dubbed "CIDOC CRM Compatible Ontology" has been sketched, extensively reviewed, and agreed upon at the 60th CIDOC CRM SIG meeting. This has ensued in a long text,

the legibility of which would greatly benefit from a one-page executive overview. Especially one that clearly distinguishes between CIDOC CRM Harmonized Ontologies and CIDOC CRM Compatible Ontologies (in the new sense). MD & DO have started working on that, they will be submitting it to the SIG, to be reviewed. The executive summary document will be handled in a separate issue.

- A thing for the SIG to consider will be when and through what channels it can advertise that the infrastructure is ready, and interested parties can submit their project/in-house ontologies to be checked for CRM compatibility.

Decision:

The SIG voted in favor of the proposal by GB. For details (definitions, metadata set, process) see here. The Criteria and process need to be referenced on the CIDOC CRM Compatible Ontologies (new definition) section.

Start a new issue, where to discuss the executive summary on the criteria and process followed for an ontology to feature in the CIDOC CRM Compatible Ontologies list. Emphasize the difference between the two different categories (Harmonized vs Compatible), caution users that Compatible means that the ontology in question might not be maintained, so it might only be compatible with certain versions of the CRM and other extensions, etc.

HW: DO and MD to work on that text.

[NEW ISSUE]: Executive summary of the criteria for declaring an ontology CIDOC CRM Compatible

The group resolved to start a new issue, where to discuss the executive summary on the criteria and process followed for an ontology to feature in the CIDOC CRM Compatible Ontologies list. Emphasize the difference between the two different categories (Harmonized vs Compatible), caution users that Compatible means that the ontology in question might not be maintained, so it might only be compatible with certain versions of the CRM and other extensions, etc.

HW: DO and MD to work on that text.

Issue 627: explicitly document cross-references between family models

The SIG reviewed part of the HW that ETz had prepared for this issue –points (A) and (B) -see appendix for the proposal.

With respect to point A:

- the SIG approved the proposal the <owl:versionIRI> for LRMoo use the formatting of the CIDOC CRM extensions, instead of the unresolvable http://iflastandards.info/ns/lrm/lrmoo/, as a temporary, workaround solution.
- concerning CRMtex, the implementation is going to wait until CRMinf (which it references) has a stable version (with resolvable URIs). CRMtex will also need to reference LRMoo (which now has an official version) –but that is part of updating CRMtex. Not an implementation issue.

With respect to point B:

The SIG approved the proposal to implement versionIRIs for owl encodings of the form

- http://www.cidoc-crm.org/cidoc-crm/owl/[versionNo]/ for CIDOC CRM
- and http://www.cidoc-crm.org/extensions/[ExtensionPrefix]/owl/[versionNo]/ for extensions.

N.b.: the SIG resolved to start a new issue, where to discuss the possibility of licensing of official versions if these are referencing unstable versions of other models (see the discussion about CRMtex, above).

[NEW ISSUE]: Can the SIG license a stable version of a CIDOC CRM Harmonized Ontology if it references an unstable version of the CIDOC CRM or some other Harmonized Ontology?

The group resolved to make this discussion more formal (i.e., assign it an issue ticket), because it creates discontinuity and ad hoc solutions in the SIG's work.

There has been no HW assignment, it's more of an open-ended question. People can make arguments for or against.

Issue 647: Automatically detect incompatibilities between CRM extensions and the CIDOC CRM

The SIG resolved to not close the issue, ETz has started implementing a service by means of which to check for specific CRM rules and whether they are violated by an ontology. The work is not completed yet, but it's underway.

Issue 706: The "news" strategy

This issue is about identifying suitable topics for website news & social media, the channels that we can use to report on newsworthy items around the community's work, as well as figuring out who will be tasked with creating all this content (for the site and social media).

The proposal is to always post on the site and on LinkedIn (for instance) about the following topics:

- **Standards Updates**
  - New releases of CIDOC CRM, extensions, or translations
  - Announcements of draft versions for review and public comment
- **Events & Activities**
  - Upcoming CRM-SIG meetings, workshops, or conferences
    - Related conferences, meetings, workshops?
  - Reports, outcomes, and recordings from past events
- **Community**
  - Organizations joining SIG
  - Adoption of CIDOC CRM by museums, libraries, archives, or research projects
  - Updates from Community
- **Publications & Resources**
  - New academic articles, white papers, or guides referencing CIDOC CRM
  - Availability of new tools, mappings, or documentation
- **Organizational Updates**
  - Changes in governance, chairs, or working groups
- **Calls & Engagement**
  - Calls for participation in reviews, working groups, or surveys
  - Job postings or fellowship opportunities related to semantic standards (if directly relevant)

Discussion points:

- The SIG has no social media presence, except for personal posts by its members.
- Many people are less inclined to use X, but LinkedIn seems like a neutral choice and can be helpful.
- There should be a designated person/subgroup that handles the SIG's social media presence. They should have a deep knowledge of the SIG's line of work and enough executive power to make posts about the SIG's activities, without constantly needing to get approval for each post.
- The news section on the site would still have to be maintained.

Decision: The new steering committee will assign this role to someone, and they will take it from there, report back to the SIG concerning problems etc.

- **MCM** has volunteered to work on that, but not by herself.

Issue 628: Update the modelling constructs found under The Model\Use&Learn\Functional Overview

The SIG reviewed HW by GB, AK, GH, ETz, who have gone through the diagrams for CIDOC CRM v7.1.3 and identified typos, errors (property domain/range/quantifiers), missing classes/properties etc.

Following the last check, Takin undertook the task of redoing all the diagrams, incorporating all the feedback by GH, AK, ETz. The diagrams can be found here. Those marked "Good to go", can be uploaded on the site.

Discussion points:

- The dotted contours around classes create ambiguity, there was a decision in Plovdiv against using that particular notation.
- Some comments refer to classes/properties that are missing from one diagram but appear in another, but the two diagrams could be merged into one, without loss of meaning. This has to do with the initial conception of those diagrams. They did not serve as educational material, to help users of the CRM get a better handle of the model, but they formed mappings from CIDOC CRM Information Groups to CIDOC CRM.
- For properties of E13 Attribute Assignment and below: It is now known that the quantifiers associated with these properties have changed. But the ISO version has declared a different set of quantifiers for these properties, so the diagrams of the ISO version should correspond to it, not an idealized version thereof.

Decisions:

HW was assigned to

- **GB** to polish the diagrams (remove the dotted contours from classes)
- **ETz** to upload the edited diagrams on the website. Once this task is finished, the issue will close.

Issue 687: Review the textual descriptions of diagrams in the 'Functional Overview'

CEO gave an overview of the contents of CIDOC CRM Information Groups, which was an interim state between the ER model that CIDOC had launched back in 1995 and CIDOC CRM. The diagrams found therein give some insight on the labels of classes/properties in the CRM and can serve as a blueprint, against which to check the diagrams under 'Functional Overview'. CEO considers the textual descriptions of the diagrams in the CIDOC CRM Information

Groups to be meager, and thinks that the SIG should appoint someone to draft original, explanatory texts for the diagrams.

GB and ETz had put together a spreadsheet where each diagram would potentially be mapped to the classes/properties it listed, plus a textual description for it. The descriptions were autogenerated from chatGPT. The results were interesting, but definitely not usable for learning how to use the CRM to document anything of interest. See here for the spreadsheet.

On a different note, GB demonstrated the mapping of CIDOC Information Groups to CIDOC CRM using LinkedArt as the target model and the SRDM method for documenting the patterns into models. This line of work can serve to connect with LinkedArt and the Documentation Standards Working Group (DSWG).

How to move forward:

- Assign someone with providing the textual descriptions for the diagrams
- Consider synergies with DSWG, GB will report to the SIG after the ICOM 2025.

Issue 700: Migration instructions for E13 Attribute Assignment (and subclasses) and its properties (plus their subproperties)

The SIG reviewed the HW by CEO (migration instruction for E13) –details in the appendix.

Discussion points:

The discussion drifted to the possibility of grouping instances of E13 Attribute Assignment (or subclasses) that concern one particular attribute shared by many individual things or that concern many particular attributes that one and the same individual thing demonstrates.

A number of possible topics emerged, namely,

- whether a generic E7 Activity would adequately group all these instances of E13 Attribute Assignment and below or whether this should be handled using the more complex semantics of S4 Observation, and
- whether the CRM would benefit from introducing a construct declaring that an instance of E7 Activity "concerned" or "was about" something (on a par with P129 for instance).

Those topics can be handled through designated issue tickets, provided that interested parties raise them.

Decision:

The SIG approved the migration instruction, which will appear in the Appendix of CIDOC CRM v7.3.2

Issue 629: Ontology of substances and unity criteria

WS has collected some comments on the document "Guideline for writing scope notes" (plus the annotated examples of scope notes it contains) and he brought those to the SIG's attention, with the aim of identifying any loose ends concerning the "Guideline for scope notes" and getting some subgroup to work on them. The summary can be found here:

Specifically:

For Point 1:

The FOL notation used in complex axioms and its correspondence to parts of scope notes is taken care by a different issue (namely 570) –so it will not be handled through the current issue.

For Point 2:

Revising the scope notes is an onerous task, most people would be reluctant to go over the scope notes for every class/property of the CIDOC CRM and check whether they conform to the guideline or not. Furthermore, there are issues with scope notes that adhere to the guideline but are nonetheless illegible still.

Proposal:

A proposal was put forth by DO that he and anyone interested collaborate on communicating the contents of the CRM specification document with broader audiences (using plain English).

The group's work should not only focus on identifying whether scope notes properly reference the Substance, Identity, Unity, (…) criteria, but also on the overall legibility of the ensuing text.

WS and **GB** were interested to participate in such an initiative, they will discuss this among them.

For point 3:

There is no active interest in pursuing this further. It's too much work for very little gain. It can be dropped.

For point 4:

It is about the role of examples and how they should be flagged in the scope note as instantiating a particular class or property in a way that's self-explanatory.

- It ties in with the examples used throughout the CRM –some represent marginal cases that give the false impression that the class/property is about describing these particular cases, not some baseline. Examples can even be plainly wrong -see for instance the example for P46 is composed of (forms part of):
    - The "Hog's Back" (E24) *forms part of* the "Fosseway" (E24). The Hog's Back is a mountain, the Fosse way is a Roman road and it couldn't possibly go through the mountain.

The SIG thought that this is useful. DO suggested that this be part of the revision of the CIDOC CRM too. WS & GB were keen to work on that.

For point 5:

As long as there's a group that's willing to support WS in identifying the set of expressions that correspond to each of the criteria mentioned in the guideline, he can continue working on it.

For point 6:

The discussion revolved around the examples used throughout the CRM –i.e., they represent edge cases rather than the baseline to some extent, and it is part of the SIG's work to rectify this problem.

Overall, WS's take, was that the issue can close, because the points raised form either marginal points, or need to be discussed in separate issues. The SIG agreed to this proposal.

Issue closed

> N.b. On his part, WS noted that he would prefer to start editing the CRM where it doesn't conform to the guidelines than continue commenting on the guidelines. And he agrees that the SIG should try to ensure that new scope notes do conform to guidelines.
>
> Since at least GB & DO seemed eager to work towards creating a couple of use cases of scope notes annotated for substance/identity/… criteria (also including fixed expressions used to reference each criterion in the scope notes), with links to easily accessible examples, they can discuss this among themselves and WS, set a time frame for this work, and start the designated issues on the listserv.

Issue 680: Adjusting properties of E54 Dimension

CEO presented the HW that he and MD had put together –the exclusion statements that ensure that the different kinds of dimensions that the CRM registers are kept disjoint: for E70 Thing, E96 Purchase, and E52 Time-Span.

The exclusion FOL statements can be found below:

P43:

- P43(x,y) ⇒ ¬(∃z) [E52(z) ⋀ P191(z,y)]
- P43(x,y) ⇒ ¬(∃z) [E96(z) ⋀ P179(z,y)

P191:

- P191(x,y) ⇒ ¬(∃z) [E96(z) ⋀ P179(z,y)]
- P191(x,y) ⇒ ¬(∃z) [E70(z) ⋀ P43(z,y)]

P179:

- P179(x,y) ⇒ ¬(∃z) [E52(z) ⋀ P191(z,y)]
- P179(x,y) ⇒ ¬(∃z) [E70(z) ⋀ P43(z,y)]

Decision: The SIG approved the proposal –it will appear in CIDOC CRM v7.3.2.

Issue closed

N.b.: This decision trivially resolves issue 679 as well –which will close too.

Issue 679: multiple objects cannot share the same instance of E54 Dimension

The issue is trivially resolved by admitting the exclusion statements for P43, P179, P191 to define by means of FOL expressions three disjoint classes of dimension for the CRM.

Issue closed

Issue 636: Update the list of property quantifiers

CEO presented his HW for the issue – a statement extending property quantifiers that come with very specific cardinality constraints (like “two or more instances of a particular class” etc.).

The statement can be found in the appendix.

Furthermore, CEO went through CIDOC CRM and compatible extensions and identified the property quantifiers listed therein and the number of their occurrences in all models (details in the appendix). He found out that there are two more property quantifiers mentioned in CRMtex and LRMoo that were not listed under the possible identifiers and that there are two more possible (i.e., so far unattested) property quantifiers that have not been properly declared in the introduction of the CIDOC CRM.

Proposal:

- Use the draft statement as a blueprint for a statement concerning the range instance. Assign a native speaker to do that (also edit the original statement).
- Edit and add the quantifiers that were missing (but are part of some extension of the standard) to the list.
- Check the labels, there are now two occurrences of “one to one” that correspond to different quantifiers.
- Do not add the unattested property quantifiers to the list, all things referenced in the introduction should be documented in CIDOC CRM or some other extension.

Decision: The SIG approved the proposal above and assigned the following pieces of HW:

- **HW**: GB to help redraft the statement and add a clause about the property range.
- **HW**: WS & CEO to go through the labels for the property quantifiers.

Following the necessary editing, they will appear in the introduction section of CIDOC CRM (V7.3.2) –under Property Quantifiers.

Issue 702: redraft the "corresponds" statements in the scope notes of temporal primitive properties in CRMbase

WS presented his HW for the issue (see here for the details).

Proposal

His proposal was to deprecate the statements of the sort: "This property corresponds to a disjunction (logical OR) of the following Allen temporal relations (Allen, 1983): {enumeration of relevant Allen relations}.", on the grounds that to render the equivalence in FOL, one needs to reference the CRMarchaeo properties that duplicate the Allen operators (in both directions, as implied by the "corresponds" statements, which would get interpreted as "equivalence" statements in FOL).

So, the equivalence should hold with the CRM temporal axiom property in the left-hand side of the material implication and the Allen operators rendered as a disjunction of CRMarchaeo properties on the right-hand side, as well as an interpretation of the Allen operators into their respective CIDOC CRM temporal primitives.

Additionally, he suggested that the correspondence statements be made in CRMarchaeo, and pointers to the respective properties therein are added to the CIDOC CRM.

Discussion points:

- Participants were not eager to deprecate the reference to Allen operators, because they do ground the temporal primitives used in the CRM.
- For readers that are already familiar with the Allen operators, this section allows them to see the connection.
- For readers that were not previously aware of them, it serves as a nice entry point.
- The migration instructions for the now deprecated Allen operators can be found both in CRMarchaeo (introduction and respective properties) and the appendix of all the releases of the CIDOC CRM in the 7.X.X strand –for the ISO version 7.1.3, see pp. 232-233.

Decision:

HW: WS will consult the migration instruction and see whether it can be referenced without overbearing the CRM with external references to harmonized extensions.

He will also reconsider the equivalence of "AP22 is equal in time to" and the respective temporal axiom properties, and the examples provided by DH about the Neolithic petroglyphs of Lake Onega and the White Sea –see here.

Issue 659: Examples of P38 deassigned

The SIG approved the example proposed by WS for P38 deassigned –see below:

- The merge on 11th August 2023 of duplicate entries in the DAI library catalogue for the journal article "Studies on the post-boreal vegetational history of south-eastern Drenthe (Netherlands)" *deassigned* https://zenon.dainst.org/Record/001483712 [this ID has been deprecated].

It will appear in CIDOC CRM V7.3.2

Issue 615: Scope note of E13 Attribute Assignment

There are no loose ends in the issue, except a proposal to add a clause expanding on the kind of property/relation attributed by an instance of E13.

Since this proposal had not been made before the SIG meeting, it will be handled through an evote.

See the details of the proposal in the appendix.

[NEW ISSUE]: Deprecate the shortcut statement that goes through E1.P140i:E15.P37:E42 in the scope note of P1

The issue was raised upon discussing issue 615—specifically the purported relation of E13 Attribute Assignment and P141 assigned (was assigned by) to E15 Identifier Assignment and P38 deassigned (was deassigned by), which had already been declared as non-standing at the 60th SIG meeting.

The motivation behind this proposal was that it may be the case for some instances of E41 Appellation that they are also instances of E42 Identifier (and thus have been assigned by an instance of E15 Identifier Assignment), but this does not apply to all instances of E41 Appellation.

The SIG did not vote on the proposal, because it was made during the meeting.

Issue 692: Inverse properties in FOL

The SIG reviewed the HW by CEO: a clause that will go to the introduction of CIDOC CRM, in the section “About the logical expressions used in the CIDOC CRM”. The clause in question can be found below:

- That a property appears in the inverse form in a formula, is indicated by the letter “i” that immediately follows the alphanumeric identifier. *P152i is parent of (has parent)* is the inverse of *P152 has parent (is parent of)*. In the FOL representation the arguments are swapped so P152(x,y) is equivalent to P152i(y,x).

CEO also looked at those FOL statements where swapping the order of the arguments of a property is consistently used to indicate an inverse form (instead of the “i” notation), and found that it’s reserved for declaring that a property is antisymmetric (f.i., $P5(x,y) \Rightarrow \neg P5(y,x)$), which is fine. For long paths, it’s easier to keep the inverse forms.

The SIG decided to reopen the issue 508 because the problem with the FOL is much more than a technical solution gone wrong.

Nb. The SIG needs to review issue 673 as well.

HW: CEO, WS

Issue 707: E31 Document –scope note revision

PF presented HW by MD –a proposal to reformulate the scope note of E31 Document. The idea is to clarify that the content of E31 Document is true (to the best of the knowledge of the person doing the documentation, whose intent is to accurately represent the world).

The proposed scope note can be found in the appendix.

Discussion points:

It was acknowledged that the current scope note was not good in the first place, in the sense that

(i) it's too broad to be useful and can't be semantically distinguished from its superclass (E73 Information Object),
(ii) it seems like a type-specification of an E73 Information Object,
(iii) both true and false propositions are essentially about some aspect of reality, which allows an instance of E31 Document that (P70) *documents* something, to make false claims about the thing documented (which goes against the best practices in Documentation).

The proposal to explicitly claim that the contents of a document are true (to the best of the author's knowledge) – i.e. they were believed to be true at the time of the documentation was understood as consistent with best practices in museum and cultural heritage documentation.

On the other hand, arguments against explicitly claiming that the content of a document is true, for it to be considered an instance of E31 Document were raised, namely:

(i) Adding a requirement that the contents of a document are true, makes it a type of E73 Information Object (hence deprives the class of any ontological category status)
(ii) The requirement that the contents of a document are true, means that the exception (intentionally reporting what you honestly believe is true) is taken to be the rule –archival documents (i.e., letters, reports) will no longer qualify as a valid instance of E31; typically, in these contexts the author is trying to paint themselves or their involvement in some situation in a good light –their motive is not necessarily to preserve the truth.
    a. N.b.: the proposed scope note explicitly references this problem (par.3-4).
(iii) The belief of the person documenting something regarding the contents of what they have documented, lies outside the scope of CIDOC CRM. It can be captured through CRMinf. That model deals with knowledge revision, and many of its examples reference situations where the truth of some statements (and the assumption of honest reporting on behalf of the people that drafted the documents under consideration) was taken for granted –only to later be evaluated as political propaganda. So, this class would be unusable to the extent that we cannot have access to people's motives and intentions.

Other issues that participants took issue with the proposed scope note, stemmed from the explicit mention to documents meant as hoaxes or historical novels as examples of what doesn't count as an instance of E31 Document, especially in view of the lack of examples of what should count as an instance of E31.

PR made a proposal to reconcile the need for a narrower definition of E31 Document, but one that does not reference all the odd edge-cases, i.e.: to keep the first two paragraphs of the proposed definition –which essentially states what the original definition intended to state in the first place. The rest could be reworked, and brought back to the SIG.

This proposal was accepted. The rest needs to be reconsidered by MD, PF.

Wednesday 15 October 2025

Issue 674: Harmonize CRMgeo with CRMbase 7.1.2

GH presented the HW that he and MD prepared for the CRMgeo CRMbase harmonization.

For a graphical representation of the model see here. The proposed changes can be found in the attached document.

Discussion points:

Regarding E94 Space Primitive. Q10 defines place (place is defined by): SP6 Declarative Place:

- E94 is a literal in the rdfs, so it would be best to use it in the inverse form (place is defined by --i.e., pointing from SP6 to E94)
- E94 isa E59 Primitive Value AND E41 Appellation: it should be reflecting on the rdfs
    - N.b.: it would be interesting to implement *a Q10.1 has encoding type: E55 Type* on the property to be able to query for just geoJSON literals, for example. It will be tricky to implement, ETz will give it a go.

Regarding duplicating properties from CRMbase in CRMgeo

- **Q11**: it explicitly dictates the approximating place to be a declarative place, whereas P189 implies that it can be either a declarative or phenomenal place
- **Q10**: it restricts the domain to a declarative place so it's not identical with P168, but a subproperty. Q10 acts as an interface between CRMbase and CRMgeo.

How to proceed: A small subgroup was formed (GH, GB, WS, and anyone else interested) to redraft scope notes, introduction

Manuscript-AI ontological framework

Presentation by Giulia Biagioni (TNO innovation for life)

The slide deck can be found here.

New documentation – Methodologies and the CIDOC-CRM

Presentation by Dominic Oldman (Kartography CIC)

The slide deck can be found here.

Extending the LRM Model to Integrating Resources

Presentation by Trond Aalberg (Oslo Metropolitan University), Maja Zumer (University of Ljubliana).

The slide deck can be found **here**. The full paper can be found here.

The aim of this presentation was to inform the SIG of the addition of two properties (one at the level of Expressions and one at the level of Manifestations), to indicate that for Integrating Resources (such as loose-leaf publications, websites etc.), revision of an Expression (referred to as “Iteration”) results in a Manifestation with the same identity as the Expression that it replaces.

The two properties in question are:

- LRM-R37 is next iteration of (is prior iteration of) that holds between subsequent iterations of Expression (i.e., the previous one and the one it gets replaced with), and
- LRM-R38 is diachronically embodied in (diachronically embodies) that holds between the most recent iteration of Expression and a Manifestation.

Regarding the PRESSoo-LRMoo-CIDOC CRM harmonization

PR, MZ, & TA have reviewed the PRESSoo and have conclude that its status can be demoted to "CIDOC CRM Compatible Ontology" (from "CIDOC CRM Harmonized Ontology").

The motivation behind this proposal can be summarized as follows:

- PRESSoo has fallen into disuse even within the ISSN
- For the most part, the last stable release of PRESSoo expands on the relations among Serials. This is done in two ways:
    - An event-oriented way that documents the relevant set of events to talk about the beginning of publishing a serial, any noteworthy changes that result in continued publications (continuation, replacement) or discontinued ones (absorption, merge, split, etc.); plus, a direct way shortcutting the relevant set of events that only references the relation between two instances of F18 Serial Work.
- With the addition of "Container" class in LRMoo and its properties (i.e., one between two containers and one between containers and their respective creation events –see a minor modification in what was proposed at the 59th CIDOC CRM SIG meeting in Plovdiv), it will be feasible to represent most of the content of PRESSoo in LRMoo.

Discussion points:

- It was once harmonized, but now it's not. It should be flagged that it is no longer supported. Before implementing the decision to demote it on the website, the SIG needs to figure out a way to flag it as "no longer maintained", not just "Compatible" in the new sense.
- Maybe a subsection for "Historical" models, but the discussion is far from concluding.

N.b. This discussion is relevant to the proposal made at the 59th CIDOC CRM/52nd FRBR/LRMoo for Issue 684 – regarding the modelling of series in LRMoo.

Issue 685: FOL statements in LRMoo

FOL statements in LRMoo

PR presented the SIG with three alternatives to handling the long path that R8 combines (is combined to form) that holds between two instances of F12 Nomen, given that the one originally proposed involved instantiating illicit properties, i.e., the ones marked in **red**: F12 Nomen. R33 has string: E62 String. P190i is symbolic content of: E90 Symbolic Content. P106 is composed of: E90 Symbolic Object. P190 ha symbolic content: E62 String. R33i is string of: F12 Nomen.

(a) Define a property Rxx has associated appellation (is associated appellation of) [D: F12 Nomen, R: E41 Appellation], in order to circumvent talking about making direct claims about the strings of two instances of F12 Nomen (so the shortcut would become F12 Nomen. Rxx has associated appellation: E41 Appellation. P106 forms part of: E41 Appellation. Rxxi is associated appellation of: F12 Nomen

(b) Revise R33 has string [D: F12 Nomen, R: E62 String] and make it R33 has representation (is representation of) [D: F12 Nomen, E90 Symbolic Object <or even E41 Appellation>], and declare the property to be a subproperty of P67 refers to (is referred to by)

(c) Do not declare it a shortcut of any long path, despite it being useful for the LRMer mapping.

Decision:

A long discussion ensued, which concluded in option (c) for version 1.1.1 (Official, IFLA approved).

- The arguments made can be found here (original proposal by PR, TA, MZ) and here (WS).
- Option (a) will be reconsidered at a later stage, will also mirror any updates regarding a proposal to reframe E41 Appellation (make it context dependent).

HW: The LRMoo group to continue working on that.

FOL statement regarding the implication of asymmetry for irreflexivity

CEO presented his HW –the clause to appear under the definition of "irreflexive" in the glossary table can be found below:

- P is asymmetric implies that P is irreflexive: Assume that P is asymmetric then for all x,y: P(x,y) implies not P(y,x). So, P(x,x) will imply not P(x,x) which is a contradiction and P(x,x) cannot be the case.

Decision: The SIG approved the proposal by CEO, it will appear in the introduction of CIDOC CRM v7.3.2 and LRMoo v1.1.1.

Issue 547: CRMdig Update

The SIG reviewed the HW by MD & PF on harmonizing CRMdig with CRMbase v71.(2|3). The proposed changes can be found in the attached document. For an overview of the model see here (.drawio file) and in the appendix.

A summary of the proposed changes can be found below:

- Reintroduce D9 Data Object (i.e. undo the decision to deprecate it), disengage it from E54 Dimension.
- Keep D29 Annotation Object, D30 Annotation Event (add missing text), and D35 Area (disengage it from E26 Physical Feature)
- Keep L54 is same as
- Deprecate L17 measured thing of type (was type of thing measured by)
- Deprecate L60 documents
- Declare D13 Digital Information Carrier a subclass of E122 Human-Made Object
- Minimally edit L43 annotates, to ensure that it no longer refers to a Research Infrastructure (feature of European Commission Research Projects)

Discussion points:

- There was a proposal to introduce a class Dxx Dataset (along the lines of the definition of PEM), that sits below D1 Digital Object and above D9 Data Object in the hierarchy –and is distinguished from D14 Software in terms of form and function, which was received positively.
  HW: GB will raise the new issue on the list –provide a draft scope note and a set of examples.
- There was a suggestion to explicitly indicate that L54 is same as is not intended to be identical to the owl:SameAs property. On the need to differentiate between degrees of sameness, see
  - Halpin, H. et al. (2010) 'When owl:sameAs Isn't the Same: An Analysis of Identity in Linked Data', in Patel-Schneider, P.F. et al. (eds) The Semantic Web – ISWC 2010. Berlin, Heidelberg: Springer Berlin Heidelberg, pp. 305–320. doi:10.1007/978-3-642-17746-0_20.

- Meghini Carlo, Doerr Martin and Spyratos Nicolas (2009) 'Managing Co-reference Knowledge for Data Integration', in Frontiers in Artificial Intelligence and Applications. IOS Press. doi:10.3233/978-1-58603-957-8-224.

Decision:

The SIG approved the proposal for the ensuing version to be marked a CIDOC CRM Harmonized Ontology with a stable status.

Some other necessary updates before a stable release can be issued will be discussed in the context of issue 708. The ensuing release will incorporate those edits too.

Schedule the 62nd CIDOC CRM & 55th FRBR/LRMoo SIG Meeting

The meeting will be hosted by the University of Oxford. It will take place on Monday 23- Thursday 26 March 2026

Announce the 63rd CIDOC CRM & 56th FRBR/LRMoo SIG Meeting

The meeting will be hosted by the Germanisches Nationalmuseum in Nürnberg. It will take place on Tuesday 6-Friday 9 October 2026

Announce the 64th CIDOC CRM & 57th FRBR/LRMoo SIG Meeting (some point between mid-February and mid-March 2027, University of Cologne)

The meeting will be hosted by the University of Cologne. It will take place sometime between mid-February and mid-March 2027.

Bylaws of the CIDOC CRM Special Interest Group (CRM-SIG)

Given the decision of MD and CEO to step down from the positions of Chair and Co-Chair of the SIG, respectively, it is considered a good practice for the SIG to formalize its dealings with ICOM Documentation (of which it forms a working group) and its procedures.

To this end, a proposal to form a set of bylaws for the SIG was made. The document can be found in the appendix.

Discussion points

The SIG went through the proposal, offered some feedback that has been incorporated in the document. Some of the remarks that could not be decided on at the meeting are given as footnotes. They will be refined by the interim steering committee that was formed and voted by the SIG.

- Article 2: suggestion to add a paragraph about the scope of the SIG's activities
- Article 2, paragraph 3: clarify what it means to be "in good standing with ICOM Documentation": It means to be a member of ICOM Documentation
- Article 2, paragraph 5: clarification of what it means that a steering committee member "fails to attend three consecutive meetings". It means that they are not participating in any form (in person or remotely), and that they've done so without previously alerting the other members of the steering committee.
- Article 4, paragraph 1: transitional provisions will be made for the first year of the new administration period. An interim steering committee will be appointed by the SIG in the course of the 61st CIDOC CRM & 54th FRBR/LRMoo SIG meeting. But this will not reflect on the bylaws.
- Article 4, paragraph 2: the interim steering committee will determine what the electorate is among the institutional members.

- Article 4, paragraph 3: the general sentiment was that the call for nominations period should be set to at most three months prior to the election itself. It should be concluded at most one month prior to the election, to ensure that there's ample time to organize everything.
- Article 4, paragraph 4: votes will be cast through a secret ballot –but the interim steering committee shall contact ICOM Documentation to establish best practices.
- Article 4, paragraph 5: the result of the election will be through a plurality vote.
- Article 6: a necessary addition to ensure that the bylaws of the CIDOC CRM can change, assuming there is need to do so, in a principled manner.

N.b.: the point that stirred the most controversy was **Article 2, paragraph 3**. It was believed among members that requiring the Chair and Deputy Chairs all be ICOM members, deprives the SIG of key people with expertise in conceptual modelling on the grounds of them coming from a different professional domain. On the other hand, there were those who believed that to able to issue a museum documentation standard on behalf of ICOM Documentation, means that the SIG should be represented by ICOM Members.

A vote was cast to resolve this. The majority decision was that both the Chair and Co-Chairs need to be ICOM members.

The interim steering committee

Suggestions for:

- **Interim Chair**: Pavlos Fafalios. He's an active participant in the SIG's work for many years. He currently holds a position of Assistant Professor at the Technical University of Crete and maintains an affiliation as a researcher at FORTH.
- **Deputy Chairs**: George Bruseker (Takin.solutions) and Dominic Oldman (Kartography-CIC) are resuming their post in the interim steering committee.
- **Secretary**: Eleni Tsouloucha (FORTH) is continuing as secretary in the interim steering committee.

The proposal is that the acting period of the interim steering committee will conclude at the 63rd CIDOC CRM & 56th FRBR/LRMoo SIG Meeting (Nuremberg, 6-11 October 2026)

Thursday 16 October 2025

Issue 697: CIDOC CRM website reorganization

ETz walked participants through the changes he has implemented concerning the site update, according to the decisions in the 60th CIDOC CRM & 53rd FRBR/LRMoo SIG meeting.

There are some things still pending, namely:

1) Reorganize the Compatible Model's subsites according to the main site menu
2) Generate a full list of harmonized models compatible with each version of the CIDOC CRM
3) Reorganize the Activities\Workshops menu from a free text field to a minimal set of metadata (Title, Short description, Organizer, Location, Date, URL, Materials, Language of delivery)
4) Implement decisions about CIDOC CRM Harmonized Ontologies and CIDOC CRM Compatible Ontologies on the site (add definitions, criteria for compatibility etc. based on input from issue 682)
5) In lieu of the now deprecated "Text status" and "Context updating in progress" statements, add "Last updated [YY-MM-DD]" statements.

Aside the points listed above that have been flagged for updating at a later stage, the following things also need to be implemented:

1) Move Use&Learn to the top hand ribbon (main menu item) with all its submenus.
2) Versions to be accessible both under The Model AND Resources (using one URL). Most people have been accessing CIDOC CRM Versions from under Resources, so it would be a major change (and not very welcome) to only include it under The Model (because that's where it should be, from a conceptual point of view).
3) Move the record of the Translation Guidelines Working Group from Activity Documentation to Activities\Working Groups
4) Move the contents of the spreadsheet (externally maintained software and datasets) in Activity Documentation to Resources\External Tools AND Deprecate Activity Documentation.
5) For each stable version, provide a bulk download of all serializations available to it. Place it somewhere high on the landing page of said version.

HW: ETz to implement what is listed above.

Issue 704: The future of the mailing list & issues management

GB presented the HW that he, StH, ETz, & PF had worked on, namely a proposal to migrate the management of issues to gitlab, for more transparency, less manual work (so fewer errors), and overall more efficiency.

The idea was that migrating to gitlab will not only replicate the workflow that the SIG is currently operating to manage issues, but it will also enhance it making use of all the features that gitlab has to offer (notifications mechanism, assigning tasks to people, tagging people, linking issues to one another, linking model versions to issues etc.).

Discussion points

It is believed that it will increase transparency too, in the sense that the burden of starting new issues does not fall on the secretary of the SIG, but literally to anyone interested, who has signed up for it. This is not to say that it will be a completely unmoderated list (people will still have to sign up for it), but it is believed that this practice will rekindle the community that supports CIDOC CRM.

Assuming the motion to migrate to gitlab succeeds (there has been another unsuccessful effort to do so), there would be a transitional period where the SIG would maintain both the issues management through the list and the website as well as through gitlab.

<u>On a practical note, the SIG needs to assess:</u>

- Whether all issues will migrate to gitlab or only active ones
- The criteria that any external tool/service should fulfil for it to successfully replicate the existing workflow
- What is the exact workflow it means to replicate and improve?
- Are there any risks from migrating to a platform that we do not control? How do these risks get mitigated?

How to proceed –HW assignments:

- **GB, StH, ETz, ETs, PF**: provide a pilot of initiating an issue on gitlab as opposed to the traditional way (step by step). The same for an issue that has started on the list and has migrated to gitlab.
- **GB, StH, ETz**: consider the risks from migrating issues management to an external platform and how to mitigate them

- **DO**: provide the criteria that any external tool must meet to successfully replicate the traditional issues management.

Data management in practice; Applying CIDOC CRM in an academic research data management system

Presentation by Mariana Curado Malta (University of Porto)

The slide deck can be found here.

Modelling museum critical cataloguing practices using CIDOC CRM and OntoLex

Presentation by Erin Canning (University of Oxford)

The slide deck can be found here.

Storytelling with CIDOC-CRM. The interconnection of events of Greek history through CIDOC-CRM

Presentation by: Athinais Mousoura, Sarantos Kapidakis (University of West Attica)

The slide deck can be found here.

Issue 695: Observation Reorganization -- S4 Single Observation

The SIG reviewed the proposal by PF to add a clause (underlined, below) in the scope note of S29 Observable Proposition, to increase its legibility.

- This class comprises proposition sets containing exactly one binary proposition which is or could, in principle be, encoded in a knowledge representation language, and which characterizes an observable phenomenon, regardless of whether it has happened or not. For example, it could refer to the intended meaning of a text about an observable phenomenon, the belief value concerning its reality has not been asserted, or to the question if a certain situation has ever happened. The identity of an instance of S29 Observable Proposition is given by the total of its content, regardless of equivalent encodings.
  The class S29 Observable Proposition plays the role of an important logical interface between observing single propositions or more generally observable situations. It is particularly relevant for implementing effective queries. For documentation, the use of the simpler shortcut properties of S4 Single Observation, i.e. O35 observed entity (was observed by), O9 observed property type (property type was observed by) and O16 observed value (value was observed by) will, typically, be the preferred approach.

It was approved, but PR offered to proofread it. It will appear edited in the next version of CRMsci.

Issue 662: Explore the connection among I11 Situation, S23 Position Determination, and E3 Condition State

WS explained how the examples of S23 Position Determination reflect in the new definition of S23 Position Determination (in CRMsci V3.0), and the ensuing “demotion” of the example of Halpern’s calculation of the position of the Titanic at the moment of the collision to S6 Data Evaluation –namely the clause that “The determined positions is given as an E94 Space Primitive corresponding to a declarative place. Together with the measured time-span covering the time-critical observations, it forms a spacetime volume, which should normally overlap with the spatiotemporal extent of the thing or phenomenon of interest”.

Regarding the main topic of the issue: the similarity between I11 Situation and S23 Position Determination (and E3 Condition State) is implied.

- S23 Position Determination. O31 has validity time-span (is validity time-span for): E52 Timespan
- I11 Situation. J24 held at least for (is at least validity of): E52 Time-Span

Despite the fact that I11 is defined as a subclass of I4 Proposition Set (and by extension of E89 Propositional Object) whereas S23 and E3 are subclasses of E2 Temporal Entity, I11 forms a particular kind of proposition set, in that its temporal context can be defined (as is evident from its temporal property J24 held at least for (is at least validity of)). Furthermore, O31 can be defined as a shortcut, its fully developed path going through:

- S23 Position Determination. O36 expressed the observed as (was observed by): S28 Observable Situation. J24 held at least for (is at least validity of): E52 Time-Span

The relation between S23 and I11 can be captured by the additional FOL statement (which should also reflect in the scope note):

- $S23(x) \Rightarrow \exists(yz)[E52(y) \wedge S15(z) \wedge O31(x,y) \wedge O32(x,y)]$

Decision:

The SIG considers the FOL addition an editorial decision of the CRMsci maintainers, and agrees to WS's proposal of adding a clause to reflect that in the scope note.

- **HW**-WS: The graphics for Mount Everest will be used for a new example of S23 Position Determination

Ontological Modeling of Cultural Heritage Metadata: Initial Project Development & CIDOC CRM Integration

Presentation by Aleksandra Mitiukova (State museum and Heritage Site Tzarskoe Selo)

The slide deck can be found here

Issue 708: Reviewing CRMdig 4.0 Digitization and D9

The SIG reviewed the HW by MD & PF for CRMdig –a revision of the scope note of:

- D1 Digital Object
- D2 Digitization Process
- D11 Digital Measurement Event
- L18 has modified (was modified by)
- L20 has created (was created by)

and the introduction of L61 contains value set (has value set representation).

Decision:

The HW was approved, it will feature in the new release of CRMdig. The ensuing version will have the release number 5.0. Any subsequent versions with scope note refinements, where necessary, and new examples and figures/use-cases, will be considered derivative, and be differentiated through decimal numbers.

The details of the class/property (re)definitions can be found in the appendix.

Friday 17 October 2025

Issue 650: Scope-note update for typed properties

CEO walked the SIG through the HW he had prepared for the issue. The main problem with providing scope notes for .1 properties is that for most cases the .1 properties only allow the possibility to add a type to the property. His take is that it is easier to capture the meaning of .1 properties through the use of examples, rather than by means of definitions.

Proposed example for P67.1 has type: E55 Type:

- The catalogue for the Rodin exhibition at The Iris and B. Gerald Cantor Roof Garden Met. Mus. of Art 1991 (E73) *refers to* The Burghers of Calais (1884-95) cast 1985 (E24) *has type* item offered as a gift (E55) [by B. Gerald Cantor Art Foundation https://libmma.contentdm.oclc.org/digital/collection/p15324coll10/id/240052/rec/5] .

Discussion points:

- The proposed example copies the structure of the existing fictitious example currently in use for P67.1 has type: E55 Type
- It could be the case that P67.1 has type: E55 Type is an abstraction over more specialized .1 properties and that's why its semantics are very difficult to capture. See what it has been used to document, formulate a set of examples on the basis of that and inductively arrive at a meaning for it.

Decision:

- Add the example above to the next release of CIDOC CRM
- Deprecate the fictitious example in the next release of CIDOC CRM
- Ask people to share use cases of data integration demonstrating the use of P67.1 (ETs to drop an email to the SIG list)
    - **GH** to share examples concerning lists that contain references to archaeological finds –he thinks the .1 has type would allow him to mention the kind of reference
    - has used it too, he will share at the use cases that could be included in the set of examples.

Proposed example for P138.1 mode of representation: E55 Type

- The painting "La Liberté guidant le peuple" by Eugène Delacroix (E36) *represents* the French « July Revolution" of 1830 (E7) *mode of representation* allegoric (E55)

Decision: It forms a good example, to appear in the next release of CIDOC CRM

Proposed scope note and example for P189.1 has type: E55 Type

Scope note addition:

This property specifies the type of approximation between two instances of E53 Place, for example if the approximation is based on cadastral information, (old) maps, oral information or modern techniques like GPS coordinates.

Proposed example

- The farm Oseberg Lille (E53) *approximates* the location of the Oseberg ship mound (E53) *has type* cadastral information (E55 Type) [documented in the old land registry].

Overall proposal:

- Since the .1 properties leave it to the user to either opt for a well-defined vocabulary-item to declare the E55 Type or to define ad hoc, non-standardized types, the SIG should either advocate for the use of well-defined vocabularies or, alternatively, demonstrate the use of concepts from controlled vocabularies (good practice) as well as use cases where the type assignment is a dynamic process.
- **Change the template for the .1 Properties**: .1 property label and scope note to be indented to be visually differentiated from the rest of the definition.

Overall decision:

- Ask the SIG for examples demonstrating the use of .1 properties. Definitely for P62.1, P67.1, P138.1 and P189.1, but also for all the other .1 properties in the model
    - P3.1 has type
    - P14.1 in the role of
    - P16.1 mode of use
    - P19.1 mode of use
    - P69.1 has type
    - P102.1 has type
    - P107.1 kind of member
    - P130.1 kind of similarity
    - P136.1 in the taxonomic role
    - P137.1 in the taxonomic role
    - P139.1 has type
    - P144.1 kind of member

HW:

- ETs will send requests to the SIG list –create a spreadsheet listing .1 property, E55 Type assigned (characterization: ad hoc, or vocabulary concept), triple, verbal description of the example, relevant project for context.
- GH: will share the archaeological use cases he mentioned
- DO: will share examples for the .1 properties too.

Issue 657: P32 used general technique is not a subproperty of P125 used object of type

Decision:

The SIG resolved to

- disengage *P32 used general technique* from *P125 used object of type*
- to declare it a subclass of *P2 has type*,
- admit the example by TV

A summary of the changes can be found in the appendix. They will appear in the next release of CIDOC CRM.

Issue closed

Issue 656: Reformulate the scope note of P89 falls within

CEO volunteered to take a look at the remaining HW and make a proposal for the next SIG meeting.

Issue 624: Add E33_E41_Linguistic_Appellation to the Official Specification

The issue has been idle since December 2022. GB who originally had proposed to introduce this class in the official documentation (rather than implement it as a guideline the rdfs) has since implemented it externally and is no longer interested to pursue the issue.

Issue closed.

Issue 655: What kind of inferences count as instances of shortcut properties?

There is a HW by CEO that has not been reviewed by the SIG. He thinks it's a non-issue and can be closed. WS volunteered to read through that old HW by CEO and see if anything more needs to be done.

Issue 633: Inheritance of strong and weak shortcuts

The issue was primarily about the inference in place between E7 Activity. P125 used object of type: E55 Type on the one hand and the path E7 Activity. P16 used specific object: E70 Thing. P2 has type: E55 Type , on the other (i.e., the former is a shortcut for the latter), and whether that shortcut – long path relation was inherited to subproperties –so, for P125 used object of type, that would be P32 used general technique.

Since the issue was articulated, the relation between P32 and P125 was contested –it was proposed that they be disengaged from one another, and that P32 be linked to P2 has type: E55 Type instead.

Given the lack of relevance, **the SIG resolved to close the issue**.

Issue 570: FOL statements in prose –appropriate section of class/property definitions

The SIG reviewed the issue. The last HW submitted was by MD (July 2022). At the time he had drafted a guideline about how to read FOL expressions and he had annotated some FOL expressions that he had rendered into (not so plain) English.

The SIG has since reviewed the HW and provided feedback, but it has not been incorporated in the guideline. As a rule, there was a marked preference for the shorter versions, inferences regarding subclasses/subproperties and/or domain-range statements would be omitted from the textual renditions.

Discussion points:

The SIG believes that completing the HW will increase the workload for very little profit:

- those able to read FOL expressions don't need to have access to their verbal renditions,
- the FOL axioms for complex long path inferences are represented in the scope notes already, there is no reason to duplicate the effort, especially in view of the fact that they get impossible to read

Decisions:

HW: ETs was assigned HW to read the guideline by MD, collect the annotated scope notes using the shorter versions, propose how to publish at the next meeting.

Issue 640: Statements about statements

The SIG has resolved to close the issue, given the developments in CRMinf and CRMsci, which allow one to make provenanced statements about .1 properties without declaring PC01_Property_Class a subclass of E1 CRM Entity for it to be referenced by E13. The connection to the Annotation Model in CRMdig will be expanded on, in subsequent revisions.

Furthermore, the issue has been idle since October 2023.

Assuming there are still problems with how to implement provenance statements then, anyone can raise the issue anew.

Issue closed.

Issue 668: Distinction of entities and n-ary relationships

The issue repeats part of the scope of issue 640 (Statements about statements), but without proper HW assignment or clear problem-statement. The SIG has resolved to close it on the grounds that developments in CRMinf and CRMsci allow making provenanced statements about .1 properties without the need to declare PC01 a subclass of E1 for it to be referenced by E13.

Issue closed.

Issue 677: How to restrict a superproperty to a subproperty

CEO thinks that the proposal by MD on how to restrict defining a property of a subclass as subproperty of a property of a superclass through additional FOL constraints, is valid and should be used as such and following that, the issue be closed.

However, given that the issue was not properly contextualized, HW was assigned to ETs to locate the email exchanges and provide some more background. Also, to contact MD for a follow-up on the issue.

Issue 660: Restriction of the use of E55 Type by FOL statements

Originally there was not so much to do about the issue, and it had not been properly contextualized. CEO thinks that it's a good way to express in FOL what restricting the domain or range of a property to a subclass yields a subproperty (given the domain/range restriction).

WS has volunteered to take a look at the issue because he thinks there are implications for the CRMgeo and CRMbase harmonization (in particular E94 Space Primitive. Q10 defines place: SP6 Declarative Place and E94 Space Primitive. P168i defines place (place is defined by): E53 Place) that at an FOL level are completely equivalent and thus render the $pb(x,y) \Rightarrow pa(x,y)$ "subproperty of" axiom wrong.

HW: WS to report back to the SIG at the next meeting.

Issue 632: Are there TPs among the CRM inverse properties?

HW: The SIG appointed ETz, PF, and AK to take up on the HW for the issue and present it at the next meeting in Oxford (62nd SIG meeting).

Issue 689: Scope note for P127, P150, E55 –intension and sources

The issue's status is "Proposed". The SIG resolved to change the status to "Open" and assigned WS to report back to the SIG what the course of action concerning P127 and P150 should be.

HW: WS to make a proposal at the next SIG meeting.

Issue 576: About … entity of type?

The SIG resolved to keep the issue open and send a reminder to MD and GB who were involved in the issue about how they want to proceed.

Issue 556: Content of the minimal vocabularies for restricting the CIDOC CRM Types

The HW is almost ready, the only loose end is some HW concerning the type restrictions of E4 Period.

The SIG resolved to link this HW to issue 650 (scope note update for typed properties) given that it contains a section called “Restricting the types mentioned in .1 properties”.

If any more HW turns up, the document will be updated.

Issue 665: Harmonize the quantification of P43 and O12 has dimension (also P179 had sales price)

The issue can close. The last point that had remained unsolved at the 60th CIDOC CRM SIG Meeting was about the exclusion statements and the corresponding text in the scope note of O12. These have since been corrected by editorial decision at the final editing round of CRMsci, V3.0 -see pg. 44-45.

Issue closed.

APPENDICES

Appendix I: List of abbreviated names

AK: Athina Kritsotaki,

CEO: Christian-Emil Ore,

DO: Dominic Oldman,

ETs: Eleni Tsouloucha,

ETz: Elias Tzortzakakis,

GB: George Bruseker,

MCM: Mariana Curado Malta,

MD: Martin Doerr,

MZ: Maja Žumer,

PF: Pavlos Fafalios,

PR: Pat Riva,

StH: Stephen Hart,

TA: Trond Aalberg,

WS: Wolfgang Schmidle

Appendix II: Model updates, scope note reformulations, documents

Issue 627:

A – Issues with current implementations

LRMoo* ontologyIRI: http://iflastandards.info/ns/lrm/lrmoo/ is not resolvable. The versionIRI: http://www.cidoc-crm.org/extensions/lrmoo/1.0/ does not follow the expected pattern

<owl:Ontology rdf:about="http://iflastandards.info/ns/lrm/lrmoo/”>

<owl:versionIRI rdf:resource="http://cidoc-crm.org/extensions/lrmoo/1.0/"/>

It is a working mechanism though which is useful in order to import LRMoo to other ontologies.

CRMtex* CRMtex depends on Cidoc-CRM v7.1.2, CRMinf v0.7(b), CRMsci v2.0, FRBRoo v2.4 but CRMinf v0.7b and FRBRoov2.4 do not have resolvable versionIRI to be used in owl:import statements

Issues of **CRMsci 3.0 * draft** and **CRMinf 1.2 * draft** are pointed out later in the document

B – Extending versionIRI for OWL encodings

The request header type used for both RDF and OWL is the same: “application/rdf+xml” so we cannot use the same versionIRI for both encodings in the same way we use the same uri for html page requests and rdf requests. Thus, in order to support the versionIRI and import mechanism for owl encodings there have also been implemented the following versionIRIs

- crm base owl
    - http://www.cidoc-crm.org/cidoc-crm/owl/7.1.3/
    - http://www.cidoc-crm.org/cidoc-crm/owl/7.1.2/
    - http://www.cidoc-crm.org/cidoc-crm/owl/7.1.1/
- crm extensions owl e.g.http://www.cidoc-crm.org/extensions/crmsci/owl/2.0/

Issue 700

Migration Instructions for E13 Attribute Assignment, subclasses and properties

In cultural heritage institutions it is common practice to document condition assessment, measurement, classification, observation, etc. for groups of objects. This has been reflected in the CRMbase by the quantification many-to-many of the properties P140 *assigned attribute to (was attributed by)* and P141 *assigned (was assigned by)* and their subproperties. From v7.3.1 and on, all instances of E13 Attribute Assignment (and subclasses) form a single activity, applied to exactly one object, and yielding one value or dimension, which prohibits multiple values or dimensions as the objects of one instance of E13 Attribute Assignment (condition assessment, measurement, classification, observation, etc.). After the change, one has to replace the single instance of E13 Attribute Assignment or subclasses with an instance of E7 Activity as the grouping event and a new instance of E13 Attribute Assignment or subclasses for each of the objects in question. The grouping instance should hold the information about time, place and actor of the original instance of E13 Attribute Assignment and a type indicating the kind of event. Each of the new instances of E13 Attribute Assignment or subclasses should be sub-events, that is connected to the new instance of E7 activity via the property P9 *consists of (forms part of).*

Issue 636:

Cardinality restriction statement

The formalism is as follows. The pair before the colon is the lower and upper numbers of a single domain instance that can be the argument of a given property and the pair after the colon is the lower and upper numbers of a single domain instance. That is, the pair 0,n indicates that there are no restrictions. The pair 1,1 says that each domain instance must be an argument but only one time, while the pair 0,1 says that each instance may be an argument but only one time. The pair 1,n says that each domain instance must be an argument and there is no upper limit. This can be generalized so that the pair can consist of any numbers as long as the first is lower or equal to the second. For example, the property P152 has parent (is parent of) has the quantification (2,n:0:n) indicates that every person has at least 2 parents but may have more (adoption) and that every person may not have a child but there are no restrictions on the number of children a person may have. Below the quantifications found in CRMbase and compatible models are listed. The cases with interval-bounds explicitly larger than one, are not included.

Missing property quantifier declarations

	one to one, optional (0,1:0,1)	An individual domain instance of this property can have zero or one instance of this property, but an individual range instance cannot be referenced by more than one instance of this property. In other words, this property is optional for its domain and range.	6 occurrences in PRESSoo only
	one to one (0,1:1,1)	An individual domain instance of this property can have zero or one instance of this property, but an individual range instance must be referenced by exactly one instance of this property. In other words, this property is optional for its domain and necessary and not repeatable for its range.	2 occurrences in CRMtext only

Issue 615:

Scope note reformulation proposal for E13 Attribute Assignment, marked in **boldface**:

This class comprises the actions of making assertions about one property of an object or any single relation between two items or concepts. **The property or relation does not have to be part of the CRM.** The type of the property asserted to hold between two items or concepts can be described by the property P177 assigned property of type (is type of property assigned): E55 Type.

For example, the class describes the actions of people making propositions and statements during certain scientific/scholarly procedures, e.g. the person and date when a condition statement was made, an identifier was assigned, the museum object was measured, etc. Which kinds of such assignments and statements need to be documented explicitly in structures of a schema rather than free text, depends on whether this information should be accessible by structured queries.

This class allows for the documentation of how the respective assignment came about, and whose opinion it was. Note that all instances of properties described in a knowledge base are the opinion of someone. Per default, they are the opinion of the team maintaining the knowledge base. This fact must not individually be registered for all instances of properties provided by the maintaining team, because it would result in an endless recursion of whose opinion was the description of an opinion. Therefore, the use of instances of E13 Attribute Assignment marks the

fact that the maintaining team is in general neutral to the validity of the respective assertion, but registers someone else's opinion and how it came about.

All properties assigned in such an action can also be seen as directly relating the respective pair of items or concepts. Multiple use of instances of E13 Attribute Assignment may possibly lead to a collection of contradictory values.

Issue 707:

Proposed scope note for E31 Document

E31 Document

Subclass of:

E73 Information Object

Superclass of:

E32 Authority Document

Scope note:

This class comprises identifiable immaterial items that make propositions about reality, often called non-fiction. These propositions may be expressed in text, graphics, images, audiograms, videograms or by other similar means.

Typical examples are scientific records and studies, observational data, realistic portraits, depictions of landscapes or buildings, log books of ships and many others. Documentation databases are regarded as instances of E31 Document. This class should not be confused with the concept "document" in Information Technology which denotes any kind of digital object (of "file") and is compatible with E73 Information Object.

In general, it is the implicit or explicitly expressed intention in the creation of the item that justifies the classification as an instance of E31 Document, which distinguishes it from other kinds, such as fiction or software, and not its claimed truthfulness with respect to reality. Deviations with respect to reality are typically unintended errors or poorly supported assumptions, but also different cases of bias discussed in the scientific discourse. It is the task of scientists and scholars to assess truthfulness of instances of E31 Document.

Only if the overall seriousness of an information object appears not to be given, such as the article by Leo Taxil 1890 about the Freemasonry, the documentalist should decide not to classify an item as instance of E31 Document. Also, historical novels, such as "Sinuhe the Egyptian" by Mia Waltari, 1945, which may incorporate or is inspired by facts are not considered an instance of document because they are primarily fiction. Fiction consists of narrative mainly based on imaginary events, people, places, etc.

[Leo Taxil wrote in 1890 a farce about the freemasons not intended to be taken seriously, but getting "viral" as being real despite of his confirmation that it was a hoax. It is the origin of conspiracy theories about the . https://en.wikipedia.org/wiki/Taxil_hoax]

Examples:

- the Encyclopaedia Britannica (E32) (Kogan, 1958)

- the image content of the photo of the Allied Leaders at Yalta published by UPI, 1945 (E36)
- Domesday Book [a manuscript record of the "Great Survey" of much of England and parts of Wales completed in 1086 by order of King William the Conqueror] (Hallam 1986)

In first-order logic:

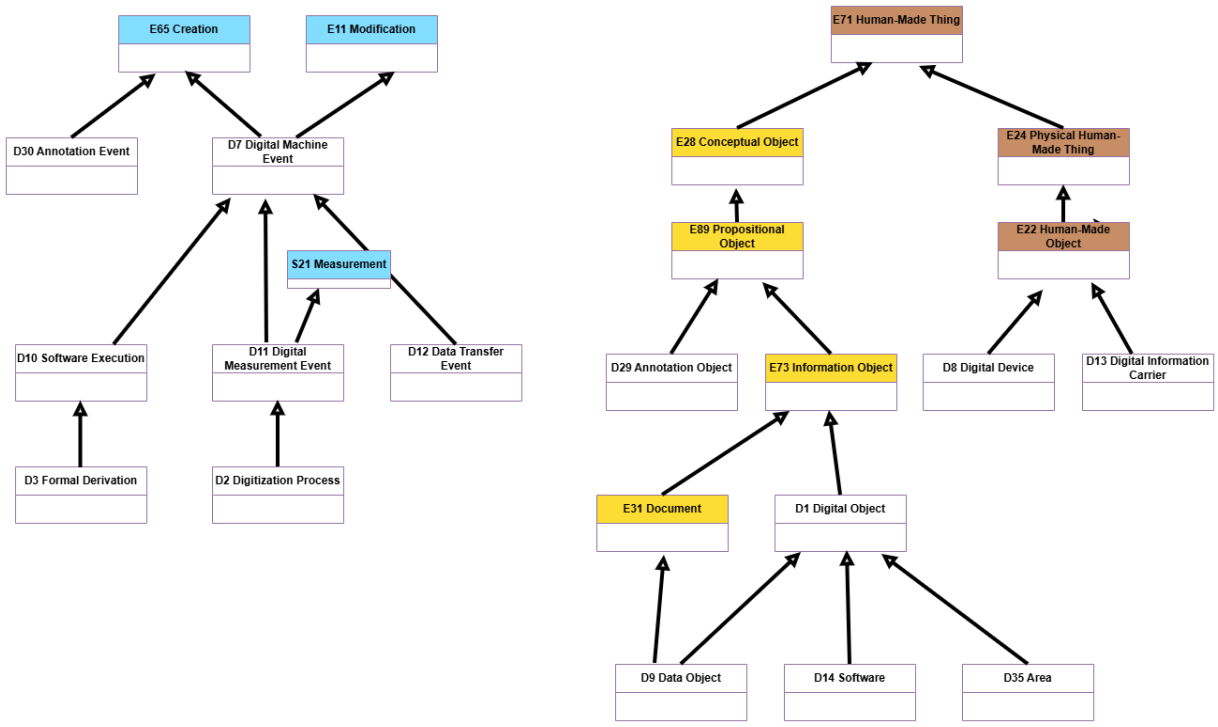
$$E31(x) \Rightarrow E73(x)$$

Properties:

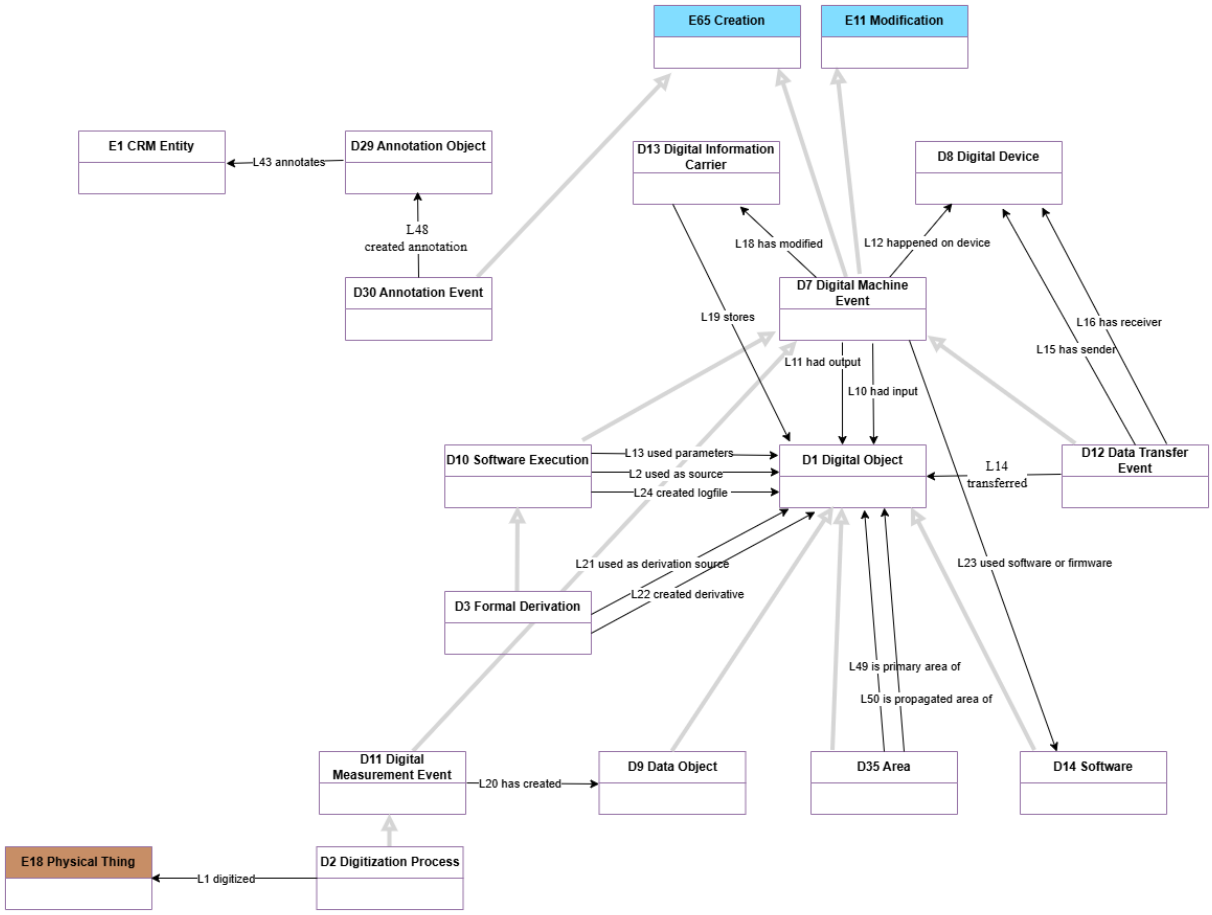
P70 documents (is documented in): E1 CRM Entity

Issue 547:

CRMdig class hierarchy



CRMdig property hierarchy



Issue 707: E31 Document –scope note revision

PF presented HW by MD –a proposal to reformulate the scope note of E31 Document. The idea is to clarify that the content of E31 Document is true (to the best of the knowledge of the person doing the documentation, whose intent is to accurately represent the world).

The proposed scope note can be found in the appendix.

Discussion points:

It was acknowledged that the current scope note was not good in the first place, in the sense that

(iv) it's too broad to be useful and can't be semantically distinguished from its superclass (E73 Information Object),
(v) it seems like a type-specification of an E73 Information Object,
(vi) both true and false propositions are essentially about some aspect of reality, which allows an instance of E31 Document that (P70) *documents* something, to make false claims about the thing documented (which goes against the best practices in Documentation).

The proposal to explicitly claim that the contents of a document are true (to the best of the author's knowledge) – i.e. they were believed to be true at the time of the documentation was understood as consistent with best practices in museum and cultural heritage documentation.

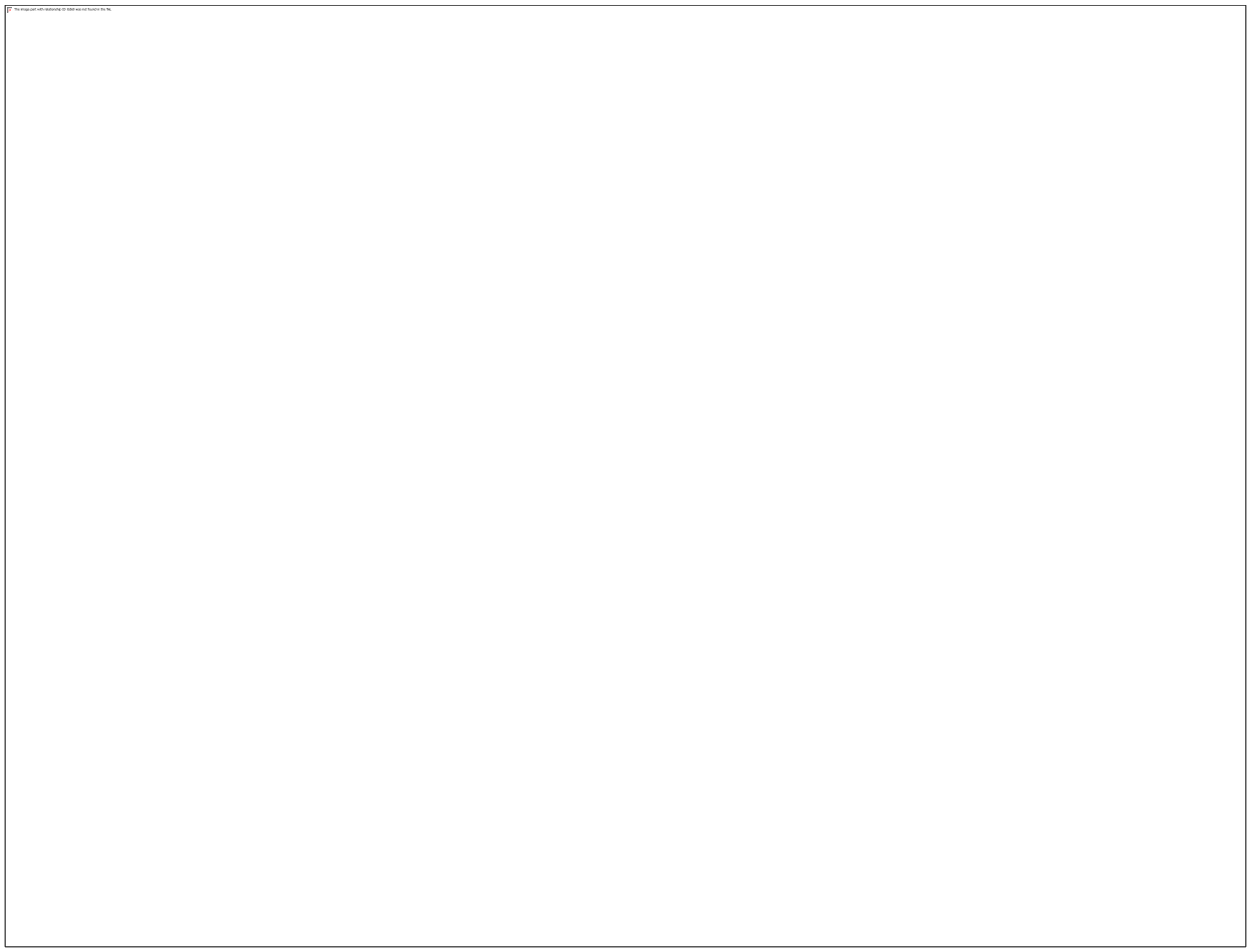
On the other hand, arguments against explicitly claiming that the content of a document is true, for it to be considered an instance of E31 Document were raised, namely:

(iv) Adding a requirement that the contents of a document are true, makes it a type of E73 Information Object (hence deprives the class of any ontological category status)
(v) The requirement that the contents of a document are true, means that the exception (intentionally reporting what you honestly believe is true) is taken to be the rule –archival documents (i.e., letters, reports) will no longer qualify as a valid instance of E31; typically, in these contexts the author is trying to paint themselves or their involvement in some situation in a good light –their motive is not necessarily to preserve the truth.
    a. N.b.: the proposed scope note explicitly references this problem (par.3-4).
(vi) The belief of the person documenting something regarding the contents of what they have documented, lies outside the scope of CIDOC CRM. It can be captured through CRMinf. That model deals with knowledge revision, and many of its examples reference situations where the truth of some statements (and the assumption of honest reporting on behalf of the people that drafted the documents under consideration) was taken for granted –only to later be evaluated as political propaganda. So, this class would be unusable to the extent that we cannot have access to people's motives and intentions.

Other issues that participants took issue with the proposed scope note, stemmed from the explicit mention to documents meant as hoaxes or historical novels as examples of what doesn't count as an instance of E31 Document, especially in view of the lack of examples of what should count as an instance of E31.

PR made a proposal to reconcile the need for a narrower definition of E31 Document, but one that does not reference all the odd edge-cases, i.e.: to keep the first two paragraphs of the proposed definition –which essentially states what the original definition intended to state in the first place. The rest could be reworked, and brought back to the SIG.

This proposal was accepted. The rest needs to be reconsidered by MD, PF.



Bylaws of the CIDOC CRM Special Interest Group (SIG)

Article 1 Relationship with ICOM Documentation

The CRM-SIG is a working group of ICOM Documentation, cf. the statutes of ICOM Documentation Article 8: Working groups

Article 2 Composition

The affairs of the CIDOC CRM Special Interest Group (CRM SIG) shall be governed by a Steering Committee.[1]

2.2 The Steering committee

The Steering Committee shall consist of the following elected officers:

- Chair
- 2 Deputy Chairs
- Secretary

2.3

Only individual (personal) members of ICOM Documentation in good standing are eligible to stand for election as Chair or Deputy Chair.

[1] Add a paragraph summarizing the purpose and activities of the CRM-SIG

2.4 Term of Office

Members of the Steering Committee shall be elected for a period of three (3) years. Chair and Deputy Chairs may be re-elected once in the same position and shall not serve in the same position for more than six (6) consecutive years, nor remain in office for more than nine (9) years in total.

2.5 Termination of office and vacancy

A member of the Steering Committee shall cease to hold office if the member:

- Resigns from the ICOM Documentation (voluntary resignation);

- Is no longer a voting member of the ICOM Documentation,

- Fails to attend three or more successive meetings of the CRM-SIG without justification (compulsory resignation).

If the Chair resigns then the remaining members elect one of the Deputy Chairs as Chair for the rest of the term. If any other officer resigns then the committee may co-opt a new member.

Article 3– Responsibilities

3.1

The Steering Committee shall be responsible for the overall management and coordination of the CRM SIG, including but not limited to:

- Planning and organizing regular SIG meetings (at least twice yearly)
  Participating in and offering guidance for the issues related to the ontology and its application, following the established principles of the group through the formulation of issues, participation in issues discussion and resolution.
  Active participation in CRM SIG meetings
- Attracting members, experts and guests from diverse related disciplines to participate in CRM SIG meetings
- Overseeing the technical infrastructure necessary for the use, maintenance, and dissemination of the CIDOC CRM and its related models.
- Supervising and providing strategic guidance to editorial teams and working groups.
- Ensuring that the CRM SIG fulfills its objectives in accordance with ICOM Documentation and ICOM statutes.

Article 4 – Elections

4.1

Elections for the Steering Committee shall be held every third year preferably one month before the ICOM Documentation's AGM that occurs during the ICOM Documentation Conference.

4.2

The election process shall be coordinated by a nomination committee, appointed by the current SIG Membership.[2]

4.3

The call for nominations shall be issued at least three (3) months prior to the election date and closed one (1) month before the election date

4.4

Voting shall be conducted electronically, in a secure and transparent manner, and open to all Voting Members of ICOM Documentation and to the representatives for the Institutional members of the CRM-SIG.

[2] The interim steering committee to determine what the electorate will be.

4.5

The result of the elections is presented as a part of the annual report for approval at the AGM of the ICOM Documentation.

Article 5 – Officer Roles and Responsibilities

5.1 Chair

The Chair shall serve as the principal officer of the CRM SIG and provide strategic leadership and oversight. The Chair's responsibilities include:

a. Convening and presiding over meetings of the Steering Committee and the CRM SIG.

b. Representing the CRM SIG in official communications with CIDOC, ICOM, and external organizations.

c. Ensuring that the SIG's activities align with its mandate from ICOM Documentation and support the development, maintenance, and dissemination of the CIDOC CRM and its extensions as international standard or ICOM Documentation recommendations, with high professional quality and neutral to particular projects.

d. Providing final approval on major policy, editorial, and strategic decisions in consultation with the Steering Committee.

e. Reporting to the ICOM Documentation Board and asking for approval, if necessary, as adequate to the issue.

5.2 Deputy Chairs

The Deputy Chairs shall support the Chair in fulfilling the duties of the office and serve as deputy in their absence. The Deputy Chairs' responsibilities include:

a. Assisting in the planning and facilitation of SIG meetings and their agendas, workshops, and working groups.

b. Coordinating assigned areas of responsibility such as editorial processes, technical infrastructure, or community outreach.

c. Acting as liaison to other ICOM Documentation Working Groups and relevant external communities.

d. Assuming the duties of the Chair when delegated or when the Chair is unavailable.

e. The CRM SIG may distribute some focus of responsibilities between the Deputy Chairs and assign respective tasks as adequate for day-to-day business.

5.3 Secretary

The Secretary shall be responsible for the administrative and record-keeping duties of the CRM SIG. The Secretary's responsibilities include:

a. Recording, distributing, and archiving the minutes of Steering Committee and CRM SIG meetings.

b. Maintaining accurate records of members, elections, decisions, and official documents.

c. Organizing logistics for meetings, including editing of agendas, participant communications, and voting procedures. Coordinating the announcement and administration of elections in collaboration with the Steering Committee.

Article 6

The content of this document and the rules it specifies for governance of the CRM SIG can be modified by the usual procedure of the group of raising an issue for change, in coordination with the ICOM Documentation board, and agreeing by vote. This then must be ratified with the AGM of ICOM Documentation.

Issue 708:

D1 Digital Object

NEW DEFINITION

D1 Digital Object

Subclass of:

E73 Information Object

Superclass of:

D9 Data Object

D14 Software

D35 Area

Scope note:

This class comprises identifiable immaterial items that can be represented as sets of bit sequences, such as data sets, e-texts, images, audio or video items, software, etc., and are documented as single units. Any change in the bit sequence results in a new instance of D1 Digital Object.

Any aggregation of instances of D1 Digital Object into a whole treated as a single unit is also regarded as an instance of D1 Digital Object.

This means that for instance, the content of a DVD, an XML file on it, and an element of this file, are regarded as distinct instances of D1 Digital Object, mutually related by the P106 is composed of (forms part of) property. In the case of embedded metadata, the documentalist must take care to distinguish the identity of the object including the metadata from the identity of the included content described by the metadata.

A D1 Digital Object does not depend on a specific physical carrier, and it can exist on one or more carriers simultaneously.

In First Order Logic:

$D1(x) \Rightarrow E73(x)$

OLD DEFINITION

D1 Digital Object

Subclass of:

E73 Information Object

Superclass of:

D9 Data Object

D14 Software

D35 Area

Scope note:

This class comprises identifiable immaterial items that can be represented as sets of bit sequences, such as data sets, e-texts, images, audio or video items, software, etc., and are documented as single units.

Any aggregation of instances of D1 Digital Object into a whole treated as single unit is also regarded as an instance of D1 Digital Object.

This means that for instance, the content of a DVD, an XML file on it, and an element of this file, are regarded as distinct instances of D1 Digital Object, mutually related by the P106 is composed of (forms part of) property.

A D1 Digital Object does not depend on a specific physical carrier, and it can exist on one or more carriers simultaneously.

In First Order Logic:

D1(x) ⇒ E73(x)

D2 Digitization Process

NEW DEFINITION

D2 Digitization Process

Subclass of:

D11 Digital Measurement Event

Scope note:

This class comprises events that result in the creation of instances of D9 Data Object that represent the appearance (for instance, light reflection properties), form or recorded inner structure of an instance of E18 Physical Thing such as paper documents, statues, buildings, paintings, biological objects etc. Such methods are typically called “imaging techniques”.

A particular case is the analogue-to-digital conversion of audiovisual material.

This class represents the transition from a material item to an immaterial representation of a relevant spatial distribution of local physical properties on **the material item** (in the case of audio material item, also along the respective sound track)

Subsequent processing steps of the output of digitization processes that preserve or improve the relevant spatial correlations with the digitized object or a part of it are regarded as instances of D3 Formal Derivation.

In First Order Logic:

D2(x) ⇒ D11(x)

Properties:

L1 digitized (was digitized by): E18 Physical Thing

L60 documents: E1 CRM Entity

Examples:

- A mummy CT, a statue scanned, a manuscript page...

OLD DEFINITION

D2 Digitization Process

Subclass of:

D11 Digital Measurement Event

Scope note:

This class comprises events that result in the creation of instances of D9 Data Object that represent the appearance and/or form of an instance of E18 Physical Thing such as paper documents, statues, buildings, paintings, etc.

A particular case is the analogue-to-digital conversion of audiovisual material.

This class represents the transition from a material thing to an immaterial representation of it.

The characteristic subsequent processing steps on digital objects are regarded as instances of D3 Formal Derivation.

In First Order Logic:

D2(x) ⇒ D11(x)

Properties:

L1 digitized (was digitized by): E18 Physical Thing

L60 documents: E1 CRM Entity

D9 Data Object (reintroduced)

D9 Data Object

Subclass of:

D1 Digital Object

E31 Document

Scope note:

This class comprises instances of D1 Digital Object that are the result of measurements or other observations and / or their algorithmic evaluation in the form of structured data, such as encoded formal propositions, CSV files ("comma separated values") or equivalent representations.

If an instance of D1 Digital Object contains the value set of an instance of E54 Dimension, such as the primary data from an instance of S21 Measurement, this association can be documented with the property *L61 contains value set of (has value set representation).*

In First Order Logic:

D9(x) ⇒ D1(x)

D9(x) ⇒ E54(x)

Properties:

L61 contains value set of (has value set representation): E54 Dimension

D11 Digital Measurement Event

NEW DEFINITION

D11 Digital Measurement Event

Subclass of:

D7 Digital Machine Event

S21 Measurement

Superclass of:

D2 Digitization Process

Scope note:

This class comprises actions measuring physical properties using a digital device, that are determined by a systematic procedure and creates an instance of D9 Data Object, which is stored on an instance of D13 Digital Information Carrier.

In contrast to instances of D10 Software Execution, environmental factors have an intended influence on the outcome of an instance of D11 Digital Measurement Event.

Measurement devices may include running distinct software, such as the RAW to JPEG conversion in digital cameras, as an integral part of the overall process. If the respective software is configurable for the device, the event is regarded as an instance of both classes, D10 Software Execution and D11 Digital Measurement Event.

The actual physical properties measured should be documented using the property *O39 observed dimension (was observed in):* E54 Dimension. Note that the property *L20 has created (was created by):* D9 Data Object constitutes a shortcut of the full path from D11 Digital Measurement Event through *O39 observed dimension (was observed in),* E54 Dimension, *L61 contains value set of (has value set representation)*, to D9 Data Object.

In First Order Logic:

$D11(x) \Rightarrow D7(x)$

$D11(x) \Rightarrow S21(x)$

OLD DEFINITION

D11 Digital Measurement Event

Subclass of:

D7 Digital Machine Event

E16 Measurement

Superclass of:

D2 Digitization Process

Scope note:

This class comprises actions measuring physical properties using a digital device, that are determined by a systematic procedure and creates an instance of D9 Data Object, which is stored on an instance of D13 Digital Information Carrier.

In contrast to instances of D10 Software Execution, environmental factors have an intended influence on the outcome of an instance of D11 Digital Measurement Event.

Measurement devices may include running distinct software, such as the RAW to JPEG conversion in digital cameras.

In this case, the event is regarded as instance of both classes, D10 Software Execution and D11 Digital Measurement Event.

In First Order Logic:

D11(x) ⇒ D7(x)

D11(x) ⇒ E16(x)

Properties:

L17 measured thing of type (was type of thing measured by): E55 Type

L20 has created (was created by): D9 Data Object

L18 has modified (was modified by)

NEW DEFINITION

L18 has modified (was modified by)

Domain:

D7 Digital Machine Event

Range:

D13 Digital Information Carrier

Subproperty of:

E11 Modification: P31 has modified (was modified by): E18 Physical Thing

Scope note:

This property identifies a D13 Digital Information Carrier modified in a D7 Digital Machine Event for storing its results.

In First Order Logic:

L18(x,y) ⇒ D7(x)

L18(x,y) ⇒ D13(y)

L18(x,y) ⇒ P31(x,y)

OLD DEFINITION

L18 has modified (was modified by)

Domain:

D7 Digital Machine Event

Range:

D13 Digital Information Carrier

Subproperty of:

E11 Modification:P31 has modified (was modified by):E18 Physical Thing

Scope note:

This property identifies a Digital Information Carrier modified in a Digital Machine Event.

In First Order Logic:

L18(x,y) ⇒ D7(x)

L18(x,y) ⇒ D13(y)

L18(x,y) ⇒ P31(x,y)

L20 has created (was created by)

NEW DEFINITION

L20 has created (was created by)

Domain:

D11 Digital Measurement Event

Range:

D9 Data Object

Subproperty of:

D7 Digital Machine Event:L11 had output (was output of):D1 Digital Object

Scope note:

This property associates an instance of D11 Digital Measurement Event with an instance of D9 Data Object that was created for storing the results, i.e., observed values, of the measurement.

In First Order Logic:

L20(x,y) ⇒ D11(x)

L20(x,y) ⇒ D9(y)

L20(x,y) ⇒ L11(x,y)

OLD DEFINITION

L20 has created (was created by)

Domain:

D11 Digital Measurement Event

Range:

D9 Data Object

Subproperty of:

D7 Digital Machine Event:L11 had output (was output of):D1 Digital Object

Scope note:

This property identifies a Data Object that came into existence as a result of a D11 Digital Measurement Event.

In First Order Logic:

L20(x,y) ⇒ D11(x)

L20(x,y) ⇒ D9(y)

L20(x,y) ⇒ L11(x,y)

L61 contains value set (has value set representation) –new property

L61 contains value set of (has value set representation)

Domain:

D9 Data Object

Range:

E54 Dimension

Subproperty of:

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of D9 Data Object with an instance of E54 Dimension, in the case that the former contains the set of values of the respective dimension in a digital format.

In First Order Logic:

L61(x,y) ⇒ D9(x)

L61(x,y) ⇒ E54(y)

Issue 657

NEW DEFINITION

P32 used general technique (was technique of)

Domain:

E7 Activity

Range:

E55 Type

Subproperty of:

E1 CRM Entity. P2 has type (is type of): E55 Type

Quantification:

many to many (0,n:0,n)

Scope note:

This property identifies the technique or method, modelled as an instance of E55 Type, that was employed in an instance of E7 Activity.

These techniques should be drawn from an external E55 Type hierarchy of consistent terminology of general techniques or methods such as embroidery, oil-painting, carbon dating, etc. Specific documented techniques should be described as instances of E29 Design or Procedure.

Examples:

- The ornamentation of silver cup 113 (E11) *used general technique* gold-plating (E55). [A Design or Procedure type] (fictitious)
- The endbanding of codex S.Ar.20 (E11) *used general technique* blanket-stitch-with-core as primary component (E55). (Boudalis, 2023)

In first-order logic:

P32(x,y) ⇒ E7(x)
P32(x,y) ⇒ E55(y)
P32(x,y) ⇒ P2(x,y)

Bibliographic Reference:

- Boudalis, G. (2023) On the edge: Endbands in the Bookibinging Traditions of the Eastern Mediterranean, Michigan: The Legacy Press, p.181

OLD DEFINITION

P32 used general technique (was technique of)

Domain:

E7 Activity

Range:

E55 Type

Subproperty of:

E7 Activity. P125 used object of type (was type of object used in): E55 Type

Quantification:

many to many (0,n:0,n)

Scope note:

This property identifies the technique or method, modelled as an instance of E55 Type, that was employed in an instance of E7 Activity.

These techniques should be drawn from an external E55 Type hierarchy of consistent terminology of general techniques or methods such as embroidery, oil-painting, carbon dating, etc. Specific documented techniques should be described as instances of E29 Design or Procedure.

Examples:

- The ornamentation of silver cup 113 (E11) *used general technique* gold-plating (E55). [A Design or Procedure type] (fictitious)

In first-order logic:

P32(x,y) ⇒ E7(x)
P32(x,y) ⇒ E55(y)
P32(x,y) ⇒ P125(x,y)