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**Aeronavtika - LOTAR - Dolgoročno arhiviranje in iskanje digitalne tehnične dokumentacije o izdelkih, kot so podatki o 3D, CAD in PDM - 230. del: Kot zgrajeno/Kot dostavljeno/Kot vzdrževano**

Aerospace series - LOTAR - LOng Term Archiving and Retrieval of digital technical product documentation such as 3D, CAD and PDM data - Part 230: As-built/As-delivered/As-maintained

Luft- und Raumfahrt - LOTAR - Langzeit-Archivierung und -Bereitstellung digitaler technischer Produktdokumentationen, wie zum Beispiel von 3D-, CAD- und PDM-Daten - Teil 230: Wie gebaut/geliefert/instandgehalten

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**Ta slovenski standard je istoveten z: prEN 9300-230**

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**ICS:**

|           |                                                                     |                                                              |
|-----------|---------------------------------------------------------------------|--------------------------------------------------------------|
| 01.110    | Tehnična dokumentacija za izdelke                                   | Technical product documentation                              |
| 35.240.30 | Uporabniške rešitve IT v informatiki, dokumentiranju in založništvu | IT applications in information, documentation and publishing |
| 49.020    | Letala in vesoljska vozila na splošno                               | Aircraft and space vehicles in general                       |

**oSIST prEN 9300-230:2026**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 9300-230**

August 2026

ICS 01.110; 35.240.30; 49.020

English Version

**Aerospace series - LOTAR - LOng Term Archiving and  
Retrieval of digital technical product documentation such  
as 3D, CAD and PDM data - Part 230: As-built/As-  
delivered/As-maintained**

Luft- und Raumfahrt - LOTAR - Langzeit-Archivierung  
und -Bereitstellung digitaler technischer  
Produktdokumentationen, wie zum Beispiel von 3D-,  
CAD- und PDM-Daten - Teil 230: Wie  
gebaut/geliefert/instandgehalten

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee ASD-STAN.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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**prEN 9300-230:2026 (E)****European foreword**

This document (prEN 9300-230:2026) has been prepared by ASD-STAN.

After enquiries and votes carried out in accordance with the rules of this Association, this document has received the approval of the National Associations and the Official Services of the member countries of ASD-STAN, prior to its presentation to CEN.

This document is currently submitted to the CEN Enquiry.

The EN 9300-200 family of standards, under the general title *Aerospace series — LOTAR — Long Term Archiving and Retrieval of digital technical product documentation such as 3D, CAD and PDM data*, consists of the following parts:

- *Part 200: Common Concepts for Long Term Archiving and Retrieval of Product Structure Information*
- *Part 205: Product structure validation*
- *Part 210: Product management data in an “as designed” view*
- *Part 230: As-built/As-delivered/As-maintained*
- *Part 240: Product Management Data “in-development” (including preliminary design review, critical design review, FAI, etc.)*
- *Part 250: Change documentation*

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## Introduction

All information represented in this document (e.g. diagrams) is archived. The overall general description of the archival of product lifecycle management data is in EN 9300-200. The validation property method applied to this archived data is in EN 9300-205. The scenarios and use cases used to support EN 9300-230 include:

- S1 – Evidence of the baseline for verification, certification, or product liability:
  - UC1.1 – Long term archiving of type design configuration (certification);
  - UC1.2 – Acquisition/divestiture resulting in transfer of product definition data and type design data;
  - UC1.3 – Verification of design compliance to requirements;
  - UC1.4 – Ability to retrieve the build, conformance, and maintenance records for a detail, assembly, or installation;
  - UC1.5 – To support delivery of type design configuration data to a customer;
  - UC1.6 – Transfer of ownership;
  - UC1.8<sup>1</sup> – To support data used to address non-conforming conditions (e.g. if different than design);
- S2 – Reuse of design data as a starting baseline for design changes:
  - UC2.1 – Changes to product definition data resulting in a major or minor change to the type design data;
  - UC2.2 – To support the modification of existing product (e.g. for spares purposes).

This document does not apply to the creation of an OAIS/LOTAR information package. Nor does it address common issues in the archive domain, such as snapshot vs. incremental archival methods (which are determined as part of the implementation of an archive system), or package-to-package linkages, or how to identify proper metadata for an archival package. For integration of PLM metadata with other domain and common metadata, see EN 9300-021.

This document serves as the as-built baseline. In some cases, the as-planned baseline is derived from the resolved design product structure. In other cases, the as-planned baseline equals the engineering baseline, and changes to the build sequence are incorporated in engineering.

This document describes the expansion of EN 9300-210 on the as-designed baseline to include as-built records which are the results of completing the work defined in an as-planned baseline, including variances; and reflect the build configuration of individual units.

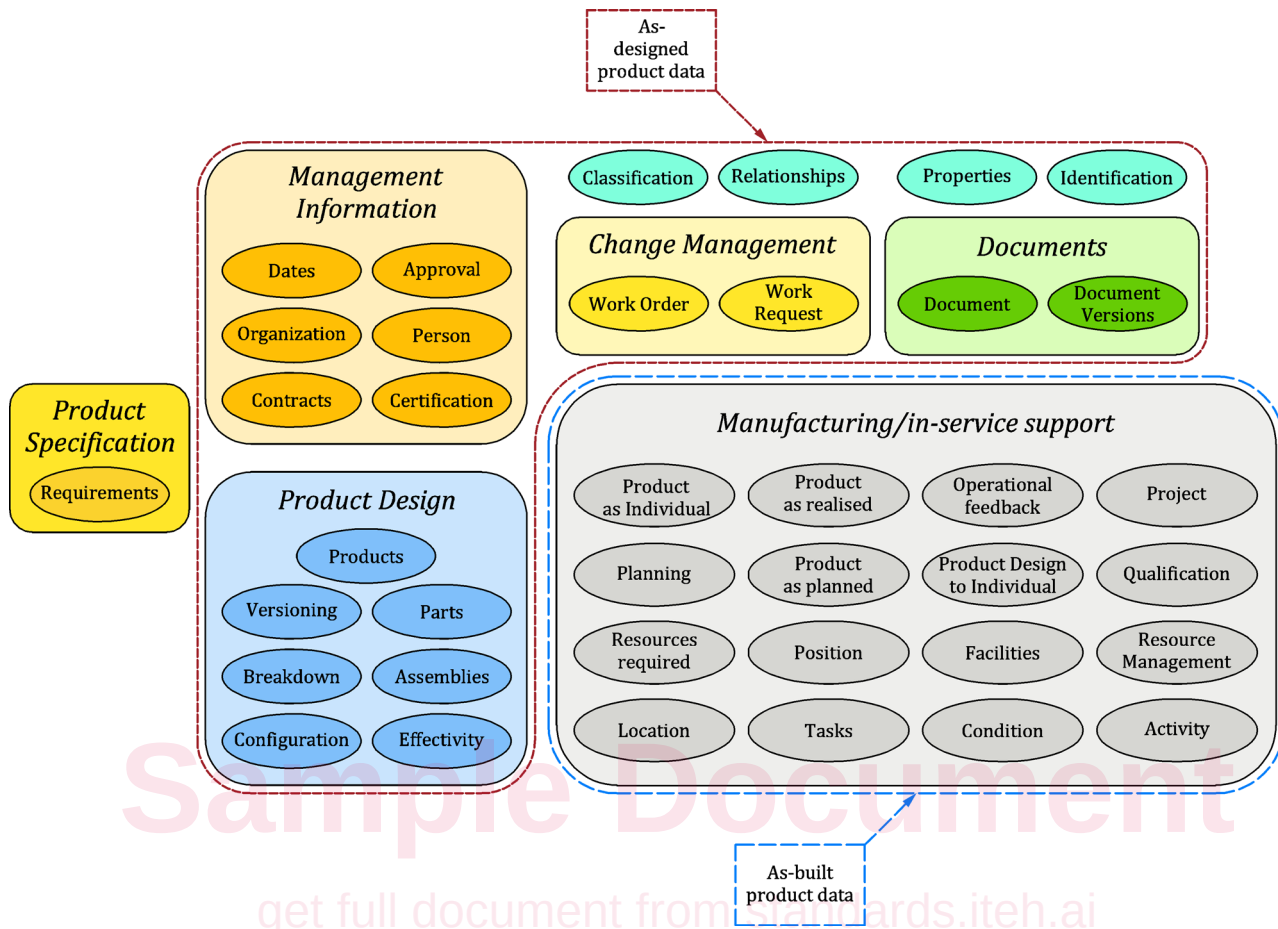
This document also includes the application of PLM-specific metadata (see EN 9300-021) and definition of PLM-specific metadata for archive information packages (AIP).

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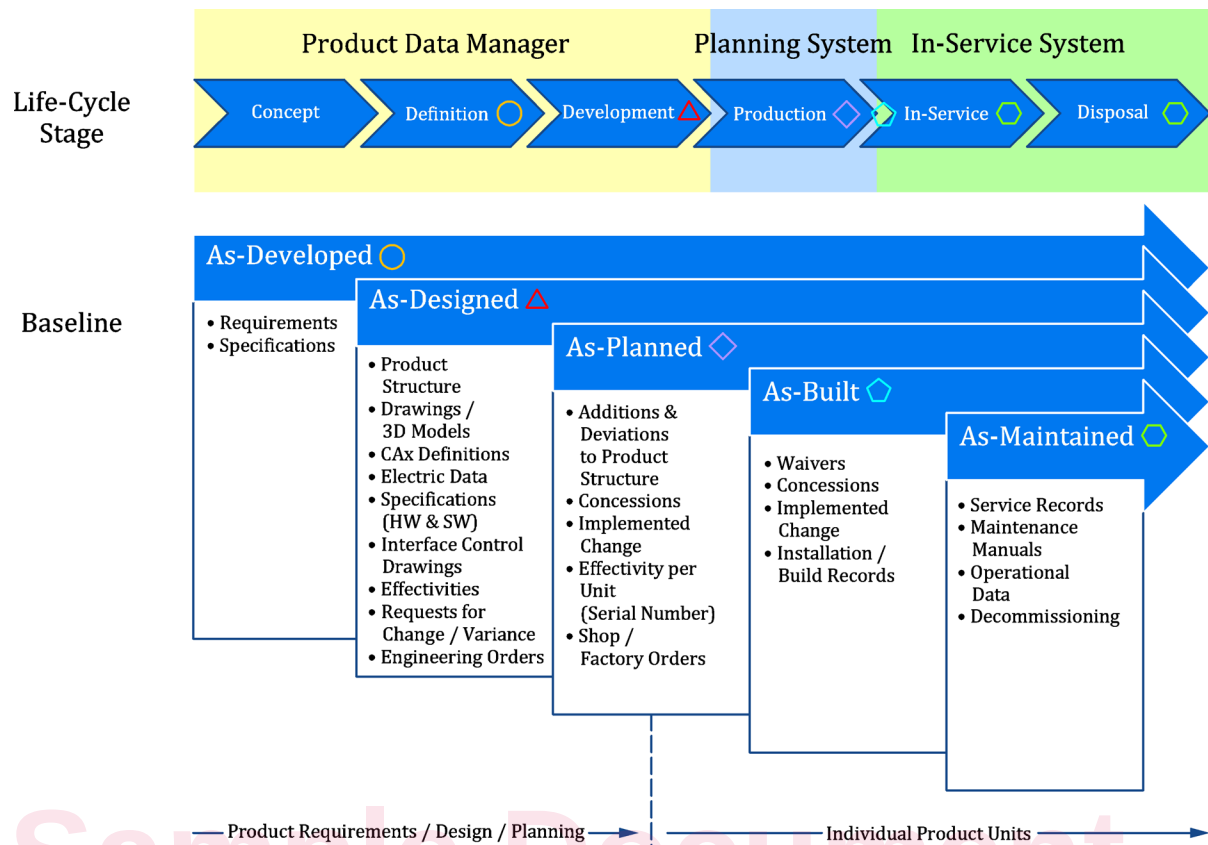
<sup>1</sup> UC1.7 is a use case specific to EN 9300-210 (Change to Design) and does not apply to this document.

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Visually, these areas can be depicted as in Figure 1.



**Figure 1 —As-designed and as-built data**



**Figure 2 — As-built/as-maintained concepts**

The “**As-Built**” view represents the manufactured items build record baseline at the end of the manufacturing cycle, for more details see Figure 2.

The “**As-Maintained**” view represents all modification occurring after the “As-Delivered” stage and until end of life of the product.

E.g. application of service bulletin, retrofit or airlines maintenance activities and modifications.

## 1 Scope

This document specifies the “as-built” data used for demonstrating completion of the build process and conformity of the product to type design. This document defines the minimum set of information to be archived to serve as a complete representation of an organization’s as-built data.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>

## 4 Explanation of the diagrams

### 4.1 Reason for diagrams

There is a diversity of product lifecycle management (PLM) systems among LOTAR members. This diversity reflects the differences in terms and processes used to manage the products. While the members are subject matter experts (SME) in the use of PLM systems, none of them are conversant with formal modelling methods as used by the STEP community. A simple diagramming technique is used to supplement the textual content that is easy to understand and can be created with presentation or drawing tools. The diagrams are based on graph theory and employ only two constructs: nodes and edges. In the usage, the terms items and connections are typically used for edges and nodes, respectively. The term “item” is a generic term for the object being represented (e.g. design item can be a CAD file, part, assembly). Edges (connections) are directional, generally representing the connection in natural language. This graph form is known as a “directed property graph”, for example “has part”. A connection has “subject” side, which is called the “from” side, and an “object” side, which is called the “to” side. The diagrams omit cardinality information in the interest of simplicity, believing that cardinality can easily be added once formal STEP models are developed. Edges represented with dashed lines correspond to data flow and not additional relationships in the data model.

Individual diagrams are simplified so that they focus on their particular subject and do not show all potential relationships.

NOTE 1 In order to keep the diagrams concise, a variant of graph theory called hypergraph theory is used, where edges are permitted to connect to other edges (but not multiple nodes to multiple nodes).

NOTE 2 Not all elements defined in EN 9300-210 are represented in the EN 9300-230 diagrams. See EN 9300-210 for context.

### 4.2 Attributes

All nodes and edges (items and connections) have attributes. PLM systems are designed to be customized. Therefore, it focuses on the minimum attribution.

The minimum attribution for an item is generally:

- type: the kind of thing the item represents. For example, a person, a part, a product, a document;
- name: the name used for human readable consumption;
- revision: the revision of the item as it undergoes changes;
- ID: the internal identity of the item that is unique;

NOTE Typically, the triplet (type, name, revision) is also unique in a PLM system.

- timestamps: creation and modification;
- references to persons or systems acting as creator, modifier, and “owner”;
- status of item: especially whether it is (was) approved;
- description: an item often has a description, such as a title for a drawing item, or nomenclature for a part item.

The minimum attribution for a connection is:

- the ID of the connection itself;
- the type of the connection itself;
- the ID of the FROM item;
- the ID of the TO item;
- the change management effectivity timestamps:
  - start: the date the connection was approved for use;
  - stop: the date the connection was deprecated for use;
- the change management effectivity authorizations:
  - start authority: reference to the change document approving this connection;
  - stop authority: reference to the change document deprecating this connection;
- timestamps: creation and modification;
- references to persons or systems acting as creator, modifier, and “owner”.

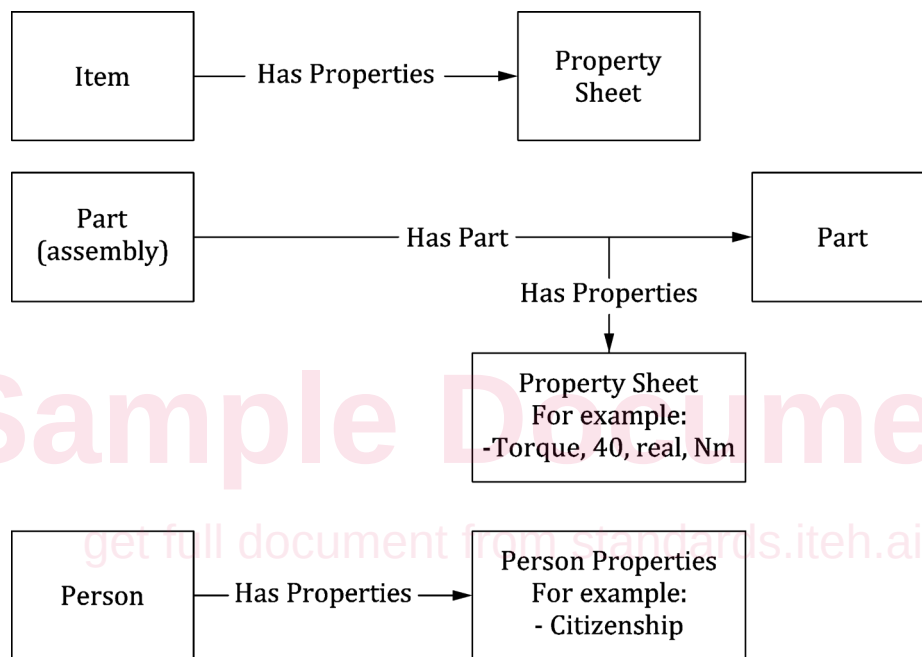
### 4.3 Property sheet concept

Since these minimum attributes are not sufficient, the notion of a “property sheet” is used which is a container for the custom or PLM system-specific data that is needed. The name “property sheet” is intended to convey a simple enumeration of attribute names, values, datatypes (string, Boolean, number, date, etc.), and unit of measure. Such a set of properties could be modelled in diagrams as a node with an edge named “has property” connecting it to the item or connection having the properties. But that needlessly complicates the diagrams, since virtually any item or connection have custom properties. The property sheet concept can also be used to achieve other goals of a PLM system:

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- Ad hoc properties: In this case, an item or connection might have multiple sets of properties. The extra properties might provide attributes for a part that are unique to its part family. For example, a bolt might additional attributes of head type, length, etc.; whereas a nut can have inner and outer diameter, lock nut indicator, etc.
- Restricted properties: In this case, properties might be segregated when the values may be export controlled or are proprietary information.
- Value added properties: during the lifecycle of the part, extra attributes, such as supplier, cost, plant, etc. might be added by downstream business functions.

Figure 3 shows a visual depiction of the property sheet concept.



**Figure 3 — Property sheet concept**

A property sheet can be viewed a special kind of item with a type indicating the sort of properties it contains. Since most systems do not actually model properties this way, the revisions of its base item type and the properties can be synced, along with connections to change items.

#### 4.4 Change records

In general, PLM systems can be concisely characterized by having “lossless change methods”. This term captures the following concepts:

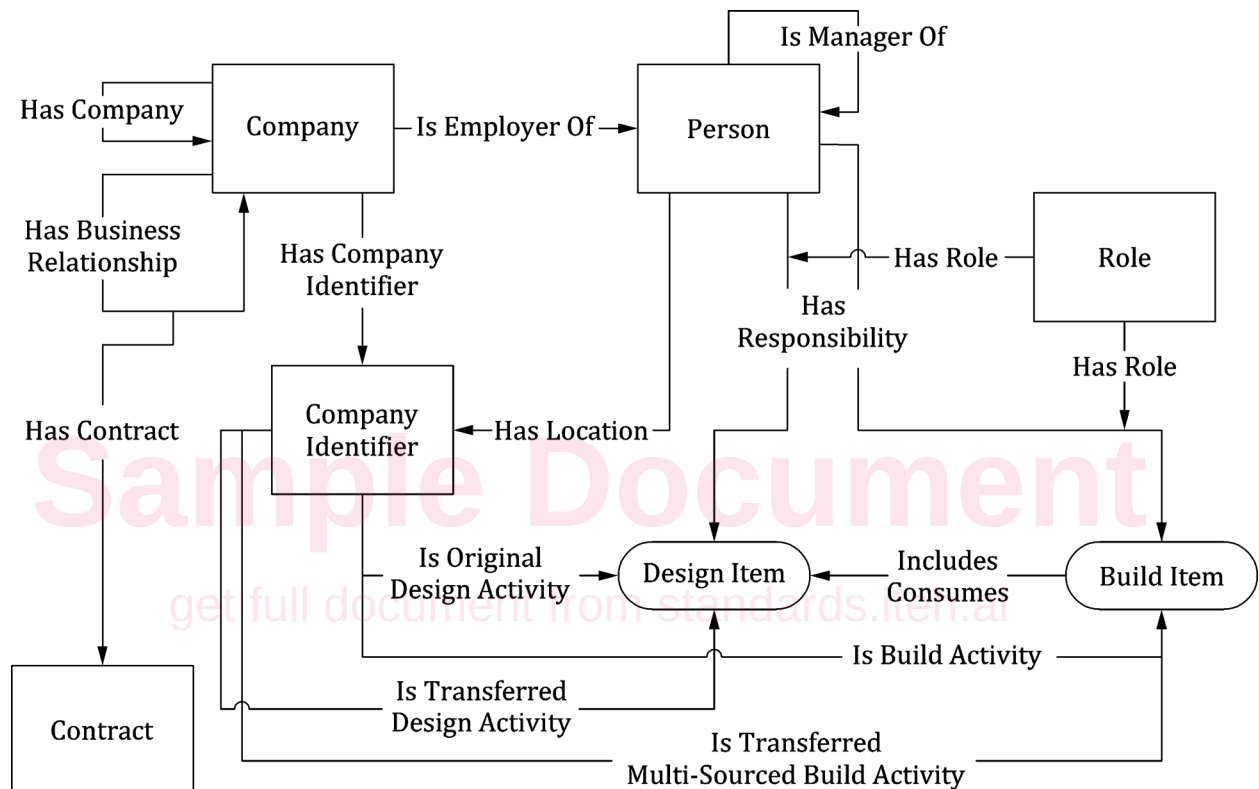
- Nothing is ever deleted.
- Every change is auditable (why, who, what, and when).
- Possibility to query the state of the PLM system at any time in the past and see:
  - what was current and approved at that time;
  - what was proposed or pending at that time;
  - what was historical at that time.

In the following clauses, statements to the effect that these objects are subject to change control are provided, but the above bullets points hint that change is a fundamental aspect to PLM and shall permeate all aspects of product data (see Clause 10).

## 5 Management information

### 5.1 General

Diagrams for management information are illustrated in Figure 4. Table 1 and Table 2 show an overview as well.



**Figure 4 — Management information diagram**

### 5.2 Nodes/Items

The nodes and items of management information can be in accordance with Table 1.

**Table 1 — Management information nodes/items**

| Name           | Description                      | Notes                                                                                          | STEP Relationship     |
|----------------|----------------------------------|------------------------------------------------------------------------------------------------|-----------------------|
| <b>Company</b> | The legal entity of the company. | Generally, the nationality or country of incorporation is key information for access security. | P4000, "Organization" |

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| Name                                | Description                                                                                                                                                  | Notes                                                                                                                                                            | STEP Relationship                                   |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| <b>Person</b>                       | Represents a person who has approved, performed work, etc. requiring certain information about the person to be retained.                                    | In some countries the place of birth is required for access security. All require the citizenship for access security (for national export control regulations). | P4000, "Person"                                     |
| <b>Company Identifier/ Location</b> | The identifier of the legal entity where work was performed.                                                                                                 | This is generally represented by a DUNS, CAGE code, etc. and includes street address and other contact information. Sometimes a DUNS number is also used.        | P4000, "Organization.Id"                            |
| <b>Role</b>                         | Represents the role of the person having responsibility of a design or build item.                                                                           | For example: author, engineer, checker, etc.                                                                                                                     | P4000, "PersonOrganizationAssignment.Role"          |
| <b>Contract</b>                     | A business arrangement for the supply of goods or services.                                                                                                  | Contracts may concern the design of part version objects, the delivery of drawing objects, or the execution of activity objects.                                 | P4000, "Contract"                                   |
| <b>Design Item</b>                  | This represents something in the Type Design that can be owned and changed.                                                                                  | This could be either an item that represents a thing (like a drawing) or a connection (like "has part").                                                         | P4000, e.g. "Part", "Document"                      |
| <b>Build Item</b>                   | This represents an item that is built to conform to all or a portion of a design item configuration.                                                         | This represents a thing – a (physical or software) part, assembly, or installation.                                                                              | P4000, "IndividualPart"                             |
| <b>Build Plan/ Operation</b>        | This represents a manufacturing step which uses all or part of engineering definition to define the work for a detail, assembly, or installation build task. | —                                                                                                                                                                | P4000, "ProcessPlan" / "ProcessOperationOccurrence" |

### 5.3 Edges/Connections

The edges and connections of management information can be in accordance with Table 2.

**Table 2 — Management information edges/connections**

| Name                             | Description                                                                                                          | Notes                                                                                                                                                                               | STEP Relationship                         |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| <b>Has Company</b>               | — From: Company<br>— To: Company<br>Indicates a legal subsidiary relationship.                                       | Laws governing this relationship vary from country to country.                                                                                                                      | P4000, "OrganizationRelationship"         |
| <b>Has Business Relationship</b> | — From: Company<br>— To: Company<br>Indicates a partnership, supplier, etc. relationship between two legal entities. | Such relationships always have non-disclosure or proprietary information agreements which may be used in access security. In some cases, there are contracts between the companies. | P4000, "OrganizationRelationship"         |
| <b>Has Company Identifier</b>    | — From: Company<br>— To: Company Identifier<br>Indicates the locations of a company or legal entity.                 | —                                                                                                                                                                                   | P4000, "Organization.Id"                  |
| <b>Is Employer Of</b>            | — From: Company<br>— To: Person<br>Indicates employer/employee relationship.                                         | The nationality of the company may be used in access security; perhaps overriding nationality of the person.                                                                        | P4000, "PersonInOrganization"             |
| <b>Is Manager Of</b>             | — From: Person<br>— To: Person<br>Indicates supervisory relationship.                                                | This may be used to certain approvals where one-over-one signoffs are required.                                                                                                     | P4000, "PersonInOrganizationRelationship" |
| <b>Has Responsibility</b>        | — From: Person<br>— To: a Design Item<br>Indicates responsible persons in a design activity.                         | —                                                                                                                                                                                   | P4000, "PersonOrganizationAssignment"     |
| <b>Has Responsibility</b>        | — From: Person<br>— To: a Build Item<br>Indicates responsible persons in a build activity.                           | —                                                                                                                                                                                   | P4000, "PersonOrganizationAssignment"     |