Use Case: Exchange of a Product Assembly with Export Control data based on Data Classification and Export Licenses

Aim

Exchange of a Product Assembly with Export Control data based on:
– Data Classification for regulation and security
– Export Licenses for data sharing management

Actors

- One OEM
- Supplier partners dealing with design and manufacturing engineering

Preconditions

OEM is able to produce a valid technical data package from different applications of its information system, which is essentially its CAD and PDM system. The content of the dataset exported is the multilevel assembly structure, the master data of each assembly/component part, the 3D positioning of each component part and a reference to 3D geometry and associated documents, reference to security classification and to export licenses metadata.

The supplier is able to consume the technical data package, by validating and importing the information inside its information system (PDM).

Description

There are two aspects:
– Data Classification for regulation and security
– Export Licenses for data sharing management

Data Classification:

Data classification are based on classes and on dictionnary of classes. The classes are assigned to Parts, Documents, Product Classes. The Classes codes or texts are defined by a standardized regulation dictionary of classes: for example, ECCN, ITAR, etc. The classes

also be defined by a company's security class dictionary: for example restricted, secret, etc.

Export licenses:

- Export license: authorization to share data between countries provided by our customers
    - An export license is unidirectional (access of country B on data from country A) => another export license is necessary for the access of country A on data from country B.
    - The Export License applying to an assembly may be different than the one from each Part (e.g. reuse between programs)
    - The Export License applying to an assembly Part applies to all its direct child **relationships**
        - So maybe the assembly structure is visible for the partner, but not the details of all its parts
    - Export licenses apply to a set of organizations within one country (the access rights of the people within each organization is defined separately on each container)
        - At least one organization is necessarily attached to country for a given Export License
        - Organizations may be NATCO organizations or suppliers
- Data are stored in "container". Synonyms for "container": Program, COFEX, library.
    - COFEX is a library where are stored sub-equipments which are under one Natco responsibility (e.g. actuator are under UK responsibility, datalink under French responsibility ... for all international programs)
    - Export Licenses have also to be defined between the countries of the COFEX and of the programs where the COFEX is used, so the data can be synchronized between them.
    - A part or assembly may be used in different programs and/or different COFEX (reuse)
    - Each object has a master country (defining in which hub it is stored)
    - Each part is associated to licenses (for the master country or for other countries)
    - Standard parts (cots) belong to a component library and are not associated to an export license.
- The object 'Export License' on PLM:
    - Export license object is not versioned
    - When an Export License expires and shall be reactivated (with a new EndDate):
        - For COFEX, it's an automatic prorogation (generally for 3 years). Without alert from our customer, we modify end date on the export license apply on Cofex
        - For Program, an amended version of the License Document is created. A new Export License is created with the same name (for example, field "name" in PDM system is filled with number and version of export license document), same StartDate and the new EndDate.

This extended Export License gets inherited to all objects on which the old Export License did apply
- Consequence: the objects reference both Export Licenses (the expired one and the extended one)
- The assignment of an Export License to a Part, CAD, non-CAD applies to all versions of the object.
- The last modification date of each object version has to be in the StartDate/EndDate interval of the Export License, otherwise the data may not be exported
  - Consequence: older object versions are still exchangeable according to their Export Licenses, even if the EndDate is expired.
- Normally the same Export Licenses do apply on the Part and on its CAD (not always the case for non-CAD)
- Normally the same Container is used on the Part and on its CAD (not always the case for non-CAD)

- Export license specific attributes
  - "Authorised countries" is the list or group of authorized users for data sharing.
  - "Destination target" is the list of ERP/SAP where data are authorized to be sent.
    - 'Destination target' is not in scope

- Export licence availability in PLM allows to:

  - Provide access right to users to see data in another countries

  - Synchronise data between 2 PLM countries

  - Sent data from one PLM (countrie 1) to one ERP-SAP (countrie 2)

    - If export license is expired, those automatic mechanisms are stopped

- A program can be stored into several container due to "need to know" list (e.g. sub-assembly with restricted need to know). In this case, the same export license is applied to several containers

- Between NATCOs, country hubs are synchronized automatically (daily). There are 3 kind of hubs (with PLM: for restricted data and for secret data; without PLM: very very secret data). Data classification is maintained independently (parallel) to the export licenses

- Exchanges with suppliers are currently done by "Package for supplier" function (Zip). This package contains:

  - Xml view of the BoM

  - Definition document linked to the BoM

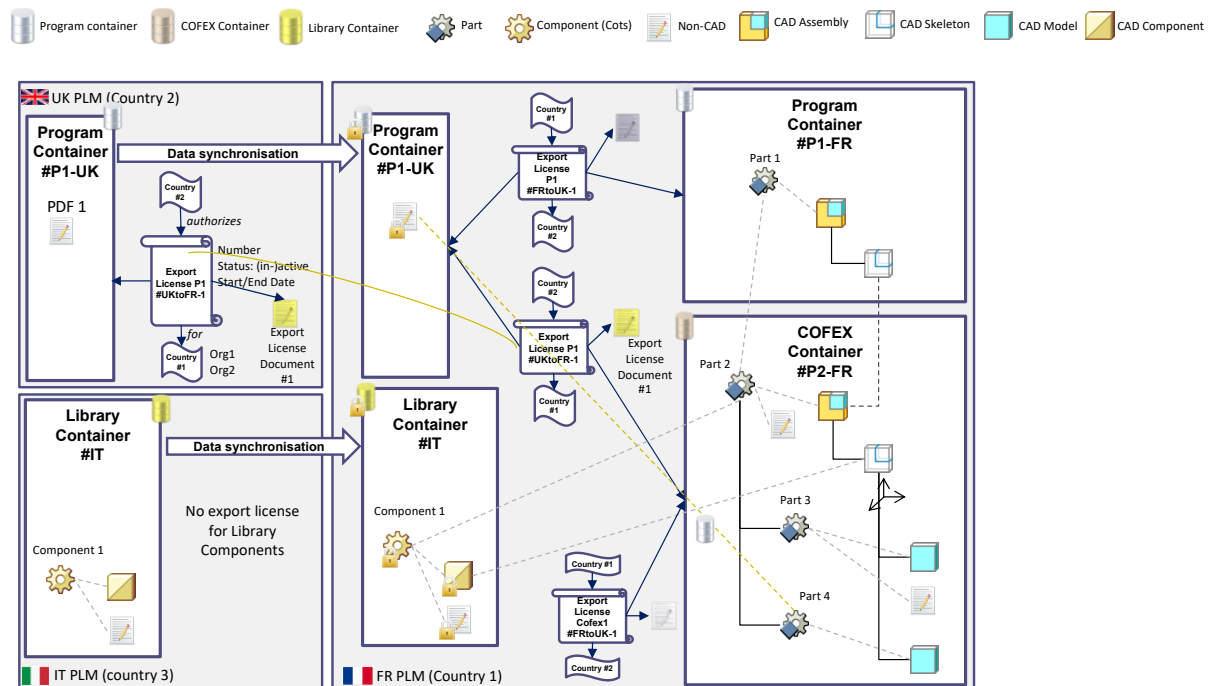 - Definition CAD linked to the BoM

Postconditions

The supplier is able to interpret the assembly structure, to perform his design process or pre-manufacturing process based on the security level, regulation, the classification dictionaries and the export licenses.
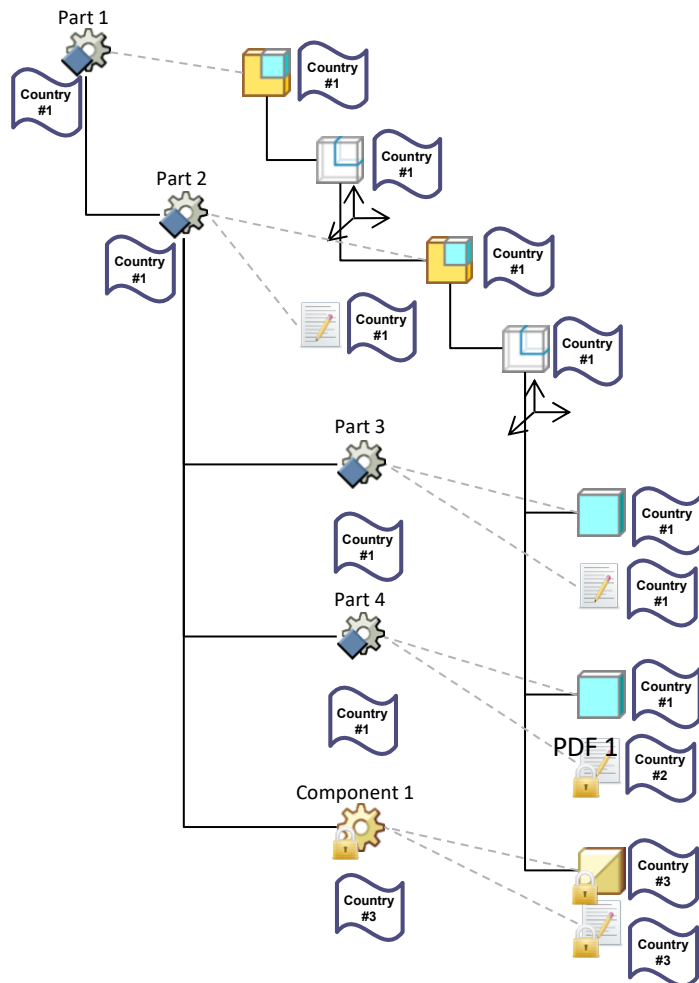
Diagram

Data Classification illustration:
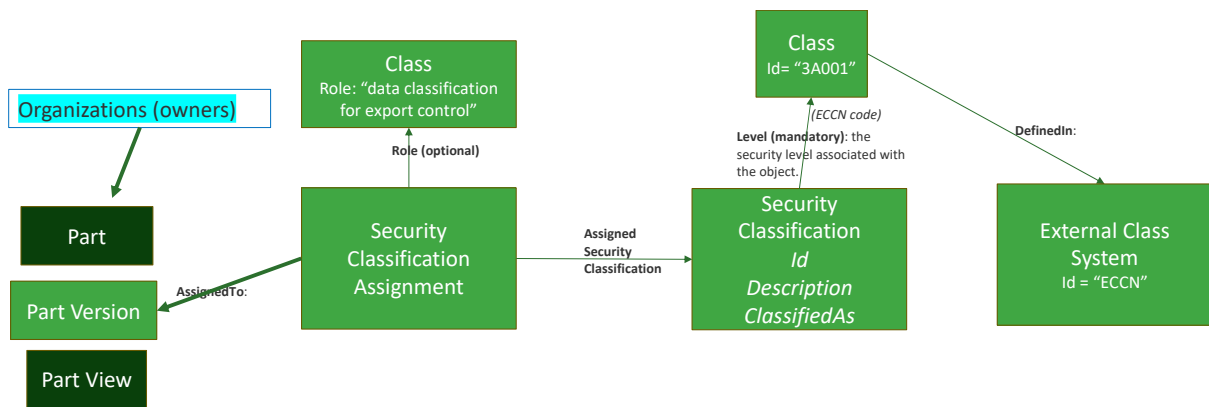
Export Licenses illustration:

- Part 1 is a Product related to Program 1
- Part 1 is covered by Export License P1 #FRtoUK-1
- Part 2 is a sub equipement coming from COFEX, used in Part 1
- Part 2 (and child Parts) is covered by Export License Cofex1 #FRtoUK-1
- Part 4 is an Item coming from COFEX, used in Part 2, consuming Doc 1 coming from Country 2.
- Doc 1 is covered by Export License Export License P1 #UKtoFR-1 and Export License P1 #FRtoUK-1

Benefits

Enable a powerful design collaboration across company boundaries.
Ability to describe all aspects of the assembly in a semantically accurate way with the associated recommended usage of AP242.