

# Deploy document

The deployment document (also called Mapping document) describes the memory mapping of the target controller by defining the list and the order of classes that will be deployed into the controller. The controllers' configuration is static therefore the deployment document is simply composed by the list of design instances. Finally, depending on the hardware model, deployment also defines the general information for the controller generated code (base-address, memory-mode, etc.). It is important to notice that a deployment document is bound to a single controller. Even if multiple controllers have the same memory mapping a deployment document has to be created for each of them.

This document contains is composed of the following nodes:

- **Information node.** This node contains the following sub-nodes:
    - **Owner** is the one who created the document. He has write access on the document and can add Editors to the document.
    - **Editor** (optional) has write access on the design document and can generate/deliver the resources related to the current controller. He cannot add additional editors to the document.
  - **Deploy-Unit** defines the mapping of one or more controllers. Current version of Silecs allows choosing among 5 different families of controllers (Siemens-PLCs, Schneider-PLCs, Beckhoff-PLCs, National Instrument controllers and Rabbit microcontrollers). Multiple controllers can be defined within the same Deploy-Unit as long as they have the same hardware resources, and have identical mapping (same Designs deployed, same version, same number of devices, same bas address). At this point each different controller within the same Deploy-Unit differs only by its network host-name (this must be unique within the network).
  - **<Siemens-PLCs | Schneider-PLCs | Beckhoff-PLCs | NI-controller | Rabbit>** node contains information regarding the controller adopted. This node contain indefinite number of PLC classes. The list of classes inside the PLC node will occupy contiguous segments of PLC memory following their exact ordering. This node has the following attributes:
    - **model:** relies on the PLC manufacturer;
    - **mode:** this describes how are organized and exchanged data in the memory of the controller and can be of 2 types:
      - **DEVICE\_MODE:** In this mode, the memory of the controller will be a sequence of Silecs devices containing each block of the Class. Device mode allows the specialist using the "object oriented" capabilities of the controller (SIEMENS in particular: FB and instance DB) which is a natural memory organization for most of PLC developers.
      - **BLOCK\_MODE:** In this mode, the memory of the PLC is a sequence of Silecs blocks (respecting the order of the Class design) containing for each of them, the data of all the device collection (respecting the order of the Class mapping). Block mode allows grouping transmission of all the data of the collection for a given block definition and significantly improves the network response time. This mode is strongly recommended for configuration that defines large number of instances (dozens).
    - **base-address:** defines the first DB-number (or start memory address) from which will store the controller code.
- IMPORTANT:** Each Mapping contains one instance of the Silecs header class (SilecsHeader) that is systematically inserted in the classes list (at any position) when creating a new deployment document. This first instance of the Silecs configuration defines general registers dedicated to the Silecs information and diagnostic service. The configuration checksum in particular, allows to identify each configuration in unique manner (used by the SILECS library at connection time).
- **Device Node:** represents an instance of the related Class node. A device label can be defined for the controller process and the Silecs client software to identify the device in the scope of that class in that particular Mapping. The expert who does not want to define label for each instance, can set only a device number. In this case, the client software will address devices using their index (0...n-1). The device sequence will occupy contiguous segment of controller memory respecting their exact ordering. Remark: A Silecs device is not a conventional device in the sense of the control system. It does not exist in the CO configuration database and cannot be accessed directly from the supervision level. That is the role of the client software to give visibility to Silecs equipment by publishing all or part of its data using a standard device definition (FESA or other).
  - **Deploy-Instances.** This node contain the list of all the controllers that will deploy such a configuration. For development purpose this list can be empty. In this case controller sources can still be generated locally. Each Child of this node is a **Controller** which can be defined by 2 attributes: **host-name** and **domain**