

# Digital Data Sheet of IA Stations and CNCs for IEC/IEEE 60802

## Data Set Format and File Format

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### **5.5.5 Common Requirements for Digital Data Sheet**

IA-Station of any conformance class for which a claim of conformance to the TSN-IA Profile is made shall:

- a) support the delivery of YANG instance data of all(1) YANG modules that are present in the local database in the form of an XML containing the instance data set as defined in the RFC 9195
- b) the file name shall at least contain the date of creation, manufacturer name and device identifier
- c) the file shall use the file extension DigitalDataSheet.

### **6.7.9.2 Digital Data Sheet of IA Station**

Both engineering models, offline via an engineering tool and online with plug & produce by the CNC, require information about the capabilities of an IA station.

This data is extracted from the implemented YANG modules, which are available in the local database of the IA-station.

The data from the implemented YANG modules is also available offline in the form of a Digital Data Sheet of an IA-Station as an DigitalDataSheet file.

The Digital Data Sheet of an IA-station provides a collection of all instantiated data nodes of all YANG modules that are present in the local database of the IA-Station. This includes all YANG modules required by this profile, as well as all additional modules that have been added by the manufacturer.

The Digital Data Sheet does not contain any additional information that is not modeled by the YANG modules that exist in the local database of the IA-Station.

The data sheet contains a single instance data set. It carries complete configuration and state data of each YANG module that is present in the local database of the IA station.

The identity of the datastore with which the instance data set is associated is reported as defined in RFC 9195. The format of the YANG instance data set is defined in RFC 9195. The file format is based on the XML encoding. It is created by applying the respective XML encoding rules for the YANG structure of the YANG module mentioned above.

A user uses the information from the Digital Data Sheet to understand the quantities and capabilities of an IA-Station, which is required for successful offline engineering of the network.

The implementation details i.e. the way how this XML file is provided is out of scope of the profile.

1: This includes all YANG modules required by this profile, as well as all additional modules that have been added by the manufacturer.

### **6.7.9.3 Digital CNC Description**

The features of a CNC need to be available for offline and online engineering or diagnosis.

For this purpose, one or more YANG modules are used that allow structured access to the local database of the CNC.

Any IA-Station can include a CNC entity in which case the collection of YANG modules of such IA-Station would include all CNC specific YANG modules e.g., the e ieee802-dot1dj-tsn-config-uni YANG module. Since all IA-Stations meet the requirements from 5.5.5., the CNC related YANG instance data is automatically included in the digital data sheet of the IA-Station (as described in 6.7.9.2.) that hosts the CNC. See 6.7.9.2.

Editor's note: Further clarifications regarding the digital twin of the CNC is needed. It is not clear of the currently available YANG modules provide enough information for this purpose.

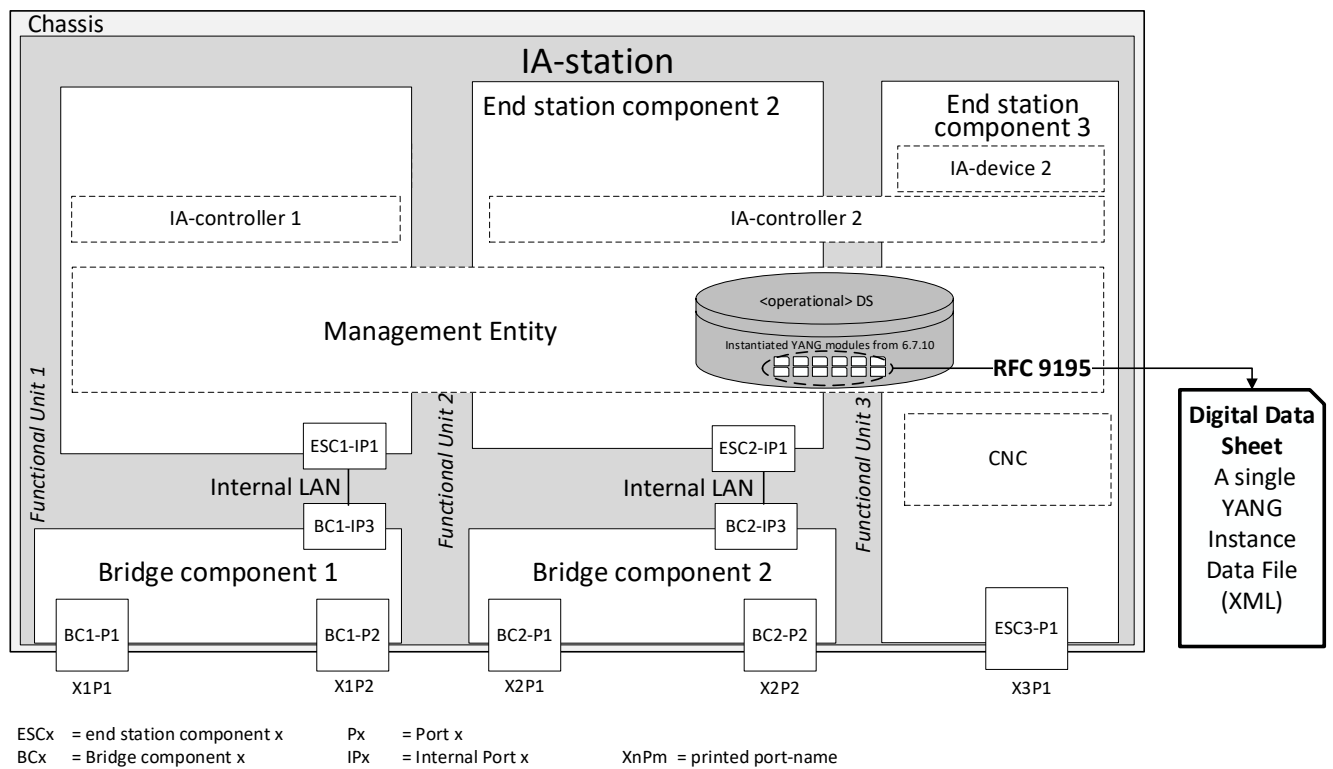


Figure 29: Creation of the digital data sheet of an IA-Station