DNP3 Outstation

Datasheet – Rev. 2

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straton



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1. Overview

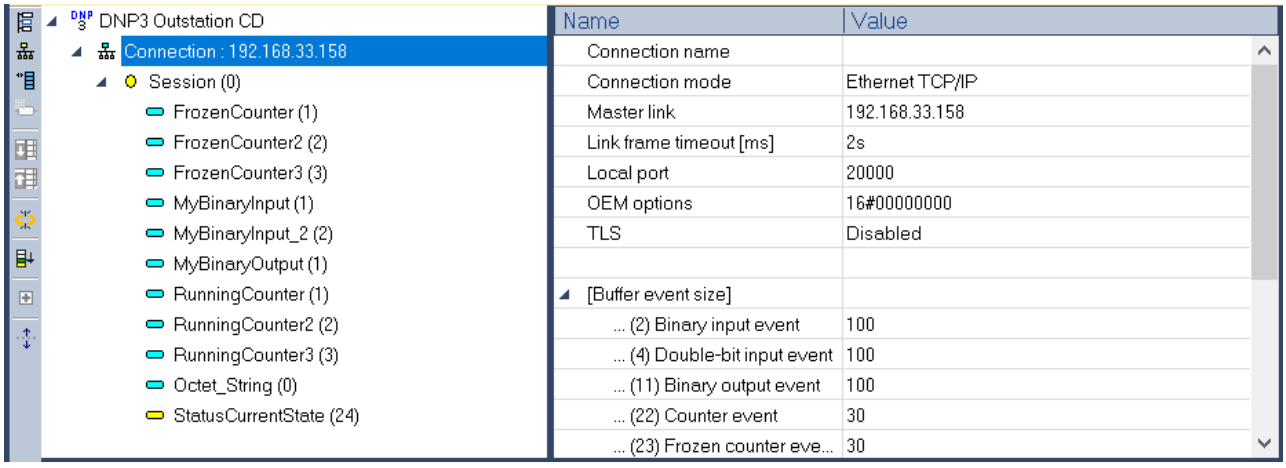
The Energy and Water industries require more and more complex protocols and control applications to meet the growing demands for more information, more often. DNP3 (distributed network protocol) Outstation for straton® is a component for COPA-DATA's customers, designed in order to facilitate the integration of industry-standard protocols and applications, simplifying the configuration process providing the end customer with easy to use graphical tools.

Widely used in the electric utility industry, DNP3 provides open communications over a wide geographical area. In a DNP3 network, a control room SCADA master typically supervises Remote Terminal Units (RTUs) and Intelligent Electronic Devices (IEDs).

More about DNP3: http://www.dnp.org/

The DNP3 protocol has significant features that make it more robust and efficient. The event-oriented data reporting is one of these advantages, decreasing the network load and providing buffers. This can result in significantly more responsive data retrieval than polling everything, all the time, independently of whether data has changed or not.

The COPA-DATA integration of DNP3, using our proprietary stacks, provides an easy way to create and configure the Outstation, including, among other, import of variables from a *.csv or an *.xml file, support of TLS (1.0, 1.1, 1.2 and 1.3) and secure authentication (SAv2, SAv5). The configuration tool is fully integrated in the straton workbench.



In addition to DNP3, COPA-DATA supports IEC 60870 and IEC 61850, two other popular standards in the utilities industry.

2. Requirements

The integration requires some tools from COPA-DATA.

Product:

- straton Runtime Development Kit: Necessary for the integration of the straton runtime on the required platforms.
- straton Driver Development Kit: Interface to integrate new protocols to the straton runtime.
- straton DNP3 Outstation Tool Kit

Requirement:

- GCC 4.8.1 (2011 C++ standard)
- TLS library (option)
- NTP Server
- RAM > 2G
- Flash > 2G
- CPU at least 1GHz

Tested devices:

- X86 / Linux / Debian 3.16
- Arm / Linux / Raspbian

3. Stack DNP3 Outstation (Ref: S-STK-DNP3S)

Protocol stack for DNP3 Outstation including configuration tool (straton IDE)

- Portable stack (C++ compiler required)
- Integration in the straton runtime
- Configuration tool provided with the straton development tool (IDE).

4. DNP3 Outstation Device Profile

If not delivered by COPA-DATA, please ask it to sales.fr@copadata.com

The Device Profile document is intended to be used for several purposes, including:

- Identifying the capabilities of a DNP3 device (Master Station or Outstation)
- Recording the settings of a specific instance of a device (parameter settings for a specific instance of the device in the user's total DNP3 estate)
- Matching user requirements to product capabilities when procuring a DNP3 device

This is therefore structured to show, for each technical feature, the capabilities of the device (or capabilities required by the device when procuring).

It is also structured to show the current value (or setting) of each of the parameters that describe a specific instance of the device. This "current value" may also show a functional limitation of the device. For example when implementing secure authentication it is not required that all DNP3 devices accept aggressive mode requests during critical exchanges (see Device Profile 1.12.4), in which case a vendor would mark this current value as "No - does not accept aggressive mode requests".

Additionally, the current value may sometimes be used to show a value that a device can achieve because of hardware or software dependencies. Users should note that if an entry in the capabilities column of the Device Profile is grayed-out then there may be information in the current value column that is pertinent to the device's capabilities.