

A man in a light blue shirt is shown from the side, holding a tablet computer. He is looking at the screen, which displays a complex interface with various data points and charts. The background is a blurred industrial setting, likely a factory or control room, with various pieces of machinery and equipment.

SIEMENS

Application description • 04/2018

Configuration of the CMS2000 for Data Streaming to X-Tools

CMS X-Tools / V 04.04 SP1 / CMS2000

Warranty and liability

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1 Preface

1.1 Overview

SIPLUS CMS2000 is part of the SIPLUS CMS product family. Alongside the SIPLUS CMS1000 and SIPLUS CMS4000 systems, SIPLUS CMS2000 covers the middle operating range.

With the SIPLUS CMS2000 Condition Monitoring System, you can continuously monitor the condition of components subject to wear (such as motors, bearings) and critical machine parts.

SIPLUS CMS2000 is a compact condition monitoring system that can be operated as a stand-alone, or linked to a remote service center (LAN interface). The device provides a system interface for connecting expansion modules.

From firmware version V3.0, CMS2000 can be used either as a stand-alone monitoring system, or as a data supplier for the CMS X-Tools analysis software, or as a combination of the two. CMS X-Tools, Version 04.02 and higher, is required for using the X-Tools interface.

1.2 Features

- Acquisition and evaluation of analog and digital signals
- Problem-free integration into new and existing machines
- Easy, reliable connection of a wide range of different signal sources
- High sampling rates
- Synchronous data recording
- Flexible definition of diagnostic tasks
- Parameterization and visualization via Web interface, no additional operating software required
- Streaming of data to CMS X-Tools
 - The following data is transferred between CMS2000 and X-Tools over Ethernet (TCP/IP)
 - raw data of vibration channels
 - speed data
 - analog values
 - binary values
 - ...
 - The X-Tools interface can be used as alternative to the existing functionality of the CMS2000
 - The connection is established using X-Tools

1.3 Basic Knowledge required

In order to understand this application description, general knowledge of automation technology and of the software packages CMS X-Tools (in the following, X-Tools) is required.

In addition, you must be familiar with network technology (UDP/IP) and with using computers with Windows.

1.4 Required Software

This document is valid for the following software:

- CMS2000 V3.x or higher
- CMS X-Tools Professional V 04.02 or higher

The usage of different software versions can lead to variations of the steps described below.

1.5 Required Hardware

- CMS2000
- Engineering System with X-Tools

NOTE

The X-Tools Client and Server can also be installed at different systems.

1.6 Further Information

A detailed description of all features is not subject of this document. Further information can be found in:

- SIPLUS CMS2000 Operating instructions
- CMS X-Tools - User Manual 01 - 07

2 Preparation of the SIPLUS CMS2000

2.1 Preconditions

The following preconditions are assumed:

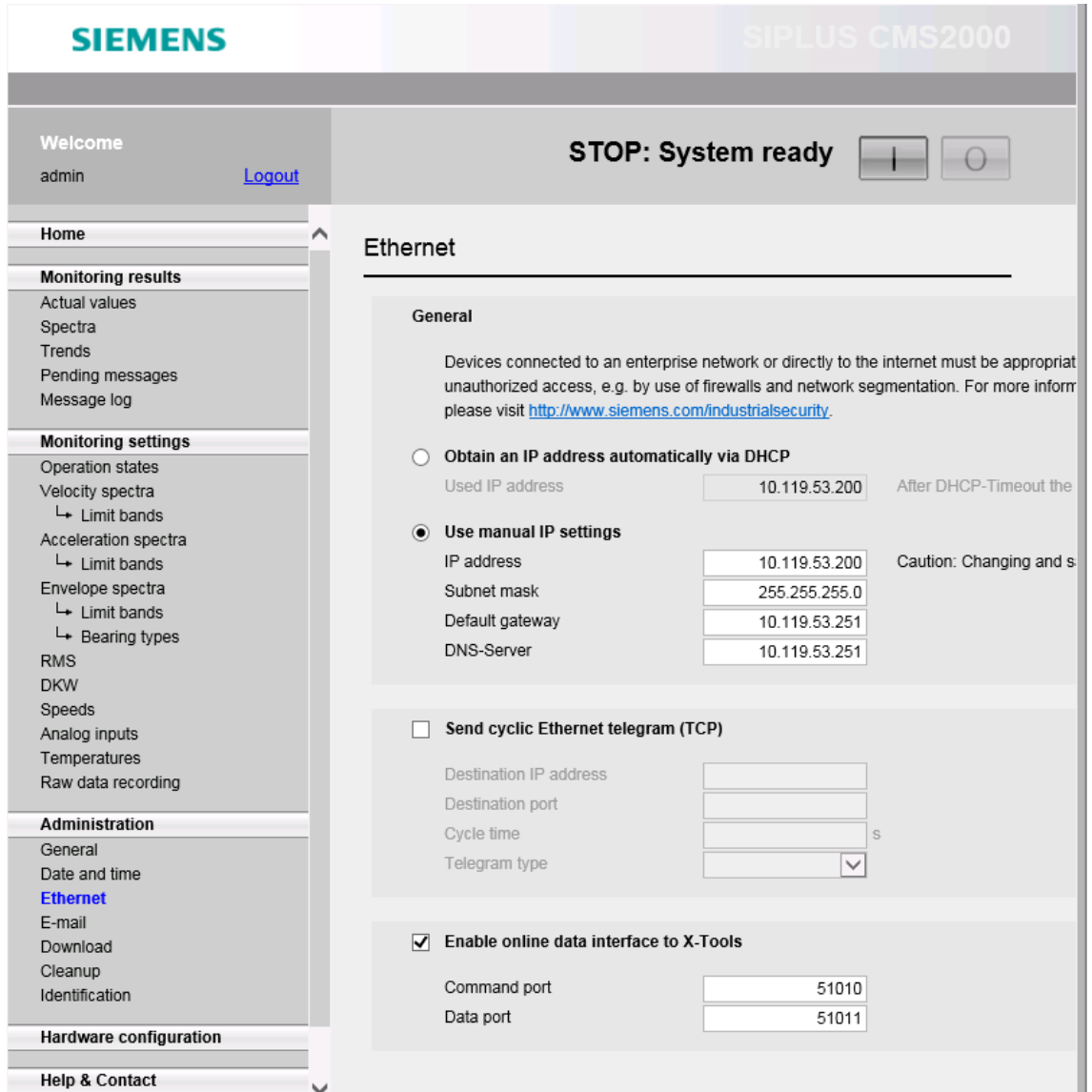
- The CMS2000 is attached to the network
- The network configuration for the CMS2000 has been configured already
- The web interface of the CMS2000 can be accessed

2.2 Configuration

The following steps must be performed:

- Log in to the web interface of the CMS2000
- Open the “Ethernet” page from the list at the left of the web interface
- Enable the check mark in front of the “Enable online data interface to X-Tools” option
- Configure the “Command port” and the “Data port” at which the CMS2000 shall wait for the connection attempts of X-Tools:

Figure 2-1: X-Tools setup within the web interface of the CMS2000



2.3 Start

In order to allow the communication to X-Tools, press the “I” (= run) within the upper right of the web interface and choose any of the available operating modes. Note that the CMS2000 needs to be started in “Measuring mode ...” in case it shall transmit also the configured RMS And DKW values to X-Tools.

Figure 2-2: Starting of the CMS2000

Select RUN operating mode

Monitoring mode with active data interface to X-Tools
Acquire, calculate and monitor all configured values.

Measuring mode with active data interface to X-Tools
Acquire speed, temperatures, analog inputs and calculate for vibration channels

VIB1.1 - VIB1.8 and VIB2.1 - VIB2.8

the following values:

RMS
 DKW
 Velocity spectrum
 Acceleration spectrum
 Envelope spectrum

Start Cancel

3 Preparation of X-Tools

3.1 Preconditions

The following preconditions are assumed:

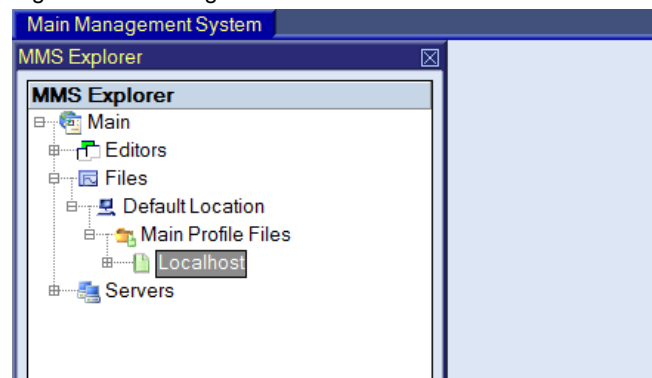
- X-Tools Professional is installed and running
- The PC which runs X-Tools can reach the CMS2000 via the network

3.2 Configuration

3.2.1 Main Management System

Open the X-Tools Client and start the corresponding Main Profile in the Main Management System in order to connect to the X-Tools Server.

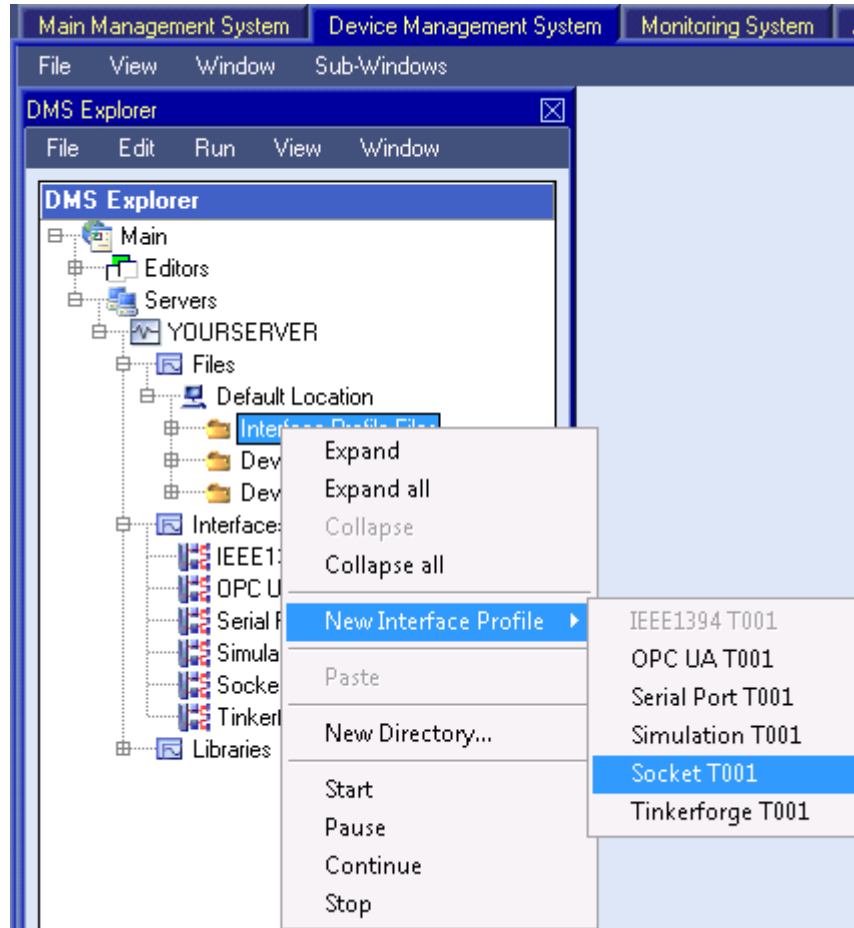
Figure 3-1: Starting of the Main Profile



3.2.2 Device Management System

- Switch to the Device Management System and create a new Interface Profile from type Socket T001 by using the context menu.

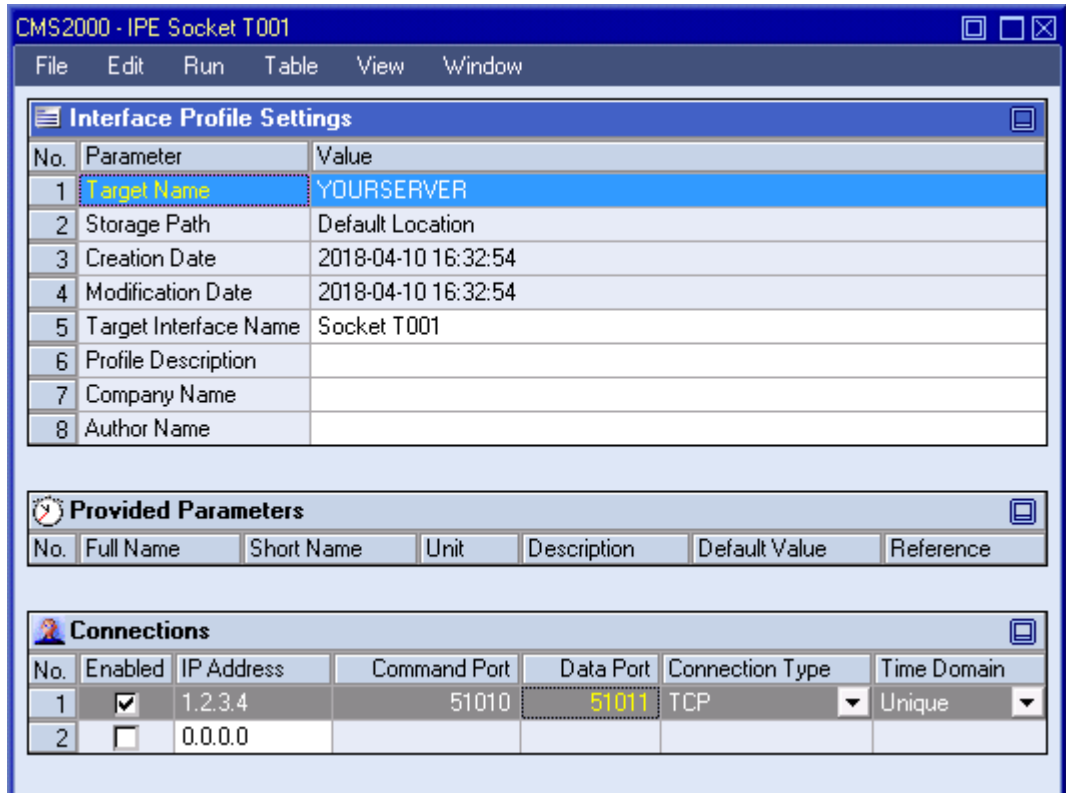
Figure 3-2: Creating of a new Interface Profile



3 Preparation of X-Tools

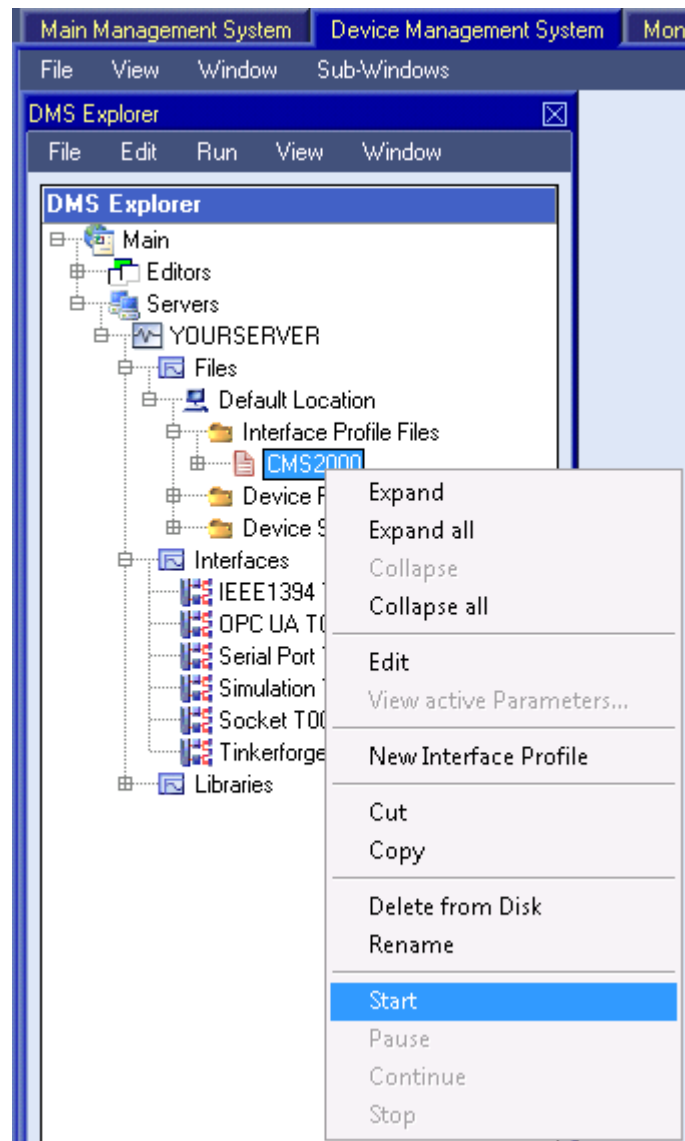
- Create a new connection in this Interface Profile. Enter the IP address of the CMS2000 and also the Command Port and the Data Port which were configured via the web interface of the CMS2000. Choose TCP as connection type and ensure that the checkbox "Enabled" is set.

Figure 3-3: Editing the new Interface Profile



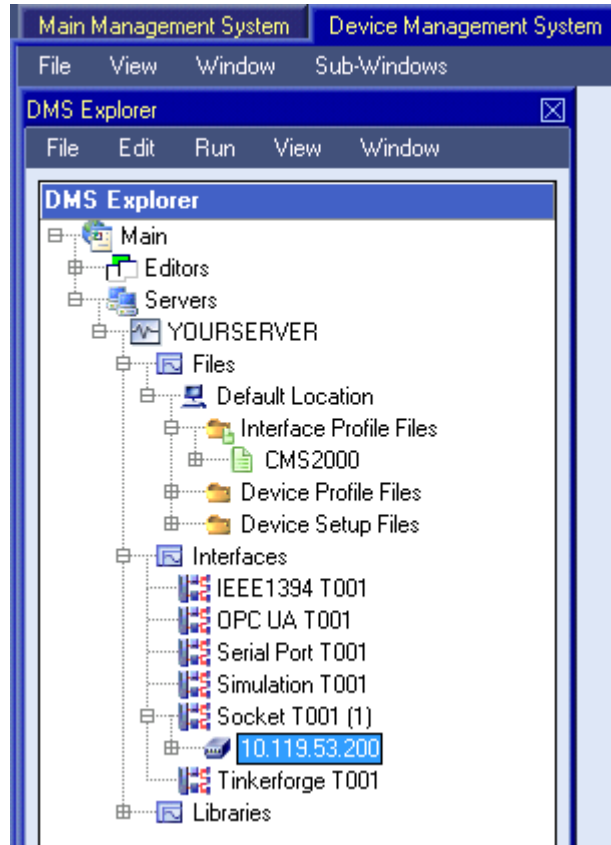
- Save the edited Interface Profile and start it.

Figure 3-4: Starting the Interface Profile



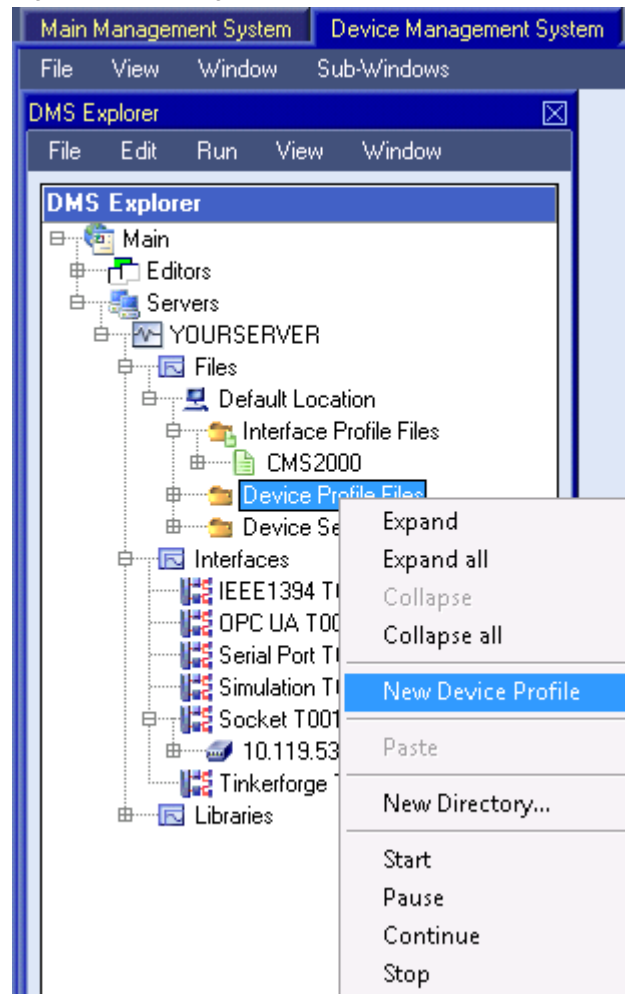
- In case the Interface Profile has started successfully it will get a green icon and the CMS2000 appears in below the “Socket T001” interface.

Figure 3-5: The CMS2000 appears after starting of the Interface Profile



- Create a new Device Profile for the CMS2000 by using the context menu:

Figure 3-6: Creating of a new Device Profile



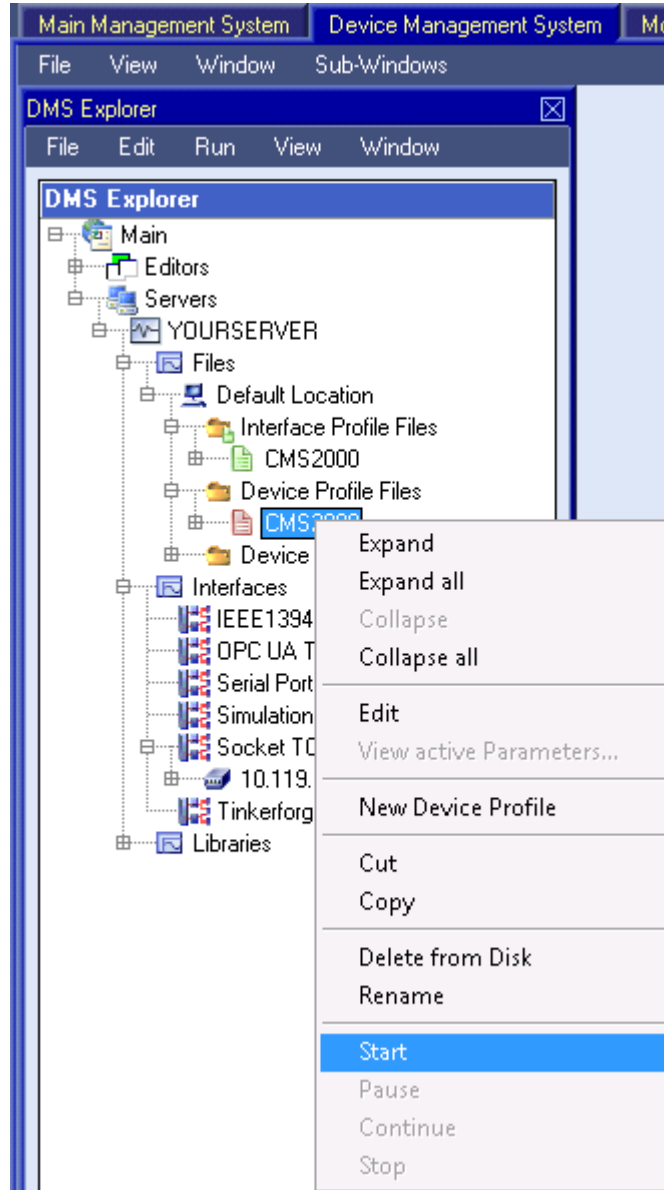
- The following figure shows the default Device Profile which is being created. This Device Profile can be used already for the following transmission of data from the CMS2000 to X-Tools. It also is possible to change any of the present settings directly within the Device Profile.

Figure 3-7: Editing the new Device Profile

No.	Enabled	Name	Unit	Description	Category	Sample Rate	Destination Type	Reference
01	<input type="checkbox"/>	VIB1 Raw	m/s ²			46.875 kHz	Decimal32	VIB1 Raw
02	<input checked="" type="checkbox"/>	VIB1.1 Raw	m/s ²			46.875 kHz	Decimal32	VIB1.1 Raw
03	<input checked="" type="checkbox"/>	VIB1.2 Raw	m/s ²			46.875 kHz	Decimal32	VIB1.2 Raw
04	<input checked="" type="checkbox"/>	VIB1.3 Raw	m/s ²			46.875 kHz	Decimal32	VIB1.3 Raw
05	<input checked="" type="checkbox"/>	VIB1.4 Raw	m/s ²			46.875 kHz	Decimal32	VIB1.4 Raw
06	<input checked="" type="checkbox"/>	VIB1.5 Raw	m/s ²			46.875 kHz	Decimal32	VIB1.5 Raw
07	<input checked="" type="checkbox"/>	VIB1.6 Raw	m/s ²			46.875 kHz	Decimal32	VIB1.6 Raw
08	<input checked="" type="checkbox"/>	VIB1.7 Raw	m/s ²			46.875 kHz	Decimal32	VIB1.7 Raw
09	<input checked="" type="checkbox"/>	VIB1.8 Raw	m/s ²			46.875 kHz	Decimal32	VIB1.8 Raw
10	<input type="checkbox"/>	VIB2 Raw	m/s ²			46.875 kHz	Decimal32	VIB2 Raw
11	<input checked="" type="checkbox"/>	VIB2.1 Raw	m/s ²			46.875 kHz	Decimal32	VIB2.1 Raw
12	<input checked="" type="checkbox"/>	VIB2.2 Raw	m/s ²			46.875 kHz	Decimal32	VIB2.2 Raw
13	<input checked="" type="checkbox"/>	VIB2.3 Raw	m/s ²			46.875 kHz	Decimal32	VIB2.3 Raw
14	<input checked="" type="checkbox"/>	VIB2.4 Raw	m/s ²			46.875 kHz	Decimal32	VIB2.4 Raw
15	<input checked="" type="checkbox"/>	VIB2.5 Raw	m/s ²			46.875 kHz	Decimal32	VIB2.5 Raw
16	<input checked="" type="checkbox"/>	VIB2.6 Raw	m/s ²			46.875 kHz	Decimal32	VIB2.6 Raw
17	<input checked="" type="checkbox"/>	VIB2.7 Raw	m/s ²			46.875 kHz	Decimal32	VIB2.7 Raw
18	<input checked="" type="checkbox"/>	VIB2.8 Raw	m/s ²			46.875 kHz	Decimal32	VIB2.8 Raw
19	<input type="checkbox"/>	VIB1 Speed	rpm			N/A	Decimal32	VIB1 Spee
20	<input checked="" type="checkbox"/>	VIB1.1 Speed	rpm			N/A	Decimal32	VIB1.1 Spe

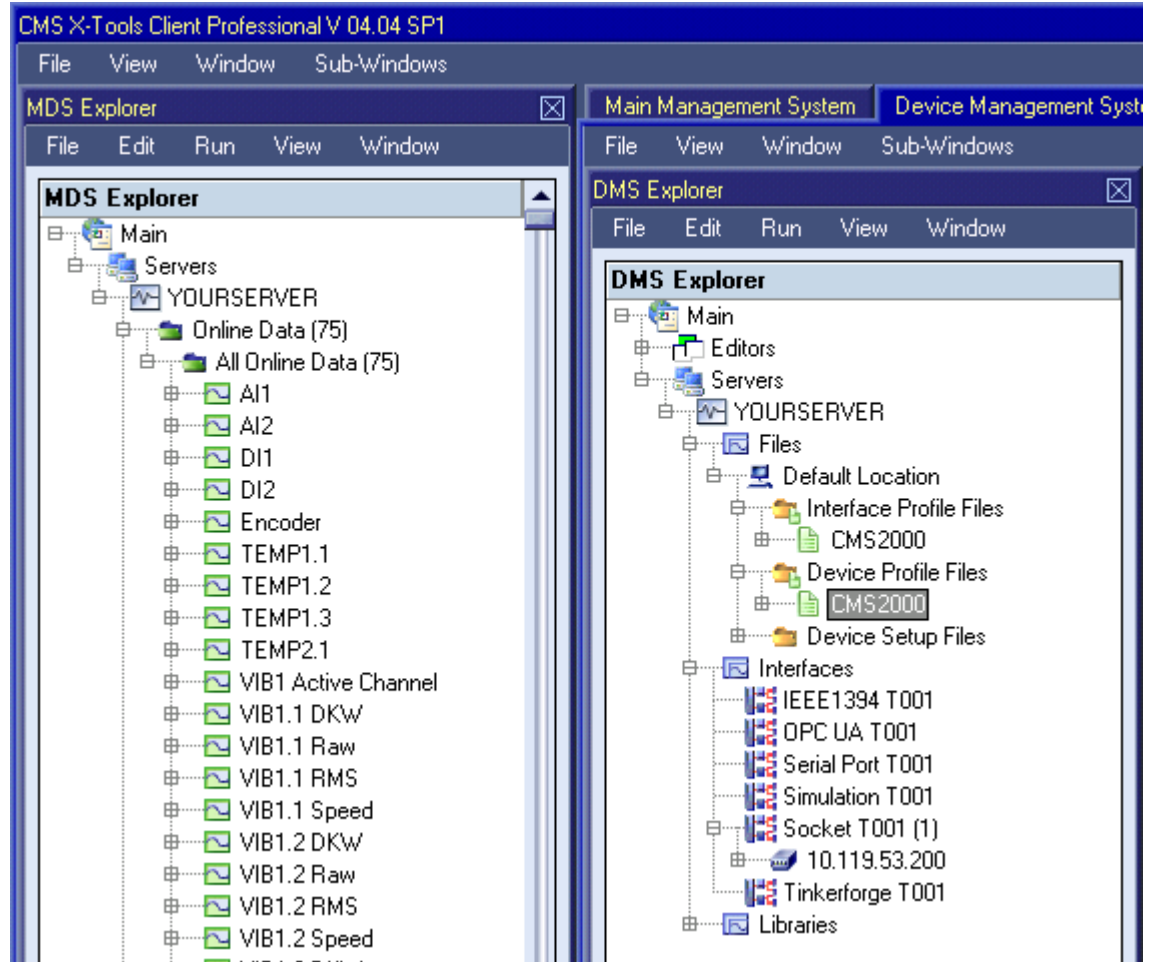
- Save the Device Profile and start it.

Figure 3-8: Starting the Device Profile



- In case the Device Profile has started successfully it will get a green icon and the online data of the CMS2000 appear in the MDS Explorer.

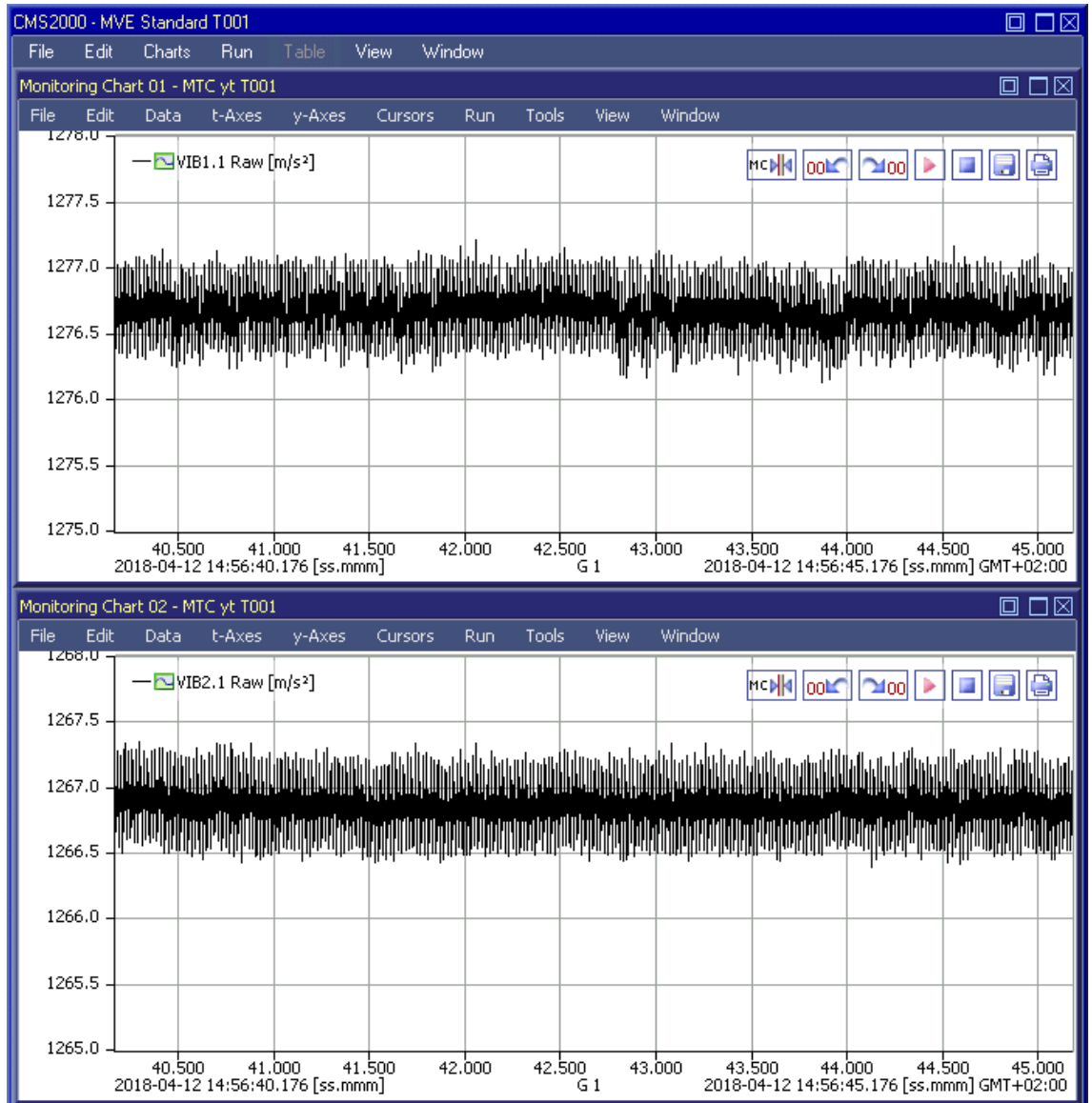
Figure 3-9: Online Data appears after starting of the Device Profile



3.2.3 Visualization of the Online Data

- Switch to the Monitoring System. Next, drag an online data from the MDS Explorer and drop it into the Monitoring System. The values of the dropped data are visualized automatically.

Figure 3-10: Visualization of the Online Data



4 Contact Information

Should you have any questions concerning the software application, please refer to the Industry Sector Technical Support.

Department

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Thank you for using one of the above mentioned contacts to ensure your inquiry is registered and can be processed.

5 History

Version	Date	Modifications
V1.0	04/2018	First version