TECH NOTE: catman Script – sending CAN (FD) messages

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Abstract
The TECH NOTE describes how to send CAN signals with catman AP via the embedded script functionality.

Intro
CAN communication is a common standard in industry. QuantumX allows to send all incoming analog data to CAN bus in an easy way by just mapping inputs to outputs. But in some use cases it is interesting sending online calculated signals or alarms via CAN to another device.

The Script functionality of catman allows to send CAN signals.

Example
In the following example the lifting level of a harbor crane is measured by analog sensors.

catman is doing all online calculation and knows the limits of the overall test.

catman script shall send out a CAN message in the following cases:

1. The crane has not reached it’s stop condition (lifting mechanism needs to be active)
2. The crane has reached stop or top level condition

Approach 1: Using catman EasyScript

Two code examples show how CAN signals can be sent from catman AP.
The script example is divided into subroutines, so that the individual subs can be executed in CatmanAP at certain execution times.

1. Define variables

```vbscript
Sub Main
    Dim Counter As Integer 'Counter Loop 1
    Dim Counter2 As Integer 'Counter Loop 2
    Dim h As Double 'Lifting level at measurement start
    Dim a As Double 'Current Lifting level
    Dim b As Long 'Statusbit measurement channel
    Dim m(7) As Byte 'CAN-Telegram Array
End Sub
```

```vbscript
Sub Main
    h = 0
    m(0) = 255 'setpoint lifting function
    m(1) = 0
    m(2) = 0
    m(3) = 0
    m(4) = 16 'Direction lifting function “Lifting”
    m(5) = 0
    m(6) = 0
    m(7) = 0
    EA_Panel.SetValue(1, "TEXT_4", "n/a")
End Sub
```

2. Measurement lifting level before measurement

```vbscript
Sub Measure_Lifting_level_before_measurement_start
    EA_IO.Measure("Lifting_level", h, b)
    EA_Panel.SetValue(1, "TEXT_4", h)
End Sub
```

3. Measurement of lifting level and calculation of difference and setting of counter

```vbscript
Sub Lifting_level_measure
    'Send Lifting-Command
    'Messe Lifting_level
    'Delta Lifting_level
    EA_DAQ.CurrentReading("Lifting_level", a,DAQ_MAX)
    Counter=a-h
    EA_Panel.SetValue(1, "TEXT_1", Counter)
    Counter > 100 Then
        'Stop when 100mm lifted
        Stopp_Command
    End Sub
```

```vbscript
Sub Lifting_Command
    EA_IO.SendCANMessage (1, 0, 642, 8, m, 1) 'Send Lifting-Command
    EA_Panel.SetValue(1, "TEXT_1", Counter)
End Sub
```

```vbscript
Sub Stopp_Command
    m(0)=0
    m(4)=0
    'Sollwert und Richtung Hubfunktion 0
    Do
        EA.IO.SendCANMessage (1, 0, 642, 8, m, 1) 'Send Stopp-Command
        Counter2=Counter2+1
        Loop Until Counter2 = 100
        'Für 100 Telegramme
        MsgBox "Stopp-Command 100 mal gesendet!"
    EA.Terminate(TERMINATE_SCRIPT)
End Sub
```
Check that the subroutines are executed at the right time of the measurement. Use the “Auto execution”:

--- end

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