

Docklight Application Note: EZ-Tap Pro™ and Versa-Tap™ Support

Table of Contents

Docklight Application Note: EZ-Tap Pro™ and Versa-Tap™ Support.....	1
1 EZ-Tap Pro™ and Versa-Tap™ Support	1
2 Quick Start	1
3 How to Display And Evaluate Handshake Signals	2
4 New Function Character '^' (F12) for Bitwise Comparisons.....	2
5 New method DL.GetHandshakeSignals()	3
6 Receive Sequence Comment Marcos.....	3
7 Copyright	5
8 References	5

1 EZ-Tap Pro™ and Versa-Tap™ Support

Docklight Scripting V1.9.100 includes support for the following advanced serial monitoring products from Stratus Engineering, Inc. (www.stratusengineering.com).


- EZ-Tap Pro™ RS-232 Passive Tap Module
- Versa-Tap™ RS-232/RS422/RS485 Passive Tap Module

The EZ-Tap Pro and the Versa-Tap use their own real-time clock to timestamp all serial data monitored. Latency problems and Windows System Time inaccuracies as described in the Docklight Tap Application Note [2] do not occur, and there is no need for advanced Docklight options like “Expert Options: External / High Priority Process Mode” (see http://docklight.de/manual/how_to_obtain_best_timing_accu.htm).

2 Quick Start

1. Make sure you have connected your EZ-Tap Pro or Versa-Tap to a USB port and installed the latest Docklight Tap USB drivers (FTDI device drivers), which can be downloaded from the link below: http://www.docklight.de/download/Docklight_Tap_Drivers.zip
2. Start **Docklight Scripting V1.9.100**, choose the menu **Tools > Project Settings...** and select **Communication Mode: Monitoring**. For **Receive Channel 1** and **Receive Channel 2**, select the **VTP** ports available from the from the dropdown lists, e.g. **VTP0** and **VTP1**.
3. Review and adjust the **COM Port Settings** (baud rate, parity, ...). For the **Versa-Tap** you can additionally set the **Signaling Level** (0 – RS232/TTL, 1 – RS422/485, 2 = Inverted RS232/TTL). Confirm all settings with **OK**.
4. Press **Start Communication (F5)** in Docklight and start your monitoring application.

NOTE: The EZ-Tap Pro / Versa-Tap support very high baud rates (up to 921000 baud) with maximum monitoring accuracy. Depending on your average data traffic and your Docklight program settings, you can easily run into situations where Docklight is simply not fast enough to display and process all the incoming

				Date	2009-06-29	Docklight Application Note EZ-Tap Pro™ and Versa-Tap™ Support Applies to: Docklight Scripting V1.9.100
				Auth..	Heggelbacher	
V0.1	First draft	2009-06-29	He	 Flachmann und Heggelbacher www.fuh-edv.de	Docklight Application Note	Page
Ver.	Comment	Date	Name			1 / 5

monitoring data, and you will receive a „Input Buffer Overflow“ message by Docklight, or Docklight will respond very slow to user input and appears to be frozen. See the Docklight User Manual [1] section „How to Increase the Processing Speed...“ for more information and how to resolve this problem: <http://docklight.de/manual/howtoincreasethespeed.htm>

NOTE: The EZ-Tap Pro / Versa-Tap devices are „hot-pluggable“ when used with Docklight – if the device becomes unavailable during a Docklight monitoring session, Docklight issues a warning and reconnects to the device when it is plugged back in again.

3 How to Display And Evaluate Handshake Signals

The EZ Tap Pro and Versa Tap units report handshake signal changes from both communication directions: DTE (Docklight Receive Channel 1) and DCE (Docklight Receive Channel 2).

Signal changes can be evaluated as described in the Docklight User Manual [1] section “Controlling and Monitoring RS232 Handshake Signals”: <http://docklight.de/manual/changingthetsdtrsignalsw.htm>

The **Function Character ‘!’ (F11)** supports the following parameter values when used in EZ-Tap Pro / Versa-Tap applications:

Bit No.	Character Value (HEX Mode)	Handshake Signal
0	01	CTS = High (DCE side / Docklight Receive Channel 2)
1	02	DSR = High (DCE side / Channel 2)
2	04	DCD = High (DCE side / Channel 2)
3	08	RI (Ring Indicator) = High (DCE side / Channel 2)
4	10	RTS = High (DTE side / Channel 1)
5	20	DTR = High (DCE side / Channel 1)

4 New Function Character ‘^’ (F12) for Bitwise Comparisons


To facilitate the evaluation of bit-oriented Receive Sequence data like the above handshake signal states, two new features have been added to the Docklight Scripting V1.9.100 Receive Sequence.

Note: This extension is also demonstrated in the Docklight Scripting example project

Docklight_ProTap_VersaTap_Demo.ptp

The Function Character ‘^’ can be added by pressing **F12** in the **Edit Receive Sequence** dialog. After the ‘!’ Function Character, two additional character values specify which bits to check (<mask>) and which values to expect for these bits (<value>).

Receive Sequence (HEX Mode)	Description
^ <mask> <value>	Is a match for the next character received, when the following is true: $((\text{<next Byte received> XOR <value>) \text{ AND } <mask>) = 0$ In other words - the ‘^’ character picks only the bits marked in <mask> and compares them with the corresponding bits in <value>. See below for examples.
^ 0F 05	Is a match, when for the next character the following is true: Bit 0 = 1 Bit 1 = 0

				Date	2009-06-29	Docklight Application Note EZ-Tap Pro™ and Versa-Tap™ Support Applies to: Docklight Scripting V1.9.100
				Auth..	Heggelbacher	
V0.1	First draft	2009-06-29	He	 Flachmann und Heggelbacher www.fuh-edv.de	Docklight Application Note	Page
Ver.	Comment	Date	Name			2 / 5

	Bit 2 = 1 Bit 3 = 0 Bit 4-7 = (don't care)
! ^ 10 10	This Receive Sequence triggers when the handshake signal state says RTS = High All other handshake signals can have any state.

5 New method DL.GetHandshakeSignals()

The script method **DL.GetHandshakeSignals()** returns the current handshake signal states as an integer bit field, in the same way the function character '!' works (see table in section 3).

Code Example:

```
DL.StartCommunication
Do
    DL.AddComment DL.GetDocklightTimeStamp() & " - GetHandshakeSignals() = " &
DL.GetHandshakeSignals()
    DL.Pause 200
Loop
```

Example Communication Window output:

```
6/23/2009 10:07:44.244 - GetHandshakeSignals() = 0
6/23/2009 10:07:44.469 - GetHandshakeSignals() = 48
6/23/2009 10:07:44.677 - GetHandshakeSignals() = 48
6/23/2009 10:07:44.884 - GetHandshakeSignals() = 48
```


(RTS and DTR are changing to High in this example).

NOTE: It can take 5-10 milliseconds after **DL.StartCommunication()** until **DL.GetHandshakeSignals()** reports the correct signal state.

6 Receive Sequence Comment Marcos

The following macro keywords can be used to create a Docklight comment text with dynamic data, e.g. the actual data received.

Comment Macro	Description
%_L	Insert a line break
%_T	Insert the time stamp for the data received
%_C	Insert the Docklight channel no. / data direction (1 or 2) for the data received
%_A	Insert the actual data that triggered this Receive Sequence. Use ASCII representation
%_H	Same as %_A, but in HEX representation
%_D	Same as %_A, but in Decimal representation
%_B	Same as %_A, but in Binary representation
%_A(1,4)	Extended syntax: Insert only the first 4 characters of this Receive Sequence (start with

				Date	2009-06-29	Docklight Application Note EZ-Tap Pro™ and Versa-Tap™ Support Applies to: Docklight Scripting V1.9.100
				Auth..	Heggelbacher	
V0.1	First draft	2009-06-29	He	 Flachmann und Heggelbacher www.fuh-edv.de	Docklight Application Note	Page
Ver.	Comment	Date	Name			3 / 5

	Character No. 1, sequence length = 4)
%_H(3,1)	Insert only Character No. 3 of the received data. Use HEX representation

Example for detecting and displaying the EZ-Tap Pro / Versa-Tap handshake signals changes:

1. Open the **Edit Receive Sequence** dialog and create a Receive Sequence with a Function Character '!' (F11), followed by a '?' wildcard (F7) :


! | ?

2. In **3 – Action**, add the following **Comment** text:

`%_L%_T Handshake Signals 0|0|DTR|RTS|RING|DCD|DSR|CTS = %_B(2,1)`

This Receive Sequence will trigger on any handshake signal change reported and add an extra line to the Docklight Communication Window output:

```
6/22/2009 17:01:32.058 Handshake signals 0|0|DTR|RTS|RING|DCD|DSR|CTS =
00100000
```

				Date	2009-06-29	Docklight Application Note EZ-Tap Pro™ and Versa-Tap™ Support Applies to: Docklight Scripting V1.9.100
				Auth..	Heggelbacher	
V0.1	First draft	2009-06-29	He	 Flachmann und Heggelbacher www.fuh-edv.de	Docklight Application Note	Page
Ver.	Comment	Date	Name			4 / 5

7 Copyright

Copyright 2009 Flachmann und Heggelbacher

All rights reserved. No parts of this work may be reproduced in any form or by any means - graphic, electronic, or mechanical, including photocopying, recording, taping, or information storage and retrieval systems - without the written permission of the publisher.

Trademarks

Products that are referred to in this document may be either trademarks and/or registered trademarks of the respective owners. The publisher and the author make no claim to these trademarks.

Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

Disclaimer


While every precaution has been taken in the preparation of this document, the publisher and the author assume no responsibility for errors or omissions, or for damages resulting from the use of information contained in this document or from the use of programs and source code that may accompany it. In no event shall the publisher and the author be liable for any loss of profit or any other commercial damage caused or alleged to have been caused directly or indirectly by this document.

Contact

E-Mail Support: docklight@fuh-edv.de
 Flachmann und Heggelbacher
 Waldkirchbogen 29
 D-82061 Neuried (Munich)
 Germany
<http://www.fuh-edv.de>

8 References

- [1] Docklight Scripting V1.9 User Manual, from edition 04/2009,
http://www.docklight.de/pdf/docklight_manual.pdf
- [2] Docklight Tap Application Note
http://www.docklight.de/pdf/Docklight_Application_Note_DocklightTap.pdf

				Date	2009-06-29	Docklight Application Note EZ-Tap Pro™ and Versa-Tap™ Support Applies to: Docklight Scripting V1.9.100
				Auth..	Heggelbacher	
V0.1	First draft	2009-06-29	He	 Flachmann und Heggelbacher www.fuh-edv.de	Docklight Application Note	Page
Ver.	Comment	Date	Name			5 / 5