StateWORKS *Terminal*

Introduction

The document describes the *SWTerm* program. SWTerm is a console client used to communicate with the RTDB application using a TCP/IP communication link. This program may run in the same computer as the RTDB application, or in a different one over the network. It permits tests and monitoring of applications, either in complete form or when only part of the system is available, and allows very extensive automated tests to be developed. The *SWTerm* uses RTDB console commands.

Console commands

A console command is a string with maximum 4 words separated by spaces (the objectname and the optional attributename must be written together without space between them). The first word specifies a server and it must be the abbreviation *sw* (standing for StateWORKS). The second word must be a command name. The meaning of the other two words depends on the command and they are described in the following table. There are following *console commands*:

Command (strings)	Meaning
sw connect [hostname]:[port]	Connect to SW hostname:port, default to LOCALHOST, port 9091 Examples: sw c mycomputer:9091 sw c mycomputer sw c
sw disconnect	Disconnect Example: sw d
sw set objectname[attributename] value	Write attribute value, Examples: sw s Flow1 Open sw s Flow1 5 sw s Flow1:Ti:Busy.CnC 12 sw s Flow1:Par:FlowSetValue 50 sw s Flow1:Par:String "Example"
sw get objectname[attributename]	Read attribute value, Examples: sw g Flow1 sw g Flow1:Ti:Busy

	sw g Flow1:Ti:Busy.CnC sw g Flow1:Ti:Busy.
Special get commands: **sw g**et vfsmname.AIL **sw g**et unitname.AIL **sw g**et AL.AIL **sw g**et alarmname.AIL **sw g**et vfsmname.Lst **sw g**et cmdname.Lst	Get the list of all objects belonging to vfsmname Get the list of all objects belonging to unitname Get the last alarm Get the info about alarmname Get the list of vfsmname states Get the list of cmdname commands

sw advise objectname[attributename]	Advise attribute
	Examples: sw a Flow1
	          sw a Flow1:Ti:Busy
	          sw a Flow1:Ti:Busy.CnC

sw unadvise objectname[attributename]	Unadvise attribute
	Examples: sw u Flow1
	          sw u Flow1:Ti:Busy
	          sw u Flow1:Ti:Busy.CnC

sw objectnamelist[objecttype]	Get the list of all object names of a given type. Missing objecttype means get all object names. Example: sw o ti sw o
sw number **sw n**umber IL **sw n**umber objecttype **sw n**umber IL.	Get object numbers of all object types Get number of all objects Get number of objecttype Get configuration file path

Comments:
- Be aware that only commands name and objecttype are case insensitive.
- The command name can be shortened (the text in bold is sufficient).
- The content of parenthesises is optional. The default attributes see table below.
- A pseudo attribute (.) for **get** command means "get all object attributes". Display format: one line as in SWMon.

Attributes

The Appendix 1 lists all attributes and their usage. All attributes are 4 characters, the first character being a dot.

Default attributes

The usage of short commands with default attributes is important considering the importance of attributes we are interested in – in most cases we just want to see the most important attribute of the object: its state or the data value

For "input" (e.g. TI) objects which "state" is used for control, the default attribute is the state either as a number **.Val** or as a name **.StN.** For "output" (e.g. NO) or "data" (e.g. PAR) objects the default attribute is the data value which they store. The default values are defined for all objects while using the **get** command; with the **set** command they do not make sense for some objects.

Object type	Default Attributes		Remarks
	for **set**	for **get**	
VFSM	-	.StN	
CMD	.PeV	.PeV	
TIMER	.CnC	.StN	
CNT	.CnC	.StN	
ECNT	.CnC	.StN	
DI	-	.PeV	
DO	-	.Val	
SWIP	-	.StN	
STR	-	.StN	
PAR	.Dat	.Dat	
DAT	.Dat	.Dat	
UDC	-	.Dat	.Dat is the counter value
NI	-	.Dat	
NO	.Val[1]	.Dat	Set: 1 -> Of; 2 -> On; 3 -> Set
XDA	.Val	.Val	
TAB	.Val	.Val	It is an index. (Advise does not work)
OFUN	-	.Val	It is the function return value.
AL	.Ack	.StN	By .Ack any value will do
UNIT	-	.AIL	Objects list

1) For Set = 1 and Set=3 and active Advise (.StN and .Val) RTDB generates two events, which correspond to values 0 (OFF) and 3 (CHANGED).

Use of SWTerm

SWTerm program is a kind of SWMonitor on a command line (i.e. console client). The *SWTerm* is responsible for connection / disconnection with RTDB. While running the *SWTerm* a user can communicate on the command line with RTDB using *console commands*. The *SWTerm* runs on the same computer where the RTDB application is started or on a remote computer. The remote user can start the local *SWTerm* using Telnet.

In principal *SWTerm* is used to set / display values in / from RTDB. Sending *advise* command we get replies on the command line which occur at random fashion. But it is a typical problem with a console programs and we have to live with this inconvenience.

The program is started with 3 (optional) arguments:

- -lLogFileName

- -r

- -cCmdFileName.

The program displays Help by entering the *h* key.

The program terminates by entering the *q* key.

The entries are always logged. If started without the –l argument the log file is given the default name *SWTerm.log*. If tarted with the –r argument the responses are also written into the log file. The responses always begin with an arrow "->".

If started without the –c argument the entries are taken from the command line, otherwise they are read line-by-line from the CmdFileName file. After each line the program waits for *enter* key. Note that in some cases SWMon can be used, at the same time, to provide a more convenient view of the system under test. If the content of the command file is exhausted *SWTerm* switches to the command line mode. When preparing a command file we can also insert comments: any line which does not begin with "sw" is treated as a comment.

The log file allows previous command sequences to be repeated. The old log file must be renamed before used as a command file; otherwise it will be immediately overwritten by the new log file. While running the *SWTerm* with such a command file the responses are treated as comments and ignored. A log file which is run as a command file should produce the same log file if the RTDB has not changed.

Appendix 1. Attributes

		VFSM	CMD	TI	AL	DI	DO	NO	NI	SWIP	XDA	PAR	OFUN	STR	CNT	DAT	UNIT	ECNT	UDC	TAB
	IAtt_None	M	R	R	R	R	M	M	R	R	M	R	R	R	R	R	R	R	M	M
.Val	IAtt_Value	M	R	R	R	R	M	M	R	R	M	R	R	R	R	R	-	R	M	M
.SvM	IAtt_ServiceMode	M	M	-	-	M	M	-	-	M	-	-	-	-	-	-	-	-	-	-
.SvV	IAtt_ServiceValue	M	M	-	-	M	M	-	-	M	-	-	-	-	-	-	-	-	-	-
.PeV	IAtt_PeripheralValue	M	M	-	-	R	R	-	-	R	-	-	-	-	-	-	-	-	-	-
.VI	IAtt_VI	R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.StN	IAtt_StateName	R	-	R	R	-	-	R	R	R	-	R	-	R	R	R	-	R	R	-
.AIL	IAtt_AssocItemList	R	-	-	R	-	-	-	-	-	-	-	-	-	-	R	-	-	-	-
.Typ	IAtt_TypeName	R	R	-	-	-	-	-	-	-	-	-	-	-	-	R	-	-	-	-
.CnC	IAtt_CountConstant	-	-	M	-	-	-	-	-	-	-	-	-	-	M	-	-	M	-	-
.CnR	IAtt_CountRegister	-	-	R	-	-	-	-	-	-	-	-	-	-	R	-	-	R	-	-
.Cat	IAtt_Category	-	-	-	R	-	-	-	-	-	-	R	-	-	-	-	-	-	-	-
.Frm	IAtt_Format	-	-	-	-	-	-	R	R	-	-	R	-	-	-	R	-	-	R	-
.Uni	IAtt_PhysicalUnit	-	-	R	-	-	-	R	R	-	-	R	-	-	-	R	-	-	R	-
.LiL	IAtt_LimitLow	-	-	-	-	-	-	-	M	-	R	-	-	-	-	-	-	-	-	-
.LiH	IAtt_LimitHigh	-	-	-	-	-	-	-	M	-	R	-	-	-	-	-	-	-	-	-
.IVa	IAtt_InitValue	-	-	-	-	-	-	-	-	-	R	-	M	-	-	-	-	-	-	-
.Dat	IAtt_DataValue	-	-	-	-	-	-	R	R	R	-	M	-	-	-	M	-	-	M	-
.Txt	IAtt_Text	-	-	-	R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.Ack	IAtt_Acknowledge	-	-	-	W	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.Tim	IAtt_Time	-	-	-	R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.ScF	IAtt_ScaleFactor	-	-	-	-	-	-	R	R	-	-	-	-	-	-	-	-	-	-	-
.Ofs	IAtt_Offset	-	-	-	-	-	-	R	R	-	-	-	-	-	-	-	-	-	-	-
.ScM	IAtt_ScaleMode	-	-	-	-	-	-	R	R	-	-	-	-	-	-	-	-	-	-	-
.Lst	IAtt_List	R	R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.PAd	IAtt_PhysAddr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	R	-	-	-	-
.Com	IAtt_CommPort	-	-	-	-	-	-	-	-	-	-	-	-	-	-	R	-	-	-	-
.Trc	IAtt_Trace	M	M	M	M	M	M	M	M	M	-	M	-	-	M	M	-	M	M	-
.RMo	IAtt_RunMode	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.NSt	IAtt_NextStep	R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Column groups: CMD (VFSM), AL (TI, DI), DO (NO), NI, XDA (SWIP), OFUN (PAR), CNT (STR), UNIT (DAT), UDC (ECNT), TAB

- - none
R – read only
M - read / write
W - write only