



TINE Release 4.0 News

(July 8, 2013: That was the month that was !)

“What a long, strange trip it’s been”

[Release 4.3.10]

- Notable Embellishments/Bug fixes
 - C-Lib (Save and Restore Properties):
 - direct use of `SavePropertyValues()` API
 - problem if supplied transfer buffer different from internal
 - Stock Property Alias: `SYS_MASK`
 - alias for 'DEVMASK'
 - do **NOT** alias if DOOCS server !
 - problem as 'stock properties' cannot be over-riden!
 - Globals
 - now supply `micro-second` timestamp resolution

[Release 4.3.10]

- Notable Embellishments/Bug fixes
 - local histories of IMAGES
 - some problems fixed (see below).
 - java: bitfield interpretation problem
 - some TDataType.getData() methods.
 - methods now much more efficient concerning primitives!
 - If raw data buffer (un-swapped bytes) and data array of primitives are in sync then copy and return!
 - *(but remember the globals data!)*

[Release 4.3.10]

■ Performance Enhancements

○ Transfer Layer (C-Lib):

- TCP transfers handled independent of UDP flow control settings (*mostly*).
- Still some issues:
 - 'fast' server with 'fast' TCP client and 'slow' TCP client ?
- Life would be easy if everyone were 'fast'.
 - can I still be nice to everyone?
 - do slow-pokes disturb the jet-set?

[Release 4.3.10]

- Performance Enhancements Remarks
 - Contract data acquisition (from the EQM handler) :
 - establishes the payload !
 - is independent of :
 - the number of clients
 - who they are
 - how fast they are
 - what protocol they are using
 - Logical delays in refreshing contract data if the last data set is still being delivered!

[Release 4.3.10]

■ Diagnostics

- new command line utilities (via attachfec if necessary)
 - get settings
 - Now displays directory settings
 - e.g. FEC_HOME, HISTORY_HOME, etc.
 - get relinks
 - (client-side) displays re-linked connections (due to contract coercion)
 - get deadbands
 - (server-side) displays all 'deadband' properties and any remaining time.
 - get sockets
 - Displays all open sockets and their buffer settings.

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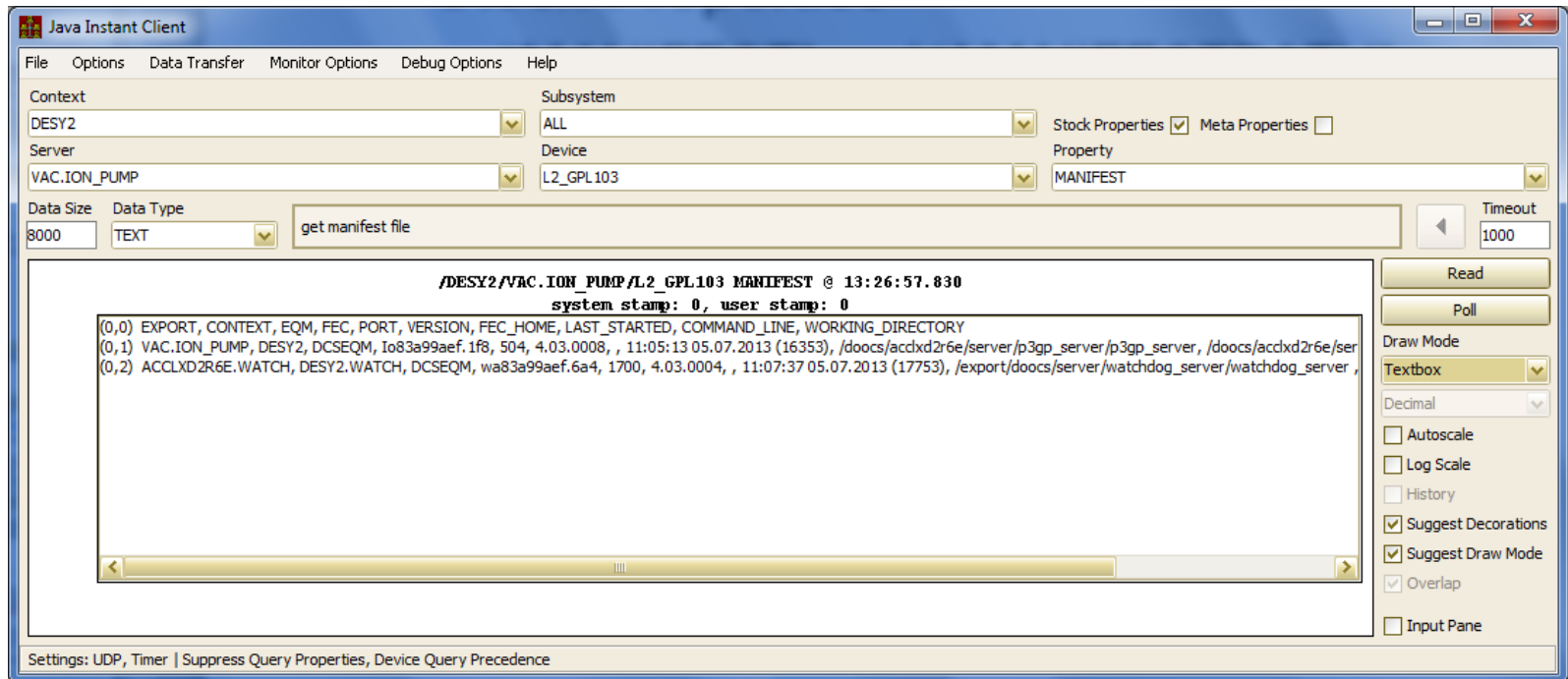
■ Diagnostics

- History home manifest (historymf.csv)
 - In a server's HISTORY_HOME directory
 - All long-term (i.e. on the disk) local histories with relevant information
 - Issue: multiple servers on the same host use the same HISTORY_HOME.
 - Are there record index collisions?
 - Now noted in log file (but server is NOT halted).
- API: LaunchRuntimeDebugWindow()
 - Windows: starts a 'pipe' and launches 'attachfec' using the PID as the 'FEC' name
 - Using 'attachfec' to 'attach' to a client application!

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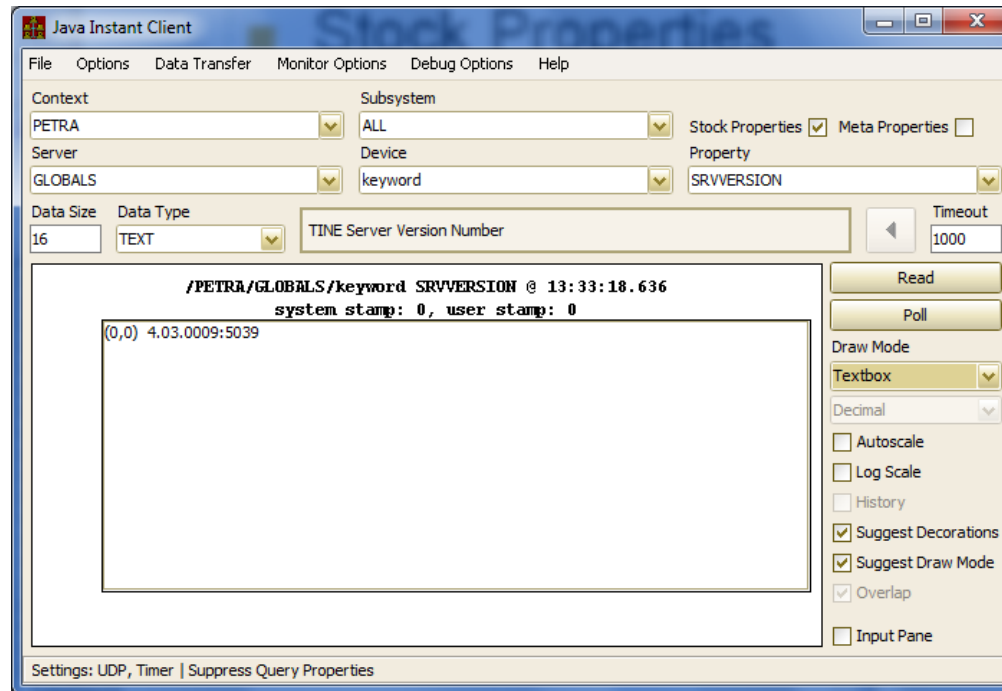
■ Stock Properties

- “MANIFEST” and “SRVMANIFESTPATH” are now available.



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- Stock Properties
 - “SRVVERSION” now appends the library’s ‘build id’:



[Release 4.3.10]

- Features:
- New contract coercion: **From last time :**
 - Fix a contract's output
 - Apply access **CA_FORCEOUTPUT** to the property registration
 - Callers are *coerced* to use the registered data type and size!
 - Issue:
 - Property delivers 100 float values
 - Caller asks for 1000 double values
 - Server converts float values to double values and returns only 100 values
 - BUT server is possibly servicing multiple contracts for essentially the same thing!
 - Can become an issue for large payloads (video frames).
 - *Make all callers ask for the same data the same way!*

Now applies to any data format or length !

[Release 4.3.10]

■ Features:

- a property can register a DEADBAND !
 - Successive WRITE commands not accepted faster than the given deadband!
 - column ACCESS_DEADBAND in exports.csv
 - tag ACCESS_DEADBAND in fec.xml.
 - => supply deadband in milliseconds
- Or API:

[Release 4.3.10]

```
int RegisterPropertyAccessDeadband ( char * eqm,  
                                     char * property,  
                                     int    access,  
                                     int    deadbandInMilliseconds  
                                     )
```

Assigns a minimum access deadband to the designated property.

By assigning a minimum access deadband to a property, a server can require that successive WRITE calls cannot be processed at a smaller time interval than the given deadband. Attempts to do so will receive an 'operation_busy' return code.

Parameters:

eqm is the local equipment module name (maximum 6 characters in length) For example: "BPMEQM".
property is the property name in question (up to 64 characters).
access is the data access for which the deadband is to be applied. (usually one of CA_READ, CA_WRITE, or CA_READ|CA_WRITE).
deadbandInMilliseconds is the desired deadband in milliseconds. A value of 0 (or less than 0) turns off the deadband checking.

Returns:

0 if successful, otherwise the a TINE return code.

See also:

[RegisterProperty\(\)](#), [RegisterPropertyInformation\(\)](#), [GetPropertyId\(\)](#)

[Release 4.3.10]

- Features:
 - Local histories now allow range selection to include 'system stamps'
 - A range interval
 - A snapshot

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- Local history + system stamps ...

The screenshot shows the Java Instant Client interface. The main window displays a data table with the following content:

```
/TEST/SineServer/SineGen0 Sine.HIST @ 13:47:31.637  
system stamp: 5906643, user stamp: 0  
(0,0) [9.0, 1.372938453879134E9, 5737108.0]  
(0,1) [5.0, 1.372938536761738E9, 5737270.0]  
(0,2) [4.0, 1.372938619648734E9, 5737433.0]  
(0,3) [8.0, 1.372938702530287E9, 5737595.0]  
(0,4) [8.0, 1.372938785414236E9, 5737758.0]  
(0,5) [0.0, 1.372938868296944E9, 5737920.0]  
(0,6) [7.0, 1.372938951176975E9, 5738083.0]  
(0,7) [9.0, 1.372939034058238E9, 5738246.0]  
(0,8) [9.0, 1.372939116936216E9, 5738409.0]  
(0,9) [2.0, 1.372939199815459E9, 5738572.0]  
(0,10) [4.0, 1.37293928270033E9, 5738735.0]  
(0,11) [5.0, 1.372939365584846E9, 5738897.0]  
(0,12) [6.0, 1.372939448465396E9, 5739061.0]
```

A yellow callout box highlights the text: "Normal request with timestamp range".

The interface also shows various settings and controls, including a menu bar (File, Options, Data Transfer, Monitor Options, Debug Options, Help), a context menu (TEST), a subsystem menu (ALL), a server menu (SineServer), a device menu (SineGen0), a property menu (Sine.HIST), and a data type menu (INT32). The data size is set to 1000 and the data type is DBLDBLDBL. The data type is set to INT32 and the input data type is INT32. The data size is 1000 and the data type is DBLDBLDBL. The data type is set to INT32 and the input data type is INT32. The data size is 1000 and the data type is DBLDBLDBL.

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Local history + system stamps ...

Index 0
Sample raster 0
=> server decides.

The screenshot shows the Java Instant Client interface with the following settings:

- Context: TEST
- Subsystem: ALL
- Server: SineServer
- Device: SineGen0
- Property: Sine.HIST
- Data Size: 1000
- Data Type: DBLDBLDBL
- Data Transfer: local archived data for targeted device over time range
- Timeout: 1000
- Input Data Type: INT32
- Write Access:

The data log displays the following information:

```
/TEST/SineServer/SineGen0 Sine.HIST @ 13:47:02.000
system stamp: 5863755, user stamp: 0
(0,0) [5.0, 1.372938536761738E9, 5737270.0]
(0,1) [4.0, 1.372938619648734E9, 5737433.0]
(0,2) [8.0, 1.372938702530287E9, 5737595.0]
(0,3) [8.0, 1.372938785414236E9, 5737758.0]
(0,4) [0.0, 1.372938868296944E9, 5737920.0]
(0,5) [7.0, 1.372938951176975E9, 5738083.0]
(0,6) [9.0, 1.372939034058238E9, 5738246.0]
(0,7) [9.0, 1.372939116936216E9, 5738409.0]
(0,8) [2.0, 1.372939199815459E9, 5738572.0]
(0,9) [4.0, 1.37293928270033E9, 5738735.0]
(0,10) [5.0, 1.372939365584846E9, 5738897.0]
(0,11) [6.0, 1.372939448465396E9, 5739061.0]
(0,12) [1.0, 1.372939531353271E9, 5739223.0]
```

On the right side, the Read button is highlighted with a red arrow, and the input data type is set to INT32. The data values shown are: 1372938444, 1373024852, 0, 0, 5737270, 5863755.

Request with
timestamp and
system stamp
range

Release 4.3.10

- Local history + system stamps ...

The screenshot shows the Java Instant Client interface. The main window displays a plot of data for the property Sine.HIST@ on device SineGen0. The plot shows a signal fluctuating around a mean value of approximately 100 over a 100ms period. The y-axis ranges from -1000 to 1000, and the x-axis ranges from 0 to 100 ms. The plot title is "/TEST/SineServer/SineGen0 Sine.HIST@ @ 13:48:56.761" and it includes "system stamp: 5737270, user stamp: 0".

Configuration options include:

- Context: TEST
- Subsystem: ALL
- Server: SineServer
- Device: SineGen0
- Property: Sine.HIST@
- Data Size: 100
- Data Type: DOUBLE
- Input Data Type: INT32
- Timeout: 1000
- Draw Mode: PolyLine
- Decimal: Decimal
- Autoscale:
- Log Scale:
- History:
- Suggest Decorations:
- Suggest Draw Mode:
- Overlap:
- Input Pane:

Buttons for Read and Poll are visible. A yellow callout box highlights the text: "Snapshot request with timestamp range and system stamp target".

Settings: UDP, Timer | Suppress Query Properties, Property Query Precedence

[Release 4.3.10]

- Doocs2Tine news
 - DOOCS watchdog integration in FEC Remote Panel
 - Systematics requires:
 - watchdog server has name
 - <host>.WATCH in same context as server
 - => are there servers on same host in different contexts?
 - subsystem should be 'WATCH'
 - decorated context <context>.WATCH
 - Watched server should have **location name**
 - SVR.<server name>
 - and NOT SVR.<binary name> !

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- Doocs2Tine news
 - Multi-Channel Arrays seem to work
 - Recent bug-fix:
 - restriction on property name ≥ 3 characters.

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The screenshot shows the Java Instant Client interface. The top menu bar includes File, Options, Data Transfer, Monitor Options, Debug Options, and Help. The main configuration area has several sections: Context (DESY2), Subsystem (ALL), Server (VAC.ION_PUMP), Device (L2_E_GPE02), and Property (STATUS_HW). Below this, Data Size is set to 1 and Data Type is INT32. A large window displays the following text: `/DESY2/VAC.ION_PUMP/L2_E_GPE02 STATUS_HW @ 14:08:42.999` and `system stamp: 67519916, user stamp: 0`. A smaller window below shows the coordinates `(0,0) 34`. The bottom status bar indicates settings: UDP, Timer | Suppress Query Properties, Device Query Precedence.

```
doocsadm@acclxd2r6e: /export/doocs/server/p3gp_server/xml$ cat
ACCLXD2R6E._SVR-SVR.TIME_MCA.xml
<LIST>
<MCAP>
<NAME>P</NAME><TYPE>FLOAT</TYPE>
<NAME>STATUS_HW</NAME><TYPE>INT</TYPE>
<NAME>IO_STATUS</NAME><TYPE>INT</TYPE>
<NAME>IO_STATUS_INSTR</NAME><TYPE>INT</TYPE>
</MCAP>
</LIST>
doocsadm@acclxd2r6e: /export/doocs/server/p3gp_server/xml$
```

Current Connection Table

- [0] /DEFAULT/ENS/DESY2[TAGS] cancel @500 msec <0> (203 values read)
- [1] /DESY2/VAC.ION_PUMP/L2_E_GPE02[STATUS_HW] register is bound to /DESY2/VAC.ION_PUMP/DEVGRP87[STATUS_HW] (as an MCA element) @1000 msec <0> ((value : L2_E_GPE02: 34)
- [2] /DESY2/VAC.ION_PUMP/DEVGRP87[STATUS_HW] timer @1000 msec <0> (76 values read)

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Server and FEC Remote Control Panel for LINAC2

File View Tools Help

DESYDATA	L2PiloProxy	PiControls	RFModulatorStorage
EVENTAPC	L2RefTiming	PiCoPy	RFMultiplexer
EVENTS	L2Temp	PIDisplayDeviceStates	RFPPhaseCabinet
EVENTSTORE	L2TempOpr	PiKeyBoxes	SchirmMonL2
Fan	L2TRCrF	PiIoL2Auf	SchirmMonMux.CDI
Fan.Automatic	L2TRIM.CDI	PiIoL2Sta	SEQUENCER
Fan.Counter	L2VAC.CDI	PiPrivateCommands	STATE
Fan.Hardware	L2WdwProxy	PiPrivateSwitchables	StrahlBedarf
Fan.Originator	LINACGLOBALS	PiPrivCmds_piFieldLin...	Strom.DC-PIA
Fan.Remote	LINACSTATE	PiPrivCond_piCentDe...	TEMSENSORS.CDI
Fan.State	LTG-VXW	PiPrivCond_piFieldLin...	TriggerModule_L2
Fan.Veto	LTGBU-VXW	PiPrivCtrls_piCentDeLIP	UmschaltManager
FECSTATS	LTGDEL-VXW	PiPrivSwch_piFieldLi...	VAC.ION_PUMP
GLOBALS	LTGPH-VXW	PiVideoSwch_piField...	VAC.SV
GlobalsCollector	Mag.Corr	REGAEZYKHIST	VAC.TPG
GlobalsInfo	Mag.Corr-GTST	ResetTrigger.CDI	ZYKUNT-VXW
GunZTiming	Mag.Group	RF.Attenuator.CDI	ZzDoors
GunLewProxy	Mag.Group.Corr	RF.BeamCurrentLimit...	
GunPiloProxy	Mag.Group.Corr-GTST	RF.Modulator.CDI	

Refresh Ping all Active: 167 of 170 (11:27:43)
VAC.ION_PUMP: Active (11:28:25)

Summary: Servers in LINAC2 for the selected subsystems

Context: LINAC2 FEC Importance: ALL

Selected Subsystems

<input checked="" type="checkbox"/> DIAG	<input checked="" type="checkbox"/> HIST	<input checked="" type="checkbox"/> INJ	<input checked="" type="checkbox"/> MAG
<input checked="" type="checkbox"/> MEX	<input checked="" type="checkbox"/> MISC	<input checked="" type="checkbox"/> PINTLK	<input checked="" type="checkbox"/> RF
<input checked="" type="checkbox"/> SER	<input checked="" type="checkbox"/> TIM	<input checked="" type="checkbox"/> VAC	<input checked="" type="checkbox"/> VIDEO
<input type="checkbox"/> WDOG			

ALL NONE

OS Color Code
Dos Unix VxWorks VMS Win16 Win32 Java

Selected FEC: Io83a99af0.1f8
Selected Server [Local Name - on FEC]: VAC.ION_PUMP [DCSEQM]
Subsystem: DIAG
Version: 4.03.0008
OS: UNIX
Address: 131.169.154.240
Port Offset: 504
Host Computer: acdxl2r6f.desy.de
Responsible: wilksen
Description: DOOCS server
Location: bldg 30 rm 102 IE-R6 (6)
Importance: NONE
Server App. Version: unavailable

FECs on this host:
Io83a99af0.1f8
wa83a99af0.6a4

Servers on FEC Io83a99af0.1f8
VAC.ION_PUMP [DCSEQM]

Report Attach FEC
Ping Control Restart

Host: alive
Server: alive
Daemon: alive

Activity Contracts Clients Alarms Log File Stats Histories Commands Settings IC

Active Contracts for FEC Io83a99af0.1f8

/DCSEQM/IO_STATUS_INSTR[DEVGRP 128]	
/DCSEQM/SRVLASTACCESS[#0]	
/DCSEQM/ACTIVITY[#0]	
/DCSEQM/CONTRACTS[]	
/DCSEQM/IO_STATUS_INSTR[DEVGRP 128]	

Refresh

Size Out	20
Eqmhandle	
Access	1
Format In	255
Format Out	3
Tag In	
Tag Out	
Poll Rate	1000
Nr Consumers	1

11:27:46: Normal