



# TINE Release 4.0 News

(Feb 5, 2010: That was the year that was !)

“What a long, strange trip it’s been ....”

# [ TINE Release 4.1.3 ]

- TINE-Notification List
  - Early notification of bug fixes/feature additions.
- TINE Forum
  - Used primarily by spammers
    - New account registration disabled
    - Send email to [tine@desy.de](mailto:tine@desy.de) if a new account is desired.

# TINE Release 4.1.3

(bug fixes, new features ...)

- Java and C-Lib:
  - Bug Fix: Problem *removing* group member following CloseLink() or link.close().
    - Close did NOT remove member => not callback notification thereafter !
    - Note: acop groups does not use this mechanism and therefore did not have a problem.
- C-Lib (doocs related)
  - Bug Fix: problem recognizing a 'registered' property for use in overridden *meta-properties* (e.g. .HIST).
  - Relaxed condition on 'property exists' concerning SystemScheduleProperty().
  - Note: many problems with 'doocs2tine' related to interface between the TINE property registry and the DOOCS property registry (those property query functions).

# TINE Release 4.1.3

(bug fixes, new features ...)

- **Windows** only:
  - Bug fix: releasing 'kernel Mutex' under certain circumstances could have caused a 'deadlock' (seen once with the Thomson Modulator).

# TINE Release 4.1.3

(bug fixes, new features ...)

## ■ Solaris:

- Fix a 10-msec latency problem using synchronous calls
  - Non-round-robin thread slicing
- 5.8 and 5.10 support different posix calls!
  - e.g. `sem_timedwait()`
  - Use `#define NO_TIMEDLOCK` for 5.8 but not for 5.10 etc.

# TINE Release 4.1.3

(bug fixes, new features ...)

## ■ VxWorks

- Major differences between 5.x and 6.x
- 6.x
  - more 'posix' routines, more BSD routines (e.g. gethostbyname, sched\_yield(), etc.)
  - BSD routines do not conform to standards in 6.x
    - Select(), sendto() + connected sockets
  - taskspawn() has more options and signals an error if 'invalid'
    - Daughter task inherits valid options from parent which are not valid for the daughter!

# [ TINE Release 4.1.3 ]

- Feature Additions of 'limited' interest
  - **Get/SetTcpConnectionTableSize**(value)
    - Default 32 (good for almost everybody)
  - **SetServerCycleIdle**(boolean) and **SetClientCycleIdle**(boolean)
    - puts server or client cycles in an 'idle' state
  - **CF\_DEFAULT** improvements:
    - return 'suggestions' for stock properties and meta properties (e.g. .HIST)

# [ TINE Release 4.1.3 ]

- Feature Additions of ‘more general’ interest
  - Client and server both trap ‘invalid’ polling intervals.
    - Under 100 msec (allowed)
    - Else:
      - 100
      - 200
      - 300
      - 400
      - 500
      - 1000
      - Multiples of 1000
- de-facto non-reentrancy for all background tasks!
  - Can override:
    - `SetAllowBackgroundTaskReentrancy`(boolean)



# [ TINE Release 4.1.3 ]

- Feature Additions of *'even more general'* interest:
  - Auto 'disk space' alarms:
    - int `SetFreeBlocksAlarmThreshold`(char \*path, UINT32 minFreeBlocks)
      - warn\_disk\_space, low\_disk\_space

# TINE Release 4.1.3

**Alarm Viewer: TEST**

File View Options Navigate Help

Fatal	Error
0	4

Thu Feb 04 21:27:53 Warning Severity >= 0 Selected/Total No. of Ala

Magnet Server	0 0 0	BPM
RF	0 0 0	BLM
VAC	0 0 0	SineServers
Temp.Yury	0 0 1	Pilotherm
Temp.Susen	1 0 0 1	Current Monitor

System	Device Name	Message	Sev
System	WinSineServer	disk space is low	8
System	TempP3	Not Responding	7

21:27:42: Alarms loaded.

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**Alarm Details: System: WinSineServer/WinSineServer**

Property	Value
Alarm System	System
Device Server	WinSineServer
Alarm Device	WinSineServer
Device Text	device
FEC Name	SINEGEN.7
Host Address	131.169.9.107
HostName	McsXpDuval01.desy.de
Location	Bldg 30 Room 502
Alarm Text	disk space is getting low
Severity	8
Alarm Data Text	disk + available space (blocks)
Alarm Tag	disk space is low
URL	
Code	168
Format	4
Dimension	64
Mask	-1

Alarm Descriptor	Alarm Time	Duration
New	21:27:15.217 - Feb 04	1.4 min

**Alarm Data: disk + available space (blocks)**

W:\kernel.R4 126976 kb

Close

# [ TINE Release 4.1.3 ]

- Feature Additions of *'even more general'* interest:
  - Variable length data types in structures!
    - CF\_STRING
    - CF\_AIMAGE (adjustable image)
    - CF\_ASPECTRUM (adjustable spectrum)
  - Arrays of Variable length data types
    - CF\_STRING always worked !
      - 'array length' = number of strings
      - Individual lengths given by strlen()
    - CF\_AIMAGE
    - CF\_ASPECTRUM
      - 'array length' = number of array elements
      - Individual sizes given by header information

See examples in <http://tine.desy.de> under 'Data Types'

# TINE Release 4.1.3

- Feature Additions of *'even more general'* interest:
  - Single-Field Structure/Bitfield acquisition !

The screenshot shows the Instant Client interface for Instance 1. The configuration is as follows:

Device Context: TEST	Device Subsystem: ALL	<input type="checkbox"/> Show Stock Properties
Device Server: WinSineServer	Device Name: SineGen0	Device Property: SineInfo
Data Size: 10	Data Type: STRUCT	Description: [SineInfo] Sine Generator Information
		Timeout: 1000

The main window displays the following data:

```
/TEST/WinSineServer/SineGen0 SineInfo @ Feb 04 21:37:38.961  
[ 0 -> amplitude] 256  
[ 0 -> frequency] 1  
[ 0 -> noise] 30  
[ 0 -> phase] 0  
[ 0 -> numberCalls] 613  
[ 0 -> description] Sine Generator 0 at your disposal  
[ 1 -> amplitude] 256  
[ 1 -> frequency] 1  
[ 1 -> noise] 30  
[ 1 -> phase] 0
```

Control buttons on the right include Read, POLL, draw mode (Text dump), transport (udp (default)), Autoscale, and Log Scale.

The screenshot shows the Instant Client interface for Instance 1. The configuration is as follows:

Device Context: TEST	Device Subsystem: ALL	<input type="checkbox"/> Show Stock Properties
Device Server: WinSineServer	Device Name: SineGen0	Device Property: SineInfo.amplitude
Data Size: 1	Data Type: FLOAT	Description: [SineInfo] Sine Generator Information
		Timeout: 1000

The main window displays the following data:

```
WinSineServer/SineGen0 SineInfo.amplitude @ Feb 04 21:37:17.993  
( 0 ) 256
```

Control buttons on the right include Read, POLL, draw mode (Text dump), transport (udp (default)), Autoscale, and Log Scale.

# TINE Release 4.1.3

- Feature Additions of *'even more general'* interest:
  - Single-Field Bitfield acquisition !

The screenshot shows the 'Instant Client (Instance 1)' window. The configuration is as follows:

Device Context: TEST	Device Subsystem: ALL	<input type="checkbox"/> Show Stock Properties
Device Server: WinSineServer	Device Name: SineGen0	Device Property: Status
Data Size: 10	Data Type: BITFIELD1	Description: [StsBits] Status bits
		Timeout: 1000

The main display area shows the following data:

```
/TEST/WinSineServer/SineGen0 Status @ Feb 04 21:39:17.651  
[ 0 -> 0 field1] 0  
[ 0 -> 1 field2] 1  
[ 0 -> 2 field3] 1  
[ 0 -> 3 field4] 1  
[ 0 -> 4 field5] 13  
[ 0 -> 5 field6] 14  
[ 0 -> 6 field7] 3  
[ 1 -> 0 field1] 0  
[ 1 -> 1 field2] 1  
[ 1 -> 2 field3] 0
```

Control buttons on the right include Read, POLL, draw mode (Text dur), transport (udp (default)), Autoscale, and Log Scale.

The screenshot shows the 'Instant Client' window. The configuration is as follows:

Device Context: TEST	Device Subsystem: ALL	<input type="checkbox"/> Show Stock Properties
Device Server: WinSineServer	Device Name: SineGen0	Device Property: Status.field1
Data Size: 1	Data Type: INT16	Description: [StsBits] Status bits
		Timeout: 1000

The main display area shows the following data:

```
/TEST/WinSineServer/SineGen0 Status.field1 @ Feb 04 22:09:09.186  
( 0 ) 0
```

Control buttons on the right include Read, POLL, draw mode (Text dur), transport (udp (default)), Autoscale, and Log Scale.

# [ TINE Release 4.1.3 ]

- **Single-Field Structure/Bitfield acquisition caveats**
  - Not registered as such
    - Property Description is for the struct property
    - “.HIST” calls will fail (but can in principle be made to work)
    - But: CF\_DEFAULT should work !
    - And: member of a link group should work !
  - But PLEASE avoid doing something like:
    - Start links for all of the fields individually
    - Grouped callback
  - Use the structure registered if possible!
    - Server programmer had a REASON to put all of the information together as an atomic unit!

# [ TINE Release 4.1.3 ]

- Feature Additions of *‘even more general’* interest:
  - Enforced Network (i.e. multicast) data acquisition
    - Server can now register a property requiring CM\_NETWORK (=> multicast) data acquisition
      - Supply the CA\_NETWORK access flag along with CA\_READ or the string “NETWORK” within exports.csv (or fec.xml)

# [ TINE Release 4.1.3 ]

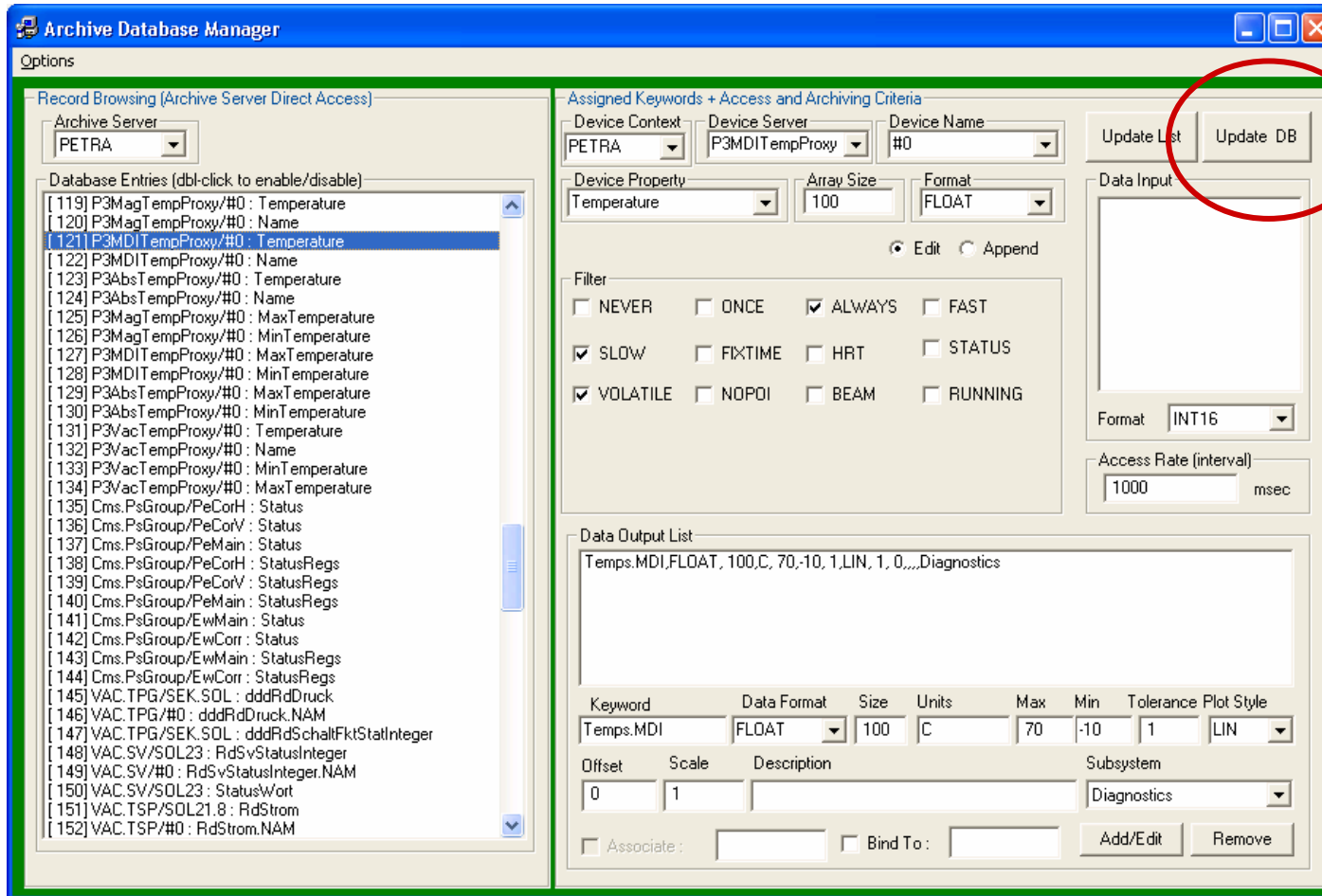
- Client ask for property “ABC”
  - synchronous request fails!
  - asynchronous link with CM\_NETWORK flag succeeds immediately
  - asynchronous link without CM\_NETWORK gets ‘informed’ of the need to apply CM\_NETWORK and does so (‘underneath the hood’).



# [ TINE Release 4.1.3 ]

- Central Services:
  - Central Archive Server
    - Accepts interactive changes to its database!
    - Improved database manager GUI (java version needs to be updated by COSYLAB)

# Archive Database Manager



Reloaded  
at the  
Archive  
Server !

# TINE Kernel Release 4

- **Remaining planned feature:**
  - Histories of variable length types !
  
- ***To Consider:***
  - ‘Double exclusive READ’ ?
    - Property Registration with CA\_XXREAD
    - READ requests follow same Access Control as WRITE requests
  - Device List calls (a la CDI style) ?
    - Property Registration with CA\_ALLOWLIST
      - Can only apply to single valued properties
    - e.g. “Device1,Device2,Device5” loops over 3 calls and returns an array.
    - device-oriented hierarchy vs property-oriented hierarchy ...

# TINE Video News

- The 100/1000 Mbit problem
  - UDP (User Datagram Protocol)
    - Efficient but no built-in reliability
    - Datagrams = Packets : Better 'real-time'
    - No flow-control
    - Multicasting
  - TCP (Transport Control Protocol)
    - 'reliable'
    - Stream : little control over transfer time
    - Flow-Control
    - NO multicasting
  - GBit Sender -> 100Mbit Receiver
    - UDP has problems !

# [ Thomson RF Modulator ]

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- Recent results @ Zeuthen