



TINE Release 4.x.x News

(Nov. 23, 2016: That was the month that was !)

“What a long, strange trip it’s been”

[Release 4.5.10]

■ Bug fix C :

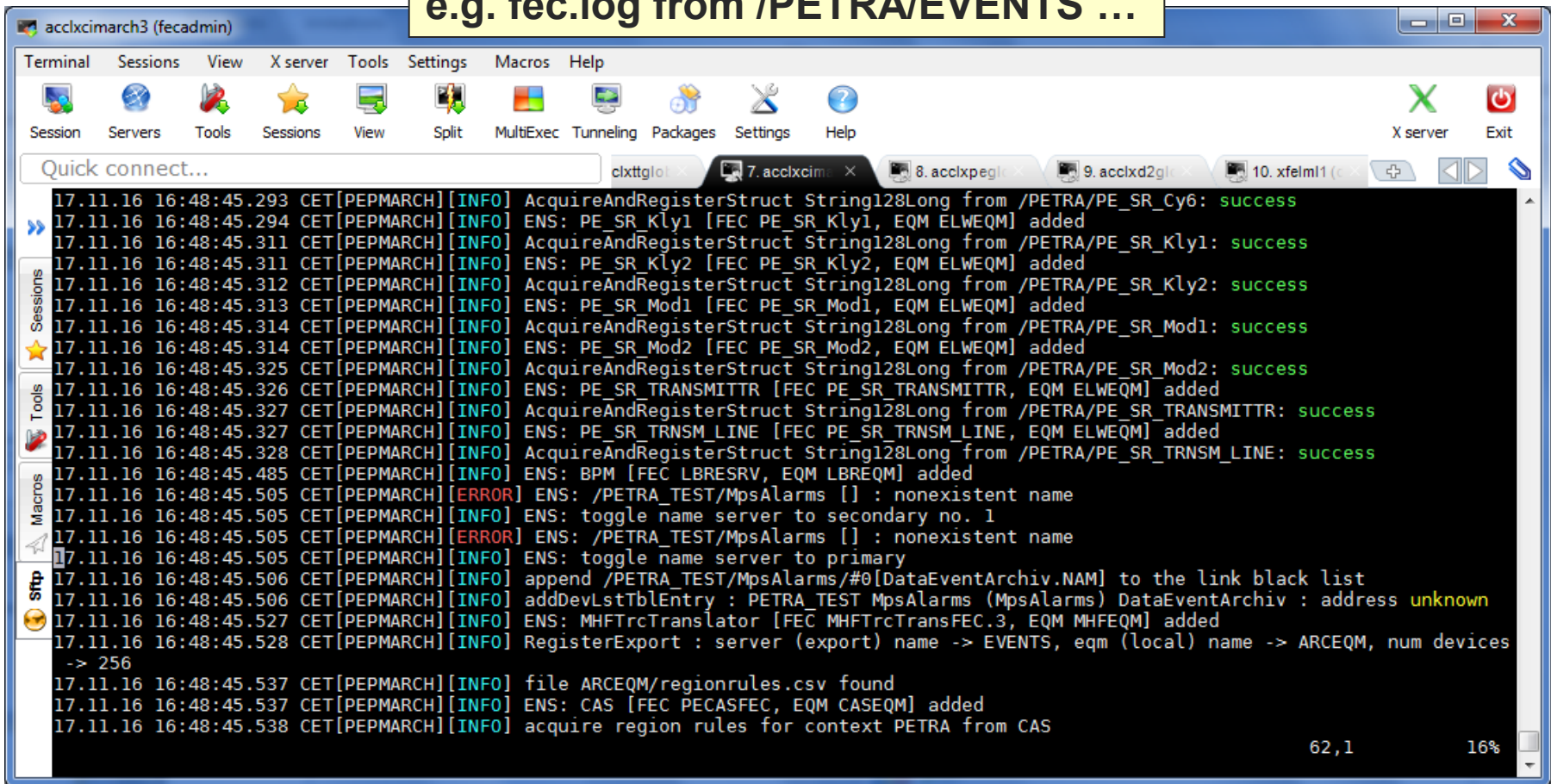
- exotic TCP problem fixed (triggered by a socket error)
 - introduced the past spring when another exotic TCP problem was fixed ...
 - fixed in September (!) but the ELWIS servers were using a DLL with the problem ...
 - Steps to trigger the problem:
 1. Start the FEC Remote Panel
 2. Switch to TCP mode
 3. Select a Server
 4. If the server hangs (deadlock) or crashes it has the problem...
- (Note: This is **NOT** *the* ELWIS problem ...)

[Release 4.5.10]

- New feature C and Java servers :
 - New log file format
 - New API call:
 - C: feclogEx(int logLevel, char *text,...)
 - Java: TFecLog.log(TineLogLevel loglevel, String text)
 - New log file: error.log
 - Server log files :
 - fec.log
 - commands.log
 - messages.log
 - error.log

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e.g. fec.log from /PETRA/EVENTS ...



```
acclxcimarch3 (fecadmin)
Terminal Sessions View X server Tools Settings Macros Help
Session Servers Tools Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect... clxttglol x 7. acclxcim x 8. acclxpegl 9. acclxd2gl 10. xfelm1 (c
17.11.16 16:48:45.293 CET[PEPMARCH][INFO] AcquireAndRegisterStruct String128Long from /PETRA/PE_SR_Cy6: success
17.11.16 16:48:45.294 CET[PEPMARCH][INFO] ENS: PE_SR_Kly1 [FEC PE_SR_Kly1, EQM ELWEQM] added
17.11.16 16:48:45.311 CET[PEPMARCH][INFO] AcquireAndRegisterStruct String128Long from /PETRA/PE_SR_Kly1: success
17.11.16 16:48:45.311 CET[PEPMARCH][INFO] ENS: PE_SR_Kly2 [FEC PE_SR_Kly2, EQM ELWEQM] added
17.11.16 16:48:45.312 CET[PEPMARCH][INFO] AcquireAndRegisterStruct String128Long from /PETRA/PE_SR_Kly2: success
17.11.16 16:48:45.313 CET[PEPMARCH][INFO] ENS: PE_SR_Mod1 [FEC PE_SR_Mod1, EQM ELWEQM] added
17.11.16 16:48:45.314 CET[PEPMARCH][INFO] AcquireAndRegisterStruct String128Long from /PETRA/PE_SR_Mod1: success
17.11.16 16:48:45.314 CET[PEPMARCH][INFO] ENS: PE_SR_Mod2 [FEC PE_SR_Mod2, EQM ELWEQM] added
17.11.16 16:48:45.325 CET[PEPMARCH][INFO] AcquireAndRegisterStruct String128Long from /PETRA/PE_SR_Mod2: success
17.11.16 16:48:45.326 CET[PEPMARCH][INFO] ENS: PE_SR_TRANSMITTR [FEC PE_SR_TRANSMITTR, EQM ELWEQM] added
17.11.16 16:48:45.327 CET[PEPMARCH][INFO] AcquireAndRegisterStruct String128Long from /PETRA/PE_SR_TRANSMITTR: success
17.11.16 16:48:45.327 CET[PEPMARCH][INFO] ENS: PE_SR_TRNSM_LINE [FEC PE_SR_TRNSM_LINE, EQM ELWEQM] added
17.11.16 16:48:45.328 CET[PEPMARCH][INFO] AcquireAndRegisterStruct String128Long from /PETRA/PE_SR_TRNSM_LINE: success
17.11.16 16:48:45.485 CET[PEPMARCH][INFO] ENS: BPM [FEC LBRESRV, EQM LBREQM] added
17.11.16 16:48:45.505 CET[PEPMARCH][ERROR] ENS: /PETRA_TEST/MpsAlarms [] : nonexistent name
17.11.16 16:48:45.505 CET[PEPMARCH][INFO] ENS: toggle name server to secondary no. 1
17.11.16 16:48:45.505 CET[PEPMARCH][ERROR] ENS: /PETRA_TEST/MpsAlarms [] : nonexistent name
17.11.16 16:48:45.505 CET[PEPMARCH][INFO] ENS: toggle name server to primary
17.11.16 16:48:45.506 CET[PEPMARCH][INFO] append /PETRA_TEST/MpsAlarms/#0[DataEventArchiv.NAM] to the link black list
17.11.16 16:48:45.506 CET[PEPMARCH][INFO] addDevLstTblEntry : PETRA_TEST MpsAlarms (MpsAlarms) DataEventArchiv : address unknown
17.11.16 16:48:45.527 CET[PEPMARCH][INFO] ENS: MHFTrcTranslator [FEC MHFTrcTransFEC.3, EQM MHFEQM] added
17.11.16 16:48:45.528 CET[PEPMARCH][INFO] RegisterExport : server (export) name -> EVENTS, eqm (local) name -> ARCEQM, num devices
-> 256
17.11.16 16:48:45.537 CET[PEPMARCH][INFO] file ARCEQM/regionrules.csv found
17.11.16 16:48:45.537 CET[PEPMARCH][INFO] ENS: CAS [FEC PECASFEC, EQM CASEQM] added
17.11.16 16:48:45.538 CET[PEPMARCH][INFO] acquire region rules for context PETRA from CAS
62,1 16%
```

[Release 4.5.10]

e.g. error.log from /PETRA/EVENTS ...

```
acclxcimarch3 (fecadmin)
Terminal Sessions View X server Tools Settings Macros Help
Session Servers Tools Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect... clxttglob... 7. acclxcim... 8. acclxpegl... 9. acclxd2gl... 10. xfelml1...
18.10.16 09:48:36.544 CDT[PEPMARCH][WARN] struct field numPreTriggerValues truncated to 16 characters
18.10.16 09:48:37.440 CDT[PEPMARCH][ERROR] ENS: /PETRA_TEST/MpsAlarms [] : nonexistent name
18.10.16 09:48:37.441 CDT[PEPMARCH][ERROR] ENS: /PETRA_TEST/MpsAlarms [] : nonexistent name
14.11.16 13:29:55.380 CET[PEPMARCH][WARN] struct field numPreTriggerValues truncated to 16 characters
14.11.16 13:29:56.272 CET[PEPMARCH][ERROR] ENS: /PETRA_TEST/MpsAlarms [] : nonexistent name
14.11.16 13:29:56.272 CET[PEPMARCH][ERROR] ENS: /PETRA_TEST/MpsAlarms [] : nonexistent name
14.11.16 16:24:19.011 CET[PEPMARCH][WARN] global synchronization : link timeout
14.11.16 17:00:34.379 CET[PEPMARCH][WARN] struct field numPreTriggerValues truncated to 16 characters
14.11.16 17:00:34.586 CET[PEPMARCH][ERROR] ENS: /PETRA_TEST/MpsAlarms [] : nonexistent name
14.11.16 17:00:34.587 CET[PEPMARCH][ERROR] ENS: /PETRA_TEST/MpsAlarms [] : nonexistent name
15.11.16 12:14:08.029 CET[PEPMARCH][WARN] global synchronization : link timeout
15.11.16 18:35:19.331 CET[PEPMARCH][WARN] struct field numPreTriggerValues truncated to 16 characters
15.11.16 18:35:20.362 CET[PEPMARCH][ERROR] ENS: /PETRA_TEST/MpsAlarms [] : nonexistent name
15.11.16 18:35:20.362 CET[PEPMARCH][ERROR] ENS: /PETRA_TEST/MpsAlarms [] : nonexistent name
17.11.16 16:48:44.457 CET[PEPMARCH][WARN] struct field numPreTriggerValues truncated to 16 characters
17.11.16 16:48:45.505 CET[PEPMARCH][ERROR] ENS: /PETRA_TEST/MpsAlarms [] : nonexistent name
17.11.16 16:48:45.505 CET[PEPMARCH][ERROR] ENS: /PETRA_TEST/MpsAlarms [] : nonexistent name
17.11.16 22:02:38.023 CET[PEPMARCH][WARN] global synchronization : link timeout

"error.log" 18L, 1675C 1,1 All
```

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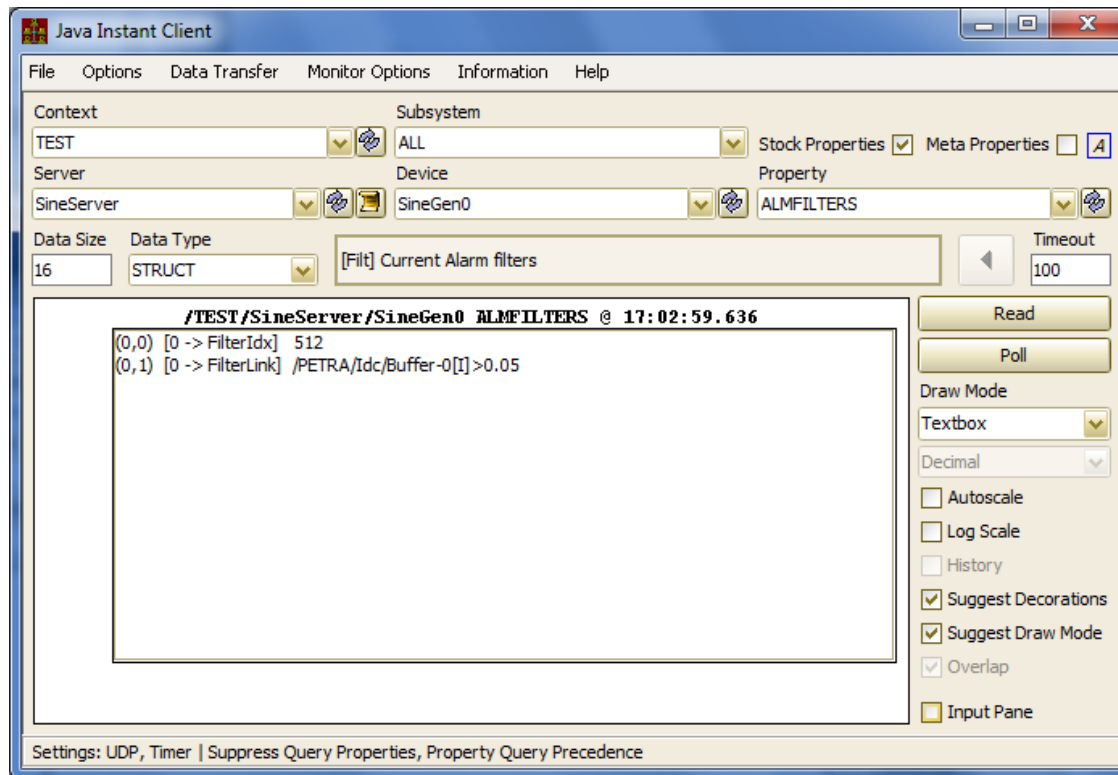
errloglvl establishes what is included in error.log (default: WARN)

```
acclxcimarch3 (fecadmin)
Terminal Sessions View X server Tools Settings Macros Help
Session Servers Tools Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect... clxtglo 7. acclxcim 8. acclxpegl 9. acclxd2gl 10. xfelml1
> get env - displays relevant environment variables
> get semaphores - displays current semaphore status
> get sockets - displays sockets and their settings
> set badpackets - sets bad packet count
> get badpackets - displays current bad packet count
> get structures - displays current structure registry
> get threads - displays thread priorities
> get filter - displays current debug output filter string
> set filter - sets debug output filter string
> get filterlinks - displays assigned filter links (local history/alarm subsystems)
> set debug = 0,1,2,3,4 - sets debug level (0 = no debug printing)
> set errdbg = 0,1 - sets error debug output off/on
> set logdbg = 0,1 - turns debug logging off/on
> set almdbg = 0,1 - turns debug local alarm system off/on
> set hstdbg = 0,1 - turns debug local history system off/on
> set errloglvl = 0,1,2 - set threshold for error.log output:INFO,WARN(default),ERROR
> set lockout = TRUE/FALSE - simulates complete timeout conditions if TRUE
> set clientidle = TRUE/FALSE - flags the client cycle as idle if TRUE
> set probe = N - turns on a time probe for N cycles
> which <addr> - display address information of target (e.g. 'which ENS')
> set trace - trace link
> help - display this list

>Extra commands:
ArchiveOutput - get or set integer value
freeSessions - get function value
sessions - get function value
```

Release 4.5.10

- New feature C and Java servers :
 - stock properties: **“HSTFILTERS”**, **“ALMFILTERS”**



READ and WRITE !

Note: you generally will NOT be accessing this with the instant client !

Release 4.5.10

The screenshot shows the Java Instant Client window with the following configuration:

- Context: TEST
- Subsystem: ALL
- Server: SineServer
- Device: SineGen0
- Property: HISTORIES
- Data Size: 32
- Data Type: STRUCT
- Timeout: 1000

The main display area shows the following table entry:

```
/TEST/SineServer/SineGen0 HISTORIES @ 10:02:29.188  
[0 -> property] SINE  
[0 -> device] #0  
[0 -> dataSize] 100  
[0 -> dataFormat] 517  
[0 -> pollingRate] 500  
[0 -> archiveRate] 10000  
[0 -> depthShort] 60  
[0 -> depthLong] 1  
[0 -> heartbeat] 18000  
[0 -> pTolerance] 0.1  
[0 -> aTolerance] 0.0  
[1 -> property] Amplitude  
[1 -> device] #0  
[1 -> dataSize] 10  
[1 -> dataFormat] 517  
[1 -> pollingRate] 500  
[1 -> archiveRate] 10000  
[1 -> depthShort] 60  
[1 -> depthLong] 1  
[1 -> heartbeat] 18000  
[1 -> pTolerance] 0.0  
[1 -> aTolerance] 0.0  
[2 -> property] CantaYNoYores  
[2 -> device] #0
```

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

A call to 'HISTORIES' returns the history table ...

Table entry # 0

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HSTFILTERS:

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

- Context: TEST
- Subsystem: ALL
- Stock Properties: Meta Properties:
- Server: SineServer
- Device: SineGen0
- Property: HSTFILTERS
- Data Size: 16
- Data Type: STRUCT
- [Filt] Current History filters
- Timeout: 1000

The main display area shows the following data for the HSTFILTERS property:

```
/TEST/SineServer/SineGen0 HSTFILTERS @ 10:08:01.970
[0 -> FilterIdx] 0
[0 -> FilterLink] /PETRA/Idc/Buffer-0[1]>0.05
[1 -> FilterIdx] 1
[1 -> FilterLink] NONE
[2 -> FilterIdx] 2
[2 -> FilterLink] NONE
[3 -> FilterIdx] 3
[3 -> FilterLink] NONE
```

On the right side, there are controls for Read, Poll, Draw Mode (Textbox), Decimal, Autoscale, Log Scale, History, Suggest Decorations, Suggest Draw Mode, Overlap, and Input Pane.

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

Make use of these new stock properties in the Alarm Viewer and Archive Viewer ...

Release 4.5.10 (tip of the month)

A note about 'work areas' ...

```
acclxc
Terminal
Session Servers Tools Sessions view Split Multicast Tunneling Packages Settings Help
Quick connect... cxbttglob... 7. acclxcim... 8. acclxpeg... 9. acclxd2g... 10. xfelm1...
>> sessions - get function value
>> ArchiveDebug - get or set integer value
>>
>> get settings
>Server Settings :
>FEC name : PEPMARCH
>Port offset : 16
>Server Work Area : 16777216 bytes
>System Cycle interval: 20 msec
>Min Polling interval: 20 msec
>Contract tbl capacity: 5000 items
>Contract renewal len: 60 items
>Client tbl capacity : 100 items
>Req ack. on change : yes
>Retard cont. removal : no
>Server Burst Limit : 1000 packets
>Burst Cycle Delay : 1 msec 0 usec
>Server Packet MTU : 64000 bytes
>TCP maximum msg size : 100000000 bytes (STREAM mode)
>TCP tbl capacity : 32 items
>TCP Burst Limit : 0 blocks (16-KB blocks; 0 => no burst limit)
>Server Send Buffers : 32768 bytes
>Server Recv Buffers : 131072 bytes
>udp Send Buffers : 128000 bytes
>Server Scheduling : eager
>Scheduler interval : 0 msec
>Server tasks : not re-entrant
>Allow remote exit : yes
>Allow remote init : yes
>Allow remote reset : yes
>Client Settings :
>Client Work Area : 65536 bytes
>Connect. tbl capacity: 1024 items
>Client Burst Limit : 1000 packets
>Client Send Buffers : 32768 bytes
>Client Recv Buffers : 262144 bytes
>Client Recv Queue : 10 items
>use loopback addr : yes
>use watchdog links : yes
>allow common links : yes
>retry on timeout : yes
>Directory Settings :
>TINE HOME : /etc/tine/
>FEC HOME :
>FEC LOG :
>HISTORY HOME : ../HISTORY/
>WORKING DIRECTORY : /export/tine/server/pepmarch/bin
>>
```

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- default size (both server and client) is **64 KB**.
- thread-safe buffers to assist in *double buffering* of contract data (*server*) and incoming data payloads (*client*).
- you shouldn't have to worry about these if you *register your properties correctly* !
 - **client-side**: should be at least as large as the registered data MTU
 - it is !
 - **server-side**: should be at least as large as the maximum supported contract output data size.
 - It will self-adjust at initialization time according to the property with the largest output data size (in bytes) registered !

[Release 4.5.10]

- e.g. property “SineInfo”:

```
dout.dArrayLength = NUM_DEVICES;  
dout.dFormat = CF_STRUCT;  
strncpy(dout.dTag,"SineInfo",TAG_NAME_SIZE);  
din.dArrayLength = 1;  
din.dFormat = CF_STRUCT;  
strncpy(din.dTag,"SineInfo",TAG_NAME_SIZE);  
RegisterPropertyInformation(SINEQM_TAG,"SineInfo",&dout,&din,CA_READ|CA_WRITE,AT_UNKNOWN,10,"Sine Generator Informatio
```

If $\text{NUM_DEVICES} * \text{sizeof}(\text{SineInfo}) > (\text{server work area})$ then increase (server work area) to accommodate this many bytes ...

If a READ request is made for more than was originally registered the call will be truncated (!) so that it requests fewer bytes than the (server work area) !

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```
    if ((cc=putValuesFromFloatEx(dout,mcarray,NUM_DEVICES,devnr)) != 0) return cc;
}
return 0;
case PRP_INFO:
if (din->dArrayLength)
{ /* allow an atomic set of all relevant values this way : */
if (din->dFormat != CF_STRUCT) return illegal_format;
if (strncmp(din->dTag,"SineInfo",8)) return invalid_structure_tag;
sinf = (SineInfo *)(din->data.vptr);
if (sinf->amplitude < 1 || sinf->amplitude > 1000) return out_of_range;
if (sinf->frequency < 1 || sinf->frequency > 100) return out_of_range;
if (sinf->phase < 0 || sinf->phase > 512) return out_of_range;
if (sinf->noise < 0 || sinf->noise > 100) return out_of_range;
if (sinf->damping < 0 || sinf->damping > 100) return out_of_range;
sineInfoTable[devnr] = *sinf;
}
if (dout->dArrayLength)
{
if (dout->dFormat != CF_STRUCT) return illegal_format;
if (strncmp(dout->dTag,"SineInfo",8)) return invalid_structure_tag;
if (dout->dArrayLength > NUM_DEVICES) dout->dArrayLength = NUM_DEVICES;
sinf = (SineInfo *)(dout->data.vptr);
for (i=0; i<(int)dout->dArrayLength; i++)
{
sinf[i] = sineInfoTable[(i+devnr)%NUM_DEVICES];
}
}
return 0;
default:
return illegal_property;
```

**EQM handler:
Check the incoming
structure tag.**

**Karol's mistake:
Did not register the
structure tag with the
property and did not
check the tag.**

[Release 4.5.10]

From last time ...

- **Embellishments: C-Lib and Java**
 - **Archive** (local history and central archive)
complex data types and structures !
 - e.g. CF_FLTINTFLTINT or CF_STRUCT
 - Viewer needs to offer an extra combo for selecting which 'field' of the complex type or structure to display as a trend vs. time !
 - Trap names with 'bad' characters (C-Lib)

```
#define STRICTLY_ILLEGALCHARS "[^\\\"*&]"  
#define RUDECHARS "[^\\\\\\|\\n\\t ]+"  
int assertNameIsValid(const char *name, const char *badchars, int length);
```

device, property names

FEC, context, server names