



TINE Release 4.0 News

(April 9, 2010: That was the month that was !)

“What a long, strange trip it’s been”

From last time ...

Exclusive Read

- Use same security for READ calls as for WRITE calls for *selected* properties.
- Register a Property with CA_XREAD
 - CA_READ|CA_XREAD
 - Exclusive READ only when an *ACCESSLOCK* is in place
 - CA_XREAD
 - Exclusive READ always in force
 - Conditions given by users and nets security determine access
- Otherwise: everyone has READ access.

[Related bug-fixes:]

- Access Lock *helper* routines:
 - int SetAccessLock(*context*, *server*, *lockType*, *lockDuration*)
 - int FreeAccessLock(*context*, *server*)
 - Now behave synchronously !
- Access Lock with **Exclusive Read** now terminates any pre-existing links !

[New Features: Security]

- Access applies to **WRITE** or **Exclusive READ**
- Access control via both *User* and/or *Network Address*
 - At the equipment module (i.e. device server) level !
 - At the property level !
 - At the device level !

[New Features: Security]

- **User** Access Restriction
 - via File (*in [FEC_HOME]/<EQM>*)
 - users.csv
 - <property>-users.csv
 - property-default-users.csv
 - <device>-users.csv
 - device-default-users.csv
 - via API
 - AppendRegisteredUsers(eqm, userlist, listsize)
 - AssignPropertyAccessList(eqm, prp, users, nusers)
 - AssignDeviceAccessList(eqm, prp, users, nusers)

Equivalent methods in java (TEquipmentModule) ...

[New Features: Security]

- **Network Address** Access Restriction
 - via File (*in [FEC_HOME]/<EQM>*)
 - ipnets.csv
 - <property>-ipnets.csv
 - property-default-ipnets.csv
 - <device>-ipnets.csv
 - device-default-ipnets.csv
 - via API
 - AppendRegisteredNetsList(eqm, iplist, listsize)
 - AssignPropertyNetsList(eqm, prp, ipnets, nipnets)
 - AssignDeviceNetsList(eqm, prp, ipnets, nipnets)

Equivalent methods in java (TEquipmentModule) ...

[Practical Example]

- tine Repeater Server(s) for the PETRA Undulators:
 - double repeater pair for
EMBL-Hamburg <-> DESY
 - Command line:
 - `tineRepeater PETRA Undulator /c=PETRA.EXT /s=Undulator /p=11`
 - EMBL is 'allowed' to control Undulator X but not the others !

Practical Example

```
fecadmin@acclxcsfacil01:/export/tine/server/peund/bin/RPTEQM$  
fecadmin@acclxcsfacil01:/export/tine/server/peund/bin/RPTEQM$  
fecadmin@acclxcsfacil01:/export/tine/server/peund/bin/RPTEQM$ ls  
device-default-users.csv  PU00-users.csv  
fecadmin@acclxcsfacil01:/export/tine/server/peund/bin/RPTEQM$ cat device-default-users.csv  
USER_NAME  
HASLAB  
fecadmin@acclxcsfacil01:/export/tine/server/peund/bin/RPTEQM$ cat PU00-users.csv  
USER_NAME  
  
fecadmin@acclxcsfacil01:/export/tine/server/peund/bin/RPTEQM$ ls  
device-default-users.csv  PU00-users.csv  
fecadmin@acclxcsfacil01:/export/tine/server/peund/bin/RPTEQM$ cd ..  
fecadmin@acclxcsfacil01:/export/tine/server/peund/bin$ ls  
fec.bak  fec.log  ipnets.csv  RPTEQM  
fecadmin@acclxcsfacil01:/export/tine/server/peund/bin$ cat ipnets.csv  
SUBNET  
192.109.31.83  
fecadmin@acclxcsfacil01:/export/tine/server/peund/bin$ █
```

Note: 'empty' <device>-users.csv or <property>-users.csv are equivalent to 'allow ALL' !!!

New Features: Security

- Stock properties: *USERS*, *IPNETS* are by default server-specific
- Can specify **Property** or **Device** as Input !

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

- Device Context: PETRA.EXT
- Device Subsystem: ALL
- Show Stock Properties:
- Device Server: Undulator
- Device Name: PU00
- Device Property: IPNETS
- Data Size: 256
- Data Type: NAME16
- Description: Read IP Access List
- Timeout: 1000

The output window displays: /PETRA.EXT/Undulator/PU00 IPNETS @ Apr 08 18:27:47.582
(0) 192.109.31.83

Buttons: Read, POLL, draw mode (Histogram), transport (udp (default)), Autoscale, Log Scale.

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

- Device Context: PETRA.EXT
- Device Subsystem: ALL
- Show Stock Properties:
- Device Server: Undulator
- Device Name: PU00
- Device Property: USERS
- Data Size: 256
- Data Type: NAME16
- Description: Read User Access List
- Timeout: 1000

The output window displays: /PETRA.EXT/Undulator/PU00 USERS @ Apr 08 18:29:31.039
(0) HRSYLAB

Buttons: Read, POLL, draw mode (Histogram), transport (udp (default)), Autoscale, Log Scale.

Input Panel: Write Access NAME16, PU03

TINE Repeater

```
mstbxs02 - default - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles

duval@mcs1xterm01:~$
duval@mcs1xterm01:~$ tineRepeater

tine repeater: acquire and re-register and export information
from the specified TINE device server

Usage : tineRepeater <context> <device server> [/c=<new context> /s=<new server name> /f=<fec name> /p=<port
offset> /r=<polling interval> /d=<debug level>]

if no new context or server are specified, the repeater server will
have the same context as the target server, and a server name given
by the target server name appended with '.RPT'
e.g.
tineRepeater HERA BPM

will produce a server called BPM.RPT in context HERA

tineRepeater PETRA undulator /c=PETRA.EXT /s=undulator

will produce a server called undulator in context PETRA.EXT
a port can be specified with the /p switch (default = 101)
a polling interval can be specified with the /r switch (default = 1000 ms)
(note: the polling interval determines the listener refresh rate for any repeated properties)
a specific FEC name can be given with the /f switch (default = Rpt<context%2><server%7>.<port>)

duval@mcs1xterm01:~$
```

Instant Client window showing configuration for PETRA.EXT context and Undulator device server. The Device Context is set to PETRA.EXT, Device Subsystem to ALL, Device Server to Undulator, and Device Name to PU00. The Device Property is set to Gan.

Instant Client window showing configuration for PETRA context and LBRENV.RPT device server. The Device Context is set to PETRA, Device Subsystem to ALL, Device Server to LBRENV.RPT, and Device Name to BPM_SWR_13. The Device Property dropdown menu is open, showing options: ADCCBUSY, ADCCBUSY, ADCTRIGSTATUS, ADC_A, ADC_AUTORUN, ADC_B, ADC_C, ADC_CNT, and ADC_D. The Description is set to adc thread run flag.

[Feature-of-the-Month AWARD]

EMBL

- For providing this new Use Case !



[doocs2tine News]

- Note: 'doocs2tine' is the translation layer (client and server) embedded in the doocs kernel ('tine2doocs' is implied).
- Various '*concurrency*' issues fixed
 - **ddd** use-cases starting numerous 'wild-card' links 'simultaneously'
- Meta-Property ".DESC" now supports data type CF_USTRING
- New status code: '*information_static*'.

[doocs2tine News]

- ‘*Overridden*’ meta-properties:
 - All meta properties can be overridden by registering the corresponding property explicitly.
 - `<property>.HIST`, `.EGU`, `.DESC`, `.NAM`, etc.
 - If not overridden, then handled as a TINE stock meta-properties.
 - `<property>.DESC` and `<property>.EGU` are *static* !
 - The property information given with the registration are *always* used.
 - Polling `<property>.DESC` or `<property>.EGU` makes no sense unless these are overridden (which DOOCS does)!
 - If a non-overridden meta property is ‘polled’ then status code `CE_SENDDATA` + `information_static` is returned !

[doocs2tine News]

- An aside concerning ipv6 and java
 - IPv4
 - 4 bytes
 - e.g. “131.169.151.171”
 - IPv6
 - 16 bytes
 - e.g. “affe3301:3410acce::4212a456ef:83a997ab”
 - Possible mappings
 - No ‘standard’ mapping
 - Java does: IPv4 -> IPv6 : 8 bytes ‘0’, 4 bytes ‘0xff’, 4 bytes IPv4 address
 - “131.169.151.171” -> “0:0::ffffff:83a997ab”

Note: DESY doesn't use IPv6. Control systems don't use IPv6 (TINE doesn't, DOOCS doesn't, EPICS doesn't, TANGO doesn't, and nobody else you've heard of does!).

[doocs2tine News]

- What does java do?
 - Java socket API independent of IP version!
 - If java 'sees' both IPv4 enabled and IPv6 enabled it opens sockets for both!
 - **TCP** : a connection with a peer establishes which version to use and the secondary socket is automatically closed.
 - **UDP**: no connection! -> both left open, but the **JVM** must channel traffic to the appropriate socket correctly!
 - Windows (doesn't enable both versions) **JVM** and gets it right!
 - Linux **JVM** gets this right!
 - Solaris **JVM** gets this right!
 - MACOS **JVM** does **NOT** get this right!
 - Must disable IPv6 !!

[Weirddness-of-the-Month AWARD]

MCS-4

- For exposing this !



[Related News (epics2tine)]

- **epics2tine** is the translation layer which runs embedded on an epics ioc
 - tine server/epics client
- **tine2epics** is the translation layer which runs (independently) on an epics ioc.
 - tine client/epics server
- Both now in use and working fine!
- Connectivity @desy now managed by **MKK**

[Related News (tango2tine)]

- **tango2tine** is a gateway (not embedded!) which translates a tango server (tango classes) into a tine server.
 - tango client/tine server
 - currently: a single instance running @hasylab
 - Gateway on same network as tango servers : **GOOD!**
- **tine2tango** is a gateway (not embedded!) which translates a tine server into a tango server.
 - tine server/tango client
 - currently: many instances (at each beamline)
 - Gateway on hasylab net/servers on mcs net : **NOT SO GOOD!**
 - Needs some 'tweaking'.
 - synchronous polling to be replaced with asynchronous 'listeners', etc.

Alarm Database Manager

The screenshot shows the 'Central Alarm Server Database Manager' application window. It is divided into two main sections: 'Record Browsing' and 'Assigned Servers + Alarm Criteria'.

Record Browsing:

- Alarm Server: PETRA
- Alarm Database: A list of alarm entries, with '/PETRA/ARCHIVER (Kontrollen)' selected.

Assigned Servers + Alarm Criteria:

- CAS Device Server List: Context (PETRA), Device Server (ARCHIVER), Alarm System (Kontrollen). Buttons: Update List, Update DB.
- Extra Alarm Systems: Kontrollen
- Alarm System Details: AlmSystem (Kontrollen), Ext. (ARCH), Subsystem (SUB), offline checkbox.
- Alarm Level (3), Archive Level (0), Severity (1), Retention (7200).
- Action Items: Target Alarm Code (Not Responding < 999>). Radio buttons for 'mail to:' and 'event trigger:'.
 - mail to: Ruediger.Schmitz@desy.de
 - event trigger: mhf_slrs_trc
 - Add button
- Summary list:
 - Not Responding < 999> mailto: Philip.Duval@desy.de
 - Not Responding < 999> mailto: Mark.Lomperski@desy.de
 - Not Responding < 999> mailto: Josef.Wilgen@desy.de
 - Not Responding < 999> mailto: Ruediger.Schmitz@desy.de