TINE Release 4.0 News
(June 13, 2008: That was the week that was !)

"What a long, strange trip it's been …."

TINE Kernel 4.0.2 !

■ New Globals Header

  ○ Globals Keyword now 64 chars (was 16)

  ○ timestamp now includes milliseconds

  ○ status

  ○ data stamp, system stamp

    ■ (not used at present)

  ○ size, format as before

■ New stock property "SRVGLOBALS"

  ○ Servers other than a "GLOBALS" server usually won't be sending globals; but if they do …

  ○ allow FEC_GCAST_ADDR env. variable to set GCAST address (to that of the "GLOBALS" server).

TINE Kernel 4.0.2

- Introduce access bit CA_REPEAT
  - Used when the equipment module handler returns 'not_ready'
  - CA_FIRST removed anyway
  - CA_LAST removed and does not reappear unless the (polling) call is cancelled explicitly.

Brief Digression: ACCESS bits
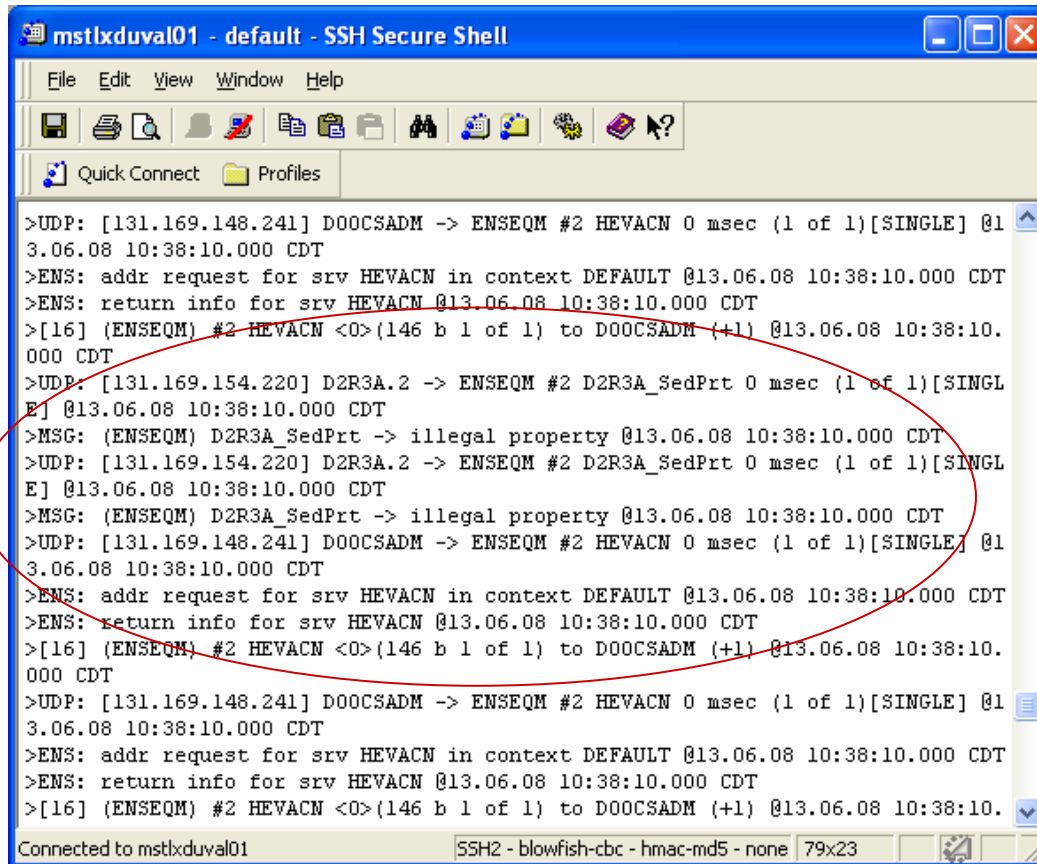
- Seen at both Client and Server:
  - CA_READ
  - CA_WRITE
- Set and seen at the server equipment module only
  - CA_FIRST   (coming into scope)
  - CA_LAST   (going out of scope)
  - CA_REPEAT   (repeat of a 'not_ready' call)
  - CA_ALARM   (call is coming from the local alarm server)
  - CA_HIST   (call is coming from the local history server)
  - CA_QUERY   (call is coming from a stock property)
  - CA_LOCKED   (caller has an ACCESS Lock)
- Set and seen at the client only
  - CA_RETRY   (retry 2 time before signalling link_not_open)
  - CA_CONNECT   (synchronous call should use TCP/IP)
  - CA_MUTABLE   (synchronous call can change the output data object parameters)
  - CA_SYNCNOTIFY (do NOT defer the event callback)
  - CA_SYNC   (used in the 'listener' API : i.e. LabView)
- Used at the Server in scheduling a property (defines the scope for signaling an event)
  - CA_NETWORK
  - CA_ALARM
  - CA_HIST

TINE Kernel 4.0.2

- Link Table "black list"
  - Client Side Table
  - Calls that return certain errors will place the link in the local black list.
    - address_unknown
    - non_existent, non_existent_elem, non_existent_fec
    - illegal_property
  - No effect on client code, but …
    - e.g. Server restarts and now the 'property' is 'legal' -> either restart the client or flush the address list.
  - Servers and Services are much happier !

What will be 'black-listed':

Calls to the ENS for Servers that do NOT exist !

What will be 'black-listed':

Calls to the GENS for group member that do NOT exist.

(please note the timestamps)

TINE Kernel 4.0.2

- don't check for redirection for stock property "DEVICES"
  - DOOCS calls with device name = "*" and property = "DEVICES"
- allow latching of export name + context in csv read of fecid.csv.
  - 2 server processes use the same fecid.csv
  - Have identical exported device server names
  - But have different contexts.
- protect against file names containing a "CON.", "PRN." or "AUX.".
  - fopen() returns a file pointer, but reads/writes wait indefinitely!
- CSV parser:
  - treat an empty entry in a column the same as if the column is not present.

Recent Bug fixes

- Several alarms query bugs fixed.
- Solaris 2.6 bug with NO_MUTEX_TIMEDLOCK #defined.
- Server-side mutex protection for local windows clients.
- Exotic client-side bug regarding a 'magic' data size returning data with status.

Bug Feature:
Multiple identical links

- Same contract active more than once:

  - e.g. AttachLink("ABC","XYZ",dout,din,…) is active and the same application calls ExecLink("ABC","XYZ",dout,din,…)

- There is only ever ONE line of communication for a contract, client-server.
- In the old days: 2nd link receive error code 'link_exists'.
- The 1st Link in the link table is designated the "Parent" link.
- All other links are "Dependent" links.

- In the above example, the ExecLink() returns immediately with the most recent contents of the output data buffer!

Multiple identical links

- In the C library, there is no "Link" object.
  - Order of procedural calls AttachLink(), ExecLink() is unimportant.
- In the Java library, there is a "Link" object.
  - First Link object in the link table is the parent, BUT …
  - If there is/was no activity on the Link, then there is no data to forward to dependent links!

Multiple identical links: Java

TLink lnk1 = new TLink("ABC","XYZ",dout,din,…);

TLink lnk2 = new TLink("ABC","XYZ",dout,din,…);

lnk2.execute(); // does not succeed ! (link_exists)

TLink lnk1 = new TLink("ABC","XYZ",dout,din,…);

lnk1.execute(); // or lnk1.attach();

TLink lnk2 = new TLink("ABC","XYZ",dout,din,…);

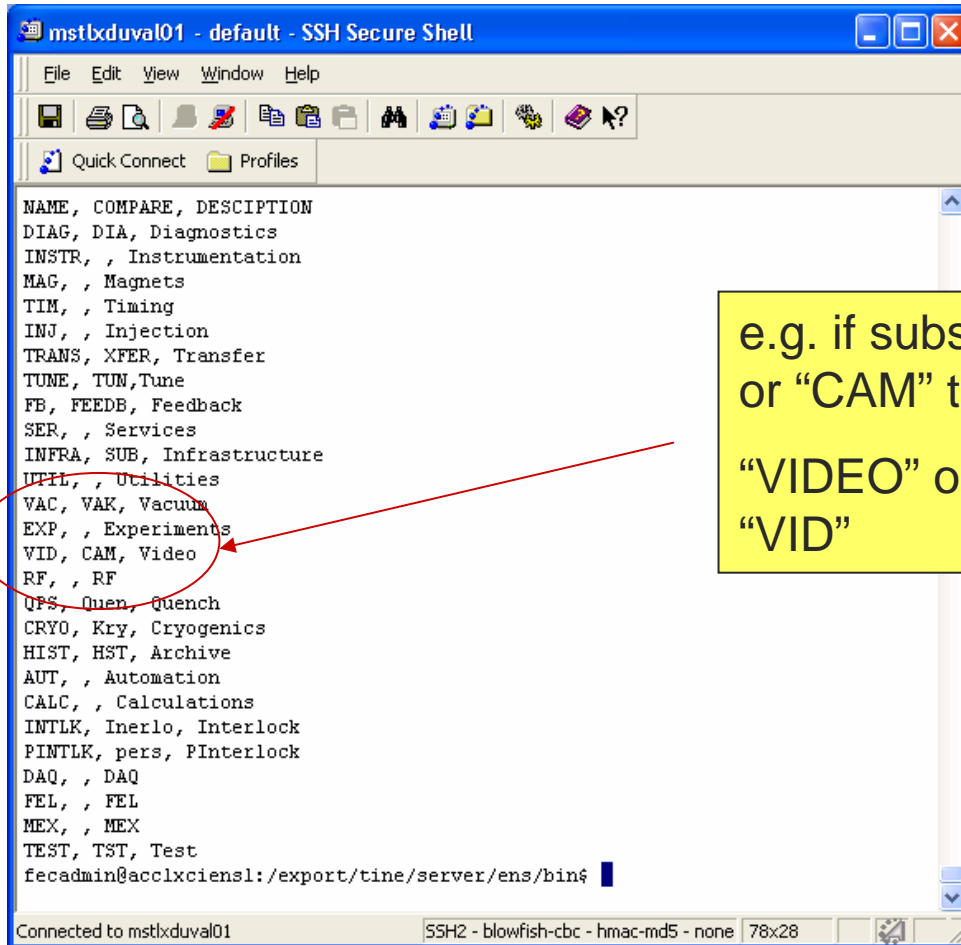lnk2.execute(); // now it's okay !

Central Services: ENS

ENS: allow an "official" list of allowed subsystems (subsystems.csv)

Probably: miss-aligned columns in fecid.csv ?

Central Services: ENS

e.g. if subsystem begins with "VID" or "CAM" then it's subsystem "VID"

"VIDEO" or "CAMERA" both land in "VID"

Central Services : GENS

- Now does not assume the device list for a 'member' is known when the member server reboots.
- GENS information now in the (windows) FEC admin tool:
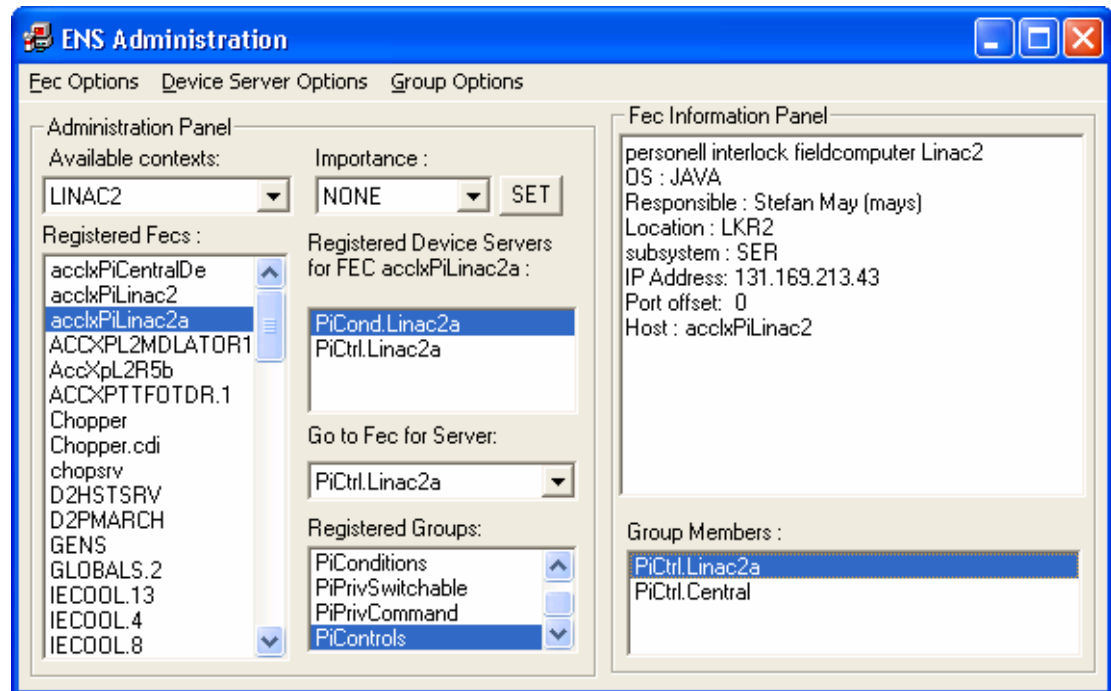
Central Services : GENS
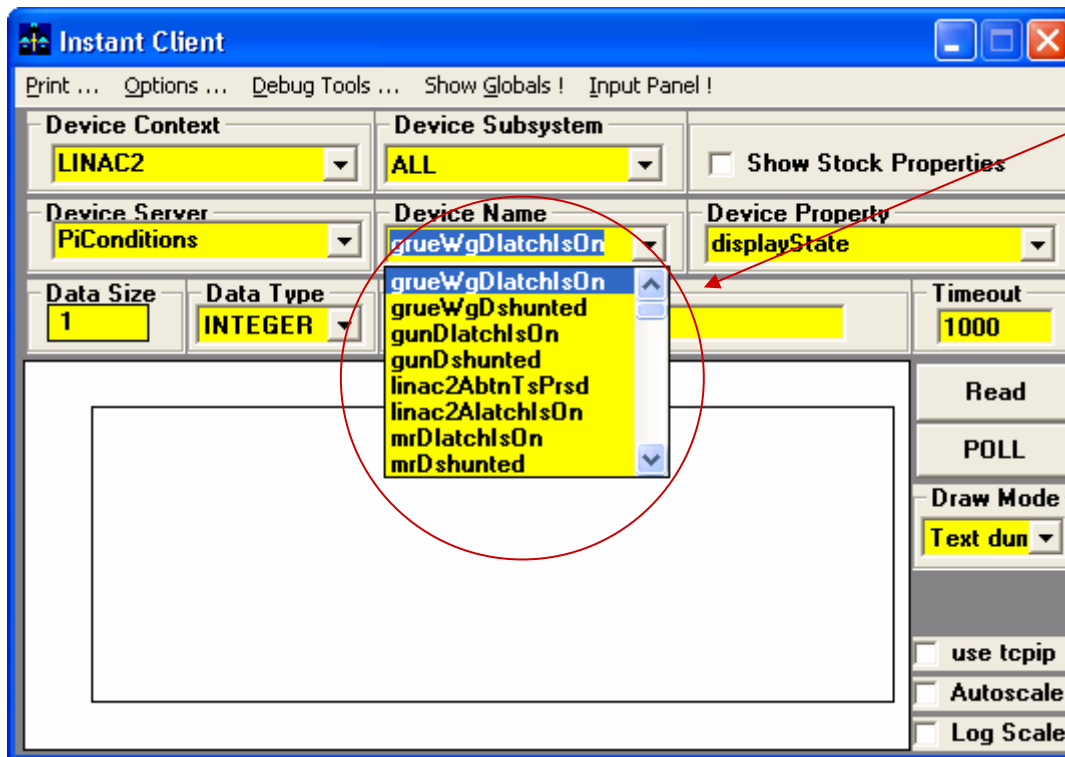
Devices all live on constituent member servers!

Problem:

Some client asks for property "displayState" from a device "abc" that isn't in the list.

There is no redirection information for "abc" so the call fails at the GENS with 'illegal_property'.

Central Service: Archive

- Hard-coded filters only include the likes of
  - NEVER
  - ONCE
  - ALWAYS
  - FAST
  - SLOW
  - etc.
- The Machine Archive Server now takes its filter set from a configuration file (which defines how to determine validity).
  - BEAM
  - RUNNING
  - LUMI
  - SASE
  - etc.

e.g. ->

	A	B	C	D	E	F
1	FILTER	KEYWORD	Format	MIN_VALID	MAX_VALID	
2	BEAM	ChargeBunch	float	0.1	1.00E+10	
3	RUNNING	Energy	float	0.1	1.00E+10	
4	RUNNUM	RunNumber	int32	1	1.00E+10	
5	RAMP	Status	NAME16	Ramp*	Ramp*	
6	SASE	Status	NAME16	Sase*	Sase*	
7	INJECTION	Status	NAME16	Injection*	Injection*	
8						