



# TINE Release 4.0 News

(Sept 3, 2010: That was the month that was !)

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

# [ Release 4.1.9 ]

## ■ Diagnostic Changes

### ○ Message Table improvements

- Message Table is a ring buffer of 'actions and events' kept by the TINE kernel.
- Add 'get messages' to the command line parser (was only an API interface).
  - Java: add a command line parser!
- Helps to know what 'else' an application was doing at the time of a 'problem'.
- n.b. the 'message' table was invaluable in determining the root of the 'Vladimir problem'

# [ Release 4.1.9 ]

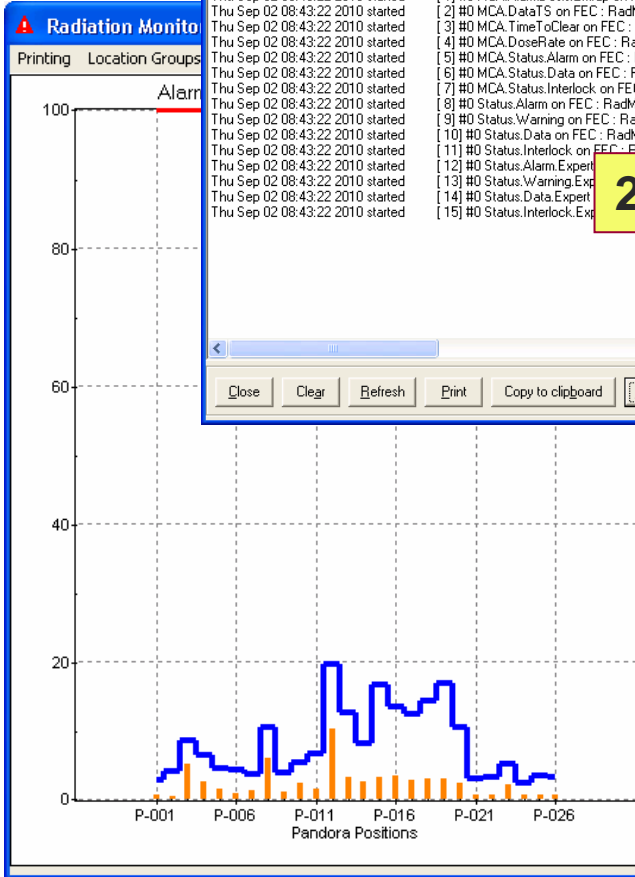
- Diagnostic Changes and ‘attachfec’
  - In the past:
    - **attachfec** only made use of a local named pipe in order to *send commands to* or *receive debug output streams from* a *server* process.
    - attachfec <fecname>
    - Then one types a command (*get* or *set* something) and the output is streamed over the pipe.

# [ Release 4.1.9 ]

- Diagnostic Changes and ‘attachfec’
  - Now (release 4.1.9 +)
    - Pure *client* applications can open a pipe by passing a name (usually the *pid*) and use **attachfec** to debug the activity.
      - e.g. activeX spider now does this for those old VB6 applications
      - Jddd panels now offer this.

Okay: so maybe ‘attachfec’ isn’t the best name for this any more ...

# Attachfoc + vb client apps



The Time Status Viewer window shows a list of system events. A yellow box with the text '2. click here' and a red arrow points to the 'Debug off' button at the bottom of the window.

```
Thu Sep 02 08:43:22 2010 started [0] #0 MCA.AlarmDosis on FEC: RadMonIP poll at 2000 msec POLL status: RMT: succ
Thu Sep 02 08:43:22 2010 started [1] #0 MCA.AlarmDosis.Extrap on FEC: RadMonIP poll at 2000 msec POLL status: RM
Thu Sep 02 08:43:22 2010 started [2] #0 MCA.DataTs on FEC: RadMonIP poll at 2000 msec POLL status: RMT: succ
Thu Sep 02 08:43:22 2010 started [3] #0 MCA.TimeToClear on FEC: RadMonIP poll at 2000 msec POLL status: RMT: su
Thu Sep 02 08:43:22 2010 started [4] #0 MCA.DoseRate on FEC: RadMonIP poll at 2000 msec POLL status: RMT: succ
Thu Sep 02 08:43:22 2010 started [5] #0 MCA.Status.Alarm on FEC: RadMonIP poll at 2000 msec POLL status: RMT: su
Thu Sep 02 08:43:22 2010 started [6] #0 MCA.Status.Data on FEC: RadMonIP poll at 2000 msec POLL status: RMT: suc
Thu Sep 02 08:43:22 2010 started [7] #0 MCA.Status.Interlock on FEC: RadMonIP poll at 2000 msec POLL status: RMT:
Thu Sep 02 08:43:22 2010 started [8] #0 Status.Alarm on FEC: RadMonIP poll at 2000 msec POLL status: RMT: success
Thu Sep 02 08:43:22 2010 started [9] #0 Status.Warning on FEC: RadMonIP poll at 2000 msec POLL status: RMT: succ
Thu Sep 02 08:43:22 2010 started [10] #0 Status.Data on FEC: RadMonIP poll at 2000 msec POLL status: RMT: success
Thu Sep 02 08:43:22 2010 started [11] #0 Status.Interlock on FEC: RadMonIP poll at 2000 msec POLL status: RMT: succ
Thu Sep 02 08:43:22 2010 started [12] #0 Status.Alarm.Expert
Thu Sep 02 08:43:22 2010 started [13] #0 Status.Warning.Expert
Thu Sep 02 08:43:22 2010 started [14] #0 Status.Data.Expert
Thu Sep 02 08:43:22 2010 started [15] #0 Status.Interlock.Expert
```

2. click here

This window shows system status information, including 'Integrated over 14400 sec' and 'is Reset'. A spider icon is visible in the bottom right corner.

1. click here

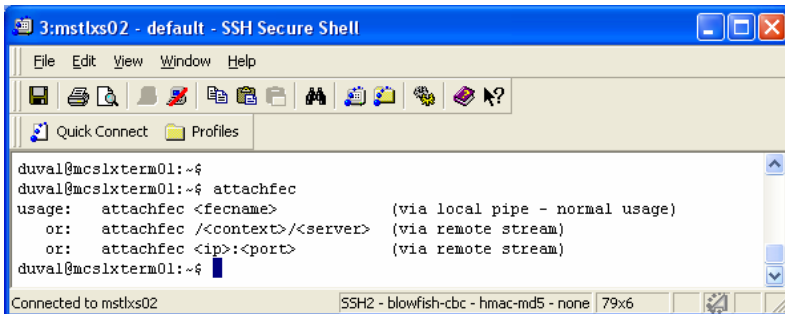
The dbg-7508 Activity window shows a list of system events. A yellow box with the text '1. click here' and a red arrow points to the 'connections' tab in the top navigation bar.

```
[9] /PETRA/RadMonIP/#0[MCA.AlarmDosis.Extrap] 29 value(s) @ 2000 msec (TIMER) (cbid: 1) - UP
> [10] /PETRA/RadMonIP/#0[MCA.DataTs] 29 value(s) @ 2000 msec (TIMER) (cbid: 2) - UP
> [11] /PETRA/RadMonIP/#0[MCA.TimeToClear] 29 value(s) @ 2000 msec (TIMER) (cbid: 3) - UP
[12] /PETRA/RadMonIP/#0[MCA.DoseRate] 29 value(s) @ 2000 msec (TIMER) (cbid: 4) - UP
> [13] /PETRA/RadMonIP/#0[MCA.Status.Alarm] 29 value(s) @ 2000 msec (TIMER) (cbid: 5) - UP
> [14] /PETRA/RadMonIP/#0[MCA.Status.Data] 29 value(s) @ 2000 msec (TIMER) (cbid: 6) - UP
> [15] /PETRA/RadMonIP/#0[MCA.Status.Interlock] 29 value(s) @ 2000 msec (TIMER) (cbid: 7) - UP
> [16] /PETRA/RadMonIP/#0[Status.Alarm] 1 value(s) @ 2000 msec (TIMER) (cbid: 8) - UP
> [17] /PETRA/RadMonIP/#0[Status.Warning] 1 value(s) @ 2000 msec (TIMER) (cbid: 9) - UP
> [18] /PETRA/RadMonIP/#0[Status.Data] 1 value(s) @ 2000 msec (TIMER) (cbid: 10) - UP
> [19] /PETRA/RadMonIP/#0[Status.Interlock] 1 value(s) @ 2000 msec (TIMER) (cbid: 11) - UP
> [20] /PETRA/RadMonIP/#0[Status.Alarm.Expert] 1 value(s) @ 2000 msec (TIMER) (cbid: 12) - UP
> [21] /PETRA/RadMonIP/#0[Status.Warning.Expert] 1 value(s) @ 2000 msec (TIMER) (cbid: 13) - UP
> [22] /PETRA/RadMonIP/#0[Status.Data.Expert] 1 value(s) @ 2000 msec (TIMER) (cbid: 14) - UP
> [23] /PETRA/RadMonIP/#0[Status.Interlock.Expert] 1 value(s) @ 2000 msec (TIMER) (cbid: 15) - UP
[24] /PETRA/RadMonIP/#0[MCA.AlarmDosis] 29 value(s) @ 2000 msec (REGISTER) (cbid: 16) - UP
> [25] /PETRA/RadMonIP/#0[MCA.AlarmDosis.Extrap] 29 value(s) @ 2000 msec (REGISTER) (cbid: 17) - UP
> [26] /PETRA/RadMonIP/#0[MCA.DataTs] 29 value(s) @ 2000 msec (REGISTER) (cbid: 18) - UP
> [27] /PETRA/RadMonIP/#0[MCA.TimeToClear] 29 value(s) @ 2000 msec (REGISTER) (cbid: 19) - UP
> [28] /PETRA/RadMonIP/#0[MCA.DoseRate] 29 value(s) @ 2000 msec (REGISTER) (cbid: 20) - UP
> [29] /PETRA/RadMonIP/#0[MCA.Status.Alarm] 29 value(s) @ 2000 msec (REGISTER) (cbid: 21) - UP
> [30] /PETRA/RadMonIP/#0[MCA.Status.Data] 29 value(s) @ 2000 msec (REGISTER) (cbid: 22) - UP
> [31] /PETRA/RadMonIP/#0[MCA.Status.Interlock] 29 value(s) @ 2000 msec (REGISTER) (cbid: 23) - UP
> [32] /PETRA/RadMonIP/#0[Status.Alarm] 1 value(s) @ 2000 msec (REGISTER) (cbid: 24) - UP
> [33] /PETRA/RadMonIP/#0[Status.Warning] 1 value(s) @ 2000 msec (REGISTER) (cbid: 25) - UP
> [34] /PETRA/RadMonIP/#0[Status.Data] 1 value(s) @ 2000 msec (REGISTER) (cbid: 26) - UP
> [35] /PETRA/RadMonIP/#0[Status.Interlock] 1 value(s) @ 2000 msec (REGISTER) (cbid: 27) - UP
[36] /PETRA/RadMonIP/#0[Status.Alarm.Expert] 1 value(s) @ 2000 msec (REGISTER) (cbid: 28) - UP
> [37] /PETRA/RadMonIP/#0[Status.Warning.Expert] 1 value(s) @ 2000 msec (REGISTER) (cbid: 29) - UP
> [38] /PETRA/RadMonIP/#0[Status.Data.Expert] 1 value(s) @ 2000 msec (REGISTER) (cbid: 30) - UP
> [39] /PETRA/RadMonIP/#0[Status.Interlock.Expert] 1 value(s) @ 2000 msec (REGISTER) (cbid: 31) - UP
```

request = get connections sent. Length of message = 15

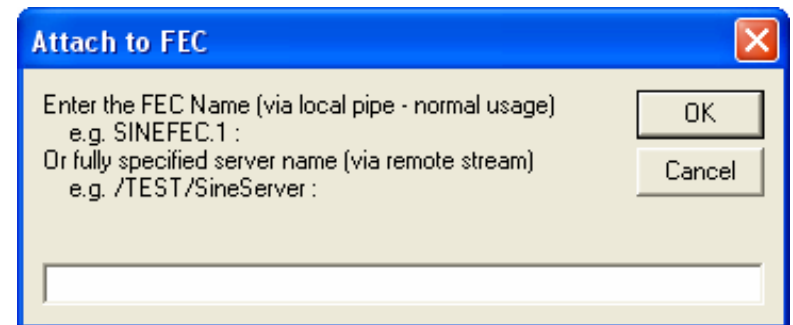
# Attachfec to a Remote Server

- Add a debug streaming socket to offer the same functionality over the net!
  - attachfec /<context>/<server>
  - Security is the local ipnets access list.
  - Caution: this puts more of a load on the server than a named pipe!



```
3:mstlxs02 - default - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles
duval@mcs1xterm01:~$
duval@mcs1xterm01:~$ attachfec
usage:  attachfec <fecname>                (via local pipe - normal usage)
       or:  attachfec /<context>/<server>  (via remote stream)
       or:  attachfec <ip>:<port>         (via remote stream)
duval@mcs1xterm01:~$
Connected to mstlxs02      SSH2 - blowfish-cbc - hmac-md5 - none 79x6
```

Unix/linux: (command line)



Windows (GUI)

# [ Attachfec to a Remote Server ]

- Java and VxWorks servers are now 'attachable' !
- Time for a demo !





# [ Release 4.1.9 ]

- Important Bug Fixes:
  - The 'Vladimir' problem finally found and solved !
    - Symptoms:
      - seg fault and core ~ 1 or 2 times per week in a middle layer process
      - Core with nonsense at point of failure
    - No idea what the application was doing.
    - But core contains the 'message table' !
    - Numerous links to Magnet Server
      - Happily collapsing to small number of MCA links
    - Periodic traversal of the same devices from the same server in a loop with synchronous calls (in another thread) !!!!
      - (why?)
      - Synchronous links are then marked as 'dependent' to their asynchronous partners.
      - Data copied, link returned, link removed -> remove dependency.
      - Concurrency problem if exactly during this loop traversal an update comes in over the net !! (happens rarely, but it happens!).
  - Memory Leak in java client using TCP connections found !

# Database Managers

- (all central service servers) !
- ENS:

ENS Administration

File Options Help

Administration Panel

Available contexts:  
PETRA

Fec importance:  
IMPORTANT Set

Go To Fec for Server:

- ALARMSTATE
- ALMSTATE
- ARCHIVER
- BLM
- BLM\_SedL
- BMS\_FEC
- BPM
- BunchScope
- BunchScope.Data
- BunchScope.Attenuator
- Bunche\_EWeg
- CANalyzer
- CAS
- CAS.ARCHIVE
- CSSDV

Registered FECs:

- MDI2P3SMLA1
- MHFHISTORY
- MHFTrcTranslator
- MOMO.11
- MOMO.12
- MPSALARMS.41
- MPSSERVER.1
- MPUACXPPEFOFBMP
- OptMeasure.11
- P3MST
- P3SMON.1
- P3TURBO
- P3\_AMPFECACXPPE
- PEALMSTATE
- PEBLM

Registered Device Servers:

- BLM
- BLM\_SedL

Registered Groups:

- Mag.Group
- PiControls
- PiConditions
- PiPrivateCommands
- PiPrivateSwitchables

Fec Information Panel

Description	PETRA BLMs
OS	UNIX
Responsible	P.Duval K.Wittenburg
Location	bldg 30 rm 102 PE-R2 (Sw/8)
Ver	4.00.0010
IP	131.169.151.129
Port Offset	0
Host Name	acclxpeblmhe.desy.de

Group Members:

- Mag.Group.Main-SL
- Mag.Group.Main-EW1
- Mag.Group.Main-EW2
- Mag.Group.Main-NO1
- Mag.Group.Main-NO2
- Mag.Group.Main-W
- Mag.Group.Main-O
- Mag.Group.Main-NL
- Mag.Group.Main-EXL
- Mag.Group.Main-EXM

Add Server Remove Server Add FEC Remove FEC Add Group Add Member Remove Member

11:59:07: FEC info loaded for PETRA/BLM.

# Database Managers

## Central Archive

Archive Database Manager

Options Configuration Options

Edit Filter Table  
Edit Archive Configurations  
Edit MCA Configurations  
Edit Trace Configurations

Assigned Keywords + Access and Archiving Criteria

Device Context: PETRA Device Server: BunchScope.Data Device Name: #0

Device Property: I.Bunch Array Size: 960 Format: FLOAT

Filter

NEVER  ONCE  ALWAYS  FA  
 SLOW  FIXTIME  HRT  ST  
 VOLATILE  NOPOI  BEAM  R

Data Output List

CurBunch,FLOAT, 960,microA, 1000, 0, 200,LIN, 1, 0,...

Keyword	Data Format	Size	Units	Max	Min	Tolerance	Plot Style
CurBunch	FLOAT	960	microA	1000	0	200	LIN

Offset: 0 Scale: 1 Description: Subsystem: Diagnostics

Associate:  Bind To: Add/Edit Remove

Editable Filters

BEAM RUNNING tag: BEAM add/edit  
description: archive only with beam in the machine  
keyword: CurDC  
valid min: .05 valid max: 1000000000  
Valid text: Match  
remove Done

PETRA Archive Viewer Configuration Editor

Petra Overview  
IDC Temperatures  
Strom Overview  
Special ICALEPS Selection  
Rad Dose Rate  
Rad Dose Extrapolated  
Rad Dose Alarm-Sum  
Rad Dose Time-To-Clear

Configuration Navigation  
PETRA New configuration: add  
CENTRAL Selected: Petra Overview Remove

Configuration Settings  
device: PETRA HISTORY #0  
property: Energy index: 0 sub index: 0 units:  
scale: 0 offset: 0 max: 0 min: 0  
description: plot style: LIN  
Update Server Edit Item

VB 6

Java (test)

# Database Managers

## ■ Central Alarm Server

Options

Record Browsing

Alarm Server: PETRA

Alarm Database

- /PETRA/VAC.HF\_IDN\_PUMP (Vakuum)
- /MHF/ARCHIVER (Kontrollen)
- /PETRA/LBRENV (Diagnose)
- /PETRA/BMS\_FEC (PIT)
- /PETRA/Mag.Corr-EXL (Magnete)
- /PETRA/Mag.Corr-EXM (Magnete)
- /PETRA/Mag.Corr-NL (Magnete)
- /PETRA/Mag.Corr-NO (Magnete)
- /PETRA/Mag.Corr-NW (Magnete)
- /PETRA/Mag.Corr-SL (Magnete)
- /PETRA/Mag.Corr-SO (Magnete)
- /PETRA/Mag.Corr-SW (Magnete)
- /PETRA/Mag.Corr-W (Magnete)
- /PETRA/Mag.Main-EW1 (Magnete)**
- /PETRA/Mag.Main-EW2 (Magnete)
- /PETRA/Mag.Main-EXL (Magnete)
- /PETRA/Mag.Main-EXM (Magnete)
- /PETRA/Mag.Main-EXR (Magnete)
- /PETRA/Mag.Main-NL (Magnete)
- /PETRA/Mag.Main-NO1 (Magnete)
- /PETRA/Mag.Main-NO2 (Magnete)
- /PETRA/Mag.Main-O (Magnete)
- /PETRA/Mag.Main-SL (Magnete)
- /PETRA/Mag.Main-W (Magnete)

Assigned Servers + Alarm Criteria

CAS Device Server List

Context: PETRA

Device Server: Mag.Main-EW1

Alarm System: Magnete

AlmSystem	Ext.	Subsystem	
Magnete	MagMain-E	MAG	<input type="checkbox"/> offline

Alarm Level	Archive Level	Severity	Retention
7	1	1	3600

Action Items

Target Alarm Code: Not Responding < 999 >

mail to:   event trigger: mhf\_sls\_trc

Alarm System Display Manager

PETRA Update DB

Magnete	Kicker-Septa	Kontrollen
H.Korrekt.Mag.	Orbit Feedback	Front-End
V.Korrekt.Mag.	Feedback	Diagnose
e-Weg Korr.Mag.	PIT	Interlock
HF	Timing/TopUp	Strahlung
Piloht.-Wasser	Machine Prot.	Vakuum
Temperaturen	Kolli./Scrapper	Undulatoren
		Schirmonitore

# Database Managers

## ■ Event Archive

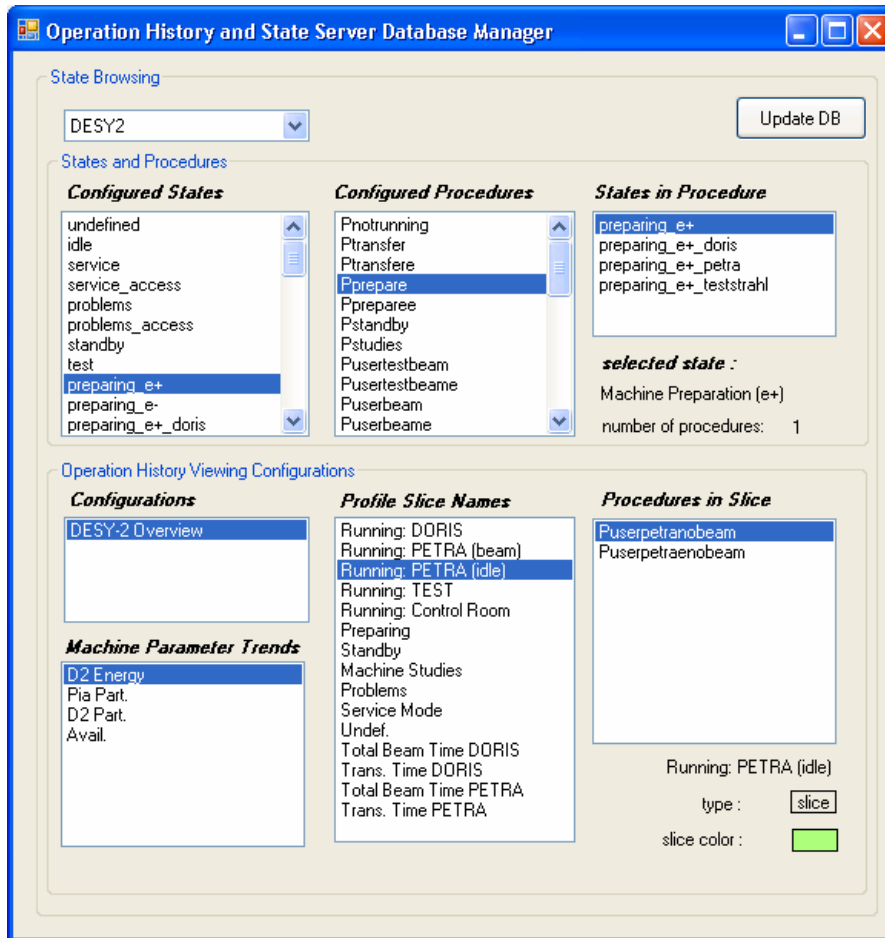
No TRC viewer configuration editor yet !

The screenshot shows the 'Event Archive Database Manager' application window. The main area displays a list of triggers for the 'PETRA' context, including various sample and header reads from different channels. Below this, the 'Action Items' section is visible, showing configuration options for device context, server, name, and data operations. The 'Data Operations' section includes fields for offset, scale, repeat, interval, and duration, along with checkboxes for 'wait' and 'wait prior to next step'. The 'Input Data' section has checkboxes for 'has data' and 'Write Access', and a dropdown menu for 'input data' with options like BYTE, INT16, INT32, FLOAT, and DOUBLE.

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# Database Managers

## ■ Operation History/State Manager



VB.NET

Reads/Configures

-State server database

-Slice Profiles

-Parameter Trends

Updates

- Archive database (if necessary)

# [ Release 4.1.9 ]

- Latest News on MCA acquisition coercion
  - DOOCS panels, Sequencer now appear to run stably (and they 'don't know the difference!)
  - More from Steve ...