

FESA Spy

CTTB Frontend Software Development Forum 22.05.2024

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Agenda

Introduction

Live Demo

Description of the Application & its Functionality

Limitations

Coming Up Next

Introduction: FESA Spy

- An expert GUI to improve the diagnostics functionality of the old FESA Navigator
- Functionality:
 - Receive real-time diagnostics from FESA instance
 - Display diagnostic messages as logs
 - Oscilloscope view of events
 - Statistics of events, and jitter between events

Live Demo

Try out the beta at: /mcr/bin/fesaspy

Customizable layout that can be saved

Save Configuration	-	
Save Res	tore Delete	
LastSession		 Work in progress. Feedback is super helpful. Please message ben.wilop@cern.ch C = E × Logging Profiling
LastSession	•	100ns 1µs 10µs 100µs 1ms 10ms 1s 10s 100s 1000s
	Select Fesa Instance Search FESA server Open ZIP file HighSpeedNotif_DU.cfc-ccr-fesa3 Server name HighSpeedNotif GD000000000000000000000000000000000000	Notif:High! * 22.235s 22.236s 22.237s 22.238s 22.239s 22.24s 22.24ts 22.24ts 22.24ts

Choose Diagnostics

Select Fesa Instance

Connection Status

Diagnostic Settings

+

+

+

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Filter Incoming Messages

Select Fesa instance

1. Enter server name + global device

Select Fesa Instance	
Search FESA server	Open ZIP file
HighSpeedNotif_DU.cfc-ccr-fesa3	Server name
HighSpeedNotif	
GD000000000000000000000000004	5931 Device name

2. Search CCDB

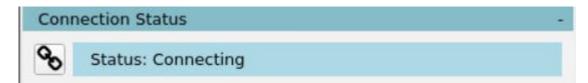
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Class:					
ersion:					
ec:					
Device:					
	Server *	Class	Version	Fec	Device
HighSp	peedNotif_DU.cfv-cc	HighSpeedNotif	0.3.2	cfv-ccr-ctbadm001	HighSpeedNotif.cfv-ccr
2 HighSp	peedNotif_DU.cfc-cc	HighSpeedNotif	0.3.2	cfc-ccr-fesa3	GD000000000000000000000000000000000000
		Select		Cance	1

3. Open FESA-Plugin ZIP file

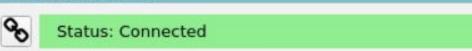
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Documents													
Downloads													
🛛 Music													
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⊯ Videos													
fesa-spy													
- Other Locations													
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												ancel	Open

Connection status

Conr	nection Status	
۶Ś	Status: Disconnected	



Connection Status



Connection Status

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Status: Connecting failed (Setting of port failed!)

Diagnostic settings (server side)

V RT_ACTION V EVENT V NOTIFICATION All None Tracing SRV_GET_ACTION SRV_SET_ACTION RT_ACTION EVENT NOTIFICATION EVENT NOTIFICATION PERSISTENCY TRANSACTION SUBSCRIPTION SIGNAL_HANDLER LOCAL_CONNECTION All None Custom Topics	Diagnostic Settings	-		
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Trace Devices				₩ <u>0</u> ĸ
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Filter incoming messages (local)

- Delete all messages that do not match at least one filter ("or" filter)
- Avoids memory problems

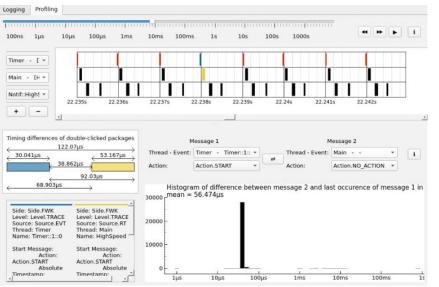
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Investigate Diagnostics

Logging

Logging Profiling								
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	22383	FWK	TRACE	SRV	Notif::HighSpeedNotif::thread-default	Flag	NO_ACTION	1715701311.37839
1500	22384	FWK	TRACE	SRV	Notif::HighSpeedNotif::thread-default	GetFlag	START	1715701311.37843
1000 -	22385	FWK	TRACE	RT	Main	HighSpeed	START	1715701311.38700
500	22386	FWK	TRACE	SRV	Notif::HighSpeedNotif::thread-default	GetCounter	STOP	1715701311.39722
	22387	FWK	TRACE	SRV	Notif::HighSpeedNotif::thread-default	Flag	NO_ACTION	1715701311.4074
	22388	FWK	TRACE	SRV	Notif::HighSpeedNotif::thread-default	GetFlag	STOP	1715701311.41247
Timestamps of Events	22389	FWK	TRACE	EVT	Timer	Timer::1::0	START	1715701311.41292
1.0	22390	FWK	TRACE	EVT	Timer	Timer::1::0	STOP	1715701311.41295
	22391	FWK	TRACE	EVT	Main	-	NO_ACTION	1715701311.41297
	22392	FWK	TRACE	RT	Main	HighSpeed	START	1715701311.41299
0.5	22393	FWK	TRACE	RT	Main	HighSpeed	STOP	1715701311.41305
	22394	FWK	TRACE	NOTIF	NotificationConsumer	-	START	1715701311.4130€
-	22395	FWK	TRACE	NOTIF	NotificationConsumer	-	STOP	1715701311.41305
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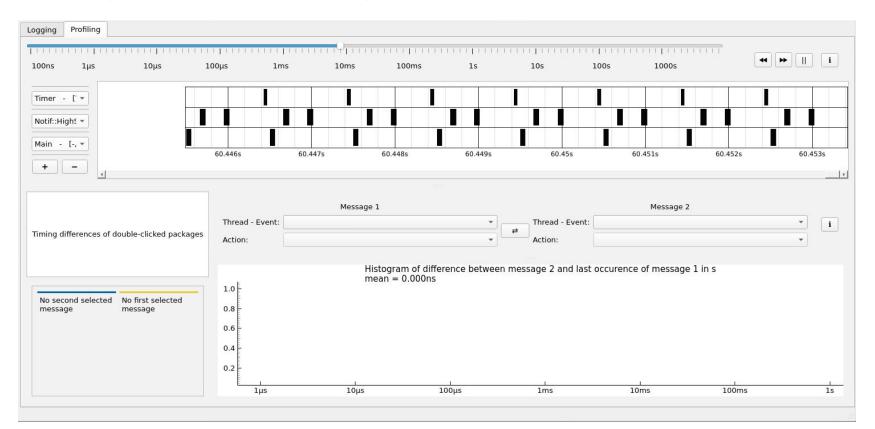
Profiling



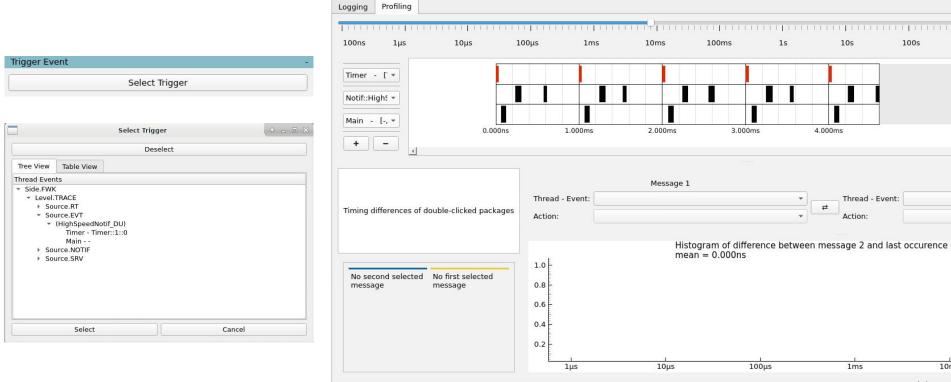
Logging

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	22384	FWK	TRACE	SRV	Notif::HighSpeedNotif::thread-default	GetFlag	START	1715701311.3784
o -	22385	FWK	TRACE	RT	Main	HighSpeed	START	1715701311.3870
o -	22386	FWK	TRACE	SRV	Notif::HighSpeedNotif::thread-default	GetCounter	STOP	1715701311.3972
	22387	FWK	TRACE	SRV	Notif::HighSpeedNotif::thread-default	Flag	NO_ACTION	1715701311.4074
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Timestamps of Events	22389	FWK	TRACE	EVT	Timer	Timer::1::0	START	1715701311.4129
pE	22390	FWK	TRACE	EVT	Timer	Timer::1::0	STOP	1715701311.4129
-	22391	FWK	TRACE	EVT	Main	-	NO_ACTION	1715701311.4129
-	22392	FWK	TRACE	RT	Main	HighSpeed	START	1715701311.4129
;	22393	FWK	TRACE	RT	Main	HighSpeed	STOP	1715701311.4130
-	22394	Side I FWK TI FWK TI	TRACE	NOTIF	NotificationConsumer	-	START	1715701311.4130
-	22395	FWK	TRACE	NOTIF	NotificationConsumer	-	STOP	1715701311.4130
	4							

Profiling: Newest message

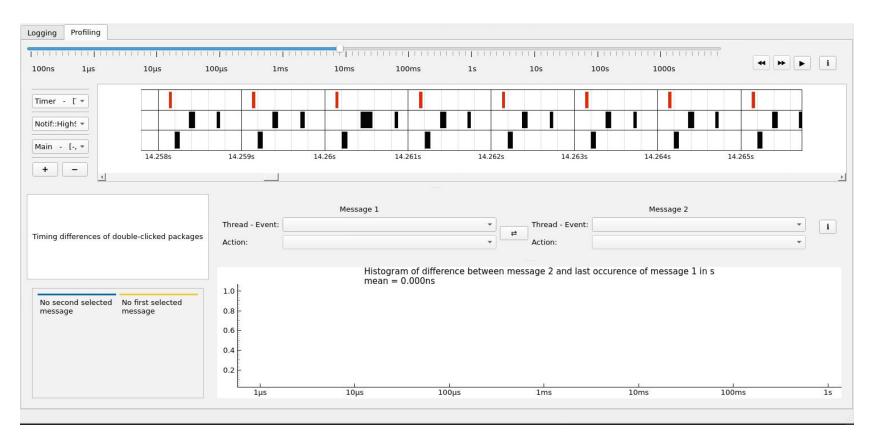


Profiling: Locked on Trigger

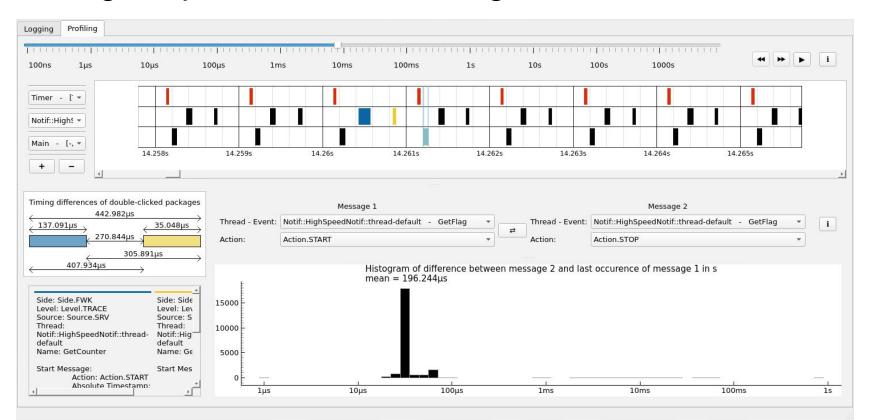


14

Profiling: History



Profiling: Inspect selected messages



Connection Logging <---> Profiling

Name ead-default Flag ead-default GetFlag	Action NO_ACTION	Timestamp 1715762984.163588	
-	NO_ACTION	1715762984 163588	
ead-default GetFlag		1/15/02504.105500	
	START	1715762984.163626	
ead-default GetFlag	STOP	1715762984.163661	
Timer::1::0	START	1715762984.163918	
Timer::1::0	STOP	1715762984.163952	
-	NO_ACTION	1715762984.163964	
HighSpeed	START	1715762984.163991	
HighSpeed	STOP	1715762984.164047	
-	START	1715762984.164062	
-	STOP	1715762984.164109	
ead-default Counter	NO_ACTION	1715762984.164136	
ead-default GetCounter	START	1715762984.164172	
ead-default GetCounter	STOP	1715762984.164239	
ead-default Flag	NO_ACTION	1715762984.164465	
ead-default GetFlag	START	1715762984.164502	
ead-default GetFlag	STOP	1715762984.164537	
	HighSpeed HighSpeed - HighSpeed - HighSpee	Timer::1::0 STOP - NO_ACTION HighSpeed START HighSpeed STOP - STOP </td <td>Timer:1:0STOP1715762984.163952-No_ACTION715762984.163964HighSpeedSTART1715762984.163091HighSpeedSTOP1715762984.164007-START1715762984.164062-STOP1715762984.164109-STOP1715762984.164109-STOP1715762984.164109-STOP1715762984.164109-START1715762984.164129-GetCounterSTOP-STOP1715762984.164129-GetCounterSTOP-STOP1715762984.164429-GetFlagSTART-STOP1715762984.164450</td>	Timer:1:0STOP1715762984.163952-No_ACTION715762984.163964HighSpeedSTART1715762984.163091HighSpeedSTOP1715762984.164007-START1715762984.164062-STOP1715762984.164109-STOP1715762984.164109-STOP1715762984.164109-STOP1715762984.164109-START1715762984.164129-GetCounterSTOP-STOP1715762984.164129-GetCounterSTOP-STOP1715762984.164429-GetFlagSTART-STOP1715762984.164450

Save data



opt bwilop fesaspy_recordings	· ·
ame	▲ Size Modifi
temp_recordings	11:00
2024-05-10-13-56.pkl	8.6 MB Fri
2024-04-26-16-30.pkl	2.7 MB 26 Apr
2024-04-19-15-06.pkl	124.2 MB 19 Apr
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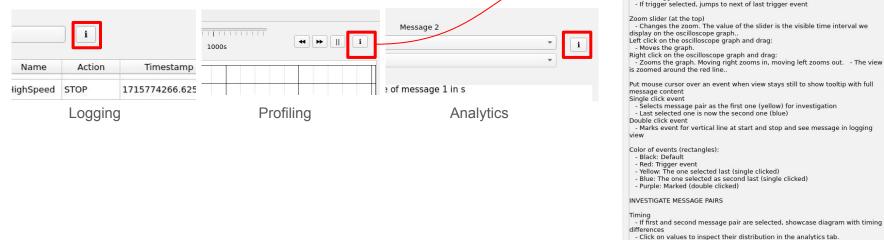
Limitations

- The functionality of the FESA Spy is based on the information available from the FESA process.
- Data management:
 - We save 4M messages, then truncate to 2M
 - Deleted messages automatically saved as recording (rolling buffer of 10)

+ Side *						
Pruned messages before 1715763619.05699						
	/opt/bwilop/fesaspy_recordings/temp_recordings/					C
		TEMP_2024-05-1 0-11-19.pkl	TEMP_2024-05-1 0-13-54.pkl	TEMP_2024-05-1 0-13-55.pkl	TEMP_2024-05-1 0-13-56.pkl	TEMP_2024-05-1 0-14-03.pkl
		TEMP_2024-05-1 0-14-09.pkl	TEMP_2024-05-1 0-14-16.pkl	TEMP_2024-05-1 0-14-17.pkl	TEMP_2024-05-1 5-10-59.pkl	TEMP_2024-05-1 5-11-00.pkl
		10 items (132.8 MB), Free space: 47.5 GB				

Support

• Info buttons



• User manual:

https://acc-py.web.cern.ch/gitlab/acc-co/fesa/extra/fesa-spy/docs/master/

• Questions, remarks, issues, feature requests: **fesa-support@cern.ch**

Tutorial Profiling

- Trigger selected: Align at 5th oldest trigger

- Toggles between realtime and paused view

- If trigger selected, jumps to start of last trigger event

- Shows message content of first and second message pair

- Histogram over the duration of first selected event. (Since start of

2. Paused view Get started:

Play / II Pause

► Next triager

Message content

Histogram

connection)

Previous triager

1. Selected FESA instance

Connect (Green status bar)
 Change diagnostic settings
 Use drop-down menus to select thread
 Zoom / Scroll to see diagnostics
 Optionally select trigger event
 User interactions with the oscilloscope view:

Coming Up Next

Integration to the FESA Eclipse Plugin: very soon

Feature refinements & bugfixes

Inspect memory of the device fields (no release date yet)

Thank You for Your Attention!

Try it out (beta version) at: /mcr/bin/fesaspy

Feedback welcome: fesa-support@cern.ch

Questions?