



Quick and Dirty:

Simple XDAQ monitoring scripts using SOAP communication

- Functionality
- Architecture
- Used tools
- How it works



Functionality

- Parameter requests:
 - For all XDAQ applications (Rus-BUs-EVM-FRL-FED-...)
 - Ordered by instance number
 - Overview table for all FIFOs in the system ordered by application and instance
 - Overview of status for all applications
- Auto update feature (every second)
- Adapts automatically to different configurations
 - (server browses configuration file)



HTTP server / SOAP client



Server:

- 44 lines meat and
- 60 lines HTML code
- supports auto-update (java script: 1 line)

Client:

- approx. 300 lines
- browses XML config.
- sends SOAP requests
- parses replies
- formats HTML reply

<<<
XML config
>/>/>

xdaq

xdaq

xdaq

⋮

xdaq



Used tools

- 100% Perl
 - *The language to get it done...*
- Packages for server main program:
 - HTTP::Server HTTP::Status
- Packages for client library
 - XML parsing: XML::Twig
 - HTTP client : HTTP::Request::Common, LWP::Simple,
 LWP::UserAgent
- The PERL SOAP package was not usable since it uses namespaces which are not yet implemented in XDAQ.
- Needed to adjust the reply of xdaq to include correct length in the corresponding HTTP field 'content-length'.



Details of functionality

- Startup
 - Browse xml-configuration:
Create Hash with Hosts, applications and transports
 - Start server:
single threaded : parses requested URL (reg-exp) and calls client subroutines on match
- Incoming request: (application and instance coded in URL)
 - Prepares SOAP request for to get all Parameters for an application
 - Parses SOAP reply with regular expressions
 - Formats an HTML table or similar
 - Server sends back reply



Summary

- Usage for quick and dirty hacks
- Easy due to perl's regular expressions and hashes.
- The script does nothing which is not implemented in RUN-Control
 - (except for the special composition of FIFO status table)
- Shows that it is easy to communicate with a XDAQ node due to standard protocols which are available in many languages/libraries.

Screenshots (typical)

stop update

XDAQ Monitor

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ptMAZE	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
RU	Halted	Halted	Halted	Halted	Halted	Halted	Halted	Halted									
FRLControler	Ready	Ready	Ready	Ready	Ready	Ready	Ready	Ready									
EVM	Crashed																
ptATCP	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Crashed	Enabled	Enabled	Enabled	Enabled
XPhys	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Crashed	Enabled	Enabled	Enabled	Enabled
PseudoFED	Ready	Ready	Ready	Ready	Ready	Ready	Ready	Ready									
BU	Ready	Ready	Ready	Ready	Ready	Ready	Ready	Ready									
TA	Crashed																
MazeRUI	Halted	Halted	Halted	Halted	Halted	Halted	Halted	Halted									

Date: Wed, 05 Nov 2003 07:45:12 GMT Server: libwww-perl-daemon/1.25

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Screenshot (highly un-typical)

TDR Demo Status - Konqueror

Location Edit View Go Bookmarks Tools Settings Window Help

Location: http://lxcmddemo:8888/autoUpdate

stop update **XDAQ Monitor**

Status Table	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Fifo Table	ptMAZE	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
BU	RU	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
EVM	FRLControler	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
FRLControler	EVM	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
MazeRUI	ptATCP	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
PseudoFED	XPhys	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
RU	PseudoFED	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
TA	BU	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
XPhys	TA	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
ptATCP	MazeRUI	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
ptMAZE																	

Date: Wed, 05 Nov 2003 07:49:06 GMT Server: libwww-perl-daemon/1.25

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Screenshot: Fifo-Table

TDR Demo Status - Konqueror

Location Edit View Go Bookmarks Tools Settings Window Help

Location: http://lxcmddemo:8888/autoUpdate

stop update **XDAQ Monitor**

	0	1	2	3	4
ru	rqstFIFO 0% 0/1024	rqstFIFO 0% 0/1024	rqstFIFO 0% 0/1024	rqstFIFO 0% 0/1024	rqstFIFO 0% 0/1024
	pairFIFO 0% 0/1024	pairFIFO 0% 0/1024	pairFIFO 0% 0/1024	pairFIFO 0% 0/1024	pairFIFO 0% 0/1024
	chainFIFO 7% 1273/16384	chainFIFO 7% 1303/16384	chainFIFO 7% 1207/16384	chainFIFO 7% 1217/16384	chainFIFO 7% 1217/16384
	fragLookupTable 5% 544/10000	fragLookupTable 5% 576/10000	fragLookupTable 5% 544/10000	fragLookupTable 5% 512/10000	fragLookupTable 5% 512/10000
	cmdFIFO 0% 0/1024	cmdFIFO 0% 0/1024	cmdFIFO 0% 0/1024	cmdFIFO 0% 0/1024	cmdFIFO 0% 0/1024
evm	rqstFIFO 9% 96/1024				
	trigFIFO 6% 63/1024				
	pairFIFO 53% 544/1024				
	freeEvtIdFIFO 6% 63/1024				
	releasedEvtIdFIFO 0% 0/1024				
ta	cmdFIFO 0% 0/1024				
	creditFifo 0% 0/4096				
bu	tcrxDataFifo 99% 1016/1024				
	evtdFIFO 0% 0/1024	evtdFIFO 0% 0/1024	evtdFIFO 0% 0/1024	evtdFIFO 0% 0/1024	evtdFIFO 0% 0/1024
	chainFIFO 0% 2/1024	chainFIFO 0% 0/1024	chainFIFO 0% 0/1024	chainFIFO 0% 1/1024	chainFIFO 0% 0/1024
	cmdFIFO 0% 0/1024	cmdFIFO 0% 0/1024	cmdFIFO 0% 0/1024	cmdFIFO 0% 0/1024	cmdFIFO 0% 0/1024

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Screenshot: Application parameters

The screenshot shows a web browser window titled "TDR Demo Status - Konqueror". The address bar displays "http://lxcmddemo:8888/mazerui-3". The main content area is titled "XDAQ Monitor" and displays the following information:

stop update

Instances : 0 1 2 3 4 5 6 7

Parameters for mazerui 3 (Host: compute-0-3 TID: 39)

Status Table	
Fifo Table	
BU	
EVM	
FRLControler	analyzeFragment : false
MazeRUI	autoGeneratedMeanSize : 24
PseudoFED	availableBlocks : 2
RU	blockSize : 4096
TA	cleanData : false
XPhys	destinationClass : RU
ptATCP	directDispatch : true
ptMAZE	dumpMazeSegment : false
	fakeData : false
	fbiMask : 8
	fboMask : 8
	fboTriggerHead : 6017617
	fragmentCounter : 73126838
	gaveToMaze : 0
	instance : 3
	maxInputBlocks : 2000
	mazeBoardId : -1
	mazePort : 11
	mazeUnitNo : 0
	myrinetSwitchtype : 3
	nicUsedBlocks : 2
	pollingMode : false
	provideRequests : 1999
	runNb : 1
	segmentCounter : 73126889
	selfTest : 0
	spareBlocks : 20
	stateName : Enabled
	stopThread : false
	storeBlocks : true
	tid : 39

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