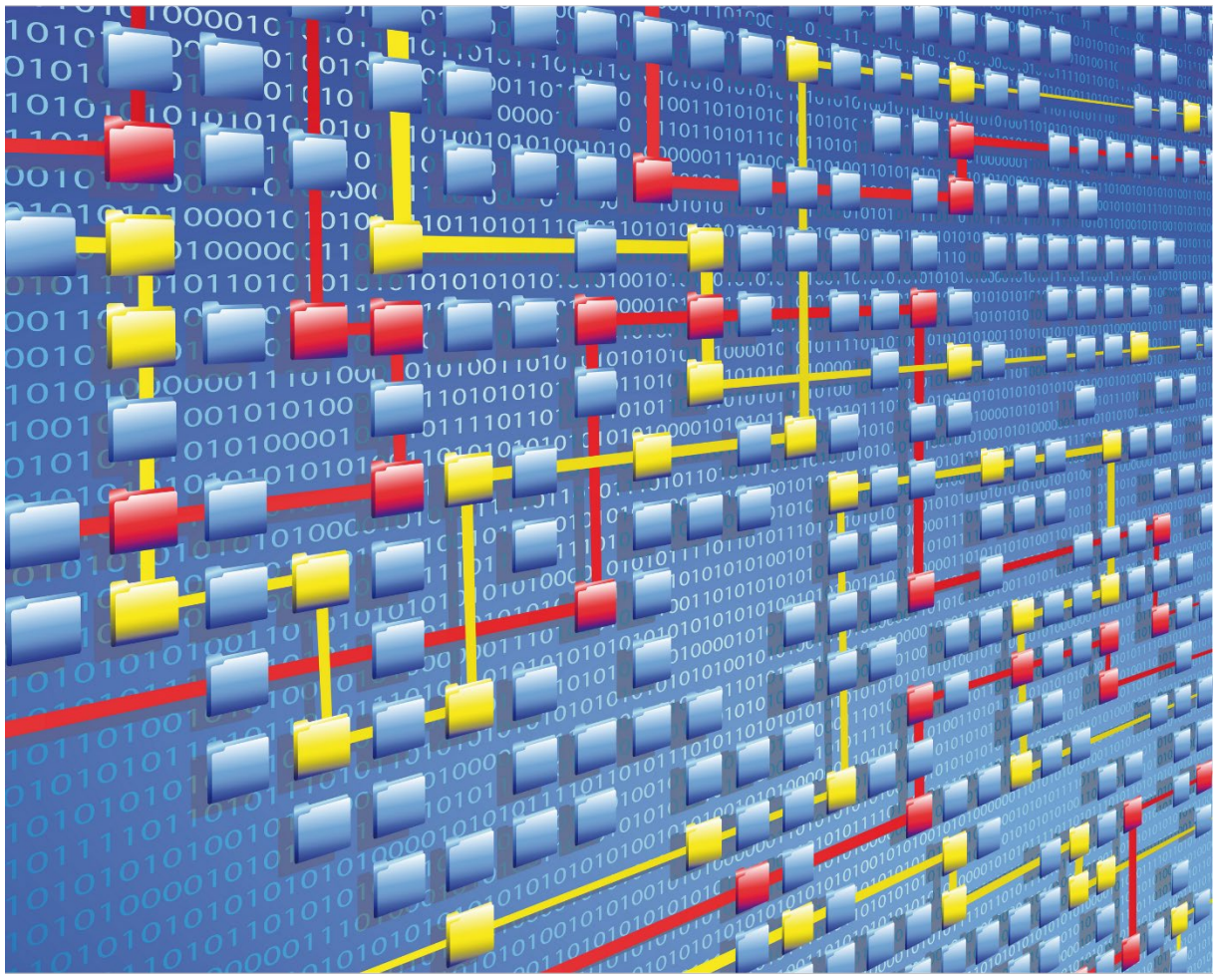
IEEE Task Force on



Process Mining

XES CERTIFICATION FOR RAPIDPROM: LIBRARY

TABLE OF CONTENTS

Contents

Tool

NAME

RapidProM Library

VENDOR

Developed by - Eindhoven University of Technology, Open Source

Maintained by – RWTH Aachen University, Open Source

VERSION

4.0.1

REQUESTED CERTIFICATION LEVELS

Import

A,B,C,D

Export

A,B,C,D

META

Meta

AUTHORS

Madhavi Shankar

Madhavi.shankar@pads.rwth-aachen.de

DATE

12/11/2020

HISTORY

CHANGES

AUTHOR(S)	DATE	DESCRIPTION
Madhavi Shankar	12/11/2020	Initial recordings for the certification

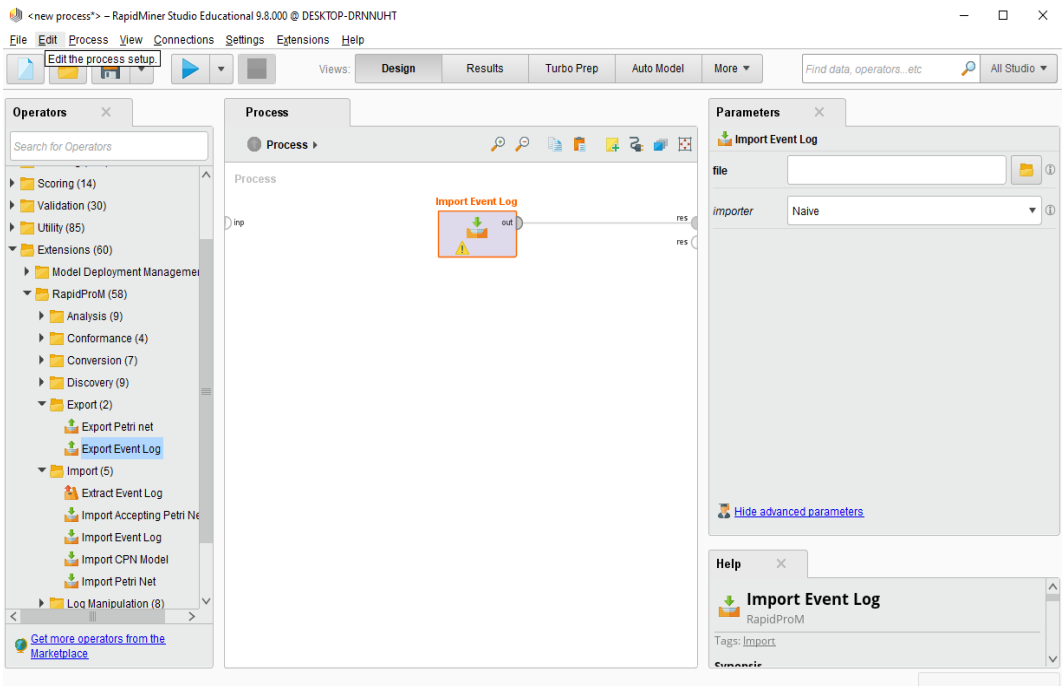
Import

INSTALLATION AND GETTING STARTED

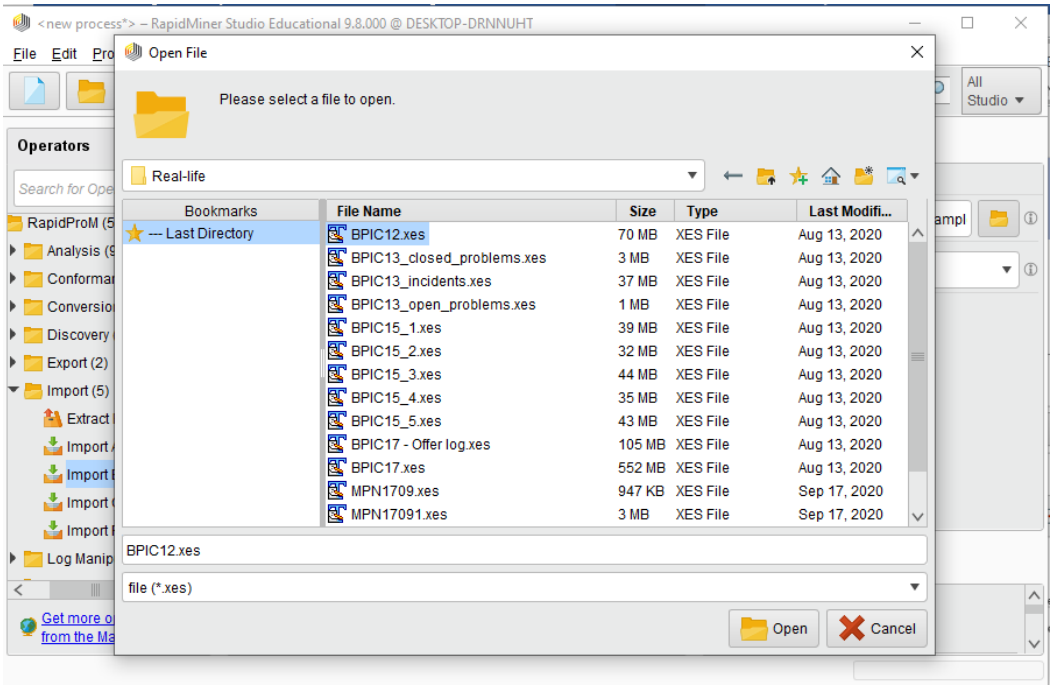
1. Firstly install the latest version of RapidMiner (current version is 9.8) from https://my.rapidminer.com/nexus/account/index.html#downloads.
2. Go to “Extensions” in Menu and select “MarketPlace (Updates and Extensions)..”
3. In the Search bar, type “RapidProM” and look for the latest version of RapidProM (Currently 4.0.1) and select for installation.
4. Once installation is complete restart RapidMiner tool
   4.1. Go to Operators -> Extensions ->RapidProM.
      4.1.1. We can different packages here for import, export of logs.
      4.1.2. We can also find packages to perform discovery, analysis, conformance and conversions.

To start working with RapidPRoM:

1. Launch RapidMiner
2. From Menu Click on File->New Process
3. Choose Blank Process from the popup menu
4. Go to Operators -> Extensions ->RapidProM ->Import
5. Drag and drop “Import Event Log” to the process page
6. Connect to the res



7. Choose a log on the right in Parameters sections



8. Click on play button or press F11
9. To change the event log Click on “Design” in views and you will be redirected to step 6

Note: The screenshots displayed under each import log will only be the final one after step 8, which shows the log summary.

REAL-LIFE LOGS

SANITIZED BPIC LOGS

NAME	TRACES	EVENTS	SIZE IN KB
BPIC12	13,087	262,200	72,363
BPIC13_closed_problems	1,487	6,660	4,090
BPIC13_incidents	7,554	65,533	38,627
BPIC13_open_problems	819	2,351	1,370
BPIC15_1	1,199	52,217	40,261
BPIC15_2	832	44,354	33,616
BPIC15_3	1,409	59,681	45,673
BPIC15_4	1,053	47,293	36,131
BPIC15_5	1,156	59,083	44,961
BPIC17 – Offer log	42,995	193,849	107,557
BPIC17	31,509	1,202,267	565,373

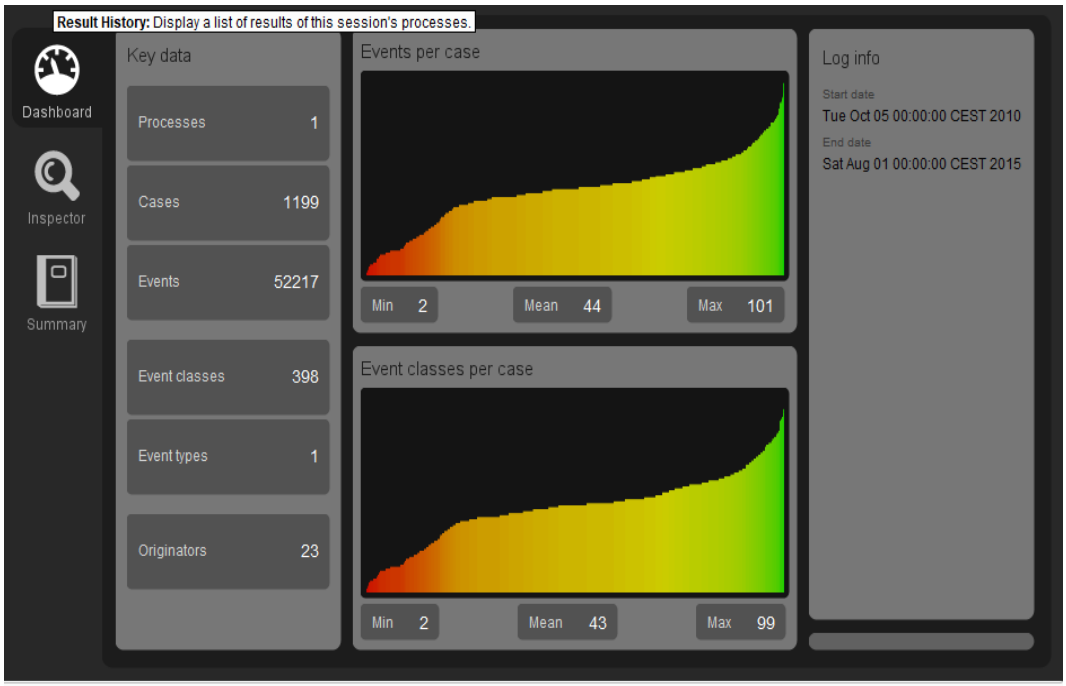
BPIC12

BPIC13_closed_problems

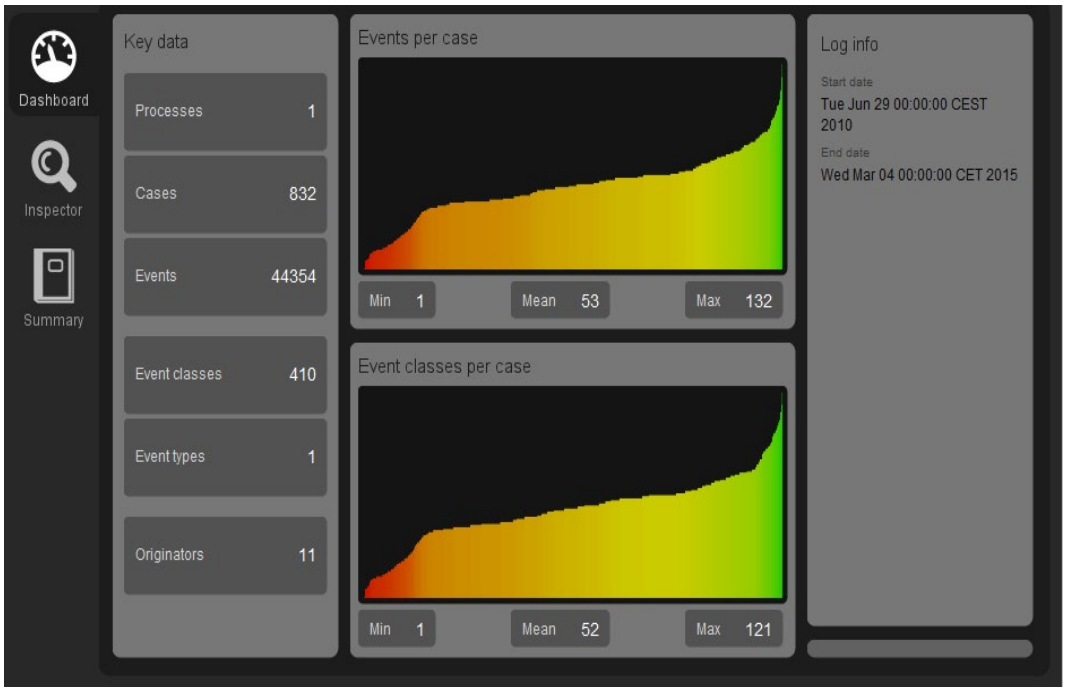
BPIC13_incidents

BPIC13_open_problems

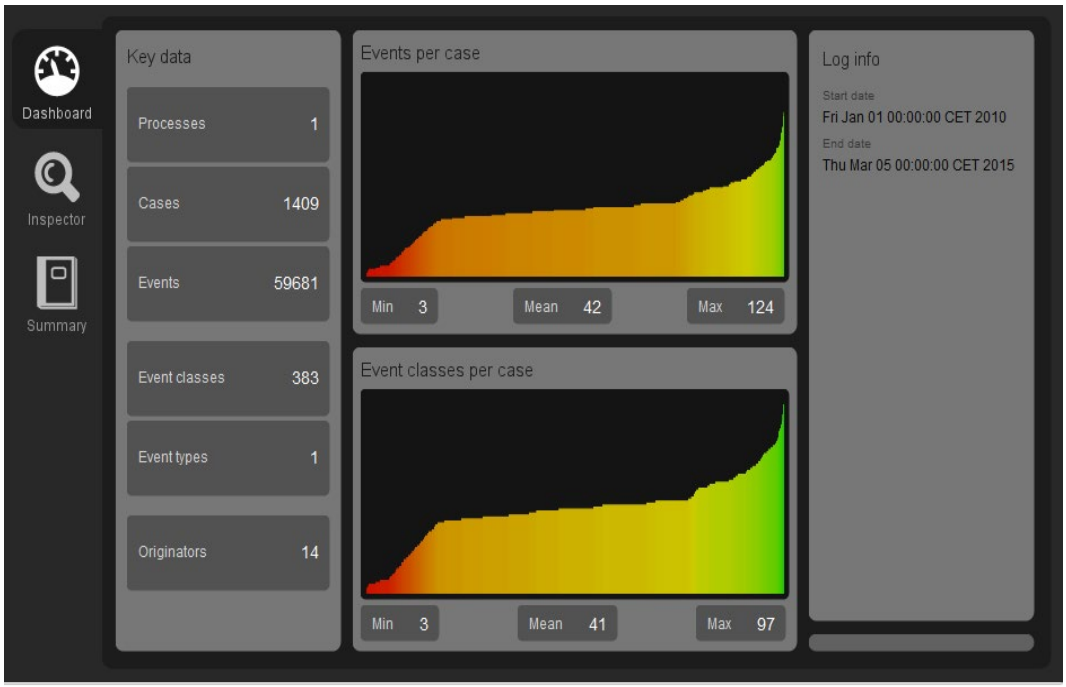
BPIC15_1



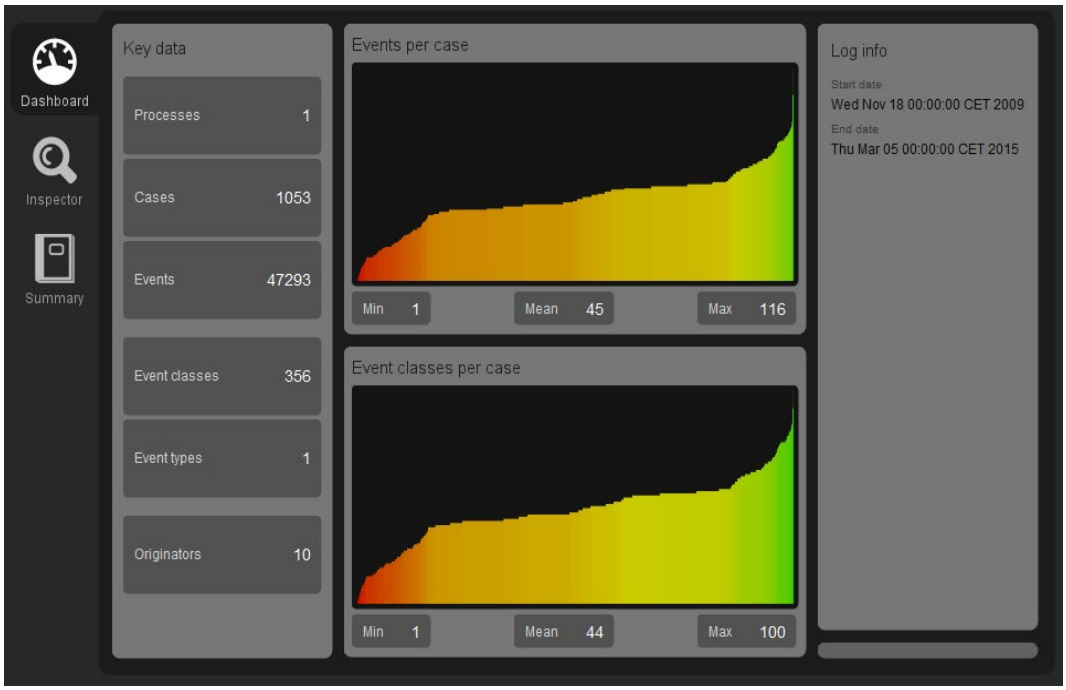
BPIC15_2



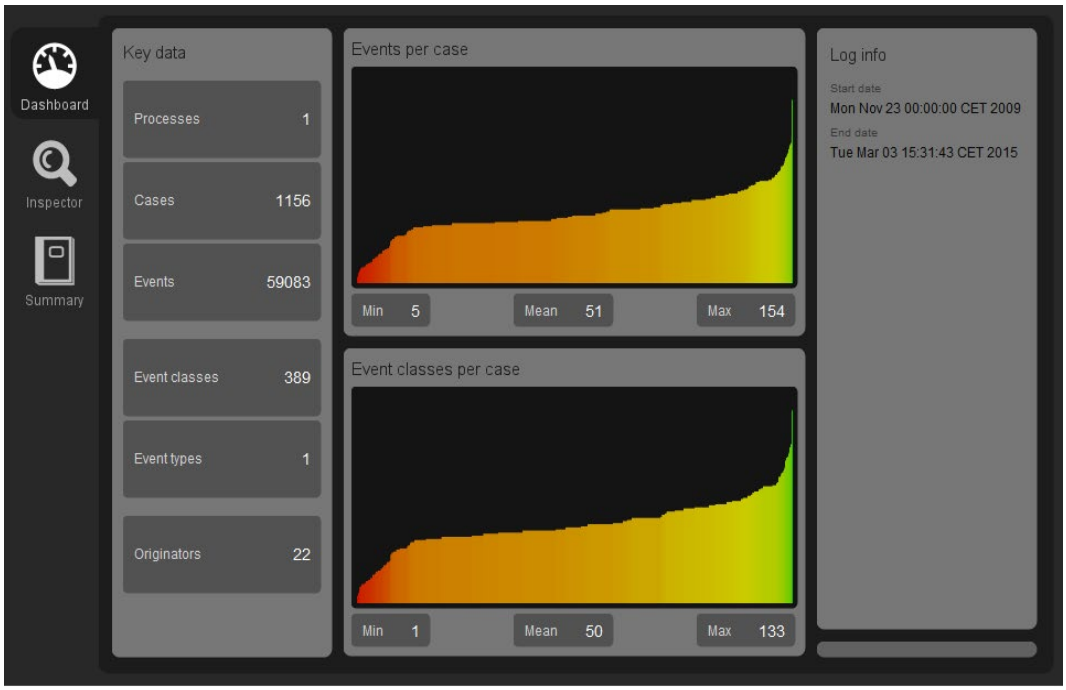
BPIC15_3


Dashboard
Inspector
Summary
Key data
Processes 1
Cases 1409
Events 59681
Event classes 383
Event types 1
Originators 14
Events per case
Min 3
Mean 42
Max 124
Event classes per case
Min 3
Mean 41
Max 97
Log info
Start date
Fri Jan 01 00:00:00 CET 2010
End date
Thu Mar 05 00:00:00 CET 2015

BPIC15_4

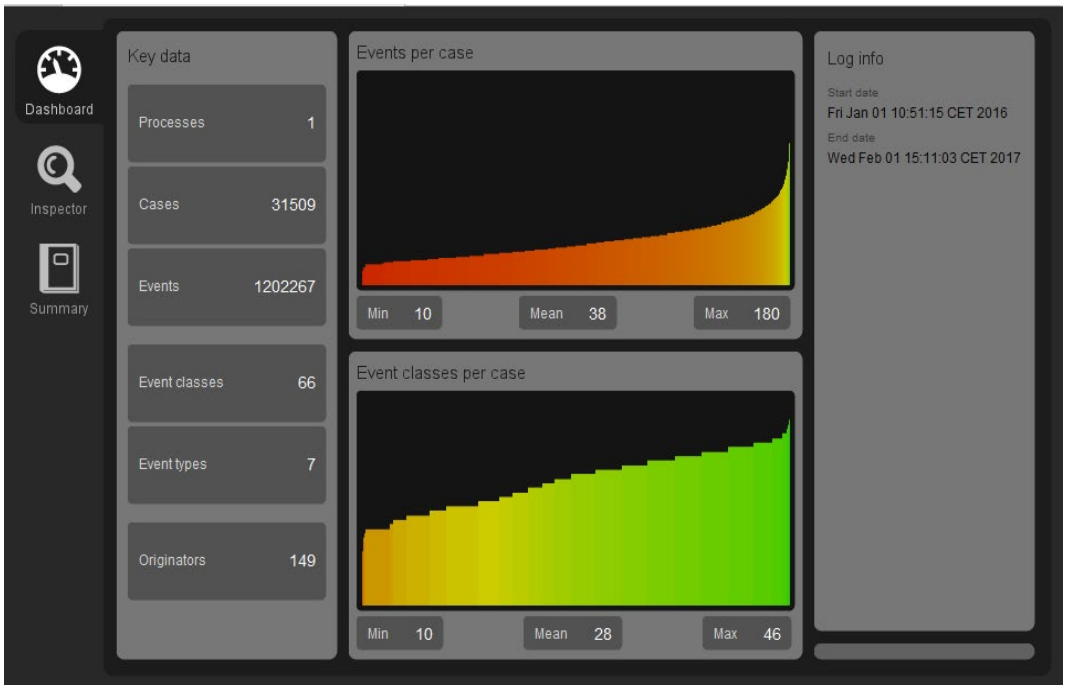


BPIC15_5



BPIC17 – Offer log

BPIC17



ARTIFICIAL LOGS

FILTERED REPAIREXAMPLE LOGS

NAME	LEVEL	EVENT ATTRIBUTE KEYS (IF BOLD THEN GLOBAL)
LevelA1	A1	**concept:name**
LevelA2	A2	Classifier (**concept:name** AND **lifecycle:transition**)
LevelB1	B1	**concept:name**, **lifecycle:transition**, **time:timestamp**
LevelB2	B2	Classifier (**concept:name** AND **lifecycle:transition**), **time:timestamp**
LevelC1	C1	**concept:name**, **org:resource**
LevelC2	C2	Classifier (**concept:name** AND **lifecycle:transition**), **org:resource**
LevelD1	D1	**concept:name**, **concept:instance**, **lifecycle:transition**,

		org:resource, **org:group**, org:role, **time:timestamp**
LevelD2	D2	Classifier (**concept:name** AND **lifecycle:transition**), **concept:instance**, **org:resource**, **org:group**, org:role, **time:timestamp**
FlagX1	X1	defectFixed, defectType, **Key 1**, Key 2, **Key 3**, **Key 4**, **Key 6**, phoneType, numberRepairs, **{0,1,2} 2Sa!! +1 <x>**, ITEMS:41, #1, o.1.1
FlagX2	X2	defectFixed, defectType, Classifier (**Key 1** AND **Key 6**), Key 2, **Key 3**, **Key 4**, phoneType, numberRepairs, **{0,1,2} 2Sa!! +1 <x>**, ITEMS:41, #1, o.1.1

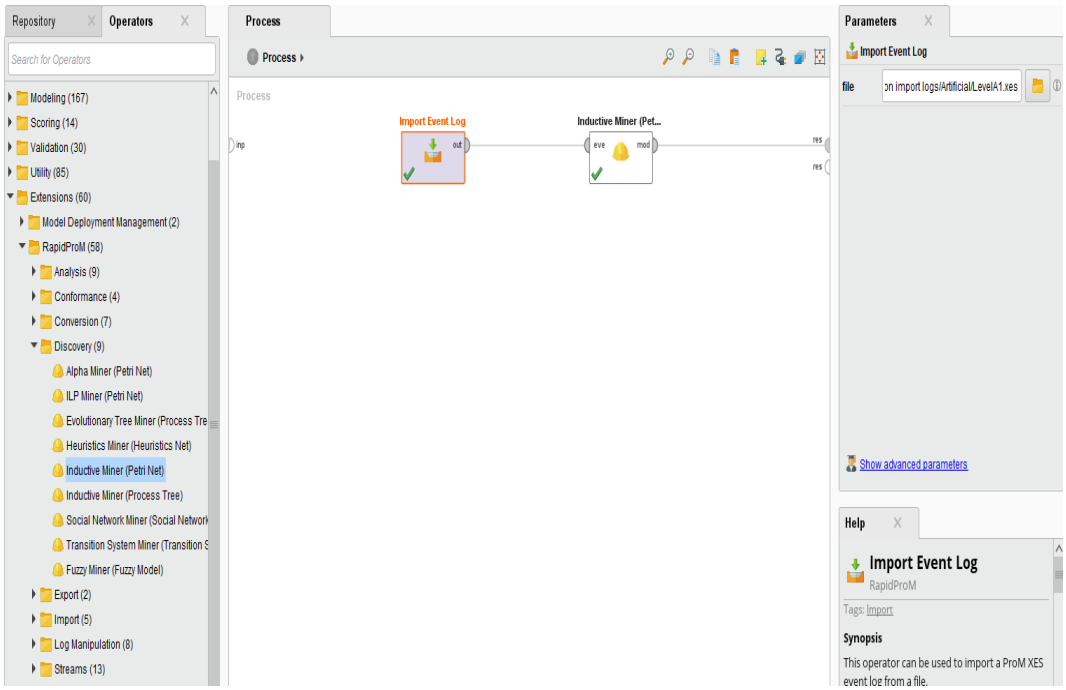
ATTRIBUTE TYPES AND VALUES

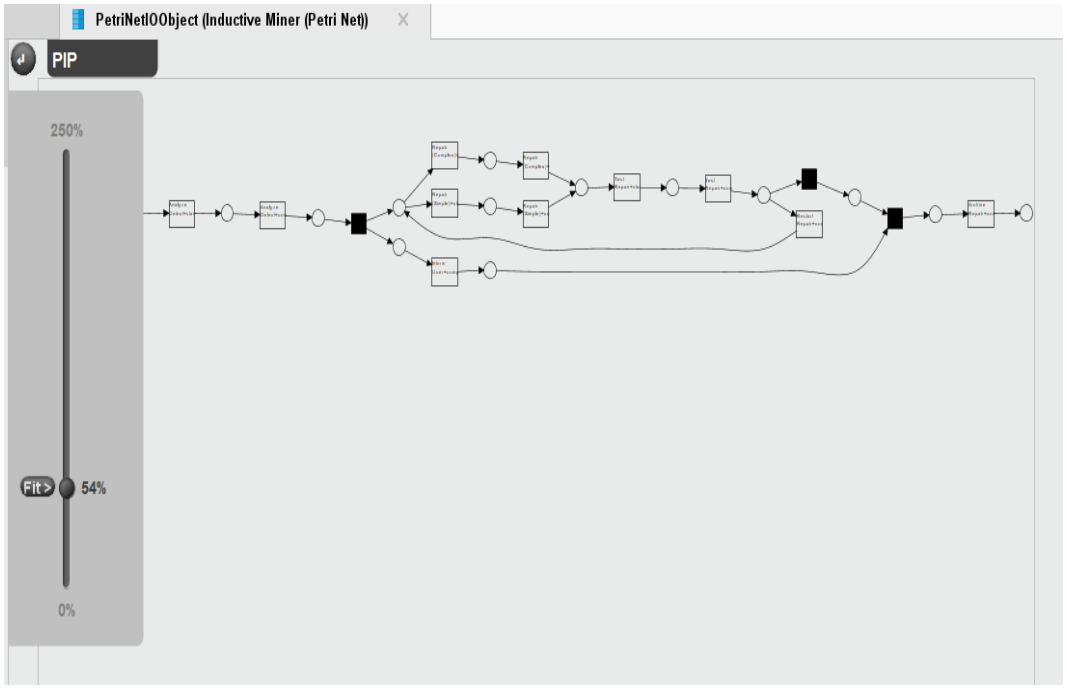
KEYS	TYPE	VALUES
concept:instance **Key 2**	string	instance 1 instance 2 instance 3 instance 4
concept:name (A1 and C1 logs)	string	Analyze Defect+complete Analyze Defect+start Archive Repair+complete Inform User+complete Register+complete Repair (Complex)+complete Repair (Complex)+start

		Repair (Simple)+complete Repair (Simple)+start Restart Repair+complete Test Repair+complete Test Repair+start
concept:name (other logs) **Key 1**	string	Analyze Defect Archive Repair Inform User Register Repair (Simple) Repair (Complex) Restart Repair Test Repair
lifecycle:transition **Key 6**	string	start complete
org:group **{0,1,2} 2Sa!! +1 <x>**	string	Group - Group 1, 3, and 5 Group 2 and 4
org:resource **Key 3**	string	SolverC1 SolverC2 SolverC3 SolverS1 SolverS2 SolverS3 System Tester1 Tester2 Tester3 Tester4 Tester5 Tester6
org:role **ITEMS:41, #1, o.1.1**	string	Role 1, 2, and 3 Role 10 Role 9
time:timestamp **Key 4**	date	*Like* 1970-01-02T12:23:56.720+01:00
defectFixed	boolean	true false
defectType	int	1 10 2 3 4 5 6 7

		8 9
numberRepairs	int	0 1 2 3
phoneType	String	T1 T2 T3

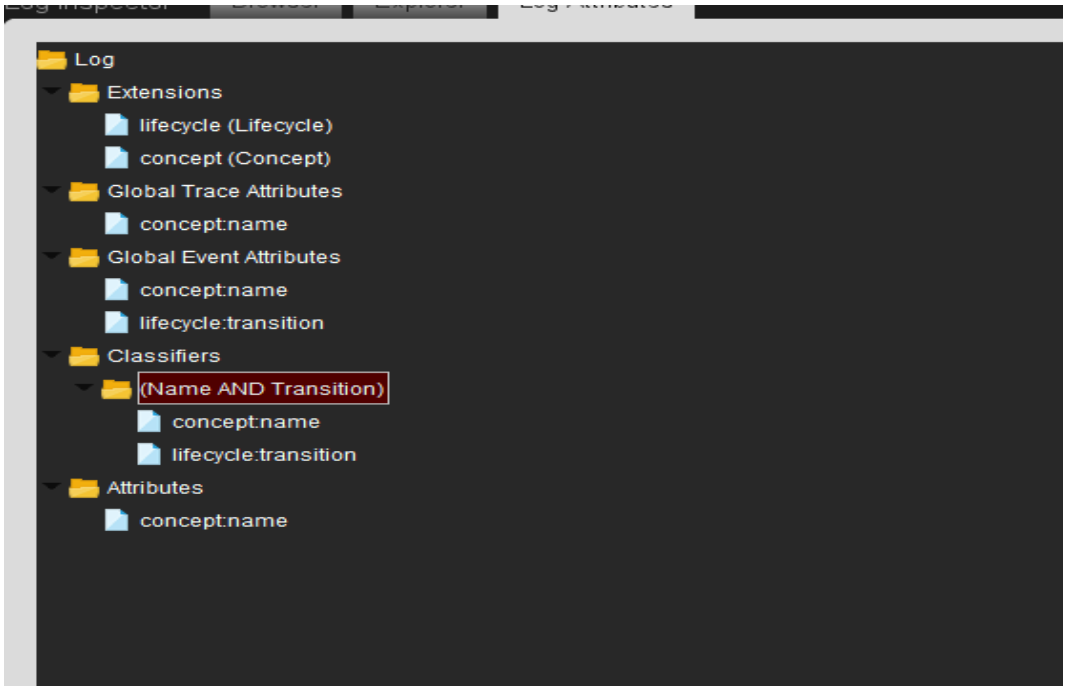
Level A1

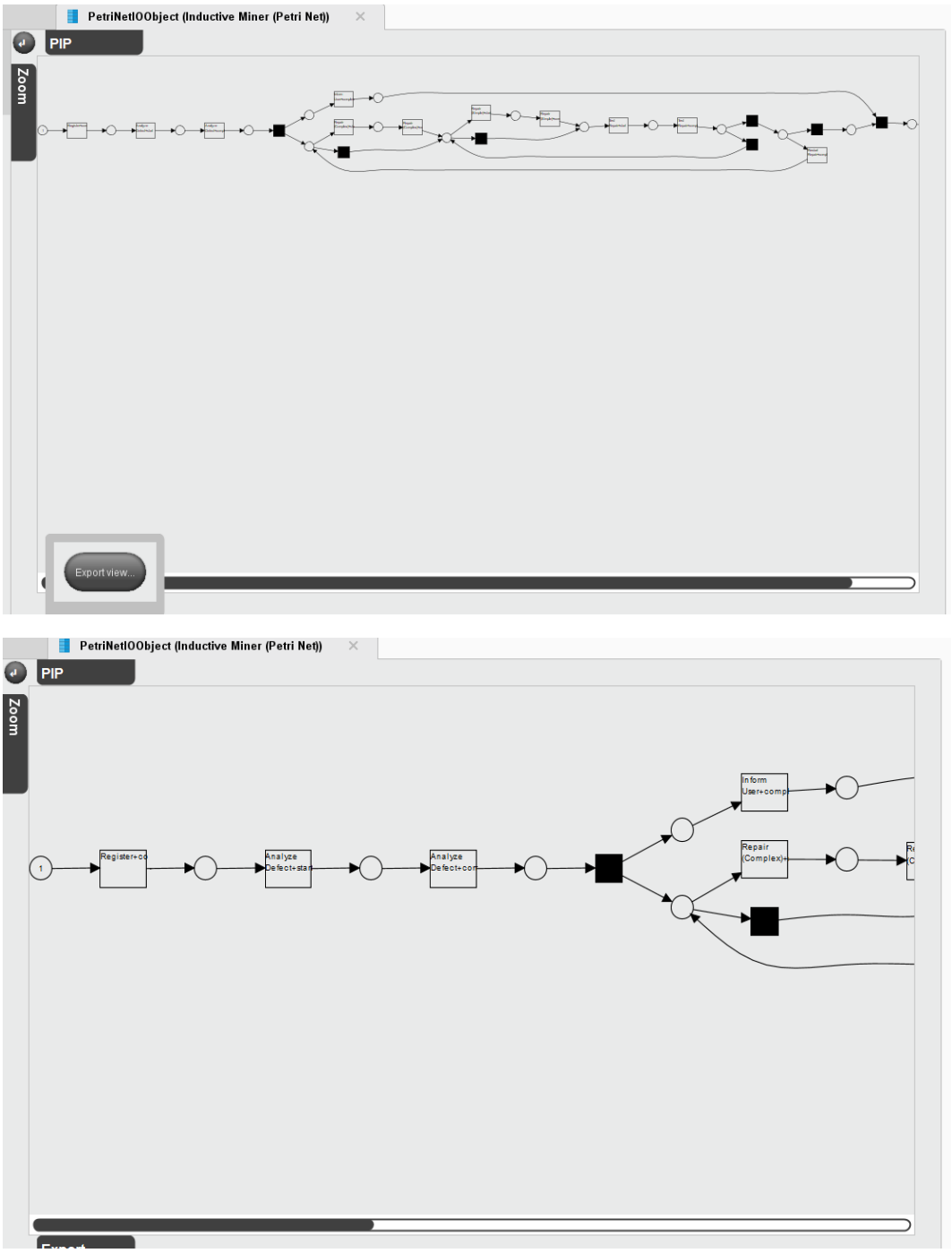

Repository
Operators
Search for Operators
Modeling (167)
Scoring (14)
Validation (30)
Utility (85)
Extensions (60)
Model Deployment Management (2)
RapidProM (58)
Analysis (9)
Conformance (4)
Conversion (7)
Discovery (9)
Alpha Miner (Petri Net)
ILP Miner (Petri Net)
Heuristics Miner (Heuristics Net)
Inductive Miner (Petri Net)
Inductive Miner (Process Tree)
Export (2)
Import (5)
Log Manipulation (8)
Streams (13)
Process
Process
Import Event Log
Inductive Miner (Pet...
Parameters
Import Event Log
file
Show advanced parameters
Help
Import Event Log
RapidProM
Tags: Import
Synopsis
This operator can be used to import a ProM XES event log from a file.


PetriNetIOObject (Inductive Miner (Petri Net))
PIP
250%
Fit
54%
0%

Level A2


Dashboard
Inspector
Summary
Key data
Processes 1
Cases 1104
Events 11855
Event classes 12
Event types 2
Originators 1
Events per case
Min 4
Mean 11
Max 24
Event classes per case
Min 4
Mean 9
Max 12
Log info
Start date
End date

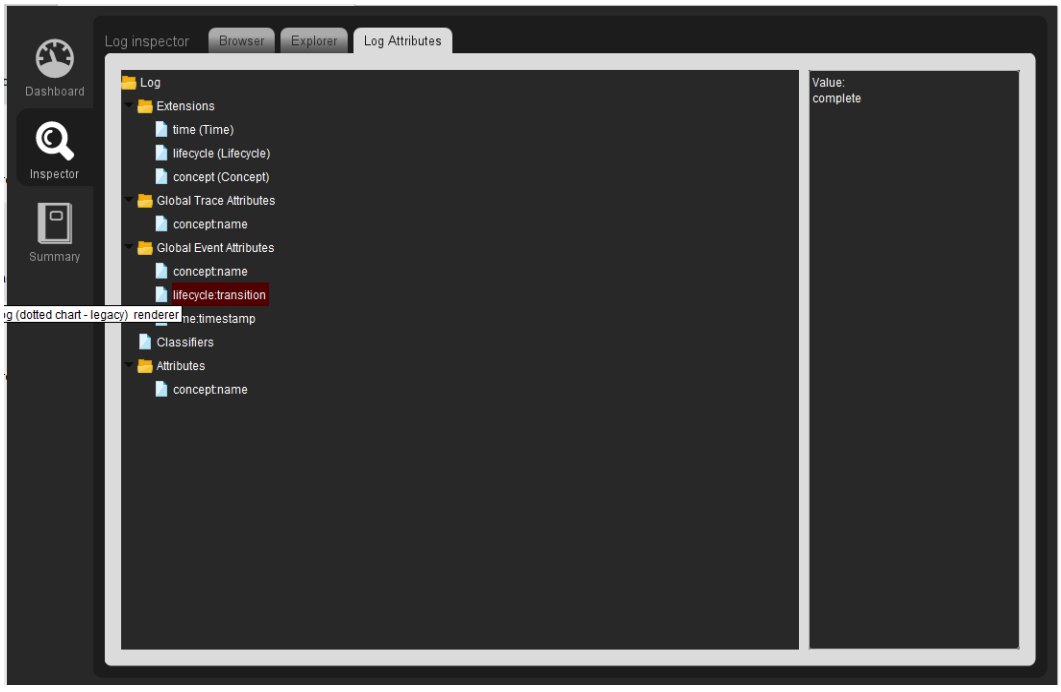

Log
Extensions
lifecycle (Lifecycle)
concept (Concept)
Global Trace Attributes
concept:name
Global Event Attributes
concept:name
lifecycle:transition
Classifiers
(Name AND Transition)
concept:name
lifecycle:transition
Attributes
concept:name



The image with zoom-in, clearly shows the correct combinations of concept names and lifecycle transitions (as defined by the classifier (Name AND Transition)) as activity names.

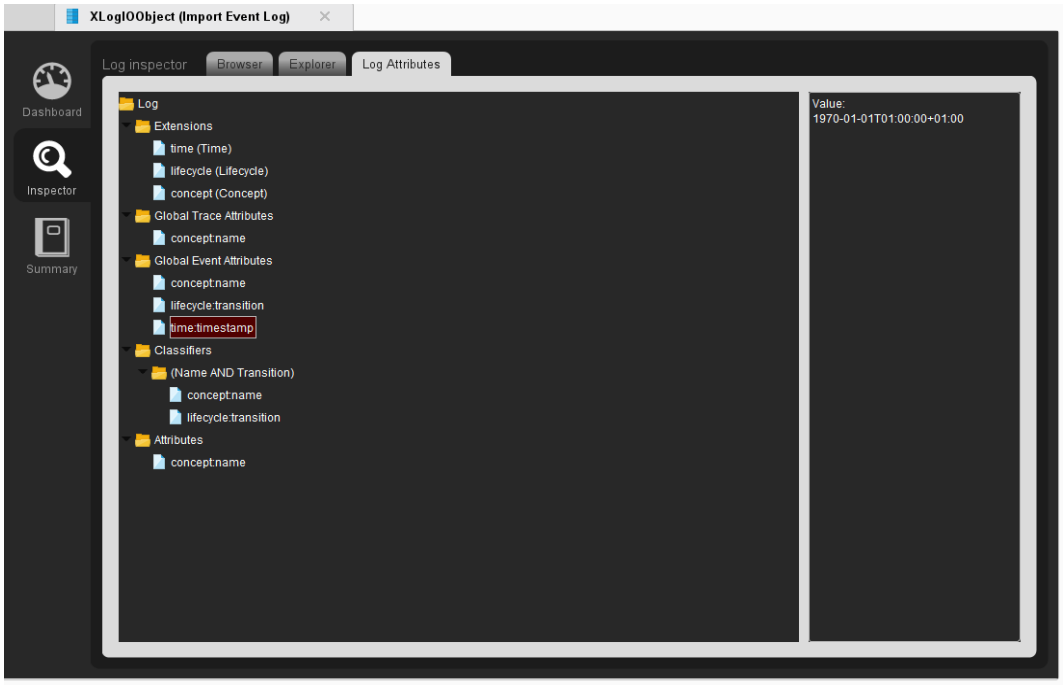
Level B1


Dashboard
Inspector
Summary
Key data
Processes 1
Cases 1104
Events 11855
Event classes 12
Event types 2
Originators 1
Events per case
Min 4
Mean 11
Max 24
Event classes per case
Min 4
Mean 9
Max 12
Log info
Start date
Thu Jan 01 11:41:55 CET 1970
End date
Fri Feb 20 15:52:54 CET 1970

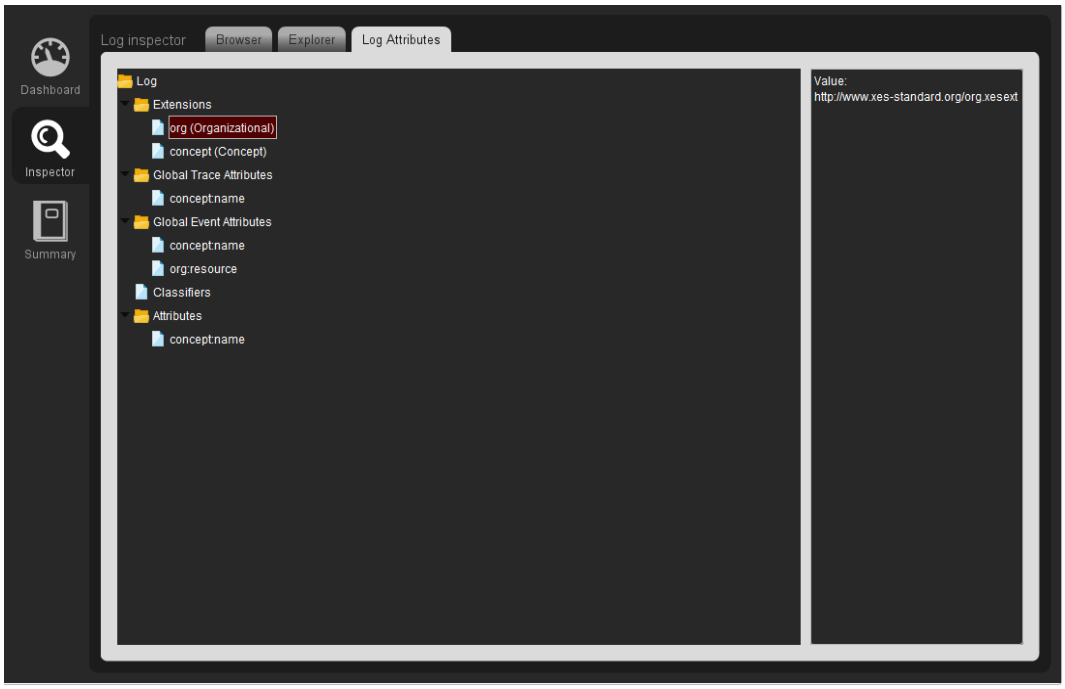

Dashboard
Inspector
Summary
Log inspector
Browser
Explorer
Log Attributes
Log
Extensions
time (Time)
lifecycle (Lifecycle)
concept (Concept)
Global Trace Attributes
concept:name
Global Event Attributes
concept:name
lifecycle:transition
time:timestamp
Classifiers
Attributes
concept:name
Value:
complete

Level B2

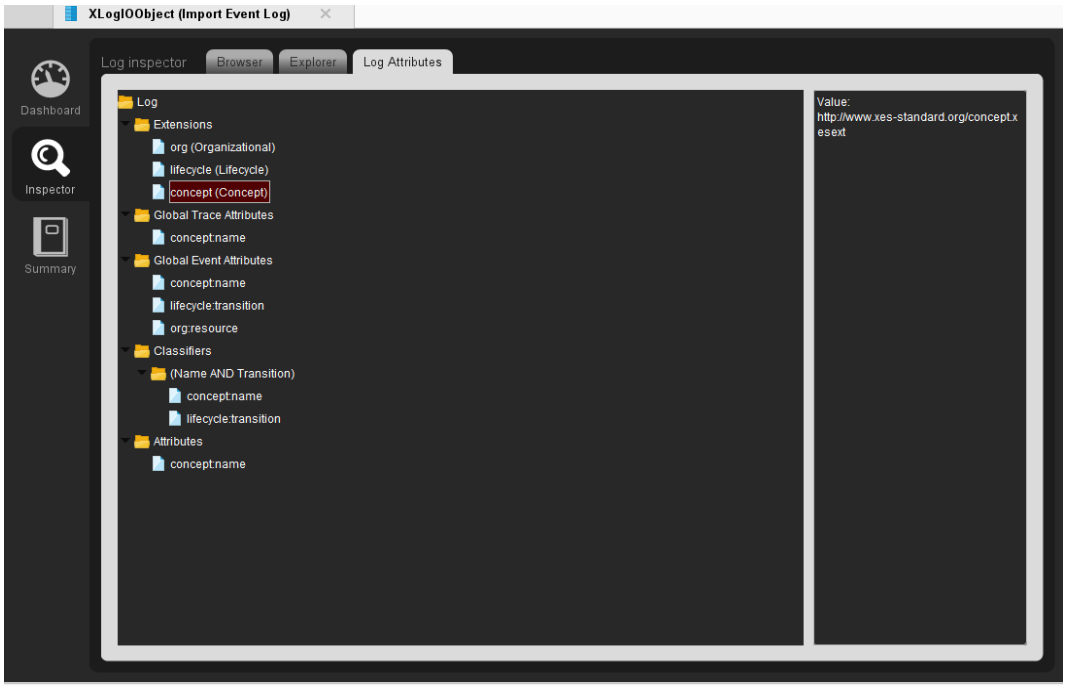

Dashboard
Inspector
Summary
Key data
Processes 1
Cases 1104
Events 11855
Event classes 12
Event types 2
Originators 1
Events per case
Min 4
Mean 11
Max 24
Event classes per case
Min 4
Mean 9
Max 12
Log info
Start date
Thu Jan 01 11:37:09 CET 1970
End date
Mon Feb 16 13:19:22 CET 1970


XLogIOObject (Import Event Log)
Dashboard
Inspector
Summary
Log inspector
Browser
Explorer
Log Attributes
Log
Extensions
time (Time)
lifecycle (Lifecycle)
concept (Concept)
Global Trace Attributes
concept:name
Global Event Attributes
concept:name
lifecycle:transition
time:timestamp
Classifiers
(Name AND Transition)
concept:name
lifecycle:transition
Attributes
concept:name
Value:
1970-01-01T01:00:00+01:00

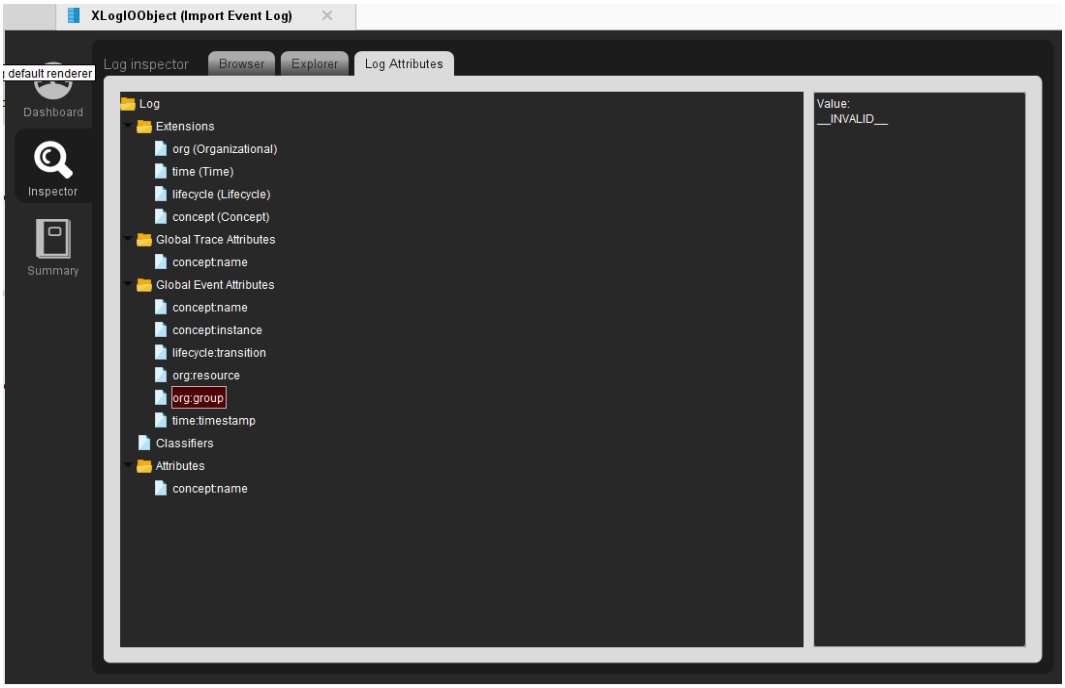
Level C1



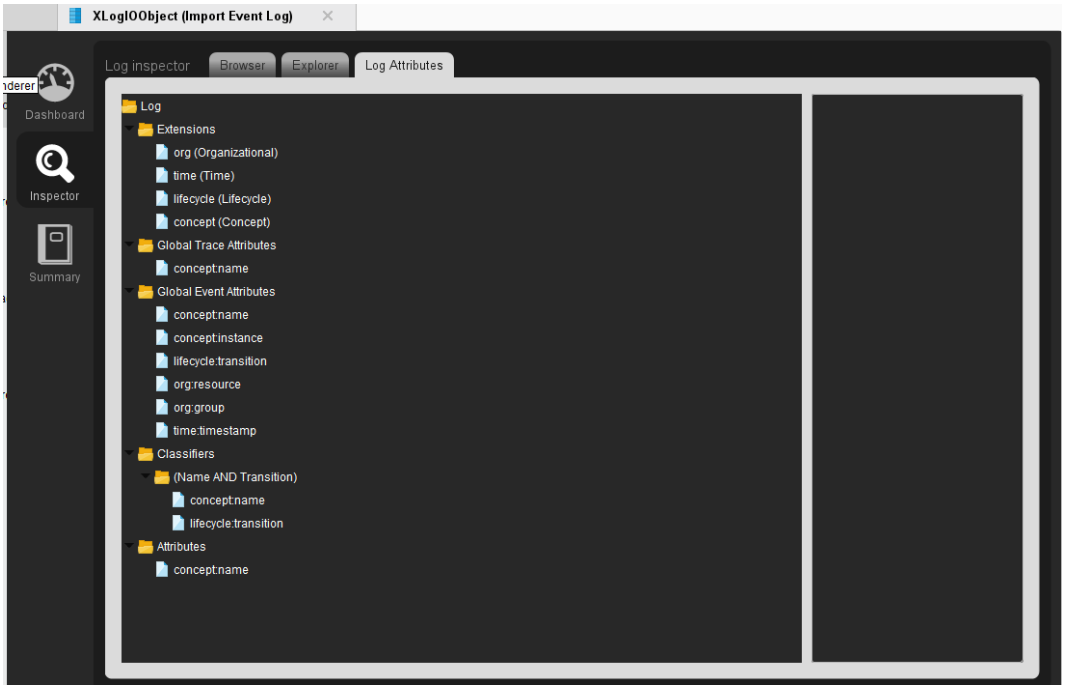
Level C2



Level D1



Level D2

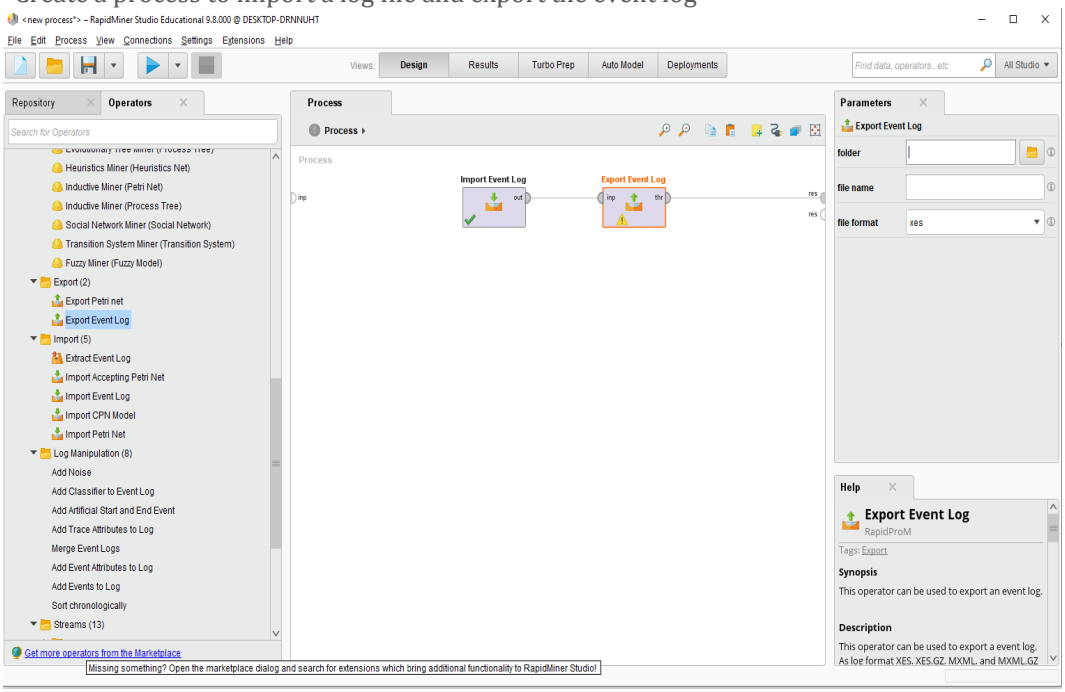


Export

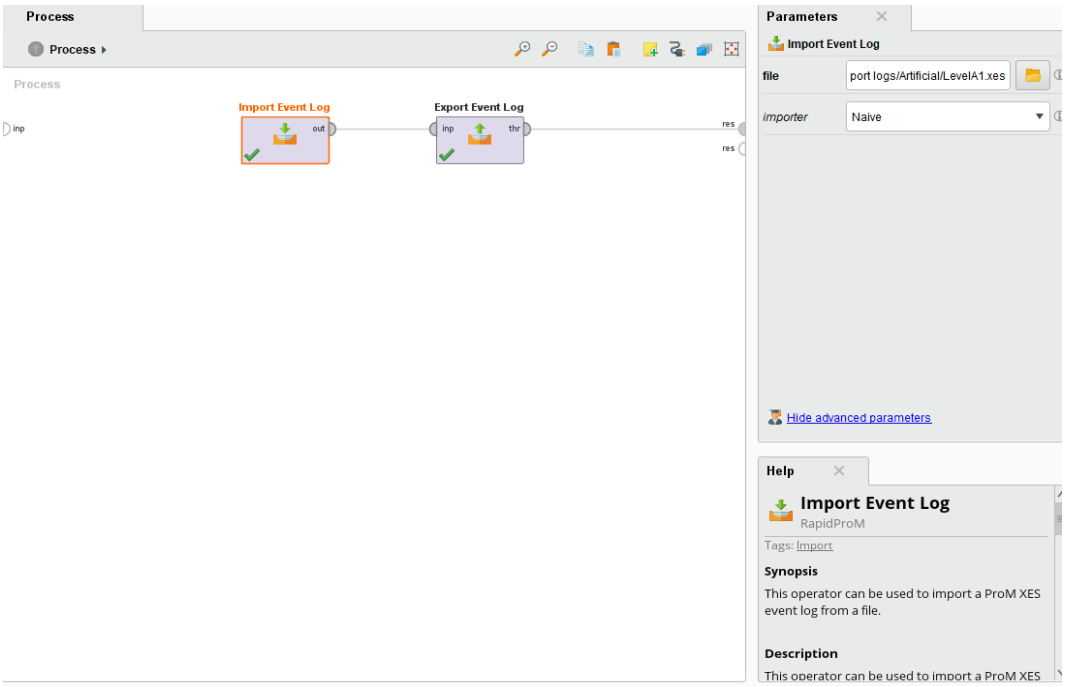
We know from import cases, that it works for levels A1 and A2. Hence, we try the export for the same levels.

We do this by first importing the log for the given level, export that log to a file, import the log from that file again, and show that the result are the same as with the import as shown in the previous section.
Steps to run export and test :

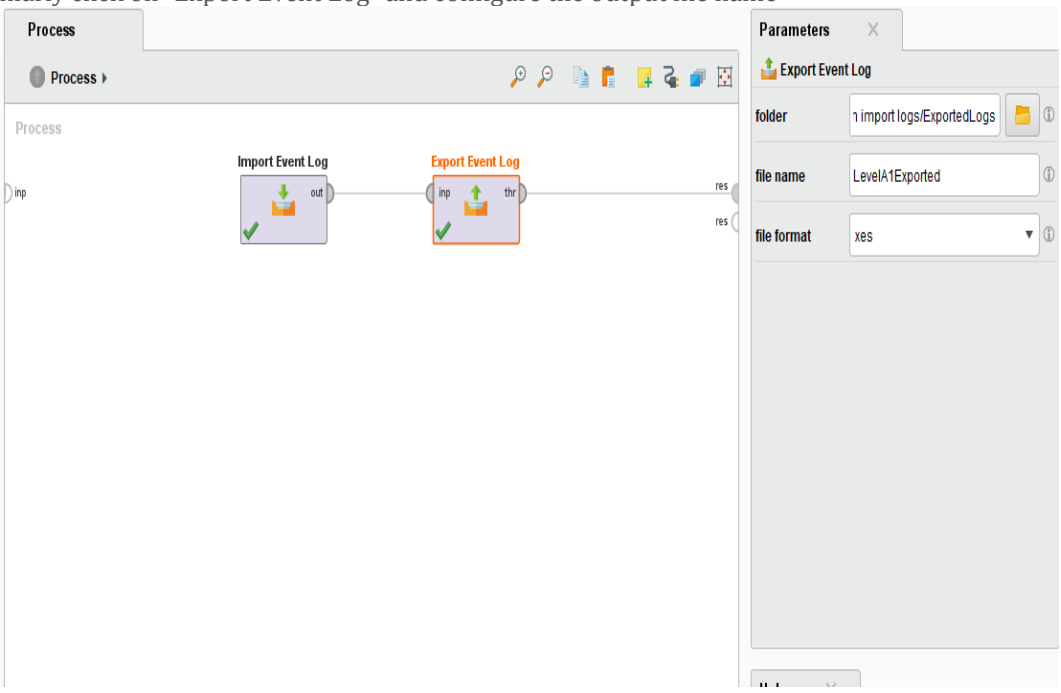
1. Create a process to import a log file and export the event log



2. In the parameter window(right side of the screen, in our case), configure the output folder.
3. For every test click on “import event log” and change its parameter for a new event log file.



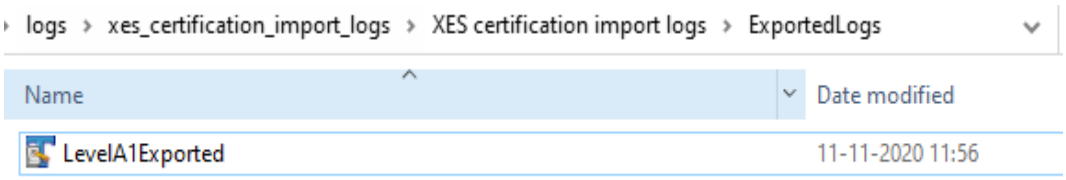
4. Similarly click on “Export Event Log” and configure the output file name



5. You can later import these newly exported files and validate the contents by just running the import as we did in the import cases.

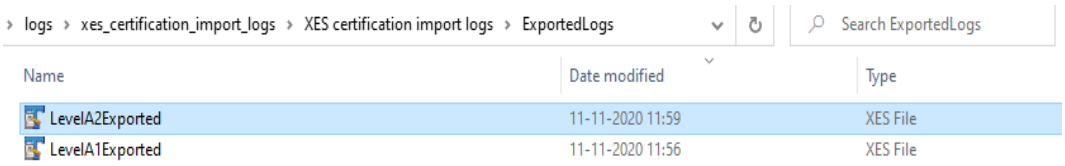
In addition, the steps are described above and only the screenshot of result will be given in the individual sections.

Level A1

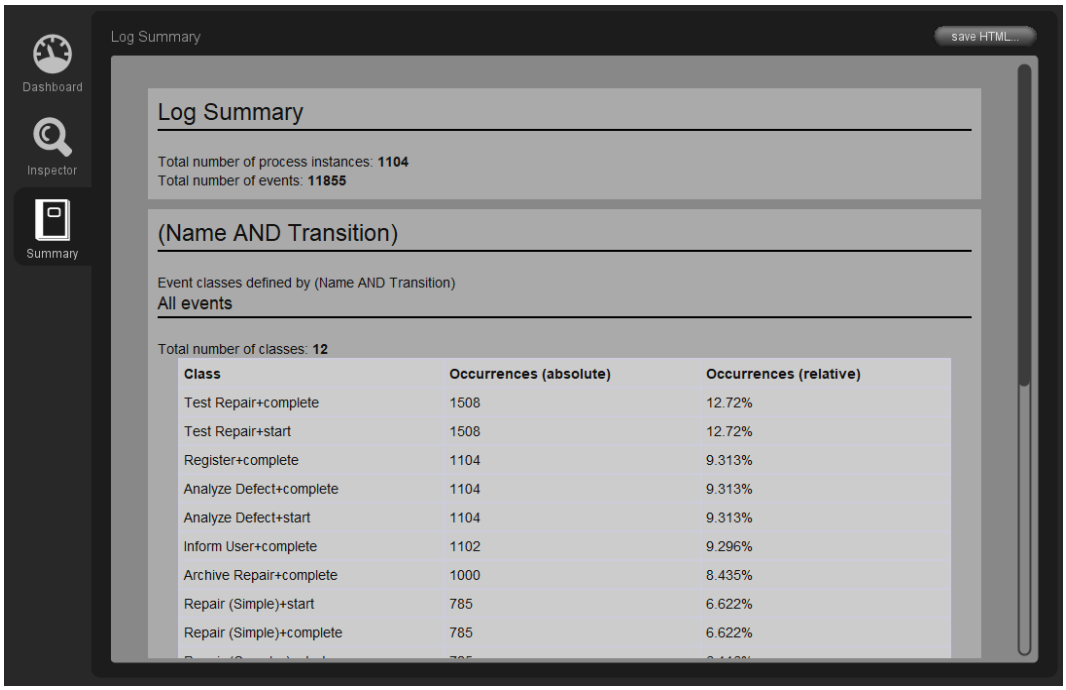


EXPORT

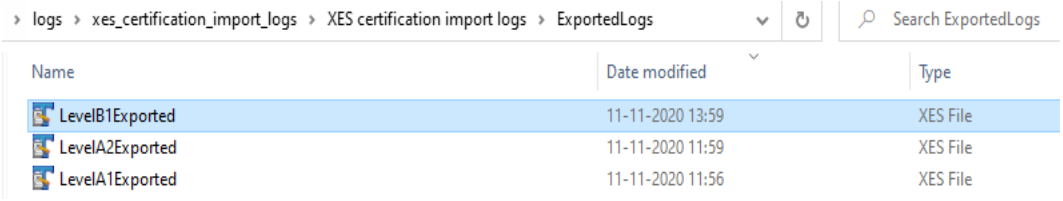
Level A2



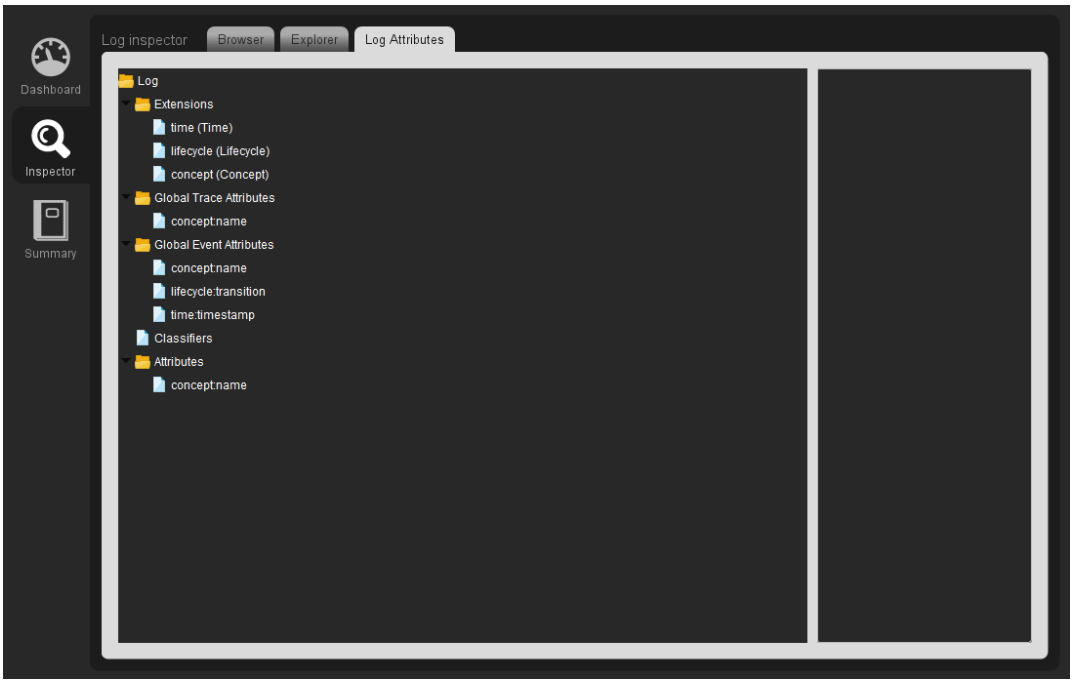
EXPORT



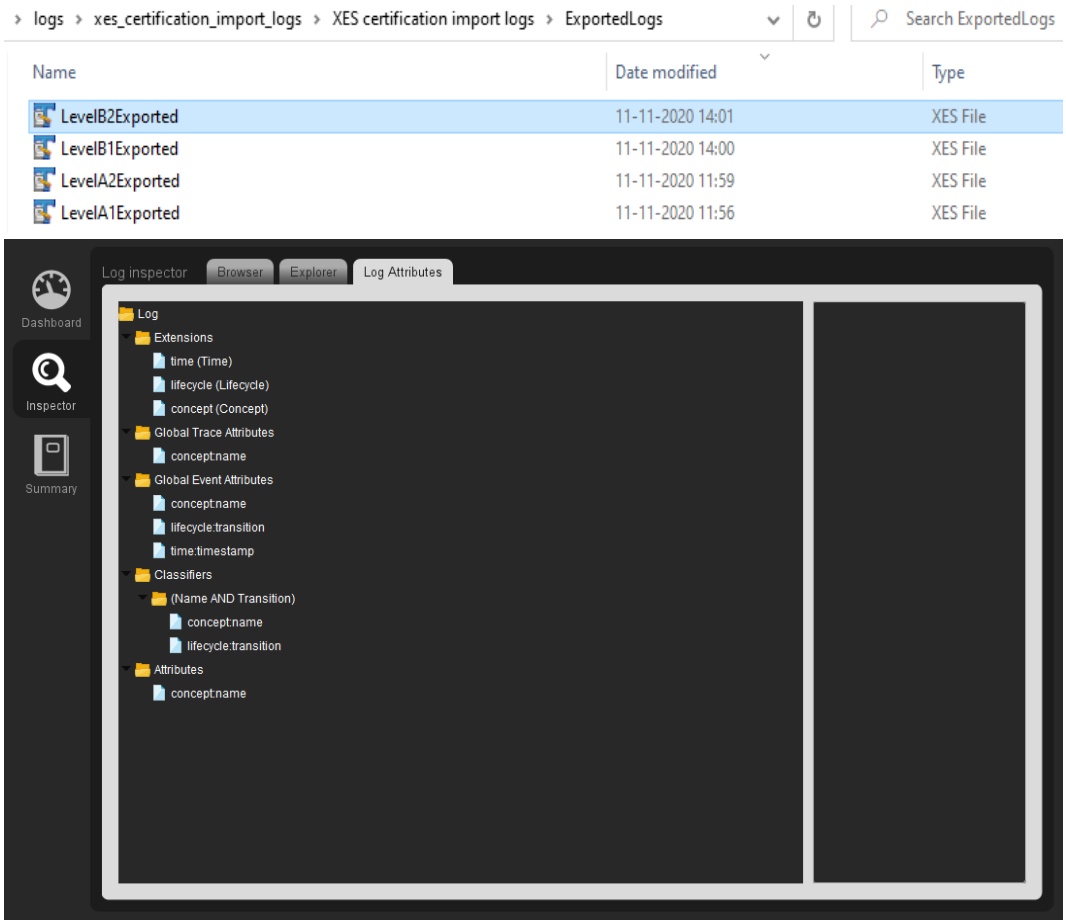
Level B1



EXPORT

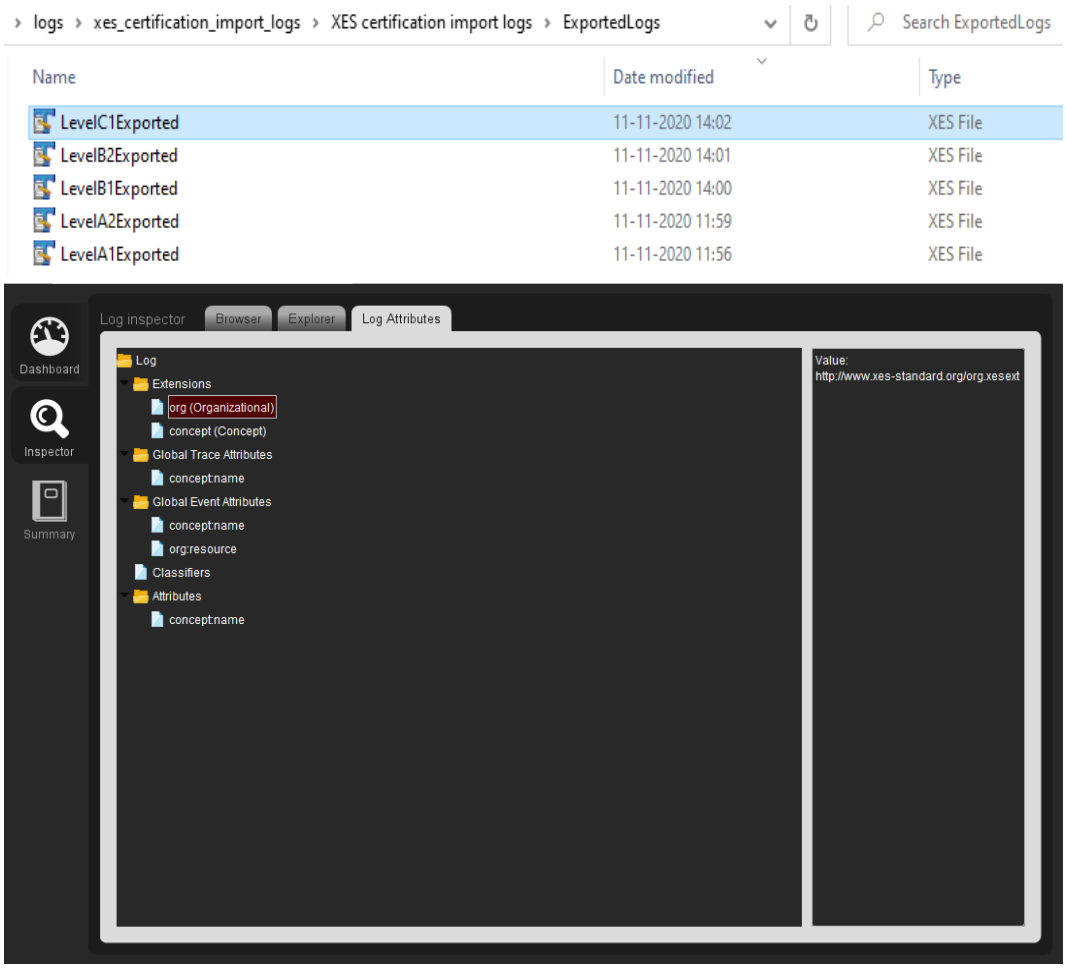

Dashboard
Inspector
Summary
Log inspector
Browser
Explorer
Log Attributes
Log
Extensions
time (Time)
lifecycle (Lifecycle)
concept (Concept)
Global Trace Attributes
concept:name
Global Event Attributes
concept:name
lifecycle:transition
time:timestamp
Classifiers
Attributes
concept:name

Level B2


logs › xes_certification_import_logs › XES certification import logs › ExportedLogs
Search ExportedLogs
Name
Date modified
Type
LevelB2Exported
11-11-2020 14:01
XES File
LevelB1Exported
11-11-2020 14:00
XES File
LevelA2Exported
11-11-2020 11:59
XES File
LevelA1Exported
11-11-2020 11:56
XES File
Log inspector
Browser
Explorer
Log Attributes
Dashboard
Inspector
Summary
Log
Extensions
time (Time)
lifecycle (Lifecycle)
concept (Concept)
Global Trace Attributes
concept:name
Global Event Attributes
concept:name
lifecycle:transition
time:timestamp
Classifiers
(Name AND Transition)
concept:name
lifecycle:transition
Attributes
concept:name

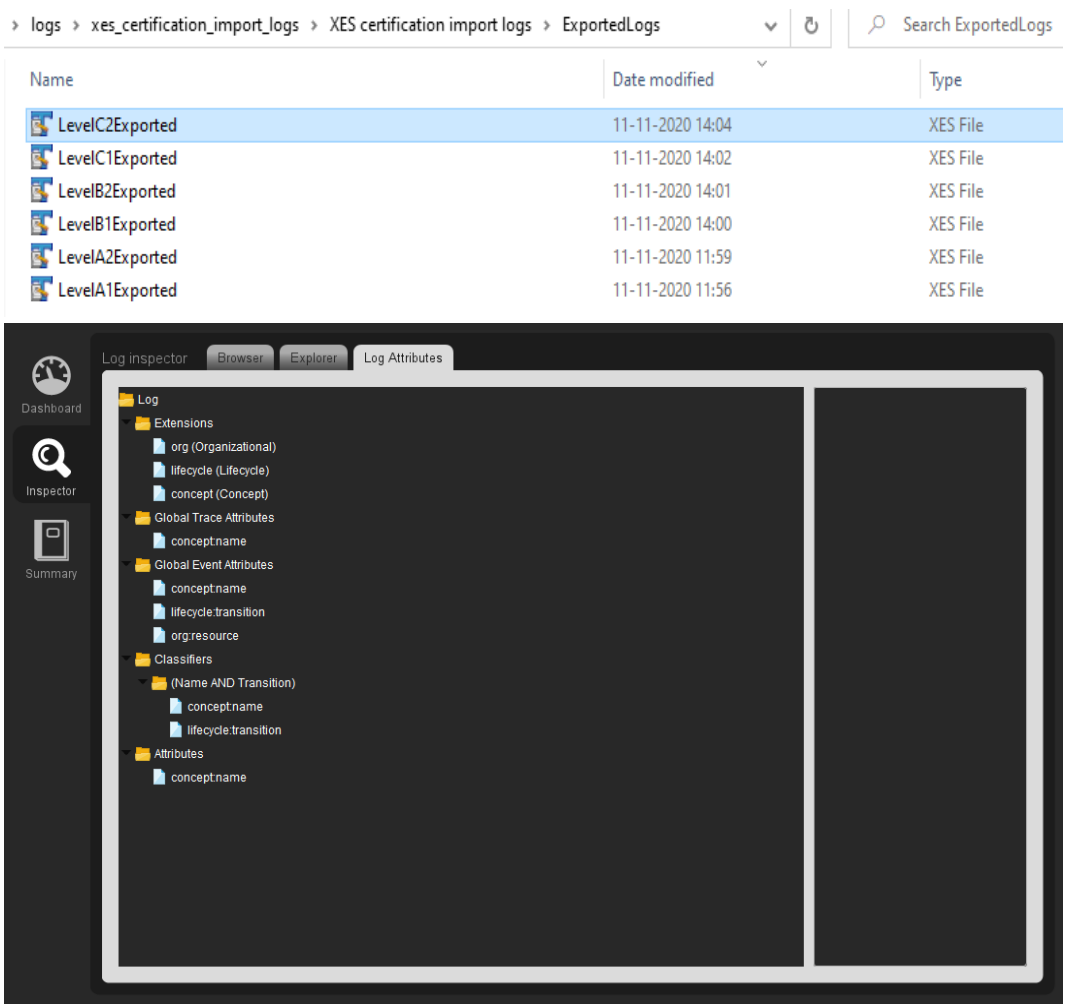
EXPORT

Level C1



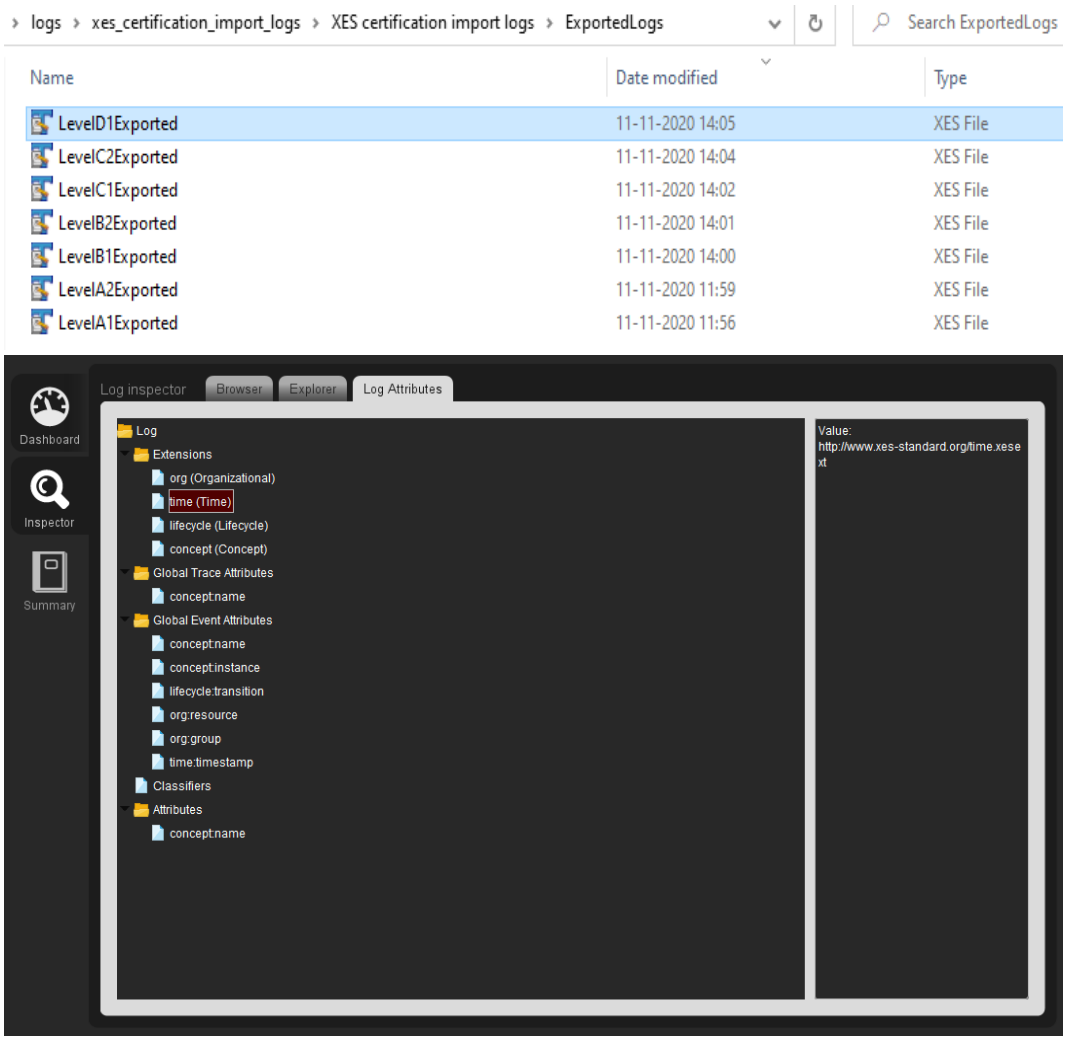
EXPORT

Level C2



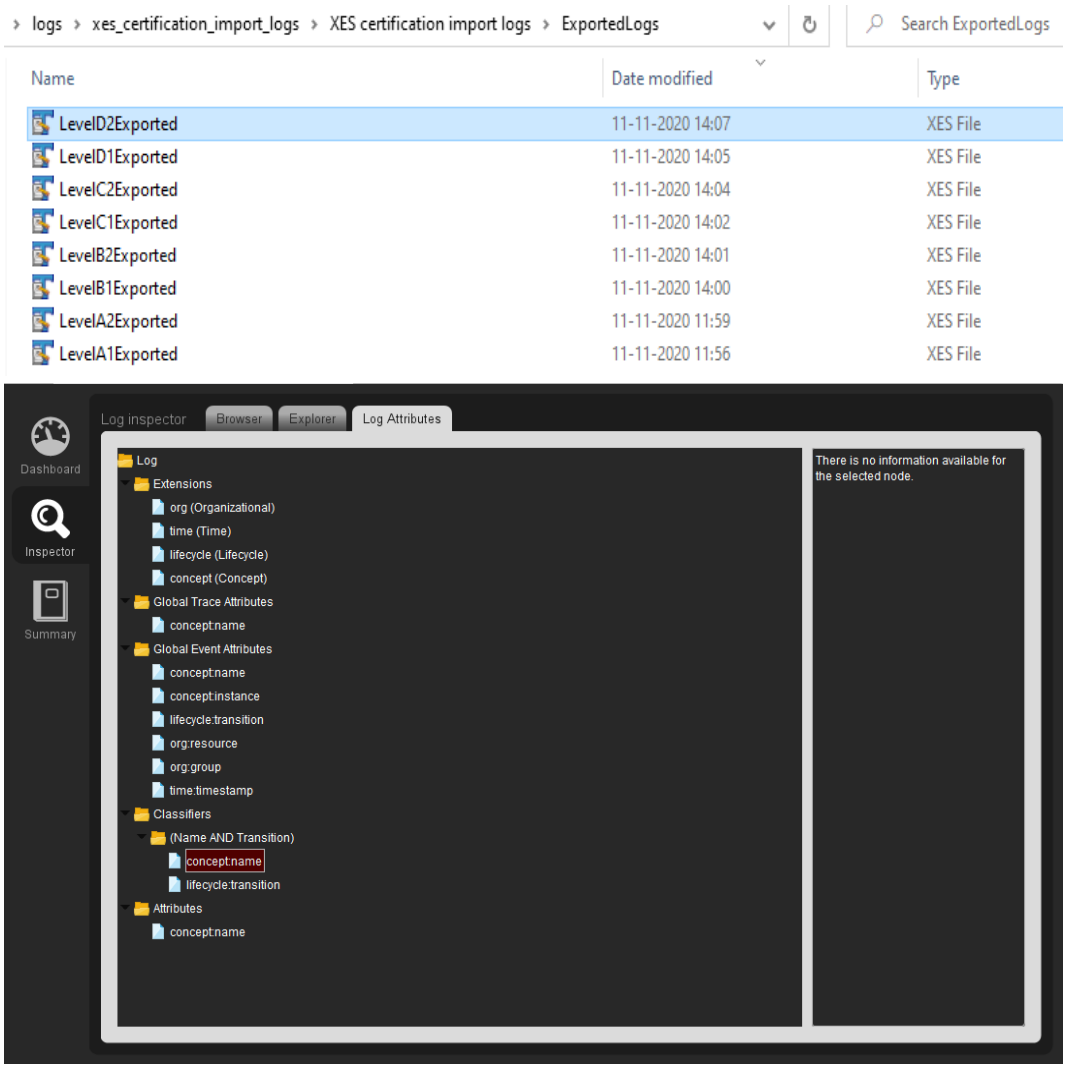
EXPORT

Level D1

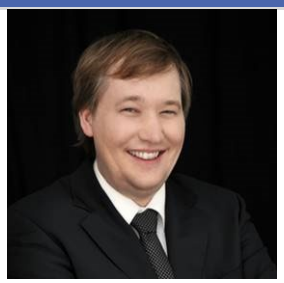
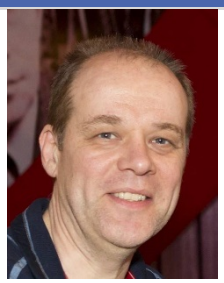


EXPORT

Level D2



Contact Information

WIL VAN DER AALST CHAIR	CHRISTIAN GÜNTHER VICE-CHAIR	ERIC VERBEEK SECRETARY
		
Tel +31 40 247 4295 w.m.p.v.d.aalst@tue.nl	**Tel** +31 64 1780680 christian@fluxicon.com	**Tel** +31 40 247 3755 h.m.w.verbeek@tue.nl

IEEE XES Working Group
IEEE Task Force on Process Mining
http://www.win.tue.nl/ieeetfpm