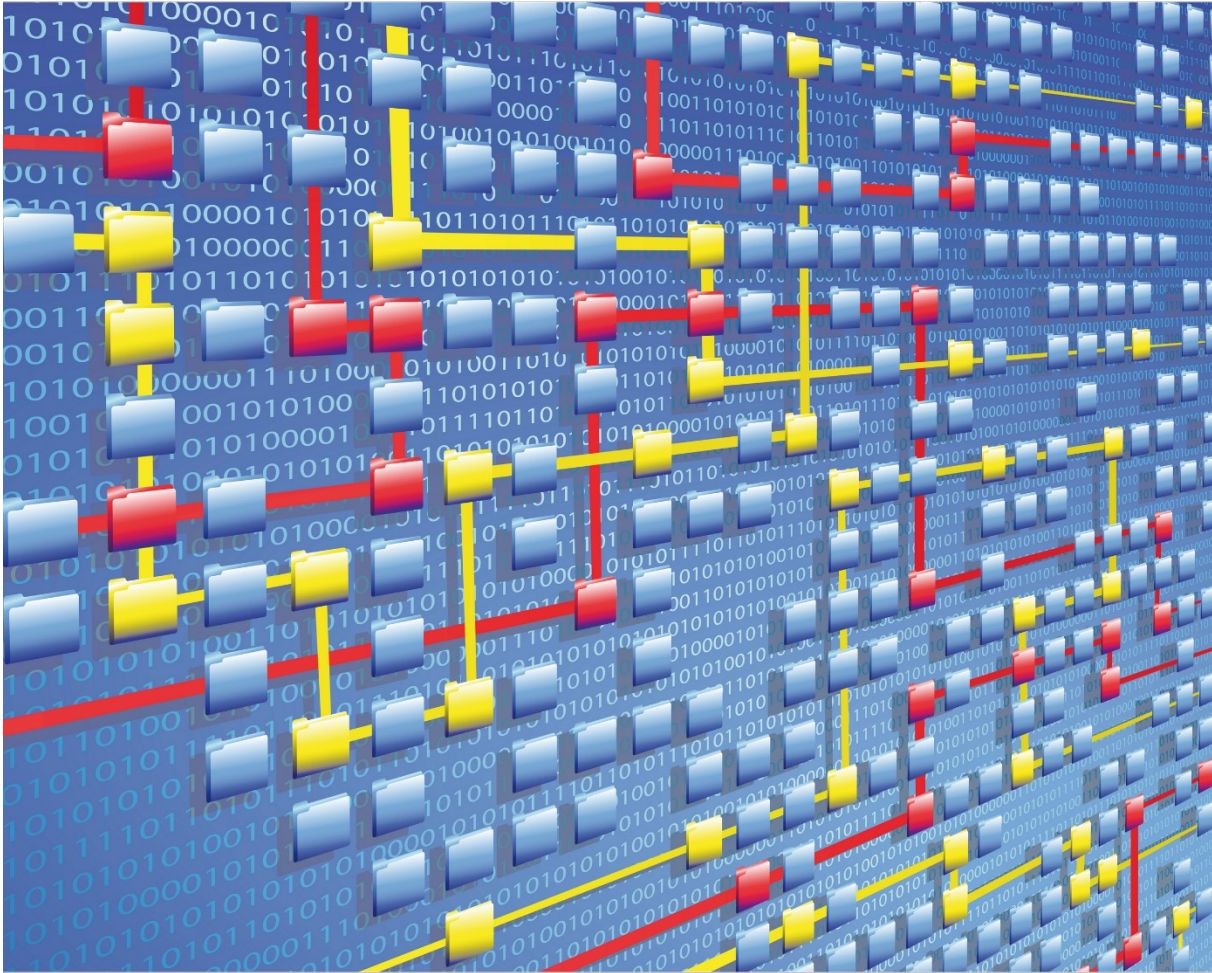


IEEE Task Force on



Process Mining

XES CERTIFICATION FOR
PMLAB LITE

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TOOL

Tool

NAME

pmlab-lite

VENDOR

Community, including:

Polytechnic University of Catalonia, Technical University of Denmark, Humboldt-Universität zu Berlin

VERSION

0.4.5 - <https://github.com/pmlab/pmlab-lite>

REQUESTED CERTIFICATION LEVELS

Import

A-D, X

Export

A-D, X



META

Meta

AUTHORS

Matthias Weidlich, Glenn Dittmann

DATE

03/02/2021

HISTORY

CHANGES

AUTHOR(S)	DATE	DESCRIPTION
Glenn Dittmann	03/02/2021	Initial submission (Note: leaving out DFG's for very large real-life logs)
Glenn Dittmann	17/02/2021	Added Screenshots for the attributes of the imported logs of level B-X
Glenn Dittmann	23/02/2021	Updated Screenshots showing all attributes (especially X1, X2) and integrating them in the correct section

IMPORT

Import

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

Number of traces in the log: 13087
Number of events in the log: 262200
Classifiers in the log: {'Activity classifier': ['concept:name', 'lifecycle:transition']}

Exporting and reimporting the log...

27502it [00:00, 275015.67it/s]Processing log...
3215154it [00:11, 275995.62it/s]

Number of traces in the reimported log: 13087
Number of events in the reimported log: 262200
Classifiers in the reimported log: {'Activity classifier': ['concept:name', 'lifecycle:transition']}

BPIC13_closed_problems

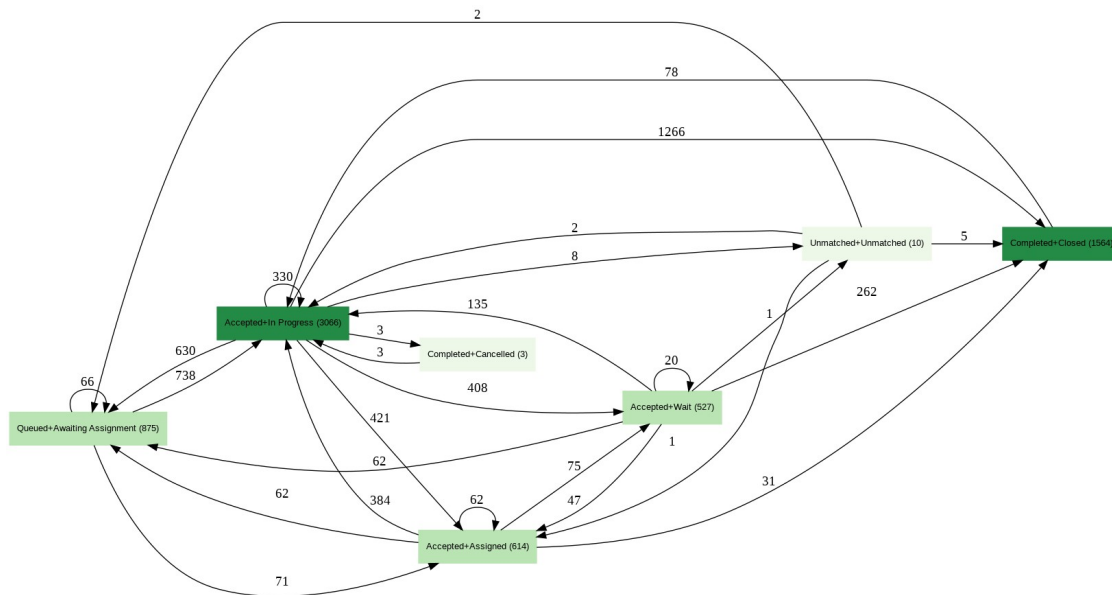
Number of traces in the log: 1487
Number of events in the log: 6660
Classifiers in the log: {'Activity classifier': ['concept:name', 'lifecycle:transition'], 'Resource classifier': ['org:resource']}

Exporting and reimporting the log...

23551it [00:00, 235509.66it/s]Processing log...
175042it [00:00, 199773.87it/s]

Number of traces in the reimported log: 1487
Number of events in the reimported log: 6660
Classifiers in the reimported log: {'Activity classifier': ['concept:name', 'lifecycle:transition'], 'Resource classifier': ['org:resource']}

IMPORT



BPIC13_incidents

Number of traces in the log: 7554
Number of events in the log: 65533
Classifiers in the log: {'Activity classifier': ['concept:name', 'lifecycle:transition'], 'Resource classifier': ['org:resource']}

Exporting and reimporting the log...

32648it [00:00, 326476.42it/s]Processing log...
1720264it [00:05, 307724.87it/s]

Number of traces in the reimported log: 7554
Number of events in the reimported log: 65533
Classifiers in the reimported log: {'Activity classifier': ['concept:name', 'lifecycle:transition'], 'Resource classifier': ['org:resource']}

BPIC13_open_problems

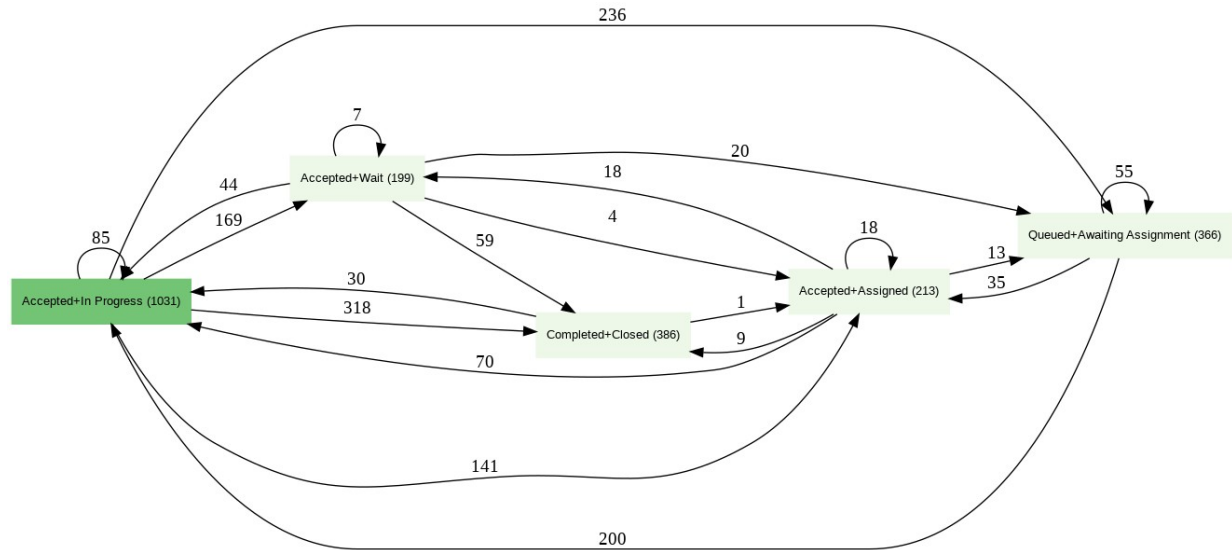
Number of traces in the log: 819
Number of events in the log: 2351
Classifiers in the log: {'Activity classifier': ['concept:name', 'lifecycle:transition'], 'Resource classifier': ['org:resource']}

Exporting and reimporting the log...

Processing log...
58772it [00:00, 309049.33it/s]

Number of traces in the reimported log: 819
Number of events in the reimported log: 2351
Classifiers in the reimported log: {'Activity classifier': ['concept:name', 'lifecycle:transition'], 'Resource classifier': ['org:resource']}

IMPORT



BPIC15_1

Number of traces in the log: 1199
 Number of events in the log: 52217
 Classifiers in the log:
 {'Activity classifier': ['concept:name', 'lifecycle:transition'],
 'Activity classifier activityNameEN': ['activityNameEN',
 'lifecycle:transition'],
 'Activity classifier activityNameNL': ['activityNameNL',
 'lifecycle:transition'],
 'Resource': ['org:resource']}

Exporting and reimporting the log...

2033lit [00:00, 203304.38it/s]Processing log...
 1381966it [00:07, 184246.86it/s]

Number of traces in the reimported log: 1199
 Number of events in the reimported log: 52217
 Classifiers in the log:
 {'Activity classifier': ['concept:name', 'lifecycle:transition'],
 'Activity classifier activityNameEN': ['activityNameEN',
 'lifecycle:transition'],
 'Activity classifier activityNameNL': ['activityNameNL',
 'lifecycle:transition'],
 'Resource': ['org:resource']}

IMPORT

BPIC15_2

```
Number of traces in the log: 832
Number of events in the log: 44354
Classifiers in the log:
{'Activity classifier': ['concept:name', 'lifecycle:transition'],
 'Activity classifier activityNameEN': ['activityNameEN',
                                       'lifecycle:transition'],
 'Activity classifier activityNameNL': ['activityNameNL',
                                       'lifecycle:transition'],
 'Resource': ['org:resource']}
```

Exporting and reimporting the log...

```
17196it [00:00, 171958.93it/s]Processing log...
1155576it [00:07, 160772.18it/s]
```

```
Number of traces in the reimported log: 832
Number of events in the reimported log: 44354
Classifiers in the log:
{'Activity classifier': ['concept:name', 'lifecycle:transition'],
 'Activity classifier activityNameEN': ['activityNameEN',
                                       'lifecycle:transition'],
 'Activity classifier activityNameNL': ['activityNameNL',
                                       'lifecycle:transition'],
 'Resource': ['org:resource']}
```

BPIC15_3

```
Number of traces in the log: 1409
Number of events in the log: 59681
Classifiers in the log:
{'Activity classifier': ['concept:name', 'lifecycle:transition'],
 'Activity classifier activityNameEN': ['activityNameEN',
                                       'lifecycle:transition'],
 'Activity classifier activityNameNL': ['activityNameNL',
                                       'lifecycle:transition'],
 'Resource': ['org:resource']}
```

Exporting and reimporting the log...

```
20380it [00:00, 203798.74it/s]Processing log...
1576754it [00:07, 210799.99it/s]
```

```
Number of traces in the reimported log: 1409
Number of events in the reimported log: 59681
Classifiers in the log:
{'Activity classifier': ['concept:name', 'lifecycle:transition'],
 'Activity classifier activityNameEN': ['activityNameEN',
                                       'lifecycle:transition'],
 'Activity classifier activityNameNL': ['activityNameNL',
                                       'lifecycle:transition'],
 'Resource': ['org:resource']}
```


IMPORT

BPIC15_4

```
Number of traces in the log: 1053
Number of events in the log: 47293
Classifiers in the log:
{'Activity classifier': ['concept:name', 'lifecycle:transition'],
 'Activity classifier activityNameEN': ['activityNameEN',
                                         'lifecycle:transition'],
 'Activity classifier activityNameNL': ['activityNameNL',
                                         'lifecycle:transition'],
 'Resource': ['org:resource']}
```

Exporting and reimporting the log...

```
27684it [00:00, 276135.16it/s]Processing log...
1243132it [00:05, 222349.48it/s]
```

```
Number of traces in the reimported log: 1053
Number of events in the reimported log: 47293
Classifiers in the log:
{'Activity classifier': ['concept:name', 'lifecycle:transition'],
 'Activity classifier activityNameEN': ['activityNameEN',
                                         'lifecycle:transition'],
 'Activity classifier activityNameNL': ['activityNameNL',
                                         'lifecycle:transition'],
 'Resource': ['org:resource']}
```

BPIC15_5

```
Number of traces in the log: 1156
Number of events in the log: 59083
Classifiers in the log:
{'Activity classifier': ['concept:name', 'lifecycle:transition'],
 'Activity classifier activityNameEN': ['activityNameEN',
                                         'lifecycle:transition'],
 'Activity classifier activityNameNL': ['activityNameNL',
                                         'lifecycle:transition'],
 'Resource': ['org:resource']}
```

Exporting and reimporting the log...

```
26154it [00:00, 261539.63it/s]Processing log...
1551272it [00:06, 228488.60it/s]
```

```
Number of traces in the reimported log: 1156
Number of events in the reimported log: 59083
Classifiers in the log:
{'Activity classifier': ['concept:name', 'lifecycle:transition'],
 'Activity classifier activityNameEN': ['activityNameEN',
                                         'lifecycle:transition'],
 'Activity classifier activityNameNL': ['activityNameNL',
                                         'lifecycle:transition'],
 'Resource': ['org:resource']}
```

IMPORT

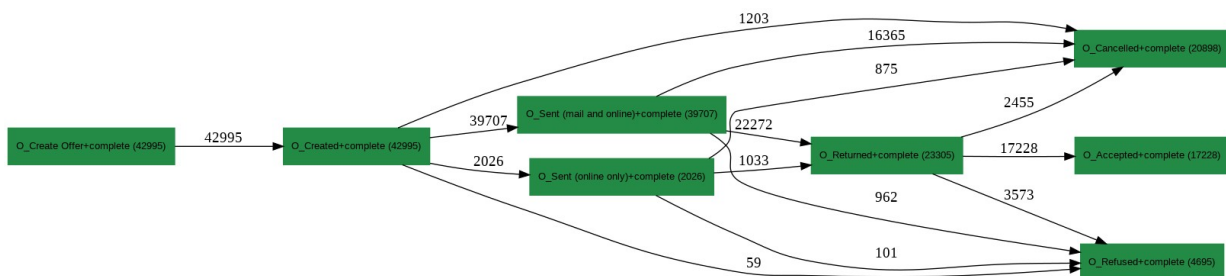
BPIC17 - Offer log

Number of traces in the log: 42995
Number of events in the log: 193849
Classifiers in the log:
{'Event Name': ['concept:name'],
'MXML Legacy Classifier': ['concept:name', 'lifecycle:transition'],
'Resource': ['org:resource']}

Exporting and reimporting the log...

20252it [00:00, 202514.88it/s]Processing log...
4049042it [00:18, 214872.05it/s]

Number of traces in the reimported log: 42995
Number of events in the reimported log: 193849
Classifiers in the log:
{'Event Name': ['concept:name'],
'MXML Legacy Classifier': ['concept:name', 'lifecycle:transition'],
'Resource': ['org:resource']}



BPIC17

Number of traces in the log: 31509
Number of events in the log: 1202267
Classifiers in the log:
{'Event Name': ['concept:name'],
'MXML Legacy Classifier': ['concept:name', 'lifecycle:transition'],
'Resource': ['org:resource']}

Exporting and reimporting the log...

30496it [00:00, 304174.89it/s]Processing log...
22194672it [01:12, 304553.64it/s]

Number of traces in the reimported log: 31509
Number of events in the reimported log: 1202267
Classifiers in the log:
{'Event Name': ['concept:name'],
'MXML Legacy Classifier': ['concept:name', 'lifecycle:transition'],
'Resource': ['org:resource']}

IMPORT

```
Concept name of the trace: Application_419883832
Events belonging to this trace:
{'Action': 'Created',
 'EventID': 'Application 419883832',
 'EventOrigin': 'Application',
 'concept:name': 'A Create Application',
 'lifecycle:transition': 'complete',
 'org:resource': 'User_46',
 'time:timestamp': datetime.datetime(2016, 3, 30, 12, 15, 28, 708000, tzinfo=datetime.timezone.utc)}

{'Action': 'Created',
 'EventID': 'Workitem 1369577084',
 'EventOrigin': 'Workflow',
 'concept:name': 'W Complete application',
 'lifecycle:transition': 'schedule',
 'org:resource': 'User_46',
 'time:timestamp': datetime.datetime(2016, 3, 30, 12, 15, 28, 718000, tzinfo=datetime.timezone.utc)}

{'Action': 'Obtained',
 'EventID': 'Workitem 936047951',
 'EventOrigin': 'Workflow',
 'concept:name': 'W Complete application',
 'lifecycle:transition': 'start',
 'org:resource': 'User_46',
 'time:timestamp': datetime.datetime(2016, 3, 30, 12, 15, 28, 722000, tzinfo=datetime.timezone.utc)}

{'Action': 'statechange',
 'EventID': 'ApplState 374252998',
 'EventOrigin': 'Application',
 'concept:name': 'A Concept',
 'lifecycle:transition': 'complete',
 'org:resource': 'User_46',
 'time:timestamp': datetime.datetime(2016, 3, 30, 12, 15, 28, 730000, tzinfo=datetime.timezone.utc)}

{'Action': 'statechange',
 'EventID': 'ApplState 1443200745',
 'EventOrigin': 'Application',
 'concept:name': 'A Accepted',
 'lifecycle:transition': 'complete',
 'org:resource': 'User_46',
 'time:timestamp': datetime.datetime(2016, 3, 30, 12, 20, 43, 352000, tzinfo=datetime.timezone.utc)}

{'Accepted': False,
 'Action': 'Created',
 'CreditScore': 0,
 'EventID': 'Offer 2145781332',
 'EventOrigin': 'Offer',
 'FirstWithdrawalAmount': 2000.0,
 'MonthlyCost': 204.86,
 'NumberOfTerms': 120,
 'OfferedAmount': 19500.0,
 'Selected': False,
 'concept:name': 'O Create Offer',
 'lifecycle:transition': 'complete',
 'org:resource': 'User_46',
 'time:timestamp': datetime.datetime(2016, 3, 30, 12, 28, 31, 131000, tzinfo=datetime.timezone.utc)}

{'Action': 'statechange',
 'EventID': 'OfferState 1098713979',
 'EventOrigin': 'Offer',
 'OfferID': 'Offer 2145781332',
 'concept:name': 'O Created',
 'lifecycle:transition': 'complete',
 'org:resource': 'User_46',
 'time:timestamp': datetime.datetime(2016, 3, 30, 12, 28, 32, 359000, tzinfo=datetime.timezone.utc)}

{'Action': 'statechange',
 'EventID': 'ApplState 396073397',
 'EventOrigin': 'Application',
 'concept:name': 'A Cancelled',
 'lifecycle:transition': 'complete',
 'org:resource': 'User_46',
 'time:timestamp': datetime.datetime(2016, 3, 30, 12, 30, 27, 137000, tzinfo=datetime.timezone.utc)}

{'Action': 'statechange',
 'EventID': 'OfferState 1726498422',
 'EventOrigin': 'Offer',
 'OfferID': 'Offer 2145781332',
 'concept:name': 'O Cancelled',
 'lifecycle:transition': 'complete',
 'org:resource': 'User_46',
 'time:timestamp': datetime.datetime(2016, 3, 30, 12, 30, 27, 161000, tzinfo=datetime.timezone.utc)}

{'Action': 'Deleted',
 'EventID': 'Workitem 969556786',
 'EventOrigin': 'Workflow',
 'concept:name': 'W Complete application',
 'lifecycle:transition': 'complete',
 'org:resource': 'User_46',
 'time:timestamp': datetime.datetime(2016, 3, 30, 12, 30, 27, 172000, tzinfo=datetime.timezone.utc)}
```

IMPORT

ARTIFICIAL LOGS

FILTERED REPAIR EXAMPLE 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

IMPORT

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

IMPORT

			SolverS1
			SolverS2
			SolverS3
			System
			Tester1
			Tester2
			Tester3
			Tester4
			Tester5
			Tester6
org:role		Role 1, 2, and 3	
ITEMS:41, #1, o.1.1	string	Role 10	
		Role 9	
time:timestamp	date	Like 1970-01-02T12:23:56.720+01:00	
Key 4			
defectFixed	boolean	true	
		false	
		1	
		10	
		2	
		3	
defectType	int	4	
		5	
		6	
		7	
		8	
		9	
		0	
numberRepairs	int	1	
		2	
		3	
phoneType	String	T1	
		T2	
		T3	

Level A1

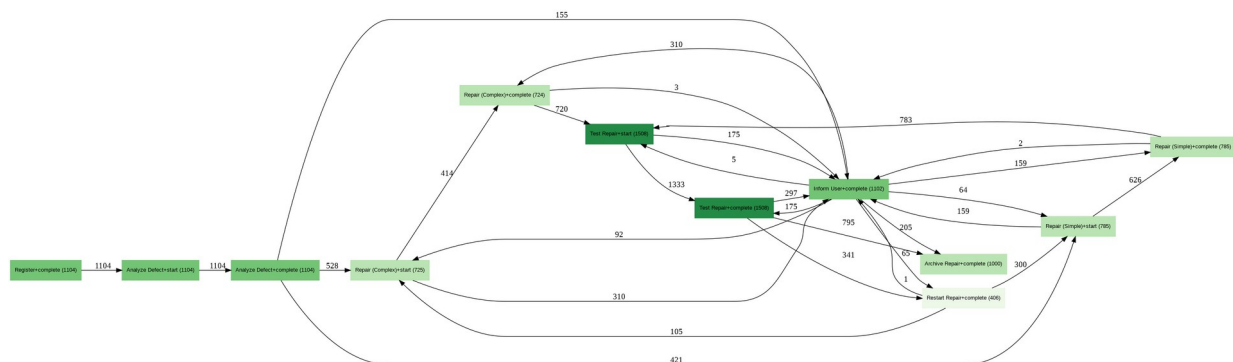
Number of traces in the log: 1104
 Number of events in the log: 11855
 Classifiers in the log: {}

Exporting and reimporting the log...

Processing log...
 75560it [00:00, 323293.73it/s]

Number of traces in the reimported log: 1104
 Number of events in the reimported log: 11855
 Classifiers in the reimported log: {}

IMPORT



Level A2

Number of traces in the log: 1104

Number of events in the log: 11855

```
Classifiers in the log: {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}
```

Exporting and reimporting the log...

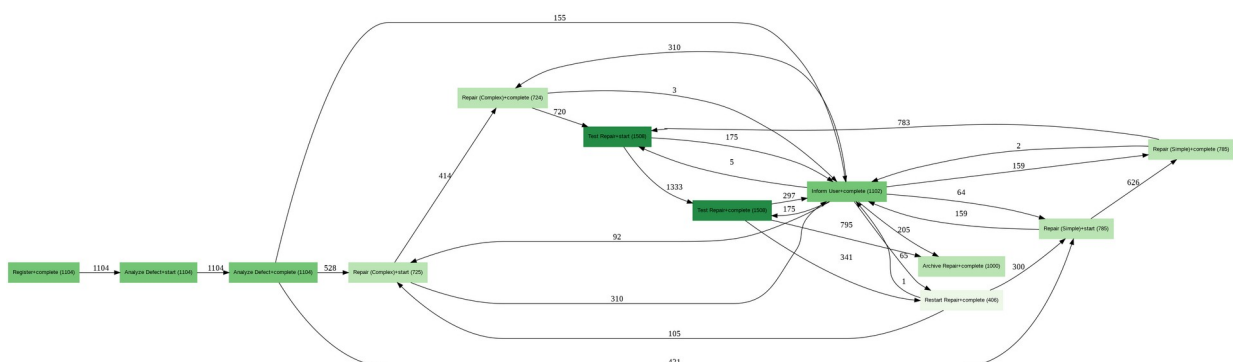
Processing log...

```
99276it [00:00, 227501.38it/s]
```

Number of traces in the reimported log: 1104

```
Number of events in the reimported log: 11855
```

```
Classifiers in the reimported log: {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}
```



IMPORT

Level B1

Number of traces in the log: 1104
Number of events in the log: 11855
Classifiers in the log: {}

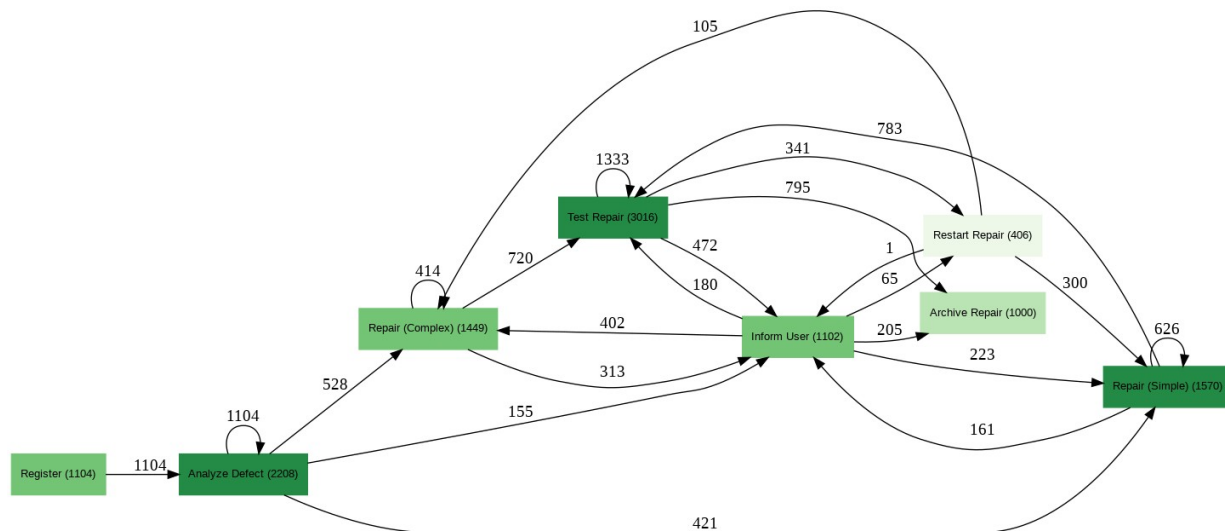
Exporting and reimporting the log...

23676it [00:00, 234683.81it/s]Processing log...
122988it [00:00, 184227.79it/s]

Number of traces in the reimported log: 1104
Number of events in the reimported log: 11855
Classifiers in the reimported log: {}

Concept name of the trace: 48 (the same as the TRACE_ID below)
TRACE_ID: 48 (trace number 527)

concept:name	lifecycle:transition	time:timestamp
> Register	complete	01/16/1970 15:13:21.730000
> Analyze Defect	start	01/16/1970 15:16:20.158000
> Analyze Defect	complete	01/16/1970 15:28:51.184000
> Repair (Simple)	start	01/16/1970 15:59:56.116000
> Repair (Simple)	complete	01/16/1970 16:09:42.081000
> Test Repair	start	01/16/1970 16:12:59.906000
> Inform User	complete	01/16/1970 16:20:27.840000
> Test Repair	complete	01/16/1970 16:27:08.720000
> Restart Repair	complete	01/16/1970 16:37:56.742000
> Repair (Simple)	start	01/16/1970 16:41:48.089000
> Repair (Simple)	complete	01/16/1970 16:50:39.195000
> Test Repair	start	01/16/1970 16:53:19.824000
> Test Repair	complete	01/16/1970 17:06:58.698000
> Restart Repair	complete	01/16/1970 17:14:29.855000
> Repair (Simple)	start	01/16/1970 17:18:22.109000
> Repair (Simple)	complete	01/16/1970 17:32:48.832000
> Test Repair	start	01/16/1970 17:35:15.231000
> Test Repair	complete	01/16/1970 17:46:49.136000
> Archive Repair	complete	01/16/1970 18:00:11.165000



IMPORT

Level B2

Number of traces in the log: 1104

Number of events in the log: 11855

```
Classifiers in the log: {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}
```

Exporting and reimporting the log...

```
21050it [00:00, 210073.47it/s]Processing log...
```

```
122990it [00:00, 262361.05it/s]
```

Number of traces in the reimported log: 1104

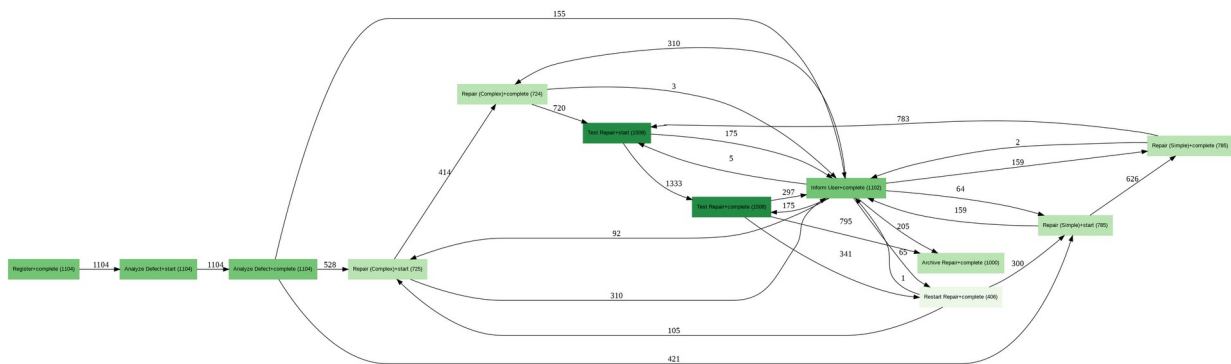
```
Number of events in the reimported log: 11855
```

```
Classifiers in the reimported log: {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}
```

Concept name of the trace: 825 (the same as the TRACE_ID below)

TRACE_ID: 825 (trace number 911)

concept:name	lifecycle:transition	time:timestamp
> Register	complete	02/08/1970 21:00:14.152000
> Analyze Defect	start	02/08/1970 21:02:31.053000
> Analyze Defect	complete	02/08/1970 21:13:51.115000
> Repair (Simple)	start	02/08/1970 21:43:41.416000
> Repair (Simple)	complete	02/08/1970 21:54:13.299000
> Test Repair	start	02/08/1970 21:58:27.104000
> Test Repair	complete	02/08/1970 22:09:12.265000
> Inform User	complete	02/08/1970 22:18:01.828000
> Restart Repair	complete	02/08/1970 22:22:50.041000
> Repair (Simple)	start	02/08/1970 22:25:33.783000
> Repair (Simple)	complete	02/08/1970 22:39:19.224000
> Test Repair	start	02/08/1970 22:40:48.601000
> Test Repair	complete	02/08/1970 22:48:51.991000
> Restart Repair	complete	02/08/1970 23:01:46.772000
> Repair (Simple)	start	02/08/1970 23:04:45.564000
> Repair (Simple)	complete	02/08/1970 23:21:30.890000
> Test Repair	start	02/08/1970 23:24:51.048000
> Test Repair	complete	02/08/1970 23:36:16.253000
> Archive Repair	complete	02/08/1970 23:43:42.848000



IMPORT

Level C1

```
Number of traces in the log: 1104
Number of events in the log: 11855
Classifiers in the log: {}
```

Exporting and reimporting the log...

```
28745it [00:00, 287448.90it/s]Processing log...
99274it [00:00, 196930.41it/s]
```

```
Number of traces in the reimported log: 1104
Number of events in the reimported log: 11855
Classifiers in the reimported log: {}
```

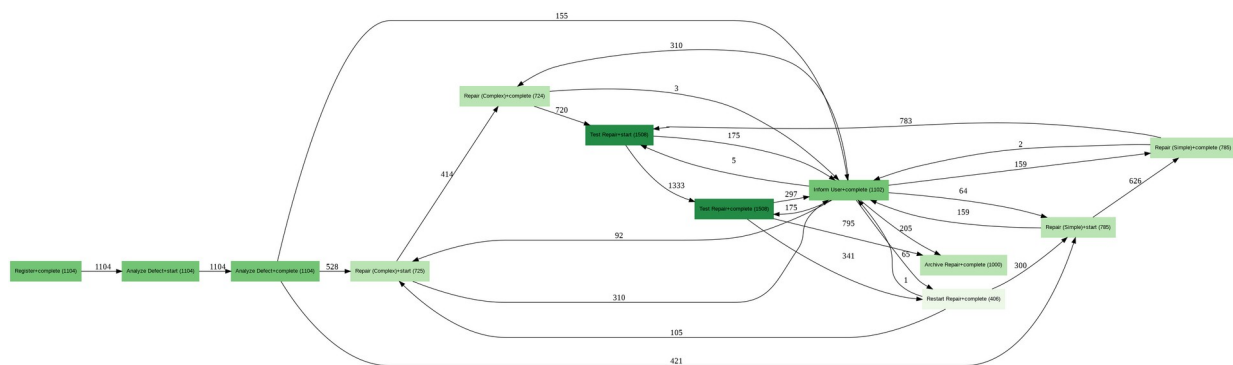
Concept name of the trace: 64 (the same as the TRACE_ID below)

TRACE ID: 64 (trace number 705)

```

concept:name                                org:resource
> Register+complete                         System
> Analyze Defect+start                      Tester5
> Analyze Defect+complete                   Tester5
> Repair (Complex)+start                    SolverC2
> Repair (Complex)+complete                 SolverC2
> Test Repair+start                         Tester1
> Test Repair+complete                     Tester1
> Inform User+complete                      System
> Archive Repair+complete                   System

```



IMPORT

Level C2

Number of traces in the log: 1104

Number of events in the log: 11855

Classifiers in the log: {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}

Exporting and reimporting the log...

25755it [00:00, 257549.02it/s]Processing log...

122990it [00:00, 189975.80it/s]

Number of traces in the reimported log: 1104

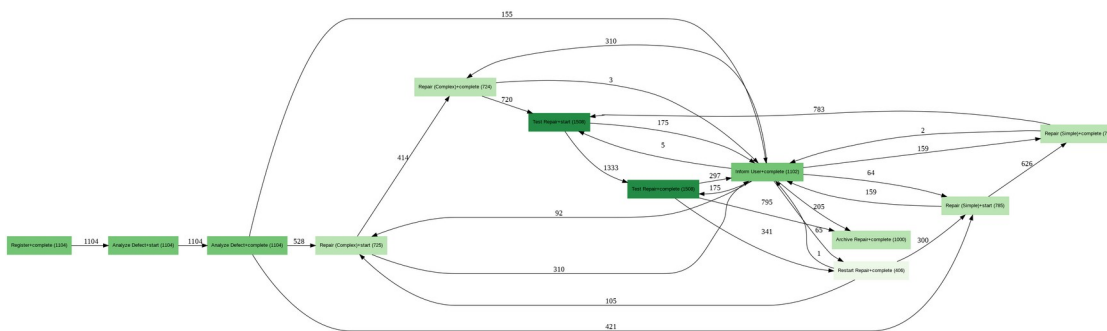
Number of events in the reimported log: 11855

Classifiers in the reimported log: {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}

Concept name of the trace: 303 (the same as the TRACE_ID below)

TRACE_ID: 303 (trace number 332)

concept:name	lifecycle:transition	org:resource
> Register	complete	System
> Analyze Defect	start	Tester6
> Analyze Defect	complete	Tester6
> Repair (Complex)	start	SolverC2
> Repair (Complex)	complete	SolverC2
> Test Repair	start	Tester3
> Inform User	complete	System
> Test Repair	complete	Tester3
> Archive Repair	complete	System



IMPORT

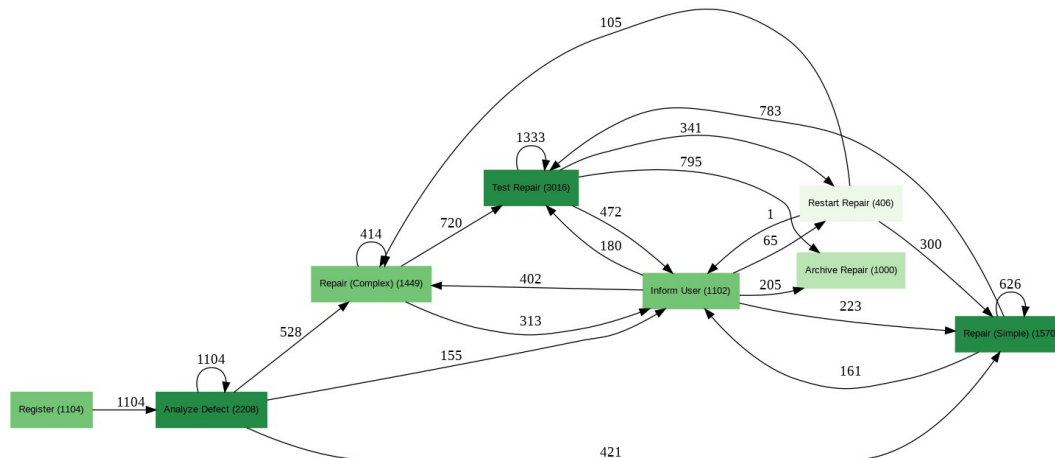
Level D1

Number of traces in the log: 1104
Number of events in the log: 11855
Classifiers in the log: {}

Exporting and reimporting the log...

23043it [00:00, 228535.16it/s]Processing log...
210612it [00:00, 255495.48it/s]

Number of traces in the reimported log: 1104
Number of events in the reimported log: 11855
Classifiers in the reimported log: {}



IMPORT

```
Concept name of the trace: 1013
Events belonging to this trace:
{'concept:instance': 'instance 1',
 'concept:name': 'Register',
 'lifecycle:transition': 'complete',
 'org:group': 'Group -',
 'org:resource': 'System',
 'time:timestamp': datetime.datetime(1970, 1, 22, 9, 48, 43, 825000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}

{'concept:instance': 'instance 1',
 'concept:name': 'Analyze Defect',
 'lifecycle:transition': 'start',
 'org:group': 'Groups 2 and 4',
 'org:resource': 'Tester6',
 'org:role': 'Role 9',
 'time:timestamp': datetime.datetime(1970, 1, 22, 9, 51, 35, 829000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}

{'concept:instance': 'instance 1',
 'concept:name': 'Analyze Defect',
 'lifecycle:transition': 'complete',
 'org:group': 'Groups 2 and 4',
 'org:resource': 'Tester6',
 'org:role': 'Role 9',
 'time:timestamp': datetime.datetime(1970, 1, 22, 10, 1, 23, 520000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}

{'concept:instance': 'instance 1',
 'concept:name': 'Repair (Complex)',
 'lifecycle:transition': 'start',
 'org:group': 'Groups 1, 3, and 5',
 'org:resource': 'SolverC3',
 'org:role': 'Role 10',
 'time:timestamp': datetime.datetime(1970, 1, 22, 10, 30, 2, 679000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}

.

{'concept:instance': 'instance 1',
 'concept:name': 'Inform User',
 'lifecycle:transition': 'complete',
 'org:group': 'Group -',
 'org:resource': 'System',
 'time:timestamp': datetime.datetime(1970, 1, 22, 10, 48, 32, 366000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}

{'concept:instance': 'instance 1',
 'concept:name': 'Repair (Complex)',
 'lifecycle:transition': 'complete',
 'org:group': 'Groups 1, 3, and 5',
 'org:resource': 'SolverC3',
 'org:role': 'Role 10',
 'time:timestamp': datetime.datetime(1970, 1, 22, 11, 18, 8, 573000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}

{'concept:instance': 'instance 1',
 'concept:name': 'Test Repair',
 'lifecycle:transition': 'start',
 'org:group': 'Groups 2 and 4',
 'org:resource': 'Tester2',
 'org:role': 'Role 9',
 'time:timestamp': datetime.datetime(1970, 1, 22, 11, 20, 23, 480000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}

{'concept:instance': 'instance 1',
 'concept:name': 'Test Repair',
 'lifecycle:transition': 'complete',
 'org:group': 'Groups 2 and 4',
 'org:resource': 'Tester2',
 'org:role': 'Role 9',
 'time:timestamp': datetime.datetime(1970, 1, 22, 11, 32, 22, 903000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}
```

IMPORT

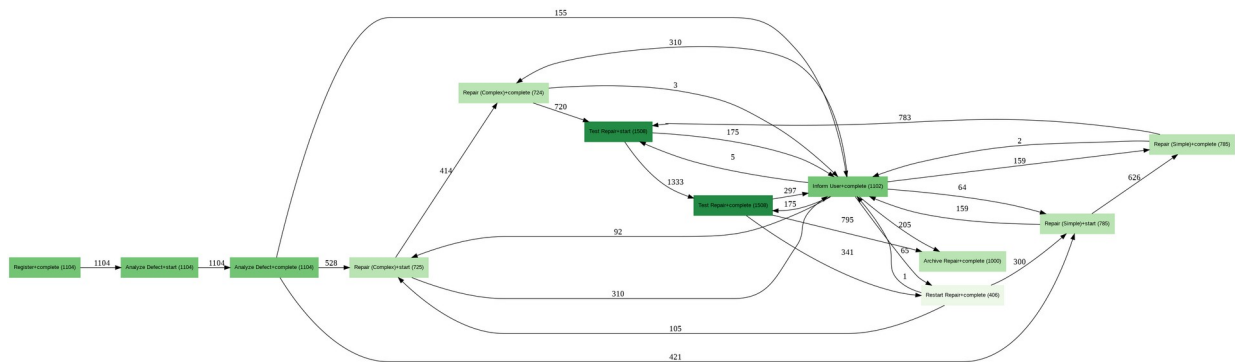
Level D2

```
Number of traces in the log: 1104
Number of events in the log: 11855
Classifiers in the log: {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}
```

Exporting and reimporting the log...

```
28144it [00:00, 275543.51it/s]Processing log...
210614it [00:00, 273197.31it/s]
```

```
Number of traces in the reimported log: 1104
Number of events in the reimported log: 11855
Classifiers in the reimported log: {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}
```



IMPORT

```
Concept name of the trace: 190
Events belonging to this trace:
{'concept:instance': 'instance 1',
 'concept:name': 'Register',
 'lifecycle:transition': 'complete',
 'org:group': 'Group -',
 'org:resource': 'System',
 'time:timestamp': datetime.datetime(1970, 1, 8, 6, 39, 51, 325000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}

{'concept:instance': 'instance 1',
 'concept:name': 'Analyze Defect',
 'lifecycle:transition': 'start',
 'org:group': 'Groups 2 and 4',
 'org:resource': 'Tester3',
 'org:role': 'Role 9',
 'time:timestamp': datetime.datetime(1970, 1, 8, 6, 42, 18, 603000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}

{'concept:instance': 'instance 1',
 'concept:name': 'Analyze Defect',
 'lifecycle:transition': 'complete',
 'org:group': 'Groups 2 and 4',
 'org:resource': 'Tester3',
 'org:role': 'Role 9',
 'time:timestamp': datetime.datetime(1970, 1, 8, 6, 51, 11, 283000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}

{'concept:instance': 'instance 1',
 'concept:name': 'Inform User',
 'lifecycle:transition': 'complete',
 'org:group': 'Group -',
 'org:resource': 'System',
 'time:timestamp': datetime.datetime(1970, 1, 8, 7, 11, 24, 236000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}

{'concept:instance': 'instance 1',
 'concept:name': 'Repair (Complex)',
 'lifecycle:transition': 'start',
 'org:group': 'Groups 1, 3, and 5',
 'org:resource': 'SolverC1',
 'org:role': 'Role 10',
 'time:timestamp': datetime.datetime(1970, 1, 8, 7, 17, 50, 607000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}

{'concept:instance': 'instance 1',
 'concept:name': 'Repair (Complex)',
 'lifecycle:transition': 'complete',
 'org:group': 'Groups 1, 3, and 5',
 'org:resource': 'SolverC1',
 'org:role': 'Role 10',
 'time:timestamp': datetime.datetime(1970, 1, 8, 7, 30, 18, 378000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}

{'concept:instance': 'instance 1',
 'concept:name': 'Test Repair',
 'lifecycle:transition': 'start',
 'org:group': 'Groups 2 and 4',
 'org:resource': 'Tester5',
 'org:role': 'Role 9',
 'time:timestamp': datetime.datetime(1970, 1, 8, 7, 33, 18, 33000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}

{'concept:instance': 'instance 1',
 'concept:name': 'Test Repair',
 'lifecycle:transition': 'complete',
 'org:group': 'Groups 2 and 4',
 'org:resource': 'Tester5',
 'org:role': 'Role 9',
 'time:timestamp': datetime.datetime(1970, 1, 8, 7, 44, 19, 747000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}

{'concept:instance': 'instance 1',
 'concept:name': 'Archive Repair',
 'lifecycle:transition': 'complete',
 'org:group': 'Group -',
 'org:resource': 'System',
 'time:timestamp': datetime.datetime(1970, 1, 8, 7, 51, 32, 69000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600)))}
```

IMPORT

Flag X1

```
Number of traces in the log: 1104  
Number of events in the log: 11855  
Classifiers in the log: {}
```

Exporting and reimporting the log...

```
29246it [00:00, 291357.17it/s]Processing log...  
217828it [00:00, 265590.49it/s]
```

```
Number of traces in the reimported log: 1104  
Number of events in the reimported log: 11855  
Classifiers in the reimported log: {}
```

Note: No DFG image here, since the log neither contains activity attributes nor classifiers.

IMPORT

```
Concept name of the trace: 858
Events belonging to this trace:
{'Key 1': 'Register',
 'Key 2': 'instance 1',
 'Key 3': 'System',
 'Key 4': datetime.datetime(1970, 2, 24, 0, 40, 23, 584000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'complete',
 'numberRepairs': 1,
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Group -'}

{'ITEMS:41, #1, o.1.1': 'Role 9',
 'Key 1': 'Analyze Defect',
 'Key 2': 'instance 1',
 'Key 3': 'Tester2',
 'Key 4': datetime.datetime(1970, 2, 24, 0, 45, 58, 751000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'start',
 'numberRepairs': 2,
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Groups 2 and 4'}

{'ITEMS:41, #1, o.1.1': 'Role 9',
 'Key 1': 'Analyze Defect',
 'Key 2': 'instance 1',
 'Key 3': 'Tester2',
 'Key 4': datetime.datetime(1970, 2, 24, 0, 58, 37, 791000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'complete',
 'defectType': 10,
 'numberRepairs': 3,
 'phoneType': 'T2',
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Groups 2 and 4'}

{'ITEMS:41, #1, o.1.1': 'Role 10',
 'Key 1': 'Repair (Complex)',
 'Key 2': 'instance 1',
 'Key 3': 'SolverC2',
 'Key 4': datetime.datetime(1970, 2, 24, 1, 25, 12, 105000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'start',
 'numberRepairs': 4,
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Groups 1, 3, and 5'}

{'Key 1': 'Inform User',
 'Key 2': 'instance 1',
 'Key 3': 'System',
 'Key 4': datetime.datetime(1970, 2, 24, 1, 33, 42, 294000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'complete',
 'numberRepairs': 5,
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Group -'}

{'ITEMS:41, #1, o.1.1': 'Role 10',
 'Key 1': 'Repair (Complex)',
 'Key 2': 'instance 1',
 'Key 3': 'SolverC2',
 'Key 4': datetime.datetime(1970, 2, 24, 1, 50, 25, 102000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'complete',
 'numberRepairs': 6,
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Groups 1, 3, and 5'}

{'ITEMS:41, #1, o.1.1': 'Role 9',
 'Key 1': 'Test Repair',
 'Key 2': 'instance 1',
 'Key 3': 'Tester1',
 'Key 4': datetime.datetime(1970, 2, 24, 1, 55, 25, 512000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'start',
 'numberRepairs': 7,
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Groups 2 and 4'}

{'ITEMS:41, #1, o.1.1': 'Role 9',
 'Key 1': 'Test Repair',
 'Key 2': 'instance 1',
 'Key 3': 'Tester1',
 'Key 4': datetime.datetime(1970, 2, 24, 2, 8, 37, 74000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'complete',
 'defectFixed': True,
 'numberRepairs': '0',
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Groups 2 and 4'}

{'Key 1': 'Archive Repair',
 'Key 2': 'instance 1',
 'Key 3': 'System',
 'Key 4': datetime.datetime(1970, 2, 24, 2, 21, 56, 885000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'complete',
 'defectFixed': True,
 'numberRepairs': '0',
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Group -'}
```

IMPORT

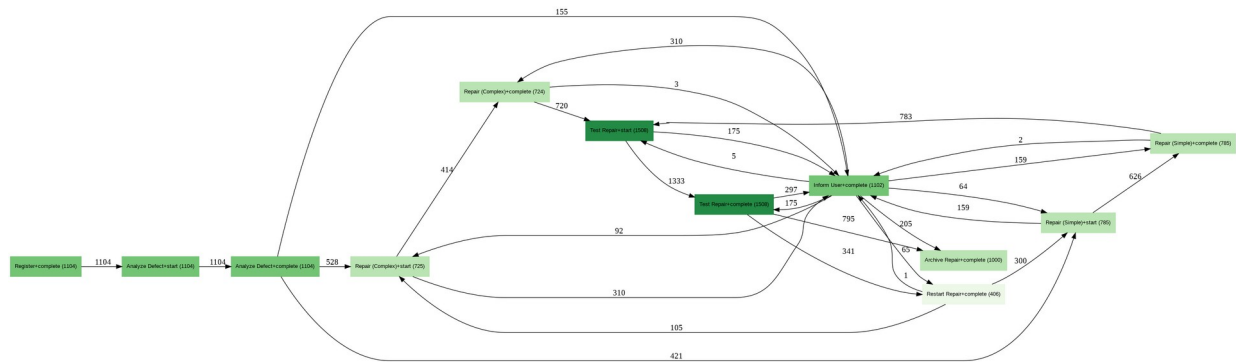
Flag X2

```
Number of traces in the log: 1104
Number of events in the log: 11855
Classifiers in the log: {'(Name AND Transition)': ['Key 1', 'Key 6']}
```

Exporting and reimporting the log...

```
31745it [00:00, 317448.79it/s]Processing log...
217830it [00:00, 276324.70it/s]
```

```
Number of traces in the reimported log: 1104
Number of events in the reimported log: 11855
Classifiers in the reimported log: {'(Name AND Transition)': ['Key 1', 'Key 6']}
```



IMPORT

```
Concept name of the trace: 287
Events belonging to this trace:
{'Key 1': 'Register',
 'Key 2': 'instance 1',
 'Key 3': 'System',
 'Key 4': datetime.datetime(1970, 1, 17, 15, 11, 25, 104000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'complete',
 'numberRepairs': 1,
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Group -'}

{'ITEMS:41, #1, o.1.1': 'Role 9',
 'Key 1': 'Analyze Defect',
 'Key 2': 'instance 1',
 'Key 3': 'Tester2',
 'Key 4': datetime.datetime(1970, 1, 17, 15, 16, 46, 88000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'start',
 'numberRepairs': 2,
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Groups 2 and 4'}

{'ITEMS:41, #1, o.1.1': 'Role 9',
 'Key 1': 'Analyze Defect',
 'Key 2': 'instance 1',
 'Key 3': 'Tester2',
 'Key 4': datetime.datetime(1970, 1, 17, 15, 27, 2, 510000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'complete',
 'defectType': 6,
 'numberRepairs': 3,
 'phoneType': 'T3',
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Groups 2 and 4'}

{'ITEMS:41, #1, o.1.1': 'Role 10',
 'Key 1': 'Repair (Complex)',
 'Key 2': 'instance 1',
 'Key 3': 'SolverC1',
 'Key 4': datetime.datetime(1970, 1, 17, 15, 55, 29, 380000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'start',
 'numberRepairs': 4,
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Groups 1, 3, and 5'}

{'ITEMS:41, #1, o.1.1': 'Role 10',
 'Key 1': 'Repair (Complex)',
 'Key 2': 'instance 1',
 'Key 3': 'SolverC1',
 'Key 4': datetime.datetime(1970, 1, 17, 16, 13, 42, 499000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'complete',
 'numberRepairs': 5,
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Groups 1, 3, and 5'}

{'ITEMS:41, #1, o.1.1': 'Role 9',
 'Key 1': 'Test Repair',
 'Key 2': 'instance 1',
 'Key 3': 'Tester6',
 'Key 4': datetime.datetime(1970, 1, 17, 16, 18, 41, 309000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'start',
 'numberRepairs': 6,
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Groups 2 and 4'}

{'ITEMS:41, #1, o.1.1': 'Role 9',
 'Key 1': 'Test Repair',
 'Key 2': 'instance 1',
 'Key 3': 'Tester6',
 'Key 4': datetime.datetime(1970, 1, 17, 16, 30, 57, 561000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'complete',
 'defectFixed': True,
 'numberRepairs': '0',
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Groups 2 and 4'}

{'Key 1': 'Inform User',
 'Key 2': 'instance 1',
 'Key 3': 'System',
 'Key 4': datetime.datetime(1970, 1, 17, 16, 39, 22, 366000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'complete',
 'numberRepairs': 8,
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Group -'}

{'Key 1': 'Archive Repair',
 'Key 2': 'instance 1',
 'Key 3': 'System',
 'Key 4': datetime.datetime(1970, 1, 17, 16, 45, 31, 931000, tzinfo=datetime.timezone(datetime.timedelta(0, 3600))),
 'Key 6': 'complete',
 'defectFixed': True,
 'numberRepairs': '0',
 '{0,1,2} 2Sa!! +1 &lt;x&gt;': 'Group -'}
```

Export

Level A1

```
Number of traces in the log: 1104
Number of events in the log: 11855
Classifiers in the log: {}

Exporting and reimporting the log...

Processing log...
75560it [00:00, 323293.73it/s]

Number of traces in the reimported log: 1104
Number of events in the reimported log: 11855
Classifiers in the reimported log: {}
```

Level A2

```
Number of traces in the log: 1104
Number of events in the log: 11855
Classifiers in the log: {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}

Exporting and reimporting the log...

Processing log...
99276it [00:00, 227501.38it/s]

Number of traces in the reimported log: 1104
Number of events in the reimported log: 11855
Classifiers in the reimported log: {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}
```

Level B1

```
Number of traces in the log: 1104
Number of events in the log: 11855
Classifiers in the log: {}

Exporting and reimporting the log...

23676it [00:00, 234683.81it/s]Processing log...
122988it [00:00, 184227.79it/s]

Number of traces in the reimported log: 1104
Number of events in the reimported log: 11855
Classifiers in the reimported log: {}
```

EXPORT

Level B2

```
Number of traces in the log: 1104
Number of events in the log: 11855
Classifiers in the log: {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}

Exporting and reimporting the log...

21050it [00:00, 210073.47it/s]Processing log...
122990it [00:00, 262361.05it/s]

Number of traces in the reimported log: 1104
Number of events in the reimported log: 11855
Classifiers in the reimported log: {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}
```

Level C1

```
Number of traces in the log: 1104
Number of events in the log: 11855
Classifiers in the log: {}

Exporting and reimporting the log...

28745it [00:00, 287448.90it/s]Processing log...
99274it [00:00, 196930.41it/s]

Number of traces in the reimported log: 1104
Number of events in the reimported log: 11855
Classifiers in the reimported log: {}
```

Level C2

```
Number of traces in the log: 1104
Number of events in the log: 11855
Classifiers in the log: {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}

Exporting and reimporting the log...

25755it [00:00, 257549.02it/s]Processing log...
122990it [00:00, 189975.80it/s]

Number of traces in the reimported log: 1104
Number of events in the reimported log: 11855
Classifiers in the reimported log: {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}
```

Level D1

```
Number of traces in the log: 1104
Number of events in the log: 11855
Classifiers in the log: {}

Exporting and reimporting the log...

23043it [00:00, 228535.16it/s]Processing log...
210612it [00:00, 255495.48it/s]

Number of traces in the reimported log: 1104
Number of events in the reimported log: 11855
Classifiers in the reimported log: {}
```

EXPORT

Level D2

```
Number of traces in the log: 1104
Number of events in the log: 11855
Classifiers in the log: {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}

Exporting and reimporting the log...

28144it [00:00, 275543.51it/s]Processing log...
210614it [00:00, 273197.31it/s]

Number of traces in the reimported log: 1104
Number of events in the reimported log: 11855
Classifiers in the reimported log: {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}
```

Flag X1

```
Number of traces in the log: 1104
Number of events in the log: 11855
Classifiers in the log: {}

Exporting and reimporting the log...

29246it [00:00, 291357.17it/s]Processing log...
217828it [00:00, 265590.49it/s]

Number of traces in the reimported log: 1104
Number of events in the reimported log: 11855
Classifiers in the reimported log: {}
```

EXPORT

Flag X2

```
Number of traces in the log: 1104
Number of events in the log: 11855
Classifiers in the log: {'(Name AND Transition)': ['Key 1', 'Key 6']}
```

Exporting and reimporting the log...

```
31745it [00:00, 317448.79it/s]Processing log...
217830it [00:00, 276324.70it/s]
```

```
Number of traces in the reimported log: 1104
Number of events in the reimported log: 11855
Classifiers in the reimported log: {'(Name AND Transition)': ['Key 1', 'Key 6']}
```

CONTACT

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