Example Doctor-Patient

This is a simple example about the interaction between the doctor and the patient. In this file we want to introduce the example and to show the expected results. In the Figure 1 you can see the business process diagram defined in the SecBPMN2 file.
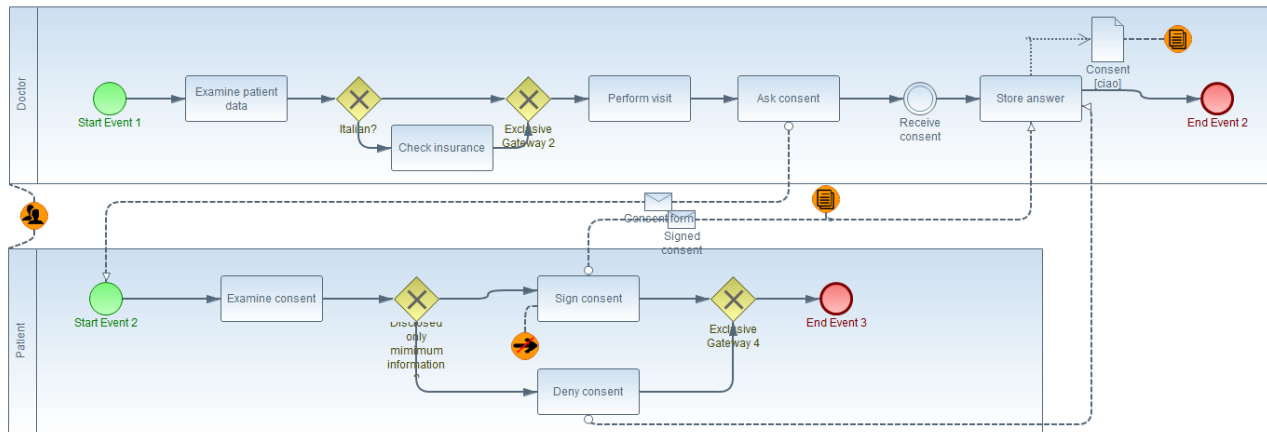

Figure 1 Business process diagram

We defined 2 policies, with the SecBPMN-Q language to evaluate the plug-in:

- Policy 1: There must be an Activity execute before the activity "Ask Consent".
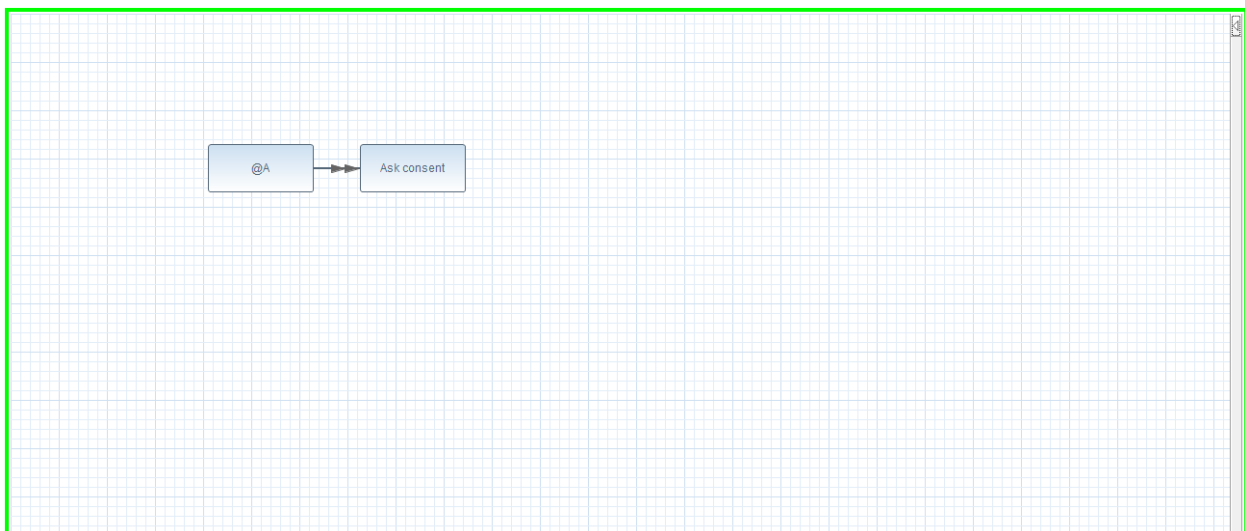

Figure 2 Security policy 1

- Policy 2: There must be a Message between the Doctor and an activity of the Patient.
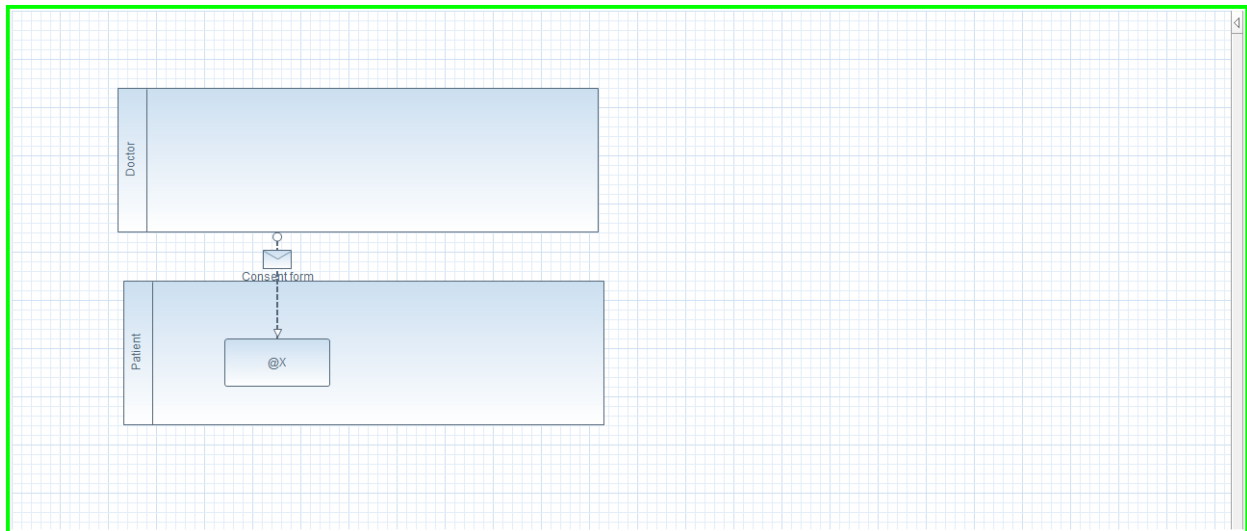

Figure 3 Secutiry policy 2

The log file is composed by traces. The traces represent the execution of a process. A trace is a sequence of Event that correspond to an activity of the business process diagram. In this example we use a log file with 2048 traces that are divided into 9 trace paths. A trace path is a sequence of event, represent multiple traces. The 9 trace paths are:

- TracePath1: Examine Patient data – Check insurance – Perform visit – Ask consent – Examine consent – Sign consent – Store answer.
- TracePath2: Examine Patient data – Check insurance – Perform visit – Ask consent – Examine consent – Deny consent – Store answer.
- TracePath3: Examine Patient data – Perform visit – Ask consent – Examine consent – Sign consent – Store answer.
- TracePath4: Examine Patient data – Perform visit – Ask consent – Examine consent – Deny consent – Store answer.
- TracePath5: Ask consent – Examine consent – Sign consent – Store answer.
- TracePath6: Ask consent – Examine consent – Deny consent – Store answer.
- TracePath7: Examine Patient data – Check insurance – Perform visit – Examine consent – Sign consent – Store answer.
- TracePath8: Examine Patient data – Check insurance – Perform visit – Ask consent – Sign consent – Store answer.
- TracePath9: Examine Patient data – Check insurance – Perform visit – Ask consent – Examine consent – Sign consent – Send form+compelte – Store answer.

The expected results at the end of the security analysis e conformance analysis are:

1. 4 Model Deviations and 1 Log Deviations for what concerns the conformance checking analysis. The results are show in figure 4.

Type	Tasks with Security Risks	Frequency (%)
Model Deviation	Examine patient data	9.58%
Model Deviation	Ask consent	0.88%
Model Deviation	Perform visit	9.58%
Model Deviation	Examine consent	0.88%
Log Deviation	Send form+complete	0.05%

Figure 4 Results for conformance checking analysis

2. TracePath5 and TracePath6 violate a Policy1 (defined before) and Traceath7 violates Policy1 and Policy2 (defined before). That is the result of the security analysis. (figure 5)

Trace Paths	Violations
TracePath5	P1.bpmnq
TracePath6	P1.bpmnq
TracePath7	P1.bpmnq,P2.bpmnq

Figure 5 Results of security analysis of log file