

**RED HAT FORUMS**

# KOGITO: NEXT GENERATION BUSINESS AUTOMATION

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# What is Business Automation?

## ■ Rules

- Encapsulate domain and define business-specific constraints and behaviors, keeping them separated from the main application flow

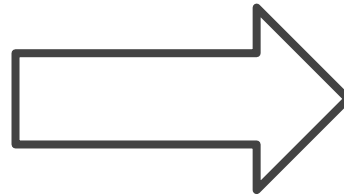
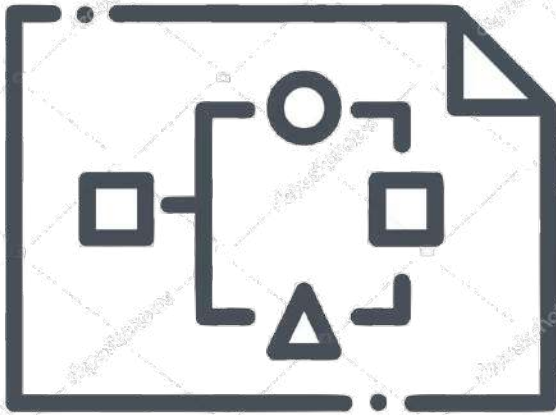


## ■ Processes

- Set of activities and tasks that, once completed following a specific workflow, will accomplish an organizational goal



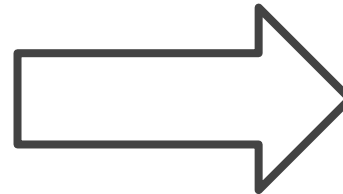
# Knowledge as a Service



*From business process/rules/decision to running service*

# Knowledge as a Service

WebSocket	JSON-P	JBatch	Concurrency	DI	JAX-RS	JACC	JASPIC
EL	JSF	BV	EJB	CDI	Web Services Metadata	JAX-WS	Debugging
JSP	Servlet	JPA	Interceptors	JTA	JAX-RPC (opt.)	EWS	Application Deployment (opt.)
JSTL	JavaMail	JMS	Common Annotations	JCA	JAXR	JAXM	Management
<div>JAXB   JAXP   JDBC   JMX   JAF   STAX</div>							



Kubernetes



OpenShift



Jaeger



Apache Kafka



QUARKUS



Jenkins



Prometheus



Grafana

*From macroservices to microservices*

# Kogito, ergo Automate



## ■ Kogito ergo cloud

A cloud-native development, deployment and execution platform for business automation:

- Rules and Decisions
- Processes and Cases

## ■ Kogito ergo domain

Adapts to your business domain instead of the other way around

- No more leaking of abstractions of the platform into your client applications
- Stay focused on business requirements instead of implementation technology

## ■ Kogito ergo power

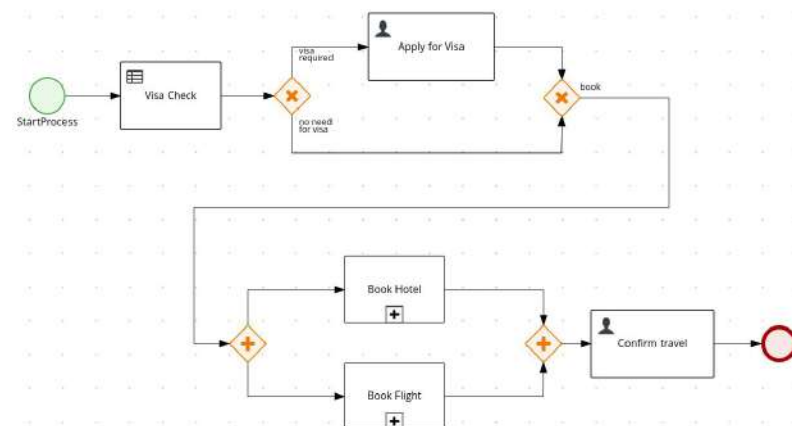
Achieve instant developer efficiency by having

- Tooling embeddable wherever you need it
- Code generation taking care of 80% of the work
- Flexibility to customize, only use what you need
- Simplified local development with live reload



# Kogito under the hood

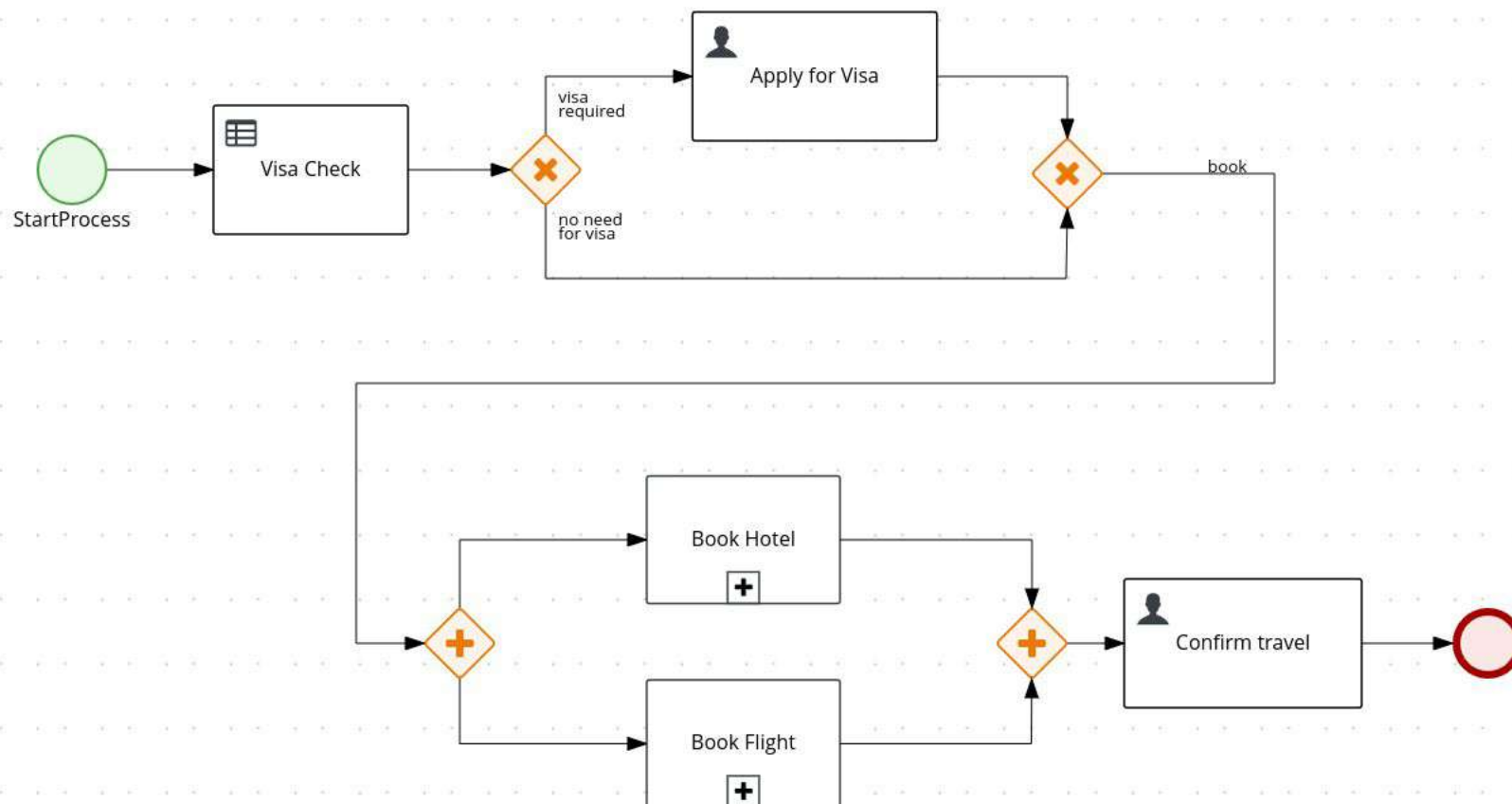
- Achieves amazingly **fast boot time** and **low memory footprint**
  - Avoid unnecessary reflection
  - Avoid unnecessary dynamic class loading
  - Process as much info at compile time
- Executable Model at a Glance
  - DSL for Authoring time: DRL, DMN, BPMN, Deployment Descriptors
  - A pure Java canonical representation of the Knowledge Base
    - Plain Java classes
  - Build time generation
- Further Ahead-of-time optimizations based on Quarkus / GraalVM
  - Dead code elimination
  - Native image



```
var m = KieServices.get().newKieModuleModel();
var kb = m.newKieBaseModel("simpleKB");
kb.setEventProcessingMode(CLOUD);
kb.addPackage("org.drools.simple.project");
var ks = kb.newKieSessionModel("simpleKS");
ks.setDefault(true);
ks.setType(STATEFUL);
ks.setClockType(ClockTypeOption.get("realtime"));
```

# Kogito, ergo Domain





## Properties

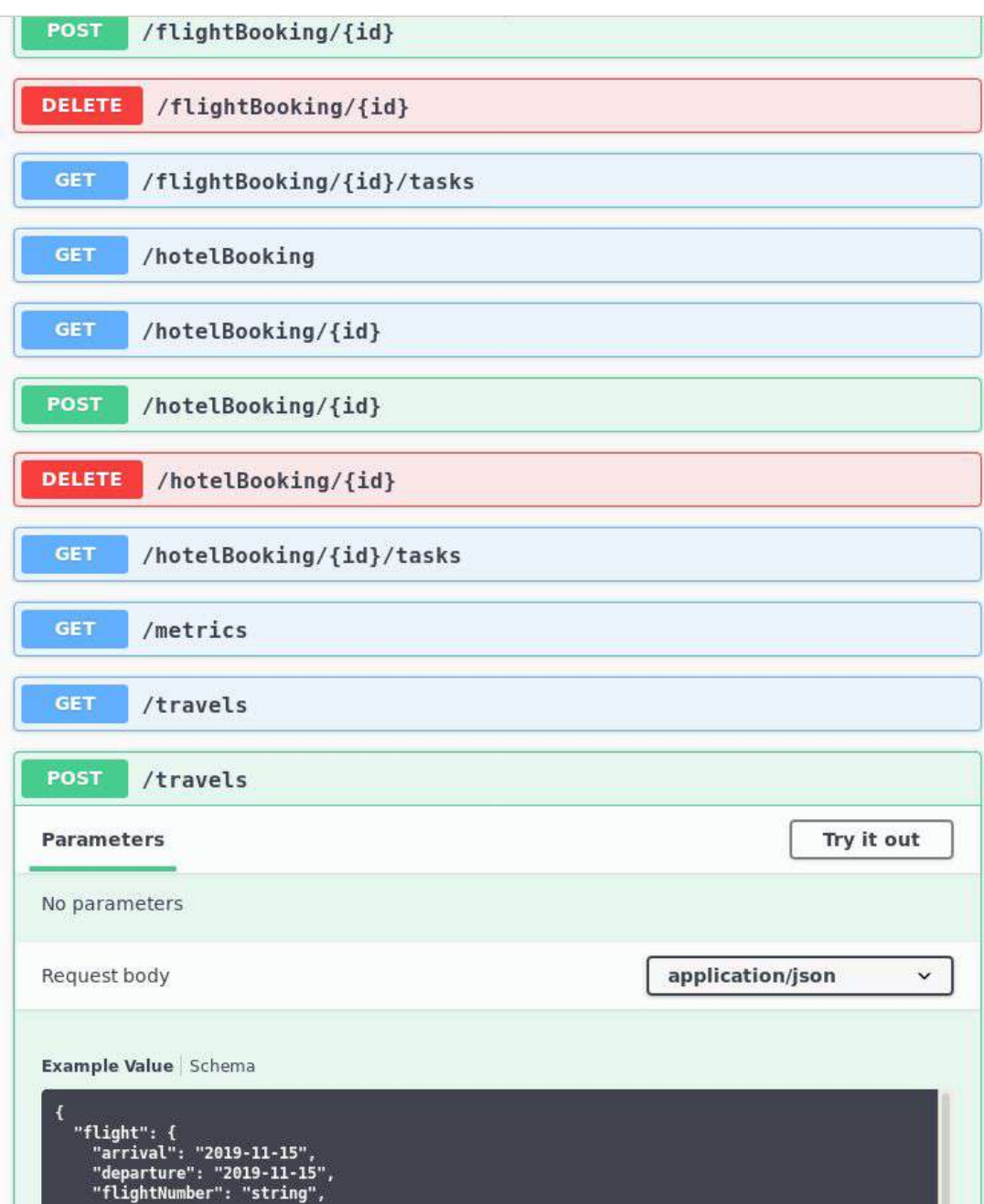
### Process

### Process Data

#### Process Variables

Name	Data Type	KPI	+
traveller	org.acme.travels.Traveller ▼	<input type="checkbox"/>	
trip	org.acme.travels.Trip ▼	<input type="checkbox"/>	
hotel	org.acme.travels.Hotel ▼	<input type="checkbox"/>	
flight	org.acme.travels.Flight ▼	<input type="checkbox"/>	

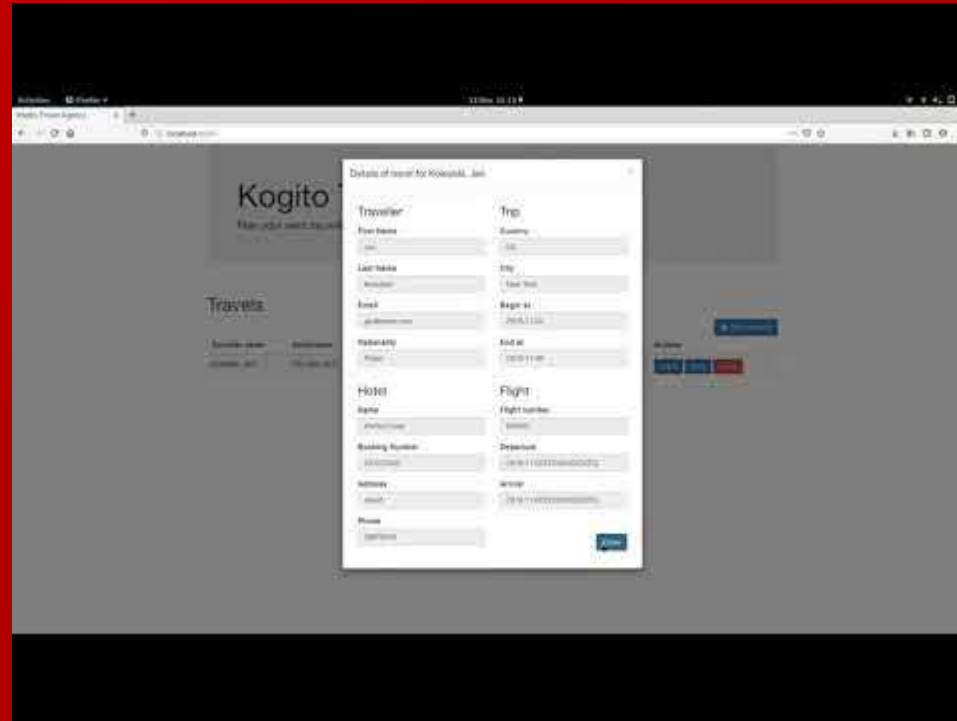


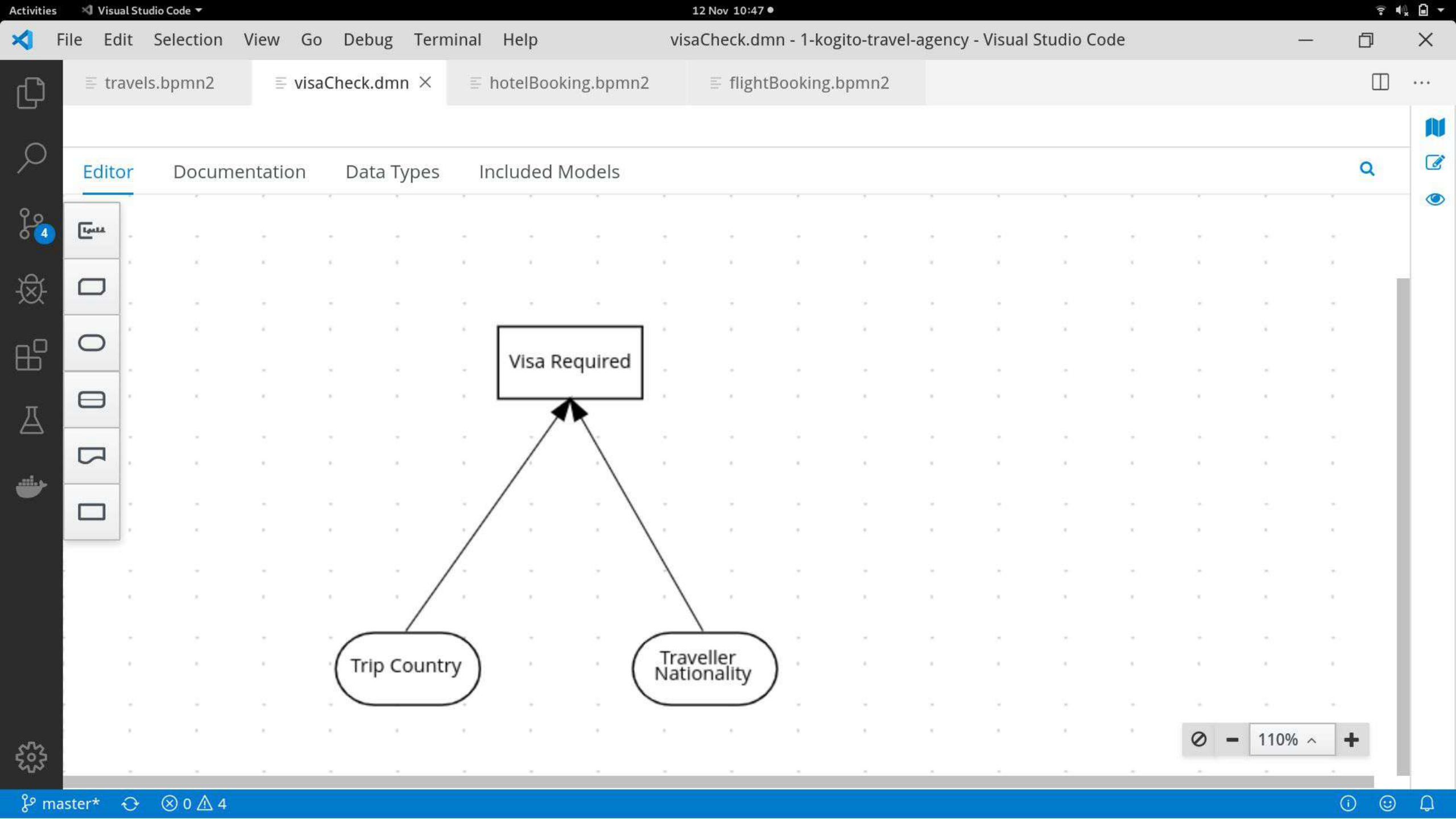


# Kogito, ergo Power



# DEMO - Kogito, ergo Power





Visual Studio Code

12 Nov 10:47

visaCheck.dmn - 1-kogito-travel-agency - Visual Studio Code

FileEditSelectionViewGoDebugTerminalHelp

travels.bpmn2visaCheck.dmnXhotelBooking.bpmn2flightBooking.bpmn2

EditorDocumentationData TypesIncluded Models

[Back to 422A2101-BA4D-41F0-841A-0A43A6BB7A27](#)

Visa Required (Decision Table)

U	Trip Country (string)	Traveller Nationality (string)	Visa Required (boolean)	
1	"US"	"Italian"	false	
2	"US"	"Polish"	true	
3	"UK"	"Polish"	false	
4	"Australia"	"Polish"	true	

Properties

Id

\_FF0B5198-28B9-4F62-A64D-8B3E585F5E32

Description

Input expression

Input expression

Trip Country

Data type

string

Manage

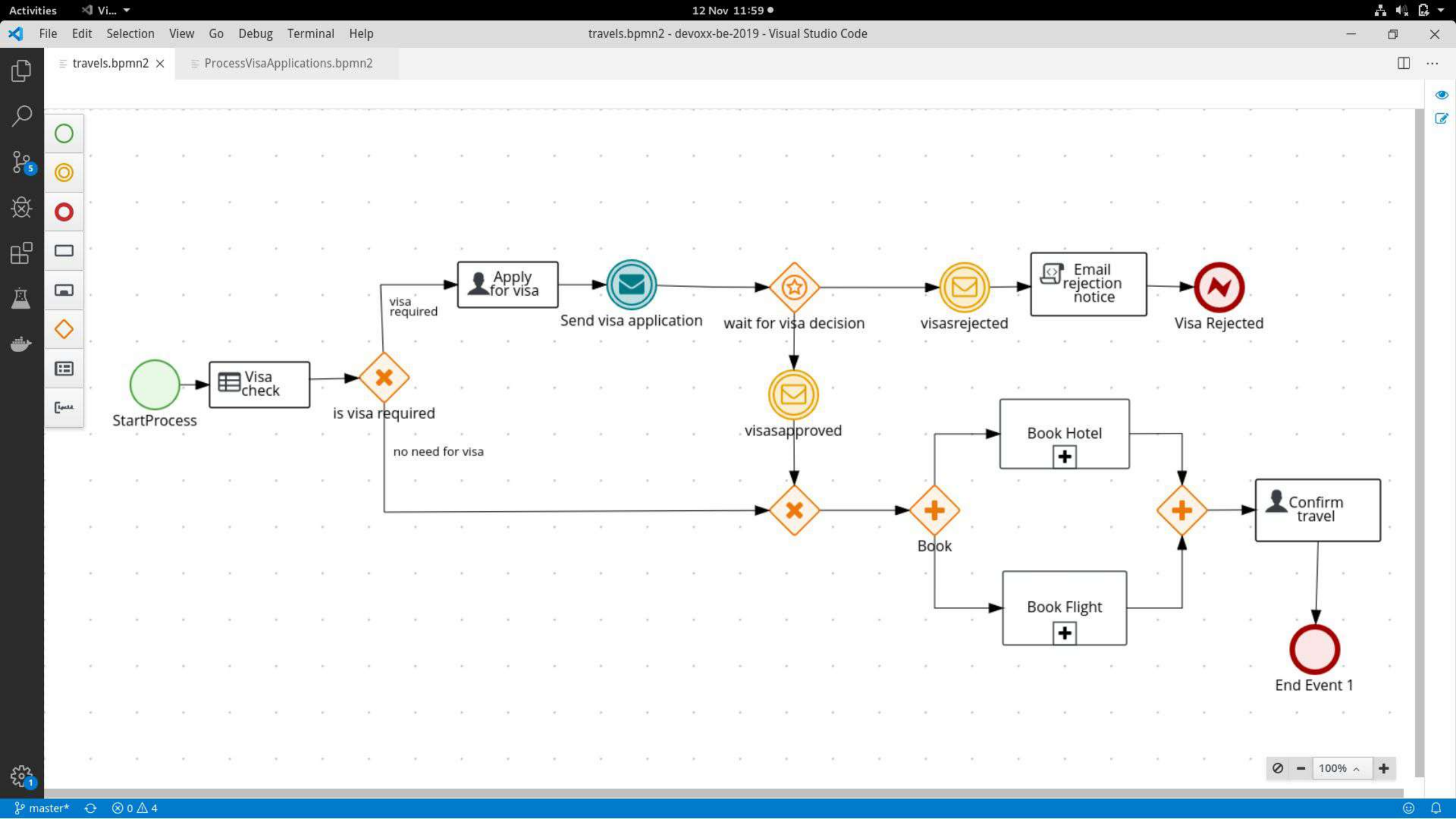
Constraint

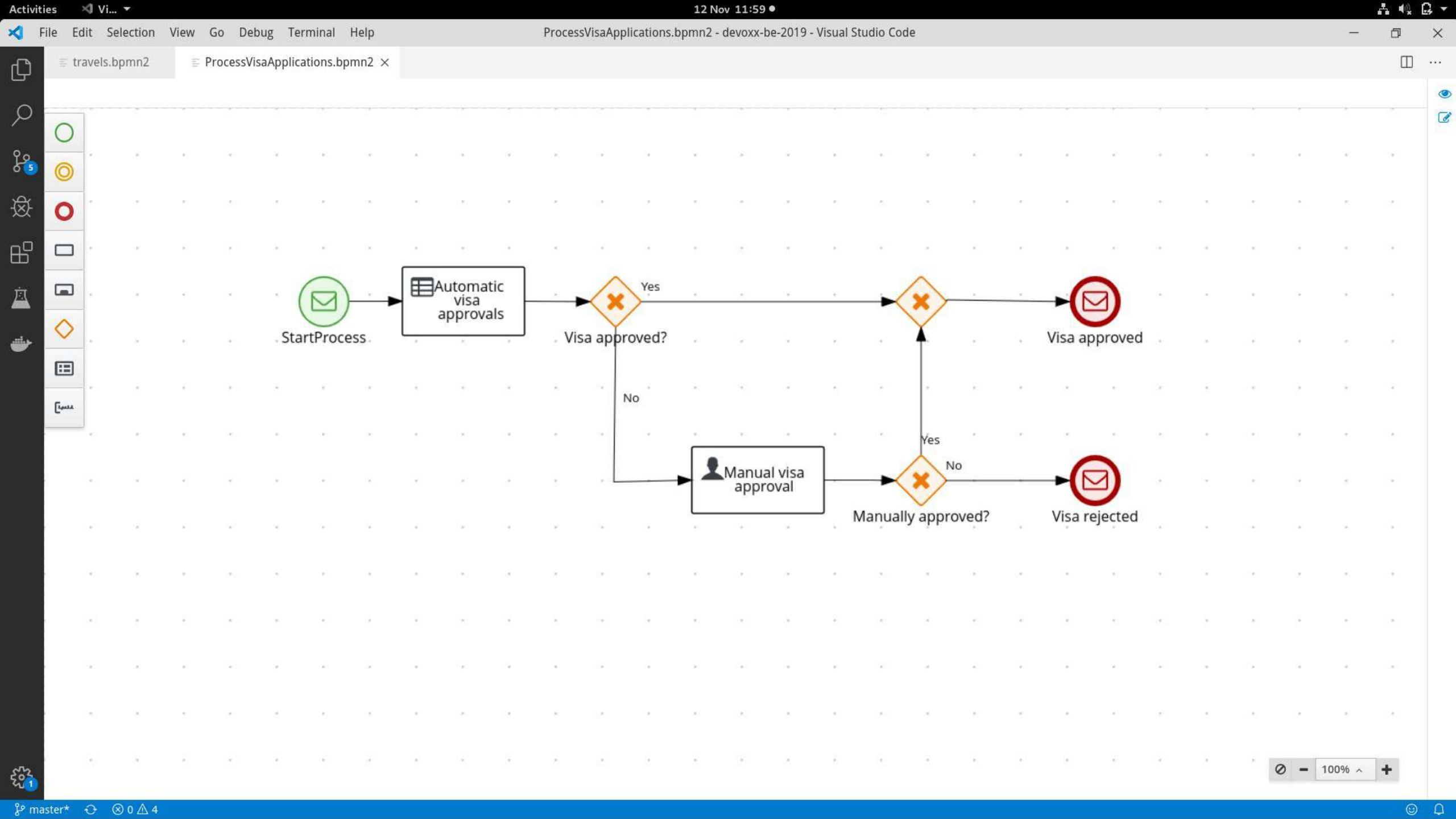
master\*04

# Kogito, ergo Cloud









# Operator

- Deploy and manage your services with operator and intuitive CLI tool
  - **kogito new-app travel-agency**  
Create new OpenShift project with default services provisioned
  - **kogito deploy travel-agency <https://github.com/user/myapp>**  
Deploys given application from source and attaches to required infrastructure

```
Downloading from mirror.default: http://nexus-grafana.192.168.42.54.nip.io/nexus/content/repositories/central/org/kie/kogito/kogito-dmn/0.5.0/kogito-dmn-0.5.0.pom
Downloaded from mirror.default: http://nexus-grafana.192.168.42.54.nip.io/nexus/content/repositories/central/org/kie/kogito/kogito-dmn/0.5.0/kogito-dmn-0.5.0.pom (4.3 kB at 533 kB/s)
Downloading from mirror.default: http://nexus-grafana.192.168.42.54.nip.io/nexus/content/repositories/central/org/kie/kie-dmn-core/7.27.0.Final/kie-dmn-core-7.27.0.Final.pom
Downloaded from mirror.default: http://nexus-grafana.192.168.42.54.nip.io/nexus/content/repositories/central/org/kie/kie-dmn-core/7.27.0.Final/kie-dmn-core-7.27.0.Final.pom (4.9 kB at 608 kB/s)
Downloading from mirror.default: http://nexus-grafana.192.168.42.54.nip.io/nexus/content/repositories/central/org/kie/kie-dmn-backend/7.27.0.Final/kie-dmn-backend-7.27.0.Final.pom
Downloaded from mirror.default: http://nexus-grafana.192.168.42.54.nip.io/nexus/content/repositories/central/org/kie/kie-dmn-backend/7.27.0.Final/kie-dmn-backend-7.27.0.Final.pom (2.4 kB at 240 kB/s)
Downloading from mirror.default: http://nexus-grafana.192.168.42.54.nip.io/nexus/content/repositories/central/org/kie/kogito/kogito-dmn/0.5.0/kogito-dmn-0.5.0.pom
```



```
[INFO] [io.quarkus.creator.curator.Curator] provideOutcome depsOrigin=application, versionUpdate=none, versionUpdateNumber=micro
[INFO] [io.quarkus.deployment.QuarkusAugmentor] Beginning quarkus augmentation
[INFO] [org.jboss.threads] JBoss Threads version 3.0.0.Final
[INFO] [io.quarkus.resteasy] Resteasy running without servlet container.
[INFO] [io.quarkus.resteasy] - Add quarkus-undertow to run Resteasy within a servlet container
[INFO] [io.quarkus.deployment.pkg.steps.JarResultBuildStep] Building thin jar: /tmp/src/target/kogito-travel-agency-1.0-SNAPSHOT-runner.jar
[INFO] [io.quarkus.deployment.QuarkusAugmentor] Quarkus augmentation completed in 30602ms
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 01:39 min
[INFO] Finished at: 2019-11-04T10:15:41Z
[INFO] -----
'target/kogito-travel-agency-1.0-SNAPSHOT-runner.jar' -> '/home/kogito/bin/kogito-travel-agency-1.0-SNAPSHOT-runner.jar'
---> Copy image metadata file...
'/tmp/src/target/image_metadata.json' -> '/tmp/.s2i/image_metadata.json'
'/tmp/src/target/image_metadata.json' -> '/home/kogito/bin/image_metadata.json'
```

APPLICATION

infinispan-server

---



DEPLOYMENT CONFIG

[infinispan-server, #1](#)

---

APPLICATION

kogito-cloud-operator

---



DEPLOYMENT

[kogito-cloud-operator, #1](#)

---

APPLICATION

strimzi

---



DEPLOYMENT

[strimzi-cluster-operator, #1](#)

---

APPLICATION

kogito-data-index

---



STATEFUL SET

[kogito-data-index](#)

---

# DEMO - Kogito, ergo Cloud



Kogito  
Plan your next travels

Travels

Traveller: John Doe  
Destination: London  
Dates: 2020-11-01 to 2020-11-05

Details of travel by Kogito, Jaxb

Traveller	Trip
First Name John	Country UK
Last Name Doe	City New York
Email john.doe@kogito.com	Begin at 2020-11-01
Nationality USA	End at 2020-11-05
Hotel	Flight
Name Hilton	Flight number AA100
Booking Number 123456789	Reservation 123456
Address 123 Main St	Phone 1234567890

Save



# GraphiQL



Prettify

Merge

Copy

History

< Docs

```

1 {
2   Travels {
3     trip {
4       country
5       city
6     }
7     traveller {
8       firstName,
9       lastName
10    }
11    visaApplication {
12      approved
13    }
14  }
15 }

```

```

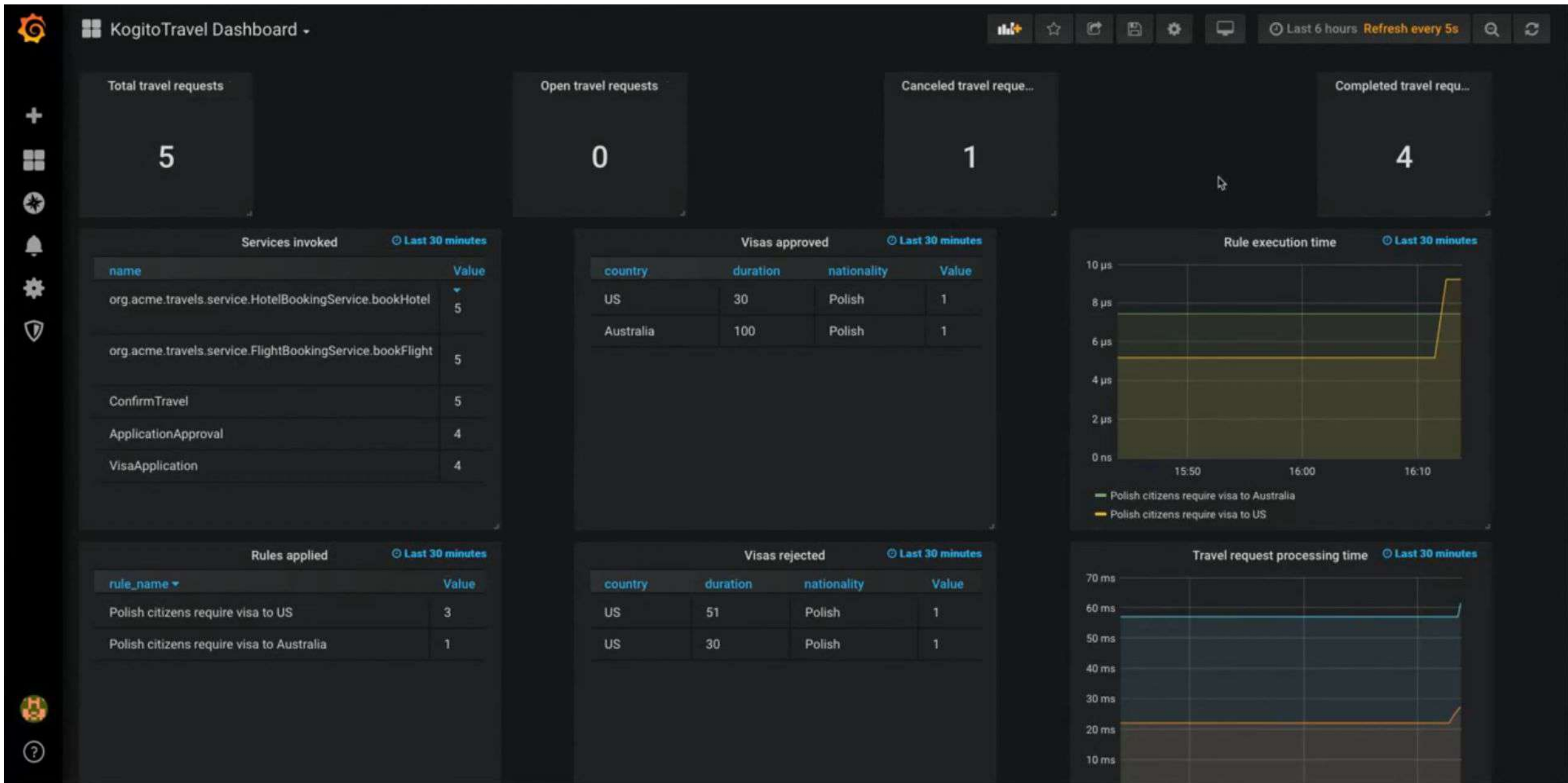
{
  "data": {
    "Travels": [
      {
        "trip": {
          "country": "US",
          "city": "New York"
        },
        "traveller": {
          "firstName": "Jan",
          "lastName": "Kowalski"
        },
        "visaApplication": null
      }
    ]
  }
}

```



```
1 {
2   Travels {
3     trip {
4       country
5       city
6     }
7     traveller {
8       firstName,
9       lastName
10    }
11    visaApplication {
12      approved
13    }
14    processInstances {
15      id
16      processName
17      processId
18      rootProcessId
19    }
20  }
```

```
  "Travels": [
    {
      "trip": {
        "country": "US",
        "city": "New York"
      },
      "traveller": {
        "firstName": "Jan",
        "lastName": "Kowalski"
      },
      "visaApplication": null,
      "processInstances": [
        {
          "id": "8d536b38-862f-4ce5-aed-
fae3ec9a9e6c",
          "processName": null,
          "processId": "travels",
          "rootProcessId": null
        }
      ]
    }
  ]
}
```



## Containers

### travel-app

-  Image: [kogito/travel-app](#) db2ebfc 209.2 MiB
-  Build: [travel-app](#), #1
-  Source: Image
-  Ports: 8080/TCP (http)
-  Readiness Probe: Open socket on port 8080 1s timeout
-  Liveness Probe: Open socket on port 8080 1s timeout

## Containers

### travel-app-native

-  Image: [kogito/travel-app-native](#) cc69c9f 59.5 MiB
-  Ports: 8080/TCP

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## THANK YOU



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