Flowable's REST API

To begin modelling a business process (using [BPMN](#)) click the **Create Process** button:

Create a new business process model

You need to give a name for the new model and you may want to add a description at the same time.
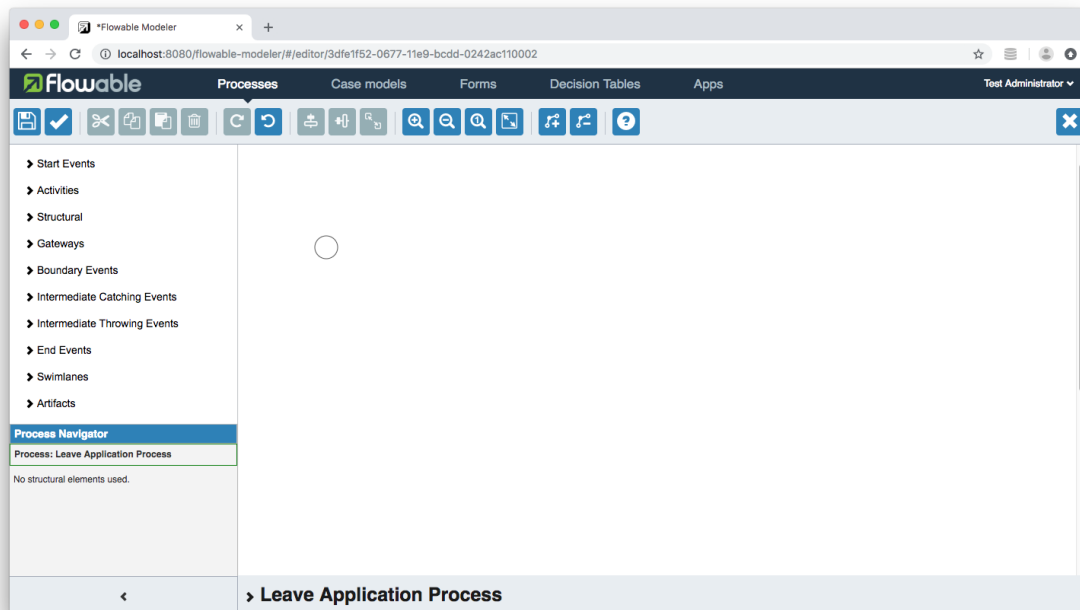
Model name

Leave Application Process

Model key

leave-application-process

Description

An employee wants to take some time off.

Cancel   Create new model

Enter a `Model name`, a `Model key` and a `Description` then click the **Create new model** button:

The 'process design interface' (Flowable's BPMN editor) includes a side menu with a palette of BPMN 2.0 elements and a properties panel at the bottom of the page. Each new process begins with a **Start event** (the small circle).

You can drag and drop elements from the side menu, or you can use the 'quick menu' of a selected element. Click on the **Start event** element and its quick menu will appear.
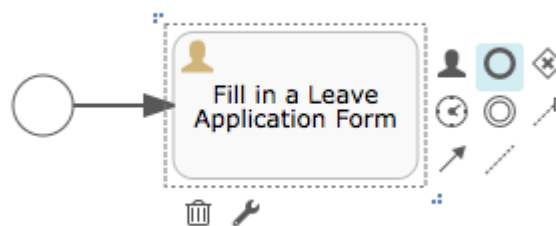
We're going to add a **User task**, so click the icon representing a user:

This will add a box linked by an arrow to the Start event. Double-click on the box to give the task the name 'Fill in a Leave Application Form' and then click outside the box to save the change:

Click on the box again to display its quick menu and select the Stop event icon (the circle with a thick border):
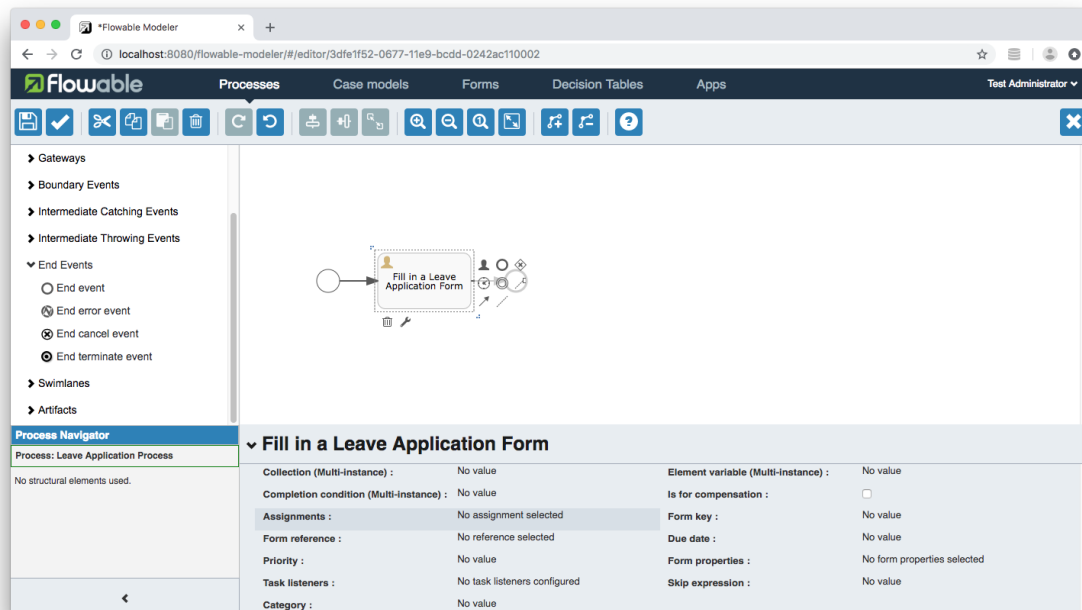

Our business process model now consists of a Start event, a User task and an End event:
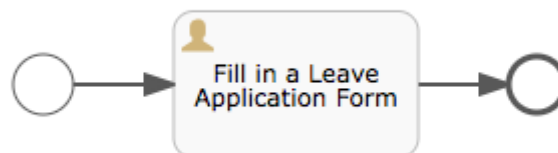
Assignments

In order for Flowable to successfully execute our business process it needs to know which users can complete the User task. Select the 'Fill in a Leave Application Form' User task and then click its `Assignments` property:
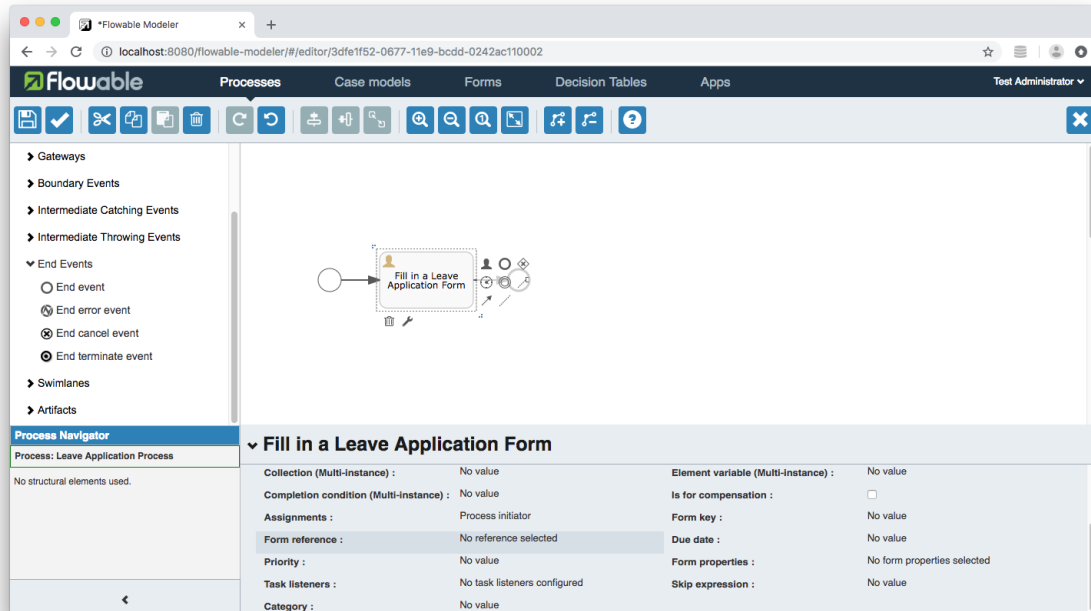
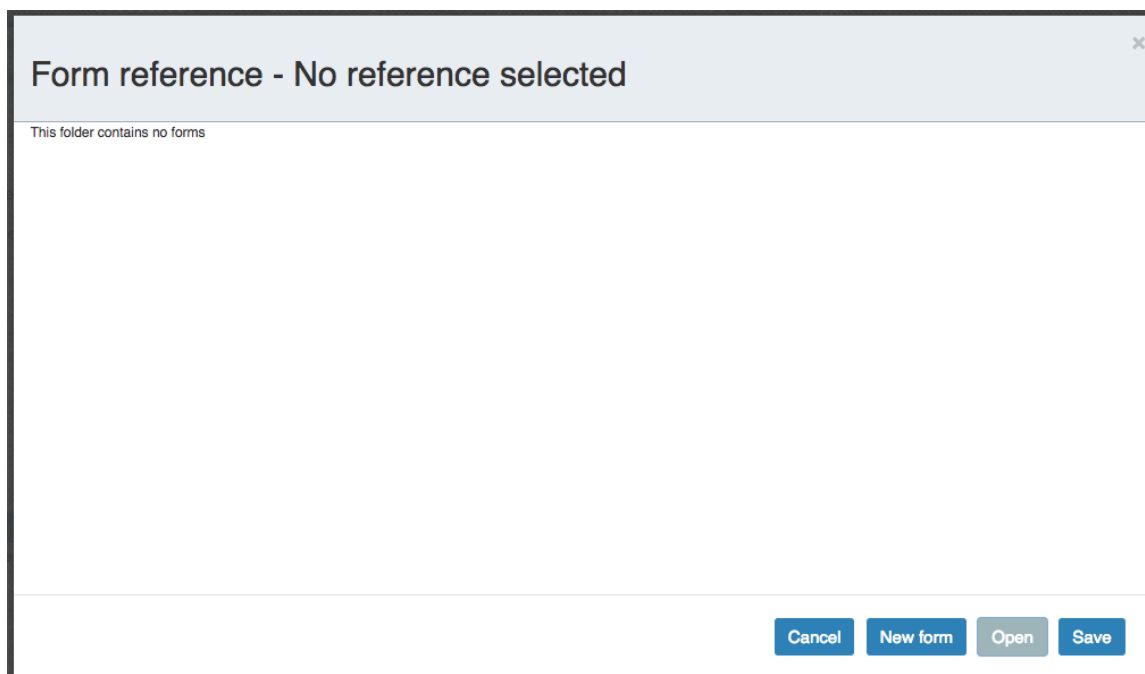You can assign the task to an individual or a group:

Check the 'Allow process initiator to complete task' box and then click the **Save** button.

Form Reference

To associate a form with a User task, select the 'Fill in a Leave Application Form' User task and then click its `Form reference` property:

We don't have any forms just yet:

Click the **New form** button:

Enter a `Form name`, a `Form key` and a `Description` then click
the **Create form** button:
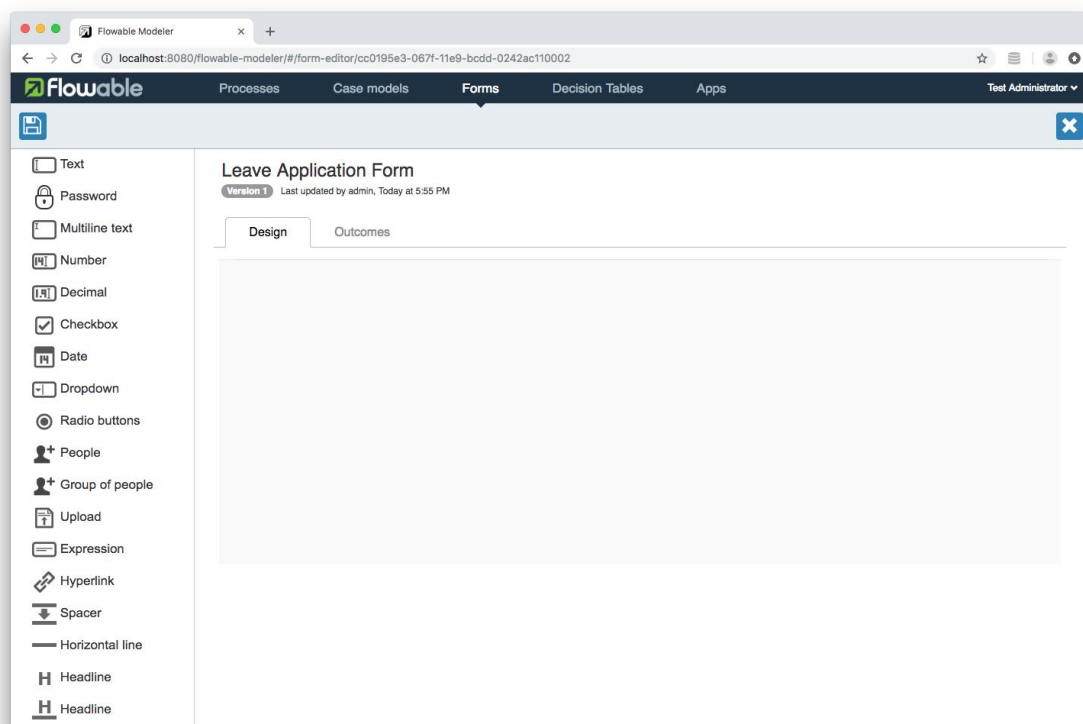
The Form designer includes a side menu with a palette of form components
that you can drag and drop onto the design canvas:
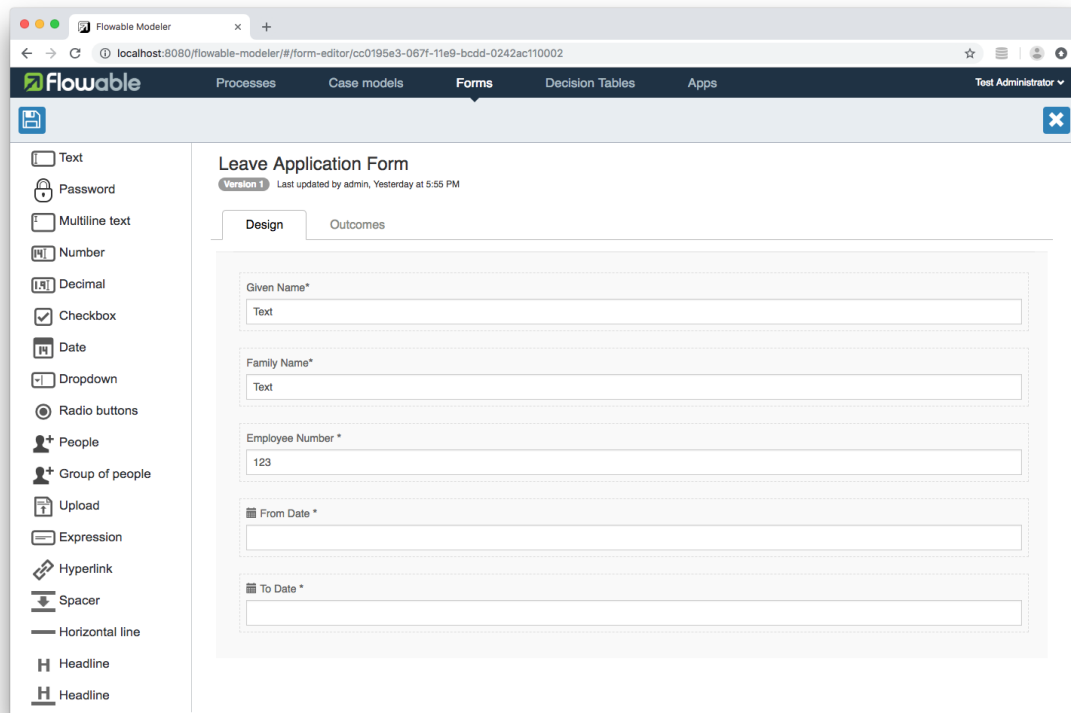
App Definitions

Now that we have modelled our business process we need to make it available for people to use. Navigate to the Apps tab in the Flowable Modeler's dashboard and click the **Create App** button:

Enter an `App definition name`, an `App definition key` and a `Description` then click the **Create new app definition** button:
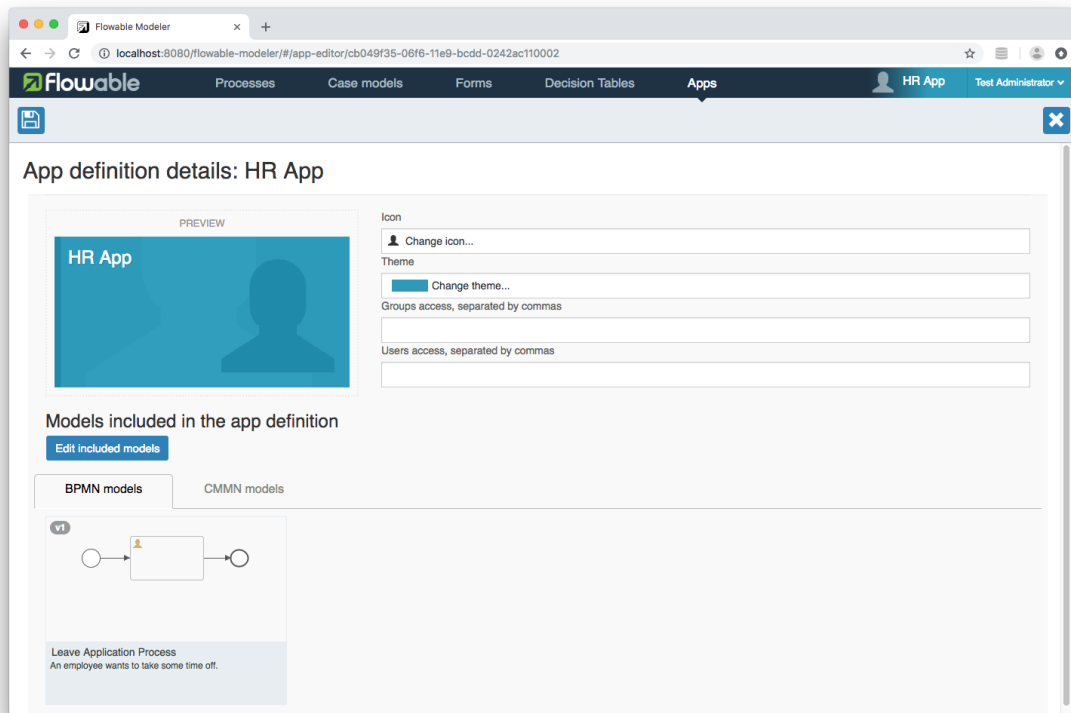
I changed the **Icon**, used the **Edit included models** button to add the 'Leave Application Process' to the 'HR App' and then clicked the **Save** icon:
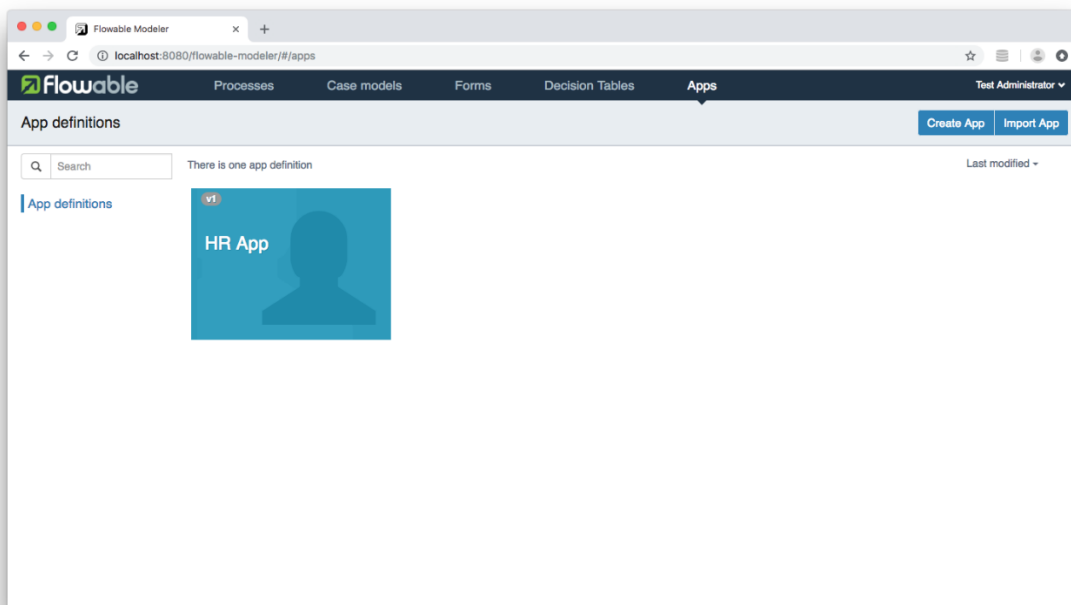
Click the 'HR App' card:
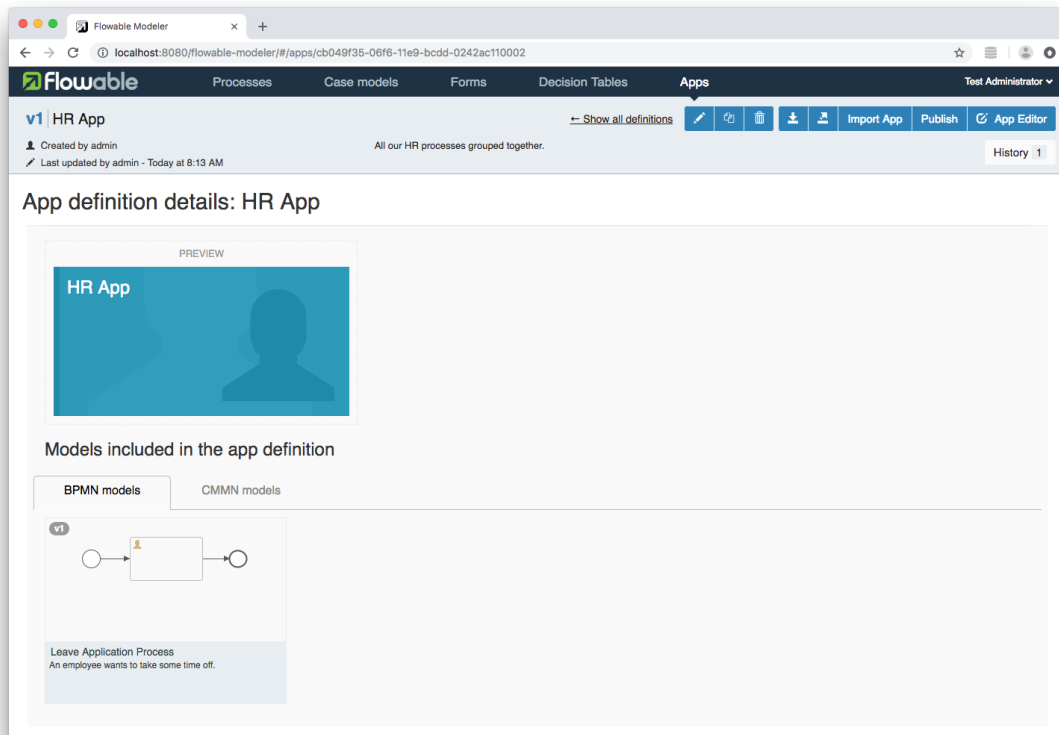
Note: You can export the App definition as a zip file or as a deployable bar file.

Click the **Publish** button:
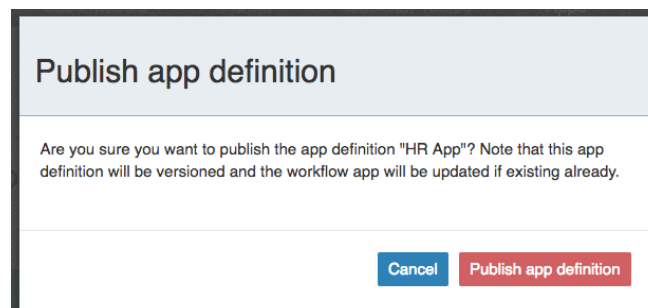
Click the **Publish app definition** button.

Now we'll use Flowable's REST API to check and see if our app definition has been deployed:

```
curl -i 'http://admin:test@localhost:8080/flowable-task/process-
api/repository/deployments'
```

You should see output like:

```
{
    "data": [
```

```
        {
            "id": "c56b72eb-06f8-11e9-a85e-0242ac110002",
            "name": "hr-app.zip",
            "deploymentTime": "2018-12-23T21:21:54.532Z",
            "category": null,
            "parentDeploymentId": "c55ec8b6-06f8-11e9-a85e-
0242ac110002",
            "url": "http://localhost:8080/flowable-task/process-
api/repository/deployments/c56b72eb-06f8-11e9-a85e-0242ac110002",
            "tenantId": ""
        }
    ],
    "total": 1,
    "start": 0,
    "sort": "id",
    "order": "asc",
    "size": 1
}
```

Let's check and see if our process definition has been deployed too:

```
curl -i 'http://admin:test@localhost:8080/flowable-task/process-
api/repository/process-definitions'
```

You should see output like:

```
{
    "data": [
        {
            "id": "leave-application-process:1:c5ae6f5e-06f8-11e9-a85e-
0242ac110002",
            "url": "http://localhost:8080/flowable-task/process-
api/repository/process-definitions/leave-application-
process:1:c5ae6f5e-06f8-11e9-a85e-0242ac110002",
            "key": "leave-application-process",
            "version": 1,
            "name": "Leave Application Process",
            "description": "An employee wants to take some time off.",
            "tenantId": "",
            "deploymentId": "c56b72eb-06f8-11e9-a85e-0242ac110002",
            "deploymentUrl": "http://localhost:8080/flowable-
task/process-api/repository/deployments/c56b72eb-06f8-11e9-a85e-
0242ac110002",
            "resource": "http://localhost:8080/flowable-task/process-
api/repository/deployments/c56b72eb-06f8-11e9-a85e-
0242ac110002/resources/leave-application-process.bpmn",
            "diagramResource": "http://localhost:8080/flowable-
task/process-api/repository/deployments/c56b72eb-06f8-11e9-a85e-
0242ac110002/resources/leave-application-process.leave-application-
process.png",
            "category": "http://www.flowable.org/processdef",
            "graphicalNotationDefined": true,
            "suspended": false,
            "startFormDefined": false
        }
    ],
    "total": 1,
```

```
    "start": 0,
    "sort": "name",
    "order": "asc",
    "size": 1
}
```
Flowable Task

Navigate to `http://localhost:8080/flowable-task`

Click the 'HR App' card and navigate to the Processes tab:
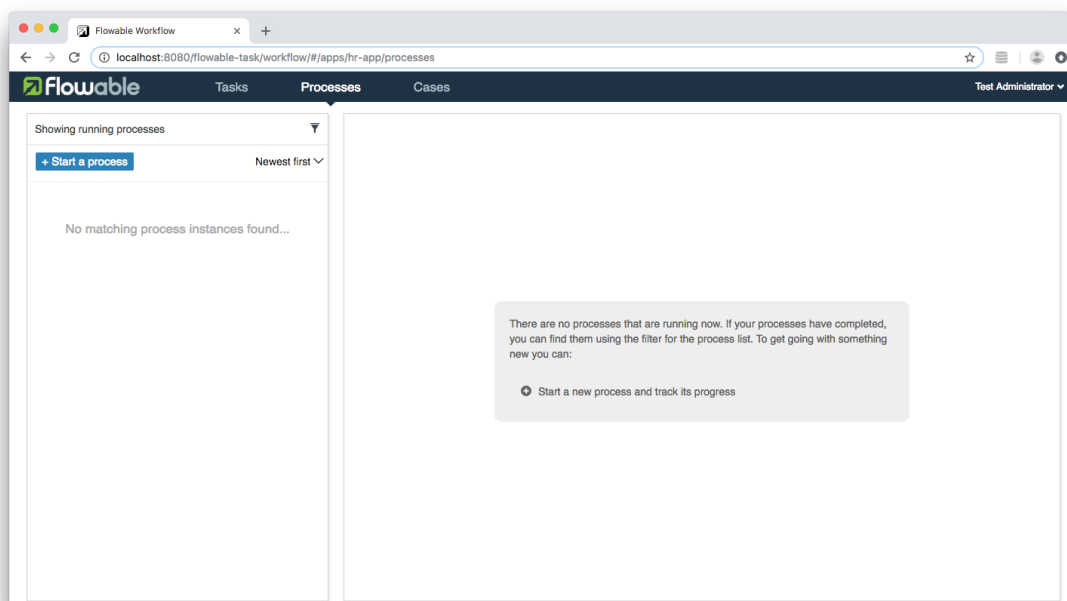
Click the **Start a process** button:

Then click the **Start process** button:

Now we'll use Flowable's REST API to obtain information about our process instances:

```
curl -i 'http://admin:test@localhost:8080/flowable-task/process-
api/runtime/process-instances'
```

You should see output like:

```
{
    "data": [
        {
            "id": "02d460bb-070e-11e9-a85e-0242ac110002",
            "url": "http://localhost:8080/flowable-task/process-
api/runtime/process-instances/02d460bb-070e-11e9-a85e-0242ac110002",
            "name": "Leave Application Process - December 24th 2018",
            "businessKey": null,
            "suspended": false,
            "ended": false,
            "processDefinitionId": "leave-application-
process:1:c5ae6f5e-06f8-11e9-a85e-0242ac110002",
            "processDefinitionUrl": "http://localhost:8080/flowable-
task/process-api/repository/process-definitions/leave-application-
process:1:c5ae6f5e-06f8-11e9-a85e-0242ac110002",
            "activityId": null,
            "startedBy": "admin",
            "started": "2018-12-23T23:53:56.992Z",
            "variables": [],
            "callbackId": null,
            "callbackType": null,
            "tenantId": "",
            "completed": false
        }
    ],
    "total": 1,
    "start": 0,
    "sort": "id",
    "order": "asc",
    "size": 1
}
```
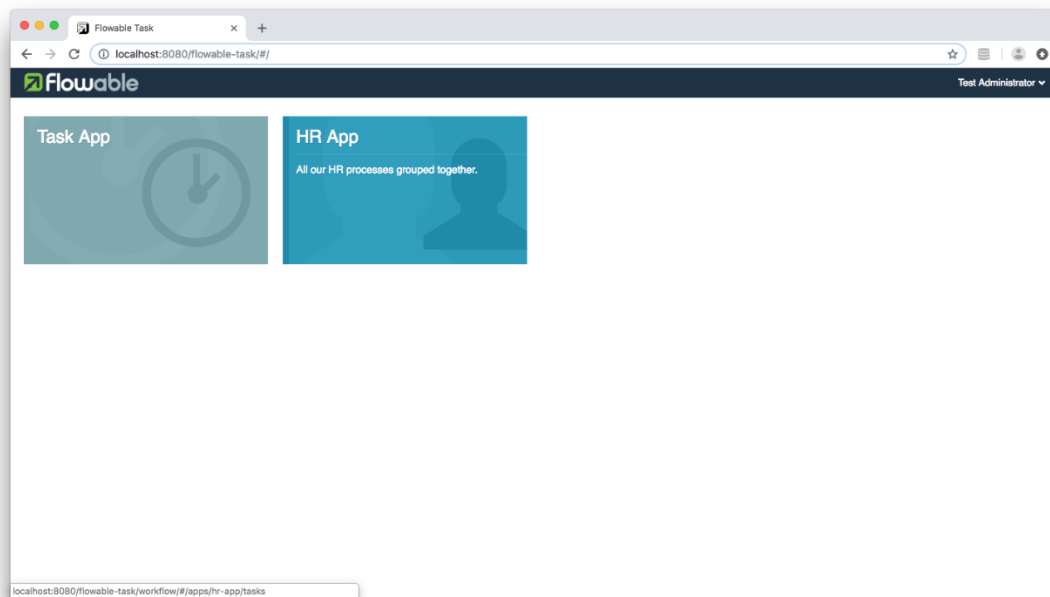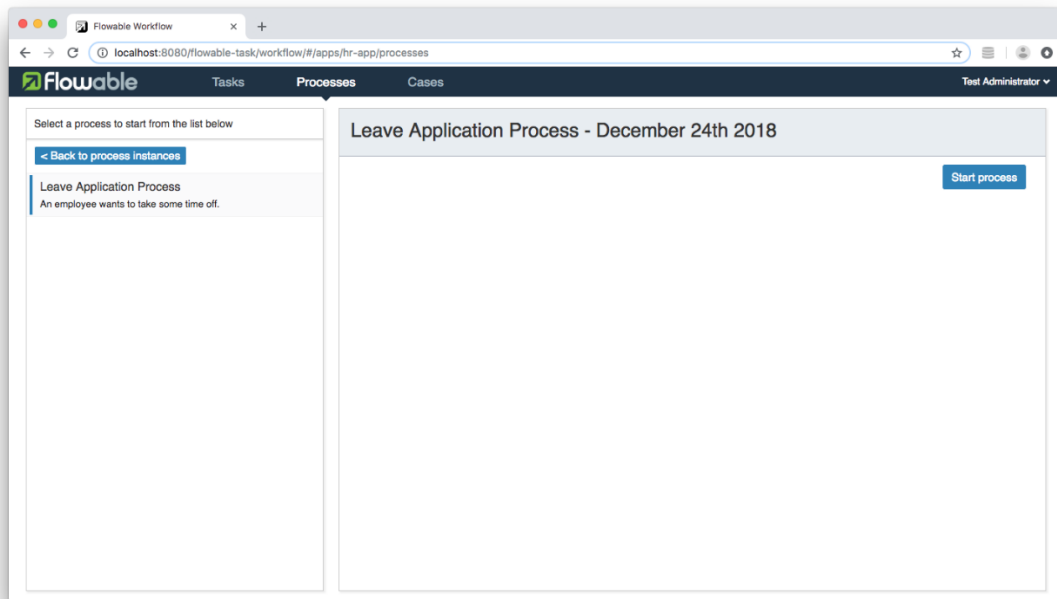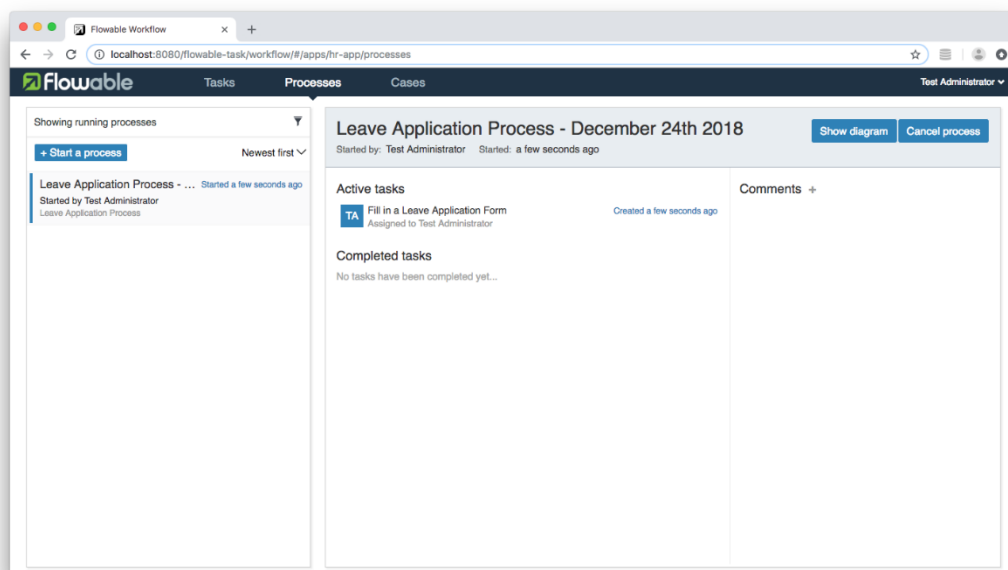
Let's check and see if we have any tasks to complete:

```
curl -i 'http://admin:test@localhost:8080/flowable-task/process-
api/runtime/tasks'
```

You should see output like:

```
{
    "data": [
        {
            "id": "1fae489a-070f-11e9-a85e-0242ac110002",
            "url": "http://localhost:8080/flowable-task/process-
api/runtime/tasks/1fae489a-070f-11e9-a85e-0242ac110002",
            "owner": null,
            "assignee": "admin",
            "delegationState": null,
            "name": "Fill in a Leave Application Form",
            "description": null,
            "createTime": "2018-12-24T00:01:54.893Z",
            "dueDate": null,
            "priority": 50,
            "suspended": false,
            "taskDefinitionKey": "sid-3BA1F4D1-500F-4766-89BF-
519166929F2D",
            "scopeDefinitionId": null,
```

```
            "scopeId": null,
            "scopeType": null,
            "tenantId": "",
            "category": null,
            "formKey": "leave-application-form",
            "parentTaskId": null,
            "parentTaskUrl": null,
            "executionId": "1fadfa77-070f-11e9-a85e-0242ac110002",
            "executionUrl": "http://localhost:8080/flowable-
task/process-api/runtime/executions/1fadfa77-070f-11e9-a85e-
0242ac110002",
            "processInstanceId": "1fadfa74-070f-11e9-a85e-
0242ac110002",
            "processInstanceUrl": "http://localhost:8080/flowable-
task/process-api/runtime/process-instances/1fadfa74-070f-11e9-a85e-
0242ac110002",
            "processDefinitionId": "leave-application-
process:1:c5ae6f5e-06f8-11e9-a85e-0242ac110002",
            "processDefinitionUrl": "http://localhost:8080/flowable-
task/process-api/repository/process-definitions/leave-application-
process:1:c5ae6f5e-06f8-11e9-a85e-0242ac110002",
            "variables": []
        }
    ],
    "total": 1,
    "start": 0,
    "sort": "id",
    "order": "asc",
    "size": 1
}
```

`formKey` contains the name of the form ('leave-application-form') associated with the User task.

We can check the form repository for the 'Leave Application Form':

```
curl -i 'http://admin:test@localhost:8080/flowable-task/form-api/form-
repository/form-definitions'
```

You should see output like:

```
{
    "data": [
        {
            "id": "c5bdb1a1-06f8-11e9-a85e-0242ac110002",
            "url": "http://localhost:8080/flowable-task/form-api/form-
repository/form-definitions/c5bdb1a1-06f8-11e9-a85e-0242ac110002",
            "category": null,
            "name": "Leave Application Form",
            "key": "leave-application-form",
            "description": null,
            "version": 1,
            "resourceName": "form-leave-application-form.form",
            "deploymentId": "c5b0b94f-06f8-11e9-a85e-0242ac110002",
            "tenantId": ""
        }
```

```
    ],
    "total": 1,
    "start": 0,
    "sort": "name",
    "order": "asc",
    "size": 1
}
```

We can use the `id` to obtain a JSON representation of the form model:

```
curl -i 'http://admin:test@localhost:8080/flowable-task/form-api/form-
repository/form-definitions/c5bdb1a1-06f8-11e9-a85e-0242ac110002/model'
```

You should see output like:

```
{
    "id": "c5bdb1a1-06f8-11e9-a85e-0242ac110002",
    "name": "Leave Application Form",
    "key": "leave-application-form",
    "version": 1,
    "url": "http://localhost:8080/flowable-task/form-api/form/model",
    "fields": [
        {
            "fieldType": "FormField",
            "id": "givenName",
            "name": "Given Name",
            "type": "text",
            "value": null,
            "required": true,
            "readOnly": false,
            "overrideId": true,
            "placeholder": "",
            "layout": null
        },
        {
            "fieldType": "FormField",
            "id": "familyName",
            "name": "Family Name",
            "type": "text",
            "value": null,
            "required": true,
            "readOnly": false,
            "overrideId": true,
            "placeholder": null,
            "layout": null
        },
        {
            "fieldType": "FormField",
            "id": "employeeNumber",
            "name": "Employee Number",
            "type": "integer",
            "value": null,
            "required": true,
            "readOnly": false,
            "overrideId": true,
            "placeholder": null,
            "layout": null
```

```
        },
        {
            "fieldType": "FormField",
            "id": "fromDate",
            "name": "From Date",
            "type": "date",
            "value": null,
            "required": true,
            "readOnly": false,
            "overrideId": true,
            "placeholder": null,
            "layout": null
        },
        {
            "fieldType": "FormField",
            "id": "toDate",
            "name": "To Date",
            "type": "date",
            "value": null,
            "required": true,
            "readOnly": false,
            "overrideId": true,
            "placeholder": null,
            "layout": null
        }
    ],
    "outcomes": []
}
```
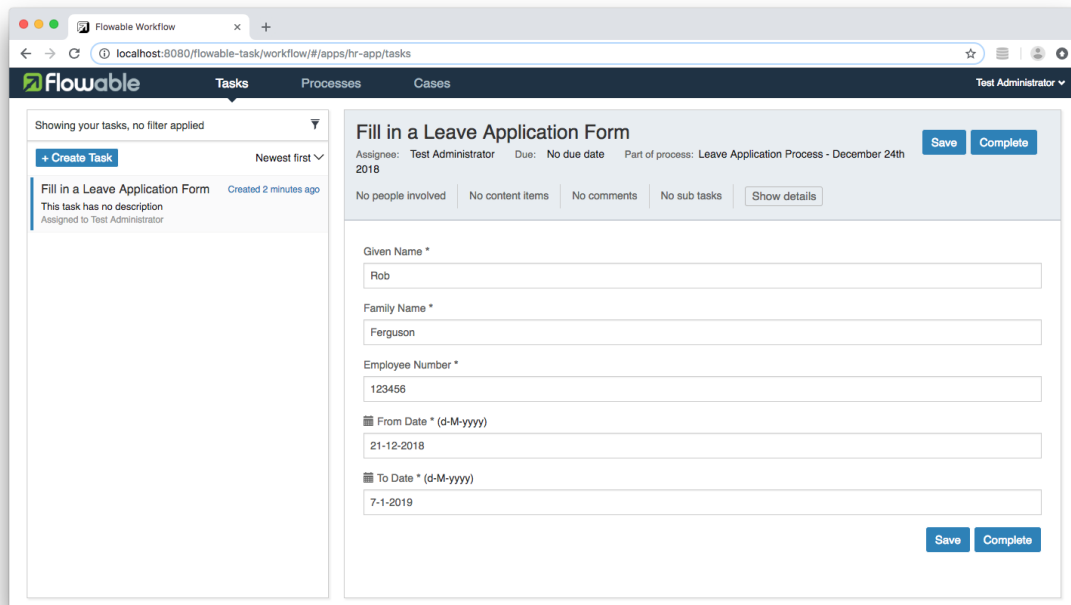
Now navigate to the Tasks tab to see how Flowable's [Form engine](#) renders our Leave Application form:

We can fill in the form:

Or use Flowable's REST API to update the form's variables and to complete the User task:

```
curl -H "Content-Type: application/json"
    -X POST http://admin:test@localhost:8080/flowable-task/process-
api/runtime/tasks/1fae489a-070f-11e9-a85e-0242ac110002
    -d "@data-1.json"
```

data-1.json:

```json
{
  "action" : "complete",
  "variables" : [
    {
        "id": "givenName",
        "name": "Given Name",
        "type": "string",
        "value": "Rob"
    },
    {
        "id": "familyName",
        "name": "Family Name",
        "type": "string",
        "value": "Ferguson"
    },
    {
        "id": "employeeNumber",
        "name": "Employee Number",
        "type": "integer",
        "value": 123456
    },
    {
        "id": "fromDate",
        "name": "From Date",
```

```
        "type": "date",
        "value": "2018-12-21T00:00:00+00:00"
    },
    {
        "id": "toDate",
        "name": "To Date",
        "type": "date",
        "value": "2019-01-07T00:00:00+00:00"
    }
  ]
}
```

You should see output like:

```
Status: 200 OK
```

Despite returning **OK** the call doesn't appear to save the User task's variables:
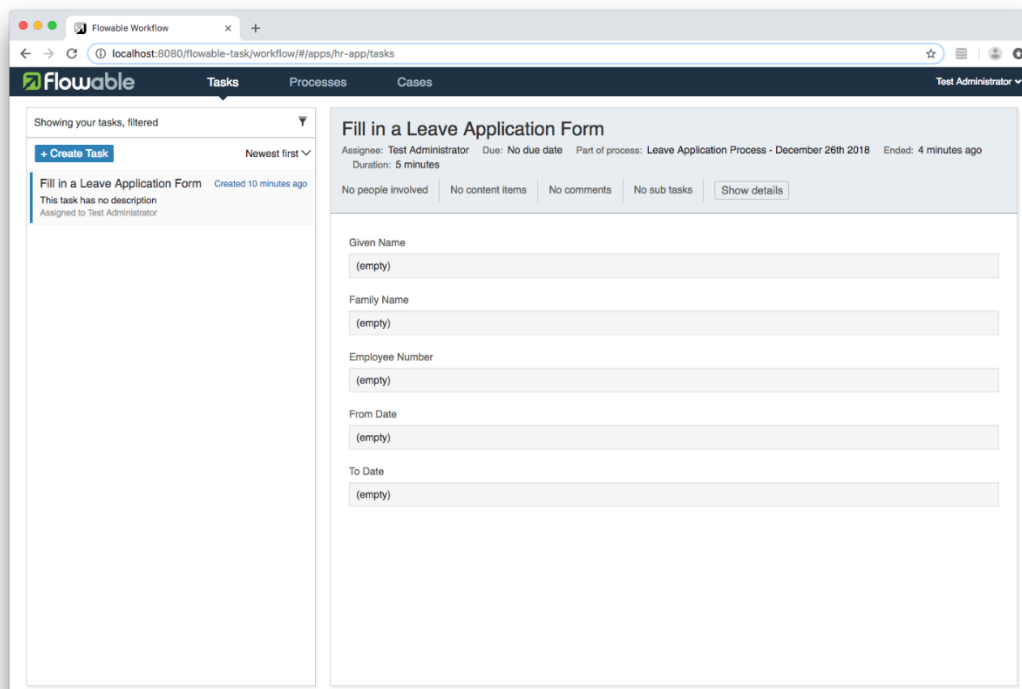
So I raised the following Flowable issue:

- Flowable Engine: [POST /runtime/tasks/{taskId}](#)

I also tried, POST [/form/form-data](#)

```
curl -H "Content-Type: application/json"
     -X POST http://admin:test@localhost:8080/flowable-task/process-
api/form/form-data
     -d "@data-2.json"
```

data-2.json:

```
{
  "taskId" : "1fae489a-070f-11e9-a85e-0242ac110002",
  "properties" : [
    {
      "id": "givenName",
      "name": "Given Name",
      "type": "string",
      "value": "Rob"
    },
    {
      "id": "familyName",
      "name": "Family Name",
      "type": "string",
      "value": "Ferguson"
    },
    {
      "id": "employeeNumber",
      "name": "Employee Number",
      "type": "integer",
      "value": 123456
    },
    {
      "id": "fromDate",
      "name": "From Date",
      "type": "date",
      "value": "2018-12-21T00:00:00+00:00"
    },
    {
      "id": "toDate",
      "name": "To Date",
      "type": "date",
      "value": "2019-01-07T00:00:00+00:00"
    }
  ]
}
```

You should see output like:

```
Status: 204 No Content
```

I'm not sure why its returning `204 No Content` so I raised the following Flowable issue:

- Flowable Engine: [POST /form/form-data](#)

However it does appear to save the User task's variables (and complete the User task):

flowable   Tasks   Processes   Cases   Test Administrator ⌄

Showing your tasks, no filter applied   ▼

+ Create Task   Newest first ⌄

No matching tasks found...

Fill in a Leave Application Form

Assignee: Test Administrator   Due: No due date   Part of process: Leave Application Process - December 26th 2018   Ended: a few seconds ago
Duration: 59 seconds

No people involved   No content items   No comments   No sub tasks   Show details

Given Name

Rob

Family Name

Ferguson

Employee Number

123456

From Date

21-12-2018

To Date

7-1-2019