

Camunda – Workflow Engine R3



Pre-Test



 AD-INS Center of Excellence

Goal Training

TUJUAN UMUM

Peserta training dapat memahami cara kerja Workflow Engine R3 (Camunda) dan proses Integrasi dengan Confins R3.

TUJUAN KHUSUS

Setelah mengikuti training ini, peserta mampu:

1. Mengconfigure settingan standard Workflow Engine R3 (Camunda)
2. Melakukan Implementasi Workflow Engine R3 (Camunda) ke dalam flow proses Confins R3
3. Menjelaskan fitur-fitur yang ada di Workflow Engine R3 (Camunda)
4. Membedakan cara kerja Workflow Engine R3 (Camunda) dengan Workflow Engine R2
5. Melakukan Troubleshooting yang terjadi di Workflow Engine R3

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Troubleshoot Camunda Workflow Engine
R3

Introduction

Camunda 7

- Platform open-source untuk otomatisasi proses bisnis dan manajemen Keputusan
- Merancang, mengotomatisasi, dan meningkatkan proses bisnis menggunakan standar industry
 - **BPMN** (Business Process Model and Notation)
 - **DMN** (Decision Model and Notation)
 - **CMMN** (Case Management Model and Notation)

Camunda – Tujuan dan Manfaat

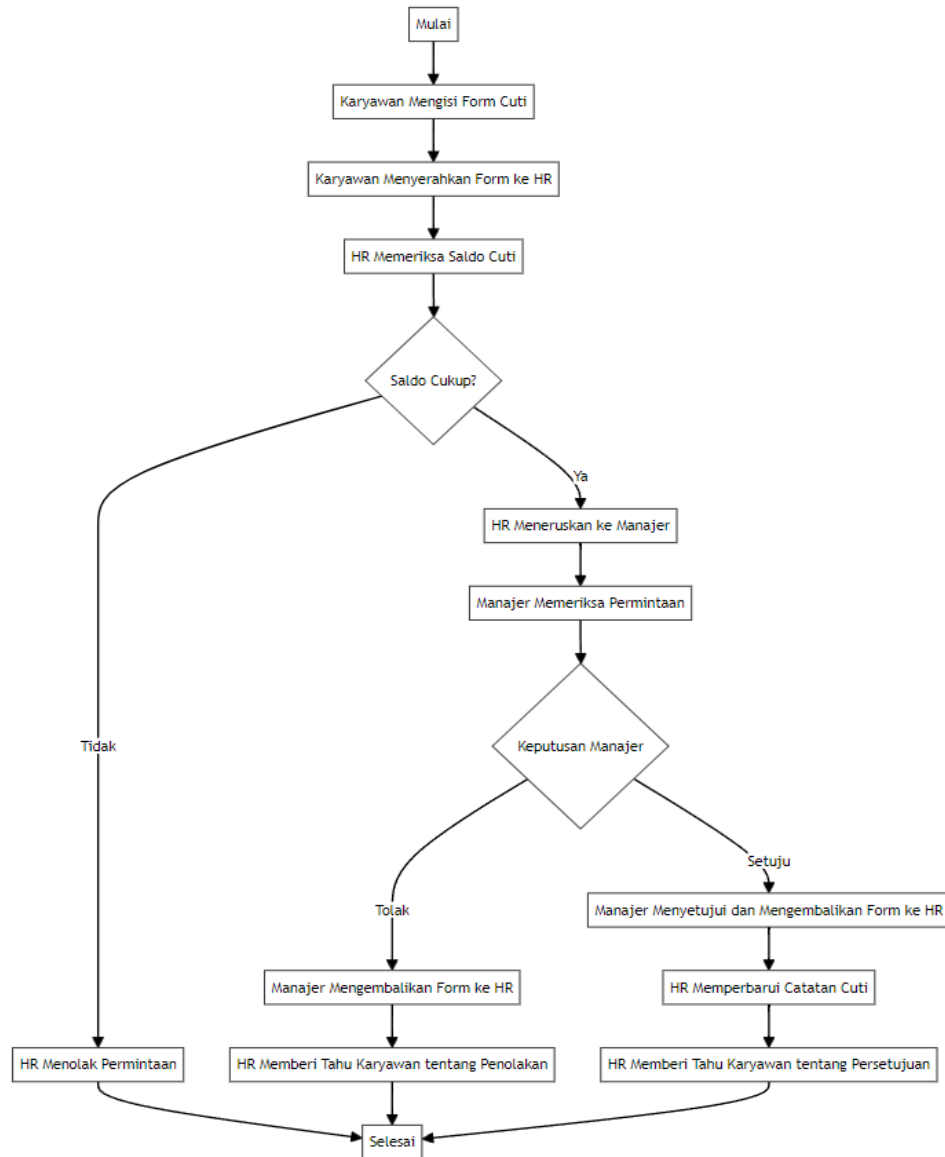
Tujuan :

- Mengatur alur flow bisnis proses
- Menyederhanakan dan mengotomatisasi proses bisnis yang kompleks

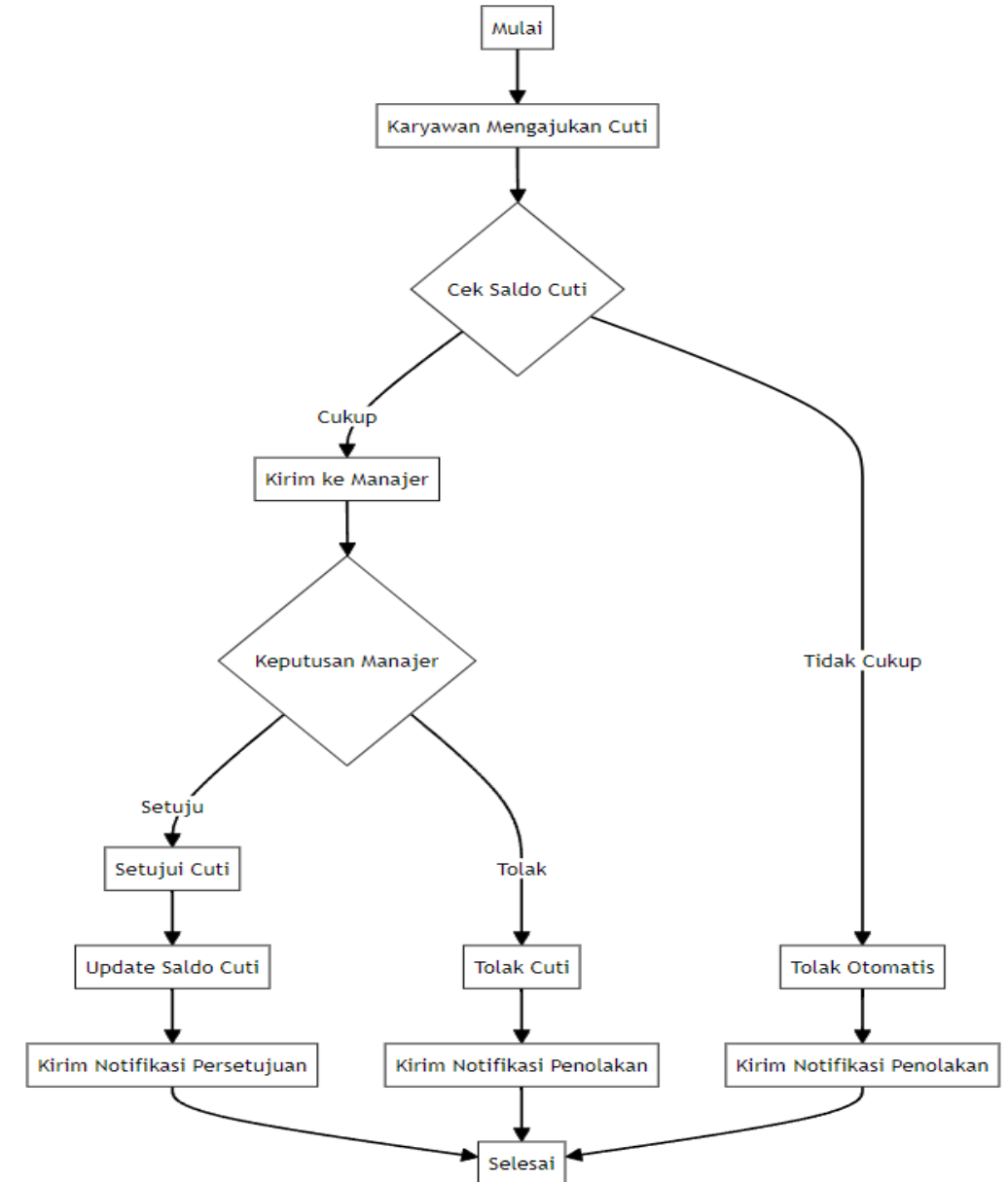
Manfaat:

- Fleksibilitas dan skalabilitas
- Memberikan gambaran yang jelas tentang alur kerja dan proses bisnis

Konvensional



Camunda

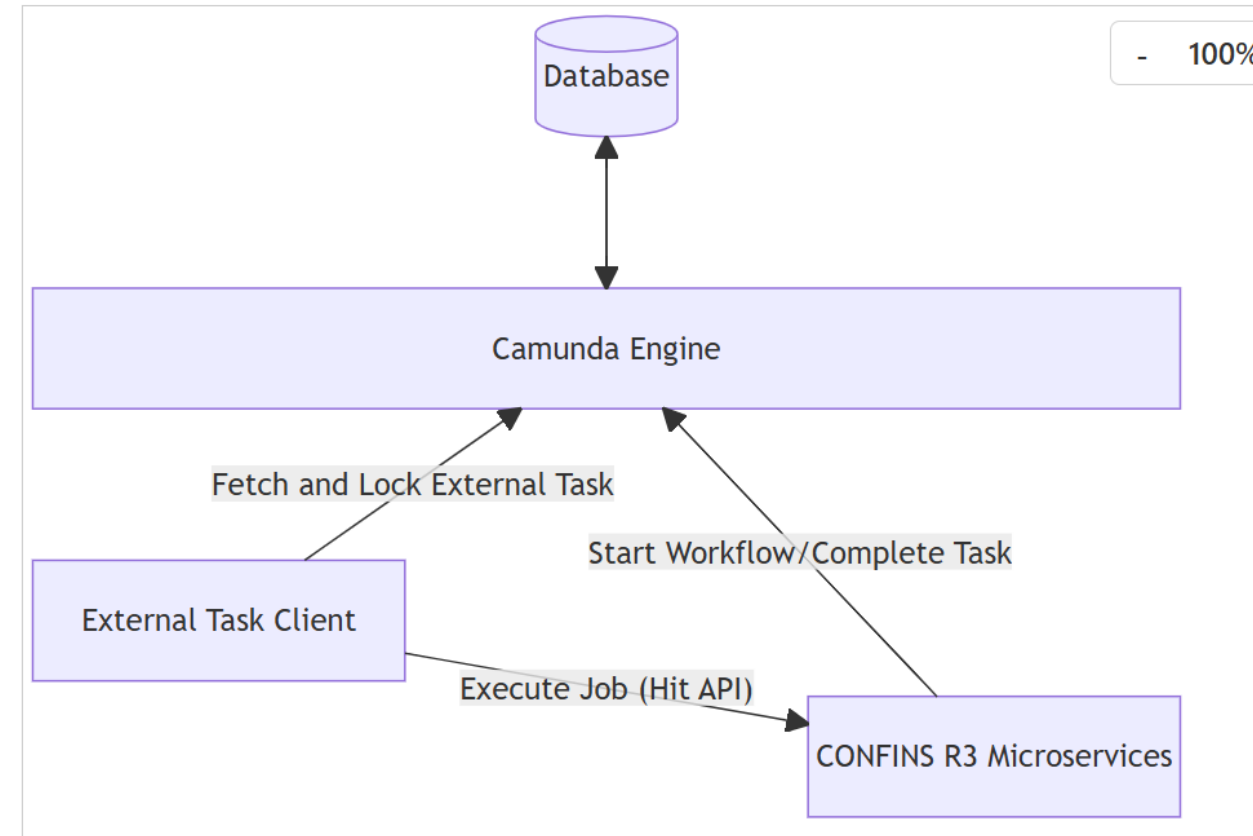


Camunda == Workflow Engine R3

System Architecture

Camunda Engine terdiri dari minimal 3 komponen:


- **Database** : Mengelola data operasional dan entri historis untuk Camunda Engine
- **Camunda Engine**:
- **External Task Client**. Adalah perangkat lunak kecil untuk membongkar tugas dari Camunda dan menjalankannya secara eksternal.



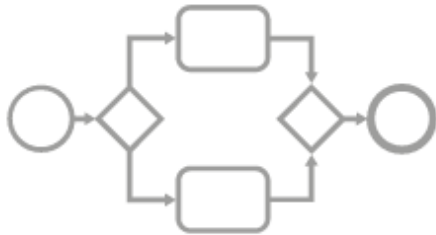
Standar konfigurasi Workflow Engine R3 (Camunda)

- Web Camunda (Camunda Cockpit dan Camunda Tasklist)
- Camunda Modeler
- Jenis-Jenis Component Camunda

Web Camunda

 Camunda Welcome

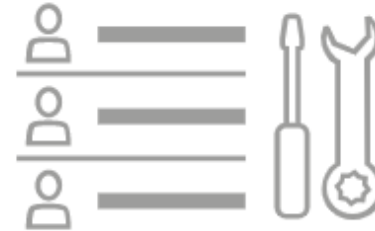
Applications



Cockpit

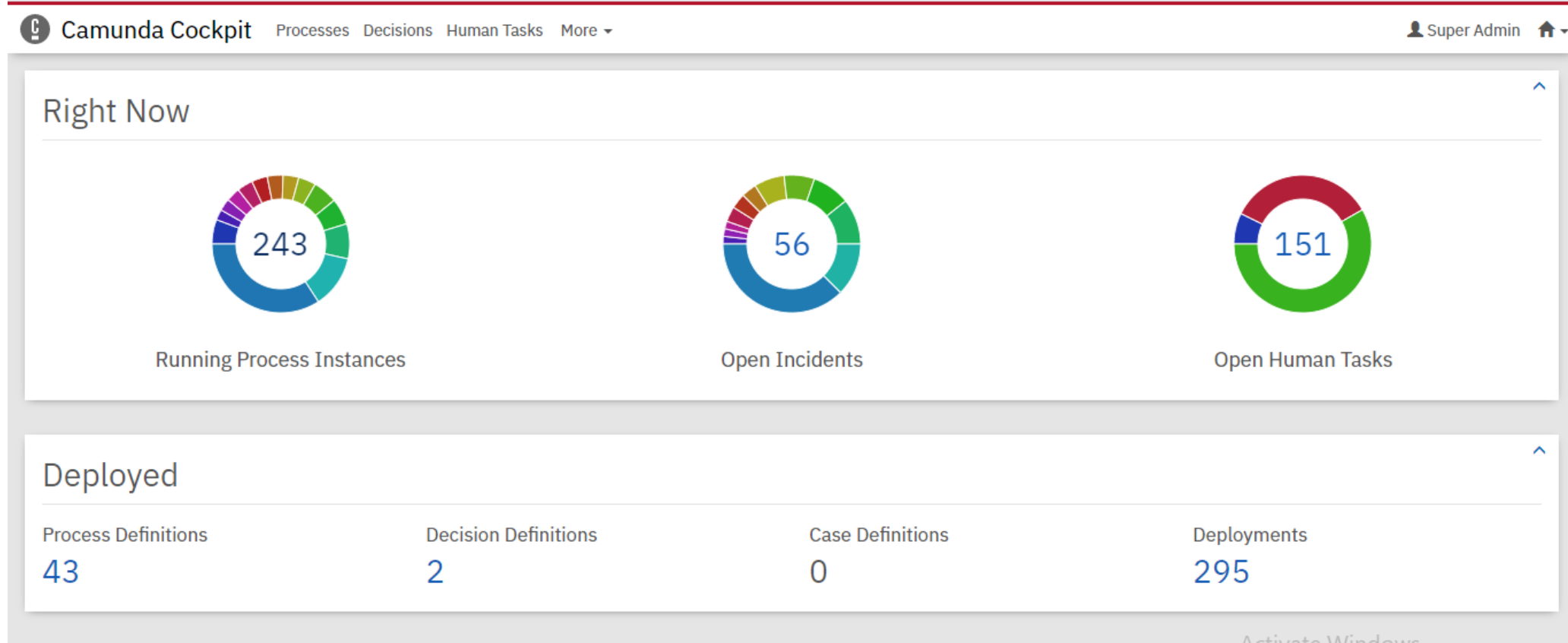


Tasklist

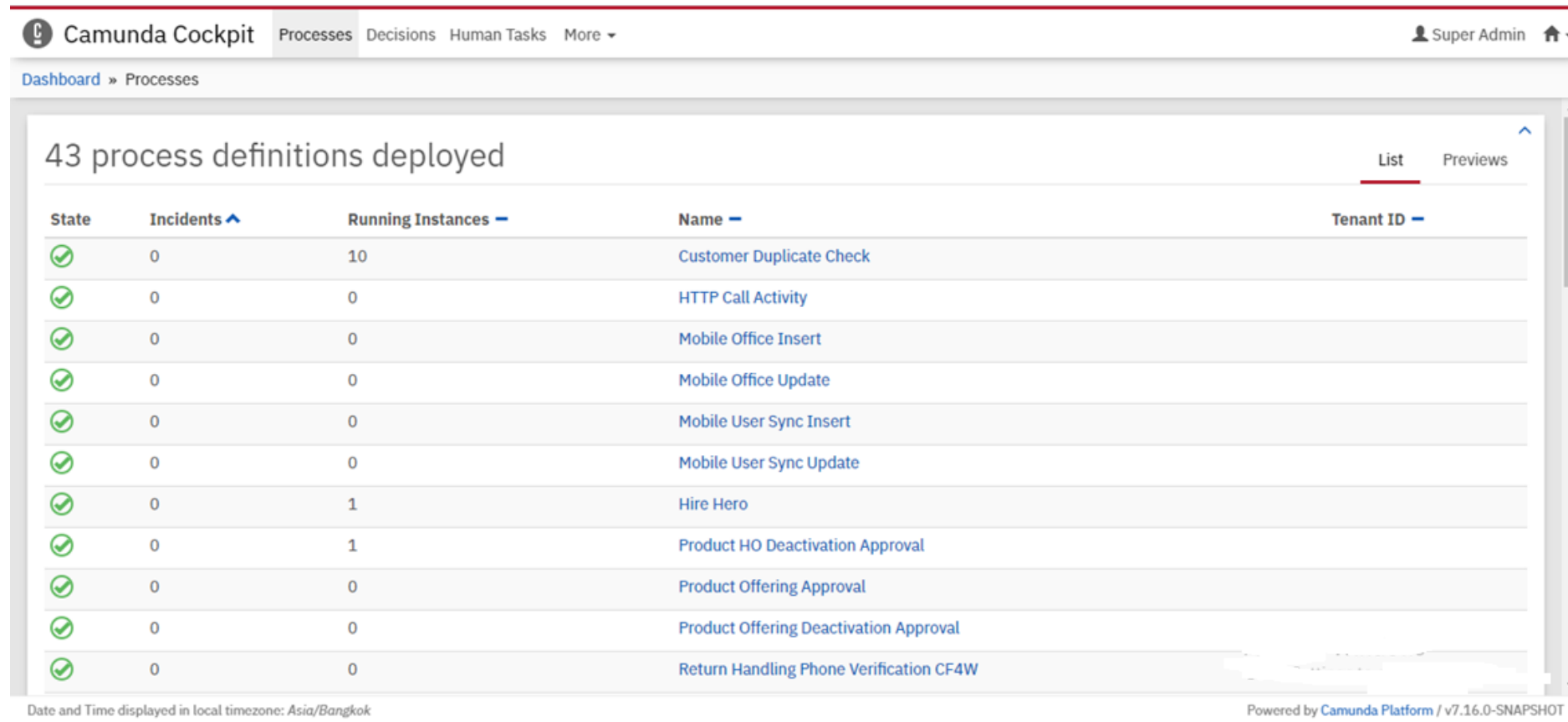


Admin

Web Camunda - Camunda Cockpit



Web Camunda - Camunda Cockpit (List Process)



Camunda Cockpit Processes Decisions Human Tasks More ▾ Super Admin

Dashboard » Processes

43 process definitions deployed

List Previews

State	Incidents ^	Running Instances -	Name -	Tenant ID -
✓	0	10	Customer Duplicate Check	
✓	0	0	HTTP Call Activity	
✓	0	0	Mobile Office Insert	
✓	0	0	Mobile Office Update	
✓	0	0	Mobile User Sync Insert	
✓	0	0	Mobile User Sync Update	
✓	0	1	Hire Hero	
✓	0	1	Product HO Deactivation Approval	
✓	0	0	Product Offering Approval	
✓	0	0	Product Offering Deactivation Approval	
✓	0	0	Return Handling Phone Verification CF4W	

Date and Time displayed in local timezone: Asia/Bangkok

Powered by Camunda Platform / v7.16.0-SNAPSHOT

Web Camunda - Camunda Cockpit (Detail Workflow Process)

Camunda Cockpit Processes Decisions Human Tasks More ▾ Super Admin

Dashboard » Processes » Product HO Deactivation Approval : Runtime

1 Definition Version: 1

Version Tag: 1.0.0

Definition ID: PROD_HO_DEAC_APV:1:58c5d75a-f051-11eb...

Definition Key: PROD_HO_DEAC_APV

Definition Name: Product HO Deactivation Approval

History Time To Live: null

Tenant ID: null

Deployment ID: 58c36658-f051-11eb-bd2c-0242ac110003

Instances Running:

- current version: 1
- all versions: 1

Date and Time displayed in local timezone: Asia/Bangkok

Activity Instance Statistics: on

2

Biru : Jumlah transaksi yang ada di node tersebut
Abu-abu : Jumlah transaksi yang sudah lewat dari node tersebut
Merah : Jumlah transaksi yang error di node tersebut

Process Instances Incidents Called Process Definitions Job Definitions History Statistics

Add criteria 1

State	ID	Start Time	Business Key
✓	b161fd17-f054-11eb-bd2c-0242ac110003	2021-07-29T17:06:50	PROD_CAMUNDA

Klik untuk melihat detail flow per transaksi

Powered by Camunda Platform / v7.16.0-SNAPSHOT

Web Camunda - Camunda Cockpit (Detail Workflow Transaction)

The screenshot displays the Camunda Cockpit interface for a specific workflow instance. The top navigation bar includes 'Processes', 'Decisions', 'Human Tasks', and 'More'. The breadcrumb trail shows 'Dashboard » Processes » Product HO Deactivation Approval : b161fd17-f054-11eb-bd2c-0242ac110003 : Runtime'. The left sidebar contains 'Information' and 'Filter' tabs. The main area shows a BPMN diagram of the 'Product HO Deactivation Approval' process. The diagram includes a start event, a 'Process Product HO Deactivation Approval' task, a 'Submit Approval Product HO Deactivation' task, and a 'Product HO Deactivation Execution' task. A red box highlights the 'Variables' tab in the bottom navigation bar. Below this, a table lists the variables for the process instance.

Information Filter

Instance ID:
b161fd17-f054-11eb-bd2c-0242ac110003

Business Key:
PROD_CAMUNDA

Definition Version:
1

Definition ID:
PROD_HO_DEAC_APV:1:58c5d75a-f051-11eb...

Definition Key:
PROD_HO_DEAC_APV

Definition Name:
Product HO Deactivation Approval

Tenant ID:
null

Deployment ID:
58c36658-f051-11eb-bd2c-0242ac110003

Super Process Instance ID:
null

Variables Incidents Called Process Instances User Tasks Jobs Audit Log External Tasks

Add criteria 2

Name	Type	Value	Scope	Actions
OfficeCode	String	HO	Product HO Deactivation A...	
RoleCode	String	HO	Product HO Deactivation A...	

Date and Time displayed in local timezone: Asia/Bangkok

Powered by Camunda Platform / v7.16.0-SNAPSHOT

Web Camunda - Camunda Cockpit (Case Error)


[illegible]

Web Camunda - Camunda Cockpit (Remove Deployment)

The screenshot shows the Camunda Cockpit interface. At the top, there is a navigation bar with the Camunda logo and the text 'Camunda Cockpit'. Below this, there are tabs for 'Processes', 'Decisions', 'Human Tasks', and 'More'. A dropdown menu is open, showing 'Deployments' and 'Batches'. The 'Deployments' tab is selected and highlighted with a red box. Below the tabs, there is a search bar with the text 'Add criteria' and a count of '323'. To the right of the search bar, there is a dropdown menu with a trash icon. Below the search bar, there is a table of deployments. The first deployment is 'WF_GENERATE_BILLING' with a time of '2024-06-27T13:15:14', source of 'Camunda Modeler', and tenant ID of 'null'. A tooltip 'Delete Deployment' is visible over the trash icon next to this deployment. The second deployment is also 'WF_GENERATE_BILLING' with a time of '2024-06-27T12:56:40', source of 'Camunda Modeler', and tenant ID of 'null'. The third deployment is partially visible and reads 'WF TNS TMNT'.


Camunda Cockpit Processes Decisions Human Tasks More ▾

Deployment Time ▾

Add criteria 323 

WF_GENERATE_BILLING.bpmn

Delete Deployment

WF_GENERATE_BILLING 

Time: 2024-06-27T13:15:14

Source: Camunda Modeler

Tenant ID: null

WF_GENERATE_BILLING

Time: 2024-06-27T12:56:40

Source: Camunda Modeler

Tenant ID: null

WF TNS TMNT

Web Camunda - Camunda Tasklist

The screenshot displays the Camunda Tasklist web application. On the left, a sidebar (1) lists navigation options: My Tasks, My Group Tasks, Accounting, John's Tasks, Mary's Tasks, Peter's Tasks, 3rd Party Http Call, and All Tasks (151). The main panel shows a list of tasks under the 'CREATION_DATE' filter. The first task, 'MoU Review Dealer Financing', is selected. The task details panel on the right shows the workflow 'MoU Dealer Financing (v. 1.0.0)' with buttons for 'Set follow-up date' and 'Set due date'. A user selection dropdown (2) shows 'HO, SUPUSR'. A 'Claim' button (3) is visible. The 'Business Key' is '0002MOU20210802822'. Below this, there are links for 'Add a varia... +' (4) and 'Load Varia...' (5). At the top right, a 'Start process' button (6) is highlighted. A 'Complete' button is at the bottom right of the task details panel.

Camunda Tasklist

Keyboard Shortcuts Create task Start process Super Admin Add Comment +

Create a filter +

My Tasks 1

My Group Tasks

Accounting

John's Tasks

Mary's Tasks

Peter's Tasks

3rd Party Http Call

All Tasks (151)

CREATION_DATE +

SEARCH_PLACEHOLDER 151

MoU Review Dealer Financing

Workflow MoU Dealer Financing

Created 7 hours ago 50

MOU Review General

Workflow MoU General

Created 8 hours ago 50

Change MoU Review

Workflow Change MOU

Created a day ago 50

Change MoU Review

Workflow Change MOU

Created a day ago 50

Change MoU Review

MoU Review Dealer Financing

Workflow MoU Dealer Financing (v. 1.0.0)

Set follow-up date Set due date 2 HO, SUPUSR 3 Claim

Form History Diagram Description

You can set variables, using a generic form, by clicking the "Add a variable" link below.

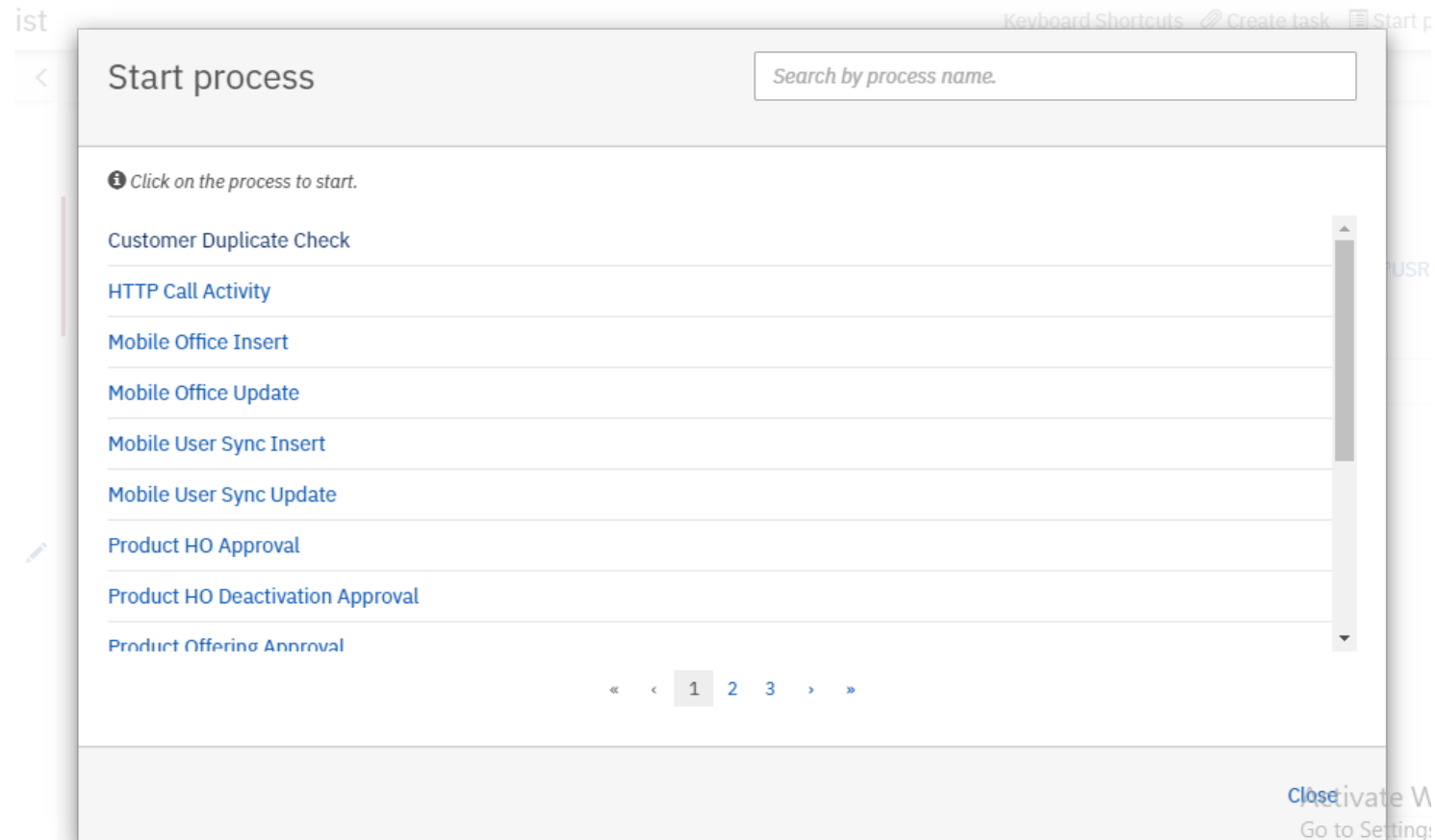
Business Key 0002MOU20210802822

Add a varia... + 4

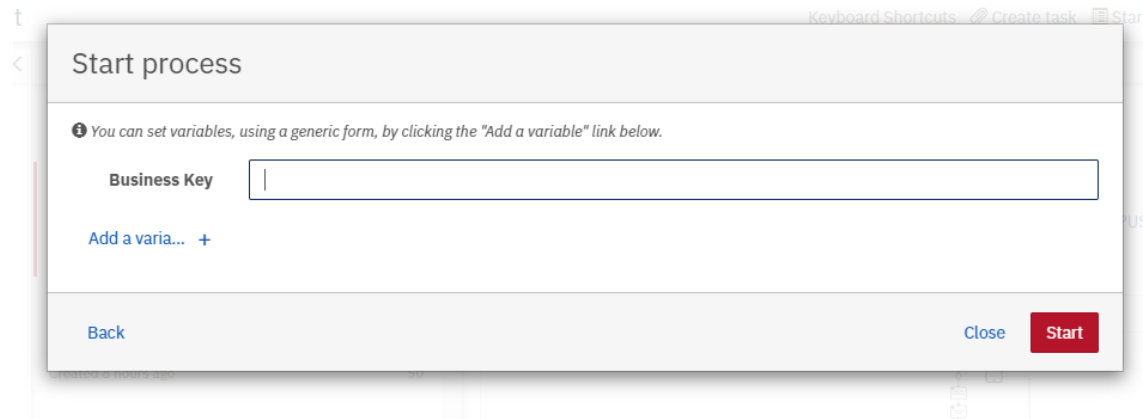
Load Varia... 5

Complete

Web Camunda - Camunda Task List (Create New Instance - 1)



Web Camunda - Camunda Task List (Create New Instance - 2)



Start process

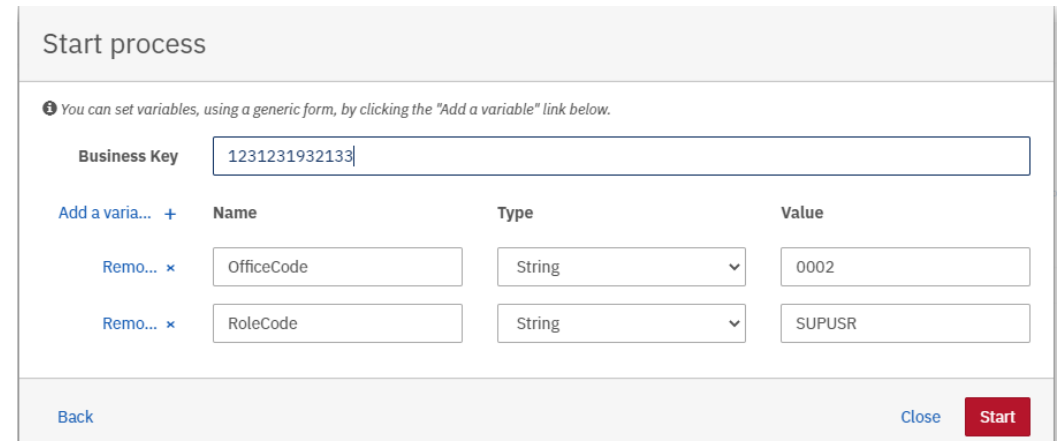
You can set variables, using a generic form, by clicking the "Add a variable" link below.

Business Key

[Add a varia... +](#)

[Back](#) [Close](#) [Start](#)

1. Business Key = nomor transaksi
2. Add Variable digunakan untuk menspesifikasi variable yang diperlukan ketika workflow berjalan.
3. 2 Variable yang pasti dibutuhkan untuk pengambilan task OfficeCode & RoleCode.



Start process

You can set variables, using a generic form, by clicking the "Add a variable" link below.

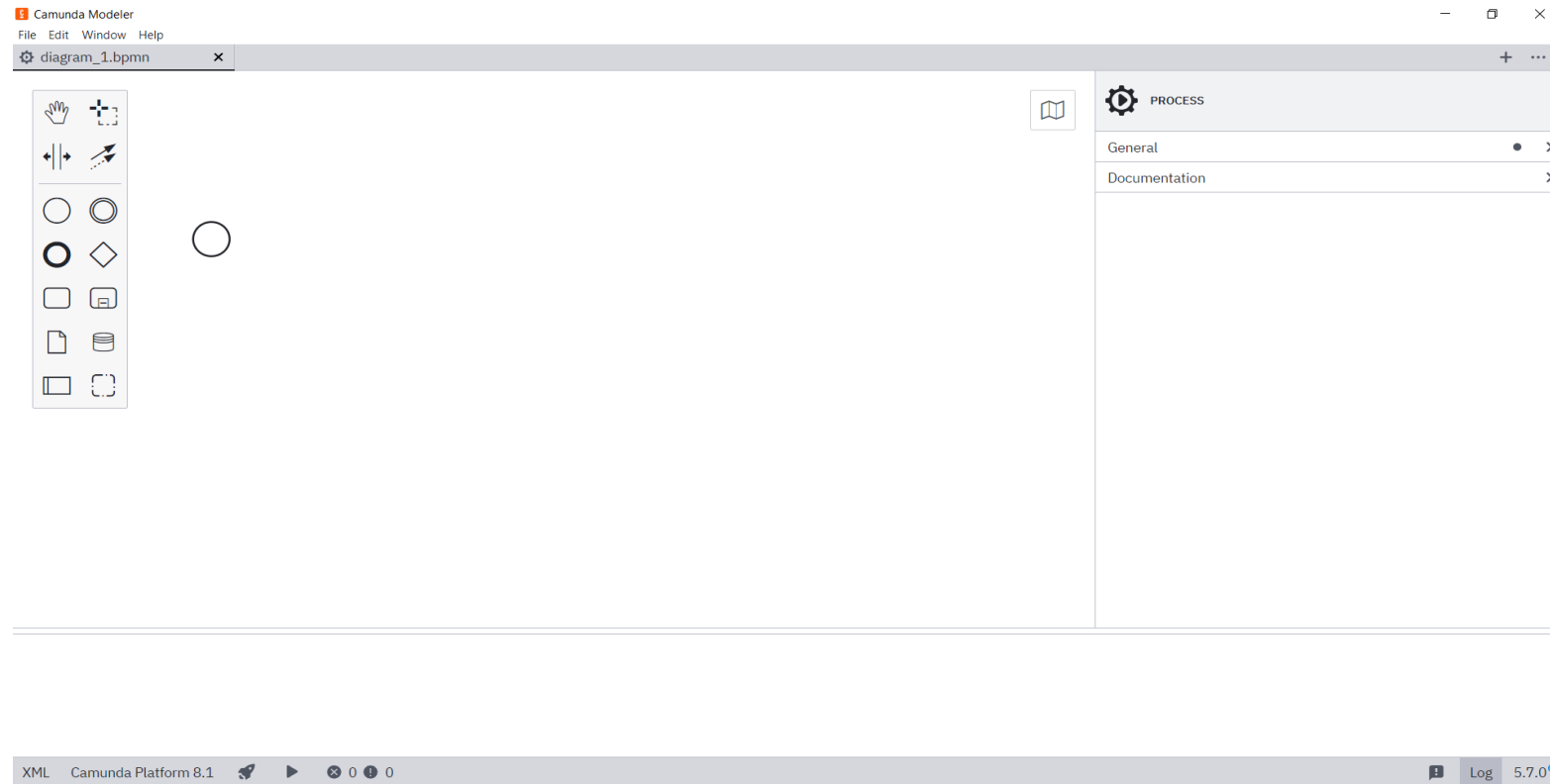
Business Key

Add a varia... +	Name	Type	Value
Remo... x	<input type="text" value="OfficeCode"/>	<input type="text" value="String"/>	<input type="text" value="0002"/>
Remo... x	<input type="text" value="RoleCode"/>	<input type="text" value="String"/>	<input type="text" value="SUPUSR"/>

[Back](#) [Close](#) [Start](#)

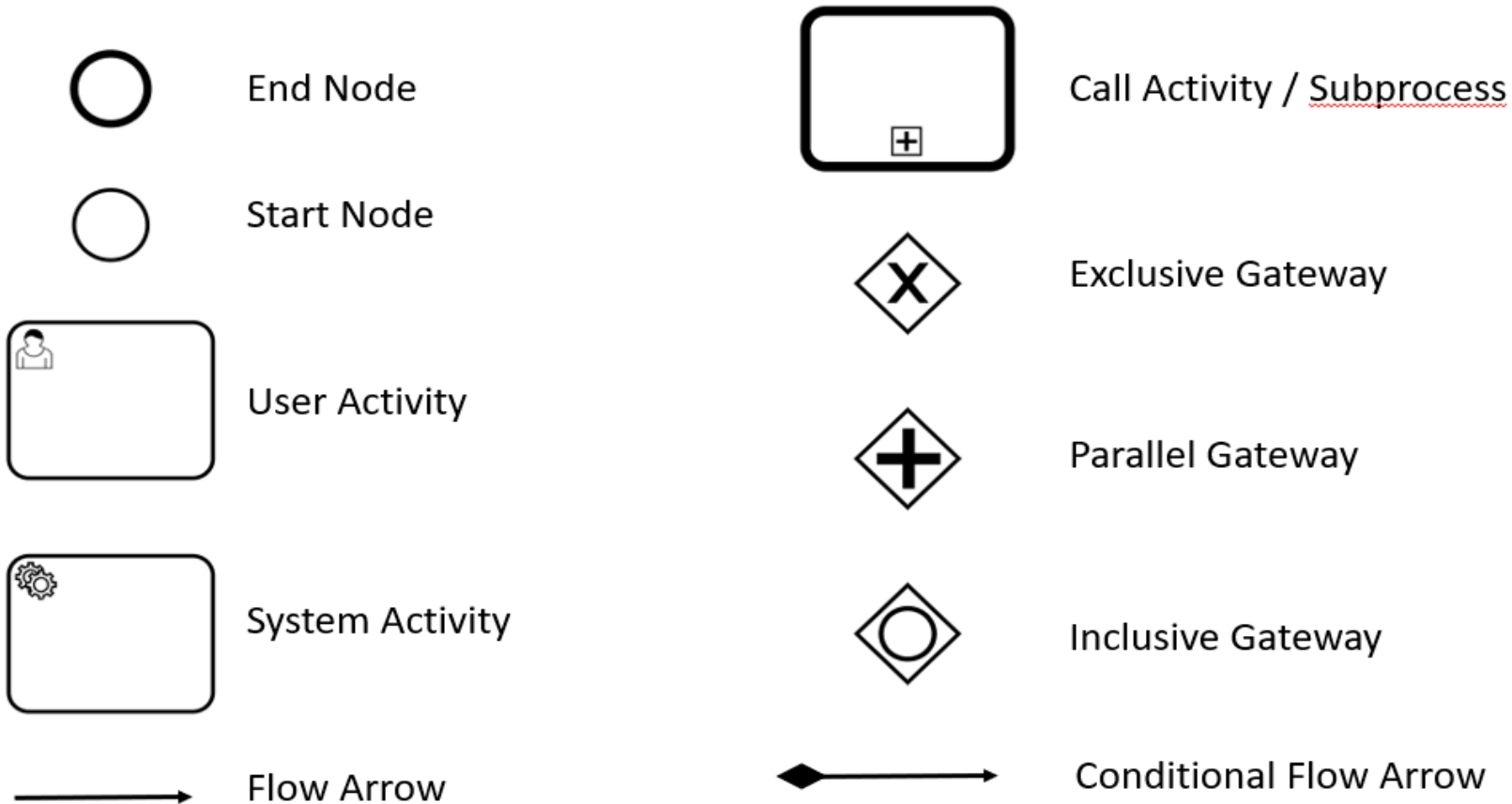
Camunda Modeler

Camunda modeler adalah aplikasi desktop yang digunakan untuk membuat diagram BPMN



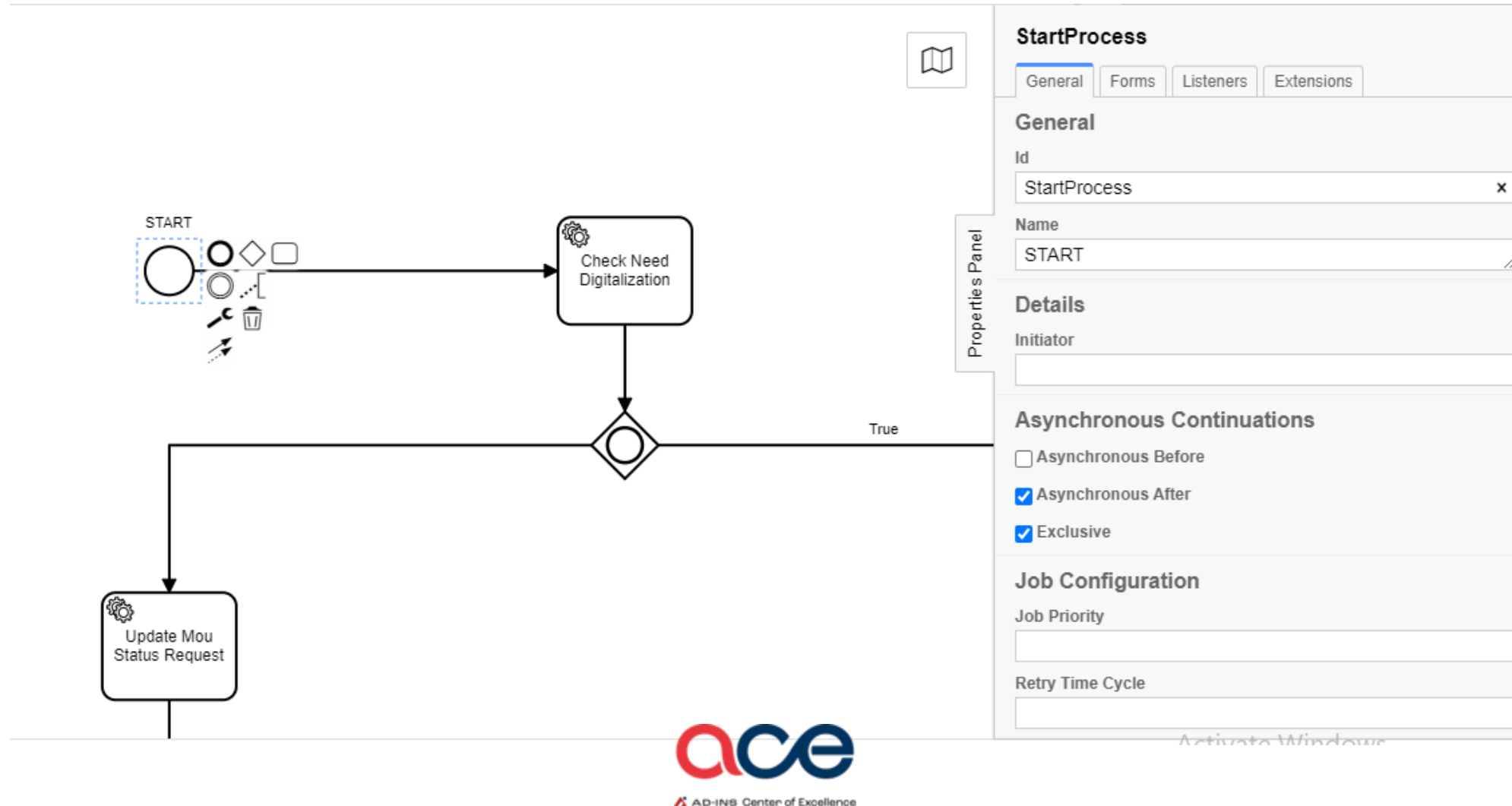
<https://camunda.com/download/modeler/>

Jenis-Jenis Component Camunda



How It work

Start Node Configuration



Camunda Activity

- System Activity (Service Task)
- User Activity
- Call Activity
- Gateways
- Flow Arrow
- External Task

System Activity (Service Task)

Definisi: Sebuah task yang dieksekusi oleh sistem tanpa intervensi manusia.

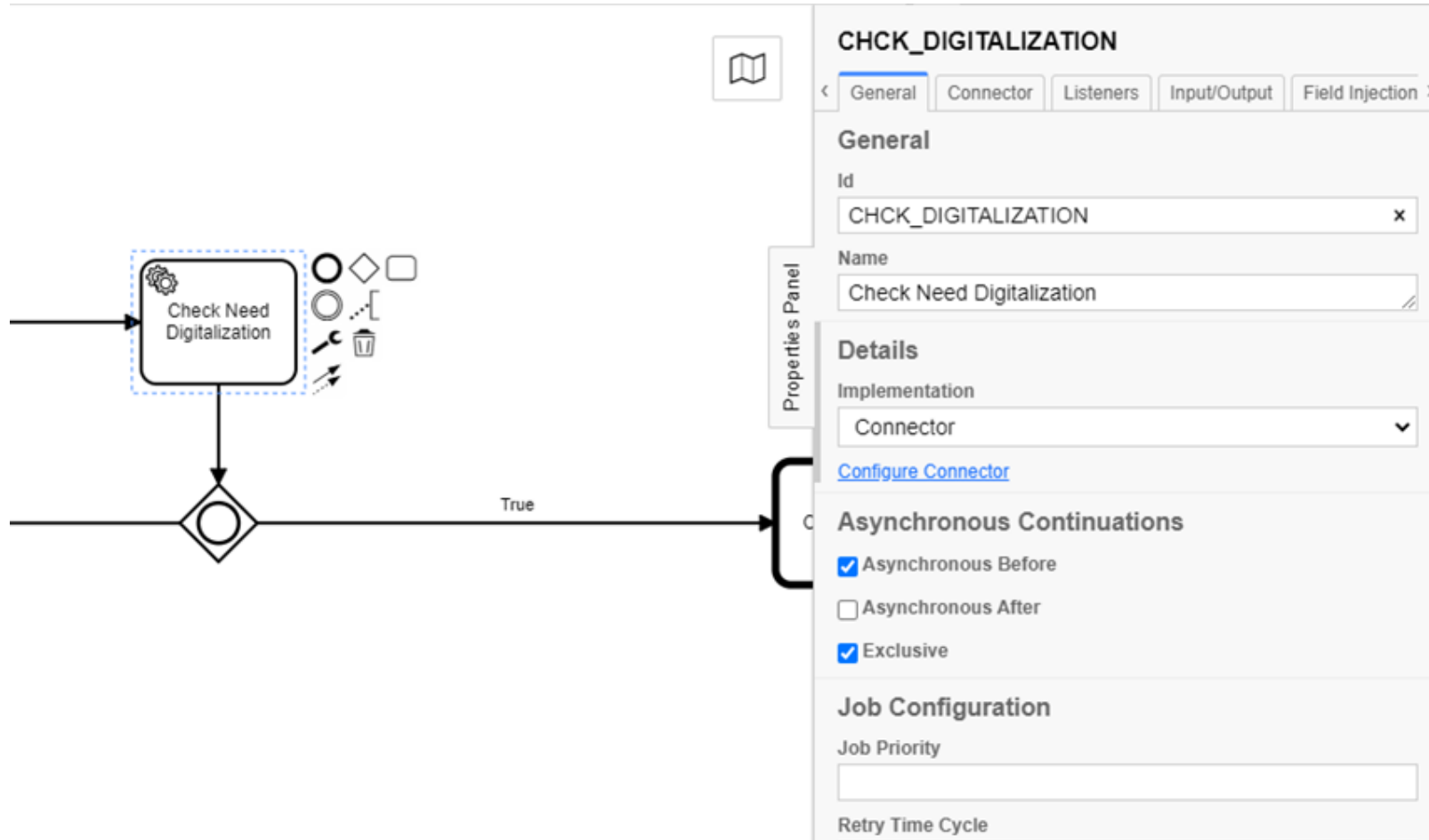


Kegunaan:

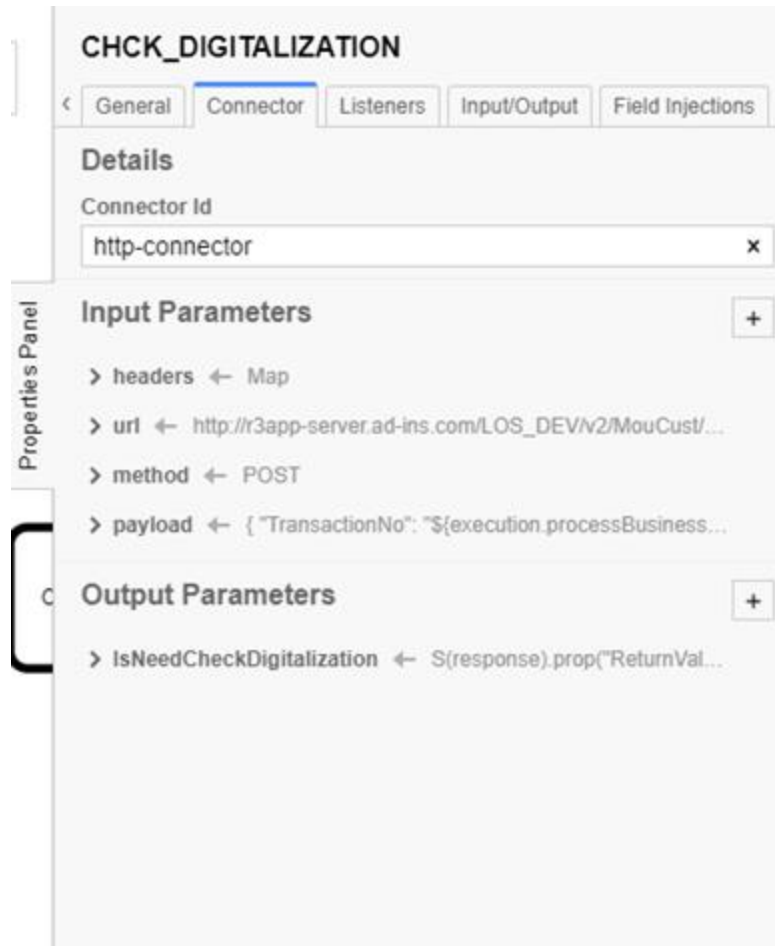
- Mengotomatisasi tugas-tugas yang tidak memerlukan input manusia
- Integrasi dengan sistem eksternal atau layanan web
- Menjalankan skrip atau logika bisnis kompleks

Contoh: Mengirim email otomatis, memperbarui database, atau melakukan kalkulasi kompleks.

System Activity Configuration - 1



System Activity Configuration - 2



- **Connector Id** selalu memakai http-connector
 - **Input & Output** parameters selalu user defined (di gambar sampling ini sudah di add beberapa sendiri)
 - Untuk menambahkan variable tinggal klik icon +
-
- Secara Template Input Parameters selalu memiliki 4 variable (template dari tim engine bukan camunda) :
 - **headers** : Menentukan tipe data yang dikirim.
 - **url** : URL API yang di hit untuk system activity ini.
 - **method** : GET atau POST (selalu POST).
 - **payload** : Json yang dikirimkan sebagai input parameter dari url API yang di hit.

System Activity Configuration - 3

SYNC_OFFICE_INS

< General **Connector** Listeners Input/Output Field Injections Extens >

Details

Connector Id
http-connector x

Input Parameters +

▼ headers x

Local Variable Name
headers x

Variable Assignment Type
Map ▼

Add Entry +

Key	Value	
content-type	application/json	x
AdInsKey	\${AdInsKey}	x

> url ← http://r3app-server.ad-ins.com/FOUNDATION_R3/RefOffice/Sy...

> method ← POST

> payload ← {"TransactionNo": "\${execution.processBusinessKey}", "..."}

Output Parameters +

No variables defined.

General **Connector** Listeners Input/Output Field Injections

Details

Connector Id
http-connector x

Input Parameters +

> headers ← Map

▼ url x

Local Variable Name
url x

Variable Assignment Type
String or Expression ▼

Variable Assignment Value
http://r3app-server.ad-ins.com/LOS_DEV/v2/MouCust/CheckMouDigitalization
Start typing "\${" to create an expression.

> method ← POST

> payload ← {"TransactionNo": "\${execution.processBusin..."}

Output Parameters +

> IsNeedCheckDigitalization ← S(response).prop("Return..."

Properties Panel

Activate Windows

System Activity Configuration - 4

CHCK_DIGITALIZATION

General Connector Listeners Input/Output Field Injection

Details

Connector Id
http-connector

Input Parameters

> headers ← Map

> url ← http://r3app-server.ad-ins.com/LOS_DEV/v2/MouC...

▼ method

Local Variable Name
method

Variable Assignment Type
String or Expression

Variable Assignment Value
POST

Start typing "\${}" to create an expression.

> payload ← { "TransactionNo": "\${execution.processBusin..."

Output Parameters

> IsNeedCheckDigitalization ← S(response).prop("Return...

http-connector

Input Parameters

> headers ← Map

> url ← http://r3app-server.ad-ins.com/LOS_DEV/v2/MouC...

> method ← POST

▼ payload

Local Variable Name
payload

Variable Assignment Type
String or Expression

Variable Assignment Value
{
 "TransactionNo": "\${execution.processBusinessKey}",
 "ListValue": {
 "MouStat": "REQ"
 },
 "RequestDateTime": "\${dateTime()}"
}

Start typing "\${}" to create an expression.

Output Parameters

No variables defined.

CALL_API_SUBMIT_APV

General Connector Listeners Input/Output Field Injections Extens

Details

Connector Id
http-connector

Input Parameters

> headers ← Map

> url ← http://r3impl-appsvr.ad-ins.com/ROS_BE_CAMUNDA/v2/Produ...

> method ← POST

> payload ← { "TransactionNo": "\${execution.processBusinessKey}", "..."

Output Parameters

▼ statusCode

Process Variable Name
statusCode

Variable Assignment Type
Script

Script Format
Javascript

Script Type
Inline Script

Script
var output =
S(connector.getVariable("response"),

What is defined in payload ?

```
namespace AdIns.Foundation.DTO.Request.Workflow
{
    public class WorkflowApiV2Obj
    {
        public WorkflowApiV2Obj();

        public string TaskListId { get; set; }
        public string TransactionNo { get; set; }
        public string WFCODE { get; set; }
        public Dictionary<string, string> ListValue { get; set; }
    }
}
```

Variable Assignment Value

```
{
  "TransactionNo": "${execution.processBusinessKey}",
  "ListValue": {
    "MouStat": "REQ"
  },
  "RequestDateTime": "${dateTime()}"
}
```

Start typing "\$/" to create an expression

```
/// <returns>,</returns>
[Route("UpdateLeadStatActivity")]
[HttpPost]
[MapToApiVersion("2")]
[AllowAnonymous]
0 references
public async Task<JsonResult> UpdateLeadStatActivity(WorkflowApiV2Obj workflowModel)
{
    await iLeadService.UpdateLeadStatActivity(workflowModel.TransactionNo, workflowModel.ListValue);

    return new JsonResult(new ResponseSuccessObj());
}
```


Defining Output Parameter

The screenshot displays the ACE IDE interface. On the left, a process flow diagram shows an activity named "Check Need Digitalization" (represented by a rounded rectangle with a gear icon) leading to a decision diamond. The diamond has a "True" path leading to the right. On the right, the "Properties Panel" is open for an "http-connector". The panel is divided into "Input Parameters" and "Output Parameters" sections.

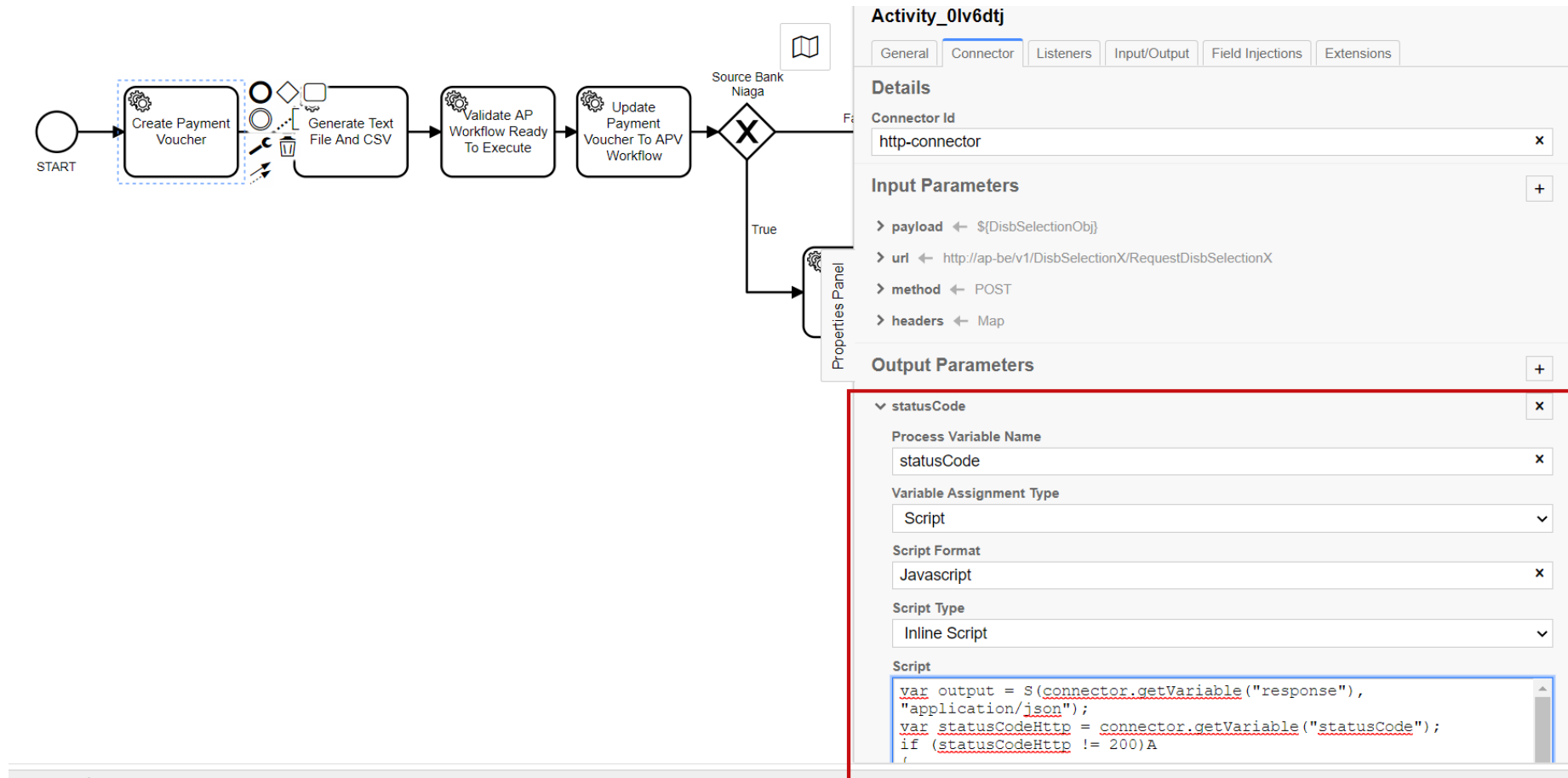
Input Parameters:

- headers: Map
- url: `http://r3app-server.ad-ins.com/LOS_DEV/v2/MouC...`
- method: POST
- payload: `{ "TransactionNo": "${execution.processBusin..."`

Output Parameters:

- IsNeedCheckDigitalization**
 - Process Variable Name: `IsNeedCheckDigitalization`
 - Variable Assignment Type: Script
 - Script Format: Javascript
 - Script Type: Inline Script
 - Script: `S(response).prop("ReturnValue").value();`

Defining Output Parameter Type 2



Script Handle output Status Code

```
var output = S(connector.getVariable("response"), "application/json");
var statusCodeHttp = connector.getVariable("statusCode");
if (statusCodeHttp != 200)A
{
    if (statusCodeHttp == 401)
    {
        throw new Error("statusCode = " + statusCodeHttp + ", message = " + connector.getVariable("response"));
    }

    if (statusCodeHttp >= 501)
    {
        throw new Error("statusCode = " + statusCodeHttp + ", message = Service not available");
    }
}
var statusCodeRes = output.prop("StatusCode").value();
var errorMessage = output.prop("Message").value();
if (statusCodeRes != "200")
{
    throw new Error("statusCode = " + statusCodeRes + ", message = " + errorMessage);
}
```

User Activity (User Task)

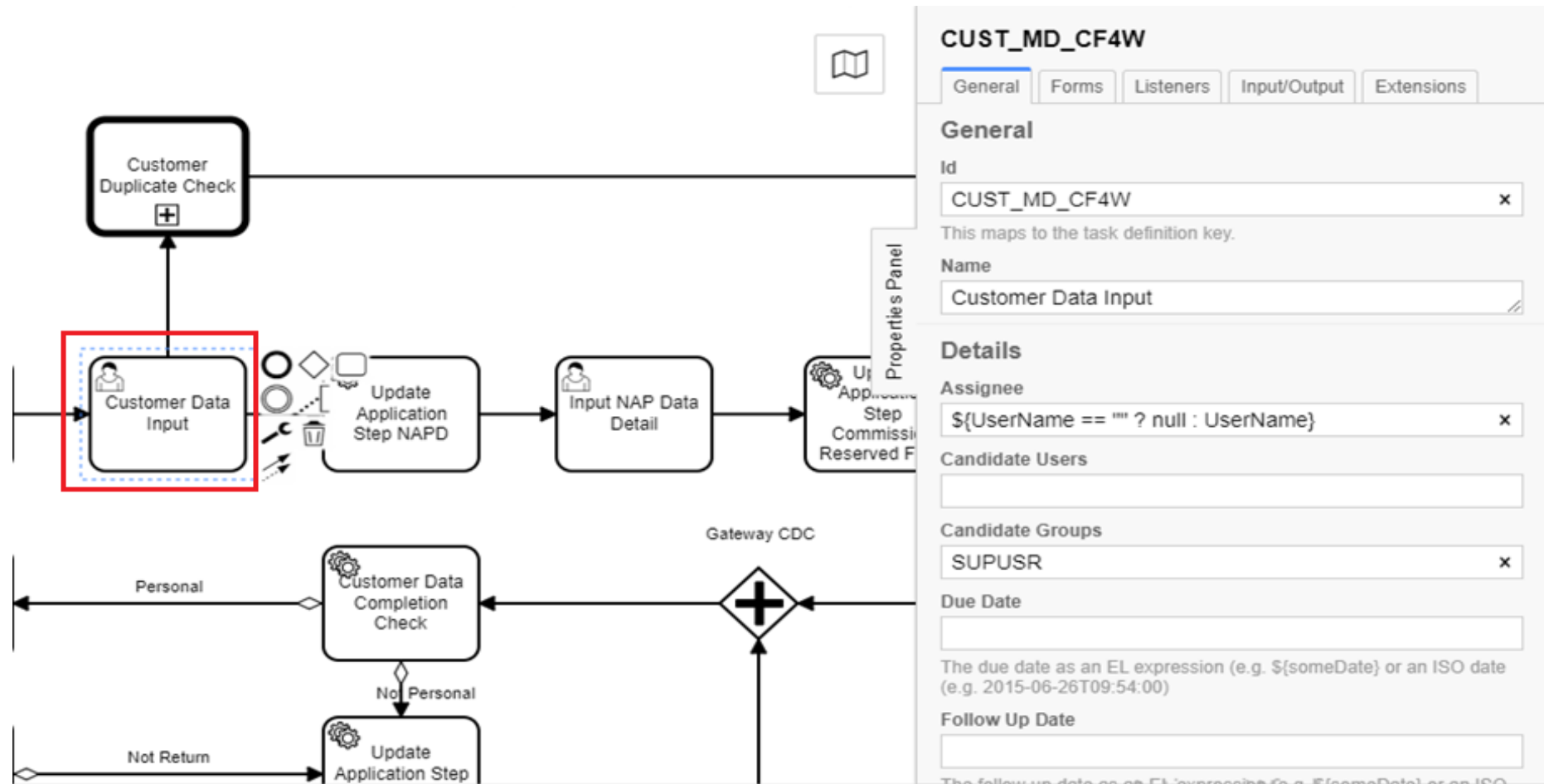
Definisi: Sebuah task yang memerlukan interaksi atau input dari pengguna manusia.

Kegunaan:

- Melibatkan pengguna dalam proses bisnis
- Mengumpulkan input atau persetujuan dari manusia
- Menugaskan pekerjaan kepada individu atau kelompok tertentu

Contoh: Formulir persetujuan manajer, input data pelanggan oleh agen layanan pelanggan.

User Activity Configuration



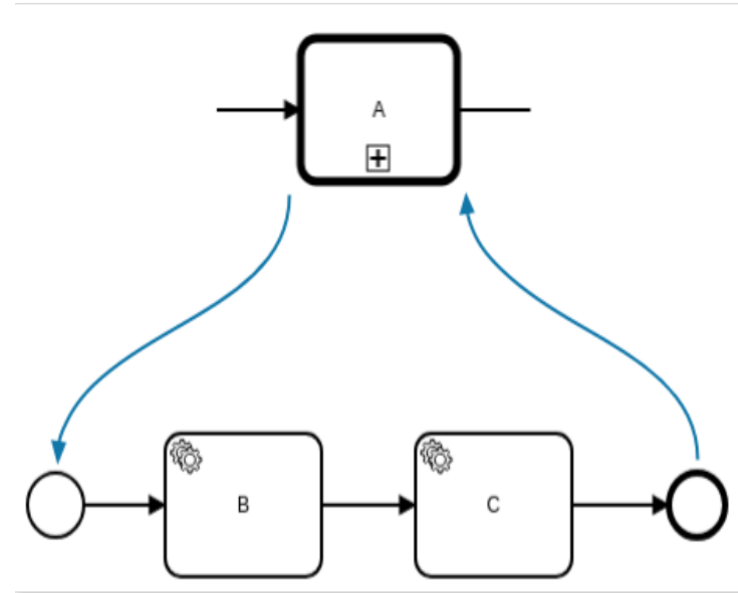
Call Activity

Definisi: Sebuah titik dalam proses yang memanggil proses atau sub-proses lain.

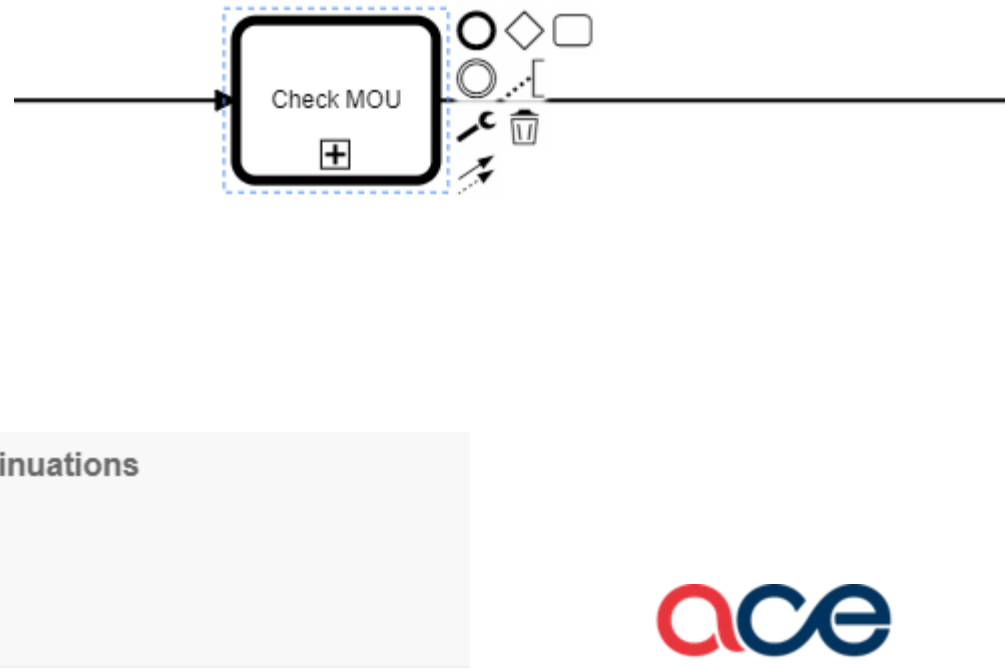
Kegunaan:

- Memecah proses kompleks menjadi bagian-bagian yang lebih kecil dan dapat dikelola
- Menggunakan kembali sub-proses di berbagai proses utama
- Meningkatkan modularitas dan pemeliharaan proses

Contoh: Memanggil sub-proses "Verifikasi Identitas" dalam proses "Pembukaan Rekening Baru".



Call Activity Configuration - 1



Asynchronous Continuations

- ☒ Asynchronous Before
- ☐ Asynchronous After
- ☒ Exclusive



AD-INS Center of Excellence

Properties Panel

WF_CHKCK_MOU_FLOW

General

Variables

Listeners

Input/Output

Extensions

General

Id

WF_CHKCK_MOU_FLOW

Name

Check MOU

Details

CallActivity Type

BPMN

Called Element

WF_CHKCK_MOU

Binding

latest

Tenant Id

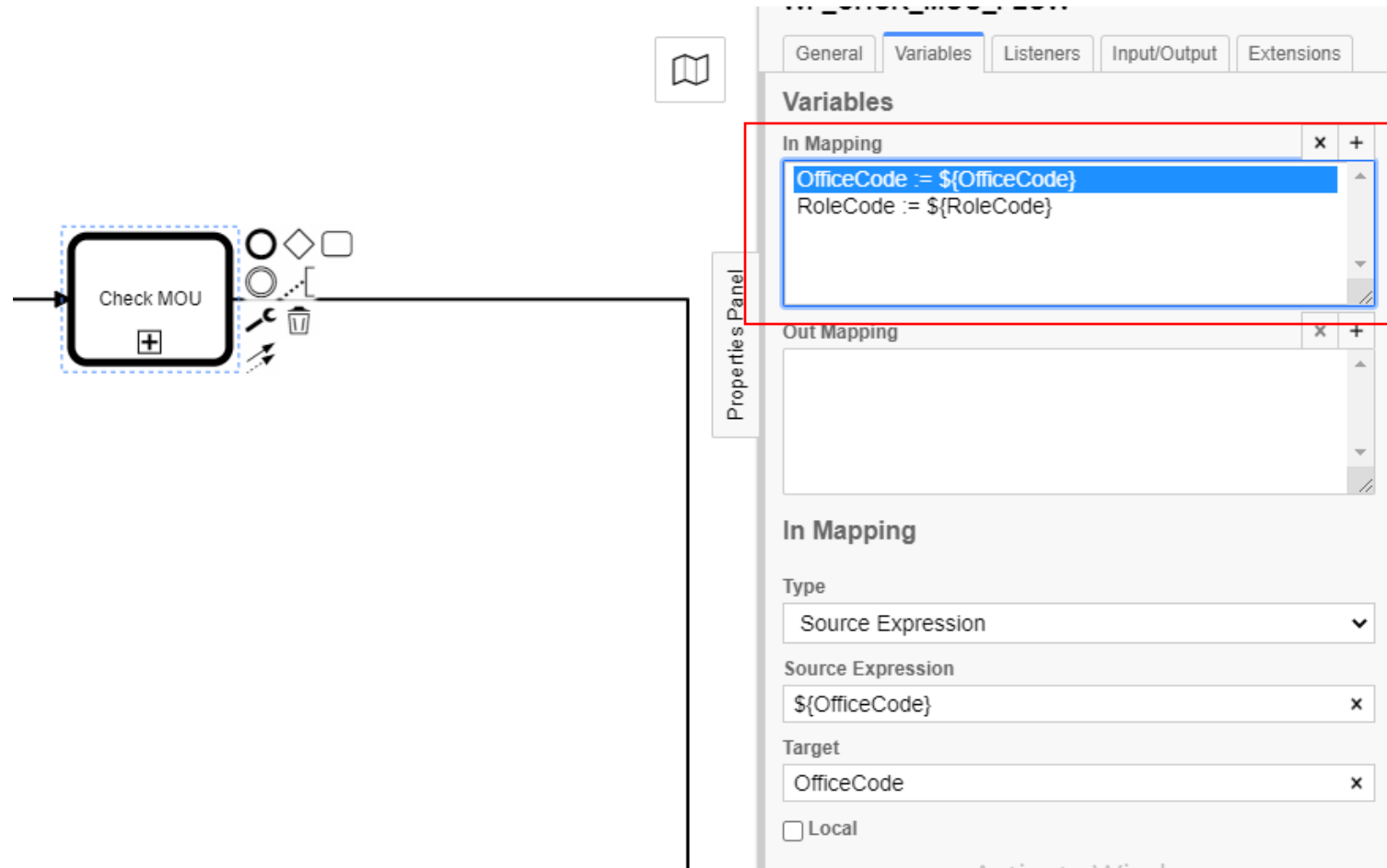
☒ Business Key

Business Key Expression

#{execution.processBusinessKey}

Delegate Variable Mapping

Call Activity Configuration - 2



Call Activity Configuration – 3 (Approval)

The image displays a BPMN editor interface. On the left, a workflow diagram shows three tasks in sequence: 'Update Mou Status Approval', 'MoU Approval General' (highlighted with a blue dashed border), and 'Insert RFA Log'. The 'MoU Approval General' task is connected to the 'Properties Panel' on the right. The Properties Panel has tabs for 'General', 'Variables', 'Listeners', 'Input/Output', and 'Extensions'. The 'General' tab is active, showing the following configuration:

- General**
 - Id**: MOU_APV
 - Name**: MoU Approval General
- Details**
 - CallActivity Type**: BPMN
 - Called Element**: THIRD_PARTY_PROCESS (highlighted with a red border)
 - Binding**: latest
 - Tenant Id**: (empty)
 - ☒ **Business Key**
 - Business Key Expression**: #{execution.processBusinessKey}
 - Delegate Variable Mapping**: (empty)

Call Activity Configuration – 4 (Approval)

Properties Panel

General Variables Listeners Input/Output Extensions

Variables

In Mapping

ApplicationURL := http://r3app-server.ad-ins.com/FOUNDATION_DEV/v2/Approval/ProcessRFA
ApplicationPayload := { "TransactionNo": "\${execution.processBusinessKey}", "TaskListId": "\${execution.taskListId}"
ActionType := APPROVAL

Out Mapping

ApplicationResponse := \${ApplicationResponse}

In Mapping

Type

Source Expression

Source Expression

http://r3app-server.ad-ins.com/FOUNDATION_DEV/v2/Approval/ProcessRFA

Target

ApplicationURL

☐ Local

Activate Windows

General Variables Listeners Input/Output Extensions

Variables

In Mapping

ApplicationURL := http://r3app-server.ad-ins.com/FOUNDATION_DEV/v2/Approval/ProcessRFA
ApplicationPayload := { "TransactionNo": "\${execution.processBusinessKey}", "TaskListId": "\${execution.taskListId}"
ActionType := APPROVAL

Out Mapping

ApplicationResponse := \${ApplicationResponse}

In Mapping

Type

Source Expression

Source Expression

{ "TransactionNo": "\${execution.processBusinessKey}", "TaskListId": "\${execution.taskListId}"

Target

ApplicationPayload

☐ Local

Gateways

Definisi: Elemen yang mengontrol aliran proses, biasanya digunakan untuk percabangan atau penggabungan alur.

Kegunaan:

- Membuat keputusan berdasarkan kondisi tertentu
- Memisahkan atau menggabungkan aliran proses
- Menangani kasus-kasus paralel atau eksklusif

Contoh:

- Exclusive Gateway (XOR): Memilih satu jalur berdasarkan kondisi
- Parallel Gateway (AND): Memulai beberapa jalur secara bersamaan
- Inclusive Gateway (OR): Memilih satu atau lebih jalur berdasarkan kondisi

Gateways



Exclusive Gateway



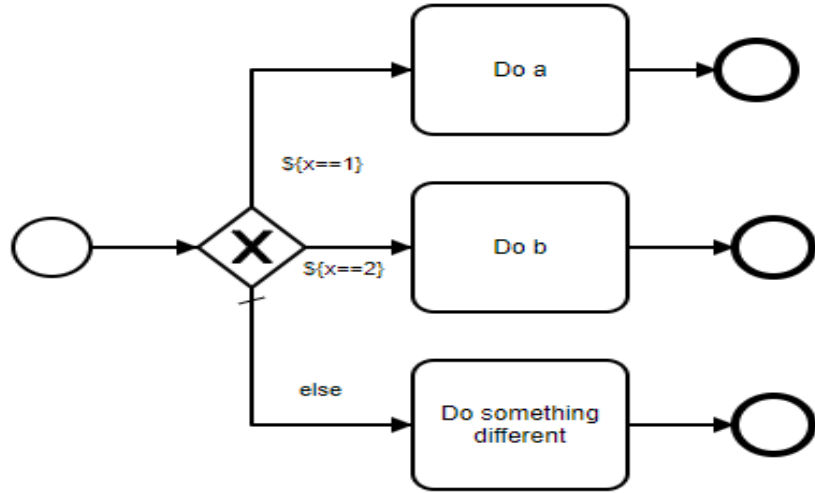
Parallel Gateway



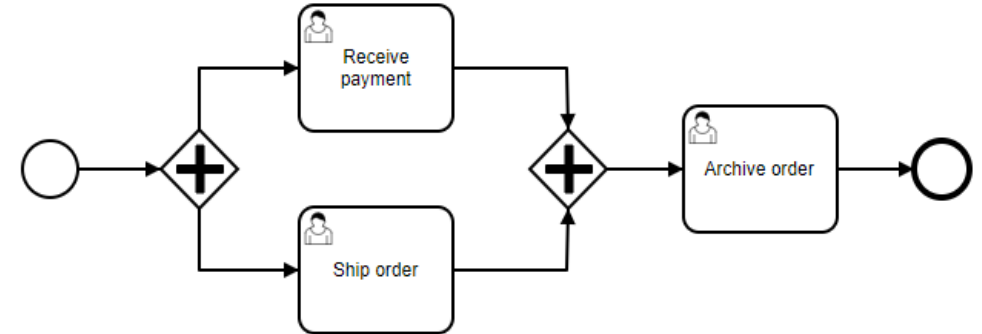
Inclusive Gateway

1. **Exclusive Gateway** : Berfungsi sebagai if else, hanya 1 flow yang dapat jalan dari percabangan 2 flow atau lebih.
2. **Parallel Gateway** : Digunakan untuk parallel flow, dimana 2 atau lebih flow harus selesai semua sebelum lanjut.
3. **Inclusive Gateway** : seperti exclusive namun flow yang jalan bisa lebih dari 1 namun tidak jalan semua seperti parallel.

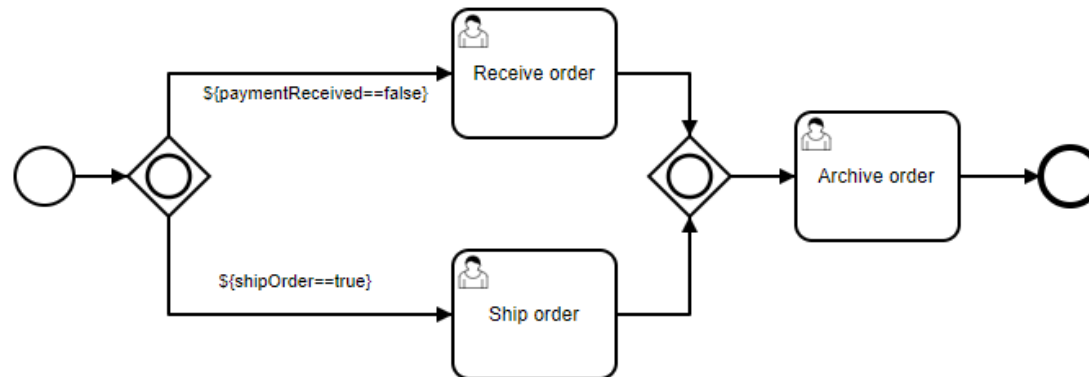
Gateways



Gambar 1 : Exclusive Gateways



Gambar 2 : Parallel Gateways



Gambar 3 : Inclusive Gateways

Gateway Configuration

The screenshot displays the 'GATE_MOU_CHECK' configuration in a software interface. On the left, a diagram shows a gateway symbol (a diamond with a circle inside) labeled 'Gateway MOU Check'. A blue dashed box highlights this symbol, and an arrow points to it from the 'Properties Panel' on the right. The 'Properties Panel' is titled 'GATE_MOU_CHECK' and has three tabs: 'General', 'Listeners', and 'Extensions'. The 'General' tab is active and shows the following settings:

- General**
 - Id**: GATE_MOU_CHECK
 - Name**: Gateway MOU Check
- Asynchronous Continuations**
 - ☒ Asynchronous Before
 - ☐ Asynchronous After
 - ☒ Exclusive
- Job Configuration**
 - Job Priority**: [Empty field]
 - Retry Time Cycle**: [Empty field]
- Documentation**

Flow Arrow (Sequence Flow)

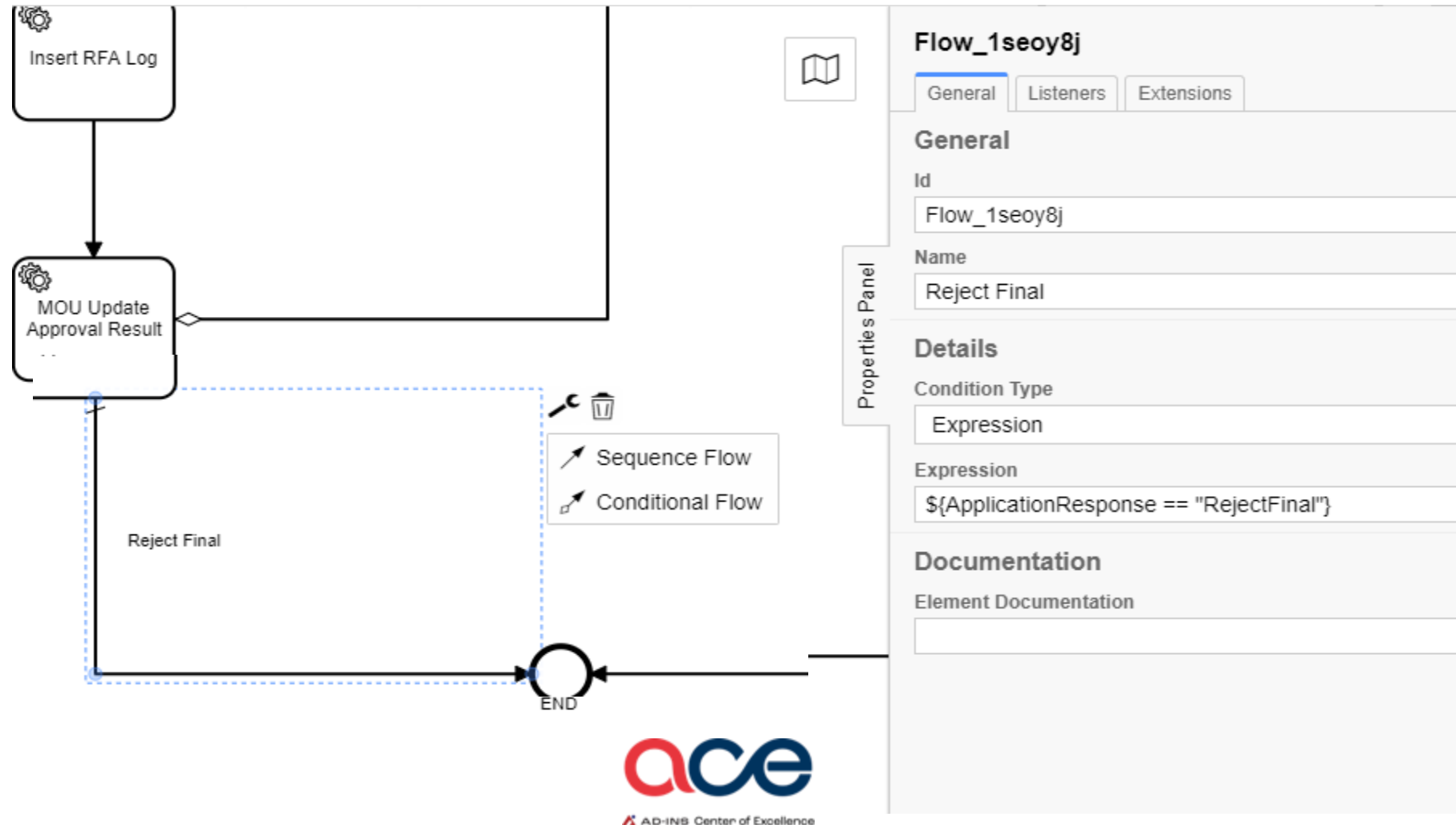
Definisi: Garis panah yang menghubungkan elemen-elemen dalam diagram BPMN, menunjukkan urutan eksekusi.

Kegunaan:

- Menentukan urutan eksekusi antar aktivitas
- Menunjukkan aliran logis dari proses bisnis
- Menghubungkan berbagai elemen BPMN (aktivitas, event, gateway)

Contoh: Panah dari "Terima Pesanan" ke "Proses Pembayaran" menunjukkan urutan langkah dalam proses penjualan.

Flow Arrow



External Task

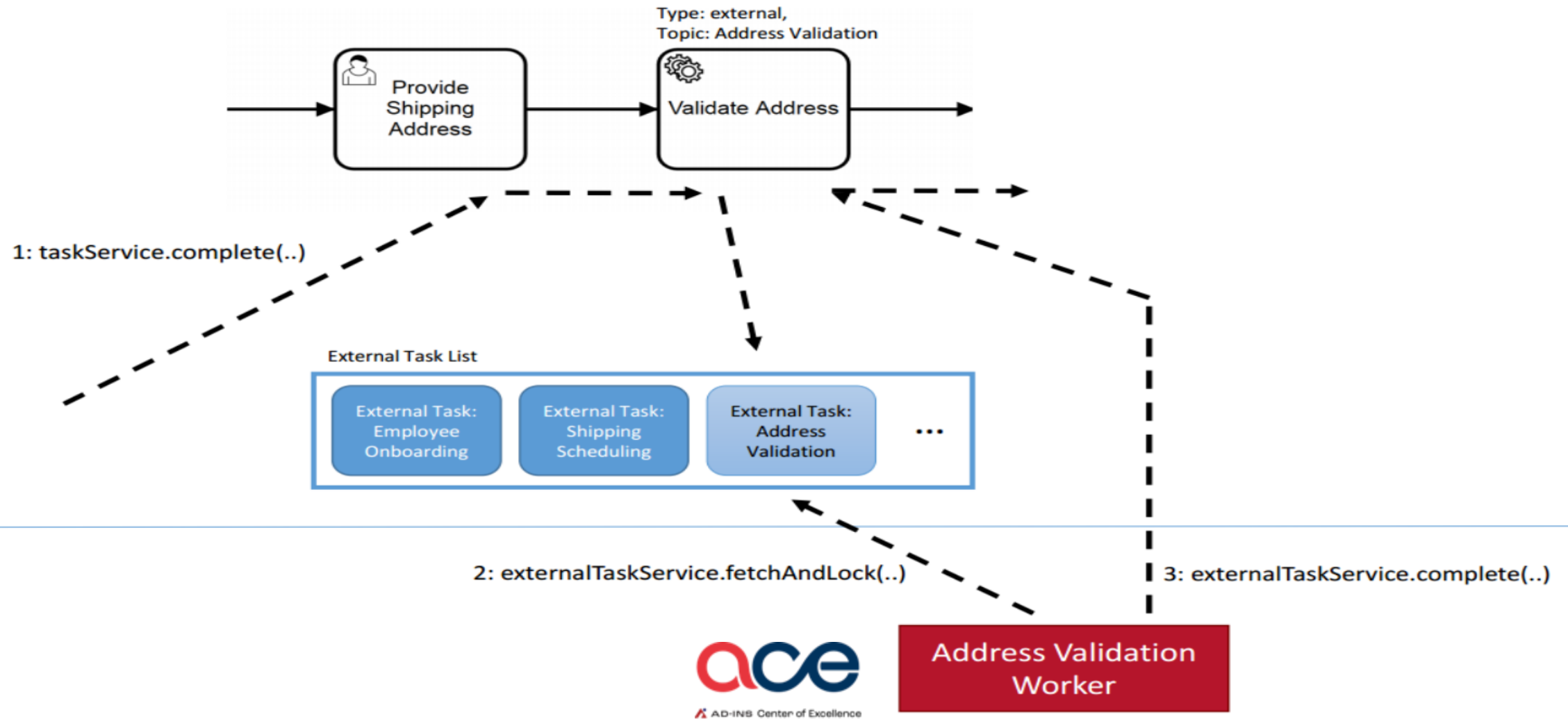
Definisi: Sebuah task yang dieksekusi oleh worker eksternal, di luar engine Camunda. **Cocok untuk menangani Long Running Task (response API > 5 detik)**

Kegunaan:

- Mendistribusikan beban kerja ke sistem eksternal
- Meningkatkan skalabilitas dengan memisahkan eksekusi task dari engine proses
- Memungkinkan integrasi dengan sistem atau bahasa pemrograman yang berbeda

Contoh: Menjalankan analisis data intensif pada server terpisah, atau mengintegrasikan dengan sistem warisan (legacy system) yang tidak dapat langsung terhubung dengan Camunda.

External Task

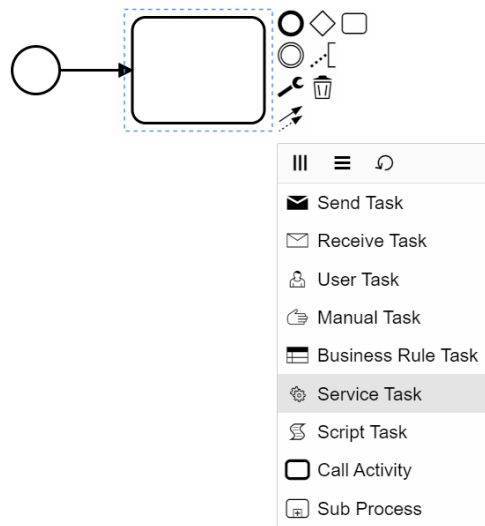


External Task

The User Task Analogy

External tasks are conceptually very similar to user tasks. When first trying to understand the external task pattern, it can be helpful to think about it in analogy to user tasks: User tasks are created by the process engine and added to a task list. The process engine then waits for a human user to query the list, claim a task and then complete it. External tasks are similar: An external task is created and then added to a topic. An external application then queries the topic and locks the task. After the task is locked, the application can work on it and complete it.

External Task



A screenshot of the configuration form for a job named 'Job_1'. The form has three tabs: 'General', 'Listeners', and 'Input/Output'. The 'General' tab is active. It contains the following sections:

- General**
 - Id**: Job_1
 - Name**: Job 1
- Details**
 - Implementation**: External
 - Topic**: batch
- External Task Configuration**
 - Task Priority**: (empty field)
- Asynchronous Continuations**
 - ☐ Asynchronous Before

- Id = Service Task Code
- Name = Service Task Name
- Implimentation = pilih External
- Topic = Nama Topic External Task

External Task

Job_1

< General Listeners **Input/Output** F >

Input Parameters +

> Payload ← { "TaskListId": "#..." }

▼ URL x

Local Variable Name
URL x

Variable Assignment Type
String or Expression v

Variable Assignment Value
http://localhost:5000/BatchManager/AddBatchJobWorkflow

Start typing "\${" to create an expression.

Output Parameters +

No variables defined.

Errors +

No errors defined.

to Settings to activate Windows.

Job_1

< General Listeners **Input/Output** F >

Input Parameters +

▼ Payload x

Local Variable Name
Payload x

Variable Assignment Type
String or Expression v

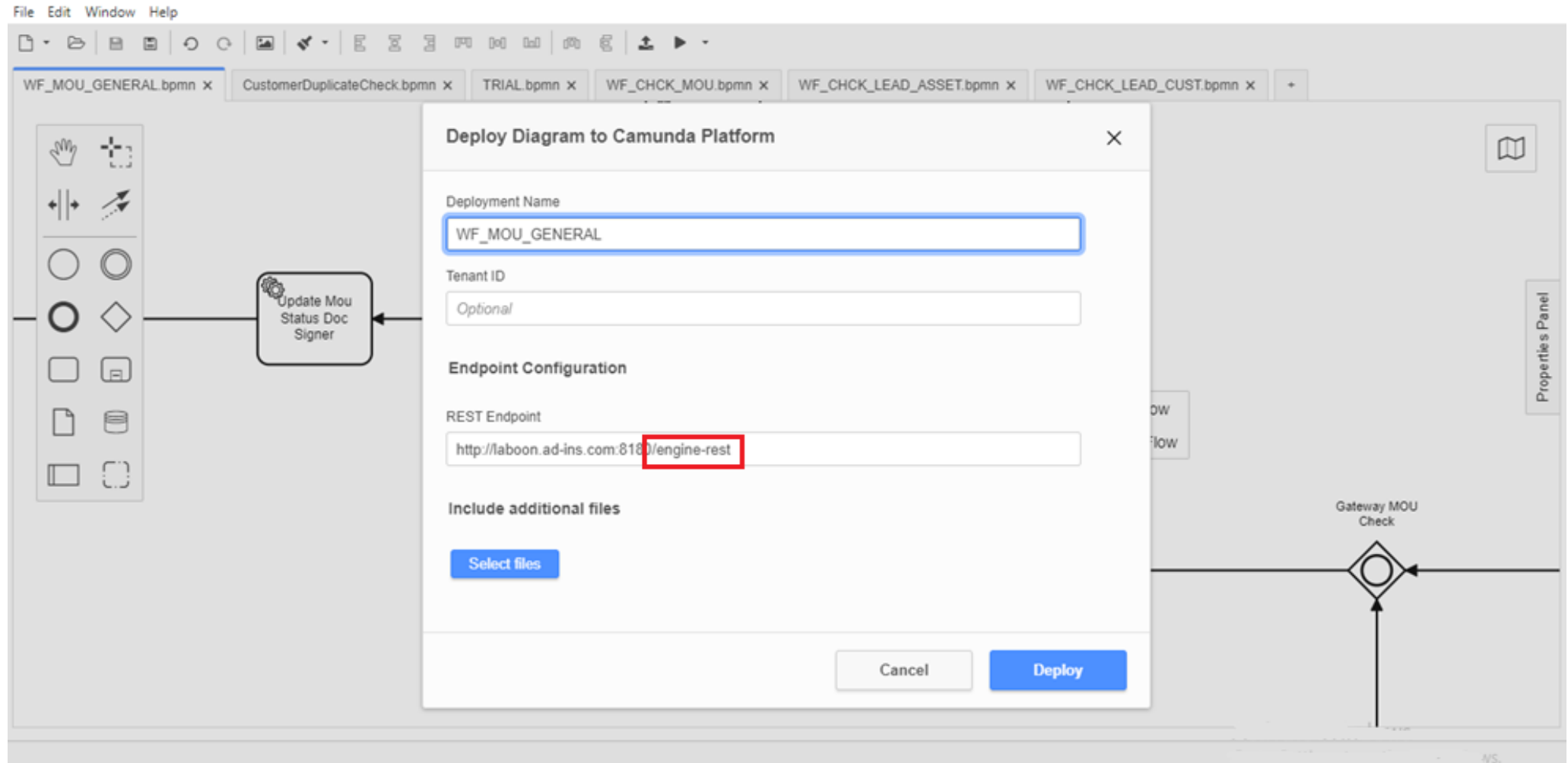
Variable Assignment Value

```
{  
  "TaskListId": "#TaskId",  
  "TransactionNo":  
    "${execution.processBusinessKey}",  
  "ListValue": {  
    "QueueName": "${QueueName}",  
    "JobPriority": "${JobPriority}",  
    "JobCode": "${JobCode}",  
    "BusinessDate": "${BusinessDate}",  
    "OfficeCode": "${OfficeCode}"  
  }  
}
```

#TaskId yang akan digunakan untuk replace menjadi Id dari ServiceTask pada ExternalTaskClient

TaskListId wajib digunakan agar bisa melakukan resume/complete task

Camunda Diagram Deployment



CONFINS R3 Dev Process Code Integration

Backend Integration

New Workflow Service Interface

```
{
    public NewWorkflowService();

    public string BaseUrlWorkflow { get; set; }

    ...public Task ClaimTask(ClaimTaskModel model);
    ...public Task CompleteTask(CompleteTaskModel model);
    ...public Task<ProcessInfoModel> CreateWorkflow(CreateInstanceModel model);
    ...public Task<List<ProcessInfoModel>> GetAllInstance(RequestTaskModel model);
    ...public Task<List<TaskModel>> GetAllTask(RequestTaskModel model);
    ...public Task<List<TaskCountModel>> GetAllTaskCount(RequestTaskModel model);
    ...public Task<TaskModel> GetSingleCompletedTask(RequestTaskModel model);
    ...public Task<TaskModel> GetSingleTask(RequestTaskModel model);
    ...public Task<List<TaskCountModel>> GetThingsToDo(RequestTaskModel model);
    ...public Task<TerminateBatchResponseModel> TerminateBatchWorkflow(TerminateInstanceModel model);
    ...public Task TerminateWorkflow(TerminateInstanceModel model);
    ...public Task UnclaimTask(UnclaimTaskModel model);
}
```

Create Workflow

```
Dictionary<string, string> wfParams = new Dictionary<string, string>()
{
    {"isNeedDigitalization", "1" }
};

if (taskModel == null)
{
    CreateInstanceModel owf = new CreateInstanceModel()
    {
        ProcessKey = LosWorkflowCodeConstant.WF_CHANGE_MOU,
        TransactionNo = mouCust.ChangeMouTrxNo,
        OfficeCode = HttpContext.User.Identity.GetOfficeCode(),
        RoleCode = HttpContext.User.Identity.GetRoleCode(),
        WorkflowParameters = wfParams
    };

    await _newWfService.CreateWorkflow(owf);
}
```

Create Workflow – Additional Param

```
Dictionary<string, string> wfParams = new Dictionary<string, string>()
{
    {"isNeedDigitalization", "1" }
};

if (taskModel == null)
{
    CreateInstanceModel owf = new CreateInstanceModel()
    {
        ProcessKey = LosWorkflowCodeConstant.WF_CHANGE_MOU,
        TransactionNo = mouCust.ChangeMouTrxNo,
        OfficeCode = HttpContext.User.Identity.GetOfficeCode(),
        RoleCode = HttpContext.User.Identity.GetRoleCode(),
        WorkflowParameters = wfParams
    };

    await _newWfService.CreateWorkflow(owf);
}
```

```
public class CreateInstanceModel
{
    public CreateInstanceModel();

    public string ProcessKey { get; set; }
    public string TransactionNo { get; set; }
    public string OfficeCode { get; set; }
    public string RoleCode { get; set; }
    public Dictionary<string, string> WorkflowParameters { get; set; }
}
```

Untuk melempar additional param ketika membuat workflow

Notes:

1 key parameter ada limitasi Panjang karakter sebanyak 4000 karakter

Get Single Task

```
RequestTaskModel requestTaskModel = new RequestTaskModel()
{
    ProcessKey = LosWorkflowCodeConstant.WF_CHANGE_MOU,
    TaskDefinitionKey = LosWorkflowCodeConstant.ACT_CODE_CUST_SELF_VERIF,
    TransactionNo = mouCust.ChangeMouTrxNo,
    RoleCode = HttpContext.User.Identity.GetRoleCode(),
    OfficeCode = HttpContext.User.Identity.GetOfficeCode(),
    IncludeAssignedTasks = true
};

TaskModel taskModel = await _newWfService.GetSingleTask(requestTaskModel);
```

Get Single Completed Task

```
RequestTaskModel requestTaskModel = new RequestTaskModel()
{
    ProcessKey = ProcessKey,
    TaskDefinitionKey = wf_code,
    TransactionNo = app.AppNo,
    Finished = true
};

taskModel = await iNewWorkflowService.GetSingleTask(requestTaskModel);

if (taskModel != null)
{
    assignee = taskModel.Assignee.ToString();
}
```

Masih menggunakan method GetSingleTask, namun flagging Finished harus true

Terminate Workflow

```
public async Task<JsonResult> RejectLead(ReqLeadForRejectV2Obj reqLeadForRejectObj)
{
    await iLeadService.RejectLeadV2(reqLeadForRejectObj);

    if (reqLeadForRejectObj.WfTaskListId != string.Empty)
    {
        TerminateInstanceModel terminateInstanceModel = new TerminateInstanceModel()
        {
            ProcessInstanceId = reqLeadForRejectObj.WfTaskListId
        };
        await iNewWorkflowService.TerminateWorkflow(terminateInstanceModel);
    }

    return new JsonResult(new ResponseSuccessObj());
}
```

Untuk terminate cukup menggunakan ProcessInstanceId (ExecutionId)

Pada contoh ini yang dikirim dari FE adalah ProcessInstanceId Camunda namun nama variabelnya masih WfTaskListId

Terminate Workflow + Get Instance Id On BE

```
#region Terminate App
RequestTaskModel requestAppTaskModel = new RequestTaskModel
{
    ProcessKey = LosWorkflowCodeConstant.WF_CRP_MD + app.BizTemplateCode
};
List<ProcessInfoModel> listAppTask = await iNewWorkflowService.GetAllInstance(requestAppTaskModel);
ProcessInfoModel appTask = listAppTask.FirstOrDefault(x => x.BusinessKey == app.AppNo);

if(appTask != null)
{
    TerminateInstanceModel terminateAppInstanceModel = new TerminateInstanceModel()
    {
        ProcessInstanceId = appTask.Id
    };
    await iNewWorkflowService.TerminateWorkflow(terminateAppInstanceModel);
}
#endregion
```

Memakai method GetAllInstance untuk mengambil instance seluruh transaksi yang aktif di WF Credit Process

kalau contoh diatas. Lalu setelah dapat list datanya di filter ke transaction no yang dibutuhkan listnya.

Data GetAllInstance ini agak berbeda dengan yang lainnya dimana dia return ProcessInfoModel yang ExecutionIdnya namanya adalah Id

Terminate Batch Workflow

```
[Route("EditListLeadForCancelByListLeadId")]
[HttpPost]
[ValidateDTO]
[MapToApiVersion("2")]
0 references
public async Task<JsonResult> EditListLeadForCancelByListLeadId(ReqLeadForEditConfirmCancelV2Obj requestLead)
{
    await iLeadService.EditListLeadForCancelByListLeadIdV2(requestLead);

    TerminateInstanceModel terminateInstanceModels = new TerminateInstanceModel() {
        ProcessInstanceIds = requestLead.ListWfTaskListId
    };

    await iNewWorkflowService.TerminateBatchWorkflow(terminateInstanceModels);
    return new JsonResult(new ResponseSuccessObj());
}
```


Complete Task

```
[Route("ReturnChangeMouReview")]
[HttpPost]
[MapToApiVersion("2")]
0 references
public async Task<ActionResult> ReturnChangeMouReview(RequestSubmitChangeMouReviewObj submitObj)
{
    CompleteTaskModel resumeworkflow = new CompleteTaskModel()
    {
        TaskId = submitObj.WfTaskListId,
        ReturnValue = CommonConstant.TEXT_TRUE
    };

    await _newWfService.CompleteTask(resumeworkflow);

    return new JsonResult(new ResponseSuccessObj());
}
```

Return Value = Bookmark Value

Complete Task – Additional Parameters

```
[Route("CrdRvwDataReCapture")]
[HttpPost]
[MapToApiVersion("2")]
0 references
public async Task<JsonResult> CrdRvwDataReCapture(WorkflowApiV2Obj workflowApiObj)
{
    Dictionary<string, object> wfParams = new Dictionary<string, object>()
    {
        {"isNeedRecapture", "1" }
    };

    CompleteTaskModel completeTaskModel = new CompleteTaskModel()
    {
        TaskId = workflowApiObj.TaskListId,
        ReturnValue = LosCommonConstant.RE_CAPTURED_DATA,
        AdditionalReturnValues = wfParams
    };
    await iNewWorkflowService.CompleteTask(completeTaskModel);

    return new JsonResult(new ResponseSuccessObj());
}
```

System Activity

```
/// <returns></returns>
[Route("EODUpdateBusinessDt")]
[HttpPost]
[MapToApiVersion("2")]
0 references
public async Task<JsonResult> EODUpdateBusinessDt(WorkflowApiV2Obj workflowApiV2Obj)
{
    DateTime sysDate;
    SysCtrlCoy sysCtrlCoy = await iSysCtrlCoyService.GetSysCtrlCoyByKey("BusinessDate");
    DateTime.TryParseExact(sysCtrlCoy.SysValue, CommonConstant.DATE_FORMAT_111, null, System.Globalization.DateTimeStyles.None,
    string SqlConn = AppConfiguration.AppSettings[CommonConstant.CONNECTION_STRING_LOS_SQL_CONN_SP];
    List<KeyValuePair<string, string>> listofParameters = new List<KeyValuePair<string, string>>
    {
        new KeyValuePair<string, string>("BusinessDate", sysDate.ToString(CommonConstant.DATE_FORMAT_23))
    };
    await SQLService.SpGeneric_ExecuteSPNonQuery(StoreprocedureConstant.SPEOD_UPDATE_BUSINESSDT, SqlConn, listofParameters);
    await iRedisMasterSequenceService.SetBusinessDateBySP("LOS");

    return new JsonResult(new ResponseSuccessObj());
}
```

Untuk System Activity tidak memerlukan resume workflow, tapi langsung return value dalam bentuk json saja

Camunda Things to Do

```
ngOnInit() {
  let context = JSON.parse(AdInsHelper.GetCookie(this.cookieService, CommonConstant.USER_ACCESS));
  this.username = context[CommonConstant.USER_NAME];
  this.url = environment.DashboardURL;
  this.officeCode = context[CommonConstant.OFFICE_CODE];
  this.roleCode = context[CommonConstant.ROLE_CODE];
  this.Item.Url = environment.isCore ? AdInsConstant.GetThingsToDoByRoleV2 : AdInsConstant.GetThingsToDoByRole;
  this.Item.RequestObj.ModuleCode = CommonConstant.LOAN_ORIGINATION;

  let integrationObj;

  if(environment.isCore){
    integrationObj = new ThingsToDoIntegrationV2Obj();
    integrationObj.BaseUrl = AdInsConstant.GetThingsToDoCamunda;
    integrationObj.ApiPath = "";
    integrationObj.RequestObj.OfficeCode = this.officeCode;
    integrationObj.RequestObj.UserName = this.username;
    integrationObj.RequestObj.OfficeRoleCodes = [this.roleCode, this.roleCode + "-" + this.officeCode, this.officeCode];
  }else{
    integrationObj = new ThingsToDoIntegrationObj();
    integrationObj.RequestObj.Office = this.officeCode;
    integrationObj.RequestObj.Role = this.roleCode;
    integrationObj.RequestObj.UserName = this.username;
  }
  this.Item.RequestObj.IntegrationObj.push(integrationObj);
}
```

GetThingsToDoCamunda API

```
/// <summary>
/// Get Things To Do Camunda
/// </summary>
/// /// <param name="requestTaskModel"></param>
/// <returns>List Task Count Model Object</returns>
[Route("GetThingsToDoCamunda")]
[HttpPost]
[MapToApiVersion("2")]
0 references
public async Task<JsonResult> GetThingsToDoCamunda(RequestTaskModel requestTaskModel)
{
    List<TaskCountModel> thingsToDo = await iNewWorkflowService.GetThingsToDo(requestTaskModel);
    List<ThingsToDoObj> distinctThingsToDoObj = thingsToDo.GroupBy(x => x.TaskDefinitionKey)
        .Select(x => new ThingsToDoObj
        {
            ActCode = x.Key,
            TotalData = x.Sum(y => y.TaskDefinitionCount)
        }).ToList();

    return new JsonResult(distinctThingsToDoObj);
}
```

External Task

```
/// <returns></returns>
[Route("GenerateAnnexDocument")]
[MapToApiVersion("2")]
[HttpPost]
[ProducesResponseType(200, Type = (typeof(ResWorkflowModelObj)))]
[ProducesResponseType(500, Type = (typeof(BaseResponseObj)))]
public async Task<JsonResult> GenerateAnnexDocumentV2(ReqAgrmntAnnexRptObjWF request)
{
    ResAgrmntAnnexRptObj resAgrmntAnnexRptObj = new ResAgrmntAnnexRptObj();

    resAgrmntAnnexRptObj = await iReportProxyService.GenerateAnnexDocumentV2(request);

    CompleteTaskModel completeTask = new CompleteTaskModel();
    completeTask.ExternalTask = true;
    completeTask.TaskId = request.TaskId;
    //completeTask.ReturnValue = reqSendResultToCdeObj.MrTrxStatCode;
    completeTask.WorkerId = "CamundaExternalWorker";

    Dictionary<string, object> ReturnValue = new Dictionary<string, object>();
    ReturnValue.Add("Ur1OSS", resAgrmntAnnexRptObj.ObjectUrl);

    completeTask.AdditionalReturnValues = ReturnValue;

    NewWorkflowService workflowService = new NewWorkflowService();
    await workflowService.CompleteTask(completeTask);

    return new JsonResult(resAgrmntAnnexRptObj);
}
```

WorkerID = Nama External Task Client yang disetting di appsetting.json

Front End Integration

Paging

```
ngOnInit() {  
  this.inputPagingObj._url = "./assets/ucpaging/searchCustCompletion.json";  
  this.inputPagingObj.pagingJson = "./assets/ucpaging/searchCustCompletion.json";  
  
  if (environment.isCore) {  
    this.inputPagingObj._url = "./assets/ucpaging/V2/searchCustCompletionV2.json";  
    this.inputPagingObj.pagingJson = "./assets/ucpaging/V2/searchCustCompletionV2.json";  
    this.inputPagingObj.isJoinExAPI = true  
  
    this.RequestTaskModel.ProcessKey = CommonConstant.WF_CODE_DUP_CHECK_MD + this.bizTemplateCode;  
    this.RequestTaskModel.TaskDefinitionKey = CommonConstant.ACT_CODE_CDA + this.bizTemplateCode;  
    this.RequestTaskModel.OfficeRoleCodes = [this.userAccess[CommonConstant.ROLE_CODE],  
                                              this.userAccess[CommonConstant.OFFICE_CODE],  
                                              this.userAccess[CommonConstant.ROLE_CODE] + "-" + this.userAccess[CommonConstant.OFFICE_CODE]];  
  
    this.IntegrationObj.baseUrl = URLConstant.GetAllTaskWorkflow;  
    this.IntegrationObj.requestObj = this.RequestTaskModel;  
    this.IntegrationObj.leftColumnToJoin = "AppNo";  
    this.IntegrationObj.rightColumnToJoin = "ProcessInstanceBusinessKey";  
    this.inputPagingObj.integrationObj = this.IntegrationObj;  
  
    var critCurrStep = new CriteriaObj();  
    critCurrStep.restriction = AdInsConstant.RestrictionEq;  
    critCurrStep.propName = 'A.CUST_CHECKING_STEP';  
    critCurrStep.value = "CDA_REQ";  
    this.inputPagingObj.addCritInput.push(critCurrStep);  
  }  
}
```

- Querypaging yang memiliki join dengan table V_WF_TASK_LIST, harus dihilangkan.
- RequestTaskModel berisikan request yang akan dikirim ke method Integration.
- Perlu adanya Additional Criteria yang melihat Step.

Response GetAllTaskWorkflow

Response body

```
[
  {
    "Id": "6905c16c-0722-11ec-9304-0242ac110005",
    "Name": "Delivery Order",
    "Assignee": "user1",
    "Created": "2021-08-27T17:34:51.391+07:00",
    "Due": null,
    "FollowUp": null,
    "DelegationState": null,
    "Description": null,
    "ExecutionId": "d2bba2ab-0721-11ec-9304-0242ac110005",
    "Owner": null,
    "ParentTaskId": null,
    "Priority": 50,
    "ProcessDefinitionId": "WF_CRP_CF4W_AFT_ACT:6:7434adac-0598-11ec-9304-0242ac110005",
    "ProcessInstanceId": "d2bba2ab-0721-11ec-9304-0242ac110005",
    "ProcessInstanceBusinessKey": "0002AGR20210803890",
    "TaskDefinitionKey": "DO_CF4W",
    "CaseExecutionId": null,
    "CaseInstanceId": null,
    "CaseDefinitionId": null,
    "Suspended": false,
    "FormKey": null,
    "TenantId": null,
    "DeleteReason": null
  }
]
```

Paging Cancel (Contoh Lead Cancel)

```
ngOnInit() {  
  let UserAccess = JSON.parse(AdInsHelper.GetCookie(this.cookieService, CommonConstant.USER_ACCESS));  
  this.tempPagingObj.urlJson = "./assets/ucpaging/ucTempPaging/LeadCancelTempPaging.json";  
  this.tempPagingObj.pagingJson = "./assets/ucpaging/ucTempPaging/LeadCancelTempPaging.json";  
  if(environment.isCore) {  
    this.tempPagingObj.urlJson = "./assets/ucpaging/ucTempPaging/V2/LeadCancelTempPagingV2.json";  
    this.tempPagingObj.pagingJson = "./assets/ucpaging/ucTempPaging/V2/LeadCancelTempPagingV2.json";  
    this.tempPagingObj.isJoinExAPI = true  
  
    this.RequestTaskModel.ProcessKeys = [CommonConstant.WF_CODE_LEAD, CommonConstant.WF_CODE_SIMPLE_LEAD];  
    this.RequestTaskModel.RoleCode = UserAccess[CommonConstant.ROLE_CODE];  
    this.RequestTaskModel.OfficeRoleCodes = [UserAccess[CommonConstant.ROLE_CODE],  
      UserAccess[CommonConstant.OFFICE_CODE],  
      UserAccess[CommonConstant.ROLE_CODE] + "-" + UserAccess[CommonConstant.OFFICE_CODE],  
    ];  
  
    this.IntegrationObj.baseUrl = URLConstant.GetAllWorkflowInstance;  
    this.IntegrationObj.requestObj = this.RequestTaskModel;  
    this.IntegrationObj.leftColumnToJoin = "LeadNo";  
    this.IntegrationObj.rightColumnToJoin = "BusinessKey";  
    this.IntegrationObj.joinType = AdInsConstant.JoinTypeLeft;  
    this.tempPagingObj.integrationObj = this.IntegrationObj;  
  }  
}
```

- Dikarenakan Lead Cancel tidak memperhatikan posisi Lead berada di activity mana dan role apa, maka kita hanya perlu mengirimkan ProcessKey(s) dan semua format OfficeRoleCodes.

- baseUrl berubah menjadi GetAllWorkflowInstance

```
[  
  {  
    "Links": [],  
    "Id": "d2bba2ab-0721-11ec-9304-0242ac110005",  
    "DefinitionId": "WF_CRP_CF4W_AFT_ACT:6:7434adac-0598-11ec-9304-0242ac110005",  
    "BusinessKey": "0002AGR20210803890",  
    "CaseInstanceId": null,  
    "Ended": false,  
    "Suspended": false,  
    "TenantId": null  
  }  
]
```

- Perlu diperhatikan juga response dari GetAllWorkflowInstance karena berbeda dengan GetAllTaskWorkflow

Query Paging (Paging)

```
1 "searchLeadUpdateV2": {  
2     "select": "SELECT L.LEAD_NO AS LeadNo, L.LEAD_ID AS LeadId, L.ORI_OFFICE_CODE AS OriOfficeCode, L.ORDER_NO AS OrderNo,  
3     LC.CUST_NAME AS CustName, L.MR_LEAD_SOURCE_CODE AS SourceCode, LA.FULL_ASSET_NAME AS FullAssetName, RO.OFFICE_NAME AS OfficeName, ISNULL(VRAS.APP_SRC_NAME, '') AS LeadSourceName",  
4     "from": "FROM dbo.LEAD L WITH(NOLOCK) LEFT JOIN dbo.LEAD_ASSET LA WITH(NOLOCK) ON L.LEAD_ID = LA.LEAD_ID JOIN LEAD_CUST LC WITH(NOLOCK) ON L.LEAD_ID = LC.LEAD_ID JOIN dbo.V_REF_OFFICE RO WITH(NOLOCK) ON L.ORI_OFFICE_CODE = RO.OFFICE_CODE LEFT JOIN V_REF_APP_SRC VRAS WITH(NOLOCK) ON L.MR_LEAD_SOURCE_CODE = VRAS.APP_SRC_CODE"  
5 },
```

Json Paging (Search)

RETURN HANDLING - ADDITIONAL TERMS & CONDITION

▼ PAGING

APPLICATION NO	<input type="text"/>	CUSTOMER NAME	<input type="text"/>
PRODUCT OFFERING NAME	<input type="text"/>	OFFICE	KEBON JERUK
TASK CLAIM STATUS	<input type="text" value="ALL"/>	CLAIM BY	<input type="text"/>

```
{ } searchReturnHandlingAdditionalTc.json X
src > assets > ucpaging > { } searchReturnHandlingAdditionalTc.json > ...
44      },
45      {
46        "type": "dropdown",
47        "name": "WTL.CLAIM_STAT",
48        "id": "ActiveStatusId",
49        "label": "Task Claim Status",
50        "value": "",
51        "placeholder": "Placeholder",
52        "isFromURL": false,
53        "ddlType": "all",
54        "items": [
55          {
56            "key": "CLAIMED",
57            "value": "CLAIMED"
58          },
59          {
60            "key": "UNCLAIMED",
61            "value": "UNCLAIMED"
62          }
63        ],
64        "itemsUrl": []
65      },
66    ],
67  },
68}
```

```
{ } searchReturnHandlingAdditionalTcV2.json X
src > assets > ucpaging > V2 > { } searchReturnHandlingAdditionalTcV2.json > ...
44      },
45      {
46        "type": "claim",
47        "label": "Task Claim Status",
48        "id": "ClaimStatId",
49        "ddlType": "all",
50        "isCriteriaDataTable": true
51      },
52    ],
53  },
54}
```

- WTL.CLAIM_STAT digantikan dengan fitur ucsearch yang baru yaitu type "claim"

Json Paging (Search)

RETURN HANDLING - ADDITIONAL TERMS & CONDITION

▼ PAGING

APPLICATION NO	<input type="text"/>	CUSTOMER NAME	<input type="text"/>
PRODUCT OFFERING NAME	<input type="text"/>	OFFICE	KEBON JERUK
TASK CLAIM STATUS	<input type="text" value="ALL"/>	CLAIM BY	<input type="text"/>

Model baru

```
52 {  
53   "type": "textbox",  
54   "name": "Assignee",  
55   "id": "claimById",  
56   "value": "",  
57   "label": "Claim By",  
58   "placeholder": "Placeholder",  
59   "isCriteriaDataTable" : true  
60 }
```

- Untuk textbox Assignee perlu ditambahkan "isCriteriaDataTable"

Json Paging

```
{} search-disb-approval.json  {} search-disb-approvalV2.json X
src > assets > ucpaging > disbursement > V2 > {} search-disb-approvalV2.json > [ ] headerList > {} 2 > abc name
86     "headerList": [
87         {
88             "type": "label",
89             "position": "center",
90             "label": "SLA",
91             "name": "IndicatorSLA"
92         },
93         {
94             "type": "label",
95             "position": "left",
96             "label": "Claim By",
97             "name": "Assignee"
98         }
99     ],
```

```
{} search-disb-approval.json  {} search-disb-approvalV2.json X
src > assets > ucpaging > disbursement > V2 > {} search-disb-approvalV2.json > [ ] headerList > {} 0
148     "bodyList": [
149         {
150             "type": "sla",
151             "position": "center",
152             "property": "IndicatorSLA"
153         },
154         {
155             "type": "text",
156             "position": "left",
157             "property": "Assignee"
158         }
159     ],
```

- WTL.USERNAME menjadi Assignee
- Dikarenakan untuk sort masih belum berfungsi maka sort dirubah menjadi label untuk claim by
- SLA untuk sekarang dihapus dulu.
- Hanya berlaku untuk SLA human activity

Json Paging

```
src > assets > ucpaging > V2 > {} searchLeadUpdateV2.json > {} bodyList > {} 8
192 |
193 | You, 2 weeks ago • LOSRTHREE-144 : Integrasi WF_LEAD
194 | "type": "action",
195 | "position": "center",
196 | "action": [
197 |   {
198 |     "type": "switch",
199 |     "case": [
200 |       {
201 |         "conditions": [
202 |           {
203 |             "isUser": true,
204 |             "property": "Assignee",
205 |             "value": null,
206 |             "restriction": "Eq"
207 |           }
208 |         ],
209 |         "result": {
210 |           "type": "url",
211 |           "path": "LEAD_INPUT_PAGE",
212 |           "icon": "ft-edit-2",
213 |           "param": [
214 |             {
215 |               "type": "leadId",
216 |               "property": "LeadId"
217 |             },
218 |             {
219 |               "type": "WfTaskListId",
220 |               "property": "Id"
221 |             },
222 |             {
223 |               "type": "mode",
224 |               "property": "update"
225 |             }
226 |           ]
227 |         },
228 |         "isHide": false
229 |       }
230 |     ]
231 |   }
232 | ]
233 | }
```

Type WfTaskListId, Property nya "Id"

Detail

```
rejectLead(event) {  
  if (confirm("Are you sure to reject this Lead?")) {  
    let leadReject = new LeadForRejectObj;  
    leadReject.LeadStat = CommonConstant.LeadStatReject;  
    leadReject.LeadStep = CommonConstant.LeadStatReject;  
    leadReject.LeadId = event.RowObj.LeadId;  
    leadReject.WfTaskListId = environment.isCore ? event.RowObj.ExecutionId : event.RowObj.WfTaskListId; //ExecutionId = WF Instance GUID Versi Camunda  
  
    let RejectLeadUrl = environment.isCore ? URLConstant.RejectLeadV2 : URLConstant.RejectLead;  
  
    this.http.post(RejectLeadUrl, leadReject).subscribe(  
      response => {  
        this.toastr.successMessage(response["Message"]);  
        this.router.navigateByUrl('/', { skipLocationChange: true }).then(() => {  
          AdInsHelper.RedirectUrl(this.router, [NavigationConstant.LEAD_UPDATE_PAGING], {});  
        });  
      }  
    );  
  }  
}
```

Jika method yang dipanggil berisikan TerminateWorkflow, maka WfTaskListId yang dikirim adalah ExecutionId

Demo

Do and Don't Camunda

Do

- Pakai Service Task untuk proses API yang < 5 detik
- Gunakan External Task untuk proses yang membutuhkan waktu lama (> 5 detik)
- Implementasikan error handling pada setiap task
- Gunakan versioning untuk setiap perubahan proses
- Buat proses yang modular dan dapat digunakan Kembali (Idempotent)
- Gunakan naming convention yang konsisten untuk elemen-elemen BPMN
- Lakukan pengujian menyeluruh sebelum deploy ke produksi

Don't

- Jangan pakai Service Task jika API > 5 detik, maka sebaiknya pakai External Task
- Hindari membuat proses yang terlalu kompleks dalam satu diagram
- Hindari hardcoding nilai-nilai dalam proses
- Hindari penggunaan terlalu banyak variabel proses yang tidak perlu
- Hindari penggunaan exclusive gateway berlebihan yang bisa membuat proses sulit dipahami
- Hindari membuat proses yang tidak fleksibel terhadap perubahan bisnis

Workflow R2 vs Camunda (Workflow R3)

Workflow R2

- Monolithic
- Webservice
- Belum support multi worker
- Tidak terdapat proses Auto Retry
- Menggunakan **WF Studio** untuk setting Diagram Workflow

Camunda (Workflow R3)

- Microservices
- API Base
- Support Multi worker
- Terdapat proses Auto Retry
- Menggunakan **Camunda Modeler** untuk setting Diagram Workflow

Troubleshoot

Problem	Tips n Tricks
Activity stuck atau ngantri	<p>Perlu di check proses Activity apa yang proses nya lama, Bisa check ke tabel ACT_RU_JOB.</p> <p>Proses kalau diatas 5 detik sudah termasuk lama</p> <pre>SELECT count(*) FROM ACT_RU_JOB WHERE LOCK_EXP_TIME_ IS NOT NULL;</pre> <p>Solusi: Ubah jadi External Task</p>
Proses tidak berjalan sesuai alur yang diharapkan	<ul style="list-style-type: none">- Periksa konfigurasi gateway dan kondisi percabangan- Pastikan variabel proses yang digunakan dalam kondisi sudah benar- Gunakan Camunda Cockpit untuk melihat alur eksekusi actual
Job execution exception	<ul style="list-style-type: none">- Periksa log untuk melihat detail error- Pastikan semua dependensi dan konfigurasi sudah benar- Jika menggunakan external task, pastikan worker sudah berjalan dan terhubung
Performa lambat	<ul style="list-style-type: none">- Optimasi query database, terutama untuk proses yang kompleks- Pertimbangkan penggunaan job executor yang terpisah (External Task)- Periksa penggunaan variabel proses, hindari menyimpan data besar sebagai variable

Problem	Tips n Tricks
Deployment gagal	<ul style="list-style-type: none"> - Periksa sintaks BPMN untuk memastikan tidak ada kesalahan - Pastikan semua resource yang dibutuhkan (seperti form, script) sudah disertakan dalam deployment - Periksa hak akses pengguna yang melakukan deployment
User task tidak muncul di tasklist	<ul style="list-style-type: none"> - Periksa konfigurasi assignment dan candidate groups - Pastikan pengguna memiliki hak akses yang sesuai - Periksa apakah ada filter yang aktif di tasklist
Timeout pada external task	<ul style="list-style-type: none"> - Sesuaikan konfigurasi timeout - Pastikan external worker mampu menyelesaikan tugas dalam batas waktu yang ditentukan - Pertimbangkan untuk mengimplementasi mekanisme retry
Masalah dengan integrasi sistem eksternal	<ul style="list-style-type: none"> - Periksa konfigurasi koneksi dan credentials - Implementasikan error handling yang robust - Gunakan Camunda Connect untuk standarisasi integrasi

Feedback Form

Post-Test



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Thanks