

Acesse o tenant trial do SAP Analytics Cloud, se cadastrando em: <http://discover.sapanalytics.cloud/trialrequest-auto/>

Ative o SAP Build Process Automation: <https://blogs.sap.com/2022/09/09/sap-process-automation-now-available-in-your-trail-account/>

Ative o SAP Business Application Studio: <https://developers.sap.com/tutorials/appstudio-onboarding.html>



Acesse a guia Modeler do SAP Analytics Cloud e clique em Create New -> Model, selecionando a opção Classic Account Model

### Welcome to the Modeler

Prepare your raw data using a structured view and get started with your scenario analysis. [Learn More...](#)

[Models](#)Public DimensionsCurrency ConversionsPoints of Interest

Create New


Model

From a CSV or Excel File

Live Data Model

From a...

Create Blank Model



☐ New Model (Recommended)

The new model structure enriches the modeling experience thanks to its increased flexibility and improved data management. As opposed to classic account models, the new model structure allows you to integrate both accounts and measures with many possible combinations. Note however that there are limitations you should consider. [Learn More](#)

☒ Classic Account Model

[Learn More](#)

Select

Cancel



No menu Edit, clique em + e adicione uma nova dimensão, do tipo e nome Account e depois mais duas dimensões de nome Percurso e Modal e tipo Generic. Após isso sua lista de dimensões deve estar como abaixo:

Create Dimension

Name: \*

Account

After the dimension is created, you will not be able to change its name.

Type:

Account

☐ Make this a Public Dimension

AddCancel

Create Dimension

Name: \*

Modal

After the dimension is created, you will not be able to change its name.

Type:

Generic

☐ Make this a Public Dimension

AddCancel

Create Dimension

Name: \*

Percurso

After the dimension is created, you will not be able to change its name.

Type:

Generic

☐ Make this a Public Dimension

AddCancel

Workspace

Model Structure

General

Search

Version

Version\*

Account

Account\*

Date

Date\*

Generic

Percurso\*


Modal\*





Clique na dimensão Percurso, altere para o modo de exibição em grade e adicione os membros 01, 02 e 03, clicando em voltar em seguida


^


General







 v







Edit






 v





Data




<

Percurso






	 Member ID	Description		
1	#	Unassigned		
2	01	Primavera do Leste à Santos		
3	02	Marabá à Belém		
4	03	Primavera do Leste à Marabá		
5				
6				



Clique na dimensão Modal, altere para o modo de exibição em grade e adicione os membros 01 e 02, clicando em voltar em seguida

< Modal			
	 Member ID	Description	
1	#	Unassigned	
2	01	Rodoviário	
3	02	Fluvial	
4			



Clique na dimensão Account e adicione os membros abaixo, clicando em voltar em seguida

^

General

📁

🔑

🔗

↶

↷

Edit

+

📄

🗑️

🔗

Data

{ }

<Account

☰

📅

	🔑 Member ID	Description	🔗 Hierarchy	Formula
1	01	Créditos	<root>	
2	01.1	Créditos Carbono (Reser...	01	
3	01.2	Créditos Carbono (à Co...	01	
4	02	Consumo	<root>	
5	02.1	Viagens	02	
6	02.2	Kms	02	
7	02.3	Quilos Carbono	02	
8	03	Premissas	<root>	
9	03.1	CO <sup>2</sup> por Km	03	
10	03.2	Distância	03	
11				
12				
13				

Salve o modelo, clicando em Save e nomeando-o como Consumo Carbono

Save Model

My Files

All files

Models

My Files

Name	Description	Owner
<div>Models</div> <div>My Files / Public</div>	-	Sidnei Costa

\*Name

Carbono

Description

Optional

Save

Cancel

Looks like your model doesn't contain any data



Acesse a guia Stories e crie uma nova Story do tipo Canvas, selecionando a opção Optimized Design Experience

Home

Files

Apps

Stories

Analytic Applications

Data Analyzer

Welcome to Stories


Create a story to visualize, summarize, explore, and monitor your data. Add charts, tables, text, and other

Create New

Responsive

Canvas

Select Design Mode Type



What design mode would you like to use?

☒ Optimized Design Experience

The Optimized Design mode provides an improved experience when designing dashboards. This mode has some useful new features, but it does not include all the features that are currently supported in the Classic Design mode.  
[Learn More](#)

☐ Classic Design Experience

The Classic Design mode provides all the existing features and functionality you may have already used in SAP Analytics Cloud.

Create

Cancel





Selecione a opção Table, selecionando o modelo Carbono

Add an object to the story canvas.



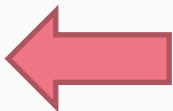
Chart



Geo Map



Table



Image



Shape



Text



Adicione a tabela “Viagens”, com as seguintes configurações

Rows

⋮

Percurso

✕

⋮

Modal

✕

+

Add Dimensions

Columns

⋮

Version

✕

⋮

Date

✕

⋮

Account

3 Model Members ▾

✕

Percurso: remover Unassigned  
Modal: remover Unassigned  
Version: Actual  
Date: Abr 2023  
Account: Hierarquia Consumo, CO<sup>2</sup> por Km e Distância

Selecionar em todos a opção “Show Unbooked Data”

Adicione a tabela “Créditos”, com as seguintes configurações

Rows

Account

3 Model Members

+ Add Dimensions

Columns

Version

Date

Version: Actual  
Date: Abr 2023  
Account: Hierarquia Créditos


Selecionar em todos a opção “Show Unbooked Data”



Faça o input dos dados conforme abaixo, clicando em Publish Data após e salve a Story com o nome Carbono

Carbono

in USD


 3 Filters

Calcular

Version		Actual				
Date		Apr (2023)				
Account		Viagens	Kms	Quilos Carbono	CO <sup>2</sup> por Km	Distância
Percurso	Modal					
Primavera do Leste à Santos	Rodoviário	400.00	—	—	0.60	1,600.00
	Fluvial	—	—	—	—	—
Marabá à Belém	Rodoviário	—	—	—	—	—
	Fluvial	20.00	—	—	5.00	850.00
Primavera do Leste à Marabá	Rodoviário	400.00	—	—	0.60	1,700.00
	Fluvial	—	—	—	<div></div>	—

Carbono

in USD

 1 Filter

Version		Actual
Date		Apr (2023)
Account		
Créditos		100,000.00
Créditos de Carbono (Reserva)		100,000.00
Créditos de Carbono (Comprar)		—



Acesse a guia Data Actions do SAP Analytics Cloud e clique em Create New -> Data Action, selecionando o default model Carbono e clique em Salvar

Welcome to Data Actions

Create a sequence of structured changes to planning data, such as copying data, performing allocations, and so on.

Data Actions

Data Action Monitor

Create New

Data Action

Data Action Settings

Name \*

Carbono

Description

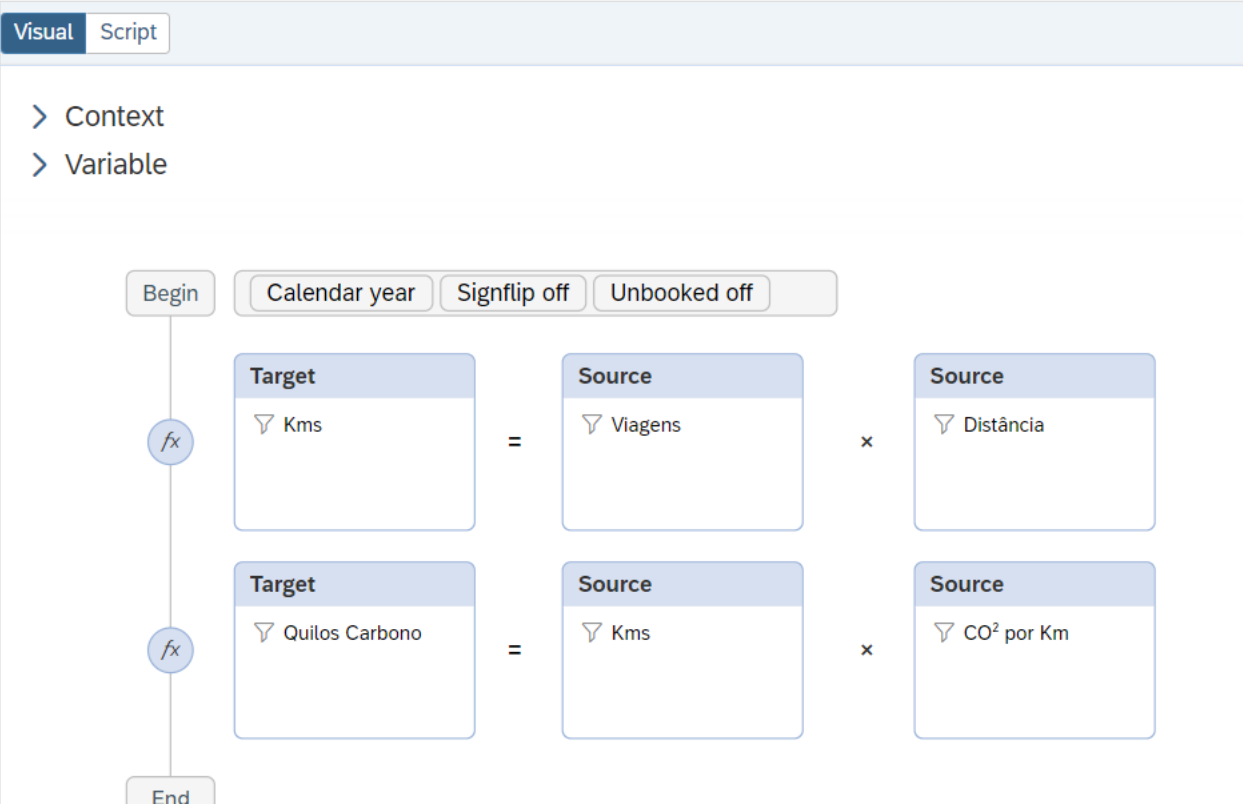
Default Settings

Default Model \*

Carbono

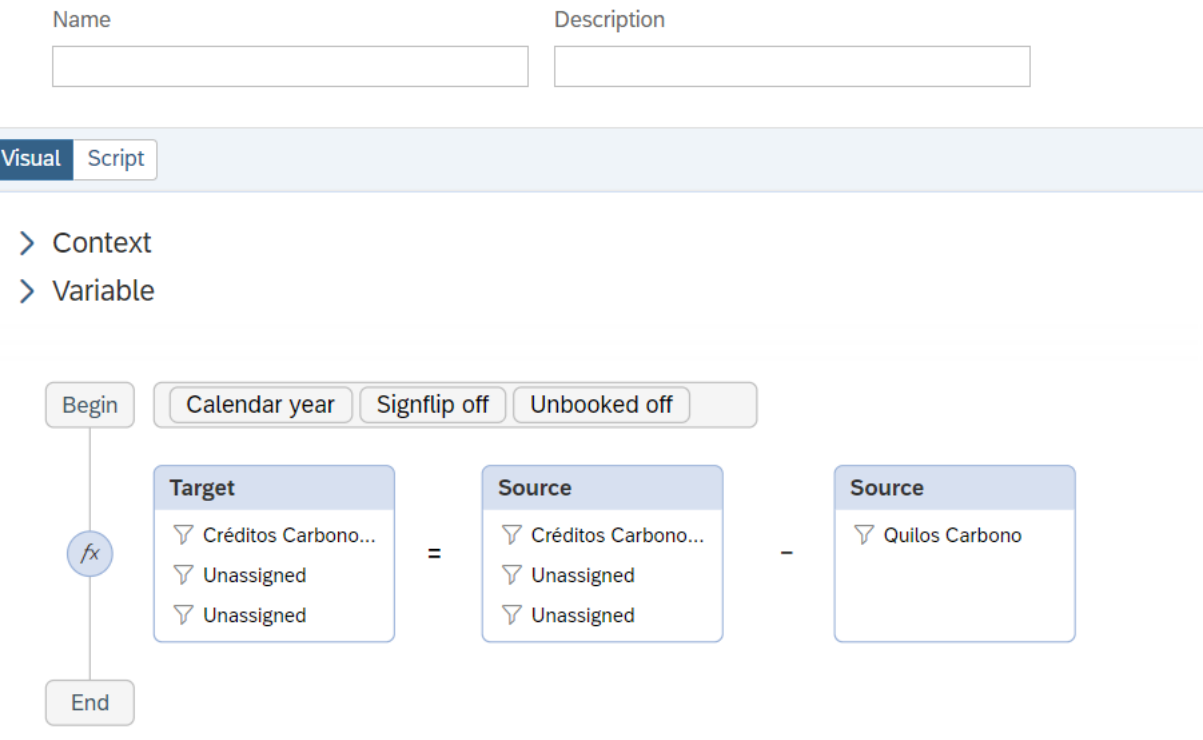
Adicione uma Advanced Formula Step e altere a visualização para Script e cole o código abaixo. Após clique em Visual:

```
MEMBERSET [d/Modal] = ("01", "02")
MEMBERSET [d/Percurso] = ("01", "02", "03")
DATA([d/Account] = "02.2") = RESULTLOOKUP([d/Account] = "02.1") * RESULTLOOKUP([d/Account] = "03.2")
DATA([d/Account] = "02.3") = RESULTLOOKUP([d/Account] = "02.2") * RESULTLOOKUP([d/Account] = "03.1")
```



Adicione outra Advanced Fórmula Step com o seguinte código-fonte:

```
DATA([d/Account] = "01.2", [d/Modal] = "#", [d/Percurso] = "#") = RESULTLOOKUP([d/Account] = "01.1", [d/Percurso] = "#", [d/Modal] = "#") -  
RESULTLOOKUP([d/Account] = "02.3")
```



De volta a Story, adicione a Data Action Carbono e a execute, após clique em Publish Data

Carbono

in USD

3 Filters

Calcular

Carbono

USD

1 Filter

Version		Actual					Version		Actual
Date		Apr (2023)					Date		Apr (2023)
Account		Viagens	Kms	Quilos Carbono	CO <sup>2</sup> por Km	Distância	Account		
Percurso	Modal						Créditos		423,000.00
Primavera do Leste à Santos	Roddoviário	400.00	640,000.00	384,000.00	0.60	1,600.00	Créditos de Carbono (Reserva)		100,000.00
	Fluvial	—	—	—	—	—	Créditos de Carbono (Comprar)		323,000.00
Marabá à Belém	Roddoviário	—	—	—	—	—			
	Fluvial	20.00	17,000.00	85,000.00	5.00	850.00			
Primavera do Leste à Marabá	Roddoviário	400.00	680,000.00	408,000.00	0.60	1,700.00			
	Fluvial	—	—	—	—	—			





Veja em seu modelo a Account 01.02 preenchida pela Data Action:

↶

↷

Edit

+

▼

🗑️

⚙️

🔄

Data

{ }

🔒

✏️

View

📄

🏠

Validation

✅

👤

Details

🔍 25% 🔍 🖥️

```
graph TD; DF[Data Foundation] --- A[Account (Person)]; DF --- D[Date (Date)]; DF --- M[Modal (Modal)]; DF --- P[Percurso (Document)]; A --- A1[Account 01.1]; A --- A2[Account 01.2]; D --- D1[Date 202304]; M --- M1[Modal 01]; M --- M2[Modal 02]; M --- M3[Modal 03]; P --- P1[Percurso 01]; P --- P2[Percurso 03];
```

Data Foundation

Show Unpublished Data ☐ OFF

Actual

▼

🔄

Account	Date	Modal	Percurso	Values
01.1	202304	#	#	100000
01.2	202304	#	#	323000
02.1	202304	01	01	400
02.1	202304	01	03	400
02.1	202304	02	02	20
02.2	202304	01	01	640000
02.2	202304	01	03	680000



Anote o Id do Modelo

/sap/fpa/ui/app.html#/modeler&/m/model/Cle5pbqnb2dmtisem6l7pjpg42

Modeler | Carbono

General Edit Data View

33%

The diagram illustrates the structure of a Data Foundation. At the center is a box labeled "Data Foundation" with sub-items: Measures, Calculations, and Dimensions. It is connected to five other boxes: "Version (Version)" at the top, "Model (Model)" on the left, "Account (Account)" on the right, "Person (Person)" at the bottom-left, and "Date (Date)" at the bottom-right. Each box contains a list of items and their counts.

Item	Count
Version (Version)	1
Model (Model)	3
Account (Account)	6
Person (Person)	4
Date (Date)	1



Acesse a guia Administration do SAP Analytics Cloud e em App Integration, crie um novo Oauth Client

System Configuration

Data Source Configuration

Security

External Systems

App Integration

Notifications

Default Appearance

OAuth Clients

The OAuth authorization and token services for your tenant are available from the URLs below. Developers will need these URLs, as well as the details about the OAuth client(s) that you

10.hana.ondemand.com/oauth/authorize

10.hana.ondemand.com/oauth/token

10.hana.ondemand.com/oauth/token/alias/usamoem

10.hana.ondemand.com

Configured Clients

+ Add a New OAuth Client



Configure O Client com o nome APP\_CLIENT e acesso à Data Export Service. Após, anote o Oauth Client ID e a Secret, bem como as Authorization e Token URL's

New OAuth Client

Name

APP\_CLIENT

OAuth Client ID

Client ID will be generated once the OAuth client is created.

Purpose

Interactive Usage and API Access

Access

Data Export Service x

Security

Secret

Secret will be generated once the OAuth client is created.

Redirect URI

Token Details

Token Lifetime

1 hour

Add

Cancel

OAuth Client Information

Name

APP\_CLIENT

OAuth Client ID

7c1-5ea052f2b042!b1176|client!b18

Purpose

Interactive Usage and API Access

Access

Data Export Service x

Security

Secret

12b4fed1bf07\$\_DR4BtkaNAGaJ7ZOps...

Hide secret

Redirect URI

-

Token Details

Token Lifetime

1 hour

Done

Cancel

The OAuth authorization and token services for your tenant are available from the URLs below. Your developers will need these URLs, as well as the details about the OAuth client(s) that you create below.

Authorization URL

ntication.br10.hana.ondemand.com/oauth/authorize

Token URL

ntication.br10.hana.ondemand.com/oauth/token



No SAP Build, crie um novo projeto chamado Carbono

SAP

Build

Lobby

Store

Monitor

Settings

Quick Start

Create a Change and Innovation Approval Process

Create an Invoice Approval Process

Create a Sales Order Approval Process

All Projects (0)

Name

Create Process

Name: \*

Identifier: \*

Description:

Create

Cancel

Create

st Accessed

Members

More Options

Adicione uma Trigger do tipo API

SAP

Build Process Automation

Carbono Editable

Overview

Carbono

+

+

»»

Trigger

Add a form or API trigger to your process using the + icon.

If you add an API trigger, go to the side panel to configure the process input parameters.

Start Process

Forms

API

+ New API Trigger

Create API Trigger

Name\*

ApiTrigger

Identifier\*

apiTrigger

Description

e.g. An API trigger for my process.

Usage-related information (such as API URL) will be displayed after each successful deployment.

Create

Cancel



Clique em Configure na área kde Process Inputs do componente Trigger

SAP

Build Process Automation

Carbono

Editable

PR

Release

Save

Overview

Carbono

+

+

+

+

+

+

Trigger

ApiTrigger

Start Process

+

+

+

End

Process Details

General

Inputs/Outputs

Visibility

Process Inputs

Configure

No Inputs added yet.

No inputs have been defined for this process yet.

Process Outputs

Configure



Adicione dois inputs conforme abaixo

Process Details

Configure Process Inputs

Some inputs might be bound to other processes and deleting them can cause errors.

Inputs

Add Input

Name *	Identifier *	Type *	Required	List	
<div>Period</div>	<div>period</div>	<div>String</div> <div></div>	<div></div>	<div></div>	<div></div>
<div>CarbonAmount</div>	<div>carbonAmount</div>	<div>Number</div> <div></div>	<div></div>	<div></div>	<div></div>

Apply

Cancel





Adicione um Approval Form no ícone de +

SAP

Build Process Automation

Carbono Editable

Overview

\*Carbono

+

+

Trigger

Create Approval

Name: \*

Approval

Identifier: \*

approval

Description:

e.g. A purchase order approval

☐ Based on a form

Create

Cancel

Forms

Approvals

Automation

Subprocesses

Decision

Actions

+ New Approval Form



Configure o layout do Approval Form

SAP

Build Process Automation

Carbono

Editable

Overview

\*Carbono

\*Approval

H1

Headline 1

H2

Headline 2

A

Paragraph

T

Text

Text Area

Dropdown

Choice

Checkbox

#

Aquisição de créditos de Carbono

Período

Prepopulated ... T

Quantid...

Prepopulated ... T

+ Drag any field or click to add here



Configure os inputs do Approval Form, conecte suas saídas no End e salve o fluxo Carbono

Save

▼

+

▼ 100%

—

Approval Form

Approval

Start

Approval Form

Approval

General

Inputs

Outputs

Período \*

»» Period x

T

Quantidade \*

»» CarbonAmount x

#



Efetue o Release do fluxo

SAP

Build Process Automation

Carbono Editable

PR

Release

Overview

Carbono

Carbono

Last updated on: April 9, 2023  
By: You

Created on: April 9, 2023  
By: You

Collaborators  
You

Description  
No value

Agent version  
No value

Project size: 10.84 KB  
Estimated package size: 7.44 KB

Artifacts (3)

Triggers (1)

All Artifacts

Search...

Name	Executing
<div><div></div>ApiTrigger</div>	<div><div></div>Carbono</div>



Efetue o Deploy do fluxo

SAP

Build Process Automation

Carbono 1.0.0 Released

PR

Deploy

Overview

Carbono Released

Last updated on: April 9, 2023  
By: You

Created on: April 9, 2023  
By: You

Collaborators  
You

Description  
No value

Agent version  
No value

Project size:  
10.84 KB

Artifacts (3)

Triggers (1)

Triggers

Search...

Name	Executing
<div><div></div>ApiTrigger</div>	<div><div></div>Carbono</div>



Acesse o SAP Business Application Studio e importe o arquivo sapplanningintegrationworkflow.tar, executando no terminal o comando npm install  
Acesse o arquivo SAC\_ENV.json e o altere-o:

Linha 3: url do SAC

Linha 4: url do token do SAC

Linha 7: OAuth Client ID

Linha 8: OAuth Secret

Linha 13: Id do model Carbono

sapplanningintegrationworkflow > config > {} SAC\_ENV.json > {} providers > {} models >  Carbono

```
1  {  
2    "endPoints": {  
3      "tenantUrl": "https://.br10.hcs.cloud.sap",  
4      "tokenUrl": "https://.authentication.br10.hana.ondemand.com/oauth/token"  
5    },  
6    "credentials": {  
7      "clientId": "",  
8      "secret": ""  
9    },  
10   "providers": {  
11     "namespaceId": "sac",  
12     "models": {  
13       "Carbono": ""  
14     }  
15   }  
16 }
```



No SAP BTP, acesse a instância do SAP Build Process Automation de Plan Standard e anote os dados da Service Key

Allow

Deny

×

sbpa

View Credentials

...

Instance ID: 9d358a74-d813-429c-9601-34358d62876d

Service: SAP Build Process Automation (process-auto...

Plan: standard

Runtime Environment:

Status: Created

Bound Applications (0)

Service Keys (1)

No bound applications.

Service Keys (1)

View

Download

Delete

Name	Status	
key	Created	...



No SAP Build, acesse o projeto Carbono e veja a trigger, anotando sua Url e Payload

Carbono Deployed Active



Project size:  
10.84 KB

Last updated on: April 9, 2023  
By: You

Created on: April 9, 2023  
By: You




Collaborators  
You

Description  
*No value*

Agent version  
*No value*

Artifacts (3) Triggers (1)

Triggers

Name	Executing	Last Updated	
 ApiTrigger	 Carbono	3 hours ago	



*e.g. called from service X*

URL:  
<https://spa-api-gateway-bpi-us-prod.cfapps.us10.hana.ondemand.com/workflow/rest/v1/workflow-instances>

Payload / Input

**Example** Input Schema

```
{
  "definitionId": "us10.10d71ae2trial.carbono.carbono",
  "context": {
    "period": "",
    "carbonAmount": 0
  }
}
```





Acesse o arquivo SAPBuild\_ENV.json e o altere-o:

Linha 3: url do token da Service Key (uaa.url)

Linha 4: url da trigger

Linha 7: OAuth Client ID da Service Key (uaa.clientid)

Linha 8: OAuth Secret da Service Key (uaa.clientsecret)

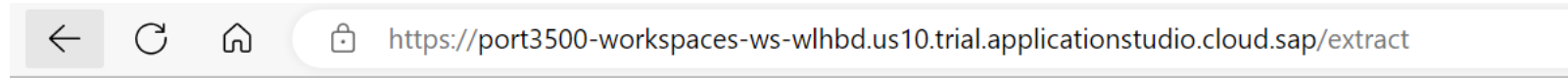
Linha 11, dentro de definition: Payload

sapplanningintegrationworkflow > config > {} SAPBuild\_ENV.json > {} definition

```
1  {
2    "endPoints": {
3      "tokenUrl": "https://.authentication.us10.hana.ondemand.com/oauth/token",
4      "workflowUrl": "https://spa-api-gateway-bpi-us-prod.cfapps.us10.hana.ondemand.com",
5    },
6    "credentials": {
7      "clientId": "",
8      "secret": ""
9    },
10   "definition": {
11     "definitionId": "",
12     "context": {
13       "period": "",
14       "carbonAmount": 0
15     }
16   }
17 }
```



Execute no terminal o comando `npm start` e abra a janela após a carga do aplicativo, acrescentando na Url um `/extract` seguido de um Enter. Os dados do modelo do SAC serão carregados em um Workflow no SAP Build Process Automation



```
> sapplanningintegrationworkflow@1.0.0 start
> node service.js
```

App listening on port 3500

```
-----
Inicializando carga em Sun Apr 09 2023 20:16:19 GMT+0000 (Coordinated Universal Time)
--Extração de dados do SAC
--Carga de dados no SAP Build
Finalizando carga em Sun Apr 09 2023 20:16:22 GMT+0000 (Coordinated Universal Time)
-----
```



No SAP Build, acesse o aplicativo My Inbox e veja novos processamentos:

SAP

Build

Lobby

Store

Monitor

Settings

PR

Quick Start

SAP

My Inbox

All Tasks (1)

Apr

×

↺

2023-Apr

sb-clone-390ed564-...

Medium

Approval

Aquisição de créditos de Carbono

Período

2023-Apr

Quantida...

899123

Approve

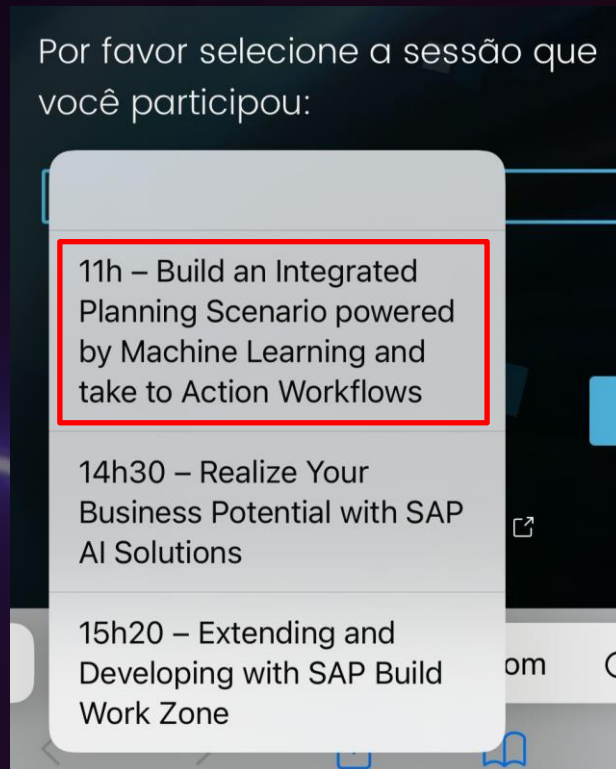
Reject

Show Log

Claim

## Sala Rivelino 27/04

Por favor, responda a [pesquisa](#) abaixo sobre a sessão:



**11h – Build an Integrated Planning Scenario powered by Machine Learning and take to Action Workflows**

# contato



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