

USER GUIDE

A RECOMMENDER SYSTEM FOR CULTURE MAURICIE

Version 1.0

Prepared by The UQTR Research Team

Mar 2022

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PART 1: FUNCTIONALITY OVERVIEW

This chapter starts with the challenges of cultural organizations in Quebec which stimulate the research objective of the document. Based on the research objectives, the planning, expected outcomes, and research teams are clarified. This chapter also presents the overall structure of the document.

1.1 Overview of main functionalities

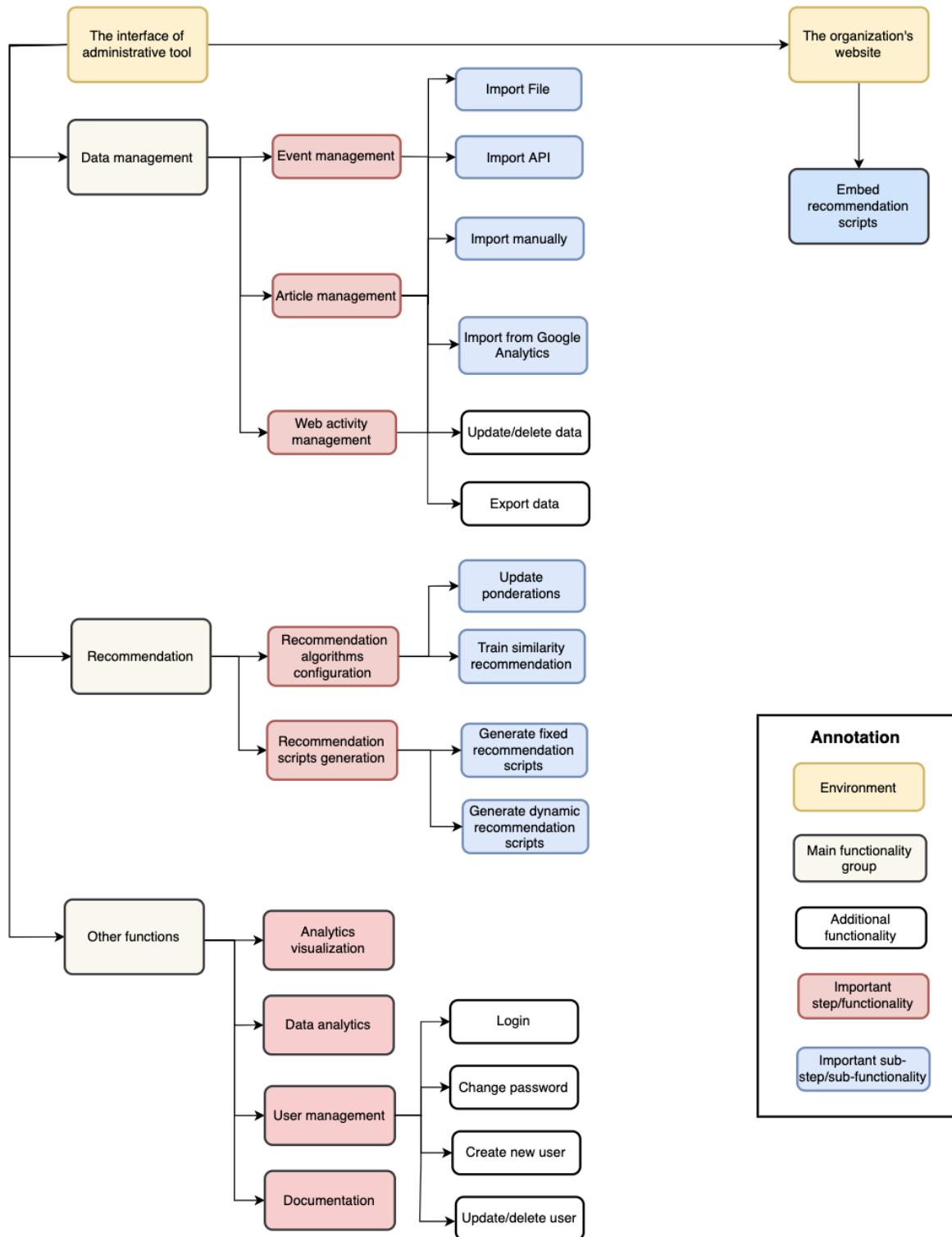


Figure 1. List of functions in the interface of administrative tool

Table 1 presents a description of the main functionalities.

Table 1. Main functionality description

Main functionality	Description
Event management	Import event (événement) data into the recommendation system, and then edit, update, export.
Article management	Import article (article de magazine) data into the recommendation system, and then edit, update, export.
Web Activity management	Import tracking visitor data (interactions) on the organization's website, into the recommendation system, and then edit, update, export.
Recommendation algorithms configuration	Configure parameters for recommendation algorithms, and train recommendation models to help the system provide accurate results.
Recommendation scripts generation	Generate recommendation scripts to embed into the organization's website.
Analytics visualization	Display general reports about organizational data.
Data analysis	Monitor statistic reports about visitors' activities on the organization's website.
User management	Authenticate and authorize system users, change user password and create new/edit/delete user account.
Documentation	Provide the user guide.

1.2 Functionality description

Table 2 presents a more detailed description of the functionalities.

Table 2. Functionality description

Functionality	Description	Remarque
Import File	Import a large amount of data into the system by uploading a data file with extension .json	Uploaded json files must follow a default format.

Import API	Import a large amount of data based on APIs provided by organization's data providers (Caligram, etc.)	Data returned from APIs must follow a default format.
Import manually	Create new data (event, article) by entering manually its information	
Import from Google Analytics	Import all Google Analytics reports of the organization's website into the recommendation system	Users need to configure some technical steps, in order to enable the recommendation system connect to Google Analytics.
Update/delete data	Edit or delete an imported data	
Delete an imported file	Delete automatically a large amount of data imported from a json file or an API	
Export data	Export imported data into a CSV file and automatically download this file in your local computer.	
Update ponderations	Set ponderation value for each interaction type (web activity type).	
Train similarity recommendation	Train similarity recommendation model so that it is capable of understanding contents (descriptions) of all events/articles and then measuring similarity scores between any 2-event/2 article contents.	Users need to retrain the similarity recommendation model when a large amount of data are imported into the system.
Generate fixed recommendation scripts	Generate fixed recommendation scripts to embed them into your's website. These scripts never change theirs source code, users only need to embed this script once in the	

	organization website's source code to retrieve recommendations	
Generate dynamic recommendation scripts	Generate dynamic recommendation scripts to embed them into your's website. For each page in website, users need to embed manually a different script in order to retrieve specified recommendations	Users need to configure some dynamic paramters to generate dynamic scripts.
Login	Login the interface of administrative tool	
Change password	Change new password	
Create new user	Create a new user account by a root user	
Update/delete user	Update user account information/ Delete a user account by a root user	

PART 2: ADMINISTRATIVE TOOL TUTORIAL

This part of the document presents a tutorial on how to use the administrative tool to visualize analytics, manage database, and generate API for recommendation algorithms.

2.1 Overall interface of administrative tool

The interface of administrative tool is a website that allows users (example, managers of cultural organizations) to interact with the recommendation system's functions through browsers (Chrome, Safari, etc.). The figure below displays the main dashboard of the interface of administrative tool.

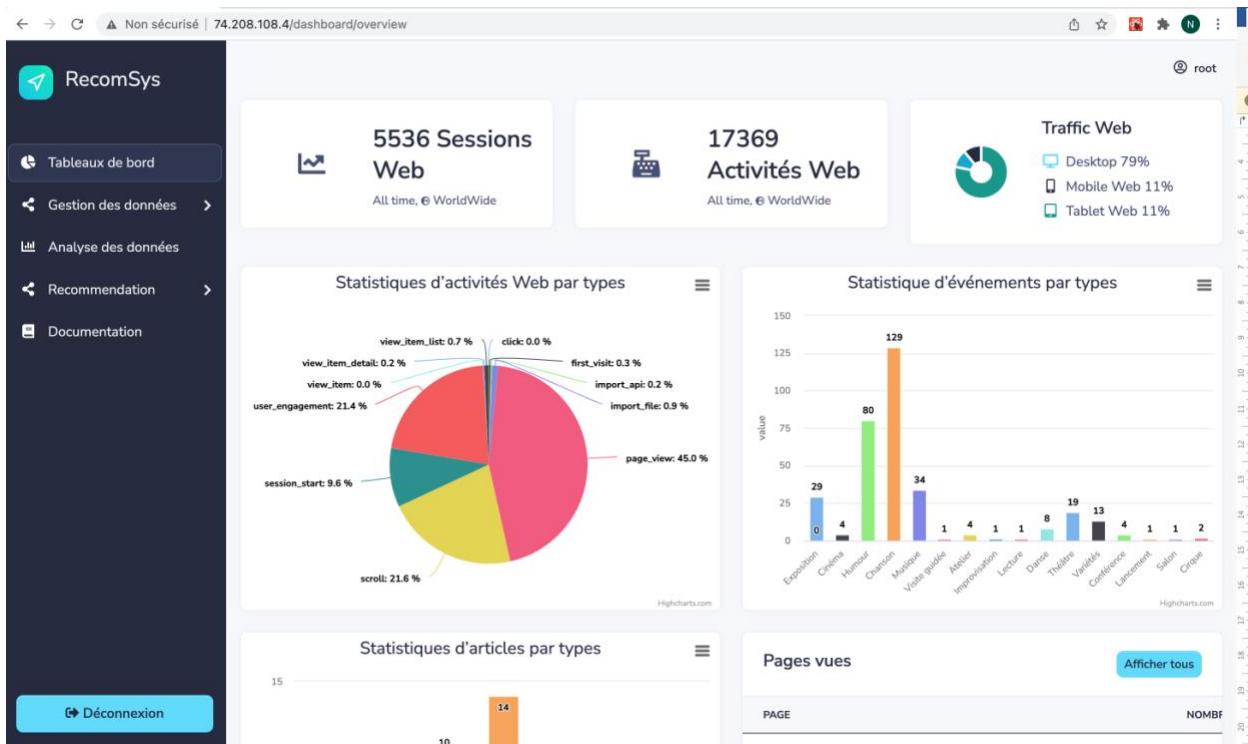


Figure 2. Overall interface of administrative tool.

2.2 User management

2.2.1 Login

To access the interface of administrative tool, users follow these steps:

- Browse to the website url (<http://74.208.108.4/>)
- Log in the website by using this default user account (user: root, password: trivi).

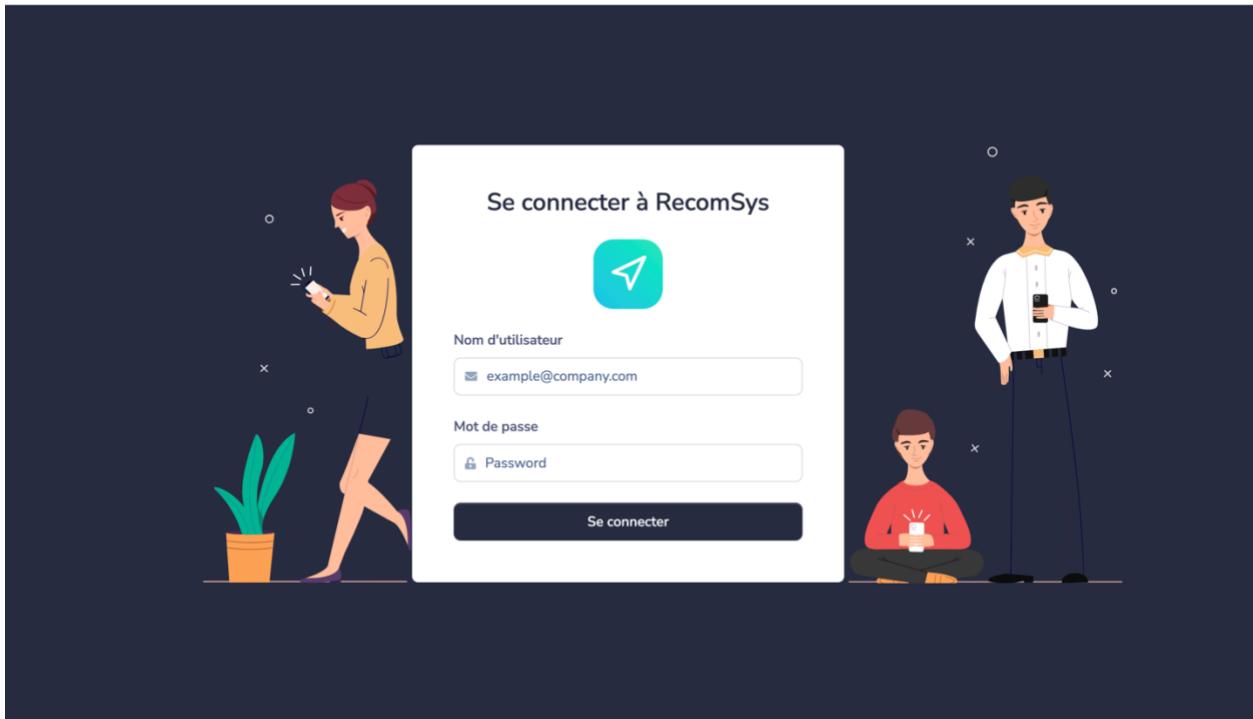


Figure 3. Log In Page

2.2.2 Change password

This function allows users to change their password. To perform this function, users follow these steps:

- Click the “User” Icon, which is located on the top right corner of the website.
- Select the “Change mot de passe ” section.

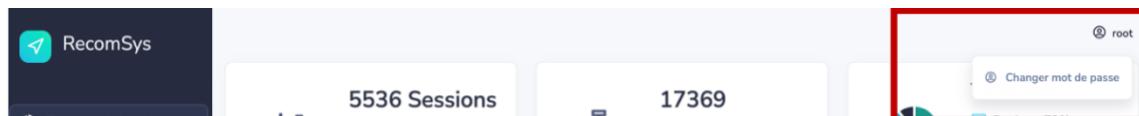


Figure 4. "User" Icon on the top right corner

- Next, the interface will redirect to the “Changer mot de passe” page.
- Enter a new password and confirm again before clicking the “Changer” button.

Changer mot de passe

Nouveau mot de passe

Mot de passe confirmé

Changer

Figure 5. Update new password

- After new password is updated, log in the interface of administrative tool again.

2.2.3 Add new user

This function allows the root user to create a new user of the administrative tool interface.

To perform this function, the root user follows these steps:

- Browse to the website url (<http://74.208.108.4:8000/admin>)
- Log in the website by using this default user account (user: root, password: trivi).

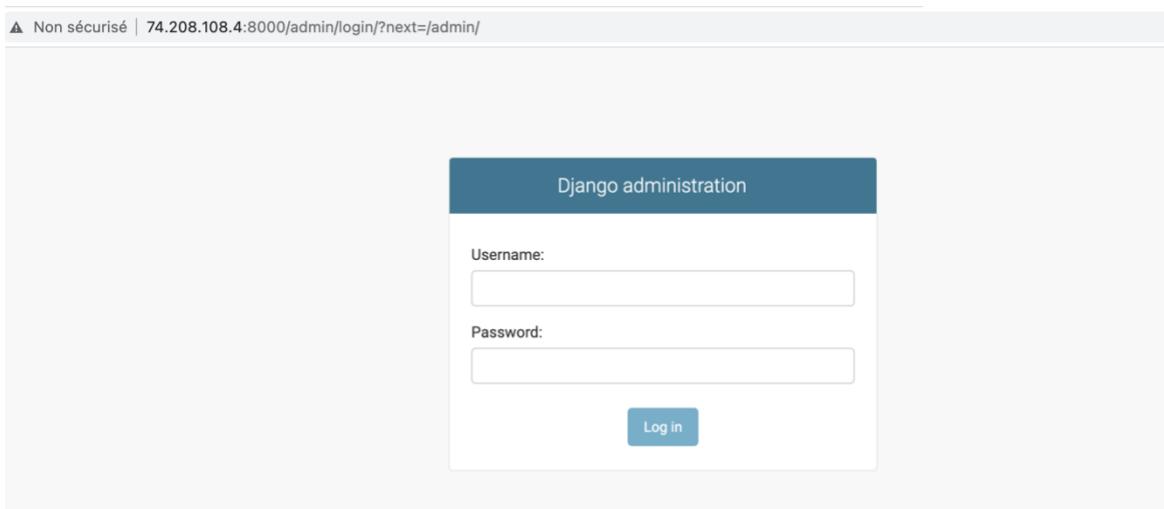


Figure 6. Log In page for admin

- Click the (+ Add) button, which is located on the “User” row, in the “Authorization and Authentication” section.

The screenshot shows the Django administration interface. At the top, a dark blue header bar reads "Django administration". Below it, a light blue bar says "Site administration". Underneath, a dark blue bar labeled "AUTHENTICATION AND AUTHORIZATION" contains two items: "Groups" and "Users". Each item has a green "+ Add" button and a yellow "Change" button next to it.

Figure 7. Main page for admin

- Enter an username and a password for new account before clicking the “Save” button.

The screenshot shows the "Add user" form. It starts with a heading "Add user" and a note: "First, enter a username and password. Then, you'll be able to edit more user options.". There are three input fields: "Username" (with placeholder "Required: 150 characters or fewer. Letters, digits and @/./+/-/_ only."), "Password" (with placeholder "Your password can't be too similar to your other personal information.
Your password must contain at least 8 characters.
Your password can't be a commonly used password.
Your password can't be entirely numeric."), and "Password confirmation" (with placeholder "Enter the same password as before, for verification."). At the bottom right are three buttons: "Save and add another", "Save and continue editing", and a larger "SAVE" button.

Figure 8. Enter information for new account

2.2.4 Update/Delete user

This function allows the root user to update/delete a created user account. To perform this function, the root user follows these steps:

- Browse to the website url (<http://74.208.108.4:8000/admin>)
- Log in the website by using this default user account (user: root, password: trivi).

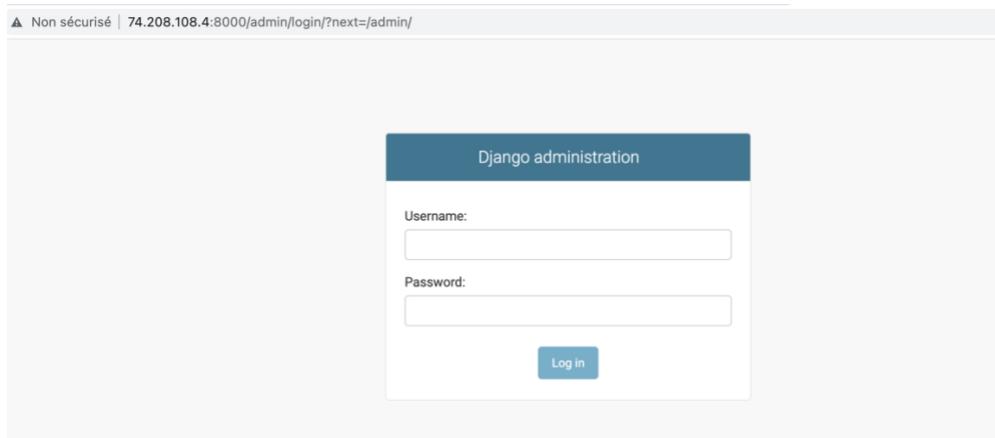


Figure 9. LogIn page for admin

- Click the “User” section, which is located in the “Authorization and Authentication” section.

A screenshot of the Django admin main page. The title "Django administration" is at the top. Below it is a section titled "Site administration". Under "AUTHENTICATION AND AUTHORIZATION", there are two entries: "Groups" and "Users". Each entry has a green "+ Add" button and a yellow "Change" link. The "Users" entry is expanded, showing a table with two rows. The columns are labeled "USERNAME", "EMAIL ADDRESS", "FIRST NAME", "LAST NAME", and "STAFF STATUS". The first row contains "dimalab" and a red "X" in the "STAFF STATUS" column. The second row contains "root" and a green checkmark in the "STAFF STATUS" column. At the bottom left of the table, it says "2 users".

Figure 10. Main page for admin

- Click the user account that you want to update/delete.

Select user to change

A screenshot of the Django admin user list table. At the top, there is a search bar with a magnifying glass icon and a "Search" button. Below the search bar is a toolbar with an "Action:" dropdown menu, a "Go" button, and the text "0 of 2 selected". The table has five columns: "USERNAME", "EMAIL ADDRESS", "FIRST NAME", "LAST NAME", and "STAFF STATUS". The first row contains "dimalab" and a red "X" in the "STAFF STATUS" column. The second row contains "root" and a green checkmark in the "STAFF STATUS" column. At the bottom left of the table, it says "2 users".

Figure 11. List of system users

- For updating, modify user account information and then click the “Save” button.
- For deleting, click the “Delete” button at the end of website page.

Change user

dimalab

Username:	dimalab
Required. 150 characters or fewer. Letters, digits and @/./+/-/_ only.	
Password:	algorithm: pbkdf2_sha256 iterations: 260000 salt: VJPrP3***** hash: zRICvj*****
Raw passwords are not stored, so there is no way to see this user's password, but you can change the password using this form .	

Figure 12. Update user password

2.3 Analytics visualization (menu item “Tableaux de bord”)

This function aims at presenting statistics of web activities and cultural event. Important metrics (KPIs) related to website activities of visitors such as: the total number of web activities, the total number of sessions, the share of visitor devices, the most popular pages, the number of events/articles by categories are provided on the dashboard in forms of interactive charts, tables. To perform this function, users:

- Click the “Tableaux de bord” section, which is located on the left side bar.

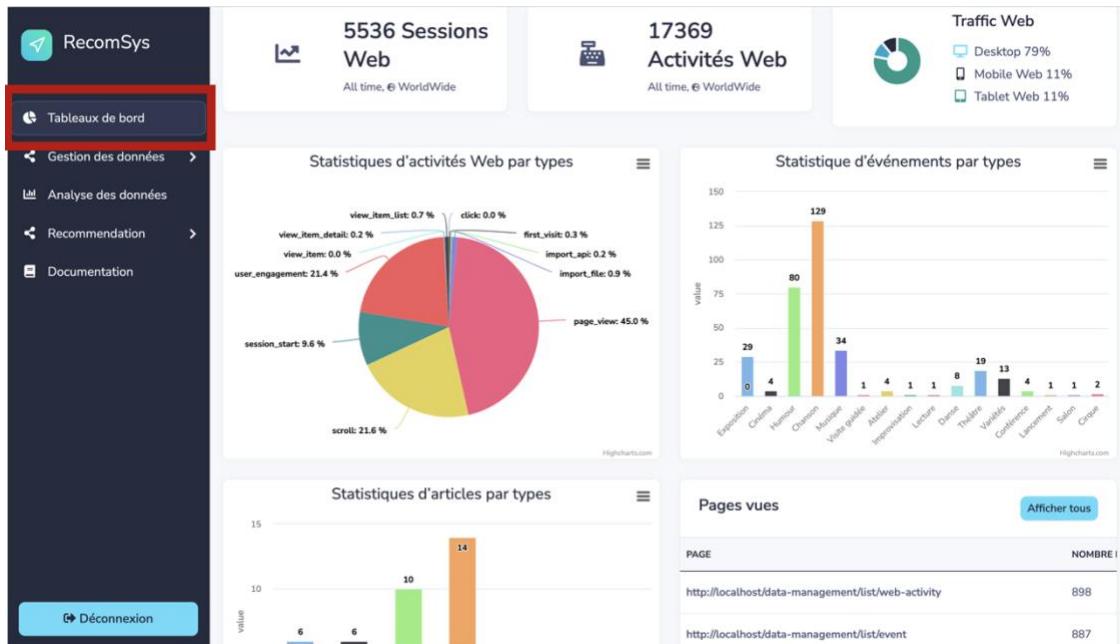


Figure 13. Dashboard

2.4 Data management (menu item “Gestion des données”)

Data management is a set of functions used to import, store, and process organizational data so that the recommendation system always has available data to suggest most accurate recommendations. Based on documents, the list of APIs provided by Culture Mauricie as well as our observation on the website <https://dici.ca>, there are 3 types of organizational data that can be used for recommendation:

- Event (Événement)
- Article (Article de magazine)
- Web activity (Activité Web). This data type is not currently provided by Culture Mauricie, but we recommend using “web activity” data since it allows the system to achieve more reliable recommendation results.

For each data type, the system allows users to manipulate data into the system in several ways:

- Import data from JSON File (applied for all data types)
- Import data from API (applied for all data types)
- Create new data by manually inputting (applied for Event and Article)
- Synchronize automatically with Google Analytics (Applied for Web activity)
- Export data as CSV File (applied for all data types)
- Edit data (applied for Event and Article)
- Delete data (applied for all data types)

To access these functions, users follow these steps:

- Select the “Gestion des données” section, which is located on the left side bar.
- In the dropdown menu, select a data type users want to manage (Évenements, Articles and Activités Web)

ID	EVENT_ID	EVENT_NAME	EVENT_TYPE	URL
667	0	Hélène Guilmaine : À l'origine... les déesses-mères	Exposition	https://dici.ca/evenements/helene-guilmaine-a-l-origine-les-deesses-meres
668	1	Véronique Paprosky : Savoir Web	Exposition	https://dici.ca/evenements/art-1
669	2	Andrée Godin : Green/1	Exposition	https://dici.ca/evenements/andree-godin-green-1
670	3	Suzanne FerlandL : Onde de choc - Effluve de l'impénétrable	Exposition	https://dici.ca/evenements/exposition-onde-de-choc-effluve-de-l-impenertrable
671	4	Sarah Seené : Fovea	Exposition	https://dici.ca/evenements/exposition-fovea
672	5	Marie-Sol St-Onge : L'art d'avancer	Exposition	https://dici.ca/evenements/l-art-d'avancer
673	6	Si la faune m'était sculptée - L'art animalier québécois	Exposition	https://dici.ca/evenements/si-la-faune-m-était-sculptée-l-art-animalier-québécois
674	7	Le match parfait - Sport vs Science	Exposition	https://dici.ca/evenements/le-match-parfait-sport-vs-science

Figure 14. Interface for Data Management

2.4.1. Event management (subitem “Événements”)

The figure below presents the interface of Event management, with a table of imported data and some function buttons:

- Create new event by manually inputting
- Import data from JSON File
- Import data from API
- Export data as CSV File
- Delete an imported file

ID	EVENT_ID	EVENT_NAME	EVENT_TYPE	URL
1001	0	Hélène Guilmaine : À l'origine... les déesses-mères	Exposition	https://dici.ca/evenements/helene-guilmaine-a-l-origine-les-deesses-meres
1002	1	Véronique Paprosky : Savoir Web	Exposition	https://dici.ca/evenements/art-1
1003	2	Andrée Godin : Green/1	Exposition	https://dici.ca/evenements/andree-godin-green-1
1004	3	Suzanne FerlandL : Onde de choc - Effluve de l'impénétrable	Exposition	https://dici.ca/evenements/exposition-onde-de-choc-effluve-de-l-impenertrable
1005	4	Sarah Seené : Fovea	Exposition	https://dici.ca/evenements/exposition-fovea
1006	5	Marie-Sol St-Onge : L'art d'avancer	Exposition	https://dici.ca/evenements/l-art-d'avancer

Figure 15. Interface of Event Management

1. Import data from JSON File (Importer un fichier) :

This function allows users to import a large amount of event data into the system by uploading a data file with extension .json. To perform this function, users follow these steps:

- Click the “Importer un fichier” button on the navbar.

The screenshot shows the 'Liste des événements' page of the RecomSys application. On the left, there is a sidebar with navigation links: Tableaux de bord, Gestion des données (with Événements selected), Articles, Activités Web, Analyse des données, Recommandation, and Documentation. At the top, there is a navigation bar with a back arrow, forward arrow, refresh icon, and a non-secured connection indicator. Below the navigation bar, there is a header with the RecomSys logo and a search bar labeled 'Recherche de mots clés'. A red box highlights the 'Importer un fichier' button in the top navigation bar. The main content area displays a table of events with columns: ID, EVENT_ID, EVENT_NAME, EVENT_TYPE, and URL. The table contains 6 rows of data.

ID	EVENT_ID	EVENT_NAME	EVENT_TYPE	URL
667	0	Hélène Guilmaine : À l'origine... les déesses-mères	Exposition	https://dici.ca/événements/helene-guilmaine-a-l-origine-les-deesses-meres
668	1	Véronique Paprosky : Savoir Web	Exposition	https://dici.ca/événements/art-1
669	2	Andrée Godin : GreenV1	Exposition	https://dici.ca/événements/andree-godin-greenv1
670	3	Suzanne FerlandL : Onde de choc - Effluve de l'impénétrable	Exposition	https://dici.ca/événements/exposition-onde-de-choc-effluve-de-l-impene-trable
671	4	Sarah Seené : Fovea	Exposition	https://dici.ca/événements/exposition-fovea
672	5	Marie-Sol St-Onge : L'art d'avancer	Exposition	https://dici.ca/événements/l-art-d-avancer

Figure 16. "Importer un fichier" button

- Click the “Télécharger un fichier” section.
- Upload a json file.

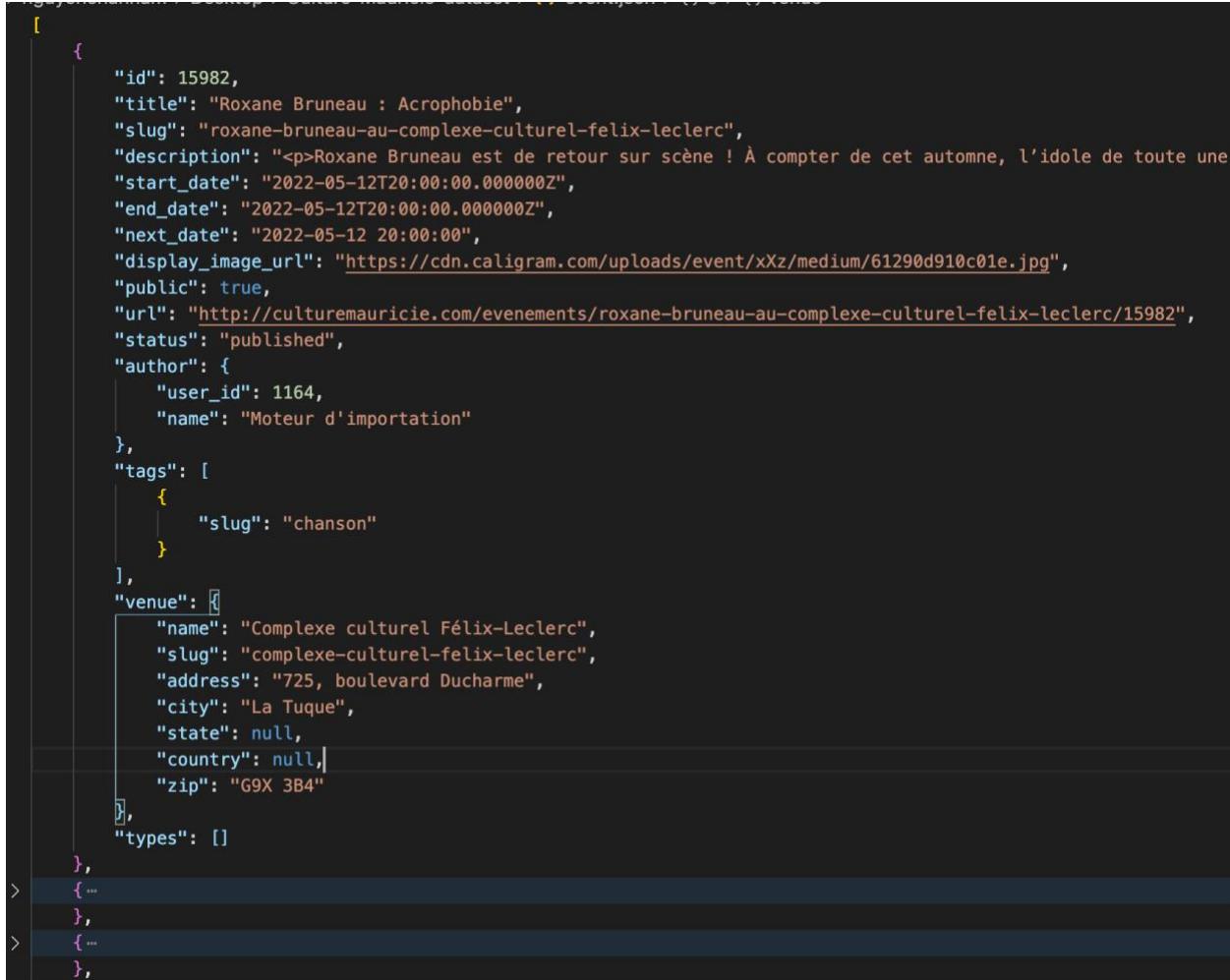
The screenshot shows the 'Importer un fichier - événement' interface. On the left, there is a sidebar with navigation links: Tableaux de bord, Gestion des données (with Événements selected), and Articles. The main content area has two input fields: 'Télécharger un fichier' containing 'events.json' and 'Choisir un mapping template' containing 'default'. Below these fields is a large 'Importer' button.

Figure 17. Interface for "Importer un fichier"

- Select a mapping template (which helps to match data structure between a uploaded file and system data models) in the “Choisir un mapping template” section. Based on documents that Culture Mauricie provided, we have defined a “default” mapping template for “Event”.
- Click the “Importer” button. If there is a data duplication (duplication in event_id) or the data structure in the uploaded file does not match the mapping template, there

would be an error message displayed on the interface and users need to check that error.

*Note: When the structure of uploaded json file changes, users need to notify us to update/create a mapping template. By default, when users choose “Default” mapping template, the uploaded json file must follow the format below:



```
[{"id": 15982, "title": "Roxane Bruneau : Acrophobie", "slug": "roxane-bruneau-au-complexe-culturel-felix-leclerc", "description": "<p>Roxane Bruneau est de retour sur scène ! À compter de cet automne, l'idole de toute une", "start_date": "2022-05-12T20:00:00.00000Z", "end_date": "2022-05-12T20:00:00.00000Z", "next_date": "2022-05-12 20:00:00", "display_image_url": "https://cdn.caligram.com/uploads/event/xXz/medium/61290d910c01e.jpg", "public": true, "url": "http://culturemauricie.com/evenements/roxane-bruneau-au-complexe-culturel-felix-leclerc/15982", "status": "published", "author": { "user_id": 1164, "name": "Moteur d'importation" }, "tags": [ { "slug": "chanson" } ], "venue": { "name": "Complexe culturel Félix-Leclerc", "slug": "complexe-culturel-felix-leclerc", "address": "725, boulevard Ducharme", "city": "La Tuque", "state": null, "country": null, "zip": "G9X 3B4" }, "types": []}, {"...}, {"...}, {"...}, {"...}]
```

Figure 18. Default "Event" JSON file

2. Import data from API (Importer un API)

This function allows users to import a large amount of event data based on APIs provided by orginazation's data providers (Caligram, etc.). To perform this function, users follow these steps:

- Click the “Importer un API” button on the navbar.

The screenshot shows the RecomSys application's event management section. On the left is a sidebar with navigation links: Tableaux de bord, Gestion des données, Événements (Articles, Activités Web, Analyse des données, Recommendation, Documentation), and a search bar. The main area is titled 'Liste des événements' and contains a table of events. At the top of the main area are five buttons: 'Créer un événement' (black), 'Importer un fichier' (light blue), 'Importer un API' (orange, highlighted with a red box), 'Exporter un fichier' (green), and 'Supprimer un fichier' (red). A search bar is also present at the top right.

ID	EVENT_ID	EVENT_NAME	EVENT_TYPE	URL
667	0	Hélène Guilmaine : À l'origine... les déesses-mères	Exposition	https://dici.ca/événements/helene-guilmaine-a-l-origine-les-deesses-meres
668	1	Véronique Paprosky : Savoir Web	Exposition	https://dici.ca/événements/art-1
669	2	Andrée Godin : Green'1	Exposition	https://dici.ca/événements/andree-godin-green-1
670	3	Suzanne FerlandL : Onde de choc - Effluve de l'impénétrable	Exposition	https://dici.ca/événements/exposition-onde-dechoc-effluve-de-l-impenertrable
671	4	Sarah Seené : Fovea	Exposition	https://dici.ca/événements/exposition-fovea
672	5	Marie-Sol St-Onge : L'art d'avancer	Exposition	https://dici.ca/événements/l-art-d-avancer

Figure 19. "Importer un API" button

- Enter an API url that data providers have given you (Ex: <https://culturemauricie.caligram.com/api/events/?page=<id>>), in the URL section.

The screenshot shows the 'Importer une API - événement' interface. It has three main sections: 'URL' (with placeholder 'Ex: https://dici.ca/événements/?page=1'), 'Bearer Token' (with placeholder 'dici'), and 'Choisir un mapping template' (with placeholder 'default'). At the bottom is a large dark blue 'Importer' button.

Figure 20. Interface of "Importer un API"

- Enter a bearerToken (a keyword used for request authentication that data providers have given you). For Import event from API, users can leave this section blank.
- Select a mapping template (which assists to match data structure between a uploaded file and system data models) in the “Choisir un mapping template” section. By default, click “default” mapping template.
- Click the “Importer” button. If there is a data duplication (duplication in event_id) or the data structure in the uploaded file does not match the mapping template, there would be an error message displayed on the interface and users need to check that error.

3. Import data by manually inputting (Créer un événement):

When the amount of imported data is not too much or there is not any available APIs/json files, the system allows users to create each event and enter manually its information (event name, event id, event date, etc.). To perform this function, users follow these steps:

- Click the “Créer un événement” button, which is located in the navbar.

The screenshot shows a web browser window titled "RecomSys - Liste des événements". The URL is "74.208.108.4/data-management/list/event". The page has a sidebar on the left with options like "Tableaux de bord", "Gestion des données", "Événements" (which is selected), "Articles", "Activités Web", "Analyse des données", "Recommendation", and "Documentation". The main content area is titled "Liste des événements" and contains a table with columns: ID, EVENT_ID, EVENT_NAME, EVENT_TYPE, and URL. There are six rows of data. At the top of the content area, there are several buttons: "Créer un événement" (highlighted with a red box), "Importer un fichier", "Importer un API", "Exporter un fichier", and "Supprimer un fichier". A search bar "Recherche de mots clés" is also present.

ID	EVENT_ID	EVENT_NAME	EVENT_TYPE	URL
667	0	Hélène Guimaine : À l'origine... les déesses-mères	Exposition	https://dici.ca/événements/helene-guilmaine-a-l-origine-les-deesses-mieres
668	1	Véronique Paprosky : Savoir Web	Exposition	https://dici.ca/événements/art-1
669	2	Andrée Godin : Green/1	Exposition	https://dici.ca/événements/andree-godin-green-1
670	3	Suzanne FerlandL. : Onde de choc - Effluve de l'impénétrable	Exposition	https://dici.ca/événements/exposition-onde-de-choc-effluve-de-l-impenertrable
671	4	Sarah Seené : Fovea	Exposition	https://dici.ca/événements/exposition-fovea
672	5	Marie-Sol St-Onge : L'art d'avancer	Exposition	https://dici.ca/événements/l-art-d-avancer

Figure 21. "Créer un événement" button

- Fill in information fields. There are some fields that users are obliged to fill in (including: event_id, event_name, event_type, event_img, event_url, event_dates, event_place).

The screenshot shows a form titled "Form" for creating a new event. The form is divided into sections: "ÉVÉNEMENT". It contains several input fields: "event_id" (text input), "event_name" (text input), "event_type" (text input), "event_price" (text input), "price_type" (text input), and "slug" (text input). Each field has a corresponding label above it.

Figure 22. Information form for new event

- When users click the “Ajouter” button, it allow users to add more information for a specified field (for example, when users click the "Ajouter event_date" button, users can add dates the event will take place).

EVENT_DATE[1]

date

jj/mm/aaaa

Supprimer

+ Ajouter EVENT_DATE

+ Ajouter PROPRIETOR

Enregistrer

Figure 23. "Ajouter" and "Enregistrer" button

- Click the “Enregistrer” button at the bottom page to save new event.

4. Edit/delete an event:

This function allows users to edit or delete an imported data. To perform this function, users follow these steps:

- Click the “ID” section that belongs to a data row in the table.

ID	EVENT_ID	EVENT_NAME	EVENT_TYPE	URL
667	0	Hélène Guilmaine : À l'origine... les déesses-mères	Exposition	https://dici.ca/événements/helene-guilmaine-a-l-origine-les-deesses-meres
668	1	Véronique Paprosky : Savoir Web	Exposition	https://dici.ca/événements/art-1
669	2	Andrée Godin : Green/1	Exposition	https://dici.ca/événements/andree-godin-green-1
670	3	Suzanne Ferland : Onde de choc - Effluve de l'impénétrable	Exposition	https://dici.ca/événements/exposition-onde-de-choc-effluve-de-l-impene-trable
671	4	Sarah Seené : Fovea	Exposition	https://dici.ca/événements/exposition-fovea
672	5	Marie-Sol St-Onge : L'art d'avancer	Exposition	https://dici.ca/événements/l-art-d-avancer

Figure 24. Event ID

- The interface would switch to the “Update” page, users modify event information.
- Click the “Mettre à jour” button to update.
- Or, click the “Supprimer” button to delete.

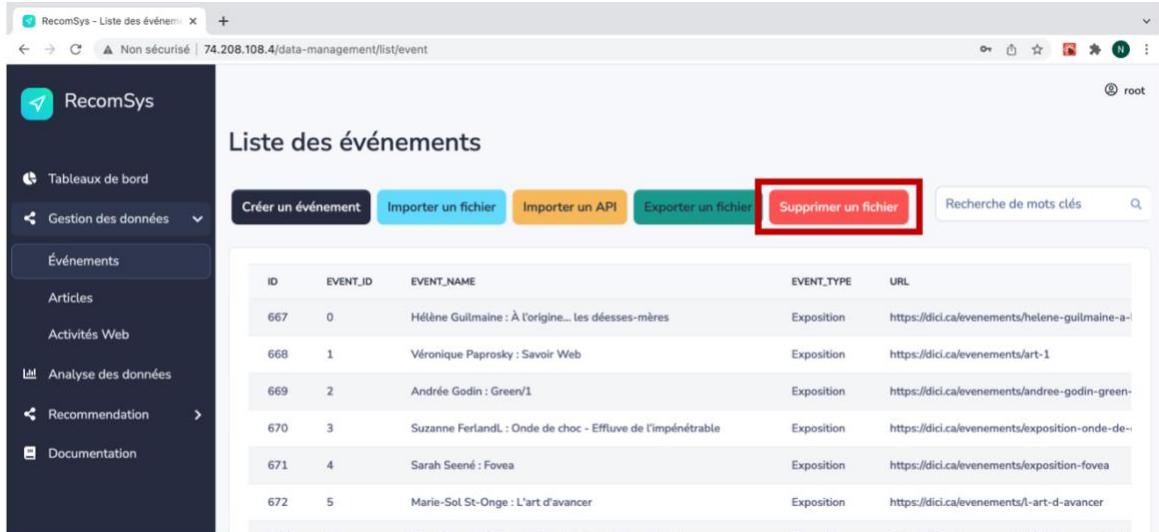
status	description
<input type="text"/>	<p class="c-HeaderPage__text--details -date">22 février 2022</p> Par Caroline Ruest</p><p>Quand vient la relâche scolaire, certains parents se mettent une pression énorme dans le seul but de combler leurs minis; d'autres
PROPRIETOR[1]	
entity_id	entity_name
<input type="text"/>	<input type="text"/> Caroline Ruest
slug	description
<input type="text"/>	<input type="text"/>
role_name	
<input type="text"/> author	
<input type="button" value="Supprimer"/> <input type="button" value="+ Ajouter PROPRIETOR"/> <div style="border: 2px solid red; padding: 5px; display: inline-block;"> <input type="button" value="Mettre à jour"/> <input type="button" value="Supprimer"/> </div>	

Figure 25. "Mettre à jour" and "Supprimer" button

5. Delete multiple data (Supprimer un fichier)

This function allows users to delete automatically a large amount of data imported from a json file or an API, instead of deleting each event. Every time users import data from a json file/an API, the system would keep track information of that json file/API and its data. To perform this function, users follow these steps:

- Click the “Supprimer un fichier” button on the navbar.



The screenshot shows a web browser window for 'RecomSys - Liste des événements'. The URL is '74.208.108.4/data-management/list/event'. The page has a dark sidebar with navigation links like 'Tableaux de bord', 'Gestion des données', 'Événements', 'Articles', 'Activités Web', 'Analyse des données', 'Recommendation', and 'Documentation'. The main content area is titled 'Liste des événements' and contains a table of events. At the top of the table, there are several buttons: 'Créer un événement' (black), 'Importer un fichier' (blue), 'Importer un API' (orange), 'Exporter un fichier' (green), and 'Supprimer un fichier' (red, highlighted with a red box). A search bar is also present. The table lists six events with columns: ID, EVENT_ID, EVENT_NAME, EVENT_TYPE, and URL. The events are:

ID	EVENT_ID	EVENT_NAME	EVENT_TYPE	URL
667	0	Hélène Guimaine : À l'origine... les déesses-mères	Exposition	https://dici.ca/événements/helene-guilmaine-a-l-origine-les-deesses-meres
668	1	Véronique Paprosky : Savoir Web	Exposition	https://dici.ca/événements/art-1
669	2	Andrée Godin : Green/1	Exposition	https://dici.ca/événements/andree-godin-green-1
670	3	Suzanne Ferland : Onde de choc - Effluve de l'impénétrable	Exposition	https://dici.ca/événements/exposition-onde-dechoc-effluve-de-l-impenerable
671	4	Sarah Seené : Fovea	Exposition	https://dici.ca/événements/exposition-fovea
672	5	Marie-Sol St-Onge : L'art d'avancer	Exposition	https://dici.ca/événements/l-art-d-avancer

Figure 26. "Supprimer un fichier" button

- The interface would display an information table, which includes: date and time when a json file/API was imported.
- Users define which json file/API they want to delete, then, click the “Afficher ce fichier” button.

Historique des importations de fichier/API - événement		
ID	TABLE_NAME	CREATED_AT
14	events	2022-03-10T14:19:34.103841Z
18	events	2022-03-10T18:43:08.346781Z
19	events	2022-03-10T18:48:11.333410Z

Recherche de mots clés

[Afficher ce fichier](#) Afficher ce fichier

[Afficher ce fichier](#)

[Afficher ce fichier](#)

Afficher 20 objets ▾ Précédent 1 Suivant

Figure 27. Interface of "Supprimer un fichier"

- Click the “Supprimer tous” for deleting all imported data.

Tables				
Supprimer tous				
ID	EVENT_ID	EVENT_NAME	EVENT_TYPE	URL
667	0	Hélène Guilmaine : À l'origine... les déesses-mères	Exposition	https://dici.ca/événements/helene-guilmaine-a-l-origine-les-deesses-meres
668	1	Véronique Paprosky : Savoir Web	Exposition	https://dici.ca/événements/art-1
669	2	Andrée Godin : Green/1	Exposition	https://dici.ca/événements/andree-godin-green-1
670	3	Suzanne FerlandL : Onde de choc - Effluve de l'impénétrable	Exposition	https://dici.ca/événements/exposition-onde-de-choc-effluve-de-l-impenertrable
671	4	Sarah Seené : Fovea	Exposition	https://dici.ca/événements/exposition-fovea
672	5	Marie-Sol St-Onge : L'art d'avancer	Exposition	https://dici.ca/événements/l-art-d'avancer
673	6	Si la faune m'était sculptée - L'art animalier québécois	Exposition	https://dici.ca/événements/si-la-faune-m-était-sculptée-l-art-animalier-québécois

Recherche de mots clés

Figure 28. "Supprimer tous" button

6. Export event (Exporter un fichier) :

This function allows users to export imported data into a CSV file and to automatically download this file to your local computer. To perform this function, users follow these steps:

- Click the “Exporter un fichier” button, which is located on the navbar.

The screenshot shows a user interface for managing events. On the left is a sidebar with navigation links: Tableaux de bord, Gestion des données (with sub-links Articles, Activités Web, Analyse des données, Recommendation, Documentation), and a Déconnexion button. The main area is titled "Liste des événements". At the top right are five buttons: "Créer un événement" (dark blue), "Importer un fichier" (light blue), "Importer un API" (orange), "Exporter un fichier" (green, highlighted with a red box), and "Supprimer un fichier" (red). Below these buttons is a table with columns ID, EVENT_ID, EVENT_NAME, EVENT_TYPE, and URL. The table contains 10 rows of event data. At the bottom left of the main area is a small message: "generatedBy_rea....csv ^".

ID	EVENT_ID	EVENT_NAME	EVENT_TYPE	URL
667	0	Hélène Guilmaint : À l'origine... les déesses-mères	Exposition	https://d
668	1	Véronique Paprosky : Savoir Web	Exposition	https://d
669	2	Andrée Godin : Green/1	Exposition	https://d
670	3	Suzanne FerlandL : Onde de choc - Effluve de l'impénétrable	Exposition	https://d
671	4	Sarah Seené : Fovea	Exposition	https://d
672	5	Marie-Sol St-Onge : L'art d'avancer	Exposition	https://d
673	6	Si la faune m'était sculptée - L'art animalier québécois	Exposition	https://d
674	7	Le match parfait - Sport vs Science	Exposition	https://d
675	8	L'ADN des superhéros	Exposition	https://d
676	9	En d'dans ! La prison comme solution ?	Exposition	https://d

Figure 29. "Exporter un fichier" button

2.4.2. Article management (subitem “Articles”)

The figure below presents the interface of Article management, with a table of imported data and some function buttons:

- Create new article by manually inputting
- Import data from JSON File
- Import data from API
- Export data as CSV File
- Delete an imported file

ID	PRODUCT_ID	PRODUCT_NAME	PRODUCT_TYPE	URL
139	0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie	Musées	https://dici.ca/maga...
140	1	Thomas Grégoire et le FestiVoix de Trois-Rivières : de musique et d'innovation	Arts de la scène	https://dici.ca/maga...
141	2	Étienne Poirier : Capteur de mots	Littérature	https://dici.ca/maga...
142	3	L'album Paysage d'Isabelle Clermont: Une expérience sonore multisensorielle	Arts de la scène	https://dici.ca/maga...
143	4	La Saint-Valentin en mode mollo	Arts visuels	https://dici.ca/maga...
144	5	Quoi faire en février en Mauricie	Arts de la scène	https://dici.ca/maga...
145	6	Suzie Bergeron, quand créativité et ingéniosité se rencontrent	Arts médiatiques	https://dici.ca/maga...
146	7	Eliane Ste-Marie: Portrait d'une brodeuse non conventionnelle	Métiers d'art	https://dici.ca/maga...
147	8	5 artistes de performance de la Mauricie à surveiller	Arts visuels	https://dici.ca/maga...
148	9	La littérature jeunesse, vecteur de nombreux apprentissages	Littérature	https://dici.ca/maga...
149	10	Ouoi faire en janvier en Mauricie	Arts visuels	https://dici.ca/maga...

Figure 30. Interface of Article Management

1. Import data from JSON File (Importer un fichier) :

This function allows users to import a large amount of article data into the system by uploading a data file with extension .json. To perform this function, users follow these steps:

- Click the “Importer un fichier” button on the navbar.

ID	PRODUCT_ID	PRODUCT_NAME	PRODUCT_TYPE
139	0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie	Musées
140	1	Thomas Grégoire et le FestiVoix de Trois-Rivières : de musique et d'innovation	Arts de la scène
141	2	Étienne Poirier : Capteur de mots	Littérature
142	3	L'album Paysage d'Isabelle Clermont: Une expérience sonore multisensorielle	Arts de la scène
143	4	La Saint-Valentin en mode mollo	Arts visuels
144	5	Quoi faire en février en Mauricie	Arts de la scène

Figure 31. "Importer un fichier" button

- Click the “Télécharger un fichier” section.

- Upload a json file.



Figure 32. Interface of "Importer un fichier"

- Select a mapping template (which assists to match data structure between a uploaded file and system data models) in the “Choisir un mapping template” section. Based on documents that Culture Mauricie provided, we have defined a “default” mapping template for “Article”.
 - Click the “Importer” button. If there is a data duplication (duplication in article_id) or the data structure in the uploaded file does not match the mapping template, there would be an error message displayed on the interface and users need to check that error.

*Note: When the structure of uploaded json file changes, users need to notify us to update/create a mapping template. By default, when users choose “Default” mapping template, the uploaded json file must be follow the format below:

```
[  
 {  
   "id": 12390,  
   "name": "La poésie dans les mots de Isabelle Dumais",  
   "description": "<p>Octobre est en cours et, comme autant de feuilles d'arbre qui se colorent, les mots des poètes de parcs, cafés, restaurants, bars et salles de spectacle de Trois-Rivières, ville du Festival international de la poésie",  
   "type": "Musées",  
   "image": "https://dici.php80.acostaging.com/app/uploads/2021/09/isabelle-dumais-dici.jpg",  
   "url": "https://dici.php80.acostaging.com/magazine/litterature/la-poiesie-dans-les-mots-de-isabelle-dumais"  
 },  
 { ...  
 },  
 { ...  
 },  
 { ...  
 },  
 { ...  
 },  
 { ...  
 },  
 { ...  
 }]
```

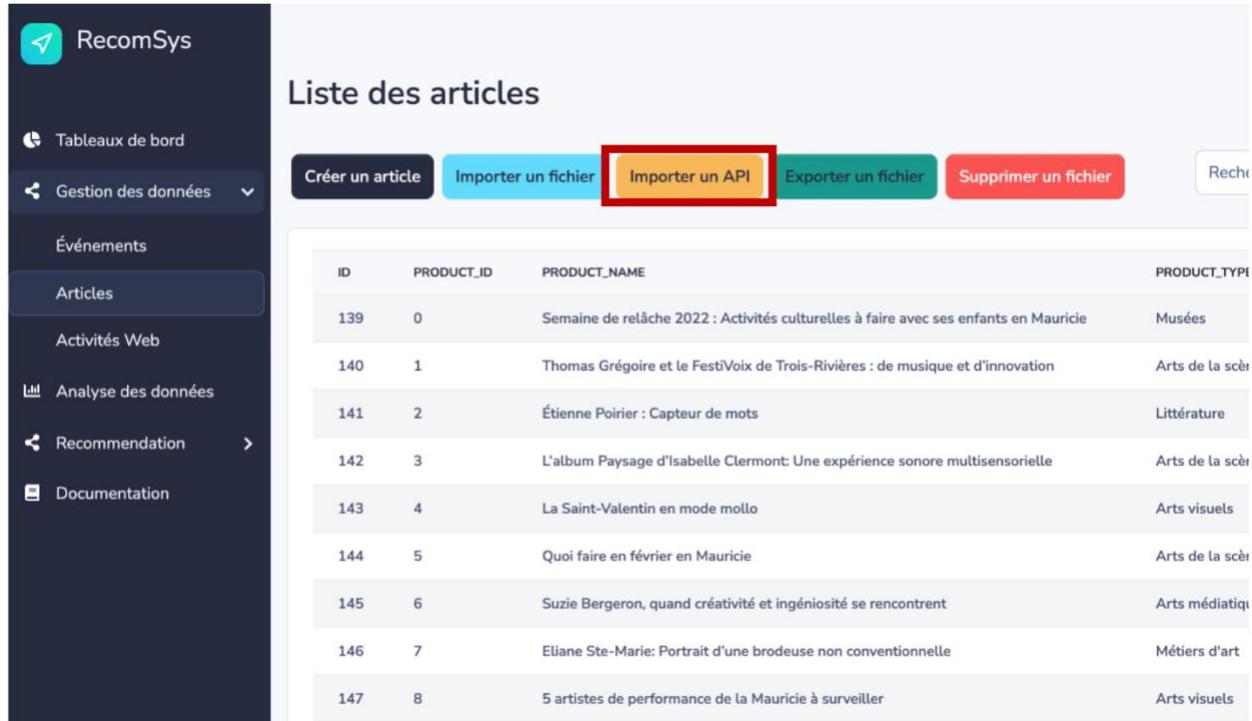
Figure 33. Default "Article" JSON file

2. Import data from API (Importer un API)

This function allows users to import a large amount of event data based on APIs provided by organization's data providers (Caligram, etc.).

*Note: APIs for articles that Culture Mauricie provided us is currently unavailable, so users can not perform this function. However, when there are available APIs, users can perform this functions by following these steps:

- Click the “Importer un API” button on the navbar.

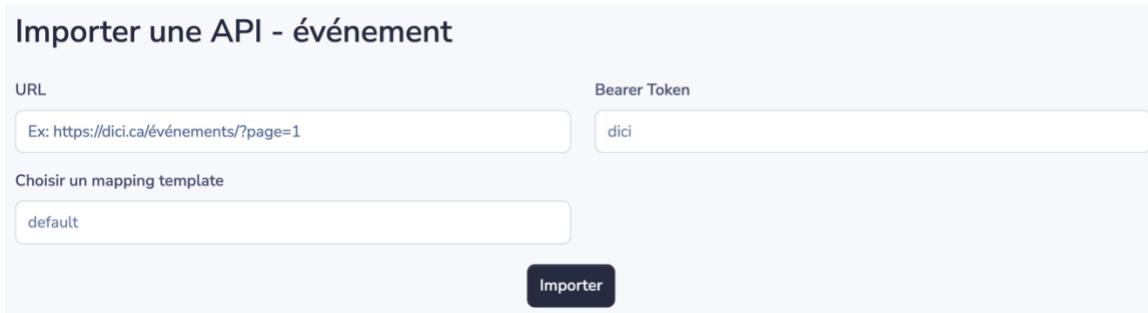


The screenshot shows the RecomSys application's main dashboard. On the left, there is a sidebar with navigation links: "Tableaux de bord", "Gestion des données" (with a dropdown arrow), "Événements", "Articles" (which is selected and highlighted in blue), "Activités Web", "Analyse des données", "Recommendation", and "Documentation". The main content area is titled "Liste des articles". At the top of this area, there are five buttons: "Créer un article", "Importer un fichier", "Importer un API" (which is highlighted with a red box), "Exporter un fichier", and "Supprimer un fichier". Below these buttons is a search bar labeled "Rechercher". The main part of the screen is a table titled "Liste des articles" with the following columns: ID, PRODUCT_ID, PRODUCT_NAME, and PRODUCT_TYPE. The table contains 14 rows of data, each representing an article entry. The data is as follows:

ID	PRODUCT_ID	PRODUCT_NAME	PRODUCT_TYPE
139	0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie	Musées
140	1	Thomas Grégoire et le FestiVoix de Trois-Rivières : de musique et d'innovation	Arts de la scène
141	2	Étienne Poirier : Capteur de mots	Littérature
142	3	L'album Paysage d'Isabelle Clermont: Une expérience sonore multisensorielle	Arts de la scène
143	4	La Saint-Valentin en mode mollo	Arts visuels
144	5	Quoi faire en février en Mauricie	Arts de la scène
145	6	Suzie Bergeron, quand créativité et ingéniosité se rencontrent	Arts médiatiques
146	7	Eliane Ste-Marie: Portrait d'une brodeuse non conventionnelle	Métiers d'art
147	8	5 artistes de performance de la Mauricie à surveiller	Arts visuels

Figure 34. "Importer un API" button

- Enter an API url that data providers have given you (<https://dici.php80.acostaging.com/wp-json/aco/v1/articles>) in the URL section.



The screenshot shows the "Importer une API - événement" interface. It has two main input fields: "URL" and "Bearer Token". The "URL" field contains the placeholder "Ex: https://dici.ca/événements/?page=1". The "Bearer Token" field contains the value "dici". Below these fields is a section titled "Choisir un mapping template" which contains a dropdown menu with the option "default". At the bottom of the interface is a large "Importer" button.

Figure 35. Interface of "Importer un API"

- Enter a bearerToken (a keyword used for request authentication that data providers has given you).

- Select a mapping template (which assists to match data structure between a uploaded file and system data models) in the “Choisir un mapping template” section. By default, click “default”.
 - Click the “Importer” button. If there is a data duplication (duplication in article_id) or the data structure in the uploaded file does not match the mapping template, there would be an error message displayed on the interface and users need to check that error.
3. Import data by manually inputting (Créer une article):
- When the amount of imported data is not too much or there is not any available APIs/json files, the system allows users to create each article and add its information (article name, article id, etc.). To perform this function, users follow these steps:
- Click the “Créer un article” button, which is located in the navbar.

ID	PRODUCT_ID	PRODUCT_NAME	PRODUCT_TYPE
139	0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie	Musées
140	1	Thomas Grégoire et le FestiVoix de Trois-Rivières : de musique et d'innovation	Arts de la scène
141	2	Étienne Poirier : Capteur de mots	Littérature
142	3	L'album Paysage d'Isabelle Clermont: Une expérience sonore multisensorielle	Arts de la scène
143	4	La Saint-Valentin en mode mollo	Arts visuels
144	5	Quoi faire en février en Mauricie	Arts de la scène
145	6	Suzie Bergeron, quand créativité et ingéniosité se rencontrent	Arts médiatiques
146	7	Eliane Ste-Marie: Portrait d'une brodeuse non conventionnelle	Métiers d'art
147	8	5 artistes de performance de la Mauricie à surveiller	Arts visuels

Figure 36. "Créer un article" button

- Fill in information fields. There are some unskippable fields that users are obliged to fill in (including: article_id, article_name, article_type, article_img, article_url).

Form

EVENT

product_id

product_name

product_type

product_price

price_type

slug

img

url

status

description

+ Ajouter PROPRIETOR

Enregistrer

Figure 37. Information form for new article

- When users click the “Ajouter” button, it allow users to add more information for a specified field (for example, when users click the "Ajouter proprietor" button, users can add artists/authors for this article).

Form

EVENT

product_id	product_name
product_type	product_price
price_type	slug
img	url
status	description

+ Ajouter PROPRIETOR

Enregistrer

Figure 38. "Ajouter" and "Enregistrer" button

- Click the “Enregistrer” button at the bottom page to store new event.
4. Edit/delete an article:

This function allows users to edit or delete an imported data. To perform this function, users follow these steps:

- Click the “ID” section that belongs to a data row in the table.

Liste des articles

Créer un article	Importer un fichier	Importer un API	Exporter un fichier	Supprimer un fichier	Recherche de mots clés
ID	PRODUCT_ID	PRODUCT_NAME	PRODUCT_TYPE	URL	
139	0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie	Musées	https://dici.ca/maga...	
140	1	Thomas Grégoire et le FestiVoix de Trois-Rivières : de musique et d'innovation	Arts de la scène	https://dici.ca/maga...	
141	2	Étienne Poirier : Capteur de mots	Littérature	https://dici.ca/maga...	
142	3	L'album Paysage d'Isabelle Clermont: Une expérience sonore multisensorielle	Arts de la scène	https://dici.ca/maga...	
143	4	La Saint-Valentin en mode mollo	Arts visuels	https://dici.ca/maga...	

Figure 39. Article ID column

- The interface would switch to the “Update” page, users modify article information.

ARTICLE	
product_id	product_name
0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie
product_type	product_price
Musées	
price_type	slug
	semaine-de-relache-2022-activites-culturelles-a-faire-avec-ses-enfants
img	url
https://dici.ca/app/uploads/2022/02/enfants-dans-la-neige-dici-660x396.	https://dici.ca/magazine/musees/semaine-de-relache-activites-culturelles
status	description
	<p><p class="c-HeaderPage__text--details -date">22 février 2022</p><p class="c-HeaderPage__text--details -below"></p> <p>Par Caroline Ruest</p> <p></p><p>Quand vient la relâche scolaire, certains parents se mettent une pression énorme dans le seul but de combler leurs minis; d'autres</p>

Figure 40. Update une article

- Click the “Mettre à jour” button to update.
 - Or, click the “Supprimer” button to delete.
5. Delete multiple data (Supprimer un fichier)

This function allows users to delete automatically a large amount of data imported from a json file or an API, instead of deleting each event. Every time users import data from a json file/an API, the system would keep track information of that json file/API and its data. To perform this function, users follow these steps:

- Click the “Supprimer un fichier” button on the navbar.

Liste des articles					
Créer un article		Importer un fichier	Importer un API	Exporter un fichier	Supprimer un fichier
ID	PRODUCT_ID	PRODUCT_NAME		PRODUCT_TYPE	URL
139	0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie		Musées	https://dici.ca/magazine/musees/semaine-de-relache-activites-culturelles
140	1	Thomas Grégoire et le FestiVoix de Trois-Rivières : de musique et d'innovation		Arts de la scène	https://dici.ca/magazine/arts-scene/thomas-gregoire-et-le-festiwoix-de-trois-rivieres-de-musique-et-dinnovation
141	2	Étienne Poirier : Capteur de mots		Littérature	https://dici.ca/magazine/litterature/etienne-poirier-capteur-de-mots
142	3	L'album Paysage d'Isabelle Clermont: Une expérience sonore multisensorielle		Arts de la scène	https://dici.ca/magazine/arts-scene/lalbum-paysage-disabelle-clermontune-experience-sonore-multisensorielle

Figure 41. "Supprimer un fichier" button

- The interface would display an information table, which includes: date and time when a json file/API was imported.
- Users define which json file/API they want to delete, then, click the “Afficher ce fichier” button.

Historique des importations de fichier/API - article

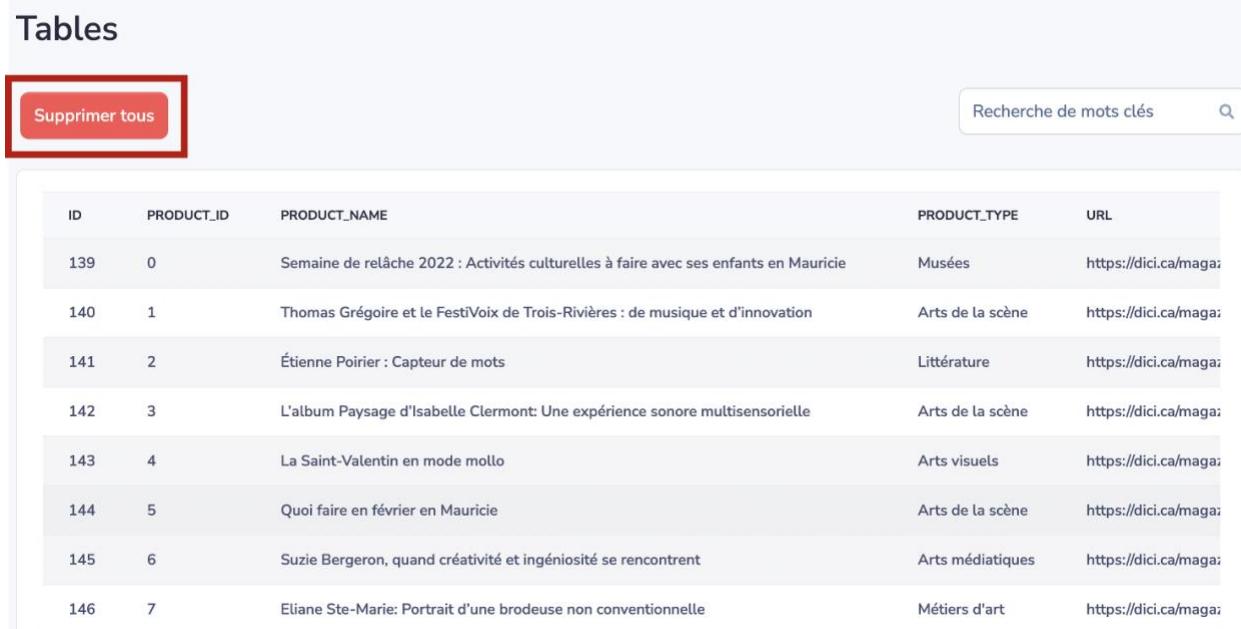


A screenshot of a web application interface titled "Historique des importations de fichier/API - article". At the top right is a search bar labeled "Recherche de mots clés" with a magnifying glass icon. Below the title is a table with three columns: "ID", "TABLE_NAME", and "CREATED_AT". A single row is shown with ID 15, TABLE_NAME "products", and CREATED_AT "2022-03-10T14:22:18.286882Z". To the right of this row is a dark blue button labeled "Afficher ce fichier", which is enclosed in a red rectangular box. At the bottom left is a dropdown menu "Afficher 20 objets" with a downward arrow. In the center is a page number "1" with "Précédent" on the left and "Suivant" on the right.

ID	TABLE_NAME	CREATED_AT
15	products	2022-03-10T14:22:18.286882Z

Figure 42. Interface of "Supprimer un fichier"

- Click the “Supprimer tous” for deleting all imported data.



A screenshot of a web application interface titled "Tables". At the top right is a search bar labeled "Recherche de mots clés" with a magnifying glass icon. On the left, there is a red rectangular button labeled "Supprimer tous". Below the button is a table with six columns: "ID", "PRODUCT_ID", "PRODUCT_NAME", "PRODUCT_TYPE", and "URL". There are eight rows of data, each representing a different product. The first row shows "139", "0", "Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie", "Musées", and a URL starting with "https://dici.ca/maga...". The last row shows "146", "7", "Eliane Ste-Marie: Portrait d'une brodeuse non conventionnelle", "Métiers d'art", and a URL starting with "https://dici.ca/maga...".

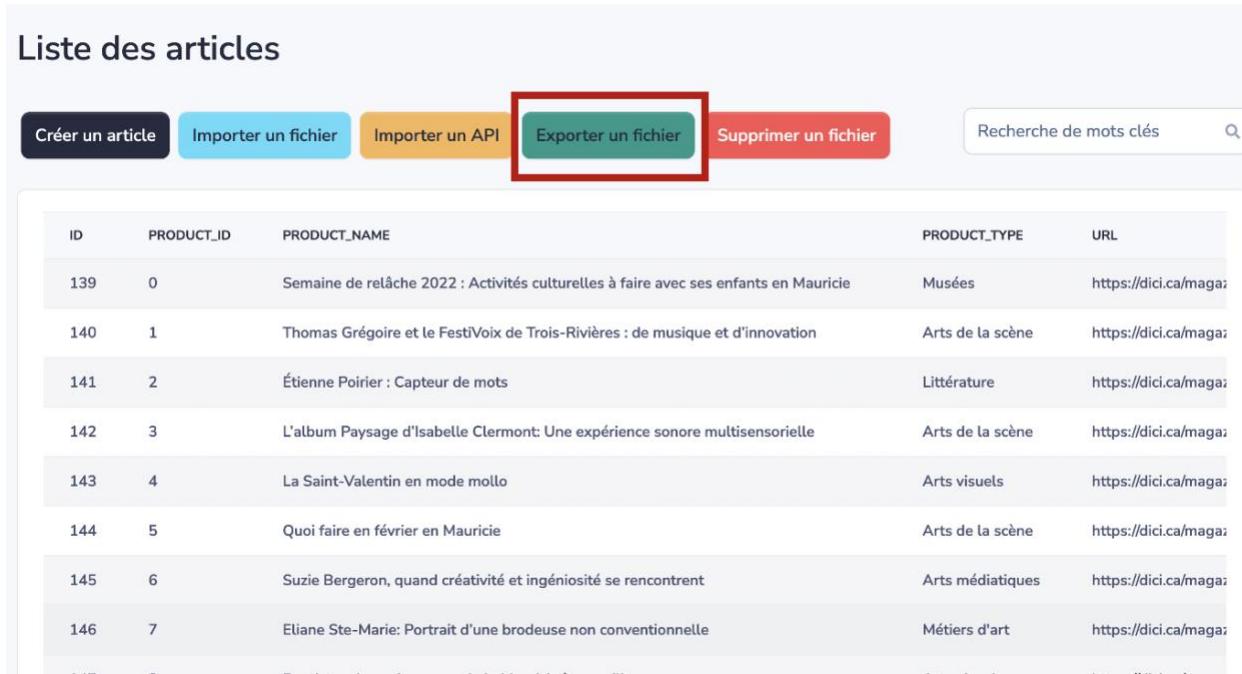
ID	PRODUCT_ID	PRODUCT_NAME	PRODUCT_TYPE	URL
139	0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie	Musées	https://dici.ca/maga...
140	1	Thomas Grégoire et le FestiVoix de Trois-Rivières : de musique et d'innovation	Arts de la scène	https://dici.ca/maga...
141	2	Étienne Poirier : Capteur de mots	Littérature	https://dici.ca/maga...
142	3	L'album Paysage d'Isabelle Clermont: Une expérience sonore multisensorielle	Arts de la scène	https://dici.ca/maga...
143	4	La Saint-Valentin en mode mollo	Arts visuels	https://dici.ca/maga...
144	5	Quoi faire en février en Mauricie	Arts de la scène	https://dici.ca/maga...
145	6	Suzie Bergeron, quand créativité et ingéniosité se rencontrent	Arts médiatiques	https://dici.ca/maga...
146	7	Eliane Ste-Marie: Portrait d'une brodeuse non conventionnelle	Métiers d'art	https://dici.ca/maga...

Figure 43. "Supprimer tous" button

- Export article (Exporter un fichier) :

This function allows users to export imported data into a CSV file and to automatically download this file to your local computer. To perform this function, users follow these steps:

- Click the “Exporter un fichier” button, which is located on the navbar.



The screenshot shows a web application interface titled "Liste des articles". At the top, there is a navigation bar with several buttons: "Créer un article" (black), "Importer un fichier" (light blue), "Importer un API" (orange), "Exporter un fichier" (green, highlighted with a red box), and "Supprimer un fichier" (red). To the right of the buttons is a search bar labeled "Recherche de mots clés" with a magnifying glass icon. Below the navigation bar is a table with the following data:

ID	PRODUCT_ID	PRODUCT_NAME	PRODUCT_TYPE	URL
139	0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie	Musées	https://dici.ca/maga...
140	1	Thomas Grégoire et le FestiVoix de Trois-Rivières : de musique et d'innovation	Arts de la scène	https://dici.ca/maga...
141	2	Étienne Poirier : Capteur de mots	Littérature	https://dici.ca/maga...
142	3	L'album Paysage d'Isabelle Clermont: Une expérience sonore multisensorielle	Arts de la scène	https://dici.ca/maga...
143	4	La Saint-Valentin en mode mollo	Arts visuels	https://dici.ca/maga...
144	5	Quoi faire en février en Mauricie	Arts de la scène	https://dici.ca/maga...
145	6	Suzie Bergeron, quand créativité et ingéniosité se rencontrent	Arts médiatiques	https://dici.ca/maga...
146	7	Eliane Ste-Marie: Portrait d'une brodeuse non conventionnelle	Métiers d'art	https://dici.ca/maga...
...

Figure 44. "Exporter un fichier" button

2.4.3. Web activity management (subitem Activités Web)

The figure above presents the interface of Web Activity management, with a table of imported data and some function buttons:

- Import data from JSON File
- Import data from API
- Export data as CSV File
- Delete an imported file
- Import data from Google Analytics

ID	SESSION_ID	VISIT_DATE	EVENT_NAME	PAGE_TITLE	PAGE_LOCATION
5401	1645637556	2022-01-01	user_engagement		https://dici.ca/magazine/arts-visuel
5402	1645636042	2022-01-01	session_start		https://dici.ca/evenements/michel-l
5403	1645637204	2022-01-01	session_start		https://dici.ca/evenements/olivier-r
5404	1645637421	2022-01-01	page_view		https://dici.ca/magazine/arts-visuel
5405	1645636826	2022-01-01	user_engagement		https://dici.ca/evenements/arnaud-
5406	1645637712	2022-01-01	page_view		https://dici.ca/evenements/roch-vo
5407	1645637118	2022-01-01	page_view		https://dici.ca/magazine/arts-média
5408	1645637181	2022-01-01	scroll		https://dici.ca/magazine/arts-visuel
5409	1645636288	2022-01-01	page_view		https://dici.ca/evenements/gijs-van
5410	1645635985	2022-01-01	page_view		https://dici.ca/magazine/arts-visuel

Figure 45. Interface of Web Activities

1. Import data from JSON File (Importer un fichier) :

This function allows users to import a large amount of article data into the system by uploading a data file with extension .json. To perform this function, users follow these steps:

- Click the “Importer un fichier” button on the navbar.

ID	SESSION_ID	VISIT_DATE	EVENT_NAME	PAGE_TITLE	PAGE_LOCATION
5401	1645637556	2022-01-01	user_engagement		https://dici.ca/magazine/arts-visuel
5402	1645636042	2022-01-01	session_start		https://dici.ca/evenements/michel-l
5403	1645637204	2022-01-01	session_start		https://dici.ca/evenements/olivier-r

Figure 46. "Importer un fichier" button

- Click the “Télécharger un fichier” section.

- Upload a json file.



Figure 47. Interface of "Importer un fichier"

- Select a mapping template (which assists to match data structure between a uploaded file and system data models) in the “Choisir un mapping template” section. We have defined a “default” mapping template for “Web Activity”.
- Click the “Importer” button. If there is a data duplication or the data structure in the uploaded file does not match the mapping template, there would be an error message displayed on the interface and users need to check that error.

*Note: When the structure of uploaded json file changes, users need to notify us to update/create a mapping template. By default, when users choose “Default” mapping template, the uploaded json file must be follow the format below:

```

[{"event_date": "20220101",
 "event_timestamp": "1641066871",
 "event_name": "user_engagement",
 "event_params": [
   {"key": "ga_session_id",
    "value": {
      "string_value": null,
      "int_value": "1645637556",
      "float_value": null,
      "double_value": null
    }
  },
   {"key": "page_location",
    "value": {
      "string_value": "https://dici.ca/magazine/arts-visuels/catherine-bard-quand-l-illustration-et-la-nature-se-rencontrent",
      "int_value": null,
      "float_value": null,
      "double_value": null
    }
  }
 ],
 "user_id": "97",
 "device": {
   "category": "tablet",
   "mobile_brand_name": "LG",
   "mobile_model_name": "Galaxy",
   "operating_system": "Macintosh",
   "web_info": {
     "browser": "Safari"
   }
 },
 "geo": [
   {"continent": "Europe",
    "country": "France",
    "region": "",
    "city": "Lyon"
  }
 ],
 "traffic_source": {
   "name": "Youtube"
 }
}
]

```

Figure 48. Default "Web activities" JSON file

2. Import data from API (Importer un API)

This function allows users to import a large amount of web activity data based on APIs provided by orginazation's data providers (Caligram, etc.).

*Note: APIs for web activities is currently not provided by Culture Mauricie, so users can not perform this function. However, when there are available APIs, users can perform this functions by following these steps:

- Click the “Importer un API” button on the navbar.

The screenshot shows the RecomSys application interface. On the left, there's a sidebar with navigation links: Tableaux de bord, Gestion des données (selected), Événements, Articles, Activités Web (selected), Analyse des données, Recommendation, and Documentation. The main area is titled "Liste des activités". At the top, there are several buttons: Importer un fichier (blue), Importer un API (orange, highlighted with a red box), Importer GA (dark blue), Exporter un fichier (green), and Supprimer un fichier (red). Below these buttons is a table with 10 rows of data. The columns are: ID, SESSION_ID, VISIT_DATE, EVENT_NAME, PAGE_TITLE, and PAGE_LOCATION. The data rows show various user interactions like 'user_engagement' and 'page_view' on different URLs.

ID	SESSION_ID	VISIT_DATE	EVENT_NAME	PAGE_TITLE	PAGE_LOCATION
5401	1645637556	2022-01-01	user_engagement		https://dici.ca/magazine/arts-visuel
5402	1645636042	2022-01-01	session_start		https://dici.ca/evenements/michel-l
5403	1645637204	2022-01-01	session_start		https://dici.ca/evenements/olivier-r
5404	1645637421	2022-01-01	page_view		https://dici.ca/magazine/arts-visuel
5405	1645636826	2022-01-01	user_engagement		https://dici.ca/evenements/arnaud-
5406	1645637712	2022-01-01	page_view		https://dici.ca/evenements/roch-vo
5407	1645637118	2022-01-01	page_view		https://dici.ca/magazine/arts-média
5408	1645637181	2022-01-01	scroll		https://dici.ca/magazine/arts-visuel
5409	1645636288	2022-01-01	page_view		https://dici.ca/evenements/gijs-van
5410	1645635985	2022-01-01	page_view		https://dici.ca/magazine/arts-visuel

Figure 49. "Importer un API" button

- Enter an API url that data providers have given you in the URL section.

The screenshot shows the "Importer une API - activité" interface. It has two input fields: "URL" (with placeholder "Ex: https://dici.ca/événements/?page=1") and "Bearer Token" (with placeholder "Ex: trx4rtemn89"). Below these fields is a section titled "Choisir un mapping template" with a dropdown menu labeled "Dérouler ce menu de sélection". At the bottom right is a large "Importer" button.

Figure 50. Interface of "Importer un API"

- Enter a bearerToken (a keyword used for request authentication that data providers have given you).
- Select a mapping template (which assists to match data structure between a uploaded file and system data models) in the "Choisir un mapping template" section. By default, click "default".

- Click the “Importer” button. If there is a data duplication (duplication in event_id) or the data structure in the uploaded file does not match the mapping template, there would be an error message displayed on the interface and users need to check that error.
3. Delete multiple data (Supprimer un fichier)

This function allows users to delete automatically a large amount of data imported from a json file or an API. Every time users import data from a json file/an API, the system would keep track information of that json file/API and its data. To perform this function, users follow these steps:

- Click the “Supprimer un fichier” button on the navbar.

ID	SESSION_ID	VISIT_DATE	EVENT_NAME	PAGE_TITLE	PAGE_LOCATION
5401	1645637556	2022-01-01	user_engagement		https://dici.ca/magazine/arts-visuel
5402	1645636042	2022-01-01	session_start		https://dici.ca/evenements/michel-l
5403	1645637204	2022-01-01	session_start		https://dici.ca/evenements/olivier-r
5404	1645637421	2022-01-01	page_view		https://dici.ca/magazine/arts-visuel
5405	1645636826	2022-01-01	user_engagement		https://dici.ca/evenements/arnaud-d
5406	1645637712	2022-01-01	page_view		https://dici.ca/evenements/roch-v
5407	1645637118	2022-01-01	page_view		https://dici.ca/magazine/arts-medias
5408	1645637181	2022-01-01	scroll		https://dici.ca/magazine/arts-visuel
5409	1645636288	2022-01-01	page_view		https://dici.ca/evenements/gijs-van
5410	1645635985	2022-01-01	page_view		https://dici.ca/magazine/arts-visuel

Figure 51. "Supprimer un fichier" button

- The interface would display an information table, which includes: date and time when a json file/API was imported.
- Users define which json file/API they want to delete, then, click the “Afficher ce fichier” button.

Historique des importations de fichier/API - activité

The screenshot shows a table with one row of data. The columns are labeled 'ID', 'TABLE_NAME', and 'CREATED_AT'. The data row contains '16', 'interaction_f', and '2022-03-10T14:22:48.271772Z'. To the right of the table is a dark blue button with white text that says 'Afficher ce fichier'. This button is highlighted with a red rectangular box.

ID	TABLE_NAME	CREATED_AT
16	interaction_f	2022-03-10T14:22:48.271772Z

Afficher 20 objets ▾ Précédent 1 Suivant

Figure 52. Interface of "Supprimer un fichier"

- Click the “Supprimer tous” for deleting all imported data.

The screenshot shows a table with multiple rows of data. The columns are labeled 'ID', 'SESSION_ID', 'VISIT_DATE', 'EVENT_NAME', 'PAGE_TITLE', and 'PAGE_LOCATION'. The data includes various user interactions like 'user_engagement' and 'page_view' on different pages. At the top left of the table area is a red rectangular button labeled 'Supprimer tous', which is also highlighted with a red box. At the top right is a search bar with placeholder text 'Recherche de mots clés' and a magnifying glass icon.

ID	SESSION_ID	VISIT_DATE	EVENT_NAME	PAGE_TITLE	PAGE_LOCATION
5401	1645637556	2022-01-01	user_engagement		https://dici.ca/magazine/arts-visuels/catherine-bard-quand-l-illustration-
5402	1645636042	2022-01-01	session_start		https://dici.ca/evenements/michel-barrette-l-humour-de-ma-vie-4
5403	1645637204	2022-01-01	session_start		https://dici.ca/evenements/olivier-martineau-au-theatre-du-cegep-de-tr
5404	1645637421	2022-01-01	page_view		https://dici.ca/magazine/arts-visuels/5-artistes-de-performance-de-la-n
5405	1645636826	2022-01-01	user_engagement		https://dici.ca/evenements/arnaud-soly-stand-up-4
5406	1645637712	2022-01-01	page_view		https://dici.ca/evenements/roch-voisine-americana-10-ans
5407	1645637118	2022-01-01	page_view		https://dici.ca/magazine/arts-mediatiques/suzie-bergeron-quand-la-crea
5408	1645637181	2022-01-01	scroll		https://dici.ca/magazine/arts-visuels/quoi-faire-en-novembre-en-maurici

Figure 53. "Supprimer tous" button

4. Export web-activities (Exporter un fichier) :

This function allows users to export imported data into a CSV file and to automatically download this file to your local computer. To perform this function, users follow these steps:

- Click the “Exporter un fichier” button, which is located on the navbar.

Liste des activités					
Importer un fichier		Importer un API		Importer GA	
				Exporter un fichier	
ID	SESSION_ID	VISIT_DATE	EVENT_NAME	PAGE_TITLE	PAGE_LOCATION
5401	1645637556	2022-01-01	user_engagement		https://dici.ca/magazine/arts-visuels/catherine-bard-quand-l-illustration-
5402	1645636042	2022-01-01	session_start		https://dici.ca/evenements/michel-barrette-l-humour-de-ma-vie-4
5403	1645637204	2022-01-01	session_start		https://dici.ca/evenements/olivier-martineau-au-theatre-du-cegep-de-tr
5404	1645637421	2022-01-01	page_view		https://dici.ca/magazine/arts-visuels/5-artistes-de-performance-de-la-n
5405	1645636826	2022-01-01	user_engagement		https://dici.ca/evenements/arnaud-soly-stand-up-4
5406	1645637712	2022-01-01	page_view		https://dici.ca/evenements/roch-voisine-americana-10-ans
5407	1645637118	2022-01-01	page_view		https://dici.ca/magazine/arts-mediatisques/suzie-bergeron-quand-la-cre
5408	1645637404	2022-01-01	...		

Figure 54. "Exporter un fichier" button

5. Import data from Google Analytics (Importer GA)

Google Analytics is a web analytics service that tracks and reports website traffic by embedding tracking cod into websites. Synchronize data with Google Analytics allows usrs to query reports that Google Analytics has collected from visitors of your website. Thes reports provide important information about the number of visitors' web activities by day, by page location, by activity types, by country, by device, etc. These information, especiaill the number of visitors for a specified page location, is really essential for recommendation, because it allows to find most popular events/pages that most of visitors viewed.

Import data from Google Analytics means that you import all Google Anlytics reports about your website into the recommendation system. It requires your website to be linked with Google Analytics (it means that your website has been embedded tracking codes and there have been available reports in your organization's Google Analytics account). Furthrmore, for the recommendation system to be able to query tracked data from Google Analytics, your organization needs to create a Google Analytics Servie Account and then, enabling Google Analytics API. Google Analytics API is a function that allows Service Accounts to query data through APOs (without through the Google Analytics user interface). You need to save the created Service Account information, which includes: the

version of Google Analytics (GA4 or UA), the view_id/property_id (view/property) is a place in an Google Analytics account where you can view reports of a specified website) and the json key file (Google Analytics uses this file for API authentication when the recommendation system connects to GA for querying data).

5.1. Create Service Account and Enable Google Analytics APIs

The following section shows users how to create a Google Analytics Service Account and to enable the Google Analytics API:

- Open the Service Accounts page (<https://console.developers.google.com/iam-admin/serviceaccounts>). If prompted, select a Google Analytics project (the project that integrates with your website).

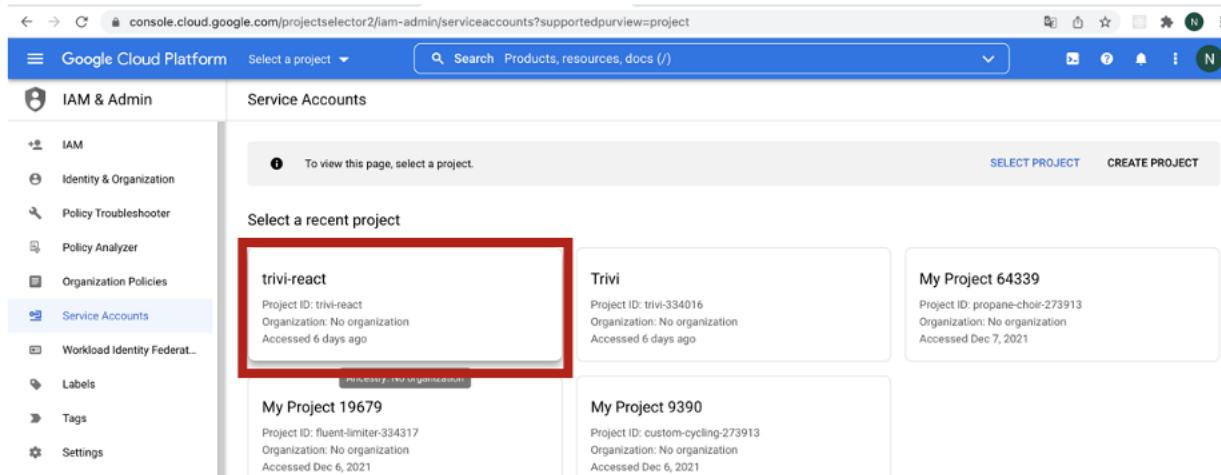


Figure 55. Interface of Service Account page

- Click add “Create Service Account” tab.

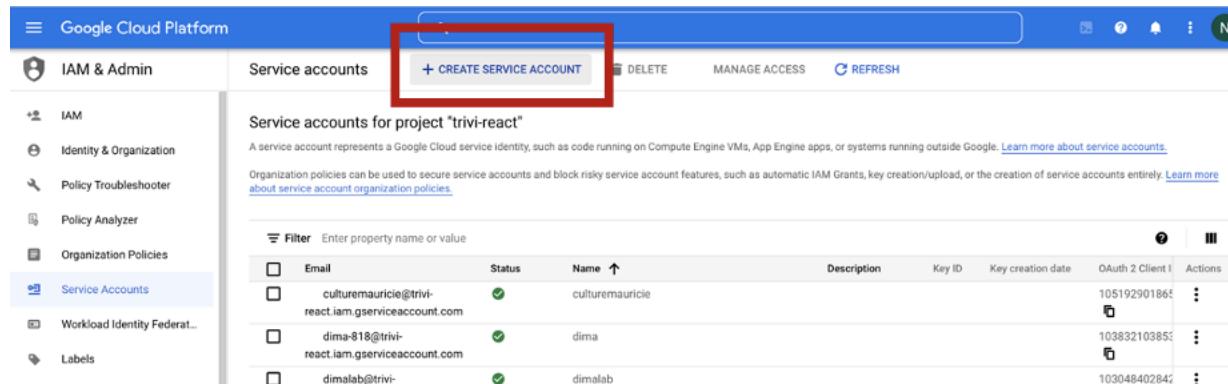


Figure 56. "Create service account" button

- Enter a name and description for the service account. You can use the default service account ID, or choose a different, unique one.

1 Service account details

Service account name	trivi
Display name for this service account	
Service account ID *	trivi-67 @trivi-react.iam.gserviceaccount.com X C
Service account description	
Describe what this service account will do	
CREATE AND CONTINUE	

**2 Grant this service account access to project
(optional)**

3 Grant users access to this service account (optional)

DONE **CANCEL**

Figure 57. Information for new service account

- Next, at the step 2 on the screen “Grant this service account access to project”, you choose the role “Viewer”. Then, click continue.

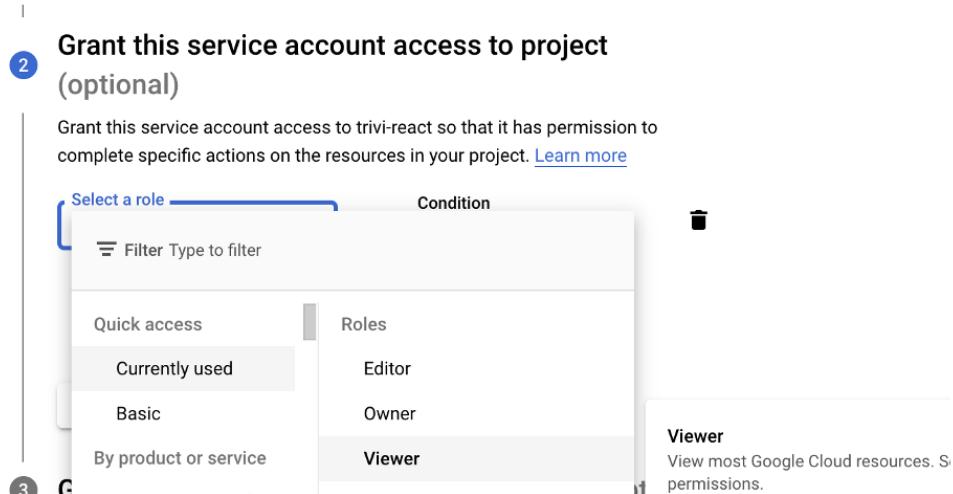


Figure 58. Account permission

- Next, skip the step 3 on the screen and then click “Done” to finish creating new Service Account.

3 Grant users access to this service account (optional)

Grant access to users or groups that need to perform actions as this service account. [Learn more](#)

Service account users role



Grant users the permissions to deploy jobs and VMs with this service account

Service account admins role



Grant users the permission to administer this service account

DONE

CANCEL

Figure 59. Insert user access to service account

- Now, you would be returned to the Main Panel. It would should you email information of the new account. Please keep this email since you would use it for next steps.

Service accounts		+ CREATE SERVICE ACCOUNT	DELETE	MANAGE ACCESS	REFRESH
Service accounts for project "trivi-react"					
A service account represents a Google Cloud service identity, such as code running on Compute Engine VMs, App Engine apps, or systems running outside Google. Learn more about service accounts .					
Organization policies can be used to secure service accounts and block risky service account features, such as automatic IAM Grants, key creation/upload, or the creation of service accounts entirely. Learn more about service account organization policies .					
Filter	Enter property name or value	Status	Name ↑	Description	Action
<input type="checkbox"/>	Email		culturemauricie	038593a2ad57a0d74146786e202bb4fd6ef3c8c	
<input type="checkbox"/>	culturemauricie@trivi-react.iam.gserviceaccount.com		dima	No keys	
<input type="checkbox"/>	dima@trivi-react.iam.gserviceaccount.com		dimalab	c7f08fec370604902f3069643b7c212431ab38e	
<input type="checkbox"/>	firebase-measurement-system-gs@trivi-react.iam.gserviceaccount.com		firebase-measurement@system.gserviceaccount.com	GA4-BigQuery	No keys
<input type="checkbox"/>	recommendation@trivi-react.iam.gserviceaccount.com		recommendation	bc0bb52e38cccad825d4e2bd404635b9e53955	
<input type="checkbox"/>	trivi-67@trivi-react.iam.gserviceaccount.com		trivi	No keys	

Figure 60. List of service accounts

- Next, click the “Keys” tab, to create a new json key file. At the “ADD KEY” section, click the “Create new key” section.

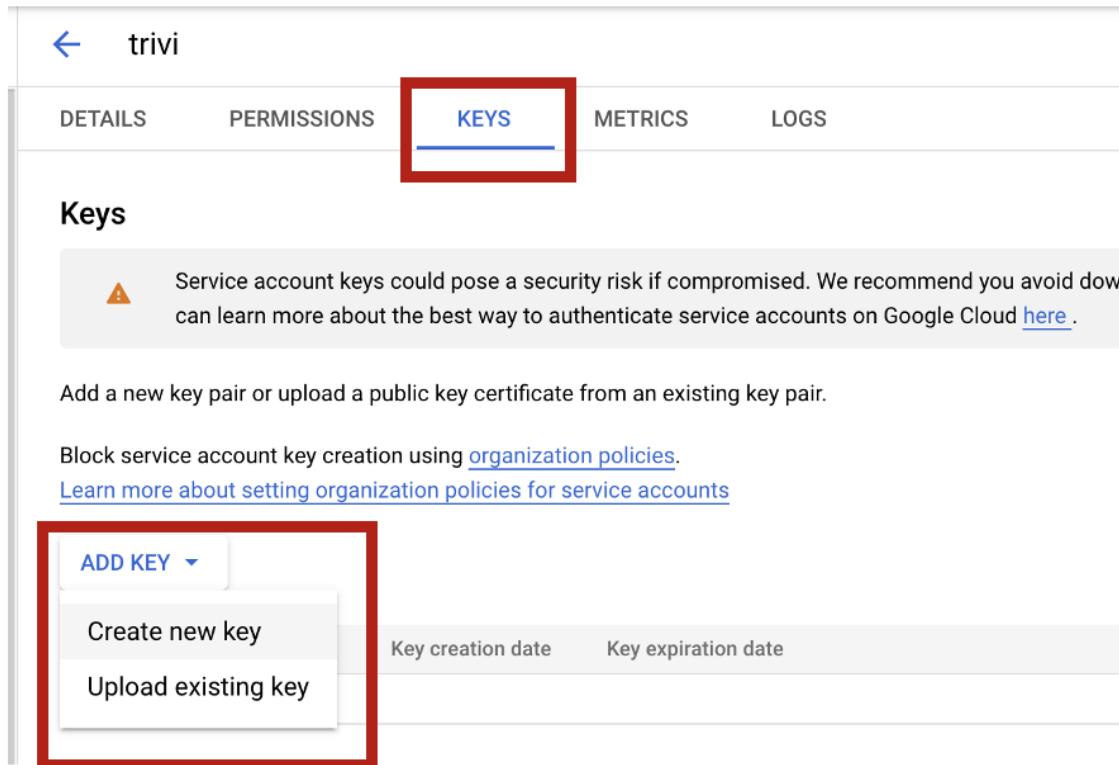


Figure 61. Create a json key file

- Next, a modal would be displayed on the screen, choose “JSON” for key file type and then click “Create”. A JSON key file would be then downloaded on your computer, please keep this file for next steps.

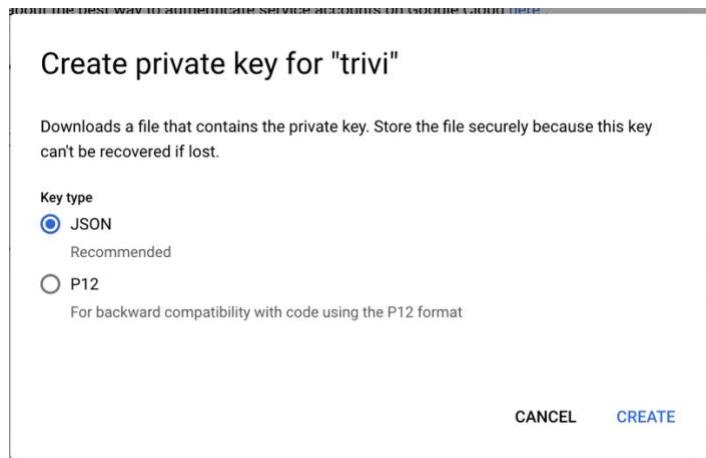


Figure 62. Choices of key file

- Next, on the search bar, enter “Google Analytics API”. Click the first result.

The screenshot shows a search results page for "Google Analytics API" on the Google Cloud Platform. On the left, there are filters for "Resource containers" (Organization, Folder, Project) and "Resource types" (App Engine Version, Backend bucket). The main area displays search results for "Google Analytics API", showing its description as providing access to Analytics configuration and report data, its type as API, and its producer as Google. A "TRY THIS API" button is visible at the bottom.

Figure 63. Search "Google Analytics API"

- Click the “Enable” button to allow data collection from Google Analytics through APIs.

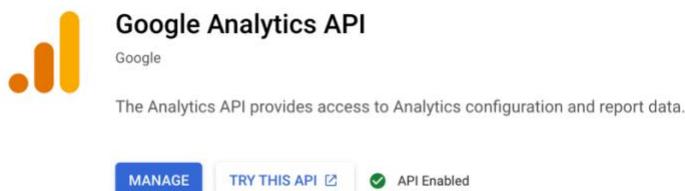


Figure 64. Enable Google Analytics API

- Next, you access to the url “<https://analytics.google.com/analytics/web>” and then, click on a Google Analytics project that integrated with your website.

The screenshot shows the Google Analytics interface with the "All" tab selected. At the top, there are tabs for "All", "Favorites", and "Recents", along with a search bar and a "Visit" button. Below this is a toolbar with icons for account management. The main area is titled "All accounts" and lists several Analytics Accounts and their associated Properties & Apps. The "Nguyen Chan Nam" account is currently selected. The listed items include:

Analytics Accounts	Properties & Apps
ab 215730209	dimalab UA-197084036-2
Default Account for Fi... 155410108	dimalab - GA4 305935779
Nguyen Chan Nam 197084036	Tracking 272467133
	Trivi UA-197084036-1
	trivi 297486846
	trivi-react 297457793

Figure 65. Interface of Google Analytics

- Then, click the “Admin” button at the left bottom page. If your Google Analytics project uses GA4 version, the screen would appear only 2 columns “Account” and “Property”. Otherwise, if your GA project uses UA version, the screen would appear 3 columns “Account”, “Property” and “View”.

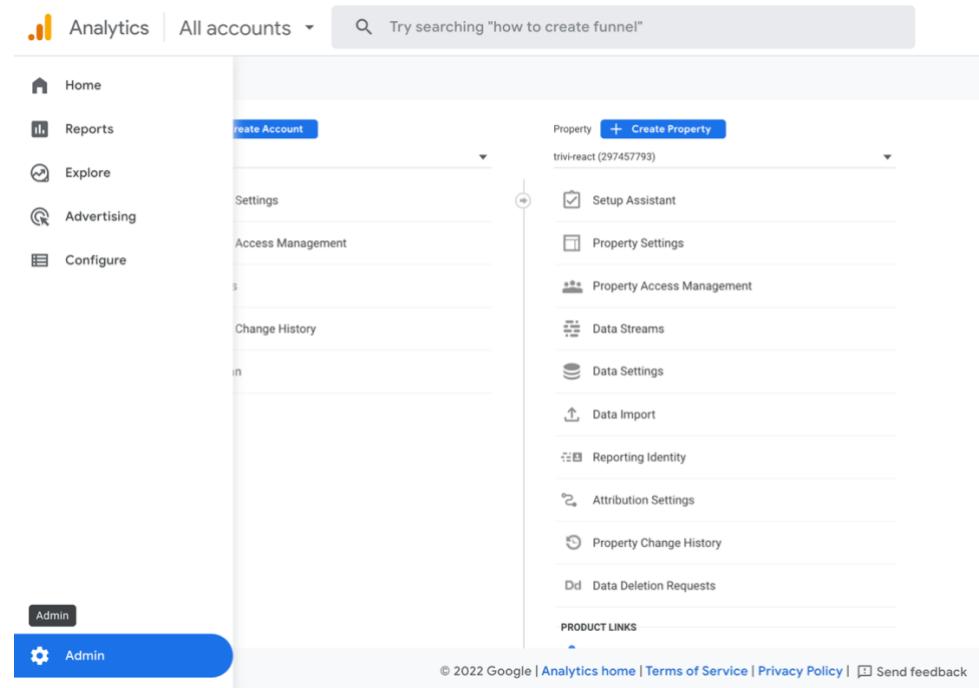


Figure 66. Google Analytics Admin Interface

- To get your GA project property ID/view ID, click the “Property settings” or “View settings” section, depending on your project version. The property ID or view ID appears on the right top page.

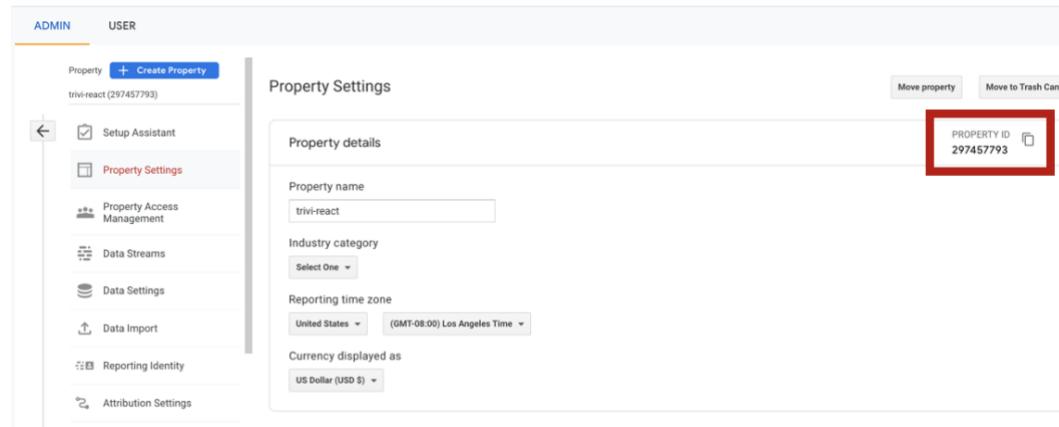
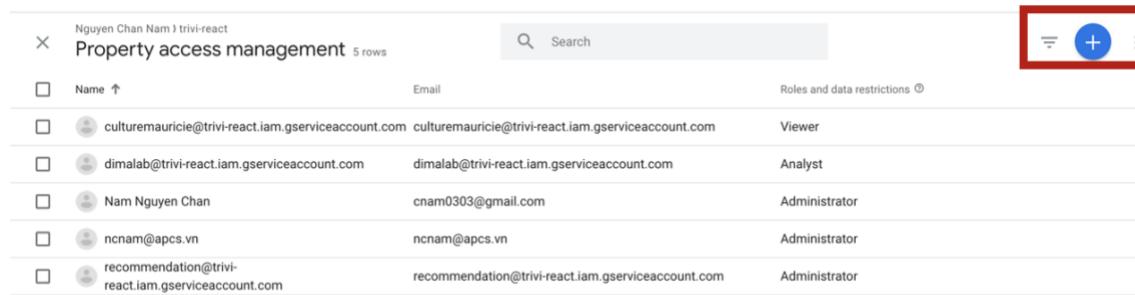


Figure 67. Property ID / View ID

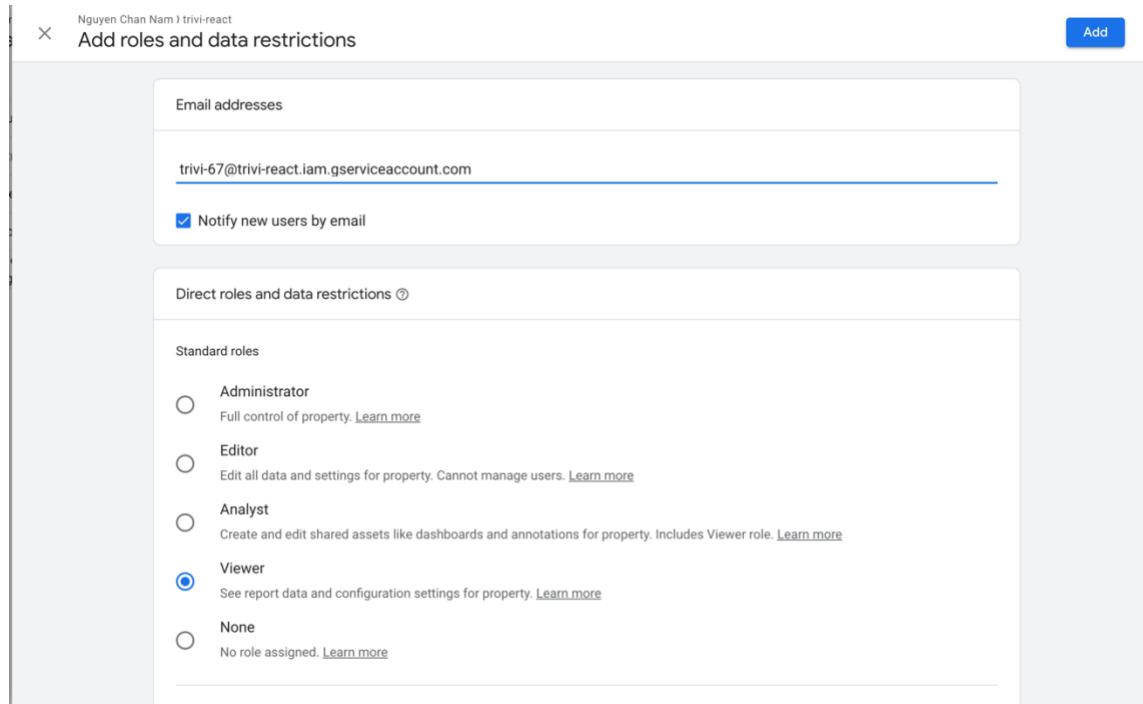
- Next, click the “Property Access Management” or “View Access Management” section on the “Property” or “View” column.
- Next, click the (+) button in order to add permissions for the created service account.



Property access management		
Name	Email	Roles and data restrictions
culturemauric@trivi-react.iam.gserviceaccount.com	culturemauric@trivi-react.iam.gserviceaccount.com	Viewer
dimalab@trivi-react.iam.gserviceaccount.com	dimalab@trivi-react.iam.gserviceaccount.com	Analyst
Nam Nguyen Chan	cnam0303@gmail.com	Administrator
ncnam@apcs.vn	ncnam@apcs.vn	Administrator
recommendation@trivi-react.iam.gserviceaccount.com	recommendation@trivi-react.iam.gserviceaccount.com	Administrator

Figure 68. Add service account to access to Property/View

- Then, let the service account email in the “email addresses” field. For the standard roles, select the “Viewer” role and then clicking “Add” button to finish.



Nguyen Chan Nam | trivi-react
Add roles and data restrictions

Email addresses

trivi-67@trivi-react.iam.gserviceaccount.com

Notify new users by email

Direct roles and data restrictions

Standard roles

- Administrator
- Editor
- Analyst
- Viewer
- None

Figure 69. Add permission for service account

This section has shown users how to create a Service Account to collect Google Analytics reports via APIs. All information about Google Analytics version, view ID or

property ID and json key file need to be saved carefully since users would use them for next functions.

5.2. Synchronize Google Analytics data:

To perform this function, users follows these steps:

- Click the “Gestion des données” and then “Activités Web” on the left side bar.

Liste des activités

ID	SESSION_ID	VISIT_DATE	EVENT_NAME	PAGE_LOCATION
10801	1645637556	2022-01-01	user_engagement	https://dici.ca/magazine/arts-visuels/catherine-bard-quand-l-illustration-et-la-nature-se-retrouvent
10802	1645636042	2022-01-01	session_start	https://dici.ca/evenements/michel-barrette-l-humour-de-ma-vie-4
10803	1645637204	2022-01-01	session_start	https://dici.ca/evenements/olivier-martineau-au-theatre-du-cegep-de-trois-rivieres-1
10804	1645637421	2022-01-01	page_view	https://dici.ca/magazine/arts-visuels/5-artistes-de-performance-de-la-mauricie-a-surveiller
10805	1645636826	2022-01-01	user_engagement	https://dici.ca/evenements/arnaud-soly-stand-up-4

Figure 70. Interface of "Web activitites" Management

- Click the “Importer GA” button on the navbar.

Liste des activités

ID	SESSION_ID	VISIT_DATE	EVENT_NAME	PAGE_TITLE	PAGE_LOCATION
5401	1645637556	2022-01-01	user_engagement		https://dici.ca/magazine/arts-visuels/catherine-bard-quand-l-illustration-et-la-nature-se-retrouvent
5402	1645636042	2022-01-01	session_start		https://dici.ca/evenements/michel-barrette-l-humour-de-ma-vie-4
5403	1645637204	2022-01-01	session_start		https://dici.ca/evenements/olivier-martineau-au-theatre-du-cegep-de-trois-rivieres-1
5404	1645637421	2022-01-01	page_view		https://dici.ca/magazine/arts-visuels/5-artistes-de-performance-de-la-mauricie-a-surveiller
5405	1645636826	2022-01-01	user_engagement		https://dici.ca/evenements/arnaud-soly-stand-up-4
5406	1645637712	2022-01-01	page_view		https://dici.ca/evenements/roch-voisine-americana-10-ans

Figure 71. "Importer GA" button

- Click the “Synchroniser GA” button.

Liste des Google Analytics rapports

Synchroniser GA	Exporter un fichier	Supprimer un fichier
-----------------	---------------------	----------------------

- Select the version of your Google Analytics project.

The screenshot shows a user interface for synchronizing Google Analytics data. It includes fields for selecting the Google Analytics version (Google Analytics 4), entering the view_id or profile_id (297457793), uploading a JSON key file (trivi-react-038593a2ad57.json), defining a date range (start date 10/03/2022, end date 10/03/2022), and a prominent "Synchroniser" button.

Figure 72. Interface of "Synchroniser des données Google Analytics"

- Enter the view_id/ property_id of your Google Analytics project.
- Upload the json key file.
- Define the period that you want to import Google Analytics data, by selecting a start date (Date de début) and an end date (Date de fin). The end date should be filled in with the latest date while the start date should be let as default.
- Click the “Synchronise” button.

5.3. Delete Google Analytics data (Supprimer un fichier)

This function allows users to delete automatically a large amount of data imported from Google Analytics. Every time users synchronize data from Google Analytics, the system would keep track information about synchronization date and synchronized data. To perform this function, users follow these steps:

- Click the “Supprimer un fichier” button on the navbar.

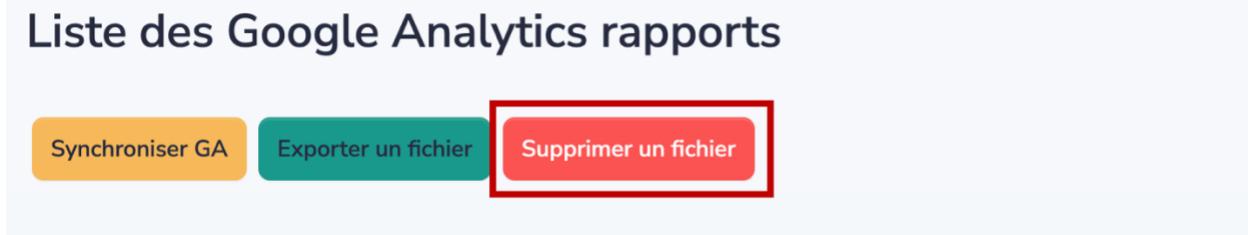


Figure 73. "Supprimer un fichier" button

- The interface would display an information table, which includes: date and time of synchronization.

- Users define which synchronized data they want to delete, then, click the “Afficher ce fichier” button.

The screenshot shows a table with columns: ID, TABLE_NAME, and CREATED_AT. The first row has ID 20, TABLE_NAME 'interaction_ga', and CREATED_AT '2022-03-16T02:53:55.756719Z'. To the right of the table is a dark blue button labeled 'Afficher ce fichier'. A red rectangular box highlights this button. At the bottom of the table area, there are navigation buttons: 'Afficher 20 objets' (dropdown), 'Précédent', '1', and 'Suivant'.

ID	TABLE_NAME	CREATED_AT
20	interaction_ga	2022-03-16T02:53:55.756719Z

Figure 74. Interface of "Supprimer un fichier"

- Click the “Supprimer tous” for deleting all synchronized data.

The screenshot shows a table with columns: ID, DATE, EVENT_NAME, PAGE_LOCATION, COUNTRY, BROWSER, DEVICE_CATEGORY, and OPERATING_SYSTEM. The table contains three rows with IDs 4849, 4850, and 4851, all from March 11, 2022. The 'Supprimer tous' button is located at the top left of the table area, above the search bar. Navigation buttons at the bottom include 'Afficher 20 objets' (dropdown), 'Précédent', '1', and 'Suivant'.

ID	DATE	EVENT_NAME	PAGE_LOCATION	COUNTRY	BROWSER	DEVICE_CATEGORY	OPERATING_SYSTEM
4849	2022-03-11	page_view	http://new.dimalab.ca/	Canada	Chrome	desktop	Macintosh
4850	2022-03-11	session_start	http://new.dimalab.ca/	Canada	Chrome	desktop	Macintosh
4851	2022-03-11	user_engagement	http://new.dimalab.ca/	Canada	Chrome	desktop	Macintosh

Figure 75. "Supprimer tous" button

5.4. Export Google Analytics data (Exporter un fichier) :

This function allows users to export synchronized data into a CSV file and to automatically download this file to your local computer. To perform this function, users follow these steps:

- Click the “Exporter un fichier” button, which is located on the navbar.

Liste des Google Analytics rapports							
Synchroniser GA		Exporter un fichier		Supprimer un fichier			
ID	DATE	EVENT_NAME	PAGE_LOCATION	COUNTRY	BROWSER	DEVICE_CATEGORY	OPERATING_SYSTEM
4849	2022-03-11	page_view	http://new.dimab.ca/	Canada	Chrome	desktop	Macintosh
4850	2022-03-11	session_start	http://new.dimab.ca/	Canada	Chrome	desktop	Macintosh
4851	2022-03-11	user_engagement	http://new.dimab.ca/	Canada	Chrome	desktop	Macintosh

Afficher 20 objets ▾ Précédent 1 Suivant

Figure 76. "Exporter un fichier" button

2.5 Data analytics (menu item “Analyse des données”)

This function allows users to keep track statistical reports on website visitors based on visitor indicators such as: device categories, operating systems, browsers, web-activity types, etc. Users can select the report period (the start date and the end date of reports), as well as the report type (daily, weekly, monthly, etc.). To perform this function, users:

- Click the “Analyse des données” section, which is located on the left side bar.
- Select start date, end date and type of reports.
- Click the “Générer un rapport” button.

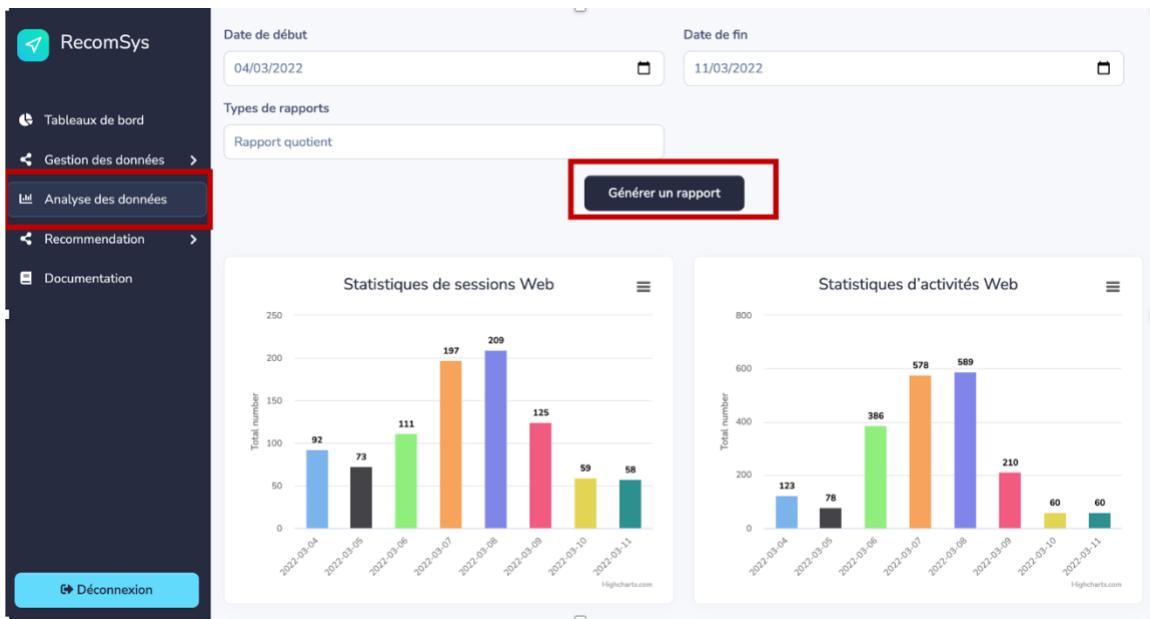


Figure 77. Interface of Data Analysis

- For some report charts, users can customize the chart type (pie chart, line chart, column chart) by clicking on the “Chart type” button.



Figure 78. Example of a report chart

2.6 Recommendation

Recommendation is the most important function of the system. We have implemented 3 types of recommendations:

- Upcoming recommendation (suggest upcoming events)
- Most popular recommendation (suggest events/articles based on the number of website visitor interactions)

- Similar recommendation (suggest events/articles based on content similarities among them)

With two types of recommendation, “Most popular” and “Similar”, they require system users to take several configuration steps before the system can generate highly accurate recommendation. The following parts present in detail the configuration steps.

2.4.1. Configure web-activity ponderation

The “*Most popular*” recommendation type suggests events/articles based on the interaction between website visitors and events/articles on the organization website. These interactions can be “view event in detail”, “click an event”, “view list of events”, etc. Each type of interaction has its own ponderation (important weight). The greater the interaction ponderation is, the higher the visitor’s interest in an event/article is. For example, when a visitor performs an interaction (clicking on an “event” to view its detailed page), it is likely that the visitor wants to know more information about this event (event date, event type, etc.) to attend. The activity “click an event” is an important interaction, the more people perform that interaction means that the event actually attracts more visitors.

The system allows users to set ponderation value for each interaction type. To perform this function, users follow these steps:

- Click the “Recommendation” section, which is located on the left side bar.
- Select the “Configuration” section in the dropdown section.

Interaction	Value
user_engagement	3
page_view	5
view_item_list	1
import_api	0
session_start	0
scroll	2
import_file	0
import_delete_items	0

Figure 79. Interface of “Items les plus populaires” configuration

- Select the “Items les plus populaires” tab.

- Input ponderation values for interaction types. (Note: Users can only perform this function when there are imported data about “Activité Web”).
- Click the “Save” button to update new ponderations.

2.6.2. Train “Similar recommendation” model

To recommend similar events/articles based on a given event/article, it requires that the system must find a function (a “Similar recommendation” model) being capable of understanding contents (descriptions) of all events/articles and then measuring similarity points between any 2-event/2 article contents. This function needs to be trained to give accurate similarity scores. Every time users import a large amount of event/article data into the system, this function needs to be retrained. To perform this function, users follow these steps:

- Click the “Recommendation” section, which is located on the left side bar.
- Select the “Configuration” section in the dropdown section.
- Select the “Items similaires” tab.

Metric	Value
user_engagement	3
page_view	5
view_item_list	
session_start	0
scroll	2
import_file	

Figure 80. Interface of "Items similaires" configuration

- Next, the website page displays an information table (the number of trained events/articles, the total number of events/articles currently imported). When the difference between these two metrics is large, users can retrain the “similar recommendation” function.
- Select a data type (Event/Article) in the “Type d’items” select menu.
- Click the “Entrainer” button and wait for the training process to finish.

The screenshot shows a user interface for a recommendation system. At the top, there are three buttons: "Items les plus populaires", "Items à venir", and "Items similaires". Below them is a section titled "Types d'items" with a dropdown menu labeled "Dérouler ce menu de sélection". In the center, a large blue button is highlighted with a red border and contains the text "Entraîner".

Historique de la formation d'algorithme

NAME	NUMBER_ITEMS	LATEST_TRAINING_AT	NUMBER_TRAINED_ITEMS
Événement	333	2022-03-10 14:29:04.466417+00:00	333
Article	46	2022-03-10 14:32:14.463451+00:00	46

Afficher 20 objets ▾ Précédent 1 Suivant

Figure 81. "Entraîner" button

- When the training process is completed, metrics in the information table will be updated.

2.6.3. Generate embedded recommendation script:

To be able to integrate recommendations into the organization website, our solution is to embed recommendation scripts into the website's pages. These recommendation scripts are HTML, CSS, Javascript source codes, whose function is to call the recommendation system for retrieving recommendations, and to display recommendations on the website's pages.

To perform this function, users follow these steps:

- Click the “Recommandation” section, which is located on the left side bar.
- Select the “Génération des scripts” section in the dropdown menu.

Génération des scripts

Script fixé et intégré dans la page d'accueil (sans la génération des interfaces)

```
<script src="http://74.208.108.4:8000/static/dimadb/js/recommender.js"></script>
<script>
    var recommendations = getRecommendation("http://74.208.108.4:8000/dimadb/get-recommendation", "culturemauricie2022");
    recommendations.then(res => {
        //Handle recommend items here
        //Below code shows recommendation results
        console.log(res);
    });
</script>
```

Figure 82. Interface of "Génération des scripts"

There are 2 types of embedded recommendation scripts:

- Fixed recommendation script: a script that never changes its source code. Users only need to embed this script once in the organization website's source code. When a website visitor opens a website page, this fixed script will automatically send the url of current website page to the recommendation system. The system will rely on this url to recommend appropriate items.
- Dynamic recommendation script: a script that changes its source code. For each page, users need to embed manually a different script. To generate dynamic scripts, users have to define which page on the organization website should be integrated recommendations, which recommendation type will be chosen to display on that page.

2.6.3.1. *Fixed recommendation script:*

To generate fixed recommendation script, users follow these steps:

- Click the “Scripts de recommandation fixés” tab. Then, the website page will display two parts : “Script fixé et intégré dans la page d'accueil (sans la génération des interfaces)” and “Script fixé et intégré dans la page d'accueil (avec la génération des interface)”.
- “Script fixé et intégré dans la page d'accueil (sans la génération des interface)” part includes source code that users embed into the source code of

the “Homepage” only once, in order to only retrieve recommended items without showing them on the website page. Recommended items will be retrieved as an array of json objects. The website developpers are responsible for how to display recommended items (images, etc.) on the webiste page.

Script fixé et intégré dans la page d'accueil (sans la génération des interfaces)

```
<script src="http://74.208.108.4:8000/static/dimadb/js/recommender.js"></script>
<script>
    var recommendations = getRecommendation("http://74.208.108.4:8000/dimadb/get-recommendation", "culturemauricie2022");
    recommendations.then(res => {
        //Handle recommend items here
        //Below code shows recommendation results
        console.log(res);
    });
</script>
```

Figure 83. Fixed recommendation script without GUI

- “Script fixé et intégré dans dans la page d'accueil (avec la génération des interface)” part includes source code that users embed into the source code of the “Homepage” only once, in order to both retrieve recommended items and then to display automatically them on the website page.

Script fixé et intégré dans la page d'accueil (avec la génération des interfaces)

```
<link rel="stylesheet" href="http://74.208.108.4:8000/static/dimadb/css/recommender.css">
<div id="recommendations"></div>
<script src="http://74.208.108.4:8000/static/dimadb/js/recommender.js"></script>
<script>
    var recommendations = getRecommendation("http://74.208.108.4:8000/dimadb/get-recommendation", "culturemauricie2022");
    recommendations.then(res => {
        //Handle recommend items here
        //Below code shows recommendation GUI
        getListViews(res);
    });
</script>
```

Figure 84. Fixed recommendation script with GUI

2.6.3.2. Dynamic recommendation script:

To generate dynamic recommendation script, users follow these steps:

- Click the “Scripts de recommendation dynamique” tab.
- Then, the website page will display several selection menus, which comprises: item types (Types d'items), recommend levels (Niveau de recommendation), recommend types (Types de recommendation), domain, events/articles name and quantity (quantité). The dynamic recommendation script is generated based

on the user's choice of these selection menus. The following subpart explains the meaning of each selection menu:

- Item types: types of recommended items (Event or Article).
- Recommend levels: places where recommended items are displayed on the website's pages, which include: Homepage Level (Where displays all items in all domains/categories), Domain Level (where displays items belonging to a specific domain/category), Item Level (where displays detailed information of an item).
- Recommend types: types of recommendation, which include: Upcoming, Most popular and Similar.
- Domain: categories of an item type. Users need to select a domain when they want to find recommended items in a specified domain. List of domains for each item type:
 - Event type: exposition, cinéma, humour, chanson, musique, etc.
 - Article type : musées, arts de la scène, littérature, arts visuels, arts médiatiques, métiers d'art and patrimoine.
- Event/Article name : specified name of an event/article. Users need to select an event/article name to find its similar items.
- Quantity: the number of recommended items that the website page wants to retrieve.
- Finally, Click the “Générer une API”.

Figure 85. Interface of "Dynamic Recommendation Script Generation"

- Then, there are 3 parts displayed on the screens:

- Example of recommendations: a table of recommendations, these recommendations would appear in the organization's website if users embedded recommendation scripts below into the website.

Items recommandés

EVENT_ID	EVENT_NAME	EVENT_TYPE	NEXT_DATE	URL
3	Suzanne FerlandL : Onde de choc - Effluve de l'impénétrable	Exposition	2022-03-18T00:00:00Z	https://dici.ca/evenement/3
4	Sarah Seené : Fovea	Exposition	2022-03-18T00:00:00Z	https://dici.ca/evenement/4
6	Si la faune m'était sculptée - L'art animalier québécois	Exposition	2022-03-18T00:00:00Z	https://dici.ca/evenement/6
8	L'ADN des superhéros	Exposition	2022-03-18T00:00:00Z	https://dici.ca/evenement/8
9	En d'dans ! La prison comme solution ?	Exposition	2022-03-18T00:00:00Z	https://dici.ca/evenement/9

Figure 86. Example of recommendations

- “Script dynamique et intégré dans chaque page (sans la génération des interfaces)” part includes source code that users embed into a specified page on the website, to only retrieve recommended items without showing them on the website page. Recommended items will be retrieved as an array of json objects. The website developers are responsible for how to display recommended items (images, etc.) on the website page.

Script dynamique et intégré dans chaque page (sans la génération des interfaces)

```
<script src="http://74.208.108.4:8000/static/dimadb/js/recommender.js"></script>
<script>
  var upComingItems = getRecommend("http://74.208.108.4:8000/dimadb/get-list-recommend/?itemType=events&level=Homepage&quantity=10&recommendType=Upcoming", "culturemauricie2022");
  upComingItems.then(res => {
    //Handle recommend items here
    //Below code shows recommendation results
    console.log(res);
  });
</script>
```

Figure 87. Dynamic Recommendation Script without GUI

- “Script dynamique et intégré dans chaque page (avec la génération des interfaces)” part includes source code that users embed into a specified page on the website, in order to both retrieve recommended items and then to display automatically them on the website page.

Script dynamique et intégré dans chaque page (avec la génération des interfaces)

```

<link rel="stylesheet" href="http://74.208.108.4:8000/static/dimadb/css/recommender.css">
<div id="upComingItems"></div>
<script src="http://74.208.108.4:8000/static/dimadb/js/recommender.js"></script>
<script>
    var upComingItems = getRecommend("http://74.208.108.4:8000/dimadb/get-list-recommend/?"
itemType=events&level=Homepage&quantity=10&recommendType=Upcoming", "culturemauricie2022");
    upComingItems.then(res => {
        //Handle recommend items here
        //Below code shows recommendation GUI
        getListView("upComingItems", res);
    });
</script>

```

Figure 88. Dynamic Recommendation Script with GUI

To know which choice must be selected in selection menus, users must:

- Define which page that recommendations will be integrated into.
- Define which level of that page, “Homepage”/ “Domain”/ “Item” level.
- If “Domain” level, define which category of displayed items in that page.
- If “Item” level, define which name of event/article in that page.
- Define which recommendation type would be integrated in that page, “Upcoming”/ “Most popular”/ “Similar” type.

Based on our observations on the “<https://dici.ca>” website, we have listed a list of pages that can be integrated recommendations. Besides, a list of choices of selection menus has been pre-defined, users fill selection menus with predefined-choices in the table below to generate recommendation scripts. Then paste these recommendation scripts into the source code of the corresponding page.

Table 3. List of page url and pre-defined recommendation parameters

Page url	Item Type	Recommend Level	Recommend Type	Domain	Event /Article name
https://dici.ca/evenements	Événement	Homepage	Upcoming	No	No
https://dici.ca/evenements	Événement	Homepage	Most popular	No	No

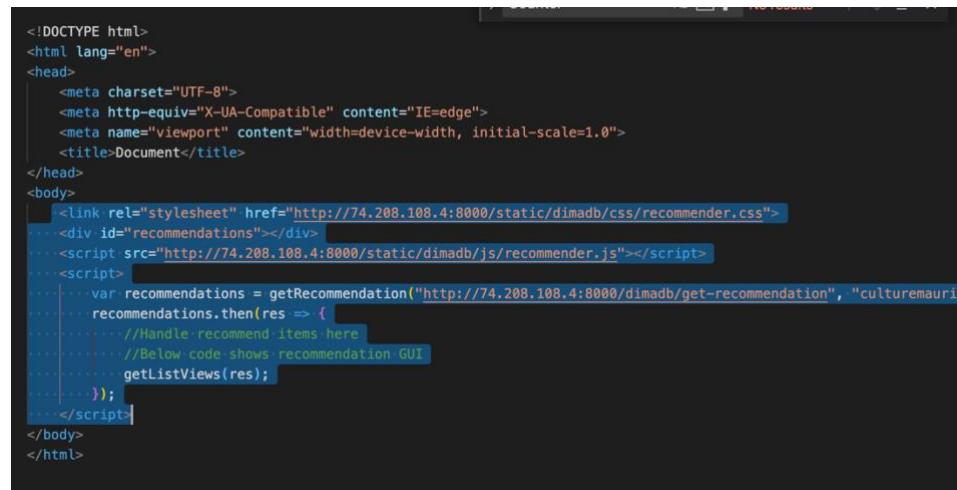
https://dici.ca/magazine/tous-les-articles	Article	Homepage	Most popular	No	No
https://dici.ca/magazine/arts-de-la-scene	Article	Domain	Most popular	Arts de la scène	No
https://dici.ca/magazine/arts-mediatiques	Article	Domain	Most popular	Arts médiatiques	No
https://dici.ca/magazine/arts-visuels	article	Domain	Most popular	Arts visuels	No
https://dici.ca/magazine/litterature	Article	Domain	Most popular	Littérature	No
https://dici.ca/magazine/metiers-dart	Article	Domain	Most popular	Métiers d'art	No
https://dici.ca/magazine/musees	Article	Domain	Most popular	Musées	No
https://dici.ca/magazine/patrimoine	Article	Domain	Most popular	Patrimoine	No
<a href="https://dici.ca/magazine/<article_type>/<article_name>">https://dici.ca/magazine/<article_type>/<article_name>	Article	Item	Similar	No	Based on the event/ article name
<a href="https://dici.ca/evenements/<event_name>">https://dici.ca/evenements/<event_name>	Événement	Item	Similar	No	Based on the event/ article name

2.7 Document

This function provides a user guide on how to perform the system's functions and how to integrate recommendations into the website. To perform this function, the user clicks on the "Documentation" item located on the left side bar.

PART 3: RECOMMENDATION SCRIPT

In the previous part, we guide users how to perform functions on the interface of administrative tool. In this part, we show users how to embed recommendation scripts into the organization's website, in order to retrieve list of recommendations and to display them on each website page. The simplest way, users just need to put the entire generated source code anywhere in the HTML source code that constructs the website page. The figure below illustrates the embedding the recommendation script into a pair of <body></body> tag in a HTML file.



```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <link rel="stylesheet" href="http://74.208.108.4:8000/static/dimadb/css/recommender.css">
    <div id="recommendations"></div>
    <script src="http://74.208.108.4:8000/static/dimadb/js/recommender.js"></script>
    <script>
        var recommendations = getRecommendation("http://74.208.108.4:8000/dimadb/get-recommendation", "culturemauricien");
        recommendations.then(res => {
            //Handle recommend items here
            //Below code shows recommendation GUI
            getListViews(res);
        });
    </script>
</body>
</html>
```

Figure 89. Example of embedding recommendation script into a HTML file



Figure 90. Recommendations integrated into a website

3.1. Recommendation script without GUI integration:

Embedding recommender script without GUI integration means that the embedded script will be responsible for retrieving list of recommended items from the recommendation system in forms of an array of json objects, without explicitly displaying them on the website. Website developpers need to write additional source code to show recommendations on the website. The advantages of this embedding type is that it would not break the layout/template of the organization website, website developpers who designed and understood carefully the organization's website, will be able to know how to insert a section for recommendations on the website.

```
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <script src="http://localhost:8000/static/dimadb/js/recommender.js"></script>
    <script>
        const recommendItems = getRecommend("http://localhost:8000/dimadb/get-list-recommend/?itemType");
        recommendItems.then(res => {
            //Handle recommend items here
            //Below code shows recommendation results
            console.log(res);
        });
    </script>
</body>
</html>
```

Figure 91. Example of embedding recommendation script without GUI into a HTML file

The format of returned recommendations would be an array of json objects. Each json object has some specified properties based on its item type (Events or Article). The table below shows list of properties for each item type.

Table 4. Data types and their properties

Item Type	Fields
Event	Event_id, event_name, event_type, img, url, location_name, next_date
Article	Product_id, product_name, product_type, img, url

Figures below show examples of event recommendations and article recommendations as arrays of json object.

```

▼ Object
  S itemType: "events"
  ▼ O items: Array (10)
    0 ▶ Object
      S event_id: "0"
      S event_name: "Hélène Guilmaine : À l'origine... les déesses-mères"
      S event_type: "Exposition"
      S img: "https://cdn.caligram.com/uploads/event/P06/xlarge/61b8ab8c98e79.jpg"
      S location_name: "La petite Place des Arts"
      S next_date: "2022-03-05T00:00:00Z"
      S url: "https://dici.ca/evenements/helene-guilmaine-a-l-origine-les-deesses-meres"
    ▶ Prototype Object
    1 ► {event_id: "3", event_name: "Suzanne FerlandL : Onde de choc - Effluve de l'impénétrable", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/..."}
    2 ► {event_id: "4", event_name: "Sarah Seené : Fovea", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/evenements/exposition-fovea", ...}
    3 ► {event_id: "5", event_name: "Marie-Sol St-Onge : L'art d'avancer", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/evenements/l-art-d-avanc..."}
    4 ► {event_id: "6", event_name: "Si la faune m'était sculptée - L'art animalier québécois", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/eve..."}
    5 ► {event_id: "7", event_name: "Le match parfait - Sport vs Science", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/evenements/le-match-parfi..."}
    6 ► {event_id: "8", event_name: "L'ADN des superhéros", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/evenements/l-adn-des-superheros", ...}
    7 ► {event_id: "9", event_name: "En d'ans ! La prison comme solution ?", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/evenements/en-d-dans-..."}
    8 ► {event_id: "10", event_name: "Attache ta tuque ! Une virée décoiffante dans la culture québécoise", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/..."}
    9 ► {event_id: "11", event_name: "Myriam Tousignant : Maskipêche", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/evenements/myriam-tousignant-..."}
```

Figure 92. Example of returned event recommendations as a json object array

```

▼ Object
  S itemType: "products"
  ▼ O items: Array (10)
    0 ▶ Object
      S img: "https://dici.ca/app/uploads/2022/02/katrin-hauf-jpkvklxwt98-unsplash-1680x945.jpg"
      S product_id: "2"
      S product_name: "Étienne Poirier : Capteur de mots"
      S product_type: "Littérature"
      N score: 180
      S url: "https://dici.ca/magazine/litterature/etienne-poirier-capteur-de-mots"
    ▶ Prototype Object
    1 ► {product_id: "28", product_name: "10 recueils de poésie écrits par des poètes d'ici à (re)découvrir", product_type: "Littérature", url: "https://dici.ca/magazine/litterature/10-recueils-de-poesie-ecrits-par-des-poetes-d-ici-a-redecouvrir", ...}
    2 ► {product_id: "9", product_name: "La littérature jeunesse, vecteur de nombreux apprentissages", product_type: "Littérature", url: "https://dici.ca/magazine/litterature-jeunesse-vecteur-de-nombreux-apprentissages", ...}
    3 ► {product_id: "37", product_name: "La poésie... dans les mots de Guy Marchamps", product_type: "Littérature", url: "https://dici.ca/magazine/litterature-la-poesie-dans-les-mots-de-guy-marchamps", ...}
    4 ► {product_id: "44", product_name: "Passionnée et passionnante Louise Lacoursière", product_type: "Littérature", url: "https://dici.ca/magazine/litterature-louise-lacoursiere", ...}
    5 ► {product_id: "30", product_name: "La poésie... dans les mots d'Alexandre Dostie", product_type: "Littérature", url: "https://dici.ca/magazine/litterature-la-poiesie-dans-les-mots-d-alexandre-dostie", ...}
    6 ► {product_id: "26", product_name: "7 activités à faire cette année pour fêter l'Halloween", product_type: "Musées", url: "https://dici.ca/magazine/musees/7-activites-a-faire-cette-annee-pour-feter-l-halloween", ...}
    7 ► {product_id: "12", product_name: "Quelques livres d'ici pour des moments féériques en famille", product_type: "Littérature", url: "https://dici.ca/magazine/litterature/quelques-livres-d-ici-pour-des-moments-ferieques-en-famille", ...}
    8 ► {product_id: "42", product_name: "La Tuque, une ville vivante!", product_type: "Patrimoine", url: "https://dici.ca/magazine/patrimoine/la-tuque-une-ville-vivante", ...}
    9 ► {product_id: "45", product_name: "4 activités culturelles en plein air à faire cet automne", product_type: "Musées", url: "https://dici.ca/magazine/musees/4-activites-culturelles-en-plein-air-a-faire-cet-automne", ...}
```

Figure 93. Example of returned article recommendations as a json object array

3.2. Embedding recommendation script with GUI integration:

Embedding recommendation script with GUI Integration means that the embedded script will be responsible for retrieving list of recommended items from the recommendation system and then displaying directly items on the website, without the intervention of the website developer. However, this way of embedding type is not really effective because it can break the layout of website.

```

<html lang="en">
  <head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
  </head>
  <body>
    <link rel="stylesheet" href="http://localhost:8000/static/dimadb/css/recommender.css">
    <div id="recommendItem"></div>
    <script src="http://localhost:8000/static/dimadb/js/recommender.js"></script>
    <script>
      const recommendItems = getRecommend("http://localhost:8000/dimadb/get-list-recommend/");
      recommendItems.then(res => {
        //Handle recommend items here
        //Below code shows recommendation GUI
        getListView("recommendItem", res);
      });
    </script>
  </body>
</html>

```

Figure 94. Example of embedding recommendation script with GUI into a HTML file

Les événements similaires



Figure 95. Example recommendations integrated into a website

3.3. Example of a demo website integrated recommendations

This section illustrates the steps we take to embed the recommendation script in a page on a demo wordpress website to evaluate the integration ability of the recommendation system.

- Access to the wordpress website for admin.
- Click the “Pages”, next “All pages” section on the left side bar.

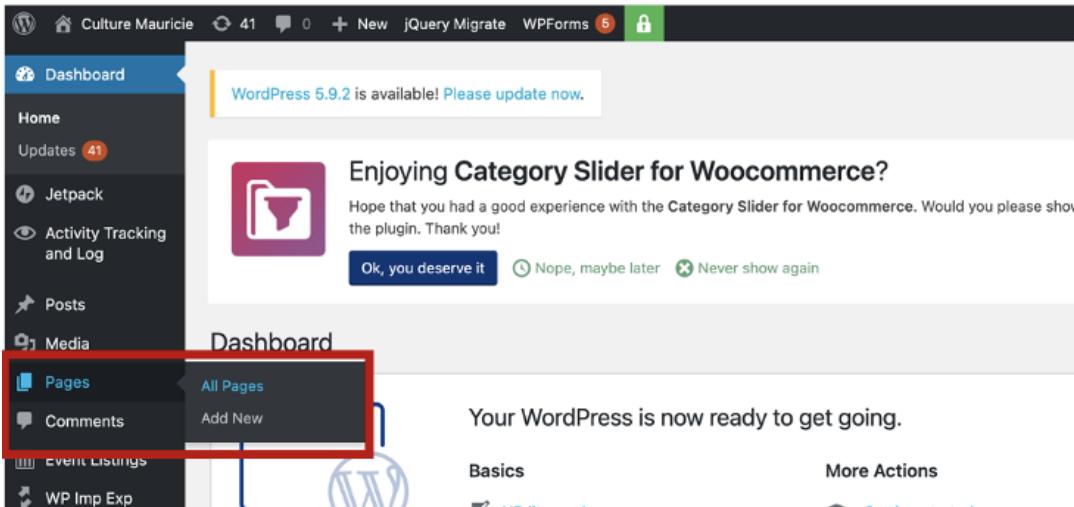


Figure 96. Wordpress admin website

- Select a page that you want to embed recommendation script.

		Bulk Actions	Apply	All dates	Filter	34 items
<input type="checkbox"/>	Title					Author
<input type="checkbox"/>	PRODUCTS					Juline Schluchter
<input type="checkbox"/>	— ARTS DE LA SCENE — Elementor					dimalab
<input type="checkbox"/>	— ARTS MÉDIATIQUES					dimalab
	Edit Quick Edit Trash View Clone New Draft					
<input type="checkbox"/>	— Arts Performance — Elementor					dimalab
<input type="checkbox"/>	— ARTS VISUELS					dimalab

Figure 97. List pages in a Wordpress website

- Click the (+) “Add block” button.

The screenshot shows the WordPress editor interface. At the top, there's a toolbar with various icons and a "Edit with Elementor" button. Below the toolbar, a red box highlights the "(+)" "Add block" button. The main content area has the heading "ARTS MÉDIATIQUES". Below the heading, the text "Produits Culturels" is displayed. A note says "Choisissez votre produit !" and a shortcode "[products category="arts-meditatiques"]" is shown.

Figure 98. Add an HTML block

- Search “HTML” and then click the “Custom HTML” to add a HTML source code block on the page.

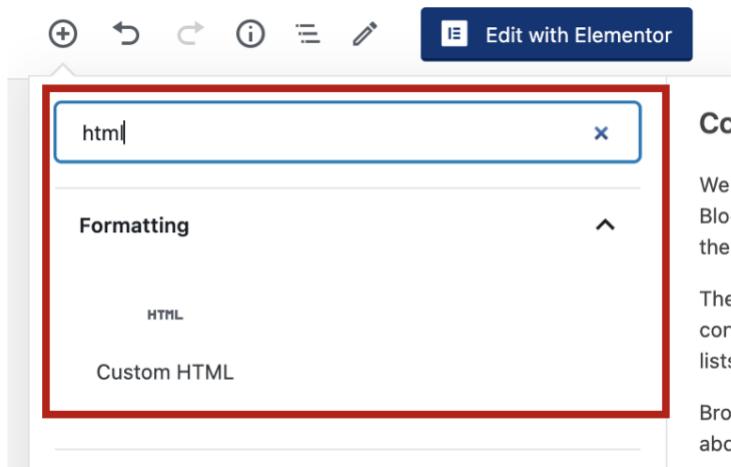


Figure 99. Search "HTML" block

- Copy and paste all source code that the recommendation system generated into the recent created block.

```
<link rel="stylesheet"
      href="http://74.208.108.4:8000/static/dimadb/css/recommender.css">
<div id="recommendations"></div>
<script
      src="http://74.208.108.4:8000/static/dimadb/js/recommender.js">
</script>
<script>
    var recommendations =
        getRecommendation("http://74.208.108.4:8000/dimadb/get-
recommendation", "culturemauricie2022");
</script>
```

Figure 100. Insert recommendation script into a HTML block

- Click the “Update” button at the right top corner.



Figure 101. "Update page" button

- Check whether list of recommended items appear on the page.

Les articles les plus populaires

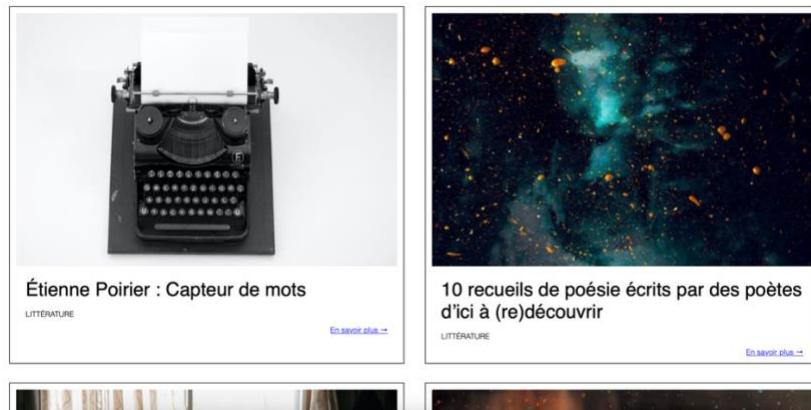


Figure 102. Recommendations in a page after inserting a recommendation script