



# Structuring your data

AN INTRODUCTION TO KUMU'S DATA MODEL

### What's covered in this guide?

- Deciding which types of elements you want to map
- Adding information about those elements using fields
- Deciding which connections you want to map
- Determining the best way to create those connections
- Building your spreadsheet and importing
- Other common questions

Once you've read this guide, you'll have a solid understanding of Kumu's data structure and will know how to format a spreadsheet for importing. Let's get started!

### What is an element? A connection? A loop?

- **Elements** are the individual circles on your map. Depending on what you're mapping, an element might represent a person, organization, factor, idea, project, team – pretty much anything you're interested in mapping.
- **Connections** are the lines between elements and represent relationships between elements. You might create a connection between two people to show they know each other, connect two factors to show a causal relationship, or link a person to a project signifying they work on that project.
- **Loops** are a set of connections with an attached label. They are used when creating causal loop diagrams (CLDs). If you don't know what a system map or CLD is, you don't need to worry about loops. This is the last you'll hear about loops in this guide.

### What is a label?

- **Label** is the generic term we use for the name of an element and also the text you can add to a connection so that it appears in the middle of the connection directly on the map.
- Every element must have a label. If you are importing your data, you'll need a "label" column that provides the name of each element you are importing.
- Labels for connections are optional. If added, the label will appear in the middle of the connection directly on the map.

## Step 1: Decide which types of elements you want to map

- Are you mapping people? Organizations? Factors in a system? Write a list of the main categories of elements you want to map. Don't worry if you only have a single category (if your sole focus is people, for example).
- These categories are your **element types**. Think of element types as the biggest buckets of what you are mapping.
- Each element can only have a single type (e.g. Jill can't be type = person and type = politician), so keep that in mind when picking what your types are going to be.
- It's important to include a type for each element when structuring your data. If you're creating an import spreadsheet, add a column with "type" as the header for the column.

# Step 1: Decide which types of elements you want to map

Throughout this guide we'll be walking through what your import spreadsheet might look like at each step. Here's where we are so far:

Label	Type		
John Q. Public	Person		
Jill Smith	Person		
Google	Organization		
San Francisco	City		

## Step 2: Add information about those elements using fields

- Take some time to think about what additional detail you want to include for each element. If you're mapping people, do you want to include which organization each person works for? Or maybe their location? Or projects they work on?
- This information is tracked in Kumu using **fields**. You don't need to create custom fields within Kumu before you import. Simply add an additional column and include the name of the field as the header. If you need to save multiple values in a single cell, separate those values with a pipe character ("Project X | Project Y").

## Step 2: Add information about those elements using fields

Here's what your spreadsheet might look like at this point:

Label	Type	Location	Projects
John Q. Public	Person	Portland	Privacy   Homelessness
Jill Smith	Person	San Francisco	Homelessness





## Step 3: Decide which connections you want to map

- Take some time to write down the different relationships you'd like to highlight through your map. Are you trying to show how people are connected directly to each other? Creating a visual map of which projects people work on? Visualizing how money flows between organizations?
- List each of the types of relationships you want to visualize. These become your **connection types**.
- Before you structure your connection data, continue to Step 4 to determine the best way to create your connections in Kumu (your choice will affect how you structure your data).

## Step 4: Determine the best way to create those connections

There are two ways to create connections in Kumu:

### **Clustering**

Clustering is a powerful feature that creates connections based on the values stored for a particular field. For example, if you cluster by the “project” field, you’ll get a connection from each person to each project listed as a value for that person.

Kumu will also create an element for any projects that don’t already exist in the map.

### **Explicit from/to data**

You can create a connection by defining which elements are involved in that connection. Use a separate spreadsheet that has “from” and “to” columns with the labels of those elements as values.

You can also include additional information about the connection (such as “strength” or a “description” of the nature of the connection) by adding additional columns.

# Step 4: Determine the best way to create those connections

Each approach uses a different data format:

## Clustering

ELEMENTS SPREADSHEET ONLY

Label	Projects
John Q. Public	Privacy   Homelessness
Jill Smith	Homelessness

## Explicit from/to data

REQUIRES CONNECTIONS SPREADSHEET

From	To	Role
John Q. Public	Privacy	Project Manager
John Q. Public	Homelessness	Participant
Jill Smith	Homelessness	Communications

## Step 4: Determine the best way to create those connections

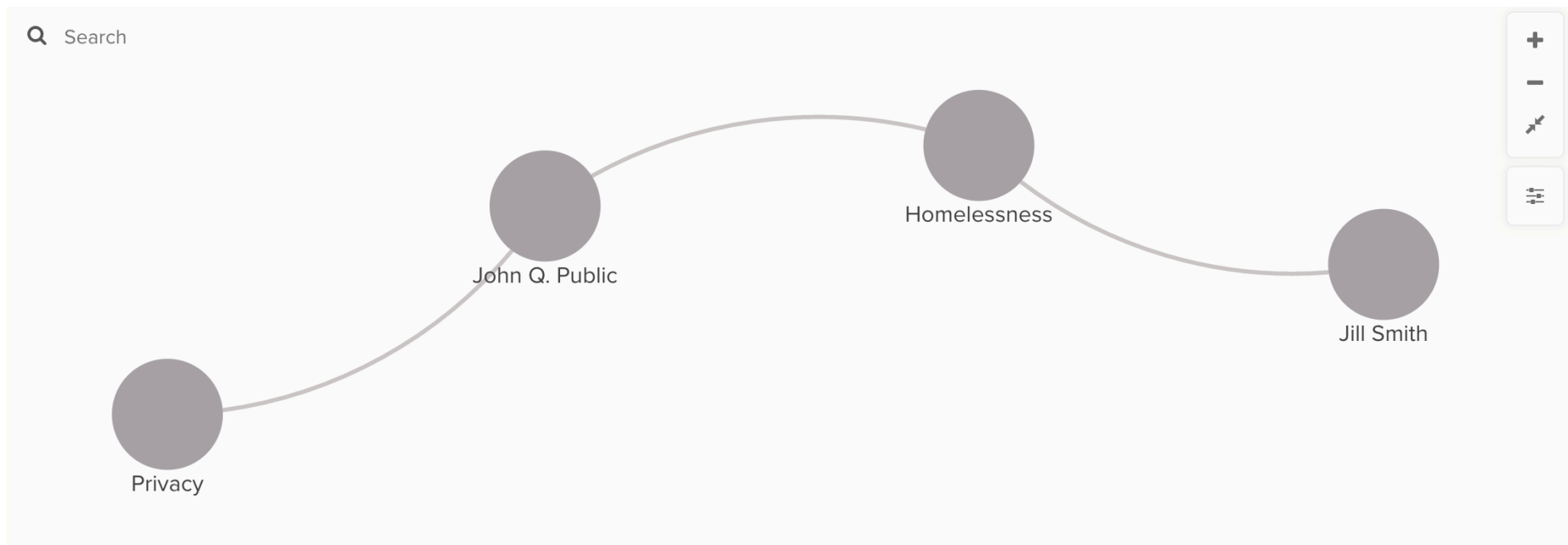
There are a handful of situations where it makes more sense to use the explicit from/to data approach:

- When you need to track additional fields for each connection (such as “strength” or a “description” for each connection)
- When you are monitoring connections over time (and thus needing to store the date or year that is relevant for a given connection)
- When you want to manually position each element on your map (clustering doesn’t support pinning elements in place)
- When your existing data naturally fits the from/to data model

Otherwise we recommend that you try to use clustering whenever possible. It will save you time and make it easier to keep your data updated over time by only requiring you to use a single spreadsheet.

### Step 4: Determine the best way to create those connections

Regardless of which approach you pick, the resulting map will look similar:



### Step 5: Build your spreadsheet

Now that you've flushed out your data structure, you're ready to build your spreadsheet:

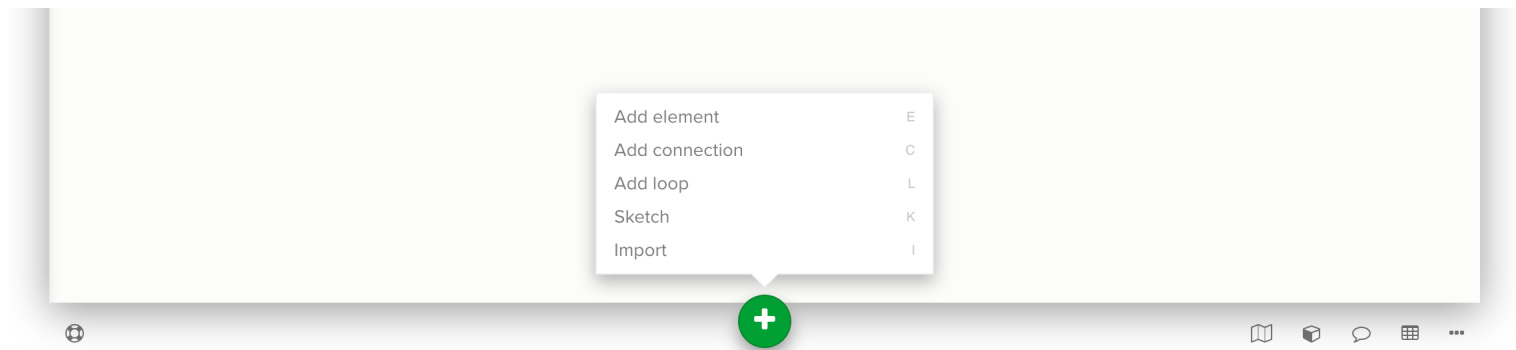
- Create a workbook using Excel or Google Sheets
- Use one sheet for elements, and another sheet for connections (if you are using the explicit from/to data approach)
- It can be helpful to separate each element type (people, organizations, etc.) onto a different sheet as you may likely have different fields for different types of elements
- Make sure to separate multiple values in a single cell using the pipe “|” character
- Remove any blank rows or columns

### Step 6: Import or connect to Google Sheets

Once you have your spreadsheet, you can import the data by clicking the green “+” button and choosing “import”. Choose the “xlsx” tab and then select your file for import.

Another option is to link a map via a live feed to a Google Sheet. The map will then pull in the latest data from the Google Sheet every time the map is loaded.

You’ll be presented with a review step that highlights any potential errors in your file. Fix any errors that are highlighted and then click to finalize the import. You’re all done!





# Common questions

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### What is the description field?

- The description is a special field that is displayed using large, stylized text toward the top of the profile.
- You can use markdown to format the contents of this field, including adding bold, italics, bullets, hyperlinks, headings and more. You can learn how to use markdown here: <https://docs.kumu.io/guides/markdown.html>

### What is the difference between tags and other fields?

Tags are a special type of field that is rendered differently in the profile, showing up underneath the description as buttons. Tags are quite flexible and allow you to quickly add multiple values for a given element or connection.

Here are two ways we recommend using tags:

- to add information that is self-explanatory (quickly indicating that someone is “highly influential”, for example)
- as a process reminder for yourself (add the tag “flag” to remind yourself which elements you need to return to and include additional follow up)

The most important thing with tags is to avoid stuffing anything and everything into the tags field.

### How do I decorate based on field values?

- When decorating your map, the first step is always to save information to the profile for a particular element or connection using fields.
- Once you've added that information, click the settings button on the right side of your map to open the settings pane and choose the decorate tab.
- Click “add element rule” or “add connection rule”, depending on what you want to decorate.
- Use the dropdowns at the top to specify what you want to decorate (“element type” “is” “person”, for example) .
- Choose the decorations you want to use (color, size, shadow, etc.)
- Add a legend entry to include the decoration in your legend.

### Reusing existing elements

Clustering works seamlessly out the gate for most use cases but occasionally you'll need to make some tweaks to get the desired behavior.

- When clustering is activated for a given field, we create elements for each of the unique values with a type that matches the name of the field.
- If an element already exists with the same label and type, we'll re-use that element instead of creating a new one.
- If you'd like to make sure we re-use an existing element based on label alone (even if the types differ), you'll need to activate clustering using the advanced editor
- Head over to the docs to learn how to activate advanced clustering:  
<https://docs.kumu.io/guides/clustering.html#advanced-clustering>



# Thanks!

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Have questions or need additional help?

- Email us [support@kumu.io](mailto:support@kumu.io)
- Chat with us on Slack <http://chat.kumu.io>
- Read the docs <https://docs.kumu.io>