JSON data

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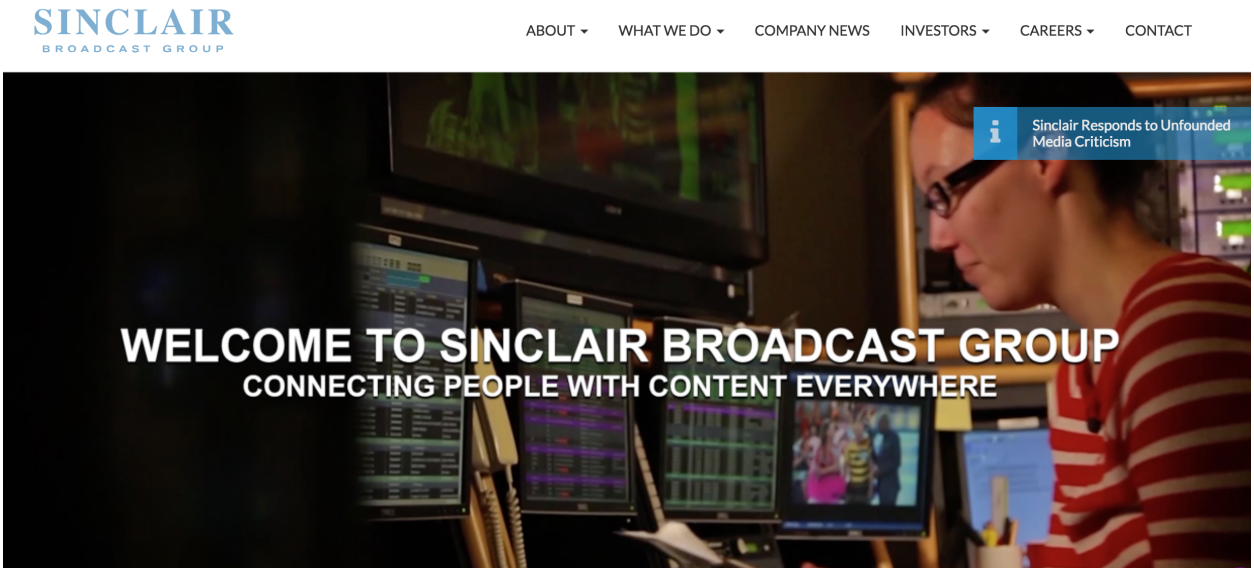
Contents

This is from the second chapter of learn.r-journalism.com.

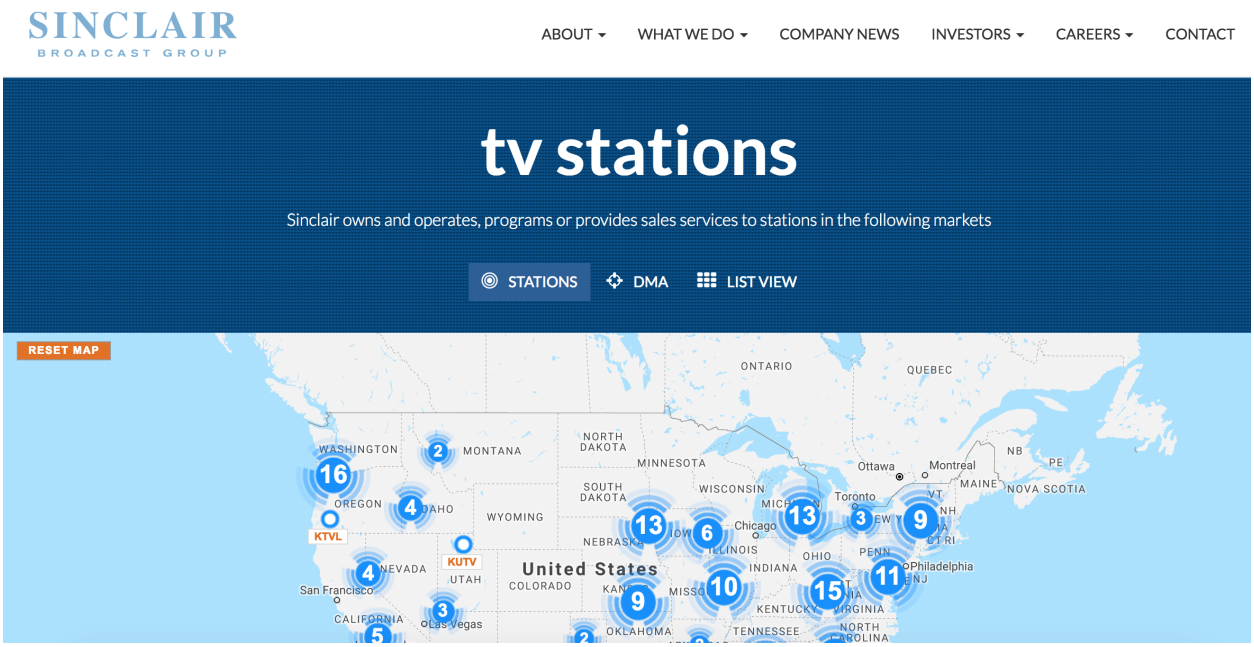
JSON stands for JavaScript Object Notation and is the data structure behind many website features like maps.

Let's say theoretically you were interested in compiling a list of all Sinclair Broadcast TV stations and their locations.

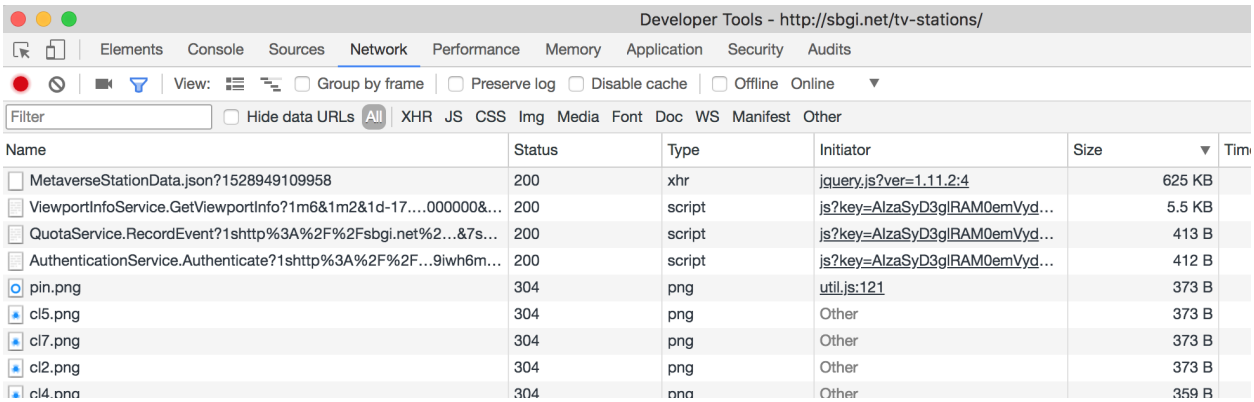
You'd first visit their web site.



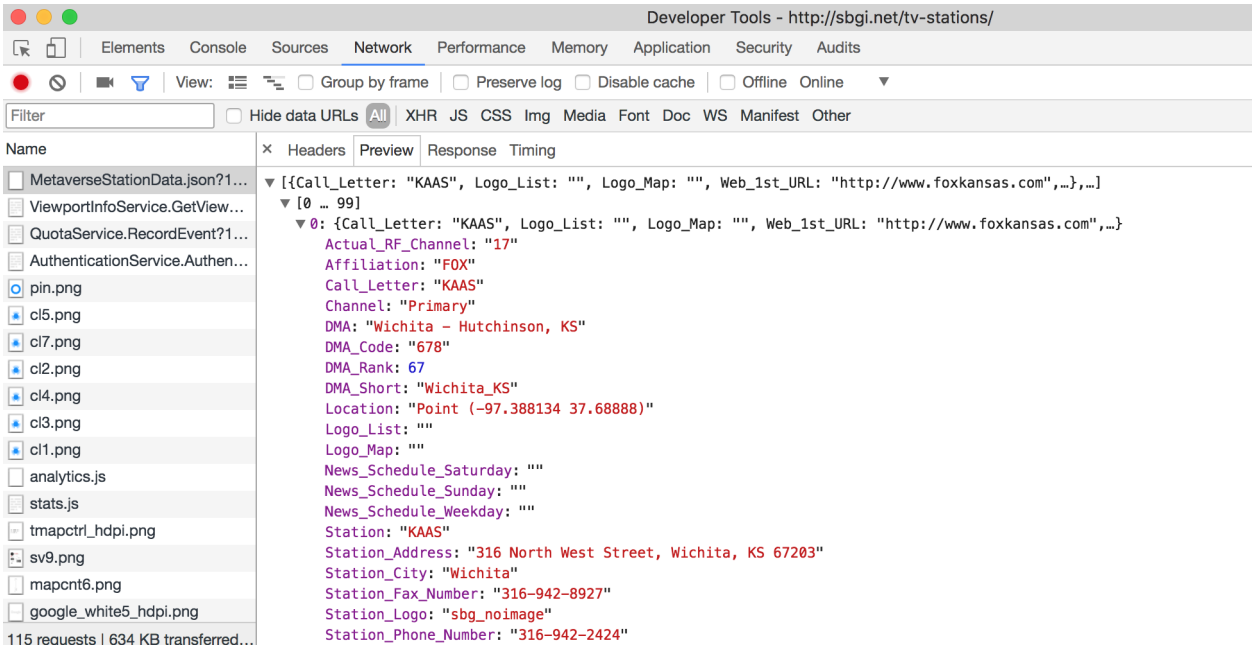
And then you might find they have a map!



Look at the developer tools in your browser and click over to **Network** you could sort by size and see there's a **json** file being called by the map.



If you click into the JSON link you'll see this data structure that includes affiliation, call letters, and latitude and longitude.



Here's a close up.

It looks like it could be transformed into rectangular data frame so we can analyze it.


```
[
    {
        "Call_Letter": "KAAS",
        "Logo_List": "",
        "Logo_Map": "",
        "Web_1st_URL": "http://www.foxkansas.com",
        "Web_Address": "http://www.foxkansas.com",
        "Station": "KAAS",
        "Channel": "Primary",
        "Affiliation": "FOX",
        "DMA": "Wichita - Hutchinson, KS",
        "DMA_Code": "678",
        "DMA_Short": "Wichita_KS",
        "DMA_Rank": 67,
        "Station_Status": "O&O",
        "Station_Address": "316 North West Street, Wichita, KS 67203",
        "Station_City": "Wichita",
        "Station_State": "KS",
        "Station_Zip": 67203,
        "Station_Logo": "sbg_noimage",
        "Station_URL": "http://www.foxkansas.com, http://www.foxkansas.com",
        "Station_Phone_Number": "316-942-2424",
        "Station_Fax_Number": "316-942-8927",
        "Actual_RF_Channel": "17",
        "News_Schedule_Weekday": "",
        "News_Schedule_Saturday": "",
        "News_Schedule_Sunday": "",
        "Location": "Point (-97.388134 37.68888)"
    },
```


We're going to use the **jsonlite**

First, install and load the package.

```
#install.packages("jsonlite")
library(jsonlite)
```

Then point to where the JSON file is. You can use the URL or the local path to it if you've downloaded it. I recommend downloading it as a backup in case the website is restructured.

Use the `fromJSON()` function.

```
json_url <-"http://sbgi.net/resources/assets/sbgi/MetaverseStationData.json"

## If the url above doesn't exist anymore uncomment the line below and run it
# json_url <- "data/MetaverseStationData.json"

stations <- fromJSON(json_url)
```

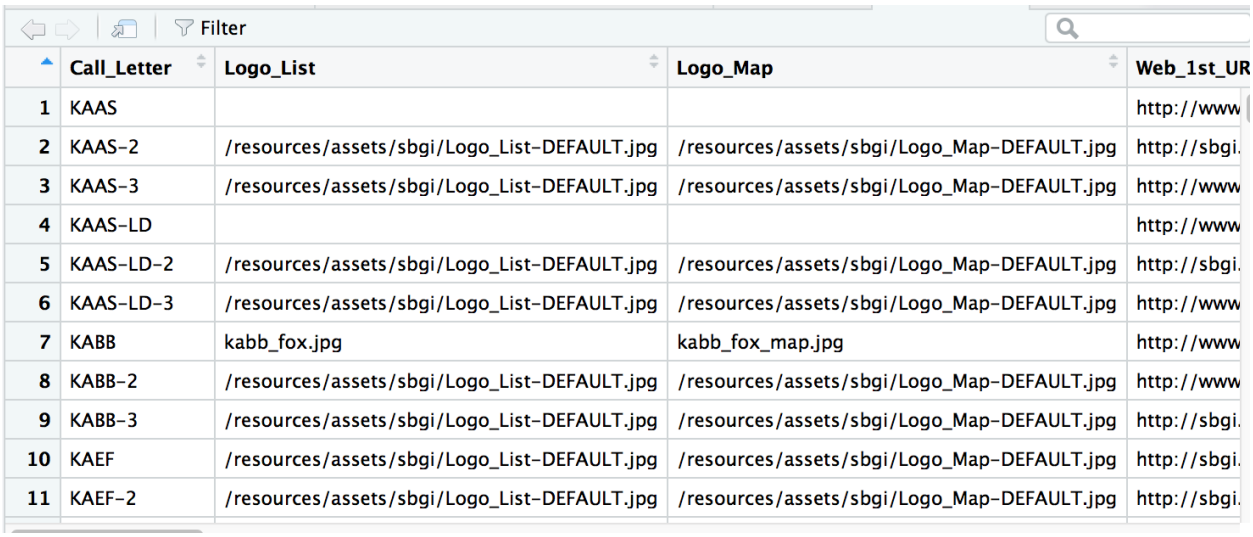
Let's look at the structure of what we've imported.

```
str(stations)
```

```
## 'data.frame':    611 obs. of  26 variables:
##  $ Call_Letter           : chr  "KAAS" "KAAS-2" "KAAS-3" "KAAS-LD" ...
##  $ Logo_List             : chr  "" "/resources/assets/sbgi/Logo_List-DEFAULT.jpg" "/resources/assets/
##  $ Logo_Map              : chr  "" "/resources/assets/sbgi/Logo_Map-DEFAULT.jpg" "/resources/assets/s
##  $ Web_1st_URL           : chr  "http://www.foxkansas.com" "http://sbgi.net" "http://www.comettv.com/
##  $ Web_Address           : chr  "http://www.foxkansas.com" "http://sbgi.net" "http://www.comettv.com/
##  $ Station               : chr  "KAAS" "KAAS" "KAAS" "KAAS-LD" ...
##  $ Channel               : chr  "Primary" "Secondary" "Tertiary" "Primary" ...
##  $ Affiliation           : chr  "FOX" "TBD" "Comet" "FOX" ...
##  $ DMA                   : chr  "Wichita - Hutchinson, KS" "Wichita - Hutchinson, KS" "Wichita - Hut
##  $ DMA_Code              : chr  "678" "0" "0" "678" ...
##  $ DMA_Short             : chr  "Wichita_KS" "Wichita_KS" "Wichita_KS" "Wichita_KS" ...
##  $ DMA_Rank              : int  67 67 67 67 67 67 31 31 31 195 ...
##  $ Station_Status        : chr  "O&O" "O&O" "O&O" "O&O" ...
##  $ Station_Address       : chr  "316 North West Street, Wichita, KS 67203" "316 North West Street, Wi
##  $ Station_City          : chr  "Wichita" "Wichita" "Wichita" "Wichita" ...
##  $ Station_State         : chr  "KS" "KS" "KS" "KS" ...
##  $ Station_Zip           : int  67203 67203 67203 67203 67203 67203 78229 78229 78229 NA ...
##  $ Station_Logo          : chr  "sbg_noimage" "antenna" "comet" "sbg_noimage" ...
##  $ Station_URL           : chr  "http://www.foxkansas.com, http://www.foxkansas.com" "http://sbgi.net
##  $ Station_Phone_Number  : chr  "316-942-2424" "316-942-2424" "316-942-2424" "316-942-2424" ...
##  $ Station_Fax_Number    : chr  "316-942-8927" "316-942-8927" "316-942-8927" "316-942-8927" ...
##  $ Actual_RF_Channel     : chr  "17" "17" "17" "31" ...
##  $ News_Schedule_Weekday : chr  "" "" "" "" ...
##  $ News_Schedule_Saturday: chr  "" "" "" "" ...
##  $ News_Schedule_Sunday  : chr  "" "" "" "" ...
##  $ Location              : chr  "Point (-97.388134 37.68888)" "" "" "Point (-97.388134 37.68888)" ...
```

And how's it now look as a data frame?

```
View(stations)
```



Filter

	Call_Letter	Logo_List	Logo_Map	Web_1st_UR
1	KAAS			http://www
2	KAAS-2	/resources/assets/sbgi/Logo_List-DEFAULT.jpg	/resources/assets/sbgi/Logo_Map-DEFAULT.jpg	http://sbgi.
3	KAAS-3	/resources/assets/sbgi/Logo_List-DEFAULT.jpg	/resources/assets/sbgi/Logo_Map-DEFAULT.jpg	http://www
4	KAAS-LD			http://www
5	KAAS-LD-2	/resources/assets/sbgi/Logo_List-DEFAULT.jpg	/resources/assets/sbgi/Logo_Map-DEFAULT.jpg	http://sbgi.
6	KAAS-LD-3	/resources/assets/sbgi/Logo_List-DEFAULT.jpg	/resources/assets/sbgi/Logo_Map-DEFAULT.jpg	http://www
7	KABB	kabb_fox.jpg	kabb_fox_map.jpg	http://www
8	KABB-2	/resources/assets/sbgi/Logo_List-DEFAULT.jpg	/resources/assets/sbgi/Logo_Map-DEFAULT.jpg	http://www
9	KABB-3	/resources/assets/sbgi/Logo_List-DEFAULT.jpg	/resources/assets/sbgi/Logo_Map-DEFAULT.jpg	http://sbgi.
10	KAEF	/resources/assets/sbgi/Logo_List-DEFAULT.jpg	/resources/assets/sbgi/Logo_Map-DEFAULT.jpg	http://sbgi.
11	KAEF-2	/resources/assets/sbgi/Logo_List-DEFAULT.jpg	/resources/assets/sbgi/Logo_Map-DEFAULT.jpg	http://sbgi.

Alright, this is a great start.

We can proceed to analyzing it and maybe visualizing it ourselves on a map.

But we'll get to that in later chapters.

Also, it should be noted that JSON is rarely ever this clean.

I forget where this metaphor came from but consider your computer's folder structure right now. How would you communicate the structure of your folders in a spreadsheet?

Tough, right? But possible when necesary.

So JSON is usually nested and messy. But there are ways of dealing with that.