Reading local flat files

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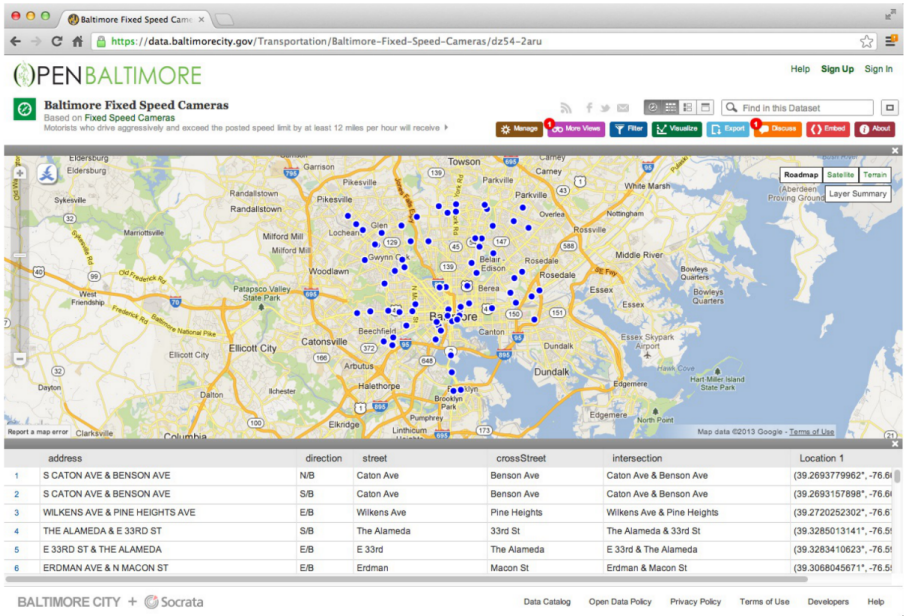
Flat files - text, csv, tab-delimited files, etc.

Example - Baltimore camera data



https://data.baltimorecity.gov/Transportation/Baltimore-Fixed-Speed-Cameras/dz54-2aru

Download the file to load

```
if (!file.exists("data")) {
    dir.create("data")
}
fileUrl <- "https://data.baltimorecity.gov/api/views/dz54-2aru/rows.csv?accessType=DOWNLOAD"
download.file(fileUrl, destfile = "cameras.csv", method = "curl")
dateDownloaded <- date()
```


- Curl method throws an error for me, not sure why — b/c Windows maybe

Loading flat files - read.table()

robust and flexible

- This is the main function for reading data into R
- Flexible and robust but requires more parameters
- Reads the data into RAM - big data can cause problems
- Important parameters *file*, *header*, *sep*, *row.names*, *nrows*
- Related: *read.csv()*, *read.csv2()*

↳ requires fair amount of params, and can be slow
↳ reads data into RAM, can be a problem w/ large data sets

Baltimore example

```
cameraData <- read.table("./data/cameras.csv")
```

```
## Error: line 1 did not have 13 elements
```

```
head(cameraData)
```

```
## Error: object 'cameraData' not found
```

Error b/c is .csv file, need to set 'sep' parameter

Example: Baltimore camera data

```
cameraData <- read.table("./data/cameras.csv", sep = ",", header = TRUE)
head(cameraData)
```

```
##                         address direction      street  crossStreet
## 1       S CATON AVE & BENSON AVE       N/B   Caton Ave   Benson Ave
## 2       S CATON AVE & BENSON AVE       S/B   Caton Ave   Benson Ave
## 3 WILKENS AVE & PINE HEIGHTS AVE       E/B Wilkens Ave Pine Heights
## 4        THE ALAMEDA & E 33RD ST       S/B The Alameda      33rd St
## 5        E 33RD ST & THE ALAMEDA       E/B      E 33rd  The Alameda
## 6        ERDMAN AVE & N MACON ST       E/B      Erdman     Macon St
##                intersection                       Location.1
## 1     Caton Ave & Benson Ave (39.2693779962, -76.6688185297)
## 2     Caton Ave & Benson Ave (39.2693157898, -76.6689698176)
## 3 Wilkens Ave & Pine Heights  (39.2720252302, -76.676960806)
## 4     The Alameda  & 33rd St (39.3285013141, -76.5953545714)
## 5      E 33rd  & The Alameda (39.3283410623, -76.5953594625)
## 6         Erdman  & Macon St (39.3068045671, -76.5593167803)
```

Example: Baltimore camera data

read.csv sets *sep=","* and *header=TRUE*

```
cameraData <- read.csv("./data/cameras.csv")
head(cameraData)
```

```
##                         address direction      street  crossStreet
## 1       S CATON AVE & BENSON AVE       N/B   Caton Ave   Benson Ave
## 2       S CATON AVE & BENSON AVE       S/B   Caton Ave   Benson Ave
## 3 WILKENS AVE & PINE HEIGHTS AVE       E/B Wilkens Ave Pine Heights
## 4        THE ALAMEDA & E 33RD ST       S/B The Alameda      33rd St
## 5        E 33RD ST & THE ALAMEDA       E/B      E 33rd  The Alameda
## 6        ERDMAN AVE & N MACON ST       E/B      Erdman     Macon St
##                 intersection                       Location.1
## 1     Caton Ave & Benson Ave (39.2693779962, -76.6688185297)
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## 4     The Alameda  & 33rd St (39.3285013141, -76.5953545714)
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## 6         Erdman  & Macon St (39.3068045671, -76.5593167803)
```

Some more important parameters

- *quote* - you can tell R whether there are any quoted values quote="" means no quotes.
- *na.strings* - set the character that represents a missing value.
- *nrows* - how many rows to read of the file (e.g. nrows=10 reads 10 lines).
- *skip* - number of lines to skip before starting to read

In my experience, the biggest trouble with reading flat files are quotation marks ` or " placed in data values, setting quote="" often resolves these.

ex. to read rows 3-13, set skip = 2, nrow = 10