How to download real-time detection data directly into R

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Important caveat regarding the use of the "rerddap" R package to download ERDDAP data (such as the realtime telemetry data). The package will store data you download into your computers cache, which allows it to quickly process future requests for the same dataset. This means that if you don't clear this cache before querying the same dataset, you will get the old dataset again, without any new detections that may have occurred. To deal with this, run "cache_delete([your dataframe name])" before querying data (see example in code below).

R script for pulling in data:

```
#####################################################################
#### HOW TO PULL IN REAL-TIME FISH DETECTION DATA INTO R ########
#####################################################################

## install and load the 'rerddap' library
library(rerddap)

## Find out details on the database
db <- info('FEDcalFishTrack', url = "http://oceanview.pfeg.noaa.gov/erddap/")
## This will tell you columns and their data types in database
db$variables
## This will tell you the unique StudyID names
as.data.frame(tabledap('FEDcalFishTrack', url = "http://oceanview.pfeg.noaa.gov/erddap/", fields =
c("Study_ID"), distinct = T))

## Clear the cache before download newest data
cache_delete(dat)

## Download all data (NOT RECOMMENDED, will take a little while, large database).
dat <- tabledap('FEDcalFishTrack', url = "http://oceanview.pfeg.noaa.gov/erddap/")
## ALTERNATIVELY, download only the data you need, see following code snippets

## Download only data from 1 studyID, here for example, Juv_Green_Sturgeon_2018 study
dat <- tabledap('FEDcalFishTrack', url = "http://oceanview.pfeg.noaa.gov/erddap/",
'Study_ID="Juv_Green_Sturgeon_2018"')

## Download only data from 1 receiver location, here for example, "MiddleRiver"
```

```
dat <- tabledap('FEDcalFishTrack', url = "http://oceanview.pfeg.noaa.gov/erddap/",
'general_location="MiddleRiver"')
```

Download only data from a specific time range (in UTC time), here for example, from 1/1/2019 to 1/10/2019
```
dat <- tabledap('FEDcalFishTrack', url = "http://oceanview.pfeg.noaa.gov/erddap/", 'time>=2019-01-01',
'time<=2019-01-10')
```

Download data from a combination of conditions. For example, Study_ID="MillCk_SH_Wild_S2019" and general_location="ButteBrRT"
```
dat <- tabledap('FEDcalFishTrack', url = "http://oceanview.pfeg.noaa.gov/erddap/",
'Study_ID="MillCk_SH_Wild_S2019"', 'general_location="ButteBrRT"')
```

Download only specific columns for a studyID (or a general location, time frame or other constraint)
```
dat <- tabledap('FEDcalFishTrack', url = "http://oceanview.pfeg.noaa.gov/erddap/",
'general_location="MiddleRiver"', fields = c("TagCode","Study_ID"))
```

Finally, download a summary of unique records. Say for example you want to know the unique TagCodes detected in the array from a studyID
```
dat <- tabledap('FEDcalFishTrack', url = "http://oceanview.pfeg.noaa.gov/erddap/",
'Study_ID="DeerCk_SH_Wild_S2019"', fields = c("TagCode"), distinct = T)
```

Or, number of unique fish detected at each receiver location for a studyID
```
dat <- tabledap('FEDcalFishTrack', url = "http://oceanview.pfeg.noaa.gov/erddap/",
'Study_ID="DeerCk_SH_Wild_S2019"', fields = c("general_location","TagCode"), distinct = T)
```

PLEASE NOTE: IF A DATA REQUEST ABOVE RETURNS SIMPLY "Error: ", THIS LIKELY MEANS THE DATA REQUEST CAME UP WITH ZERO RETURNS