

Perform a Batch Query

Individual queries take time to construct, and the more fields and plantings you may be monitoring, the more time this may consume. The batch job API can help streamline the process.

In [6]:

```
suppressWarnings(suppressMessages(library(aWhereAPI)))
httr::set_config(httr::config(ssl_verifypeer = 0L))

library(magrittr)
library(httr)
library(png)
awhere_endpoints <- httr::oauth_endpoint(base_url = "https://api.awhere.com/v2",
                                       access = "https://api.awhere.com/oauth/token",
                                       authorize = NULL,
                                       fields = "fields",
                                       plantings = "agronomics/plantings",
                                       weather = "weather/fields",
                                       imagery = "imagery/weathermaps",
                                       agronomics = "agronomics/fields",
                                       crops = "agronomics/crops",
                                       models = "agronomics/models",
                                       batch = "jobs")

awhere_endpoints$imagery

api_key = "yizhexu@awhere.com"
api_secret = "181225tiancai@X"

get_token(api_key, api_secret)

fields <- get_fields()
fields
```

Out[6]:

'https://api.awhere.com/v2/imagery/weathermaps'

Out[6]:

	fieldName	Acres	farmlId	fieldId	Latitude	Longitude
1	agra_uganda_vk	0.0093	agra_uganda	agra_uganda_1	1.2331	31.4979
2	awhere_headquarter	1	awhere_farmer_1	awhere_headquarter	39.92524	105.1066

The code below should look similar to previous calls you have used to obtain a years' worth of data in a series. You can set up this same sequence of calls in a batch job, which will cut down on the time and server resources it takes to receive your data back.

In [7]:

```
start_date <- "2006-01-01"
end_date <- "2006-12-31"

date_range <- function(start_date, end_date) {
  numObsReturned <- 120

  start <- as.Date(start_date, "%Y-%m-%d")
  end <- as.Date(end_date, "%Y-%m-%d")

  numOfDay <- as.numeric(difftime(end, start, units = 'days'))

  allDates <- seq(start, end, by="days")

  loops <- c(1: (numOfDay %% numObsReturned))

  cbind(startDate = as.character(c(start, start + days(numObsReturned) * loops + 1)),
        endDate = as.character(c(start + days(numObsReturned) * (length(loops))), end)))
}

date <- date_range(start_date, end_date)

str_date <- if(!is.null(date)) {
  sapply(1:dim(date)[1], function(i) {
    paste(date[i,, drop = TRUE], sep = "/", collapse = ",")
  })
}

str_date
```

Out[7]:

```
'2006-01-01,2006-05-01' '2006-05-02,2006-08-29' '2006-08-30,2006-12-27' '2006-12-28,2006-12-31'
```

In [15]:

```
options <- "limit=120"

type <- "observations"
#query <- file.path(awhere_endpoints$weather, fields$fieldId[1], type, str_date) %>% paste(options, sep = "?"
) %>% setNames(paste("quarter", seq(1,4), sep = "_"))
query <- file.path("/v2/weather/fields", fields$fieldId[1], type, str_date) %>% paste(options, sep = "?") %
>% setNames(paste("quarter", seq(1,4), sep = "_"))
query
```

Out[15]:

```
quarter_1
'/v2/weather/fields/agra_uganda_1/observations/2006-01-01,2006-05-01?limit=120'
quarter_2
'/v2/weather/fields/agra_uganda_1/observations/2006-05-02,2006-08-29?limit=120'
quarter_3
'/v2/weather/fields/agra_uganda_1/observations/2006-08-30,2006-12-27?limit=120'
quarter_4
'/v2/weather/fields/agra_uganda_1/observations/2006-12-28,2006-12-31?limit=120'
```

The queries below are the sequence of HTTP commands that you want to be sent to the API in a batch. Remember that the R command GET() that you have previously used is different from the GET used below - GET() is coded in R to perform a similar function as GET does in HTTP. However, in a batch call we will want to send HTTP-formatted requests directly to the server.

In [16]:

```
paste0("GET ", query)
```

Out[16]:

```
'GET /v2/weather/fields/agra_uganda_1/observations/2006-01-01,2006-05-01?limit=120'
'GET /v2/weather/fields/agra_uganda_1/observations/2006-05-02,2006-08-29?limit=120'
'GET /v2/weather/fields/agra_uganda_1/observations/2006-08-30,2006-12-27?limit=120'
'GET /v2/weather/fields/agra_uganda_1/observations/2006-12-28,2006-12-31?limit=120'
```

In [17]:

```
request_body <- data.frame(title = "agra_uganda_1_yearly_batch", type = "batch", requests = "batch_queries") %>% jsonlite::toJSON(pretty=TRUE) %>% gsub("\\[|\\]", "", .)
request_body
```

Out[17]:

```
{
  "title": "agra_uganda_1_yearly_batch",
  "type": "batch",
  "requests": "batch_queries"
}
```

In [18]:

```
requests <- data.frame("title" = names(query), "api" = paste0("GET ", query)) %>% jsonlite::toJSON(pretty=TRUE)
```

In [19]:

```
new_request_body <- gsub(pattern = "batch_queries", requests, request_body) %>% gsub('\\\\"\\|', "\\|", .) %>%
% gsub('\\|\\|\\|', "\\|", .)
new_request_body
```

Out[19]:

```
{
  "title": "agra_uganda_1_yearly_batch",
  "type": "batch",
  "requests": [
    {
      "title": "quarter_1",
      "api": "GET /v2/weather/fields/agra_uganda_1/observations/2006-01-01,2006-05-01?limit=120"
    },
    {
      "title": "quarter_2",
      "api": "GET /v2/weather/fields/agra_uganda_1/observations/2006-05-02,2006-08-29?limit=120"
    },
    {
      "title": "quarter_3",
      "api": "GET /v2/weather/fields/agra_uganda_1/observations/2006-08-30,2006-12-27?limit=120"
    },
    {
      "title": "quarter_4",
      "api": "GET /v2/weather/fields/agra_uganda_1/observations/2006-12-28,2006-12-31?limit=120"
    }
  ]
}
```

Use a POST request to send out the batch job body

In [54]:

```
awhere_endpoints$batch
```

Out[54]:

```
'https://api.awhere.com/v2/jobs'
```

In [20]:

```
request <- POST(paste0(awhere_endpoints$batch, "/"),
  body = new_request_body,
  content_type('application/json'),
  add_headers(Authorization = paste0("Bearer ", awhereEnv75247$token)))

content(request)$jobId
```

Out[20]:

```
45072
```

In [14]:

```
query <- file.path(awhere_endpoints$batch, content(request)$jobId)
DELETE(query, add_headers(Authorization = paste0("Bearer ", awhereEnv75247$token)))
```

Out[14]:

['https://api.awhere.com/v2/jobs/45071'](https://api.awhere.com/v2/jobs/45071)

Out[14]:

Response [<https://api.awhere.com/v2/jobs/45071>]

Date: 2016-03-17 19:55

Status: 204

Content-Type: <unknown>

<EMPTY BODY>

NULL

Get Batch Job Status and Results

After you've created a batch job, you'll need to send a query to check the status of the job, and if finished, retrieve the results. (Sample results displayed in abridged format at bottom)

In [1]:

```
suppressWarnings(suppressMessages(library(aWhereAPI))
httr::set_config(httr::config(ssl_verifypeer = 0L))

library(magrittr)
library(httr)
library(png)
awhere_endpoints <- httr::oauth_endpoint(base_url = "https://api.awhere.com/v2",
                                       access = "https://api.awhere.com/oauth/token",
                                       authorize = NULL,
                                       fields = "fields",
                                       plantings = "agronomics/plantings",
                                       weather = "weather/fields",
                                       imagery = "imagery/weathermaps",
                                       agronomics = "agronomics/fields",
                                       crops = "agronomics/crops",
                                       models = "agronomics/models",
                                       batch = "jobs")

awhere_endpoints$imagery

api_key = "yizhexu@awhere.com"
api_secret = "*****"

get_token(api_key, api_secret)

fields <- get_fields()
fields
```

Warning message:
: package 'magrittr' was built under R version 3.2.4
Warning message:
: package 'png' was built under R version 3.2.4

Out[1]:

'https://api.awhere.com/v2/imagery/weathermaps'

Out[1]:

	fieldName	Acres	farmId	fieldId	Latitude	Longitude
1	agra_uganda_vk	0.0093	agra_uganda	agra_uganda_1	1.2331	31.4979
2	agra_uganda_vk	0.0093406	agra_uganda	agra_uganda_2	1.2331	31.498
3	agra_uganda_vk	0.0093406	agra_uganda	agra_uganda_3	1.2331	31.498
4	agra_uganda_vk	0.009340583	agra_uganda	agra_uganda_4	1.23315	31.49786
5	awhere_headquarter	1	awhere_farmer_1	awhere_headquarter	39.92524	105.1066
6	My First Field	100	Farm-100	field1	39.8282	-98.5795

In [2]:

```
type <- "observations"
query <- file.path(awhere_endpoints$batch, "45072")
query
```

Out[2]:

'https://api.awhere.com/v2/jobs/45072'

In [3]:

```
request <- GET(query, add_headers(Authorization = paste0("Bearer ", awhereEnv75247$token))) %>% content()
```

In [4]:

```
request$results[[1]]$payload$observations %>% jsonlite::toJSON(pretty = TRUE) %>% jsonlite::fromJSON(flatte  
n = TRUE)
```

Out[4]:

	date	location.latitude	location.longitude	location.fieldId	temperatures.max	temperatures.min	temperatures.units
1	2006-01-01	1.2331	31.4979	agra_uganda_1	29.73	19.44	C
2	2006-01-02	1.2331	31.4979	agra_uganda_1	32.02	18.29	C
3	2006-01-03	1.2331	31.4979	agra_uganda_1	30.5	21.08	C
4	2006-01-04	1.2331	31.4979	agra_uganda_1	29.29	19.23	C
5	2006-01-05	1.2331	31.4979	agra_uganda_1	31.88	20.36	C
...							
116	2006-04-26	1.2331	31.4979	agra_uganda_1	30.15	21.33	C
117	2006-04-27	1.2331	31.4979	agra_uganda_1	29.24	20.29	C
118	2006-04-28	1.2331	31.4979	agra_uganda_1	28.65	21.18	C
119	2006-04-29	1.2331	31.4979	agra_uganda_1	30.18	21.57	C
120	2006-04-30	1.2331	31.4979	agra_uganda_1	31.05	19.13	C

In [5]:

```
do.call(rbind, lapply(1:length(request$results), function(i) {  
  request$results[[i]]$payload$observations %>% jsonlite::toJSON(pretty = TRUE) %>% jsonlite::fromJSON(fl  
atten = TRUE)  
}))
```

Out[5]:

	date	location.latitude	location.longitude	location.fieldId	temperatures.max	temperatures.min	temperatures.units
1	2006-01-01	1.2331	31.4979	agra_uganda_1	29.73	19.44	C
2	2006-01-02	1.2331	31.4979	agra_uganda_1	32.02	18.29	C
3	2006-01-03	1.2331	31.4979	agra_uganda_1	30.5	21.08	C
4	2006-01-04	1.2331	31.4979	agra_uganda_1	29.29	19.23	C
5	2006-01-05	1.2331	31.4979	agra_uganda_1	31.88	20.36	C
...							
360	2006-12-27	1.2331	31.4979	agra_uganda_1	28.05	19.95	C
361	2006-12-28	1.2331	31.4979	agra_uganda_1	25.36	18.55	C
362	2006-12-29	1.2331	31.4979	agra_uganda_1	24.54	17.81	C
363	2006-12-30	1.2331	31.4979	agra_uganda_1	21.96	16.86	C
364	2006-12-31	1.2331	31.4979	agra_uganda_1	25.44	17.96	C