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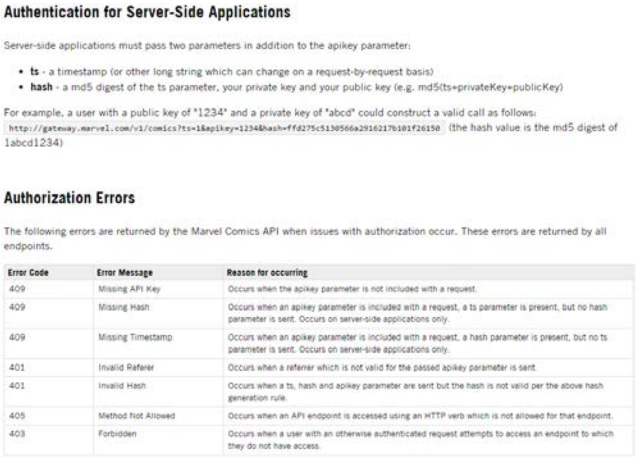
CS 290, Spring 2017
How-To Proposal

I am choosing to do the Marvel Comics API (pre-approved list) for my how to guide. Instead of allowing access to just specific comic book issues, this API gives methods for fetching six types of resources (comics, comic series, comic stories, comic events and crossovers, creators, and characters). The endpoints for the API only accept GET requests. Once an API key is obtained, the developer account allows you to restrict API calls with that key to a specific domain, a nice security feature.



Authentication for Server-Side Applications

Server-side applications must pass two parameters in addition to the apikey parameter:

- **ts** - a timestamp (or other long string which can change on a request-by-request basis)
- **hash** - a md5 digest of the ts parameter, your private key and your public key (e.g. md5(ts+privateKey+publicKey)

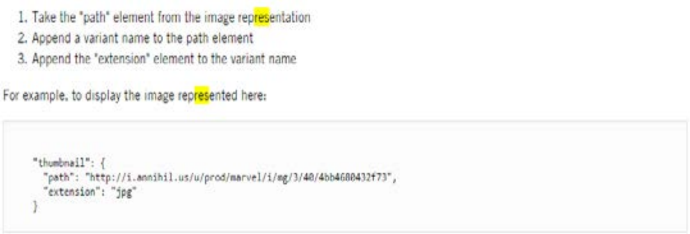
For example, a user with a public key of "1234" and a private key of "abcd" could construct a valid call as follows: `http://gateway.marvel.com/v1/comics?ts=1&apikey=1234&hash=ffd275c5130566a2916217b101f26150` (the hash value is the md5 digest of 1abcd1234)

Authorization Errors

The following errors are returned by the Marvel Comics API when issues with authorization occur. These errors are returned by all endpoints.

Error Code	Error Message	Reason for occurring
409	Missing API Key	Occurs when the apikey parameter is not included with a request.
409	Missing Hash	Occurs when an apikey parameter is included with a request, a ts parameter is present, but no hash parameter is sent. Occurs on server-side applications only.
409	Missing Timestamp	Occurs when an apikey parameter is included with a request, a hash parameter is present, but no ts parameter is sent. Occurs on server-side applications only.
401	Invalid Referer	Occurs when a referrer which is not valid for the passed apikey parameter is sent.
401	Invalid Hash	Occurs when a ts, hash and apikey parameter are sent but the hash is not valid per the above hash generation rule.
405	Method Not Allowed	Occurs when an API endpoint is accessed using an HTTP verb which is not allowed for that endpoint.
403	Forbidden	Occurs when a user with an otherwise authenticated request attempts to access an endpoint to which they do not have access.

One early challenge I came across, is the protocol for passing authentication (see picture to left). I don't have experience with hashing, but the procedure seems fairly straightforward. The ability to make calls that can filter various events in the massive Marvel universe should provide ample enough material to write a how to that is challenging but not possible before the project due date. Using the interactive documentation I was able to make a test call for the maximum carnage event in the Spider-Man story line and Spider-Man's character id. This returned (among other things) a list of characters involved, and a portrait. As part of my how to I plan to show how to do a few queries in increasing complexity and return information about the comics, including the portrait returned.

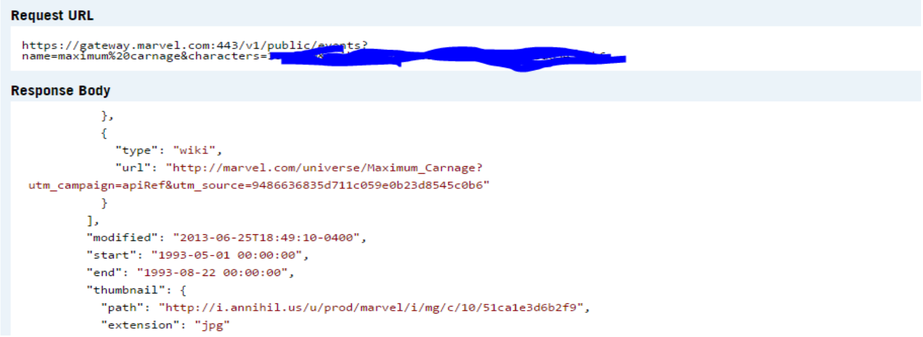


1. Take the "path" element from the image representation
2. Append a variant name to the path element
3. Append the "extension" element to the variant name

For example, to display the image represented here:

```
"thumbnail": {
  "path": "http://i.annihil.us/u/prod/marvel/i/mg/3/40/4bb4680432f73",
  "extension": "jpg"
}
```

The API returns partial paths to images, and the full path must be built based on the size of image you want. Above is an example of the "x large" version of the portrait returned from my test call. Below is an example of my event test call using the fantastic interactive documentation. I'm look forward to writing this guide and working more with this fantastic API.



Request URL

```
https://gateway.marvel.com:443/v1/public/e  ts?
name=maximum%20carnage&characters=[redacted]
```

Response Body

```
            },
            {
              "type": "wiki",
              "url": "http://marvel.com/universe/Maximum_Carnage?
 utm_campaign=apiRef&utm_source=9486636835d711c059e0b23d8545c0b6"
            }
          ],
          "modified": "2013-06-25T18:49:10-0400",
          "start": "1993-05-01 00:00:00",
          "end": "1993-08-22 00:00:00",
          "thumbnail": {
            "path": "http://i.annihil.us/u/prod/marvel/i/mg/c/10/51ca1e3d6b2f9",
            "extension": "jpg"
```