

# Basic retrieval

There are multiple ways to fetch data from a storage provider. This page covers some of the most popular methods.

Lassie

Lassie is a simple retrieval client for IPFS and Filecoin. It finds and fetches your data over the best retrieval protocols available. Lassie makes Filecoin retrieval easy. While Lassie is powerful, the core functionality is expressed in a single CLI command:

...

Copy `lassiefetch`

...

Lassie also provides an HTTP interface for retrieving IPLD data from IPFS and Filecoin peers. Developers can use this interface directly in their applications to retrieve the data.

Lassie fetches content in content-addressed archive (CAR) form, so in most cases, you will need additional tooling to deal with CAR files. Lassie can also be used as a library to fetch data from Filecoin from within your application. Due to the diversity of data transport protocols in the IPFS ecosystem, Lassie is able to use the Graphsync or Bitswap protocols, depending on how the requested data is available to be fetched. One prominent use case of Lassie as a library is the Saturn Network . Saturn nodes fetch content from Filecoin and IPFS through Lassie in order to serve retrievals.

?

Retrieve using Lassie

Make sure that you have [Go](#) installed and that your GOPATH is set up. By default, your GOPATH will be set to ~/go .Install Lassie#

1. Download the [Lassie Binary from the latest release](#)
2. based on your system architecture.
3. Or download and install Lassie using the Go package manager:
- 4.

...

Copy go install `github.com/filecoin-project/lassie/cmd/lassie@latest`

...

1. Download the [go-car binary from the latest release](#)
2. based on your system architecture or install the [go-car](#)
3. package using the Go package manager. The go-car package makes it easier to work with content-addressed archive (CAR) files:
- 4.

...

Copy go install `github.com/ipld/go-car/cmd/car@latest`

...

You now have everything you need to retrieve a file with Lassie and extract the contents with `go-car` .

Retrieve

To retrieve data from Filecoin using Lassie, all you need is the CID of the content you want to download.

The video below demonstrates how Lassie can be used to render content directly from Filecoin and IPFS.

Lassie and `go-car` can work together to retrieve and extract data from Filecoin. All you need is the CID of the content to download.

...

Copy `lassiefetch-o|carextract`

...

This command uses `|` to chain two commands together. This will work on Linux or macOS. Windows users may need to use PowerShell to use this form. Alternatively, you can use the commands separately, as explained later on this page.

An example of fetching and extracting a single file, identified by its CID:

...

Copy `lassiefetch-o-bafykbzaceatihez66rzmzuvfx5nqqik73hlphem3dvagmixmay3arvqd66ng6|carextract->lidar-data.tar`

...

Basic progress information, similar to the output shown below, is displayed:

...

Copy Fetching

bafykbzaceatihez66rzmzuvfx5nqqik73hlphem3dvagmixmay3arvqd66ng6.....  
Fetched [bafykbzaceatihez66rzmzuvfx5nqqik73hlphem3dvagmixmay3arvqd66ng6] from [12D3KooWPNbkEgjdBNeaCGpsgCrPREte4uBZf1ShFXStobdN18ys]:  
Duration: 42.259908785s Blocks: 144 Bytes: 143 MiB extracted 1 file(s)

...

The resulting file is a tar archive:

...

Copy ls-l

**total 143M**

**-rw-rw-r-- 1 user user 143M Feb 16 11:21 lidar-data.tar**

...

Lassie CLI usage

Lassie's usage for retrieving data is as follows:

...

Copy lassiefetch-p-o/path/to/content

...

- -p
- is an optional flag that tells Lassie that you would like to see detailed progress information as it fetches your data.
- For example:
- ...
- Copy
- Fetching bafykbzaceatihez66rzmzuvfx5nqqik73hlphem3dvagmixmay3arvqd66ng6
- Querying indexer for bafykbzaceatihez66rzmzuvfx5nqqik73hlphem3dvagmixmay3arvqd66ng6...
- Found 4 storage providers candidates from the indexer, querying all of them:
- 12D3KooWPNbkEgjdBNeaCGpsgCrPRETe4uBZf1ShFXStobdN18ys
- 12D3KooWNHwmwNRkMEP6VqDCpjSZkqripoJgN7eWruvXXqC2kG9f
- 12D3KooWKGCCcFVSAUXxe7YP62wiwsBvpCmMomnNauJCA67XbmHYj
- 12D3KooWLDf6KCzeMv16qPRaJsTLKJ5fR523h65iaYSRNfrQy7eU
- Querying [12D3KooWLDf6KCzeMv16qPRaJsTLKJ5fR523h65iaYSRNfrQy7eU] (started)...
- Querying [12D3KooWKGCCcFVSAUXxe7YP62wiwsBvpCmMomnNauJCA67XbmHYj] (started)...
- ...
- ...
- -o
- is an optional flag that tells Lassie where to write the output to. If you don't specify a file, it will append.car
- to your CID and use that as the output file name.
- 

If you specify -p , the output will be written to stdout so it can be piped to another command, such as go-car , or redirected to a file.

- /path/to/content
- is the CID of the content you want to retrieve and an optional path to a specific file within that content. Example:
- ...
- Copy
- lassiefetch-o-bafybeiaysi4s6lnjev27ln5icwm6tueaw2vdykrtjkwiphwekaywqhczje/wiki/Cryptographic\_hash\_function|carextract-|less
- ...
- 

A CID is always necessary, and if you don't specify a path, Lassie will attempt to download the entire content. If you specify a path, Lassie will only download that specific file or, if it is a directory, the entire directory and its contents.

go-car CLI usage

The car extract command can be used to extract files and directories from a CAR:

...

Copy carextract-f[/path/to/file/or/directory]

...

- -f
- is an optional flag that tells go-car
- where to read the input from. If omitted, it will read from stdin
- , as in our example above where we piped lassie fetch -o -
- output to car extract
- .
- /path/to/file/or/directory
- is an optional path to a specific file or directory within the CAR. If omitted, it will attempt to extract the entire CAR.
- 
- is an optional argument that tells go-car
- where to write the output to. If omitted, it will be written to the current directory.
- 

If you supply -p , as in the above example, it will attempt to extract the content directly to stdout . This will only work if we are extracting a single file.

In the example above, where we fetched a file named lidar-data.tar , the > operator was used to redirect the output of car extract to a named file. This is because the content we fetched was raw file data that did not have a name encoded. In this case, if we didn't use - and > filename , go-car would write to a file named unknown . In this instance, go-car was used to reconstitute the file from the raw blocks contained within Lassie's CAR output.

go-car has other useful commands. The first is car ls , which can be used to list the contents of a CAR. The second is car inspect , which can be used to inspect the contents of the CAR and optionally verify the integrity of a CAR.

And there we have it! Downloading and managing data from Filecoin is super simple when you use Lassie and Go-car!

Lassie HTTP daemon

The Lassie HTTP daemon is an HTTP interface for retrieving IPLD data from IPFS and Filecoin peers. It fetches content from peers known to have it and provides the resulting data in CAR format.

...

Copy `GET/ipfs/{cid}/{path}[?params]`

...

AGET query against a Lassie HTTP daemon allows retrieval from peers that have the content identified by the given root CID, streaming the DAG in the response in [CAR \(v1\)](#) format. You can read more about the HTTP request and response to the daemon in [Lassie's HTTP spec](#) . Lassie's HTTP interface can be a very powerful tool for web applications that require fetching data from Filecoin and IPFS.

Lassie's CAR format

Lassie only returns data in CAR format, specifically [CARv1](#) format. [Lassie's car spec](#) describes the nature of the CAR data returned by Lassie and the various options available to the client for manipulating the output.

[Previous](#) [How retrieval works](#) [Next](#) [Serving retrievals](#)

Last updated 6 months ago