

Example: downloading data using Fido

Reference http://docs.sunpy.org/en/stable/guide/acquiring_data/fido.html

See also: [Example: downloading data from JSOC](#)

```
import astropy.units as u

from sunpy.net import Fido, attrs
```

To be clear, here we use

```
from sunpy.net import Fido, attrs
```

instead of examples in http://docs.sunpy.org/en/stable/guide/acquiring_data/jsoc.html

```
from sunpy.net import Fido, attrs as a
```

Searching for data

```
response = Fido.search(
    attrs.Time('2014-01-01T00:00:00', '2014-01-01T00:01:00'),
    # UTC time as default
    attrs.Instrument('aia'),
    attrs.Wavelength(304 * u.AA) | attrs.Wavelength(171 * u.AA)
)
response
```

Results from 2 Providers:5 Results from the VSOClient:QTable length=5

Start Time [1]	End Time [1]	Source	Instrument	Type	Wavelength [2]
					Angstrom
str19	str19	str3	str3	str8	float64
2014-01-01 00:00:07	2014-01-01 00:00:08	SDO	AIA	FULLDISK	304.0 .. 304.0
2014-01-01 00:00:19	2014-01-01 00:00:20	SDO	AIA	FULLDISK	304.0 .. 304.0
2014-01-01 00:00:31	2014-01-01 00:00:32	SDO	AIA	FULLDISK	304.0 .. 304.0
2014-01-01 00:00:43	2014-01-01 00:00:44	SDO	AIA	FULLDISK	304.0 .. 304.0
2014-01-01 00:00:55	2014-01-01 00:00:56	SDO	AIA	FULLDISK	304.0 .. 304.0

5 Results from the VSOClient:QTable length=5

Start Time [1]	End Time [1]	Source	Instrument	Type	Wavelength [2]
					Angstrom
str19	str19	str3	str3	str8	float64
2014-01-01 00:00:11	2014-01-01 00:00:12	SDO	AIA	FULLDISK	171.0 .. 171.0
2014-01-01 00:00:23	2014-01-01 00:00:24	SDO	AIA	FULLDISK	171.0 .. 171.0
2014-01-01 00:00:35	2014-01-01 00:00:36	SDO	AIA	FULLDISK	171.0 .. 171.0
2014-01-01 00:00:47	2014-01-01 00:00:48	SDO	AIA	FULLDISK	171.0 .. 171.0
2014-01-01 00:00:59	2014-01-01 00:01:00	SDO	AIA	FULLDISK	171.0 .. 171.0

Indexing

- First index: client (still necessary even if results are only found for a single client)
- Second index: rows (must be integers or slices, **not list**)

See also http://docs.sunpy.org/en/stable/guide/acquiring_data/fido.html#indexing-search-results

```
response[1]
```

Results from 1 Provider:5 Results from the VSOClient:QTable length=5

Start Time [1]	End Time [1]	Source	Instrument	Type	Wavelength [2]
					Angstrom
str19	str19	str3	str3	str8	float64
2014-01-01 00:00:11	2014-01-01 00:00:12	SDO	AIA	FULLDISK	171.0 .. 171.0
2014-01-01 00:00:23	2014-01-01 00:00:24	SDO	AIA	FULLDISK	171.0 .. 171.0
2014-01-01 00:00:35	2014-01-01 00:00:36	SDO	AIA	FULLDISK	171.0 .. 171.0
2014-01-01 00:00:47	2014-01-01 00:00:48	SDO	AIA	FULLDISK	171.0 .. 171.0
2014-01-01 00:00:59	2014-01-01 00:01:00	SDO	AIA	FULLDISK	171.0 .. 171.0

```
response[1, ::2]
```

Results from 1 Provider:3 Results from the VSOClient:QTable length=3

Start Time [1]	End Time [1]	Source	Instrument	Type	Wavelength [2]
					Angstrom
str19	str19	str3	str3	str8	float64
2014-01-01 00:00:11	2014-01-01 00:00:12	SDO	AIA	FULLDISK	171.0 .. 171.0
2014-01-01 00:00:35	2014-01-01 00:00:36	SDO	AIA	FULLDISK	171.0 .. 171.0
2014-01-01 00:00:59	2014-01-01 00:01:00	SDO	AIA	FULLDISK	171.0 .. 171.0

```
response[0, 1]
```

Results from 1 Provider:1 Results from the VSOClient:QTable length=1

Start Time [1]	End Time [1]	Source	Instrument	Type	Wavelength [2]
					Angstrom
str19	str19	str3	str3	str8	float64
2014-01-01 00:00:19	2014-01-01 00:00:20	SDO	AIA	FULLDISK	304.0 .. 304.0

Downloading data

Download the entire results:

```
res = Fido.fetch(response, path='./data')
```

Download a subset:

```
res = Fido.fetch(response[0, 0], path='./data')
```

`Fido.fetch` will output a progress bar by default.