xarray.cftime_range

xarray.cftime_range(*start=None, end=None, periods=None, freq='D', normalize=False, name=None, closed=None, calendar='standard'*)

Return a fixed frequency CFTimeIndex.

Parameters:

- **start** (`str` or `cftime.datetime` , *optional*) – Left bound for generating dates.
- **end** (`str` or `cftime.datetime` , *optional*) – Right bound for generating dates.
- **periods** (`int` , *optional*) – Number of periods to generate.
- **freq** (`str` or `None` , *default*: `"D"`) – Frequency strings can have multiples, e.g. “5H”.
- **normalize** (`bool` , *default*: `False`) – Normalize start/end dates to midnight before generating date range.
- **name** (`str` , *default*: `None`) – Name of the resulting index
- **closed** (`{"left", "right"}` or `None` , *default*: `None`) – Make the interval closed with respect to the given frequency to the “left”, “right”, or both sides (None).
- **calendar** (`str` , *default*: `"standard"`) – Calendar type for the datetimes.

Returns:

Return type: `CFTimeIndex`

Notes

This function is an analog of `pandas.date_range` for use in generating sequences of `cftime.datetime` objects. It supports most of the features of `pandas.date_range` (e.g. specifying how the index is `closed` on either side, or whether or not to `normalize` the start and end bounds); however, there are some notable exceptions:

- You cannot specify a `tz` (time zone) argument.
- Start or end dates specified as partial-datetime strings must use the ISO-8601 format.
- It supports many, but not all, frequencies supported by `pandas.date_range` . For example it does not currently support any of the business-related, semi-monthly, or sub-second frequencies.
- Compound sub-monthly frequencies are not supported, e.g. ‘1H1min’, as these can easily be written in terms of the finest common resolution, e.g. ‘61min’.

Valid simple frequency strings for use with `cftime`-calendars include any multiples of the following.

Alias	Description
A, Y	Year-end frequency
AS, YS	Year-start frequency
Q	Quarter-end frequency
QS	Quarter-start frequency
M	Month-end frequency
MS	Month-start frequency
D	Day frequency
H	Hour frequency
T, min	Minute frequency
S	Second frequency

Any multiples of the following anchored offsets are also supported.

Alias	Description
A(S)-JAN	Annual frequency, anchored at the end (or beginning) of January
A(S)-FEB	Annual frequency, anchored at the end (or beginning) of February
A(S)-MAR	Annual frequency, anchored at the end (or beginning) of March
A(S)-APR	Annual frequency, anchored at the end (or beginning) of April
A(S)-MAY	Annual frequency, anchored at the end (or beginning) of May
A(S)-JUN	Annual frequency, anchored at the end (or beginning) of June
A(S)-JUL	Annual frequency, anchored at the end (or beginning) of July
A(S)-AUG	Annual frequency, anchored at the end (or beginning) of August
A(S)-SEP	Annual frequency, anchored at the end (or beginning) of September
A(S)-OCT	Annual frequency, anchored at the end (or beginning) of October
A(S)-NOV	Annual frequency, anchored at the end (or beginning) of November

Alias	Description
A(S)-DEC	Annual frequency, anchored at the end (or beginning) of December
Q(S)-JAN	Quarter frequency, anchored at the end (or beginning) of January
Q(S)-FEB	Quarter frequency, anchored at the end (or beginning) of February
Q(S)-MAR	Quarter frequency, anchored at the end (or beginning) of March
Q(S)-APR	Quarter frequency, anchored at the end (or beginning) of April
Q(S)-MAY	Quarter frequency, anchored at the end (or beginning) of May
Q(S)-JUN	Quarter frequency, anchored at the end (or beginning) of June
Q(S)-JUL	Quarter frequency, anchored at the end (or beginning) of July
Q(S)-AUG	Quarter frequency, anchored at the end (or beginning) of August
Q(S)-SEP	Quarter frequency, anchored at the end (or beginning) of September
Q(S)-OCT	Quarter frequency, anchored at the end (or beginning) of October
Q(S)-NOV	Quarter frequency, anchored at the end (or beginning) of November
Q(S)-DEC	Quarter frequency, anchored at the end (or beginning) of December

Finally, the following calendar aliases are supported.

Alias	Date type
standard, gregorian	`cftime.DatetimeGregorian`
proleptic_gregorian	`cftime.DatetimeProlepticGregorian`
noleap, 365_day	`cftime.DatetimeNoLeap`
all_leap, 366_day	`cftime.DatetimeAllLeap`
360_day	`cftime.Datetime360Day`
julian	`cftime.DatetimeJulian`

Examples

This function returns a `CFTimeIndex`, populated with `cftime.datetime` objects associated with the specified calendar type, e.g.

```
>>> xr.cftime_range(start="2000", periods=6, freq="2MS", calendar="noleap")
CFTimeIndex([2000-01-01 00:00:00, 2000-03-01 00:00:00, 2000-05-01 00:00:00,
             2000-07-01 00:00:00, 2000-09-01 00:00:00, 2000-11-01 00:00:00],
            dtype='object', length=6, calendar='noleap', freq='2MS')
```

As in the standard pandas function, three of the `start`, `end`, `periods`, or `freq` arguments must be specified at a given time, with the other set to `None`. See the pandas documentation for more examples of the behavior of `date_range` with each of the parameters.

See also

`pandas.date_range`