Interpolate

Induce missing values in the time series by interpolation.

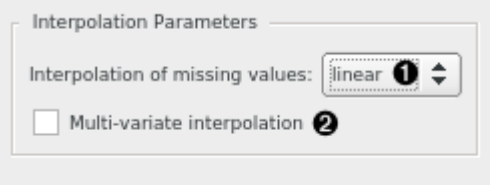
Inputs

- Time series: Time series as output by **As Timeseries** widget.

Outputs

- Time series: The input time series with the chosen default interpolation method for when the algorithms require interpolated time series (without missing values).
- Interpolated time series: The input time series with any missing values interpolated according to the chosen interpolation method.

Most time series algorithms assume, you don't have any missing values in your data. In this widget, you can chose the interpolation method to impute the missing values with. By default, it's linear interpolation (fast and reasonable default).

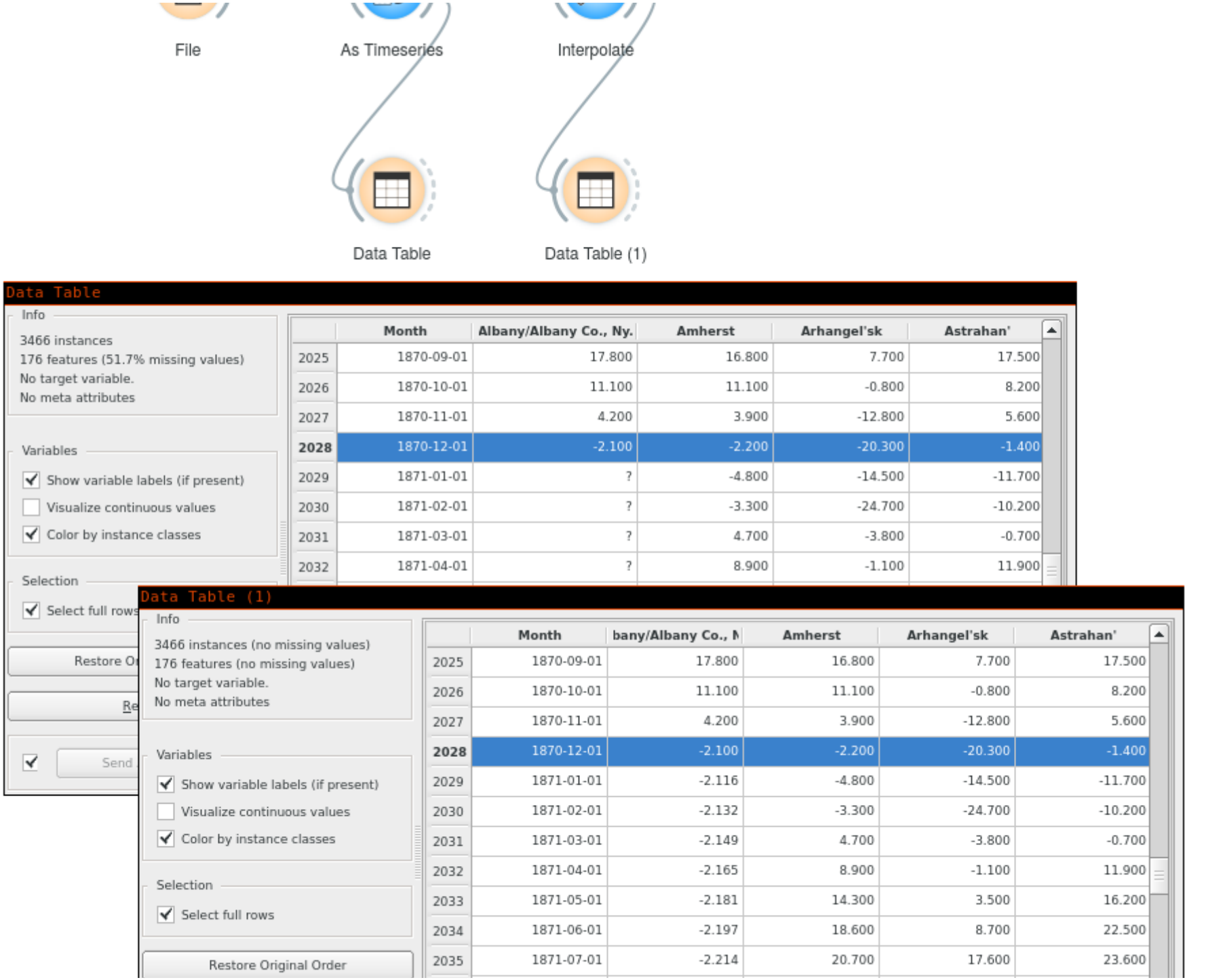


1. Interpolation type. You can select one of linear, cubic spline, nearest, or mean interpolation:
    - **Linear** interpolation replaces missing values with linearly-spaced values between the two nearest defined data points.
    - **Spline** interpolation fits a cubic polynomial to the points around the missing values. This is a painfully slow method that usually gives best results.
    - **Nearest** interpolation replaces missing values with the previous defined value.
    - **Mean** interpolation replaces missing values with the series' mean.
2. **Multi-variate interpolation** interpolates the whole series table as a two-dimensional plane instead of as separate single-dimensional series.

Missing values on the series' end points (head and tail) are always interpolated using *nearest* method. Unless the interpolation method is set to *nearest*, discrete time series (i.e. sequences) are always imputed with the series' *mode* (most frequent value).

Example

Pass a time series with missing values in, get interpolated time series out.


File
As Timeseries
Interpolate
Data Table
Data Table (1)
Data Table
Info
3466 instances
176 features (51.7% missing values)
No target variable.
No meta attributes
Variables
Show variable labels (if present)
Visualize continuous values
Color by instance classes
Selection
Select full rows
Restore Original Order
Send
Month
Albany/Albany Co., Ny.
Amherst
Arhangel'sk
Astrahan'
2025 1870-09-01 17.800 16.800 7.700 17.500
2026 1870-10-01 11.100 11.100 -0.800 8.200
2027 1870-11-01 4.200 3.900 -12.800 5.600
2028 1870-12-01 -2.100 -2.200 -20.300 -1.400
2029 1871-01-01 ? -4.800 -14.500 -11.700
2030 1871-02-01 ? -3.300 -24.700 -10.200
2031 1871-03-01 ? 4.700 -3.800 -0.700
2032 1871-04-01 ? 8.900 -1.100 11.900
Data Table (1)
Info
3466 instances (no missing values)
176 features (no missing values)
No target variable.
No meta attributes
Variables
Show variable labels (if present)
Visualize continuous values
Color by instance classes
Selection
Select full rows
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2025 1870-09-01 17.800 16.800 7.700 17.500
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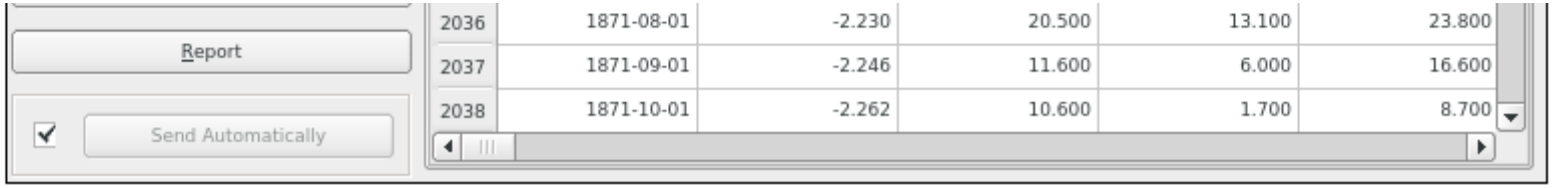
2027 1870-11-01 4.200 3.900 -12.800 5.600
2028 1870-12-01 -2.100 -2.200 -20.300 -1.400
2029 1871-01-01 -2.116 -4.800 -14.500 -11.700
2030 1871-02-01 -2.132 -3.300 -24.700 -10.200
2031 1871-03-01 -2.149 4.700 -3.800 -0.700
2032 1871-04-01 -2.165 8.900 -1.100 11.900
2033 1871-05-01 -2.181 14.300 3.500 16.200
2034 1871-06-01 -2.197 18.600 8.700 22.500
2035 1871-07-01 -2.214 20.700 17.600 23.600



2036	1871-08-01	-2.230	20.500	13.100	23.800
2037	1871-09-01	-2.246	11.600	6.000	16.600
2038	1871-10-01	-2.262	10.600	1.700	8.700