# Date Formatting and Math

JSONata uses something called a “picture string” to let you decide how your date and time shows up. Basically, you put together a mix of shortcuts and symbols to tell it which bits you want—like year, month, hour, and so on.

Here’s how it works:

* **Component Specifiers:** These are simple codes for each part of the date and time. For example, [Y] means year, [M] is month, [D] is day, [H] is hour (24-hour), [h] is hour (12-hour), [m] is minute, [s] is second, and [ZN] is time zone name.
* **Literal Text:** Anything in your string that isn’t a shortcut gets added as-is to the output.
* **Modifiers:** You can tweak things like the number of digits, make parts uppercase, or add padding (like [Y0001] to make sure the year is always four digits long).
* **Separators:** Use dashes, colons, or spaces to break up the different parts however you want.

## Examples:

See: [date-formatting-and-math.json](https://github.com/JoelGeraci/document-generation-cookbook/blob/main/mergeData/date-formatting-and-math.json) for for field reference

|  |  |  |  |
| --- | --- | --- | --- |
| **Field** | **Format** | **JSONata** | **Result** |
| Now | ISO 8601 | $now() | {{ $now() }} |
| Now | Milliseconds | $millis() | {{ $millis() }} |
| Now | Formatted Date/Time | $fromMillis($millis(), '[M01]/[D01]/[Y0001] [h#1]:[m01][P]') | {{ $fromMillis($millis(), '[M01]/[D01]/[Y0001] [h#1]:[m01][P]') }} |
| date | Formatted Date | $fromMillis($toMillis(`date`, "[Y]-[M]-[D]"), "[MNn] [D], [Y]") | {{ $fromMillis($toMillis(`date`, '[Y]-[M]-[D]'), '[MNn] [D], [Y]') }} |
| dateWords | Reformatted Date | $fromMillis($toMillis(`dateWords`, '[MNn] [D], [Y]'), '[M01]/[D01]/[Y0001]') | {{ $fromMillis($toMillis(`dateWords`, '[MNn] [D], [Y]'), '[M01]/[D01]/[Y0001]') }} |
| date | Elapsed time in years | $floor(($millis() - $toMillis(`date`, '[Y]-[M]-[D]')) / 1000 / 60 / 60 / 24 / 365.25) | {{ $floor(($millis() - $toMillis(`date`, '[Y]-[M]-[D]')) / 1000 / 60 / 60 / 24 / 365.25) }} |