



WP breaks time & how to fix it

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- [Rarst.net](#)
- WP contractor
- 1 Gs old
- 325 Ms WP
- Date/Time maintainer



Had you ever...

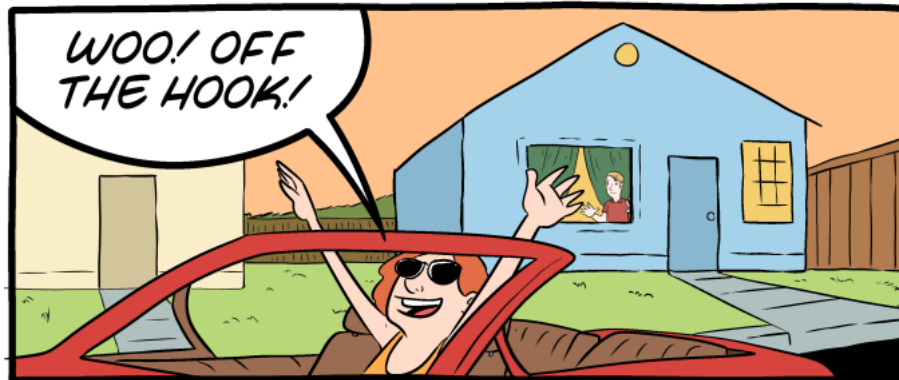
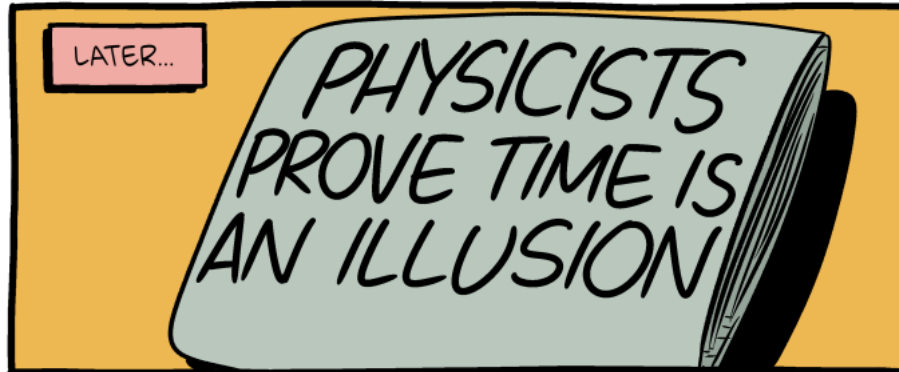
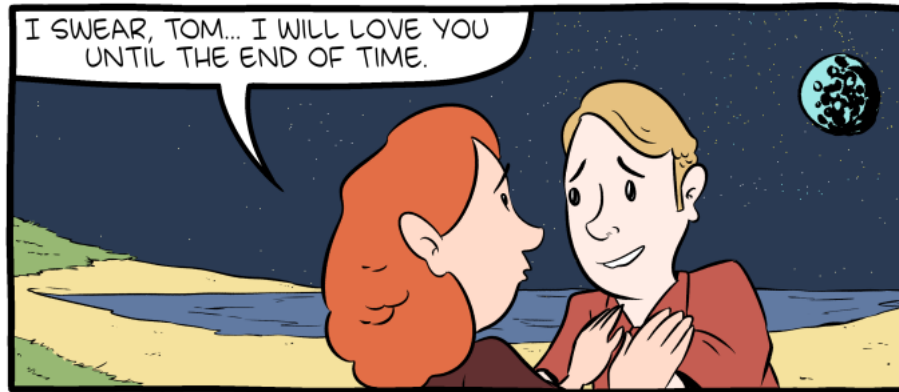
changed WP time zone?

Settings → General → Timezone

Had you ever...

output localized time?

`date_i18n()`, `the_date()`, etc.



A very brief history of time

1. solar time
2. city time
3. rail time
4. time zones
5. Universal Coordinated Time

Unix time

1 540 645 200

seconds since 1970-01-01 00:00:00 UTC

Unix time

- consistent
- storage–friendly
- comparison–friendly
- not human readable

PHP DateTime

```
$dt = new DateTime();
```

```
echo $dt->getTimestamp();
```

```
1540645200
```

```
echo $dt->format( DATE_RFC3339 );
```

```
2018-10-27T16:00:00+03:00
```

```
echo $dt->getTimezone()->getName();
```

```
Europe/Bucharest
```

php.net/datetime

PHP DateTime

- UTC-based
- formatting
- parsing
- primarily English

php.net/datetime

php | architect's
Guide to
**Date and Time
Programming**



Derick Rethans

nbTM | **php** | architect
nanobooks

phpdatebook.com



time

WP time

- PHP 4 code
- partial PHP 5 retrofit
- custom time zone logic
- custom internationalization

WpDateTime

- extends PHP DateTime classes
- works around WP bugs
- parses WP data

github.com/Rarst/wpdatetime

wp_date (work in progress...)

- core bugs audit & fixes
- unified timezone processing
- real timestamps & canonical UTC

github.com/Rarst/wp-date

WP time zone options

setting	gmt_offset	timezone_string
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Bucharest	3	'Europe/Bucharest'
-----------	---	--------------------

UTC+3	'3'	''
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#44985

WP time zone in all cases

1. get `timezone_string`
2. if empty – get `gmt_offset`
3. convert the offset number to `±00:00` (PHP 5.5+)

WpDateTimeZone to parse time zone

```
$timezone = WpDateTimeZone::getWpTimezone();
```

setting	<code>\$timezone->getName()</code>
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Bucharest	'Europe/Bucharest'
-----------	--------------------

UTC+3	'+03:00'
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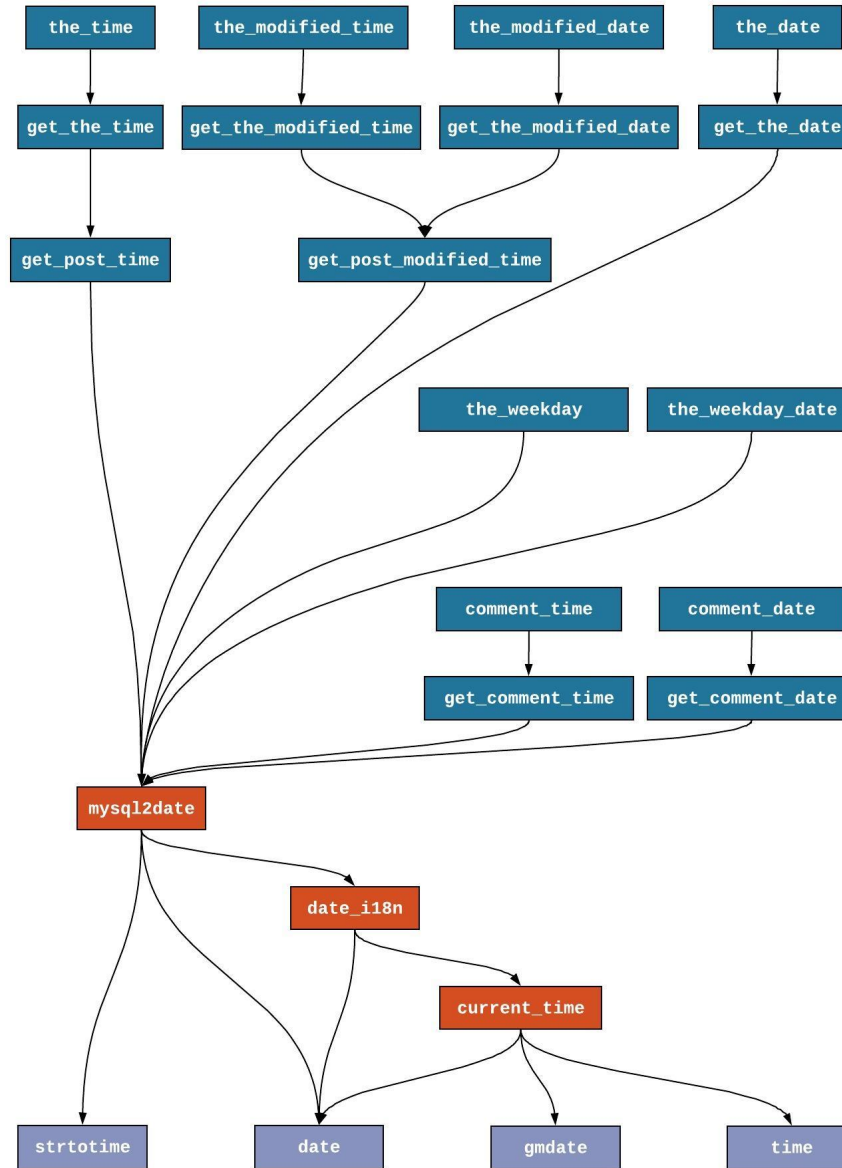
Hopefully in wp_date: `wp_timezone()`

date_i18n()

	DateTime	date()	date_i18n()
language	English	English	WP locale
time zone	arbitrary	current PHP	current WP
input	arbitrary	timestamp	“WP timestamp”
formats	date()	date()	date(), incomplete

developer.wordpress.org/reference/functions/date_i18n

Hopefully in wp_date: `wp_date()`



date_i18n() logic

```
echo date_i18n( 'j F Y, \o\r\a G:i T' );
```

1. `j F Y, \o\r\a G:i T`
2. `j \o\c\t\o\m\b\r\i\e Y, \o\r\a G:i T` – locale
3. `j \o\c\t\o\m\b\r\i\e Y, \o\r\a G:i \E\E\S\T` – zone
4. `27 octombrie 2018, ora 16:00 EEST` – date()

date_i18n() fails w/ Unix timestamp

```
echo date( DATE_RFC3339, time() );
```

```
2018-10-27T13:00:00+00:00
```

```
echo date_i18n( DATE_RFC3339, time() );
```

```
2018-10-27T13:00:00+03:00
```

#38771

post_date

post_date	post_date_gmt	post_title
2018-10-27 14:00:00	2018-10-27 13:00:00	A post made in London

WP set to **London** time zone:

```
the_date( DATE_RFC3339 );
```

```
2018-10-27T14:00:00+01:00
```

post_date fails w/ changed time zone

post_date	post_date_gmt	post_title
2018-10-27 14:00:00	2018-10-27 13:00:00	A post made in London

WP set to **Bucharest** time zone:

```
the_date( DATE_RFC3339 );
```

```
2018-10-27T14:00:00+03:00
```

#38774

post_date in all cases

1. get `post_date_gmt`
2. if empty – get `post_date`
3. get WP time zone
4. adjust `post_date[_gmt]` with the time zone
5. convert to desired format

WpDateTime to parse post date

post_date	post_date_gmt	post_title
2018-10-27 14:00:00	2018-10-27 13:00:00	A post made in London

WP set to **Bucharest** time zone:

```
$time = WpDateTime::createFromPost( get_post() );  
echo $time->formatI18n( DATE_RFC3339 );  
2018-10-27T16:00:00+03:00
```

Hopefully in wp_date: canonical UTC.

Takeaways

- **WP gets time storage and output wrong**
- read UTC time; write timestamp, UTC, or RFC 3339
- use `DateTime` to operate time
- use `WpDateTime` to bridge WP and PHP
- hope `wp_date` works out

Thank you for your time! Questions?

twitter.com/Rarst

wordpress.slack.com/messages/core-datetime

Rarst.net/slides/time-buc

Image credits

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