Linum

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USAGE

Linum is a tool for tasks visualization — like Gantt chart, but more compact.

Linum GitHub project page.

CHAPTER

ONE

DESCRIPTION

If you need to visualize your schedule or working plan you are welcome to use Linum. Actually, you are able to use Gantt charts, but they are overloaded with extra information if you have many simple tasks. Gantt charts are better when tasks are sequential and connected between themselves.

Linum allows you to visualize your information on chosen time interval (week, month, year) like a timetable briefly and convenient.

1.1 Supported output formats

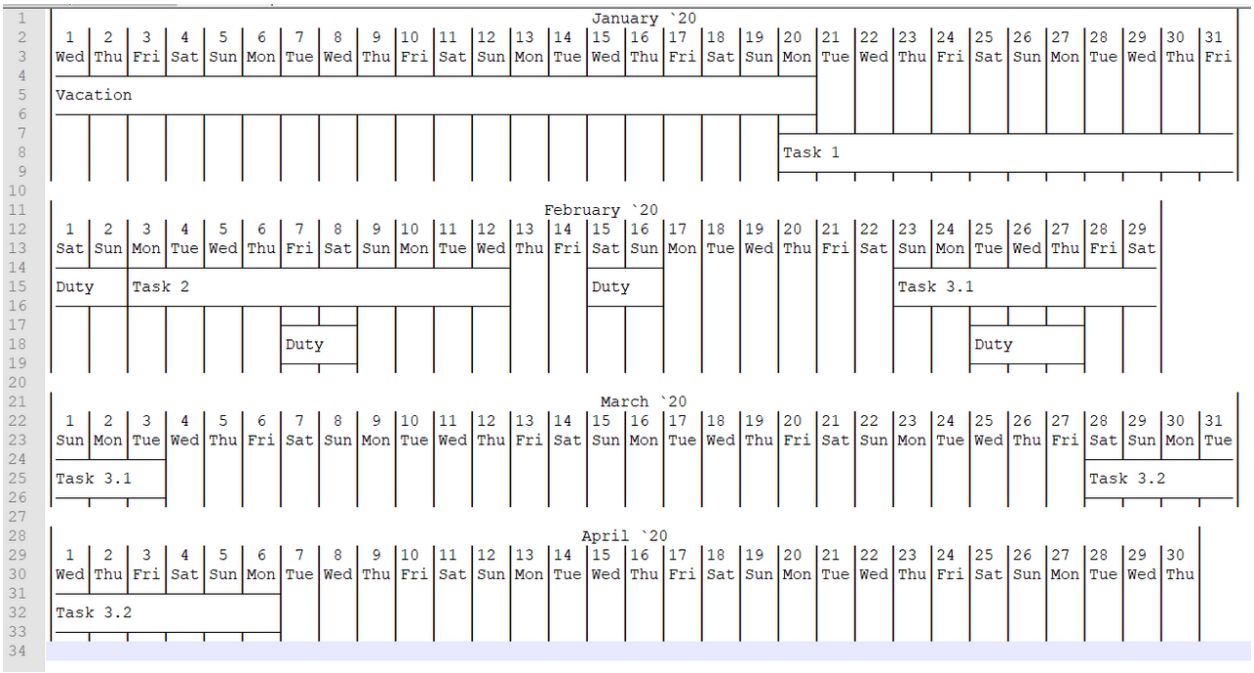
- Console
- Text (.txt)
- Excel (.xlsx)
- SVG (.svg)

1.2 Coming soon output formats

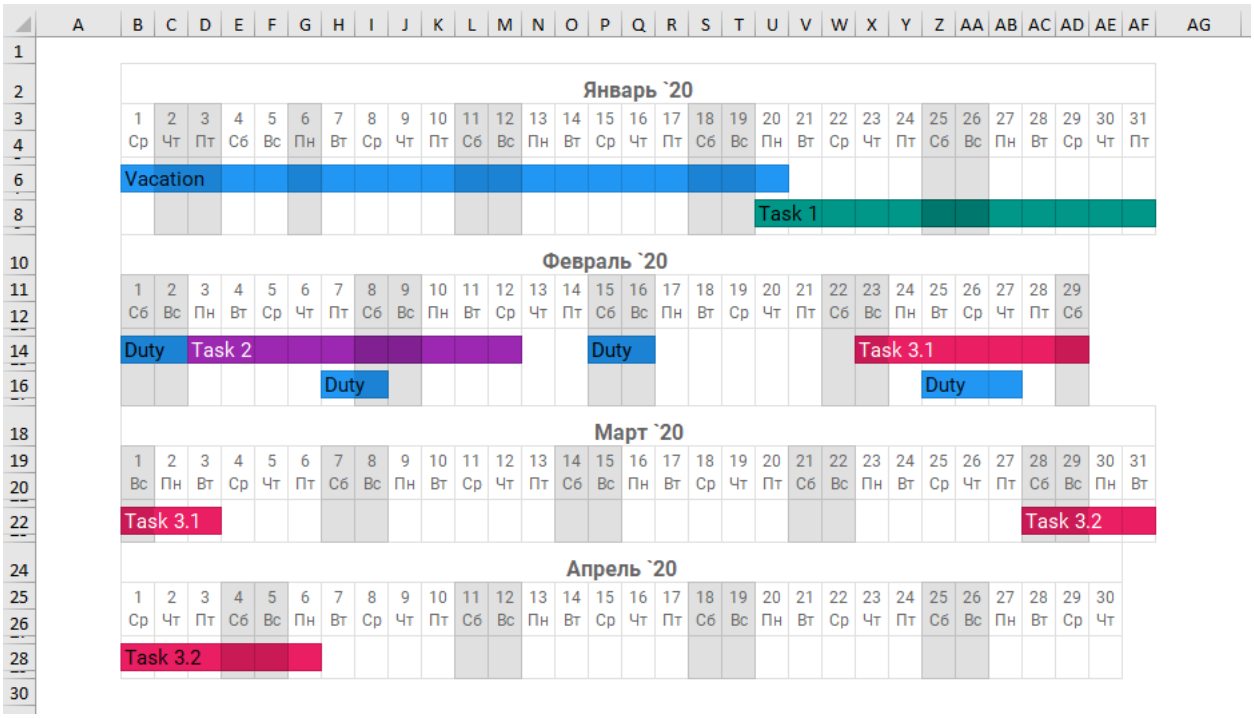
- HTML (.html)
- InDesign (.idml)

1.3 Render examples

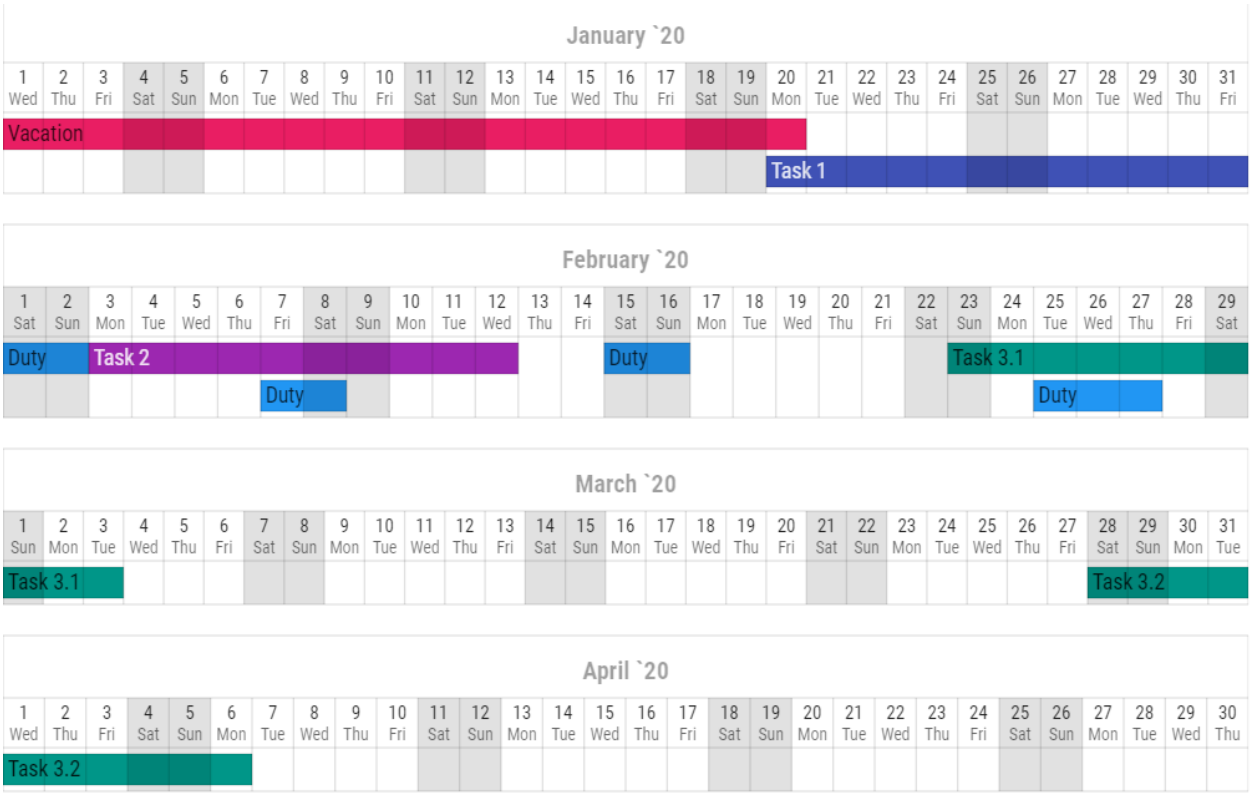
1.3.1 TXT renderer



1.3.2 XLSX renderer



1.3.3 SVG renderer



All the date titles correspond your language version of Excel. In this case all titles are shown in Russian locales.

CHAPTER

TWO

CONTRIBUTING

For now Linum is ready to go for rendering your tasks in several formats on a chosen time interval. Feel free to improve the project and develop any new output formats.

CHAPTER

THREE

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CHAPTER

FOUR

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4.1 Usage

There are two ways to use Linum. First - via console, and second - via API.

For generating output file it requires to create input file with tasks. You may read here how to do it.

Also to control render settings you need to create context file. Read Creating context for more information.

4.1.1 Installation

Install Linum via `pip`:

```
$ pip install linum
```

4.1.2 Console usage

After installation `linum` command becomes available. Here is the latest help info:

```
$ linum --help
Usage: linum [OPTIONS] TASKS_PATH

Command line interface for linum.

Options:
 -o, --out PATH                  Output file. If not specified then linum
                                 creates new file in current directory.
 -r, --renderer [CONSOLE|TXT|XLSX|SVG]
                                 Renderer to use. 'CONSOLE' - for console
                                 printing. 'TXT' - for rendering txt file.
                                 'XLSX' - for rendering xlsx file. 'SVG' -
                                 for rendering svg file. Default is
                                 'CONSOLE'.
 -c, --context PATH              Context for renderer. It is YAML file with
                                 render settings. If not specified then
                                 default settings will be applied.
 --help                          Show this message and exit.
```

4.1.3 Using via api

Linum provides public render classes to generate schedule. There is one renderer for every output format.

To use them in simple way you must specify path to yaml tasks file, and call `.render()` method. That`s all!

```
from linum import ExcelRenderer, TxtRenderer, ConsoleRenderer

TASKS_PATH = 'path/to/tasks.yaml'

# Console output
cr = ConsoleRenderer(TASKS_PATH)
cr.render()

# Txt output
tr = TxtRenderer(TASKS_PATH)
tr.render()

# Xlsx output
er = ExcelRenderer(TASKS_PATH)
er.render()

# Svg output
sr = SvgRenderer(TASKS_PATH)
sr.render()
```

If you have your yaml context file, provide valid path to it after task path.

```
from linum import ExcelRenderer, TxtRenderer, ConsoleRenderer

TASKS_PATH = 'path/to/tasks.yaml'
CONTEXT_PATH = 'path/to/context.yaml'

# Xlsx output
er = ExcelRenderer(TASKS_PATH, CONTEXT_PATH)
er.render()
```

As an option you may specify output file name.

```
from linum import ExcelRenderer, TxtRenderer, ConsoleRenderer

TASKS_PATH = 'path/to/tasks.yaml'
CONTEXT_PATH = 'path/to/context.yaml'
XLSX_OUT_PATH = 'path/to/new/xlsx/file.xlsx'

# Xlsx output
er = ExcelRenderer(TASKS_PATH, CONTEXT_PATH, XLSX_OUT_PATH)
er.render()
```

4.2 Creating tasks

To produce tasks you need to create text file in YAML format (`.yaml` extension). It isn`t necessary for you to know all yaml syntax. All you need is be careful with number of spaces per indent (There is no requirement in YAML to indent any concrete number of spaces, but you need to use the same number of spaces in all your YAML file) and read this article.

4.2.1 Basic

Let`s create the first task. Here is the simple example:

```
My first task:
  start: 2020-01-01
  length: 5
```

In the first line you specify task name. It may be any string you want. After task name must be symbol `:`

To specify properties for task you need to write indent and key-value pair. Key and value separated by symbol `:` and one space symbol after it.

In the second line after `date` keyword you specify date when task starts. All dates must be in format `<year>-<month>-<day>`. If you don`t specify start date Linum will consider it as a current day.

And in the third line after `length` keyword you specify length of a task. If you don`t specify length it will consider as one day length.

All lines with keywords are optional, but you must specify at least one of them.

Length or finish

You may use `finish` keyword instead of `length` to specify date when task is over. If both of keyword were used then `finish` would be in priority.

```
My second task:
  start: 2020-01-10
  finish: 2020-02-10
```

Color

You may specify color to render for certain task. To do it use `color` keyword and hex rgb integer as value.

```
Red task:
  start: 2020-02-10
  color: 0xFF0000
```

If you don`t set color property then random color from material design palette will be applied.

4.2.2 Sub tasks

It is possible to specify sub tasks for certain task using `sub` keyword. There are two ways to do it.

- If you want to create several tasks with one name use **list sub tasks**.
- If you want to create tasks with different names use **dictionary sub tasks**.

In both cases parent properties will be inherited for a child.

It is possible to specify sub tasks for sub tasks.

List sub tasks

In YAML list elements start by minus symbol and one space after it.

```
List Task:
  length: 3
  sub:
    - date: 2020-01-01
    - date: 2020-01-20
      length: 4
    - date: 2020-02-10
      color: 0x000000  # Black color
```

For this example Linum will create 3 tasks. First starts at 2020-01-01, second starts at 2020-01-20 and has length 4 days, and third starts at 2020-02-10 and has black color.

Dictionary sub tasks

For every **dictionary sub task** title would be computed as parent name plus sub task name.

```
Task 1.:
  color: 0x00FF00
  length: 3
  sub:
    1:
      start: 2020-03-01
    2:
      start: 2020-03-05
      finish: 2020-03-08
```

For this example Linum will create 2 tasks: “Task 1.1” and “Task 1.2”.

4.3 Creating context

Context, like tasks, is a text file in YAML format (`.yaml` extension). In context file you determine render period, style settings, list of workdays and list of days-off.

4.3.1 Base structure

Context consists of several optional sections:

- `period` section for specifying base period settings;
- `workdays` section with list of dates which Linum must consider as working days;
- `days_off` section with list of dates which Linum must consider as days-off;
- `txt_renderer` section for overriding period settings and specifying styles for console and txt render;
- `xlsx_renderer` section for overriding period settings and specifying styles for excel render.
- `svg_renderer` section for overriding period settings and specifying styles for svg render.

All this sections may be in no particular order or be absent.

4.3.2 Days-off and working days

By default Linum considers all Saturdays and Sundays as days-off and other weekdays as working days. If you want specify day as day-off you must indicate it in `days_off` subsection.

```
days_off:
  - 2020-01-01
  - 2020-01-02
  - 2020-01-03
```

If you want to indicate certain Saturday or Sunday as working day you must specify it in `workdays` subsection.

```
workdays:
  - 2020-01-04
  - 2020-01-05
```

If one date is in both sections then `workdays` section will be in priority.

4.3.3 Render period

`period` section specify base period settings.

```
period:
  start: 2020-01-01
  finish: 2021-01-01
  months_in_row: 2
```

start

Specifies date when period of view begins. Value is date in format `<year>-<month>-<day>`. If not stated, then Linum will consider it as today date.

length

Specify when period of view is over after `start` date. Value must be integer.

finish

Specify when period of view is over. Value is date in format `<year>-<month>-<day>`. If both of `length` and `finish` are stated then `finish` will be in priority.

months_in_row

Specify how many months must be in one row. Value must be integer.

4.3.4 Renderer custom

There are 3 main renderers in Linum. Each renderer has custom view settings that may be determine:

- txt_renderer;
- xlsx_renderer;
- svg_renderer.

4.4 Txt renderer

`txt` section overrides period settings and specifies styles for console and txt renderers.

You may override period settings specially for txt renderer. Use params from *Render period* section for it, for example:

```
start: 2020-01-01
finish: 2020-02-01

txt:
   finish: 2021-01-01
```

4.4.1 Cell size

To determine cell size use `cell_width` keyword. Value must be integer.

```
txt:
  cell_width: 5
```

4.4.2 Borders

There are some border settings for txt renderer.

```
txt:
  inner_borders: False
  month_inner_borders: True
  left_border: True
  right_border: True
```

inner_borders

Determines border presence between days. Value must be `True` or `False`.

month_inner_borders

Determines border presence between months. Value must be `True` or `False`.

left_border

Determines left border for resulted render. Value must be `True` or `False`.

right_border

Determines right border for resulted render. Value must be `True` or `False`.

4.5 Xlsx renderer

`xlsx` section overrides period settings and specifies styles for excel render.

You may override period settings specially for xlsx renderer. Use params from *Render period* section for it. For example:

```
xlsx:
  start: 2020-06-01
  finish: 2020-07-01
```

To determine excel styles you need to use `styles` sub section.

Note: Using `styles` subsection drops all default style settings.

You can see default theme in `linum/styles/xlsx/xlsx_default_context.yaml` file.

```
xlsx:
  styles:
    font: Roboto
    cell_width_px: 30
```

For this example new font and cell width would be applied to all cells.

In `styles` section and all of it sub sections you may use params. Details of using this params will be provided *later*.

If you want to determine cell style in certain hierarchy place you must use correspond sub sections. There is 3 sub sections for `styles` section:

- `header` to determine header style;
- `layers` to determine layers styles;
- `days_off` sub section includes `header` and `layers` subsections, and need to determine cell styles in days-off positions.

```
xlsx:
  styles:
    header:
      # some header styles
    layers:
      # some layers styles

    days_off:
      header:
        # some header styles for days-off
      layers:
        # some layers styles for days-off
```

The `header` sections contain 3 sub sections:

- `months` sub section to determine months cell style;
- `days` sub section to determine days cell style;
- `weekdays` sub section to determine weekdays cell style.

```
xlsx:
  styles:
    header:
      months:
        # some months styles
      days:
        # some days styles
      weekdays:
        # some weekdays styles

    days_off:
      header:
        months:
          # some months styles for days-off
        days:
          # some days styles for days-off
        weekdays:
          # some weekdays styles for days-off
```

The `layers` sections contain 3 sub sections:

- `space_row` sub section to determine cells style between layers;
- `space` sub section to determine cells style between tasks in one layer;

- `tasks` sub section to determine tasks cell style.

```yaml
xlsx:
  styles:
    layers:
      space_row:
        # some space row styles
      space:
        # some space styles
      tasks:
        # some tasks styles

    days_off:
      layers:
        space_row:
          # some space row styles for days-off
        space:
          # some space styles for days-off
        tasks:
          # some tasks styles for days-off
```

Note: For `days-off` section all sub sections inherit matching properties from `styles` section.

For example:

```yaml
xlsx:
  styles:
    header:
      days:
        bg_color: 0x00FF00  # Green color

    days_off:
      header:
        days:
          font_size: 16
```

all days-off will be green.

4.5.1 Cell size

cell_width_px

Sets cell width in pixels. Value must be integer.

cell_height_px

Sets cell height in pixels. Value must be integer.

4.5.2 Setting font

Example:

```
xlsx:
  styles:
    font_name: Roboto
    font_size: 16
    font_color: auto
    bold: False
    italic: True
    underline: True
```

font_name

Font to use. Value must be string with proper font name.

font_size

Font size. Value must be integer.

font_color

Font color. Value must be integer constant color or `auto` for auto choosing between black and white color. In second case color choose depends on background contrast.

bold

Sets font bold. Must be `True` or `False`

italic

Sets font italic. Must be `True` or `False`

underline

Sets font underline. Must be `True` or `False`

4.5.3 Align

Example:

```
xlsx:
  styles:
    align: center
    valign: top
```

align

Horizontal cell aligning. Must be one of `left`, `right`, or `center`.

valign

Vertical cell aligning. Must be one of `top`, `vcenter`, or `bottom`.

4.5.4 bg_color

Background color. Must be integer for constant color or `Null` for setting off color.

```
xlsx:
  styles:
    bg_color: 0x000000  # Black color
```

4.5.5 Blackout

Blackout is changing color mixing it with solid black with `blackout_value` percents opacity. Blackout changes background color and border colors.

Example:

```
xlsx:
  styles:
    use_blackout: True
    blackout_value: 0.12
```

use_blackout

Sets blackout for cell. Must be `True` or `False`.

blackout_value

Blackout value. Value must be in percents (float value between 0.0 and 1.0).

4.5.6 Cell borders

A cell border is comprised of a border on the bottom, top, left and right.

The following shows the border styles:

index	description	weight
0	None	0
1	Continuous	1
2	Continuous	2
3	Dash	1
4	Dot	1
5	Continuous	3
6	Double	3
7	Continuous	0
8	Dash	2
9	Dash Dot	1
10	Dash Dot	2
11	Dash Dot Dash	1
12	Dash Dot Dash	2
13	SlantDash Dot	2

Use index integer value to set border, or `Null` to deactivate border style.

Example:

```
xlsx:
  styles:
    left: 0
    right: 1
    top: Null
    bottom: 10
```

left

Left border style. See style values here: *Cell borders*.

right

Right border style. See style values here: *Cell borders*.

top

Top border style. See style values here: *Cell borders*.

bottom

Bottom border style. See style values here: *Cell borders*.

4.5.7 Border colors

To set border color use hex rgb integer values or `blackout` keyword. In second case border color is equal cell background color with blackout.

Example:

```
xlsx:
  styles:
    left_color: 0x000000  # Black color
    right_color: 0xFF0000  # Red color
    top_color: 0x0000FF  # Blue color
    bottom_color: blackout
```

left_color

Color for left border. See possible values here: *Border colors*.

right_color

Color for right border. See possible values here: *Border colors*.

top_color

Color for top border. See possible values here: *Border colors*.

bottom_color

Color for bottom border. See possible values here: *Border colors*.

4.6 Svg renderer

`svg_renderer` section overrides period settings and specifies styles for svg render.

You may override period settings specially for svg renderer. Use params from *Render period* section for it. For example:

```
svg:
  start: 2020-06-01
  finish: 2020-07-01
```

To determine svg styles you need to use `styles` sub section and css file. In `styles` sub section it is possible to determine some properties, that can't be set in css. There are properties like cell size, padding and text align.

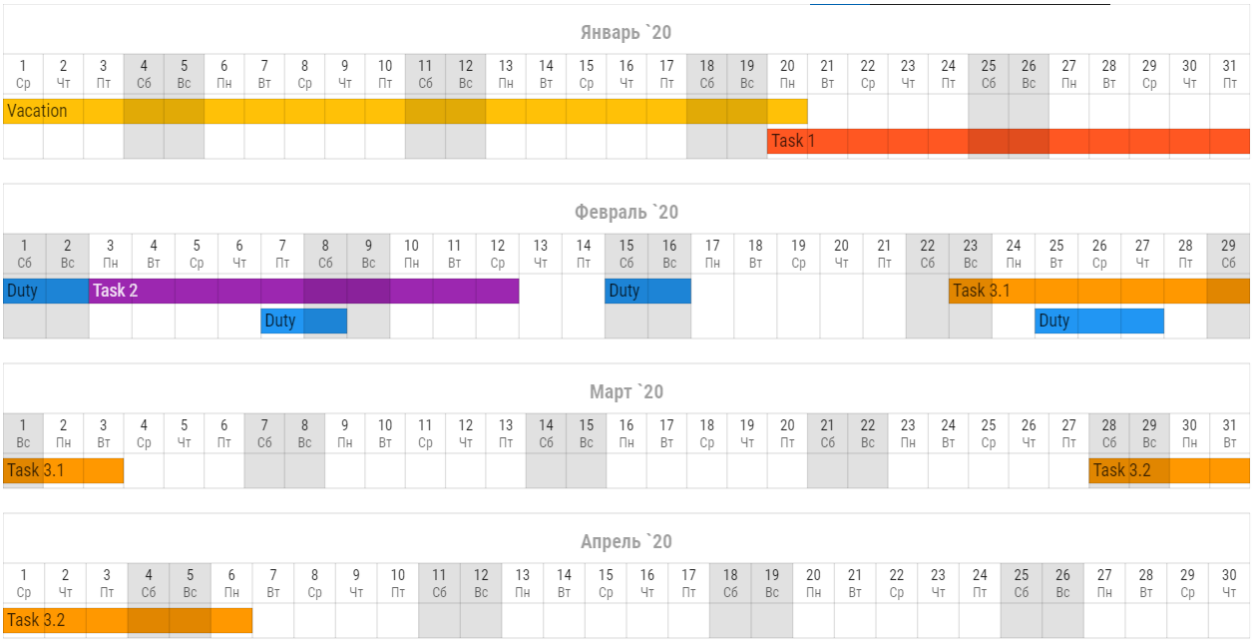
Note: Using `styles` sub section drops all default style settings.

You can see default theme in `linum/styles/svg/svg_default_context.yaml` file.

4.6.1 Localization

It is possible to localize weekdays and months names. To do it you need to set your locale string:

```
svg:
   locale: ru_RU
```



4.6.2 Calendar width

By default Linum sets svg width as screen width, but you can set custom width:

```
svg:
   width: 640
```

Width value doesn't affect to height.

4.6.3 css

Css (*Cascading Style Sheets*) - is a text file in which you describe the presentation of a structured document like svg or html.

Every element in the generated svg has class tags which can be used as references in css. For example cell with day date has tags `cell`, `header`, `day` and `background`. Referencing to this element will be:

```
.cell.header.day.background {
   fill: #FFFFFF;
}
```

You may check element class tags using special developer tools in your browser. In Google Chrome you may press `ctrl` + `shift` + `c` to activate it.

Note: Using css drops all default css style settings.

You can see default theme in `linum/styles/svg/svg_default_style.css` file.

After creating css file you can specify path to it for Linum:

```
svg:
   css: path/to/your/css.css
```

4.6.4 styles

There is 3 sub sections for `styles` section:

- `header` to determine header style;
- `layers` to determine layers style;
- `grid` to determine grid style.

style

For all sub sections in `styles` section it is possible to set up custom css style. Use `style` keyword for it.

```
svg:
   styles:
      style: "font-family: Roboto Condensed;"
```

This style will have higher priority then styles from css file.

Linum styles

Linum styles is a set of style properties that can't be set in css.

For example text element has absolute but not relative coordinates. Setting align for text in css will have no effect. In this case you need to use linum style settings.

Height

Use `height` key to set element height in px. Example:

```
svg:
   styles:
      height: 100
```

Padding

Example:

```
svg:
   styles:
      padding-left: 1
      padding-right: 2
      padding-top: 3
      padding-bottom: 4
```

`padding-left` sets left padding in px.

`padding-right` sets right padding in px.

`padding-top` sets top padding in px.

`padding-bottom` sets bottom padding in px.

Borders

It is possible to create individual borders for cells. Example:

```
svg:
   styles:
      left: True
      right: True
      top: True
      bottom: True
```

`left` creates left border for cell.

`right` creates right border for cell.

`top` creates top border for cell.

`bottom` creates bottom border for cell.

Align

To set align for text element you need to use both css and linum styles.

With css style you set anchor point and with Linum styles you set aligning for this point.

For example, if you need your text in top right corner you must write this in your context file:

```
svg:
   styles:
      align: right
      valign: top
```

and this in your css:

```
.text {
   dominant-baseline: hanging;
   text-anchor: end;
}
```

`align` key sets horizontal align. Value must be one of: `left`, `center` or `right`.

`valign` key sets vertical align. Value must be one of: `top`, `vcenter` or `bottom`.

Cells styles

Linum's calendar header consists of cells. Tasks are cells too. There are two keys for each cell:

- `background` to determine background style;
- `text` to determine text style.

use *Linum styles* to determine `background` and `text` sub sections.

```
svg:
   styles:
      header:
         days:
            text:
               valign: vcenter
               align: center

            background:
               style: "opacity: 0.87;"
```

Header

In header section you may determine header style. All of *Linum styles* may be used in `header` section and in it's sub sections.

There are three sub sections in `header` section:

- `months` to determine months row style;
- `days` to determine days row style;
- `weekdays` to determine weekdays row style.

```
svg:
   styles:
      header:
         align: center

         months:
            valign: bottom

         days:
            valign: vcenter

         weekdays:
            valign: top
```

Months, days and weekdays are cells. So you may use for them *Cells styles*.

Layers

There is `layers` sub section to determine styles settings of calendar layers.

To set indent between calendar layers use `indent` key:

```
svg:
   styles:
      layers:
         indent: 20
```

Tasks

`tasks` is a sub section of `layers`.

In `tasks` you may use all *Cells styles* and two other keys:

- `indent` to set vertical indent between tasks;
- `auto-font-color` to set auto font color.

```
svg:
   styles:
      layers:
         tasks:
            height: 20
            indent: 4
            auto-font-color: True

            text:
               align: left
```

Grid

There is only one key for `grid` subsection. It is `style`. See *style* for information how it works.

```
svg:
   styles:
      grid:
         styles: "stroke-opacity: 0.12;"
```