

# Package ‘ganttify’

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**Type** Package

**Title** Create Interactive Gantt Charts with Work Breakdown Structure

**Version** 0.2.5

**Description** Create Primavera-style interactive Gantt charts with Work Breakdown Structure (WBS) hierarchy and activities. Features include color-coded WBS items, indented labels, scrollable views for large projects, dynamic date formatting, and the ability to dim past activities. Built on top of 'plotly' for interactive visualizations.

**License** GPL-3

**Encoding** UTF-8

**LazyData** true

**Depends** R (>= 3.5.0)

**Imports** plotly (>= 4.9.0), dplyr (>= 1.0.0), htmlwidgets (>= 1.5.0),  
magrittr, rlang

**RoxygenNote** 7.3.3

**Suggests** knitr, rmarkdown, testthat (>= 3.0.0)

**URL** <https://github.com/AhmedAredah/Ganttify>

**BugReports** <https://github.com/AhmedAredah/Ganttify/issues>

**NeedsCompilation** no

**Author** Ahmed Aredah [aut, cre]

**Maintainer** Ahmed Aredah <Ahmed.Aredah@gmail.com>

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## Description

Creates a Primavera-style interactive Gantt chart with Work Breakdown Structure (WBS) hierarchy and activities. The chart features color-coded WBS items, indented labels, scrollable view for large projects, and dynamic date formatting.

## Usage

```
Ganttify(
  wbs_structure,
  activities,
  chart_title = "Project Gantt Chart with WBS",
  x_range = NULL,
  milestone_lines = NULL,
  color_config = NULL,
  display_config = NULL,
  label_config = NULL,
  bar_config = NULL,
  layout_config = NULL,
  tooltip_config = NULL
)
```

## Arguments

- |                            |   |
|----------------------------|---|
| <code>wbs_structure</code> | A data frame with 3 columns: ID (character), Name (character), and Parent (character). Parent should be "None" or "" for root level items.  |
| <code>activities</code>    | <p>A data frame with 5 required columns, 2 optional columns, and any number of additional columns:</p> <ul style="list-style-type: none"> <li>• <code>WBS_ID</code> (character): Associated WBS item identifier</li> <li>• <code>Activity_ID</code> (character): Unique activity identifier</li> <li>• <code>Activity_Name</code> (character): Activity name</li> <li>• <code>Start_Date</code> (character or Date): Planned start date in MM/DD/YYYY format (e.g. "09/15/2024") or Date class</li> <li>• <code>End_Date</code> (character or Date): Planned end date in MM/DD/YYYY format (e.g. "09/15/2024") or Date class</li> <li>• <code>Start_Date_Actual</code> (character or Date, optional): Actual start date in MM/DD/YYYY format (e.g. "09/15/2024") or Date class</li> <li>• <code>End_Date_Actual</code> (character or Date, optional): Actual end date in MM/DD/YYYY format (e.g. "09/15/2024") or Date class. If <code>Start_Date_Actual</code> is provided but <code>End_Date_Actual</code> is missing, the actual bar will show from <code>Start_Date_Actual</code> to today (if today &gt; <code>Start_Date_Actual</code>).</li> </ul> |

- Additional columns (optional): Any extra columns (e.g., Status, Agency, Priority) are preserved and can be used for attribute-based coloring via `color_config` with `mode="attribute"`.

When actual dates are provided, activities display as stacked bars: planned on top (solid color) and actual on bottom (diagonal stripe pattern).

`chart_title` Character. Title displayed at the top of the chart. Default "Project Gantt Chart with WBS".

`x_range` Character vector. Date range for x-axis zoom (e.g., `c("2024-01-01", "2024-12-31")`). If NULL, shows full project range.

`milestone_lines` Data frame or NULL. Optional milestone markers to display on the chart. Supports both single-date vertical lines and date-range shaded areas. If provided, must be a data frame with the following columns:

- `date` (required): Either a single date (for vertical line) or a vector of 2 dates (for shaded area). Use a list column to mix both types. Dates can be character in MM/DD/YYYY format (e.g. "09/15/2024") or Date objects.
- `label` (required): Text label to display on the milestone
- `color` (optional): Color for line or area (e.g., "red", "#FF0000"). Defaults to color palette.
- `dash` (optional): Line style for single-date milestones - "solid", "dash", "dot", or "dashdot". Default "dash".
- `width` (optional): Line width in pixels for single-date milestones. Default 2.
- `fill_opacity` (optional): Opacity for shaded areas (0-1). Default 0.15. Ignored for lines.
- `label_position` (optional): Label position - "top", "middle", or "bottom". Default "top".
- `label_level` (optional): Vertical stacking level for labels - 1 or 2. Level 1 labels are rendered above level 2 labels (further from the chart area). This is useful when multiple milestones are close together and labels would overlap. Default 1.

Example with mixed types:

```
milestones <- data.frame(
  label = c("Kickoff", "Review Period", "Deadline"),
  color = c("green", "blue", "red")
)
milestones$date <- list(
  "01/15/2025",
  c("03/01/2025", "03/31/2025"),
  "12/31/2025"
)
```

Example with label levels (useful for overlapping milestones):

```
milestones <- data.frame(
  label = c("Phase 1 Start", "Phase 2 Start", "Final Review"),
```

```

    color = c("blue", "green", "red"),
    label_level = c(1, 2, 1) # Level 1 labels appear above level 2
  )
  milestones$date <- list("2025-01-15", "2025-01-20", "2025-06-30")

```

Default NULL (no milestone markers).

**color\_config** List or NULL. Configuration for chart colors. Structure depends on mode:

- mode="wbs" (default if NULL): Activities inherit colors from parent WBS  
`list(mode = "wbs", wbs = list("W1" = "#FF6B6B", "W2" = "#4ECDC4"))`
- mode="uniform": All activities same color, WBS same color  
`list(mode = "uniform", uniform = list(wbs = "#34495E", activity = "#2ECC71"))`
- mode="attribute": Color activities by attribute column (e.g., Status)  
`list(mode = "attribute",  
 attribute = list(column = "Status",  
 mapping = list("completed" = "green", "in-progress" = "orange"),  
 wbs = "#34495E"))`

If NULL, uses mode="wbs" with default color palette. Default NULL.

**display\_config** List or NULL. Controls visibility of chart elements. Structure:

- wbs: List with show (logical), show\_labels (logical), show\_names\_on\_bars (logical)
- activity: List with show (logical), show\_names\_on\_bars (logical)
- milestone: List with hide\_label\_levels (integer vector or NULL). Suppresses visible text annotations for milestones at the specified label\_level values (e.g. c(1), c(2), or c(1, 2)). Hover tooltips are unaffected. Default NULL (all labels shown).

Example:

```

list(
  wbs = list(show = TRUE, show_labels = TRUE, show_names_on_bars = TRUE),
  activity = list(show = TRUE, show_names_on_bars = FALSE),
  milestone = list(hide_label_levels = c(1))
)

```

If NULL, uses defaults shown above. Default NULL.

**label\_config** List or NULL. Template strings for labels. Structure:

- activity: List with yaxis (template for y-axis labels) and bar (template for bar labels)
- wbs: List with yaxis and bar templates

Available placeholders for activity: name, id, start, end, start\_actual, end\_actual, duration, wbs\_id (use with curly braces) Available placeholders for wbs: name, id, start, end, duration (use with curly braces) Example:

```

list(
  activity = list(yaxis = "{name} ({start} - {end})", bar = "{name}"),
  wbs = list(yaxis = "{name}", bar = "{name}")
)

```

	If NULL, uses default template for all labels. Default NULL.
<code>bar_config</code>	<p>List or NULL. Styling configuration for bars. Structure:</p> <ul style="list-style-type: none"> <li>• <code>wbs</code>: List with opacity (0-1) and height (numeric)</li> <li>• <code>activity</code>: List with opacity (0-1), height (numeric), <code>dim_opacity</code> (0-1), and <code>dim_past_activities</code> (logical)</li> </ul> <p>The <code>dim_past_activities</code> field controls whether activities that end before today are dimmed. When TRUE, completed activities use the <code>dim_opacity</code> value instead of the regular opacity. Note: Short-duration activities are automatically kept visible at any zoom level through dynamic bar width adjustment. The original dates are preserved in hover tooltips. Example:</p> <pre>list(   wbs = list(opacity = 0.3, height = 0.3),   activity = list(opacity = 1.0, height = 0.8, dim_opacity = 0.3, dim_past_activities = F )</pre> <p>If NULL, uses defaults shown above. Default NULL.</p>
<code>layout_config</code>	<p>List or NULL. Chart layout settings. Structure:</p> <ul style="list-style-type: none"> <li>• <code>buffer_days</code>: Numeric, days to add before/after timeline for margin</li> <li>• <code>indent_size</code>: Numeric, spaces per indentation level</li> <li>• <code>max_visible_rows</code>: Numeric, maximum visible rows (enables scrolling)</li> <li>• <code>y_scroll_position</code>: Numeric or NULL, initial scroll position</li> <li>• <code>yaxis_label_width</code>: Numeric, width of y-axis label area in pixels (default 300)</li> <li>• <code>yaxis_label_max_chars</code>: Numeric or NULL, maximum characters for labels before truncating with "..." (NULL = no truncation)</li> <li>• <code>hover_popup_max_chars</code>: Numeric, maximum characters per line in hover popups before wrapping to next line (default 50)</li> <li>• <code>show_yaxis_labels</code>: Logical, whether to show y-axis labels (default TRUE). When FALSE, activity labels are hidden. If <code>display_config\$wbs\$show_labels</code> is TRUE, WBS labels will still be shown; otherwise all y-axis labels are hidden.</li> </ul> <p>Example:</p> <pre>list(   buffer_days = 30,   indent_size = 2,   max_visible_rows = 20,   y_scroll_position = NULL,   yaxis_label_width = 300,   yaxis_label_max_chars = NULL,   hover_popup_max_chars = 50,   show_yaxis_labels = TRUE )</pre> <p>If NULL, uses defaults shown above. Default NULL.</p>
<code>tooltip_config</code>	List or NULL. Configuration for custom tooltip fields. Structure:

- `wbs`: Character vector of column names from `wbs_structure` to display in WBS tooltips. Use a named vector to set a custom display label: `c(col_name = "Display Label")`.
- `activity`: Character vector of column names from `activities` to display in activity tooltips. Use a named vector to set a custom display label: `c(col_name = "Display Label")`.
- `milestone`: Character vector of column names from `milestone_lines` to display in milestone tooltips. Use a named vector to set a custom display label: `c(col_name = "Display Label")`.

Fields that don't exist in the data or have NA/empty values are automatically hidden. Named and unnamed elements can be mixed freely. Example:

```
list(
  wbs      = c(Owner = "Project Owner", Budget = "Total Budget ($)"),
  activity = c(activity_details = "Activity Details", "Status"),
  milestone = c(Description = "Milestone Description")
)
```

If NULL, only default fields (Type, Start, End, Duration) are shown. Default NULL.

### Value

A plotly object containing the interactive Gantt chart. Can be displayed directly or saved using `htmlwidgets::saveWidget()`.

### Examples

```
# Load test data
data(test_project)

# Basic Gantt chart with WBS colors
chart <- Ganttify(
  wbs_structure = test_project$wbs_structure,
  activities = test_project$activities,
  color_config = list(mode = "wbs", wbs = test_project$colors)
)
chart

# Uniform color mode
chart <- Ganttify(
  wbs_structure = test_project$wbs_structure,
  activities = test_project$activities,
  color_config = list(
    mode = "uniform",
    uniform = list(wbs = "#34495E", activity = "#2ECC71")
  )
)
chart

# Attribute-based coloring (requires extra column in activities)
```

```
# Add a Status column to activities dataframe
activities_with_status <- test_project$activities
activities_with_status$Status <- sample(c("completed", "in-progress", "pending"),
                                       nrow(activities_with_status), replace = TRUE)

chart <- Ganttify(
  wbs_structure = test_project$wbs_structure,
  activities = activities_with_status,
  color_config = list(
    mode = "attribute",
    attribute = list(
      column = "Status",
      mapping = list("completed" = "green", "in-progress" = "orange", "pending" = "gray"),
      wbs = "#34495E"
    )
  )
)
chart

# WBS-only view using display_config
chart <- Ganttify(
  wbs_structure = test_project$wbs_structure,
  activities = test_project$activities,
  display_config = list(activity = list(show = FALSE))
)
chart

# Custom labels showing date ranges
chart <- Ganttify(
  wbs_structure = test_project$wbs_structure,
  activities = test_project$activities,
  label_config = list(
    activity = list(yaxis = "{name} ({start} - {end})")
  )
)
chart

# Customize bar heights and enable dimming for past activities
chart <- Ganttify(
  wbs_structure = test_project$wbs_structure,
  activities = test_project$activities,
  bar_config = list(
    wbs = list(opacity = 0.5, height = 0.4),
    activity = list(height = 0.9, dim_past_activities = TRUE, dim_opacity = 0.4)
  )
)
chart

# Add "today" line as a milestone
chart <- Ganttify(
  wbs_structure = test_project$wbs_structure,
  activities = test_project$activities,
  milestone_lines = data.frame(
    date = Sys.Date(),
  )
)
```

```

        label = "Today",
        color = "red"
    )
)
chart

# Narrow label area with truncation
chart <- Ganttify(
  wbs_structure = test_project$wbs_structure,
  activities = test_project$activities,
  layout_config = list(
    yaxis_label_width = 200,
    yaxis_label_max_chars = 25
  )
)
chart

# Custom tooltip fields (add extra columns to show in hover popups)
# First add custom columns to your data
activities_extended <- test_project$activities
activities_extended$Status <- sample(c("On Track", "Delayed", "Complete"),
  nrow(activities_extended), replace = TRUE)

activities_extended$Agency <- "TTI"

wbs_extended <- test_project$wbs_structure
wbs_extended$Owner <- "Project Manager"

chart <- Ganttify(
  wbs_structure = wbs_extended,
  activities = activities_extended,
  tooltip_config = list(
    wbs = c("Owner"),
    activity = c("Status", "Agency")
  )
)
chart

```

---

test\_project

*Test Project Data for Ganttify*


---

### Description

A sample project dataset for testing and demonstrating the Ganttify package. Contains a complete Work Breakdown Structure (WBS), activities, and custom colors for an example software development project.

### Usage

```
test_project
```

## Format

A list with 3 components:

**wbs\_structure** A data frame with 8 rows and 3 columns:

- ID: WBS item identifier (W1-W8)
- Name: WBS item name (e.g., "Project Summary", "Design Phase")
- Parent: Parent WBS ID or "None" for root items

**activities** A data frame with 15 rows and 7 columns:

- WBS\_ID: Associated WBS item identifier
- Activity\_ID: Activity identifier (A1-A15)
- Activity\_Name: Activity name (e.g., "Design UI", "Code Frontend")
- Start\_Date: Planned start date (YYYY-MM-DD or MM/DD/YYYY character or Date class)
- End\_Date: Planned end date (YYYY-MM-DD or MM/DD/YYYY character or Date class)
- Start\_Date\_Actual: Actual start date (YYYY-MM-DD or MM/DD/YYYY character or Date class, some NA for not started)
- End\_Date\_Actual: Actual end date (YYYY-MM-DD or MM/DD/YYYY character or Date class, some NA for in-progress)

Includes examples of on-time, delayed, ahead-of-schedule, and in-progress activities.

**colors** A named list of 8 colors:

- Each WBS item (W1-W8) is assigned a custom hex color

## Source

Example software development project

## Examples

```
# Load the test data
data(test_project)

# View structure
str(test_project)

# Create a Gantt chart

chart <- Ganttify(
  wbs_structure = test_project$wbs_structure,
  activities = test_project$activities,
  color_config = list(mode = "wbs", wbs = test_project$colors)
)
chart
```

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