# IPySlides 3.9.7 Documentation

## Creating slides with IPySlides

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[1]My University is somewhere in the middle of nowhere
[2]Their University is somewhere in the middle of nowhere

## Table of contents

## This is summary of current section

Oh we can use inline columns

| | |
|---|---|
| Column A | Column B |

here and what not!

Markdown

~~~
```toc Table of contents
Extra content for current section which is on right
```
~~~

# Main App

**Slides**(extensions=[], auto_focus=True, **settings)

Interactive Slides in IPython Notebook. Only one instance can exist. `auto_focus` can be reset from settings and enable jumping back to slides after a cell is executed. `settings` are passed to `Slides.settings.apply` if you like to set during initialization.

To suppress unwanted print from other libraries/functions, use:

```python
with slides.suppress_stdout():
    some_function_that_prints() # This will not be printed
    print('This will not be printed either')
    display('Something') # This will be printed
```

Info

The methods under settings starting with `Slides.settings.set_` returns settings back to enable chaining without extra typing, like `Slides.settings.set_animation().set_layout()...` .

Tip

- Use `Slides.instance()` class method to keep older settings. `Slides()` apply default settings every time.
- Run `slides.demo()` to see a demo of some features

## Adding Slides

Note

Besides functions below, you can add slides with `%%title`/`%%slide` magics as well.

Slides.**title**()

Use this context manager to write title. It is equivalent to `%%title` magic.

Slides.**slide**(slide_number)

Use this context manager to generate any number of slides from a cell. It is equivalent to `%%slide` magic.

Info

Use this function with 'next_' prefix to enable auto numbeing of slides inside python file.

Slides.**frames**(slide_number, *objs, repeat=False)

Decorator for inserting frames on slide, define a function with two arguments (frame_index, frame_content). You can also call it as a function, e.g. `.frames(1,*objs)(<optional function>)`.

```python
@slides.frames(1,a,b,c) # slides 1.1, 1.2, 1.3 with content a,b,c
def f(frame_index, frame_content):
    do_something(frame_content)
    if frame_index == 0: # Main Slide
```

Python

```python
self.write(self.fmt('`{self.version!r}` `{self.xmd_syntax}`'))
```

'3.9.7'

## Extended Markdown

Extended syntax for markdown is constructed to support almost full presentation from Markdown.

**Following syntax works only under currently building slide:**

- notes`This is slide notes` to add notes to current slide
- cite`key` to add citation to current slide. citations are automatically added in suitable place and should be set once using `Slides.set_citations` function.
- With citations mode set as 'footnote', you can add refs`ncol` to add citations anywhere on slide. If ncol is not given, it will be picked from layout settings.
- section`content` to add a section that will appear in the table of contents.
- toc`Table of content header text` to add a table of contents. For block type toc, see below.
- proxy`placeholder text` to add a proxy that can be updated later with `Slides.proxies[index].capture` contextmanager. Useful to keep placeholders for plots in markdwon.
- peoxy`[Button Text]` to add a proxy that can be replaced by pasting image from clipboard later.
- Triple dashes `---` is used to split markdown text in slides inside `from_markdown(start, content)` function.
- Double dashes `--` is used to split markdown text in frames

# Adding Content

Note

Besides functions below, you can add content to slides with %%xmd,%xmd as well.

Slides.**write**(*objs, widths=None)

Write `objs` to slides in columns. To create rows in a column, wrap objects in a list or tuple.
You can optionally specify `widths` as a list of percentages for each column.

Write any object that can be displayed in a cell with some additional features:

- Strings will be parsed as as extended markdown that can have citations/python code blocks/Javascript etc.
- Display another function in order by passing it to a lambda function like `lambda: func()`. Only body of the function will be displayed/printed. Return value will be ignored.
- Dispaly IPython widgets such as `ipywidgets` or `ipyvolume` by passing them directly.
- Display Axes/Figure form libraries such as `matplotlib`, `plotly` `altair`, `bokeh`, `ipyvolume` ect. by passing them directly.
- Display source code of functions/classes/modules or other languages by passing them directly or using `Slides.code` API.
- Use `Slides.alt(widget, func)` function to display widget on slides and alternative content in exported slides, function should return possible HTML representation of widget.
- `ipywidgets.HTML` and its subclasses will be displayed as `Slides.alt(widget, html_converter_func)`. The value of exported HTML will be most recent.

## Adding Speaker Notes

Skip to Dynamic Content

📝 Note

You can use notes`notes content` in markdown.

⚡ Danger

This is experimental feature, and may not work as expected.

Slides.notes.display()

Slides.notes.insert(content)

Add notes to current slide. Content could be any object except javascript and interactive widgets.

💡 Tip

In markdown, you can use notes`notes content`.

## Displaying Source Code

Slides.code.**cast**(obj, language='python', name=None, **kwargs)

Create source code object from file, text or callable. `kwargs` are passed to `ipyslides.formatter.highlight`.

Slides.code.**context**(returns=False, **kwargs)

Execute and displays source code in the context manager. `kwargs` are passed to `ipyslides.formatter.highlight` function. Useful when source is written inside context manager itself. If `returns` is False (by default), then source is displayed before the output of code. Otherwise you can assign the source to a variable and display it later anywhere.

**Usage**:

```python
with source.context(returns = True) as s: #if not used as `s`, still it is stored `s
    do_something()
    write(s) # or s.display(), write(s)

#s.raw, s.value are accesible attributes.
#s.focus_lines, s.show_lines are methods that are used to show selective lines.
```

Slides.code.**from_callable**(callable, **kwargs)

Returns source object from a given callable [class,function,module,method etc.] with `show_lines`

## Contents

## Layout and Theme Settings

Slides.settings.**apply**(**settings)

Apply multiple settings at once. Top level keys should be function names without 'set_' and values should be dictionary of parameters to that function. For example:

```
Slides.settings.apply(
    layout = {"aspect":1.6, "scroll":False},
    footer = {0:"footer text", "numbering":True} # 0 key goes to first positional arg
)
```

Slides.settings.**set_animation**(main='slide_h', frame='appear')

Set animation for slides and frames.

Slides.settings.**set_bg_image**(src=None, opacity=0.25, blur_radius=None)

Adds glassmorphic effect to the background with image. `src` can be a url or a local image path.

Slides.settings.**set_code_theme**(style='default', color=None, background=None, hover_color='var(--hover-bg)', lineno=True)

Set code style CSS. Use background for better view of your choice. This is overwritten by theme change.

## Useful Functions for Rich Content

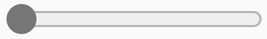
Slides.**clipboard_image**(filename, quality=95, overwrite=False)

Save image from clipboard to file with a given quality. On next run, it loads from saved file under `notebook-dir/.ipyslides-assets/clips`. Useful to add screenshots from system into IPython. You can use overwite to overwrite existing file. You can add saved clips using a "clip:" prefix in path in `Slides.image("clip:filename.png")` function and also in markdown.

- Output can be directly used in `write` command.
- Converts to PIL image using `.to_pil()`.
- Convert to HTML representation using `.to_html()`.
- Convert to Numpy array using `.to_numpy()` in RGB format that you can plot later.

Slides.**alt**(widget, func)

Display `widget` for slides and output of `func(widget)` will be and displayed only in exported formats as HTML. `func` should return possible HTML representation (provided by user) of widget as string.



Python

```python
import ipywidgets as ipw
slides = get_slides_instance()
slides.alt(ipw.IntSlider(),lambda w: f'<input type="range" min="{w.min}" max="{w.ma
```

## Citations and Sections

Use syntax cite`key` to add citations which should be already set by `Slides.set_citations(data, mode)` method. Citations are written on suitable place according to given mode. Number of columns in citations are determined by `Slides.settings.set_layout(..., ncol_refs = int)`. [1]

Add sections in slides to separate content by section`text`. Corresponding table of contents can be added with toc`title`/`toc title\n summary of current section \n`.

Slides.**set_citations**(data, mode='footnote')

Set citations from dictionary or file that should be a JSON file with citations keys and values, key should be cited in markdown as cite`key`. `mode` for citations should be one of ['inline', 'footnote']. Number of columns in citations are determined by `Slides.settings.set_layout(..., ncol_refs=N)`.

Note

- You should set citations in start if using voila or python script. Setting in start in notebook is useful as well.
- Citations are replaced with new ones, so latest use of this function reprsents avilable citations.

1. Citation A

# Dynamic Content

Slides.**on_refresh**(func)

Decorator for inserting dynamic content on slide, define a function with no arguments. Content updates when `slide.update_display` is called or when `Slides.refresh` is called.

💡 Tip

You can use it to dynamically fetch a value from a database or API while presenting, without having to run the cell again.

📝 Note

- No return value is required. If any, should be like `display('some value')`, otherwise it will be ignored.
- A slide with dynamic content enables a refresh button in bottom bar.
- All slides with dynamic content are updated when refresh button in top bar is clicked.

Python

```python
import time
slides = get_slides_instance() # Get slides instance, this is to make doctring runn
source.display() # Display source code of the block
@slides.on_refresh
def update_time():
    print('Local Time: {3}:{4}:{5}'.format(*time.localtime())) # Print time in HH:MM
```

## Content Styling

You can **style** or **colorize** your *content* and *text*. Provide **CSS** for that using `.format_css` or use some of the available styles. See these **styles** with `.css_styles` property as below:

```
 Use any or combinations of these styles in className argument of writing functions:
 ───────────────────────────────────────────────────────────────────────────────────
  className            | Formatting Style
 ═══════════════════════════════════════════════════════════════════════════════════
  'text-[value]'       | [value] should be one of tiny, small, big, large, huge.
  'align-[value]'      | [value] should be one of center, left, right.
  'rtl'                | ────── اردو عربی
  'info'               | Blue text. Icon ℹ  for note-info class.
  'tip'                | Blue Text. Icon 💡 for note-tip class.
  'warning'            | Orange Text. Icon ⚠️ for note-warning class.
  'success'            | Green text. Icon ✅ for note-success class.
  'error'              | Red Text. Icon ⚡ for note-error class.
  'note'               | 📝 Text with note icon.
  'export-only'        | Hidden on main slides, but will appear in exported slides.
  'jupyter-only'       | Hidden on exported slides, but will appear on main slides.
  'block'              | Block of text/objects
  'block-[color]'      | Block of text/objects with specific background color from red,
                       | green, blue, yellow, cyan, magenta and gray.
```

Python

```python
self.write(('You can **style**{.error} or **color[teal]`colorize`** your *content*{:
        'Provide **CSS**{.info} for that using `.format_css` or use some of the avai
        'See these **styles**{.success} with `.css_styles` property as below:'))
```

## Highlighting Code

pygments is used for syntax highlighting [1]. You can **highlight** code using `highlight` function [2] or within markdown like this:

Python

```python
import ipyslides as isd
```

Javascript

```javascript
import React, { Component } from "react";
```

Markdown

~~~markdown
## Highlighting Code
[pygments](https://pygments.org/) is used for syntax highlighting cite`A`.
You can **highlight**{.error} code using `highlight` function cite`B` or within m
```python
import ipyslides as isd
```
```javascript
import React, { Component } from "react";
```
proxy`source code of slide will be updated here later using slide_handle.proxies
~~~

1. Citation A
2. Citation B

# Loading from File/Exporting to HTML

> Note
>
> You can parse and view a markdown file. The output you can save by exporting notebook in other formats.

Slides.**sync_with_file**(start, path, trusted=False, interval=500)

Auto update slides when content of markdown file changes. You can stop syncing using `Slides.unsync` function. interval is in milliseconds, 500 ms default. Read `Slides.from_markdown` docs about content of file.

The variables inserted in file content are used from top scope.

Slides.**from_markdown**(start, content, trusted=False)

You can create slides from a markdown tex block as well. It creates slides `start + (0,1,2,3...)` in order. You should add more slides by higher number than the number of slides in the file/text, or it will overwrite.

- Slides separator should be --- (three dashes) in start of line.
- Frames separator should be -- (two dashes) in start of line. All markdown before first `--` will be written on all frames.
- In case of frames, you can add `%++` (percent plus plus) in the content to add frames incrementally.
- You can use frames separator (--) inside `multicol` to make columns span multiple frames with

## Contents

## Adding User defined Objects/Markdown Extensions

I will be on exported slides

Python

```python
self.write('## Adding User defined Objects/Markdown Extensions
self.write(
    lambda: display(self.html('h3','I will be on main slides'
    metadata = {'text/html': '<h3 class="warning">I will be o
    s.get_source(), widths = [1,3]
)
self.write('If you need to serialize your own or third party 
self.doc(self.serializer,'Slides.serializer', members = True,
self.write('**You can also extend markdown syntax** using `ma
self.doc(self.extender,'Slides.extender', members = True, its
```

Note

If you need to serialize your own or third party objects not serialized by this module, you can use `@Slides.serializer.register` to serialize them to html.

Slides.serializer.**display**(obj)

Display an object with metadata if a serializer available. Same as display(obj, metadata = serializer.get_metadata(obj)))

Slides.serializer.**get_func**(obj_type)

Get serializer function for a type. Returns None if not found.

## Keys and Shortcuts

- You can use `Slides.current` to access a slide currently in view.
- You can use `Slides.running` to access the slide currently being built, so you can set CSS, aminations etc.

| Shortcut | Button | Action |
|---|---|---|
| `␣` / ▸ | ›, ⌄ | Move to next slide |
| `Ctrl` + `␣` / ◂ | ‹, ⌃ | Move to previous slide |
| `Ctrl` + `0` / `0` | ⇤ / ⇥ | Jump to Star/End of slides |
| `Ctrl` + `[1-9]`/`[1-9]` |  | Shift [1-9] slides left/right |
| `Z` | 🔍, 🔍 | Toggle objects zoom mode |
| `S` | 📷 | Take screenshot |
| `F` | ⤢, ⤡ | Toggle fullscreen |
| `Esc` |  | Exit fullscreen |
| `V` | 🗔, 🗗 | Toggle fit to viewport [voila only] |
| `G` | ⚙, ✕ | Toggle settings panel |
| `E` | </> | Edit Source Cell of Current Slide |
| `L` | ◉, ○ | Toggle LASER pointer |
| `K` |  | Show keyboard shortcuts |

## Focus on what matters

- There is a zoom button on top bar which enables zooming of certain elements. This can be toggled by `Z` key.
- Most of supported elements are zoomable by default like images, matplotlib, bokeh, PIL image, altair plotly, dataframe, etc.
- You can also enable zooming for an object/widget by wrapping it inside `Slide.enable_zoom` function conveniently.
- You can also enable by manully adding `zoom-self`, `zoom-child` classes to an element. To prevent zooming under as `zoom-child` class, use `no-zoom` class.

### Focus on Me 😎

- If zoom button is enabled, you can hover here to zoom in this part!
- You can also zoom in this part by pressing `Z` key while mouse is over this part.

## SVG Icons

Icons that apprear on buttons inslides (and their rotations) available to use in your slides as well.

chevron: › pencil: ✎ bars: ☰ arrow: → arrow-bar: ⇥ close: ✕ dots: ⋮ expand: ⤢ compress: ⤡ camera: 📷 play: ▶ pause: ⏸ stop: ■ loading: ◝ circle: ○ info: ⓘ refresh: ↻ laser: ◉ zoom-in: 🔍 zoom-out: 🔍 search: 🔍 code: </> win-maximize: 🗖 win-restore: 🗗 rows: ☰ columns: ◫ settings: ⚙

Python

```python
import ipywidgets as ipw
btn = ipw.Button(description='Chevron-Down',icon='plus').add_class('MyIcon') # Any
self.write(btn)
self.format_css({'.MyIcon .fa.fa-plus': self.icon('chevron',color='crimson', size='
```

# Auto Slide Numbering in Python Scripts

Slides.**next_slide**()

See docs of `slide` excpet need of a slide number.

Slides.**next_frames**(*objs, repeat=False)

See docs of `frames` excpet need of a slide number.

Slides.**next_from_markdown**(content, trusted=False)

See docs of `from_markdown` excpet need of a slide number.

Slides.**next_number**()

Get next slide number if need inside a .py file, e.g. in slide magic or explicit numbering.

# Presentation Code

Python

```python
def docs(self):
    "Create presentation from docs of IPySlides."
    self.close_view() # Close any previous view to speed up loading 10x faster on a
    self.clear() # Clear previous content
    self.create(*range(23)) # Create slides faster

    from ..core import Slides

    self.set_citations({'A': 'Citation A', 'B': 'Citation B'}, mode = 'footnote')
    self.settings.set_footer('IPySlides Documentation')

    with self.title(): # Title
        self.write(f'## IPySlides {self.version} Documentation\n### Creating slides
        self.center('''
            alert`Abdul Saboor`sup`1`, Unknown Authorsup`2`
```