# EzPyGame Documentation

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Easier and more pythonic usage of pygame.

**class** ezpygame.**Application**(*title=None*, *resolution=None*, *update_rate=None*)
A simple wrapper around pygame for running games easily.

Also makes scene management seamless together with the *Scene* class.

**Parameters**

- **title** (*str|None*) – title to display in the window's title bar
- **resolution** (*tuple[int,int]|None*) – resolution of the game window
- **update_rate** (*int|None*) – how many times per second to update

If any parameters are left to None, these settings must be defined either manually through application.<setting> = value or via *Scene*'s class variable settings.

Example usage:

```
class Menu(ezpygame.Scene):
    ...

class Game(ezpygame.Scene):
    ...

app = ezpygame.Application(
    title='My First EzPyGame Application',
    resolution=(1280, 720),
    update_rate=60,
)
main_menu = Menu()
app.run(main_menu)
```

**active_scene**
The currently active scene. Can be None.

**change_scene**(*scene*)
Change the currently active scene.

This will invoke *Scene.on_exit()* and *Scene.on_enter()* methods on the switching scenes.

If None is provided, the application's execution will end.

**Parameters** **scene** (*Scene|None*) – the scene to change into

**run**(*scene=None*)
Execute the application.

**Parameters** **scene** (*scene.Scene|None*) – scene to start the execution from

**class** ezpygame.**Scene**(*title=None*, *resolution=None*, *update_rate=None*)
An isolated scene which can be ran by an application.

Create your own scene by subclassing and overriding any methods. The hosting *Application* instance is accessible through the *application* property.

Example usage with two scenes interacting:

```
class Menu(Scene):

    def __init__(self):
        self.font = pygame.font.Font(...)
```

```
    def on_enter(self, previous_scene):
        self.application.title = 'Main Menu'
        self.application.resolution = (640, 480)
        self.application.update_rate = 30

    def draw(self, screen):
        pygame.draw.rect(...)
        text = self.font.render(...)
        screen.blit(text, ...)

    def handle_event(self, event):
        if event.type == pygame.MOUSEBUTTONUP:
            if event.button == 1:
                game_size = self._get_game_size(event.pos)
                self.change_scene(Game(game_size))

    def _get_game_size(self, mouse_pos_upon_click):
        ...


class Game(ezpygame.Scene):
    title = 'The Game!'
    resolution = (1280, 720)
    update_rate = 60

    def __init__(self, size):
        super().__init__()
        self.size = size
        self.player = ...
        ...

    def on_enter(self, previous_scene):
        super().on_enter(previous_scene)
        self.previous_scene = previous_scene

    def draw(self, screen):
        self.player.draw(screen)
        for enemy in self.enemies:
            ...

    def update(self, dt):
        self.player.move(dt)
        ...
        if self.player.is_dead():
            self.application.change_scene(self.previous_scene)
        elif self.player_won():
            self.application.change_scene(...)

    def handle_event(self, event):
        ...  # Player movement etc.
```

The above two classes use different approaches for changing the application's settings when the scene is entered:

1. Manually set them in *on_enter()*, as seen in `Menu`
2. Use class variables, as I did with `Game`

When using class variables (2), you can leave out any setting (defaults to `None`) to not override that particular setting. If you override *on_enter()* in the subclass, you must call `super()`.

`on_enter(previous_scene)` to use the class variables.

These settings can further be overridden in individual instances:

```
my_scene0 = MyScene()
my_scene0.resolution = (1280, 720)
my_scene1 = MyScene(title='My Second Awesome Scene')
```

**application**
The host application that's currently running the scene.

**draw**(*screen*)
Override this with the scene drawing.

**Parameters** **screen** (*pygame.Surface*) – screen to draw the scene on

**handle_event**(*event*)
Override this to handle an event in the scene.

All of `pygame`'s events are sent here, so filtering should be applied manually in the subclass.

**Parameters** **event** (*pygame.event.Event*) – event to handle

**on_enter**(*previous_scene*)
Override this to initialize upon scene entering.

The *application* property is initialized at this point, so you are free to access it through `self.application`. Stuff like changing resolution etc. should be done here.

If you override this method and want to use class variables to change the application's settings, you must call `super().on_enter(previous_scene)` in the subclass.

**Parameters** **previous_scene** (*Scene* | *None*) – previous scene to run

**on_exit**(*next_scene*)
Override this to deinitialize upon scene exiting.

The *application* property is still initialized at this point. Feel free to do saving, settings reset, etc. here.

**Parameters** **next_scene** (*Scene* | *None*) – next scene to run

**update**(*dt*)
Override this with the scene update tick.

**Parameters** **dt** (*int*) – time in milliseconds since the last update

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