Visualization Interface Tool

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CONTENTS

The Visualization Interface Tool is a Python API that provides an interface between PyAnsys libraries and different plotting backends.

The Visualization Interface Tool offers these main features:

- Serves as an interface between PyAnsys and other plotting libraries (although only PyVista is supported currently).
- Provides out-of-the box picking, viewing, and measuring functionalities.
- Supplies an extensible class for adding custom functionalities.

Getting started   Learn how to install the Visualization Interface Tool in user mode and quickly begin using it.

Getting started   User guide   Understand key concepts for implementing the Visualization Interface Tool in your workflow.

User guide   API reference   Understand how to use Python to interact programmatically with the Visualization Interface Tool.

API reference   Examples   Explore examples that show how to use the Visualization Interface Tool to perform many different types of operations.

Examples   Contribute   Learn how to contribute to the Visualization Interface Tool codebase or documentation.

Contribute

CHAPTER

ONE

GETTING STARTED

This section describes how to install the Visualization Interface Tool in user mode and quickly begin using it. If you are interested in contributing to the Visualization Interface Tool, see *Contribute* for information on installing in developer mode.

1.1 Installation

To use pip to install the Visualization Interface Tool, run this command:

```
pip install ansys-tools-visualization-interface
```

Alternatively, to install the latest version from this library's GitHub repository, run these commands:

```
git clone https://github.com/ansys/ansys-tools-visualization-interface
cd ansys-tools-visualization-interface
pip install .
```

1.1.1 Quick start

The following examples show how to use the Visualization Interface Tool to visualize a mesh file.

This code uses only a PyVista mesh:

```
from ansys.tools.visualization_interface import Plotter

my_mesh = my_custom_object.get_mesh()

# Create a Visualization Interface Tool object
pl = Plotter()
pl.plot(my_mesh)

# Plot the result
pl.show()
```

This code uses objects from a PyAnsys library:

```
from ansys.tools.visualization_interface import Plotter, MeshObjectPlot

my_custom_object = MyObject()
my_mesh = my_custom_object.get_mesh()

mesh_object = MeshObjectPlot(my_custom_object, my_mesh)
```

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```python

# Create a Visualization Interface Tool object
pl = Plotter()
pl.plot(mesh_object)

# Plot the result
pl.show()
```

CHAPTER

TWO

USER GUIDE

This section explains key concepts for implementing the Visualization Interface Tool in your workflow. You can use the Visualization Interface Tool in your examples as well as integrate this library into your own code. For information on how to migrate from PyVista to the Ansys Visualization Interface Tool, see *Migration*.

2.1 Default plotter usage

The Visualization Interface Tool provides a default plotter that can be used out of the box, using the PyVista backend. This default plotter provides common functionalities so that you do not need to create a custom plotter.

2.1.1 Use with PyVista meshes

You can use the default plotter to plot simple PyVista meshes. This code shows how to use it to visualize a simple PyVista mesh:

```
## Usage example with pyvista meshes ##

import pyvista as pv
from ansys.tools.visualization_interface import Plotter

# Create a pyvista mesh
mesh = pv.Cube()

# Create a plotter
pl = Plotter()

# Add the mesh to the plotter
pl.plot(mesh)

# Show the plotter
pl.show()
```

2.1.2 Use with PyAnsys custom objects

You can also use the default plotter to visualize PyAnsys custom objects. The only requirement is that the custom object must have a method that returns a PyVista mesh a method that exposes a `name` or `id` attribute of your object. To expose a custom object, you use a *`MeshObjectPlot`* instance. This class relates PyVista meshes with any object.

The following code shows how to use the default plotter to visualize a PyAnsys custom object:

```
## Usage example with PyAnsys custom objects ##

from ansys.tools.visualization_interface import Plotter
from ansys.tools.visualization_interface import MeshObjectPlot


# Create a custom object for this example
class CustomObject:
    def __init__(self):
        self.name = "CustomObject"
        self.mesh = pv.Cube()

    def get_mesh(self):
        return self.mesh

    def name(self):
        return self.name


custom_object = CustomObject()

# Create a MeshObjectPlot instance
mesh_object = MeshObjectPlot(custom_object, custom_object.get_mesh())

# Create a plotter
pl = Plotter()

# Add the MeshObjectPlot instance to the plotter
pl.plot(mesh_object)

# Show the plotter
pl.show()
```

2.2 Customize your own plotter

The Visualization Interface Tool provides a base class, `PlotterInterface`, for customizing certain functions of the plotter. This class provides a set of methods that can be overridden so that you can adapt the plotter to the specific need of your PyAnsys library.

The first thing you must do is to create a class that inherits from the `PlotterInterface` class. After that, see these main use cases for customizing the plotter:

- The most common use case is to customize the way that the objects you represent are shown in the plotter. To this end, you can override the `plot` and `plot_iter` methods. These methods are called every time a new object is added to the plotter. The default implementation of this method is to add a PyVista mesh or a `MeshObjectPlot` instance to the plotter. You can override this method to add your own meshes or objects to the plotter in a manner that fits the way that you want to represent the meshes.
- Another use case is the need to have custom button functionalities for your library. For example, you may want buttons for hiding or showing certain objects. To add custom buttons to the plotter, you use the implementable interface provided by the `PlotterWidget` class.

Some practical examples of how to use the `PlotterInterface` class are included in some PyAnsys libraries, such as PyAnsys Geometry.

For comprehensive migration information with code examples, see *Migration*.

2.3 Customizing the picker and hover callbacks

The Visualization Interface Tool provides a base class, `AbstractPicker`, for customizing the picker and hover callbacks of the plotter. This class provides a set of methods that can be overridden so that you can adapt the picker and hover functionalities to the specific need of your PyAnsys library.

The first thing you must do is to create a class that inherits from the `AbstractPicker` class. After that, see these main use cases for customizing the picker and hover callbacks:

- You may want to change the way that objects are picked in the plotter. To do this, you can override the `pick_select_object` and `pick_unselect_object` methods. These methods are called when an object is selected or unselected, respectively.
- Similarly, you may want to change the way that objects are hovered over in the plotter. To do this, you can override the `hover_select_object` and `hover_unselect_object` methods. These methods are called when an object is hovered over or unhovered, respectively.

A practical example of how to use the `AbstractPicker` class is included in *Create custom picker*.

CHAPTER

THREE

MIGRATION

This section helps you migrate from PyVista plotters to the Ansys Tools Visualization Interface plotters. It consists of two major topics:

- *Code migration*
- *Documentation configuration migration*

3.1 Code migration

This topic explains how to migrate from PyVista plotters to the new Ansys Tools Visualization Interface plotters. Because cases vary greatly, it provides a few examples that cover the most common scenarios.

3.1.1 Replace PyVista plotter code with Ansys Tools Visualization Interface plotter code

If you only need to plot simple PyVista meshes, you can directly replace your PyVista plotter code with the Ansys Tools Visualization Interface plotter code. On top of common PyVista functionalities, the Ansys Tools Visualization Interface plotter provides additional interactivity such as view buttons and mesh slicing.

The following code shows how to do the plotter code replacement:

- PyVista code:

```python
import pyvista as pv

# Create a PyVista mesh
mesh = pv.Cube()

# Create a plotter
pl = pv.Plotter()

# Add the mesh to the plotter
pl.add_mesh(mesh)

# Show the plotter
pl.show()
```

- Ansys Tools Visualization Interface code:

```python
import pyvista as pv
from ansys.tools.visualization_interface import Plotter

```

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```
# Create a PyVista mesh
mesh = pv.Cube()

# Create a plotter
pl = Plotter()

# Add the mesh to the plotter
pl.plot(mesh)

# Show the plotter
pl.show()
```

3.1.2 Convert your custom meshes to objects usable by the Ansys Tools Visualization Interface plotter

Your custom object must have a method that returns a PyVista mesh and a method that exposes a `name` or `id` attribute of your object:

```
class CustomObject:
    def __init__(self):
        self.name = "CustomObject"
        self.mesh = pv.Cube(center=(1, 1, 0))

    def get_mesh(self):
        return self.mesh

    def name(self):
        return self.name
```

You then need to create a *MeshObjectPlot* instance that relates the PyVista mesh with your custom object:

```
from ansys.tools.visualization_interface import MeshObjectPlot

custom_object = CustomObject()
mesh_object_plot = MeshObjectPlot(
    custom_object=custom_object,
    mesh=custom_object.get_mesh(),
)
```

With this, you can use the Ansys Tools Visualization Interface plotter to visualize your custom object. It enables interactivity such as picking and hovering.

3.1.3 Customize the PyVista backend

You can customize the backend of the Ansys Tools Visualization Interface plotter to enable or turn off certain functionalities. The following code shows how to enable picking:

```
from ansys.tools.visualization_interface import Plotter
from ansys.tools.visualization_interface.backends import PyVistaBackend

backend = PyVistaBackend(allow_picking=True)
```

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```python
# Create a plotter
pl = Plotter(backend=backend)

# Add the MeshObjectPlot instance to the plotter
pl.plot(mesh_object_plot)

# Show the plotter
pl.show()
```

If you want to customize the backend even more, you can create your own backend by inheriting from the `PyVistaBackendInterface` class and implementing the required methods:

```python
@abstractmethod
def plot_iter(self, plottable_object: Any, name_filter: str = None, **plotting_options):
    """Plot one or more compatible objects to the plotter.

    Parameters
    ----------
    plottable_object : Any
        One or more objects plot.
    name_filter : str, default: None.
        Regular expression with the desired name or names to include in the plotter.
    **plotting_options : dict, default: None
        Keyword arguments. For allowable keyword arguments, see the
        :meth:`Plotter.add_mesh <pyvista.Plotter.add_mesh>` method.

    """
    pass


@abstractmethod
def plot(self, plottable_object: Any, name_filter: str = None, **plotting_options):
    """Plot a single object to the plotter.

    Parameters
    ----------
    plottable_object : Any
        Object to plot.
    name_filter : str
        Regular expression with the desired name or names to include in the plotter.
    **plotting_options : dict, default: None
        Keyword arguments. For allowable keyword arguments, see the
        :meth:`Plotter.add_mesh <pyvista.Plotter.add_mesh>` method.

    """
    pass
```

The rest of the methods are implemented for you. This ensures that while you can customize what you need for plotting, the rest of the functionalities still work as expected. For more information, see the backend documentation. If you need to even go further, you can create your own plotter by inheriting from the `BaseBackend` class and implementing the required methods, although this may break existing features.

3.1.4 Customize the picker or hover behavior

You can customize the picker of the Ansys Tools Visualization Interface plotter to decide what happens when you pick or hover over an object. For example, if you want to print the name of the picked object, you can do it as described in the *Create custom picker* example.

3.1.5 Use the PyVista Qt backend

You can use the PyVista Qt backend with the Ansys Tools Visualization Interface plotter. To do this, you must set the PyVista backend to Qt before creating the plotter:

```
cube = pv.Cube()
pv_backend = PyVistaBackend(use_qt=True, show_qt=True)
pl = Plotter(backend=pv_backend)
pl.plot(cube)
pl.backend.enable_widgets()
pv_backend.scene.show()
```

You can then integrate the plotter into a PyQt or PySide app by disabling the `show_qt` parameter. For more information about this, see the PyVista documentation.

3.2 Documentation configuration migration

This topic explains how to migrate from the PyVista documentation configuration to the new Ansys Tools Visualization Interface documentation configuration.

1. Add environment variables for documentation:

```
os.environ["PYANSYS_VISUALIZER_DOC_MODE"] = "true"
os.environ["PYANSYS_VISUALIZER_HTML_BACKEND"] = "true"
```

2. Use PyVista DynamicScraper:

```
from pyvista.plotting.utilities.sphinx_gallery import DynamicScraper

sphinx_gallery_conf = {
    "image_scrapers": (DynamicScraper()),
}
```

3. Add PyVista viewer directive to extensions:

```
extensions = ["pyvista.ext.viewer_directive"]
```

4. Make sure you are executing the notebook cells:

```
nbsphinx_execute = "always"
```

For Plotly, in `conf.py`, do the following:

1. Add environment variables for documentation:

```
os.environ["PYANSYS_VISUALIZER_DOC_MODE"] = "true"
```

2. Add plotly configuration

```
import plotly.io as pio

pio.renderers.default = "sphinx_gallery"
```

3. Import and add scraper

```
from plotly.io._sg_scraper import plotly_sg_scraper

sphinx_gallery_conf = {
    "image_scrapers": (DynamicScraper(), "matplotlib", plotly_sg_scraper),
}
```

4. **[IMPORTANT]** The `pl.show()` must be the last line of code in the cell, or else it won't show.

CHAPTER

FOUR

API REFERENCE

This section describes ansys-tools-visualization-interface endpoints, their capabilities, and how to interact with them programmatically.

4.1 The `ansys.tools.visualization_interface` library

4.1.1 Summary

Subpackages

backends	Provides interfaces.
types	Provides custom types.
utils	Provides the Utils package.

Submodules

plotter	Module for the Plotter class.

Attributes

__version__

Constants

USE_TRAME	
DOCUMENTATION_BUILD	Whether the documentation is being built or not.
TESTING_MODE	Whether the library is being built or not, used to avoid showing plots while testing.
USE_HTML_BACKEND	Whether the library is being built or not, used to avoid showing plots while testing.

The `backends` package

Summary

Subpackages

plotly	Plotly initialization.
pyvista	Provides interfaces.

The `plotly` package

Summary

Subpackages

widgets	Widgets module init.

Submodules

plotly_interface	Plotly backend interface for visualization.

The `widgets` package

Summary

Submodules

button_manager	Module for button management.

The `button_manager.py` module

Summary

Classes

ButtonManager	Class to manage buttons in a Plotly figure.

`ButtonManager`

class ansys.tools.visualization_interface.backends.plotly.widgets.button_manager.**ButtonManager**(*fig: plotly.grap*

Class to manage buttons in a Plotly figure.

This class allows adding buttons to a Plotly figure for various functionalities such as toggling visibility of traces, resetting the view, and custom actions.

Parameters

fig
[`go.Figure`] The Plotly figure to which buttons will be added.

Overview

Methods

add_button	Add a button to the Plotly figure.
show_hide_bbox_dict	Generate dictionary for showing/hiding coordinate system elements.
update_layout	Update the figure layout with all controls as buttons in a single row.
args_xy_view_button	Get camera configuration for XY plane view (top-down view).
args_xz_view_button	Get camera configuration for XZ plane view (front view).
args_yz_view_button	Get camera configuration for YZ plane view (side view).
args_iso_view_button	Get camera configuration for isometric view (3D perspective).
add_measurement_toggle_button	Get configuration for measurement toggle button.
args_projection_toggle_button	Get configuration for projection toggle button.
args_theme_toggle_button	Get configuration for theme toggle button.

Import detail

```
from ansys.tools.visualization_interface.backends.plotly.widgets.button_manager import␣
↪ButtonManager
```

Method detail

ButtonManager.**add_button**(*label: str*, *x: float*, *y: float*, *xanchor: str = 'left'*, *yanchor: str = 'bottom'*, *method: str = 'restyle'*, *args: List[Any] = None*, *args2: List[Any] = None*) → None

Add a button to the Plotly figure.

Parameters

label
[str] The text to display on the button.

x
[float] X position of the button (0-1).

y
[float] Y position of the button (0-1).

xanchor
[str, optional] X anchor point for the button, by default "left".

yanchor
[str, optional] Y anchor point for the button, by default "bottom".

method
[str, optional] The method to call when the button is clicked. Options include: 'restyle', 'relayout', 'update', 'animate', by default 'restyle'.

args
[List[Any], optional] Arguments to pass to the method when the button is clicked, by default None.

args2
[List[Any], optional] Secondary arguments for toggle functionality, by default None.

ButtonManager.**show_hide_bbox_dict**(*toggle: bool = True*)

Generate dictionary for showing/hiding coordinate system elements.

Parameters

toggle
[bool, `optional`] Whether to show (True) or hide (False) the coordinate system, by default True.

Returns

`dict`
Dictionary with coordinate system visibility settings.

`ButtonManager.update_layout()` → None

Update the figure layout with all controls as buttons in a single row.

This method builds buttons using the configuration methods and any additional buttons that were added via add_button().

`ButtonManager.args_xy_view_button`(*label: str = 'XY View'*, *x: float = 0.02*, *y: float = 1.02*) → dict

Get camera configuration for XY plane view (top-down view).

Parameters

label
[`str`, `optional`] The text to display on the button, by default "XY View".

x
[`float`, `optional`] X position of the button (0-1), by default 0.02.

y
[`float`, `optional`] Y position of the button (0-1), by default 1.02.

Returns

`dict`
Camera configuration for XY plane view.

`ButtonManager.args_xz_view_button`(*label: str = 'XZ View'*, *x: float = 0.02*, *y: float = 1.02*) → dict

Get camera configuration for XZ plane view (front view).

Parameters

label
[`str`, `optional`] The text to display on the button, by default "XZ View".

x
[`float`, `optional`] X position of the button (0-1), by default 0.02.

y
[`float`, `optional`] Y position of the button (0-1), by default 1.02.

Returns

`dict`
Camera configuration for XZ plane view.

`ButtonManager.args_yz_view_button`(*label: str = 'YZ View'*, *x: float = 0.02*, *y: float = 1.02*) → dict

Get camera configuration for YZ plane view (side view).

Parameters

label
[`str`, `optional`] The text to display on the button, by default "YZ View".

x
[`float`, `optional`] X position of the button (0-1), by default 0.02.

y
: [`float`, `optional`] Y position of the button (0-1), by default 1.02.

Returns

`dict`
: Camera configuration for YZ plane view.

`ButtonManager.`**`args_iso_view_button`**`(`*label: str = 'ISO View', x: float = 0.02, y: float = 1.02*`)` → dict

Get camera configuration for isometric view (3D perspective).

Parameters

label
: [`str`, `optional`] The text to display on the button, by default "ISO View".

x
: [`float`, `optional`] X position of the button (0-1), by default 0.02.

y
: [`float`, `optional`] Y position of the button (0-1), by default 1.02.

Returns

`dict`
: Camera configuration for isometric view.

`ButtonManager.`**`add_measurement_toggle_button`**`(`*label: str = 'Toggle Measurement', x: float = 0.02, y: float = 0.87*`)` → Tuple[dict, dict]

Get configuration for measurement toggle button.

Parameters

label
: [`str`, `optional`] The text to display on the button, by default "Toggle Measurement".

x
: [`float`, `optional`] X position of the button (0-1), by default 0.02.

y
: [`float`, `optional`] Y position of the button (0-1), by default 0.87.

Returns

`Tuple[dict, dict]`
: Tuple containing (enable_measurement_config, disable_measurement_config).

`ButtonManager.`**`args_projection_toggle_button`**`()` → Tuple[dict, dict]

Get configuration for projection toggle button.

Parameters

label
: [`str`, `optional`] The text to display on the button, by default "Toggle Projection".

x
: [`float`, `optional`] X position of the button (0-1), by default 0.14.

y
: [`float`, `optional`] Y position of the button (0-1), by default 1.02.

Returns

`Tuple[dict, dict]`
: Tuple containing (perspective_projection_config, orthographic_projection_config).

ButtonManager.**args_theme_toggle_button**(*label: str = 'Toggle Theme'*, *x: float = 0.32*, *y: float = 1.02*) → Tuple[dict, dict]

Get configuration for theme toggle button.

Parameters

label
[`str`, `optional`] The text to display on the button, by default "Toggle Theme".

x
[`float`, `optional`] X position of the button (0-1), by default 0.22.

y
[`float`, `optional`] Y position of the button (0-1), by default 1.02.

Returns

`Tuple[dict, dict]`
Tuple containing (light_theme_config, dark_theme_config).

Description

Module for button management.

Description

Widgets module init.

The `plotly_interface.py` module

Summary

Classes

`PlotlyBackend`	Plotly interface for visualization.

`PlotlyBackend`

class `ansys.tools.visualization_interface.backends.plotly.plotly_interface.`**`PlotlyBackend`**

Bases: `ansys.tools.visualization_interface.backends._base.BaseBackend`

Plotly interface for visualization.

Overview

Methods

`plot_iter`	Plot multiple objects using Plotly.
`plot`	Plot a single object using Plotly.
`show`	Render the Plotly scene.

Properties

layout	Get the current layout of the Plotly figure.

Import detail

```
from ansys.tools.visualization_interface.backends.plotly.plotly_interface import␣
↪PlotlyBackend
```

Property detail

property `PlotlyBackend.`**`layout`**`: ` **Any**

Get the current layout of the Plotly figure.

Returns

Any
The current layout of the Plotly figure.

Method detail

`PlotlyBackend.`**`plot_iter`**(*plotting_list: Iterable[Any]*) → None

Plot multiple objects using Plotly.

Parameters

plotting_list
[`Iterable[Any]`] An iterable of objects to plot.

`PlotlyBackend.`**`plot`**(*plottable_object: pyvista.PolyData* | *pyvista.MultiBlock* | ansys.tools.visualization_interface.types.mesh_object_plot.MeshObjectPlot | *plotly.graph_objects.Mesh3d*, ***plotting_options*) → None

Plot a single object using Plotly.

Parameters

plottable_object
[`Union[PolyData`, `pv.MultiBlock`, `MeshObjectPlot`, `go.Mesh3d]`] The object to plot. Can be a PyVista PolyData, MultiBlock, a MeshObjectPlot, or a Plotly Mesh3d.

plotting_options
[`dict`] Additional plotting options.

`PlotlyBackend.`**`show`**(*plottable_object=None*, *screenshot: str = None*, *name_filter=None*, ***kwargs*) → plotly.graph_objects.Figure | None

Render the Plotly scene.

Parameters

plottable_object
[`Any`, `optional`] Object to show, by default None.

screenshot
[`str`, `optional`] Path to save a screenshot, by default None.

name_filter
[bool, `optional`] Flag to filter the object, by default None.

kwargs
[dict] Additional options the selected backend accepts.

Returns

Union[go.Figure, None]
The figure of the plot if in doc building environment. Else, None.

Description

Plotly backend interface for visualization.

Description

Plotly initialization.

The pyvista package

Summary

Subpackages

widgets	Provides widgets for the Visualization Interface Tool plotter.

Submodules

picker	Module for managing picking and hovering of objects in a PyVista plotter.
pyvista	Provides a wrapper to aid in plotting.
pyvista_interface	Provides plotting for various PyAnsys objects.
trame_local	Provides trame visualizer interface for visualization.
trame_remote	Module for trame websocket client functions.
trame_service	Trame service module.

The widgets package

Summary

Submodules

button	Provides for implementing buttons in PyAnsys.
dark_mode	Provides the dark mode button widget for the PyAnsys plotter.
displace_arrows	Provides the displacement arrows widget for the PyVista plotter.
hide_buttons	Provides the hide buttons widget for the PyAnsys plotter.
measure	Provides the measure widget for the PyAnsys plotter.
mesh_slider	Provides the measure widget for the PyAnsys plotter.
pick_rotation_center	Provides the measure widget for the PyAnsys plotter.
ruler	Provides the ruler widget for the Visualization Interface Tool plotter.
screenshot	Provides the screenshot widget for the Visualization Interface Tool plotter.
view_button	Provides the view button widget for changing the camera view.
widget	Provides the abstract implementation of plotter widgets.

The `button.py` module

Summary

Classes

Button	Provides the abstract class for implementing buttons in PyAnsys.

`Button`

class ansys.tools.visualization_interface.backends.pyvista.widgets.button.**Button**(*plotter: pyvista.Plotter*, *button_config: tuple*, *dark_mode: bool = False*)

Bases: *ansys.tools.visualization_interface.backends.pyvista.widgets.widget.PlotterWidget*

Provides the abstract class for implementing buttons in PyAnsys.

Parameters

plotter
[`Plotter`] Plotter to draw the buttons on.

button_config
[`tuple`] Tuple containing the position and the path to the icon of the button.

dark_mode
[bool, `optional`] Whether to activate the dark mode or not.

Notes

This class wraps the PyVista `add_checkbox_button_widget()` method.

Overview

Abstract methods

callback	Get the functionality of the button, which is implemented by subclasses.

Methods

update	Assign the image that represents the button.

Attributes

button_config

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.widgets.button import Button
```

Attribute detail

`Button.button_config`

Method detail

`abstractmethod Button.callback(state: bool) → None`

Get the functionality of the button, which is implemented by subclasses.

Parameters

state
[bool] Whether the button is active.

`Button.update() → None`

Assign the image that represents the button.

Description

Provides for implementing buttons in PyAnsys.

The `dark_mode.py` module

Summary

Classes

DarkModeButton	Provides the dark mode widget for the Visualization Interface Tool `Plotter` class.

`DarkModeButton`

`class ansys.tools.visualization_interface.backends.pyvista.widgets.dark_mode.DarkModeButton(plotter: ansys.tools.visua dark_mode: bool = False)`

Bases: *ansys.tools.visualization_interface.backends.pyvista.widgets.widget.PlotterWidget*

Provides the dark mode widget for the Visualization Interface Tool `Plotter` class.

Parameters

plotter_helper
[`PlotterHelper`] Plotter to add the dark mode widget to.

dark_mode
[bool, `optional`] Whether to activate the dark mode or not.

Overview

Methods

callback	Remove or add the dark mode widget actor upon click.
update	Define the dark mode widget button parameters.

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.widgets.dark_mode import␣
↪DarkModeButton
```

Method detail

DarkModeButton.**callback**(*state: bool*) → None

Remove or add the dark mode widget actor upon click.

Parameters

state
[bool] Whether the state of the button, which is inherited from PyVista, is active.

DarkModeButton.**update**() → None

Define the dark mode widget button parameters.

Description

Provides the dark mode button widget for the PyAnsys plotter.

The displace_arrows.py module

Summary

Classes

DisplacementArrow	Defines the arrow to draw and what it is to do.

Enums

CameraPanDirection	Provides an enum with the available movement directions of the camera.

DisplacementArrow

class ansys.tools.visualization_interface.backends.pyvista.widgets.displace_arrows.**DisplacementArrow**(*plo*
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Fal

Bases: *ansys.tools.visualization_interface.backends.pyvista.widgets.button.Button*

Defines the arrow to draw and what it is to do.

Parameters

plotter
`[Plotter]` Plotter to draw the buttons on.

direction
`[CameraPanDirection]` Direction that the camera is to move.

dark_mode
[bool, `optional`] Whether to activate the dark mode or not.

Overview

Methods

callback	Move the camera in the direction defined by the button.

Attributes

direction

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.widgets.displace_arrows import␣
↪DisplacementArrow
```

Attribute detail

DisplacementArrow.**direction**

Method detail

`DisplacementArrow.`**`callback`**`(`*state: bool*`)` → None

Move the camera in the direction defined by the button.

Parameters

state

[bool] Whether the state of the button, which is inherited from PyVista, is active. However, this parameter is unused by this `callback` method.

CameraPanDirection

```
class ansys.tools.visualization_interface.backends.pyvista.widgets.displace_arrows.CameraPanDirection(*
                                                                                                      *
```

Bases: `enum.Enum`

Provides an enum with the available movement directions of the camera.

Overview

Attributes

XUP
XDOWN
YUP
YDOWN
ZUP
ZDOWN

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.widgets.displace_arrows import␣
↪CameraPanDirection
```

Attribute detail

`CameraPanDirection.`**`XUP = (0, 'upxarrow', (5, 230))`**

`CameraPanDirection.`**`XDOWN = (1, 'downarrow', (5, 190))`**

`CameraPanDirection.`**`YUP = (2, 'upyarrow', (35, 230))`**

`CameraPanDirection.`**`YDOWN = (3, 'downarrow', (35, 190))`**

`CameraPanDirection.`**`ZUP = (4, 'upzarrow', (65, 230))`**

`CameraPanDirection.`**`ZDOWN = (5, 'downarrow', (65, 190))`**

Description

Provides the displacement arrows widget for the PyVista plotter.

The `hide_buttons.py` module

Summary

Classes

`HideButton`	Provides the hide widget for the Visualization Interface Tool `Plotter` class.

`HideButton`

class `ansys.tools.visualization_interface.backends.pyvista.widgets.hide_buttons.`**`HideButton`**(*plotter: ansys.tools.visuali* *dark_mode: bool = False*)

Bases: *`ansys.tools.visualization_interface.backends.pyvista.widgets.widget.PlotterWidget`*

Provides the hide widget for the Visualization Interface Tool `Plotter` class.

Parameters

plotter_helper
[`PlotterHelper`] Plotter to add the hide widget to.

dark_mode
[bool, `optional`] Whether to activate the dark mode or not.

Overview

Methods

`callback`	Remove or add the hide widget actor upon click.
`update`	Define the hide widget button parameters.

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.widgets.hide_buttons import␣
↪HideButton
```

Method detail

`HideButton.`**`callback`**(*state: bool*) → None

Remove or add the hide widget actor upon click.

Parameters

state
[bool] Whether the state of the button, which is inherited from PyVista, is active.

`HideButton.`**`update`**() → None

Define the hide widget button parameters.

Description

Provides the hide buttons widget for the PyAnsys plotter.

The `measure.py` module

Summary

Classes

`MeasureWidget`	Provides the measure widget for the Visualization Interface Tool `Plotter` class.

`MeasureWidget`

class `ansys.tools.visualization_interface.backends.pyvista.widgets.measure.`**`MeasureWidget`**(*plotter_helper: ansys.tools.visualizat dark_mode: bool = False*)

Bases: *`ansys.tools.visualization_interface.backends.pyvista.widgets.widget.PlotterWidget`*

Provides the measure widget for the Visualization Interface Tool `Plotter` class.

Parameters

plotter_helper
[`PlotterHelper`] Plotter to add the measure widget to.

dark_mode
[bool, `optional`] Whether to activate the dark mode or not.

Overview

Methods

`callback`	Remove or add the measurement widget actor upon click.
`update`	Define the measurement widget button parameters.

Attributes

`plotter_helper`

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.widgets.measure import␣
↪MeasureWidget
```

Attribute detail

`MeasureWidget.plotter_helper`

Method detail

`MeasureWidget.callback`(*state: bool*) → None

Remove or add the measurement widget actor upon click.

Parameters

state
[bool] Whether the state of the button, which is inherited from PyVista, is active.

`MeasureWidget.update`() → None

Define the measurement widget button parameters.

Description

Provides the measure widget for the PyAnsys plotter.

The `mesh_slider.py` module

Summary

Classes

MeshSliderWidget	Provides the mesh slider widget for the Visualization Interface Tool `Plotter` class.

`MeshSliderWidget`

class ansys.tools.visualization_interface.backends.pyvista.widgets.mesh_slider.**MeshSliderWidget**(*plotter_he ansys.tools.v dark_mod bool = False*)

Bases: *ansys.tools.visualization_interface.backends.pyvista.widgets.widget.PlotterWidget*

Provides the mesh slider widget for the Visualization Interface Tool `Plotter` class.

Parameters

plotter_helper
[`PlotterHelper`] Plotter to add the mesh slider widget to.

dark_mode
[bool, `optional`] Whether to activate the dark mode or not.

Overview

Methods

callback	Remove or add the mesh slider widget actor upon click.
update	Define the mesh slider widget button parameters.

Attributes

plotter_helper

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.widgets.mesh_slider import␣
↪MeshSliderWidget
```

Attribute detail

MeshSliderWidget.**plotter_helper**

Method detail

MeshSliderWidget.**callback**(*state: bool*) → None

Remove or add the mesh slider widget actor upon click.

Parameters

state
[bool] Whether the state of the button, which is inherited from PyVista, is active.

MeshSliderWidget.**update**() → None

Define the mesh slider widget button parameters.

Description

Provides the measure widget for the PyAnsys plotter.

The `pick_rotation_center.py` module

Summary

Classes

PickRotCenterButton	Provides the pick rotation center widget for the Visualization Interface Tool `Plotter` class.

`PickRotCenterButton`

class ansys.tools.visualization_interface.backends.pyvista.widgets.pick_rotation_center.**PickRotCenterBu**

Bases: *ansys.tools.visualization_interface.backends.pyvista.widgets.widget.PlotterWidget*

Provides the pick rotation center widget for the Visualization Interface Tool `Plotter` class.

Parameters

plotter_helper
[`PlotterHelper`] Plotter to add the pick rotation center widget to.

dark_mode
[bool, `optional`] Whether to activate the dark mode or not.

Overview

Methods

callback	Remove or add the pick rotation center widget actor upon click.
update	Define the measurement widget button parameters.

Attributes

plotter_helper

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.widgets.pick_rotation_center␣
↪import PickRotCenterButton
```

Attribute detail

PickRotCenterButton.**plotter_helper**

Method detail

PickRotCenterButton.**callback**(*state: bool*) → None

Remove or add the pick rotation center widget actor upon click.

Parameters

state
[bool] Whether the state of the button, which is inherited from PyVista, is active.

PickRotCenterButton.**update**() → None

Define the measurement widget button parameters.

Description

Provides the measure widget for the PyAnsys plotter.

The `ruler.py` module

Summary

Classes

Ruler	Provides the ruler widget for the Visualization Interface Tool `Plotter` class.

Ruler

class `ansys.tools.visualization_interface.backends.pyvista.widgets.ruler.`**`Ruler`**(*plotter: pyvista.Plotter*, *dark_mode: bool = False*)

Bases: *ansys.tools.visualization_interface.backends.pyvista.widgets.widget.PlotterWidget*

Provides the ruler widget for the Visualization Interface Tool `Plotter` class.

Parameters

plotter
[`Plotter`] Provides the plotter to add the ruler widget to.

dark_mode
[bool, `optional`] Whether to activate the dark mode or not.

Overview

Methods

callback	Remove or add the ruler widget actor upon click.
update	Define the configuration and representation of the ruler widget button.

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.widgets.ruler import Ruler
```

Method detail

`Ruler.`**`callback`**(*state: bool*) → None

Remove or add the ruler widget actor upon click.

Parameters

state
[bool] Whether the state of the button, which is inherited from PyVista, is `True`.

Notes

This method provides a callback function for the ruler widet. It is called every time the ruler widget is clicked.

`Ruler.update()` → None

Define the configuration and representation of the ruler widget button.

Description

Provides the ruler widget for the Visualization Interface Tool plotter.

The `screenshot.py` module

Summary

Classes

ScreenshotButton	Provides the screenshot widget for the Visualization Interface Tool `Plotter` class.

`ScreenshotButton`

class `ansys.tools.visualization_interface.backends.pyvista.widgets.screenshot.`**`ScreenshotButton`**(*plotter: pyvista.Plo dark_mode bool = False*)

Bases: *ansys.tools.visualization_interface.backends.pyvista.widgets.widget.PlotterWidget*

Provides the screenshot widget for the Visualization Interface Tool `Plotter` class.

Parameters

plotter
[`Plotter`] Provides the plotter to add the screenshot widget to.

dark_mode
[bool, `optional`] Whether to activate the dark mode or not.

Overview

Methods

callback	Remove or add the screenshot widget actor upon click.
update	Define the configuration and representation of the screenshot widget button.

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.widgets.screenshot import␣
↪ScreenshotButton
```

Method detail

ScreenshotButton.**callback**(*state: bool*) → None

Remove or add the screenshot widget actor upon click.

Parameters

state
[bool] Whether the state of the button, which is inherited from PyVista, is `True`.

Notes

This method provides a callback function for the screenshot widget. It is called every time the screenshot widget is clicked.

ScreenshotButton.**update**() → None

Define the configuration and representation of the screenshot widget button.

Description

Provides the screenshot widget for the Visualization Interface Tool plotter.

The `view_button.py` module

Summary

Classes

ViewButton	Provides for changing the view.

Enums

ViewDirection	Provides an enum with the available views.

`ViewButton`

class ansys.tools.visualization_interface.backends.pyvista.widgets.view_button.**ViewButton**(*plotter: pyvista.Plotter, direction: tuple, dark_mode: bool = False*)

Bases: `ansys.tools.visualization_interface.backends.pyvista.widgets.button.Button`

Provides for changing the view.

Parameters

plotter
[`Plotter`] Plotter to draw the buttons on.

direction
[ViewDirection] Direction of the view.

dark_mode
[bool, optional] Whether to activate the dark mode or not.

Overview

Methods

callback	Change the view depending on button interaction.

Attributes

direction

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.widgets.view_button import␣
↪ViewButton
```

Attribute detail

ViewButton.**direction**

Method detail

ViewButton.**callback**(*state: bool*) → None

Change the view depending on button interaction.

Parameters

state
[bool] Whether the state of the button, which is inherited from PyVista, is True.

Raises

NotImplementedError
Raised if the specified direction is not implemented.

ViewDirection

class ansys.tools.visualization_interface.backends.pyvista.widgets.view_button.**ViewDirection**(**args*, ***kwds*)

Bases: enum.Enum

Provides an enum with the available views.

Overview

Attributes

XYPLUS
XYMINUS
XZPLUS
XZMINUS
YZPLUS
YZMINUS
ISOMETRIC

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.widgets.view_button import␣
↪ViewDirection
```

Attribute detail

ViewDirection.**XYPLUS** = (0, '+xy', (5, 280))

ViewDirection.**XYMINUS** = (1, '-xy', (5, 311))

ViewDirection.**XZPLUS** = (2, '+xz', (5, 342))

ViewDirection.**XZMINUS** = (3, '-xz', (5, 373))

ViewDirection.**YZPLUS** = (4, '+yz', (5, 404))

ViewDirection.**YZMINUS** = (5, '-yz', (5, 435))

ViewDirection.**ISOMETRIC** = (6, 'isometric', (5, 466))

Description

Provides the view button widget for changing the camera view.

The `widget.py` module

Summary

Classes

PlotterWidget	Provides an abstract class for plotter widgets.

`PlotterWidget`

class ansys.tools.visualization_interface.backends.pyvista.widgets.widget.**PlotterWidget**(*plotter: pyvista.Plotter*)

Bases: `abc.ABC`

Provides an abstract class for plotter widgets.

Parameters

plotter

[Plotter] Plotter instance to add the widget to.

Notes

These widgets are intended to be used with PyVista plotter objects. More specifically, the way in which this abstraction has been built ensures that these widgets can be easily integrated with the Visualization Interface Tool's widgets.

Overview

Abstract methods

callback	General callback function for `PlotterWidget` objects.
update	General update function for `PlotterWidget` objects.

Properties

plotter	Plotter object that the widget is assigned to.

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.widgets.widget import␣
↪PlotterWidget
```

Property detail

property PlotterWidget.**plotter:** pyvista.Plotter

Plotter object that the widget is assigned to.

Method detail

abstractmethod PlotterWidget.**callback**(*state*) → None

General callback function for `PlotterWidget` objects.

abstractmethod PlotterWidget.**update**() → None

General update function for `PlotterWidget` objects.

Description

Provides the abstract implementation of plotter widgets.

Description

Provides widgets for the Visualization Interface Tool plotter.

The `picker.py` module

Summary

Classes

AbstractPicker	Abstract base class for pickers.
Picker	Class to manage picking and hovering of objects in the plotter.

AbstractPicker

class ansys.tools.visualization_interface.backends.pyvista.picker.**AbstractPicker**(*plotter_backend: ansys.tools.visualization_interfa* ***kwargs*)

Bases: abc.ABC

Abstract base class for pickers.

Overview

Abstract methods

pick_select_object	Determine actions to take when an object is selected.
pick_unselect_object	Determine actions to take when an object is unselected.
hover_select_object	Determine actions to take when an object is hovered over.
hover_unselect_object	Determine actions to take when an object is unhovered.

Properties

picked_dict	Return the dictionary of picked objects.

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.picker import AbstractPicker
```

Property detail

property AbstractPicker.**picked_dict**: dict

Abstractmethod

Return the dictionary of picked objects.

Method detail

abstractmethod AbstractPicker.**pick_select_object**(*custom_object:* ansys.tools.visualization_interface.types.mesh_object_plot.MeshObjectPl | ansys.tools.visualization_interface.types.edge_plot.EdgePlot, *pt: numpy.ndarray*) → None

Determine actions to take when an object is selected.

abstractmethod `AbstractPicker.`**`pick_unselect_object`**(*custom_object: ansys.tools.visualization_interface.types.mesh_object_plot.MeshObjec | ansys.tools.visualization_interface.types.edge_plot.EdgePlot*) → None

Determine actions to take when an object is unselected.

abstractmethod `AbstractPicker.`**`hover_select_object`**(*custom_object: ansys.tools.visualization_interface.types.mesh_object_plot.MeshObjectP | ansys.tools.visualization_interface.types.edge_plot.EdgePlot, pt: numpy.ndarray*) → None

Determine actions to take when an object is hovered over.

abstractmethod `AbstractPicker.`**`hover_unselect_object`**(*custom_object: ansys.tools.visualization_interface.types.mesh_object_plot.MeshObje | ansys.tools.visualization_interface.types.edge_plot.EdgePlot*) → None

Determine actions to take when an object is unhovered.

Picker

class `ansys.tools.visualization_interface.backends.pyvista.picker.`**`Picker`**(*plotter_backend: ansys.tools.visualization_interface.backen plot_picked_names: bool = True*)

Bases: `AbstractPicker`

Class to manage picking and hovering of objects in the plotter.

This class is responsible for managing the selection and deselection of objects in the plotter, both through direct picking and hovering. It keeps track of the currently selected and hovered objects, and provides methods to select and unselect them.

Parameters

plotter_backend
[`Plotter`] The plotter instance to which this picker is attached.

plot_picked_names
[bool, `optional`] Whether to display the names of picked objects in the plotter. Defaults to True.

Overview

Methods

`pick_select_object`	Add actor to picked list and add label if required.
`pick_unselect_object`	Remove actor from picked list and remove label if required.
`hover_select_object`	Add label to hovered object if required.
`hover_unselect_object`	Remove all hover labels from the scene.

Properties

picked_dict	Return the dictionary of picked objects.

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.picker import Picker
```

Property detail

property Picker.**picked_dict**: dict

Return the dictionary of picked objects.

Method detail

Picker.**pick_select_object**(*custom_object*: ansys.tools.visualization_interface.types.mesh_object_plot.MeshObjectPlot | ansys.tools.visualization_interface.types.edge_plot.EdgePlot, *pt*: *numpy.ndarray*) → None

Add actor to picked list and add label if required.

Parameters

custom_object
[Union[MeshObjectPlot, EdgePlot]] The object to be selected.

pt
[np.ndarray] The point where the object was picked.

Picker.**pick_unselect_object**(*custom_object*: ansys.tools.visualization_interface.types.mesh_object_plot.MeshObjectPlot | ansys.tools.visualization_interface.types.edge_plot.EdgePlot) → None

Remove actor from picked list and remove label if required.

Parameters

custom_object
[Union[MeshObjectPlot, EdgePlot]] The object to be unselected.

Picker.**hover_select_object**(*custom_object*: ansys.tools.visualization_interface.types.mesh_object_plot.MeshObjectPlot | ansys.tools.visualization_interface.types.edge_plot.EdgePlot, *actor*: *pyvista.Actor*) → None

Add label to hovered object if required.

Parameters

custom_object
[Union[MeshObjectPlot, EdgePlot]] The object to be hovered over.

actor
[vtkActor] The actor corresponding to the hovered object.

Picker.**hover_unselect_object**()

Remove all hover labels from the scene.

Description

Module for managing picking and hovering of objects in a PyVista plotter.

The `pyvista.py` module

Summary

Classes

PyVistaBackendInterface	Provides the interface for the Visualization Interface Tool plotter.
PyVistaBackend	Provides the generic plotter implementation for PyAnsys libraries.

Constants

DARK_MODE_THRESHOLD

`PyVistaBackendInterface`

class ansys.tools.visualization_interface.backends.pyvista.pyvista.**PyVistaBackendInterface**(*use_trame: bool | None = None, allow_picking: bool | None = False, allow_hovering: bool | None = False, plot_picked_nam bool | None = False, show_plane: bool | None = False, use_qt: bool | None = False, show_qt: bool | None = True, custom_picker: ansys.tools.visuali = None, custom_picker_kwa Dict[str, Any] | None = None, **plotter_kwargs*)

Bases: `ansys.tools.visualization_interface.backends._base.BaseBackend`

Provides the interface for the Visualization Interface Tool plotter.

This class is intended to be used as a base class for the custom plotters in the different PyAnsys libraries. It provides the basic plotter functionalities, such as adding objects and enabling widgets and picking capabilities. It also provides the ability to show the plotter using the trame service.

You can override the `plot_iter()`, `plot()`, and `picked_operation()` methods. The `plot_iter()` method is intended to plot a list of objects to the plotter, while the `plot()` method is intended to plot a single object to the plotter. The `show()` method is intended to show the plotter. The `picked_operation()` method is intended to perform an operation on the picked objects.

Parameters

use_trame
[`Optional`[bool], default: `None`] Whether to activate the usage of the trame UI instead of the Python window.

allow_picking
[`Optional`[bool], default: `False`] Whether to allow picking capabilities in the window. Incompatible with hovering. Picking will take precedence over hovering.

allow_hovering
[`Optional`[bool], default: `False`] Whether to allow hovering capabilities in the window. Incompatible with picking. Picking will take precedence over hovering.

plot_picked_names
[`Optional`[bool], default: `False`] Whether to plot the names of the picked objects.

show_plane
[`Optional`[bool], default: `False`] Whether to show the plane in the plotter.

use_qt
[`Optional`[bool], default: `False`] Whether to use the Qt backend for the plotter.

show_qt
[`Optional`[bool], default: `True`] Whether to show the Qt window.

custom_picker
[`AbstractPicker`, default: `None`] Custom picker class that extends the `AbstractPicker` class.

custom_picker_kwargs
[`Optional`[`Dict`[`str`, `Any`]], default: `None`] Keyword arguments to pass to the custom picker class.

Overview

Abstract methods

`plot_iter`	Plot one or more compatible objects to the plotter.
`plot`	Plot a single object to the plotter.

Methods

enable_widgets	Enable the widgets for the plotter.
add_widget	Add one or more custom widgets to the plotter.
picker_callback	Define the callback for the element picker.
hover_callback	Define the callback for the element hover.
focus_point_selection	Focus the camera on a selected actor.
compute_edge_object_map	Compute the mapping between plotter actors and `EdgePlot` objects.
enable_picking	Enable picking capabilities in the plotter.
enable_set_focus_center	Enable setting the focus of the camera to the picked point.
enable_hover	Enable hover capabilities in the plotter.
disable_picking	Disable picking capabilities in the plotter.
disable_hover	Disable hover capabilities in the plotter.
disable_center_focus	Disable setting the focus of the camera to the picked point.
show	Plot and show any PyAnsys object.
show_plotter	Show the plotter or start the trame service.
picked_operation	Perform an operation on the picked objects.

Properties

pv_interface	PyVista interface.
scene	PyVista scene.

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.pyvista import PyVistaBackendInterface
```

Property detail

property `PyVistaBackendInterface.`**`pv_interface`**`:` *`ansys.tools.visualization_interface.backends.pyvista.pyvista_interface.PyVistaInterface`*

PyVista interface.

property `PyVistaBackendInterface.`**`scene`**`:` `pyvista.Plotter`

PyVista scene.

Method detail

`PyVistaBackendInterface.`**`enable_widgets`**`(`*dark_mode: bool = False*`)` → None

Enable the widgets for the plotter.

Parameters

dark_mode
[bool, default: `False`] Whether to use dark mode for the widgets.

`PyVistaBackendInterface.`**`add_widget`**`(`*widget: ansys.tools.visualization_interface.backends.pyvista.widgets.widget.PlotterWidget | List[ansys.tools.visualization_interface.backends.pyvista.widgets.widget.PlotterWidget]*`)`

Add one or more custom widgets to the plotter.

Parameters

widget
[Union[PlotterWidget, List[PlotterWidget]]] One or more custom widgets.

PyVistaBackendInterface.**picker_callback**(*actor: pyvista.Actor*) → None

Define the callback for the element picker.

Parameters

actor
[Actor] Actor to select for the picker.

PyVistaBackendInterface.**hover_callback**(*_widget*, *event_name*) → None

Define the callback for the element hover.

Parameters

actor
[Actor] Actor to hover for the picker.

PyVistaBackendInterface.**focus_point_selection**(*actor: pyvista.Actor*) → None

Focus the camera on a selected actor.

Parameters

actor
[Actor] Actor to focus the camera on.

PyVistaBackendInterface.**compute_edge_object_map**() → Dict[pyvista.Actor, *ansys.tools.visualization_interface.types.edge_plot.EdgePlot*]

Compute the mapping between plotter actors and EdgePlot objects.

Returns

Dict[Actor, EdgePlot]
Dictionary defining the mapping between plotter actors and EdgePlot objects.

PyVistaBackendInterface.**enable_picking**()

Enable picking capabilities in the plotter.

PyVistaBackendInterface.**enable_set_focus_center**()

Enable setting the focus of the camera to the picked point.

PyVistaBackendInterface.**enable_hover**()

Enable hover capabilities in the plotter.

PyVistaBackendInterface.**disable_picking**()

Disable picking capabilities in the plotter.

PyVistaBackendInterface.**disable_hover**()

Disable hover capabilities in the plotter.

PyVistaBackendInterface.**disable_center_focus**()

Disable setting the focus of the camera to the picked point.

PyVistaBackendInterface.**show**(*plottable_object: Any = None*, *screenshot: str | None = None*, *view_2d: Dict = None*, *name_filter: str = None*, *dark_mode: bool = False*, ***kwargs: Dict[str, Any]*) → List[Any]

Plot and show any PyAnsys object.

The types of objects supported are MeshObjectPlot, pv.MultiBlock, and pv.PolyData.

Parameters

plottable_object
[`Any`, default: `None`] Object or list of objects to plot.

screenshot
[`str`, default: `None`] Path for saving a screenshot of the image that is being represented.

view_2d
[`Dict`, default: `None`] Dictionary with the plane and the viewup vectors of the 2D plane.

name_filter
[`str`, default: `None`] Regular expression with the desired name or names to include in the plotter.

dark_mode
[bool, default: `False`] Whether to use dark mode for the widgets.

****kwargs**
[`Any`] Additional keyword arguments for the show or plot method.

Returns

`List[Any]`
List with the picked bodies in the picked order.

`PyVistaBackendInterface.`**`show_plotter`**`(`*screenshot: str | None = None*, ***kwargs*`)` → None

Show the plotter or start the trame service.

Parameters

plotter
[`Plotter`] Visualization Interface Tool plotter with the meshes added.

screenshot
[`str`, default: `None`] Path for saving a screenshot of the image that is being represented.

`abstractmethod` `PyVistaBackendInterface.`**`plot_iter`**`(`*plottable_object: Any*, *name_filter: str = None*, ***plotting_options*`)`

Plot one or more compatible objects to the plotter.

Parameters

plottable_object
[`Any`] One or more objects to add.

name_filter
[`str`, default: None.] Regular expression with the desired name or names to include in the plotter.

****plotting_options**
[`dict`, default: `None`] Keyword arguments. For allowable keyword arguments, see the `Plotter.add_mesh` method.

`abstractmethod` `PyVistaBackendInterface.`**`plot`**`(`*plottable_object: Any*, *name_filter: str = None*, ***plotting_options*`)`

Plot a single object to the plotter.

Parameters

plottable_object
[`Any`] Object to plot.

name_filter
[`str`] Regular expression with the desired name or names to include in the plotter.

****plotting_options**
[`dict`, default: `None`] Keyword arguments. For allowable keyword arguments, see the `Plotter.add_mesh` method.

`PyVistaBackendInterface.`**`picked_operation`**`()` → None

Perform an operation on the picked objects.

`PyVistaBackend`

`class` `ansys.tools.visualization_interface.backends.pyvista.pyvista.`**`PyVistaBackend`**`(`*use_trame: bool | None = None*, *allow_picking: bool | None = False*, *allow_hovering: bool | None = False*, *plot_picked_names: bool | None = True*, *use_qt: bool | None = False*, *show_qt: bool | None = False*, *custom_picker: ansys.tools.visualization_inter = None*`)`

Bases: `PyVistaBackendInterface`

Provides the generic plotter implementation for PyAnsys libraries.

This class accepts `MeshObjectPlot`, `pv.MultiBlock` and `pv.PolyData` objects.

Parameters

use_trame
[bool, default: `None`] Whether to enable the use of trame. The default is `None`, in which case the `USE_TRAME` global setting is used.

allow_picking
[`Optional`[bool], default: `False`] Whether to allow picking capabilities in the window. Incompatible with hovering. Picking will take precedence over hovering.

allow_hovering
[Optional[bool], default: False] Whether to allow hovering capabilities in the window. Incompatible with picking. Picking will take precedence over hovering.

plot_picked_names
[bool, default: True] Whether to plot the names of the picked objects.

Overview

Methods

plot_iter	Plot the elements of an iterable of any type of object to the scene.
plot	Plot a pyansys or PyVista object to the plotter.
close	Close the plotter for PyVistaQT.

Properties

base_plotter	Return the base plotter object.

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.pyvista import PyVistaBackend
```

Property detail

property PyVistaBackend.**base_plotter**

Return the base plotter object.

Method detail

PyVistaBackend.**plot_iter**(*plotting_list: List[Any]*, *name_filter: str = None*, ***plotting_options*) → None

Plot the elements of an iterable of any type of object to the scene.

The types of objects supported are Body, Component, List[pv.PolyData], pv.MultiBlock, and Sketch.

Parameters

plotting_list
[List[Any]] List of objects to plot.

name_filter
[str, default: None] Regular expression with the desired name or names to include in the plotter.

****plotting_options**
[dict, default: None] Keyword arguments. For allowable keyword arguments, see the Plotter.add_mesh method.

PyVistaBackend.**plot**(*plottable_object: Any*, *name_filter: str = None*, ***plotting_options*)

Plot a pyansys or PyVista object to the plotter.

Parameters

plottable_object
[Any] Object to plot.

name_filter
[str] Regular expression with the desired name or names to include in the plotter.

****plotting_options**
[dict, default: None] Keyword arguments. For allowable keyword arguments, see the Plotter.add_mesh method.

PyVistaBackend.**close**()

Close the plotter for PyVistaQT.

Description

Provides a wrapper to aid in plotting.

Module detail

pyvista.**DARK_MODE_THRESHOLD = 120**

The pyvista_interface.py module

Summary

Classes

PyVistaInterface	Provides the middle class between PyVista plotting operations and PyAnsys objects.

PyVistaInterface

class ansys.tools.visualization_interface.backends.pyvista.pyvista_interface.**PyVistaInterface**(*scene: pyvista.Plott | None = None, color_opts: Dict | None = None, num_points: int = 100, enable_widget bool = True, show_plane bool = False, use_qt: bool = False, show_qt: bool = True, **plotter_kwargs*)

Provides the middle class between PyVista plotting operations and PyAnsys objects.

The main purpose of this class is to simplify interaction between PyVista and the PyVista backend provided. This class is responsible for creating the PyVista scene and adding the PyAnsys objects to it.

Parameters

scene
[`Plotter`, default: `None`] Scene for rendering the objects. If passed, `off_screen` needs to be set manually beforehand for documentation and testing.

color_opts
[`dict`, default: `None`] Dictionary containing the background and top colors.

num_points
[`int`, default: 100] Number of points to use to render the shapes.

enable_widgets
[bool, default: `True`] Whether to enable widget buttons in the plotter window. Widget buttons must be disabled when using trame for visualization.

show_plane

[bool, default: `False`] Whether to show the XY plane in the plotter window.

use_qt
[bool, default: `False`] Whether to use the Qt backend for the plotter window.

show_qt
[bool, default: `True`] Whether to show the Qt plotter window.

Overview

Methods

view_xy	View the scene from the XY plane.
view_xz	View the scene from the XZ plane.
view_yx	View the scene from the YX plane.
view_yz	View the scene from the YZ plane.
view_zx	View the scene from the ZX plane.
view_zy	View the scene from the ZY plane.
clip	Clip a given mesh with a plane.
plot_meshobject	Plot a generic `MeshObjectPlot` object to the scene.
plot_edges	Plot the outer edges of an object to the plot.
plot	Plot any type of object to the scene.
plot_iter	Plot elements of an iterable of any type of objects to the scene.
show	Show the rendered scene on the screen.
set_add_mesh_defaults	Set the default values for the plotting options.

Properties

scene	Rendered scene object.
object_to_actors_map	Mapping between the PyVista actor and the PyAnsys objects.

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.pyvista_interface import␣
↪PyVistaInterface
```

Property detail

property `PyVistaInterface.scene: pyvista.plotting.plotter.Plotter`

Rendered scene object.

Returns

`Plotter`
Rendered scene object.

property `PyVistaInterface.object_to_actors_map: Dict[pyvista.Actor, ansys.tools.visualization_interface.types.mesh_object_plot.MeshObjectPlot]`

Mapping between the PyVista actor and the PyAnsys objects.

Method detail

`PyVistaInterface.view_xy()` → None

View the scene from the XY plane.

`PyVistaInterface.view_xz()` → None

View the scene from the XZ plane.

`PyVistaInterface.view_yx()` → None

View the scene from the YX plane.

`PyVistaInterface.view_yz()` → None

View the scene from the YZ plane.

`PyVistaInterface.view_zx()` → None

View the scene from the ZX plane.

`PyVistaInterface.view_zy()` → None

View the scene from the ZY plane.

`PyVistaInterface.clip`(*mesh: pyvista.PolyData* | *pyvista.MultiBlock* | *pyvista.UnstructuredGrid*, *plane:* ansys.tools.visualization_interface.utils.clip_plane.ClipPlane) → pyvista.PolyData | pyvista.MultiBlock

Clip a given mesh with a plane.

Parameters

mesh
[`Union`[`pv.PolyData`, `pv.MultiBlock`]] Mesh.

normal
[`str`, default: "x"] Plane to use for clipping. Options are `"x"`, `"-x"`, `"y"`, `"-y"`, `"z"`, and `"-z"`.

origin
[`tuple`, default: `None`] Origin point of the plane.

plane
[`ClipPlane`, default: `None`] Clipping plane to cut the mesh with.

Returns

`Union`[pv.PolyData,pv.MultiBlock]
Clipped mesh.

`PyVistaInterface.plot_meshobject`(*custom_object:* ansys.tools.visualization_interface.types.mesh_object_plot.MeshObjectPlot, ***plotting_options*)

Plot a generic `MeshObjectPlot` object to the scene.

Parameters

plottable_object
[`MeshObjectPlot`] Object to add to the scene.

****plotting_options**
[`dict`, default: `None`] Keyword arguments. For allowable keyword arguments, see the `Plotter.add_mesh` method.

`PyVistaInterface.`**`plot_edges`**(*custom_object:* ansys.tools.visualization_interface.types.mesh_object_plot.MeshObjectPlot, ***plotting_options*) → None

Plot the outer edges of an object to the plot.

This method has the side effect of adding the edges to the `MeshObjectPlot` object that you pass through the parameters.

Parameters

custom_object
[`MeshObjectPlot`] Custom object with the edges to add.

****plotting_options**
[`dict`, default: `None`] Keyword arguments. For allowable keyword arguments, see the `Plotter.add_mesh` method.

`PyVistaInterface.`**`plot`**(*plottable_object: pyvista.PolyData* | *pyvista.MultiBlock* | ansys.tools.visualization_interface.types.mesh_object_plot.MeshObjectPlot | *pyvista.UnstructuredGrid*, *name_filter: str = None*, ***plotting_options*) → None

Plot any type of object to the scene.

Supported object types are `List[pv.PolyData]`, `MeshObjectPlot`, and `pv.MultiBlock`.

Parameters

plottable_object
[`Union[pv.PolyData, pv.MultiBlock, MeshObjectPlot, pv.UnstructuredGrid, pv.StructuredGrid]`] Object to plot.

name_filter
[`str`, default: `None`] Regular expression with the desired name or names to include in the plotter.

****plotting_options**
[`dict`, default: `None`] Keyword arguments. For allowable keyword arguments, see the `Plotter.add_mesh` method.

`PyVistaInterface.`**`plot_iter`**(*plotting_list: List[Any]*, *name_filter: str = None*, ***plotting_options*) → None

Plot elements of an iterable of any type of objects to the scene.

Parameters

plotting_list
[`List[Any]`] List of objects to plot.

name_filter
[`str`, default: `None`] Regular expression with the desired name or names to include in the plotter.

****plotting_options**
[`dict`, default: `None`] Keyword arguments. For allowable keyword arguments, see the `Plotter.add_mesh` method.

`PyVistaInterface.`**`show`**(*show_plane: bool = False*, *jupyter_backend: str | None = None*, ***kwargs: Dict | None*) → None

Show the rendered scene on the screen.

Parameters

show_plane
[bool, default: `True`] Whether to show the XY plane.

jupyter_backend
[str, default: None] PyVista Jupyter backend.

****kwargs**
[dict, default: None] Plotting and show keyword arguments. For allowable keyword arguments, see the Plotter.show and Plotter.show methods.

Notes

For more information on supported Jupyter backends, see Jupyter Notebook Plotting in the PyVista documentation.

PyVistaInterface.**set_add_mesh_defaults**(*plotting_options: Dict | None*) → None

Set the default values for the plotting options.

Parameters

plotting_options
[Optional[Dict]] Keyword arguments. For allowable keyword arguments, see the Plotter.add_mesh method.

Description

Provides plotting for various PyAnsys objects.

The `trame_local.py` module

Summary

Classes

TrameVisualizer	Defines the trame layout view.

Constants

CLIENT_TYPE

`TrameVisualizer`

class ansys.tools.visualization_interface.backends.pyvista.trame_local.**TrameVisualizer**

Defines the trame layout view.

Overview

Methods

set_scene	Set the trame layout view and the mesh to show through the PyVista plotter.
show	Start the trame server and show the mesh.

Attributes

server	
plotter	

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.trame_local import␣
↪TrameVisualizer
```

Attribute detail

`TrameVisualizer.`**`server`**` = None`

`TrameVisualizer.`**`plotter`**` = None`

Method detail

`TrameVisualizer.`**`set_scene`**`(`*plotter*`)`

Set the trame layout view and the mesh to show through the PyVista plotter.

Parameters

plotter

[`Plotter`] PyVista plotter with the rendered mesh.

`TrameVisualizer.`**`show`**`()`

Start the trame server and show the mesh.

Description

Provides trame visualizer interface for visualization.

Module detail

`trame_local.`**`CLIENT_TYPE`**` = 'vue2'`

The `trame_remote.py` module

Summary

Functions

send_pl	Send the plotter meshes to a remote trame service.
send_mesh	Send a mesh to a remote trame service.

Description

Module for trame websocket client functions.

Module detail

trame_remote.**send_pl**(*plotter: pyvista.Plotter*, *host: str = 'localhost'*, *port: int = 8765*)

Send the plotter meshes to a remote trame service.

Since plotter can't be pickled, we send the meshes list instead.

Parameters

plotter
[`pv.Plotter`] Plotter to send.

host
[`str`, `optional`] Websocket host to connect to, by default "localhost".

port
[`int`, `optional`] Websocket port to connect to, by default 8765.

trame_remote.**send_mesh**(*mesh: pyvista.PolyData | pyvista.MultiBlock*, *host: str = 'localhost'*, *port: int = 8765*)

Send a mesh to a remote trame service.

Parameters

mesh
[`Union[pv.PolyData, pv.MultiBlock]`] Mesh to send.

host
[`str`, `optional`] Websocket host to connect to, by default "localhost".

port
[`int`, `optional`] Websocket port to connect to, by default 8765.

The `trame_service.py` module

Summary

Classes

`TrameService`	Trame service class.

`TrameService`

class ansys.tools.visualization_interface.backends.pyvista.trame_service.**TrameService**(*websocket_host: str = 'localhost'*, *websocket_port: int = 8765*)

Trame service class.

Initializes a trame service where you can send meshes to plot in a trame webview plotter.

Parameters

websocket_host
[str, optional] Host where the webserver will listen for new plotters and meshes, by default "localhost".

websocket_port
[int, optional] Port where the webserver will listen for new plotters and meshes, by default 8765.

Overview

Methods

clear_plotter	Clears the web view in the service.
set_scene	Sets the web view scene for the trame service.
run	Start the trame web view and the websocket services.

Import detail

```
from ansys.tools.visualization_interface.backends.pyvista.trame_service import␣
↪TrameService
```

Method detail

TrameService.**clear_plotter**()

Clears the web view in the service.

TrameService.**set_scene**()

Sets the web view scene for the trame service.

TrameService.**run**()

Start the trame web view and the websocket services.

Description

Trame service module.

Description

Provides interfaces.

Description

Provides interfaces.

The `types` package

Summary

Submodules

edge_plot	Provides the edge type for plotting.
mesh_object_plot	Provides the `MeshObjectPlot` class.

The edge_plot.py module

Summary

Classes

EdgePlot	Provides the mapper class for relating PyAnsys object edges with its PyVista actor.

EdgePlot

class ansys.tools.visualization_interface.types.edge_plot.**EdgePlot**(*actor: pyvista.Actor | plotly.graph_objects.Mesh3d*, *edge_object: Any*, *parent: Any = None*)

Provides the mapper class for relating PyAnsys object edges with its PyVista actor.

Parameters

actor
[Union[Actor, Mesh3d]] PyVista actor that represents the edge.

edge_object
[Edge] PyAnsys object edge that is represented by the PyVista actor.

parent
[MeshObjectPlot, default: None] Parent PyAnsys object of the edge.

Overview

Properties

actor	PyVista actor of the object.
edge_object	PyAnsys edge.
parent	Parent PyAnsys object of the edge.
name	Name of the edge.

Import detail

```
from ansys.tools.visualization_interface.types.edge_plot import EdgePlot
```

Property detail

property EdgePlot.**actor:** pyvista.Actor

PyVista actor of the object.

Returns

Actor
PyVista actor.

property EdgePlot.**edge_object:** Any

PyAnsys edge.

Returns

Any
PyAnsys edge.

property EdgePlot.**parent: Any**

Parent PyAnsys object of the edge.

Returns

Any
Parent PyAnsys object.

property EdgePlot.**name: str**

Name of the edge.

Returns

str
Name of the edge.

Description

Provides the edge type for plotting.

The `mesh_object_plot.py` module

Summary

Classes

MeshObjectPlot	Relates a custom object with a mesh, provided by the consumer library.

MeshObjectPlot

class ansys.tools.visualization_interface.types.mesh_object_plot.**MeshObjectPlot**(*custom_object: Any*, *mesh: pyvista.PolyData | pyvista.MultiBlock | plotly.graph_objects.Mesh3d*, *actor: pyvista.Actor = None*, *edges: List[*ansys.tools.visualization_ *= None*)

Relates a custom object with a mesh, provided by the consumer library.

Overview

Properties

mesh	Mesh of the object in PyVista format.
custom_object	Custom object.
actor	PyVista actor of the object in the plotter.
edges	Edges of the object.
name	Name of the object.
mesh_type	Type of the mesh.

Import detail

```
from ansys.tools.visualization_interface.types.mesh_object_plot import MeshObjectPlot
```

Property detail

property MeshObjectPlot.**mesh**: pyvista.PolyData | pyvista.MultiBlock | plotly.graph_objects.Mesh3d

Mesh of the object in PyVista format.

Returns

Union[pv.PolyData, pv.MultiBlock]
Mesh of the object.

property MeshObjectPlot.**custom_object**: Any

Custom object.

Returns

Any
Custom object.

property MeshObjectPlot.**actor**: pyvista.Actor

PyVista actor of the object in the plotter.

Returns

pv.Actor
PyVista actor of the object.

property MeshObjectPlot.**edges**: List[*ansys.tools.visualization_interface.types.edge_plot.EdgePlot*]

Edges of the object.

Returns

List[EdgePlot]
Edges of the object.

property MeshObjectPlot.**name**: str

Name of the object.

Returns

str
Name of the object.

property `MeshObjectPlot.`**`mesh_type`**`: Type`

Type of the mesh.

Returns

`type`
Type of the mesh.

Description

Provides the `MeshObjectPlot` class.

Description

Provides custom types.

The `utils` package

Summary

Submodules

`clip_plane`	Provides the `ClipPlane` class.
`color`	Provides an enum with the color to use for the plotter actors.
`logger`	Provides the singleton helper class for the logger.

The `clip_plane.py` module

Summary

Classes

`ClipPlane`	Provides the clipping plane for clipping meshes in the plotter.

`ClipPlane`

class `ansys.tools.visualization_interface.utils.clip_plane.`**`ClipPlane`**(*normal: Tuple[float, float, float] = (1, 0, 0), origin: Tuple[float, float, float] = (0, 0, 0)*)

Provides the clipping plane for clipping meshes in the plotter.

The clipping plane is defined by both normal and origin vectors.

Parameters

normal
[`Tuple`[`float`, `float`, `float`], default: (1, 0, 0)] Normal of the plane.

origin
[`Tuple`[`float`, `float`, `float`], default: (0, 0, 0)] Origin point of the plane.

Overview

Properties

normal	Normal of the plane.
origin	Origin of the plane.

Import detail

```
from ansys.tools.visualization_interface.utils.clip_plane import ClipPlane
```

Property detail

property `ClipPlane.`**`normal`**`: Tuple[float, float, float]`

Normal of the plane.

Returns

`Tuple[float, float, float]`
Normal of the plane.

property `ClipPlane.`**`origin`**`: Tuple[float, float, float]`

Origin of the plane.

Returns

`Tuple[float, float, float]`
Origin of the plane.

Description

Provides the `ClipPlane` class.

The `color.py` module

Summary

Enums

Color	Provides an enum with the color to use for the plotter actors.

`Color`

class `ansys.tools.visualization_interface.utils.color.`**`Color`**`(*args, **kwds)`

Bases: `enum.Enum`

Provides an enum with the color to use for the plotter actors.

Overview

Attributes

DEFAULT	Default color for the plotter actors.
PICKED	Color for the actors that are currently picked.
EDGE	Default color for the edges.
PICKED_EDGE	Color for the edges that are currently picked.

Import detail

```
from ansys.tools.visualization_interface.utils.color import Color
```

Attribute detail

`Color.DEFAULT = '#D6F7D1'`

Default color for the plotter actors.

`Color.PICKED = '#BB6EEE'`

Color for the actors that are currently picked.

`Color.EDGE = '#000000'`

Default color for the edges.

`Color.PICKED_EDGE = '#9C9C9C'`

Color for the edges that are currently picked.

Description

Provides an enum with the color to use for the plotter actors.

The `logger.py` module

Summary

Classes

SingletonType	Provides the singleton helper class for the logger.
VizLogger	Provides the singleton logger for the visualizer.

Attributes

logger

`SingletonType`

class `ansys.tools.visualization_interface.utils.logger.`**`SingletonType`**

Bases: `type`

Provides the singleton helper class for the logger.

Overview

Special methods

`__call__`	Call to redirect new instances to the singleton instance.

Import detail

```
from ansys.tools.visualization_interface.utils.logger import SingletonType
```

Method detail

`SingletonType.`**`__call__`**`(`**args*, ***kwargs*`)`

Call to redirect new instances to the singleton instance.

`VizLogger`

`class` `ansys.tools.visualization_interface.utils.logger.`**`VizLogger`**`(`*level: int = logging.ERROR*, *logger_name: str = 'VizLogger'*`)`

Bases: `object`

Provides the singleton logger for the visualizer.

Parameters

to_file
[bool, default: `False`] Whether to include the logs in a file.

Overview

Methods

`get_logger`	Get the logger.
`set_level`	Set the logger output level.
`enable_output`	Enable logger output to a given stream.
`add_file_handler`	Save logs to a file in addition to printing them to the standard output.

Import detail

```
from ansys.tools.visualization_interface.utils.logger import VizLogger
```

Method detail

`VizLogger.`**`get_logger`**`()`

Get the logger.

Returns

`Logger`
Logger.

VizLogger.**set_level**(*level: int*)

Set the logger output level.

Parameters

level
[int] Output Level of the logger.

VizLogger.**enable_output**(*stream=None*)

Enable logger output to a given stream.

If a stream is not specified, `sys.stderr` is used.

Parameters

stream: TextIO, default: ``sys.stderr``
Stream to output the log output to.

VizLogger.**add_file_handler**(*logs_dir: str = './.log'*)

Save logs to a file in addition to printing them to the standard output.

Parameters

logs_dir
[str, default: `"./.log"`] Directory of the logs.

Description

Provides the singleton helper class for the logger.

Module detail

logger.**logger**

Description

Provides the Utils package.

The `plotter.py` module

Summary

Classes

Plotter	Base plotting class containing common methods and attributes.

Plotter

class ansys.tools.visualization_interface.plotter.**Plotter**(*backend: ansys.tools.visualization_interface.backends._base.BaseBacke = None*)

Base plotting class containing common methods and attributes.

This class is responsible for plotting objects using the specified backend.

Parameters

backend
[BaseBackend, optional] Plotting backend to use, by default PyVistaBackend.

Overview

Methods

plot_iter	Plots multiple objects using the specified backend.
plot	Plots an object using the specified backend.
show	Show the plotted objects.

Properties

backend	Return the base plotter object.

Import detail

```
from ansys.tools.visualization_interface.plotter import Plotter
```

Property detail

property Plotter.**backend**

Return the base plotter object.

Method detail

Plotter.**plot_iter**(*plotting_list: List*, ***plotting_options*)

Plots multiple objects using the specified backend.

Parameters

plotting_list
[List] List of objects to plot.

plotting_options
[dict] Additional plotting options.

Plotter.**plot**(*plottable_object: Any*, ***plotting_options*)

Plots an object using the specified backend.

Parameters

plottable_object
[Any] Object to plot.

plotting_options
[dict] Additional plotting options.

Plotter.**show**(*plottable_object: Any = None*, *screenshot: str = None*, *name_filter: bool = None*, ***kwargs*) → List

Show the plotted objects.

Parameters

plottable_object
[Any, optional] Object to show, by default None.

screenshot
[str, optional] Path to save a screenshot, by default None.

name_filter
[bool, `optional`] Flag to filter the object, by default None.

kwargs
[`dict`] Additional options the selected backend accepts.

Returns

`List`
List of picked objects.

Description

Module for the Plotter class.

4.1.2 Description

Visualization Interface Tool is a Python client library for visualizing the results of Ansys simulations.

4.1.3 Module detail

`visualization_interface.USE_TRAME: bool = False`

`visualization_interface.DOCUMENTATION_BUILD: bool`

Whether the documentation is being built or not.

`visualization_interface.TESTING_MODE: bool`

Whether the library is being built or not, used to avoid showing plots while testing.

`visualization_interface.USE_HTML_BACKEND: bool`

Whether the library is being built or not, used to avoid showing plots while testing.

`visualization_interface.__version__`

CHAPTER

FIVE

EXAMPLES

This section show how to use the Visualization Interface Tool to perform many different types of operations.

CHAPTER SIX

BASIC USAGE EXAMPLES

These examples show how to use the general plotter included in the Visualization Interface Tool.

CHAPTER

SEVEN

BASIC PLOTLY USAGE EXAMPLES

These examples show how to use the general plotter with Plotly backend included in the Visualization Interface Tool.

CHAPTER

EIGHT

ADVANCED USAGE EXAMPLES

These examples show how to use the Visualization Interface Tool to postprocess simulation data.

8.1 Basic usage examples

These examples show how to use the general plotter included in the Visualization Interface Tool.

8.1.1 Use trame as a remote service

This example shows how to launch a trame service and use it as a remote service.

First, we need to launch the trame service. We can do this by running the following code:

```python
# import required libraries
from ansys.tools.visualization_interface.backends.pyvista.trame_service import (
    TrameService,
)

# create a trame service, in whatever port is available in your system
ts = TrameService(websocket_port=8765)

# run the service
ts.run()
```

Now, we can send meshes and plotter to the trame service. We can do this by running the following code in a separate terminal:

```python
# import required libraries
import time

import pyvista as pv

from ansys.tools.visualization_interface.backends.pyvista.trame_remote import (
    send_mesh,
    send_pl,
)

# create an example plotter
plotter = pv.Plotter()
plotter.add_mesh(pv.Cube())

# send some example meshes
```

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```
send_mesh(pv.Sphere())
send_mesh(pv.Sphere(center=(3, 0, 0)))
time.sleep(4)

# if we send a plotter, the previous meshes will be deleted.
send_pl(plotter)
```

Total running time of the script: (0 minutes 0.000 seconds)

8.1.2 Use a PyVista Qt backend

PyVista Qt is a package that extends the PyVista functionality through the usage of Qt. Qt applications operate in a separate thread than VTK, you can simultaneously have an active VTK plot and a non-blocking Python session.

This example shows how to use the PyVista Qt backend to create a plotter

```
import pyvista as pv

from ansys.tools.visualization_interface import Plotter
from ansys.tools.visualization_interface.backends.pyvista import PyVistaBackend
```

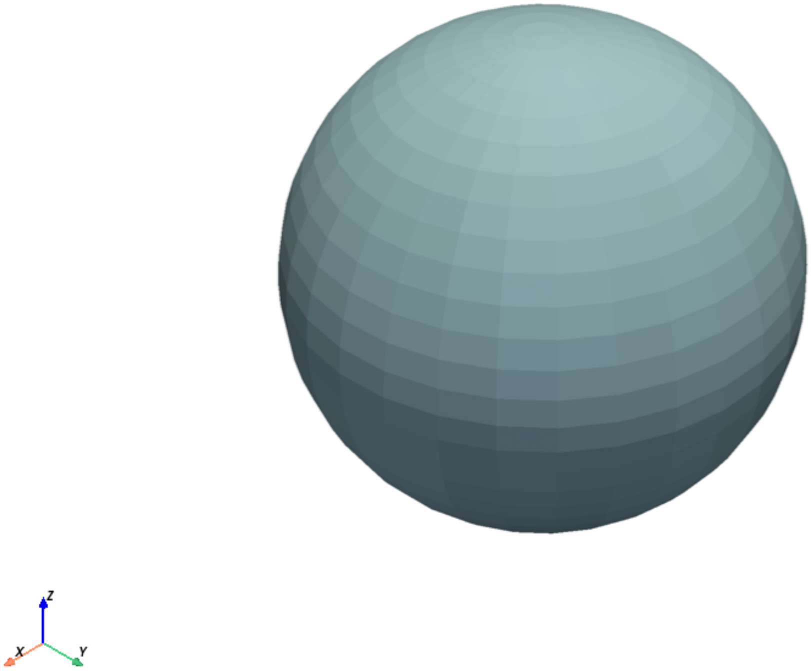
Open a pyvistaqt window

```
cube = pv.Cube()
pv_backend = PyVistaBackend(use_qt=True, show_qt=True)
pl = Plotter(backend=pv_backend)
pl.plot(cube)
pl.backend.enable_widgets()
pv_backend.scene.show()
```

Parallel VTK window

```
sphere = pv.Sphere()

pl_parallel = Plotter()
pl_parallel.plot(sphere)
pl_parallel.show()
```

Static Scene



Interactive Scene

```
[]
```

Close the pyvistaqt window

```
pv_backend.close()
```

Integrate the plotter in a Qt application

```
pv_backend = PyVistaBackend(use_qt=True, show_qt=False)
pv_backend.enable_widgets()

# You can use this plotter in a Qt application
pl = pv_backend.scene
```

Total running time of the script: (0 minutes 5.883 seconds)

8.1.3 Use a clipping plane

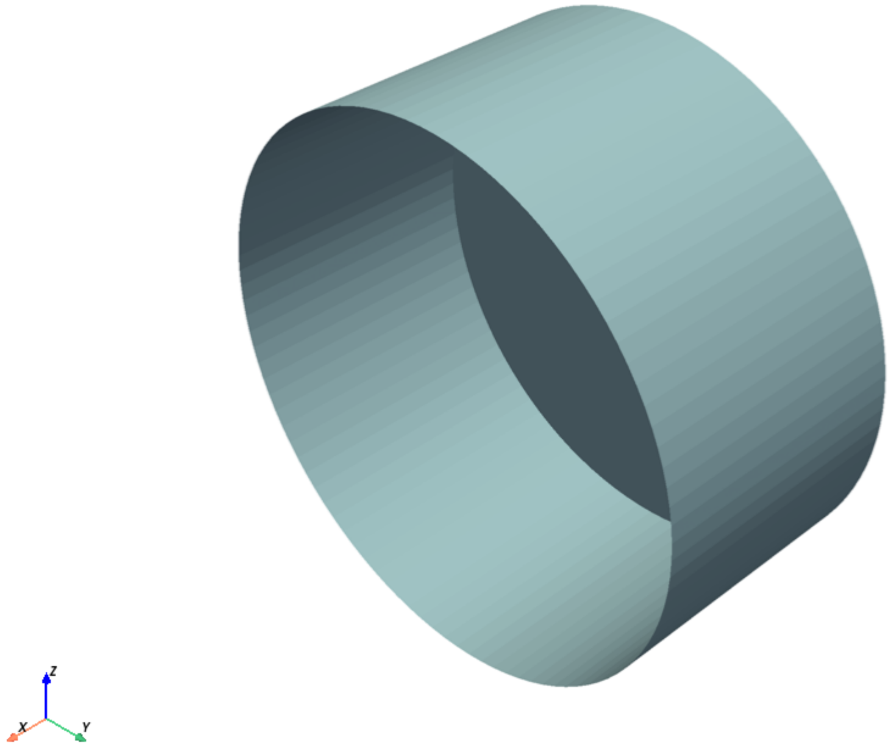
This example shows how to use a clipping plane in the Visualization Interface Tool to cut a mesh.

```
import pyvista as pv

from ansys.tools.visualization_interface import ClipPlane, Plotter

mesh = pv.Cylinder()
```

Create a plotter and clip the mesh

```
pl = Plotter()

# Create a clipping plane
clipping_plane = ClipPlane(normal=(1, 0, 0), origin=(0, 0, 0))

# Add the mesh to the plotter with the clipping plane
pl.plot(mesh, clipping_plane=clipping_plane)
pl.show()
```

Static Scene



Interactive Scene

```
[]
```

Total running time of the script: (0 minutes 0.329 seconds)

8.1.4 Use the `MeshObjectPlot` class

The Visualization Interface Tool provides the `MeshObject` helper class to relate a custom object with its mesh. With a custom object, you can take advantage of the full potential of the Visualization Interface Tool.

This example shows how to use the `MeshObjectPlot` class to plot your custom objects.

Relate `CustomObject` class with a PyVista mesh

```python
import pyvista as pv

# Note that the ``CustomObject`` class must have a way to get the mesh
# and a name or ID.

class CustomObject:
    def __init__(self):
        self.name = "CustomObject"
        self.mesh = pv.Cube()

    def get_mesh(self):
        return self.mesh

    def name(self):
        return self.name

# Create a custom object
custom_object = CustomObject()
```

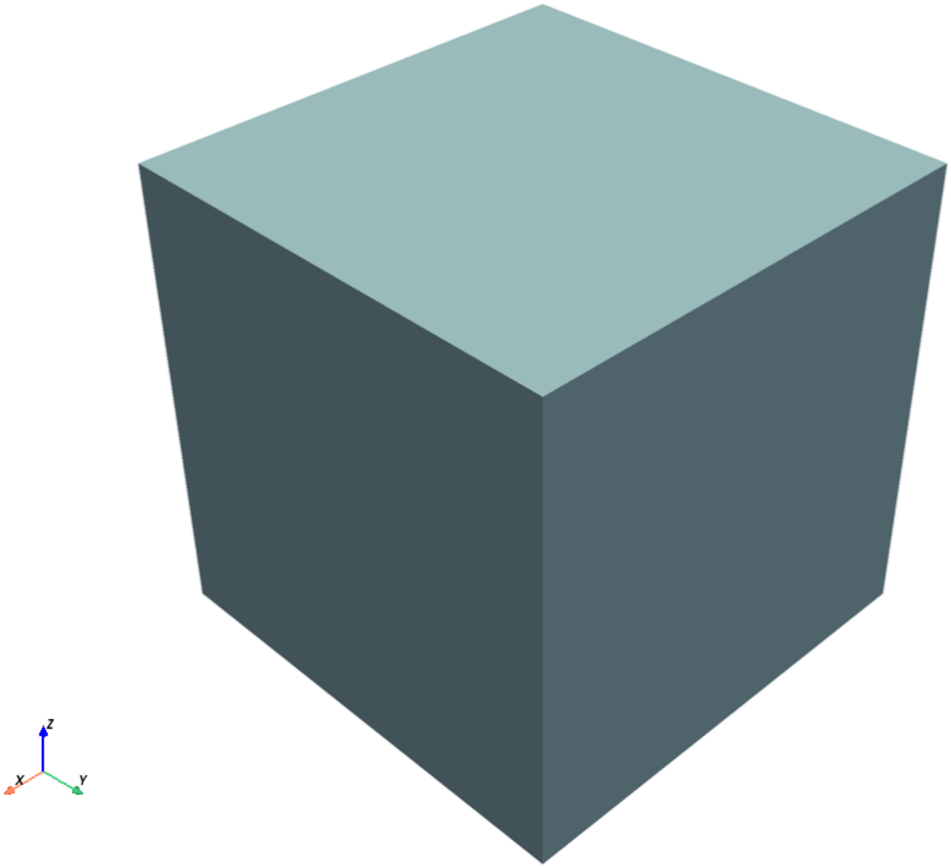
Create a `MeshObjectPlot` instance

```python
from ansys.tools.visualization_interface import MeshObjectPlot

# Create an instance

mesh_object = MeshObjectPlot(custom_object, custom_object.get_mesh())
```

Plot the `MeshObjectPlot` instance

```python
from ansys.tools.visualization_interface import Plotter

pl = Plotter()
pl.plot(mesh_object)
pl.show()
```

Static Scene



Interactive Scene

```
[]
```

Total running time of the script: (0 minutes 0.342 seconds)

8.1.5 Use the plotter

This example shows how to add one or more meshes to the plotter.

Add a mesh to the plotter

This code shows how to add a single mesh to the plotter.

```python
import pyvista as pv

from ansys.tools.visualization_interface import Plotter

mesh = pv.Cube()

# Create a plotter
pl = Plotter()
```

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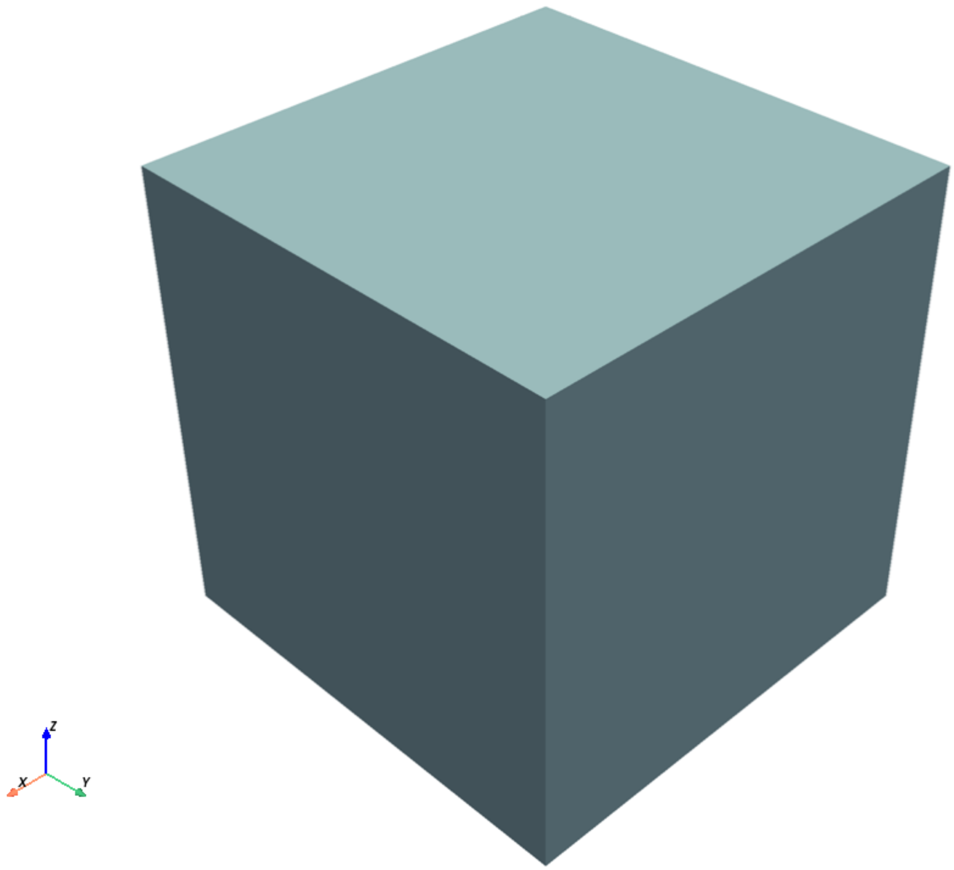
```

# Add the mesh to the plotter
pl.plot(mesh)

# Show the plotter
pl.show()
```

Static Scene



Interactive Scene

```
[]
```

Getting a screenshot

Now we will check how to get a screenshot from our plotter.

```
import pyvista as pv

from ansys.tools.visualization_interface import Plotter

```

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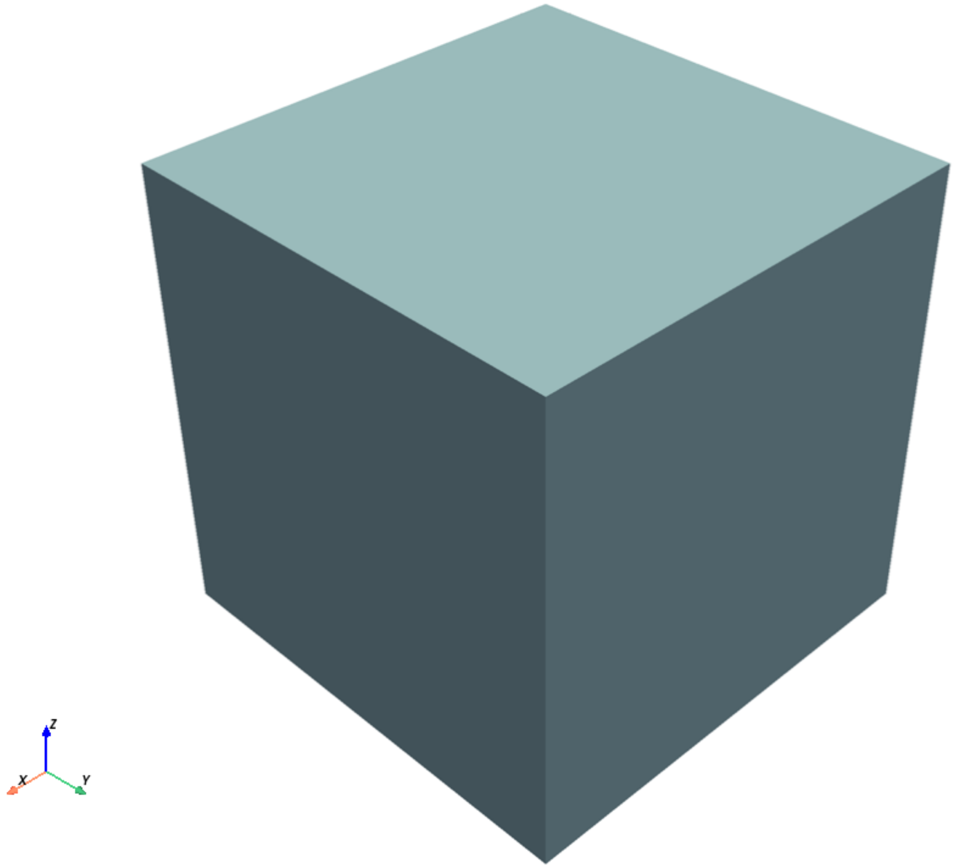
```
mesh = pv.Cube()

# Create a plotter
pl = Plotter()

# Add the mesh to the plotter
pl.plot(mesh)

# Show the plotter
pl.show()
```

Static Scene



Interactive Scene

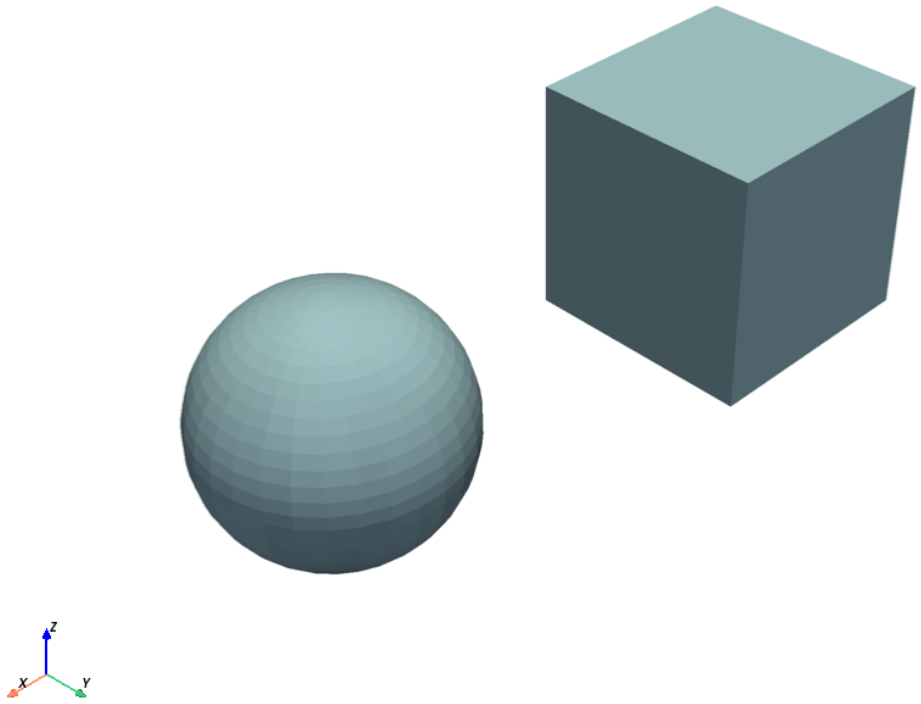
```
[]
```

Add a list of meshes

This code shows how to add a list of meshes to the plotter.

```
import pyvista as pv

from ansys.tools.visualization_interface import Plotter

mesh1 = pv.Cube()
mesh2 = pv.Sphere(center=(2, 0, 0))
mesh_list = [mesh1, mesh2]
# Create a plotter
pl = Plotter()

# Add a list of meshes to the plotter
pl.plot(mesh_list)

# Show the plotter
pl.show()
```

Static Scene



Interactive Scene

```
[]
```

Total running time of the script: (0 minutes 0.989 seconds)

8.1.6 Activate the picker

This example shows how to activate the picker, which is the tool that you use to select an object in the plotter and get its name.

Relate `CustomObject` class with a PyVista mesh

```python
import pyvista as pv

# Note that the ``CustomObject`` class must have a way to get the mesh
# and a name or ID.

class CustomObject:
    def __init__(self):
        self.name = "CustomObject"
        self.mesh = pv.Cube(center=(1, 1, 0))

    def get_mesh(self):
        return self.mesh

    def name(self):
        return self.name



# Create a custom object
custom_cube = CustomObject()
custom_cube.name = "CustomCube"
custom_sphere = CustomObject()
custom_sphere.mesh = pv.Sphere(center=(0, 0, 5))
custom_sphere.name = "CustomSphere"
```

Create two `MeshObjectPlot` instances

```python
from ansys.tools.visualization_interface import MeshObjectPlot

# Create an instance
mesh_object_cube = MeshObjectPlot(custom_cube, custom_cube.get_mesh())
mesh_object_sphere = MeshObjectPlot(custom_sphere, custom_sphere.get_mesh())
```

Activate the picking capabilities

```python
from ansys.tools.visualization_interface import Plotter
from ansys.tools.visualization_interface.backends.pyvista import PyVistaBackend

pv_backend = PyVistaBackend(allow_picking=True, plot_picked_names=True)
pl = Plotter(backend=pv_backend)
```

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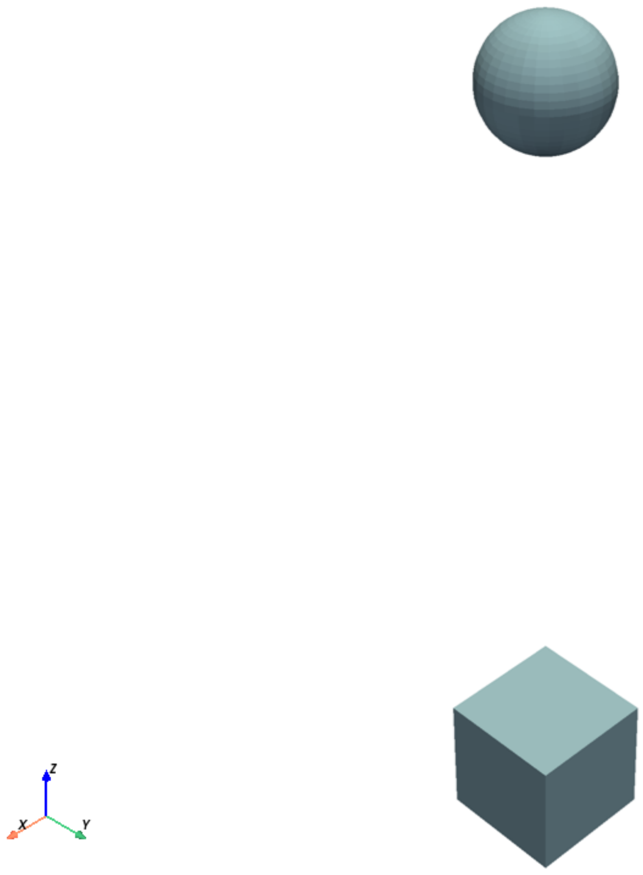
```
pl.plot(mesh_object_cube)
pl.plot(mesh_object_sphere)
pl.show()
```

Static Scene



Interactive Scene

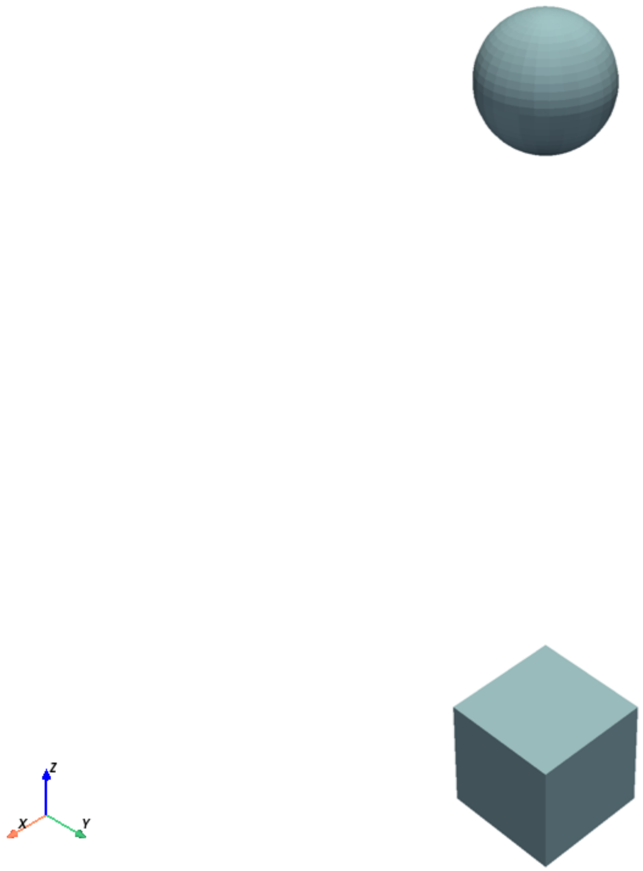
```
[]
```

Activate the hover capabilities

```
from ansys.tools.visualization_interface import Plotter
from ansys.tools.visualization_interface.backends.pyvista import PyVistaBackend

pv_backend = PyVistaBackend(allow_hovering=True)
pl = Plotter(backend=pv_backend)
pl.plot(mesh_object_cube)
pl.plot(mesh_object_sphere)
pl.show()
```

Static Scene



Interactive Scene

```
[]
```

Using StructuredGrid mesh

```
import numpy as np


class CustomStructuredObject:
    def __init__(self):
        self.name = "CustomObject"
        xrng = np.arange(-10, 10, 2, dtype=np.float32)
        yrng = np.arange(-10, 10, 5, dtype=np.float32)
        zrng = np.arange(-10, 10, 1, dtype=np.float32)
        x, y, z = np.meshgrid(xrng, yrng, zrng, indexing='ij')
        grid = pv.StructuredGrid(x, y, z)
        self.mesh = grid

    def get_mesh(self):
        return self.mesh
```

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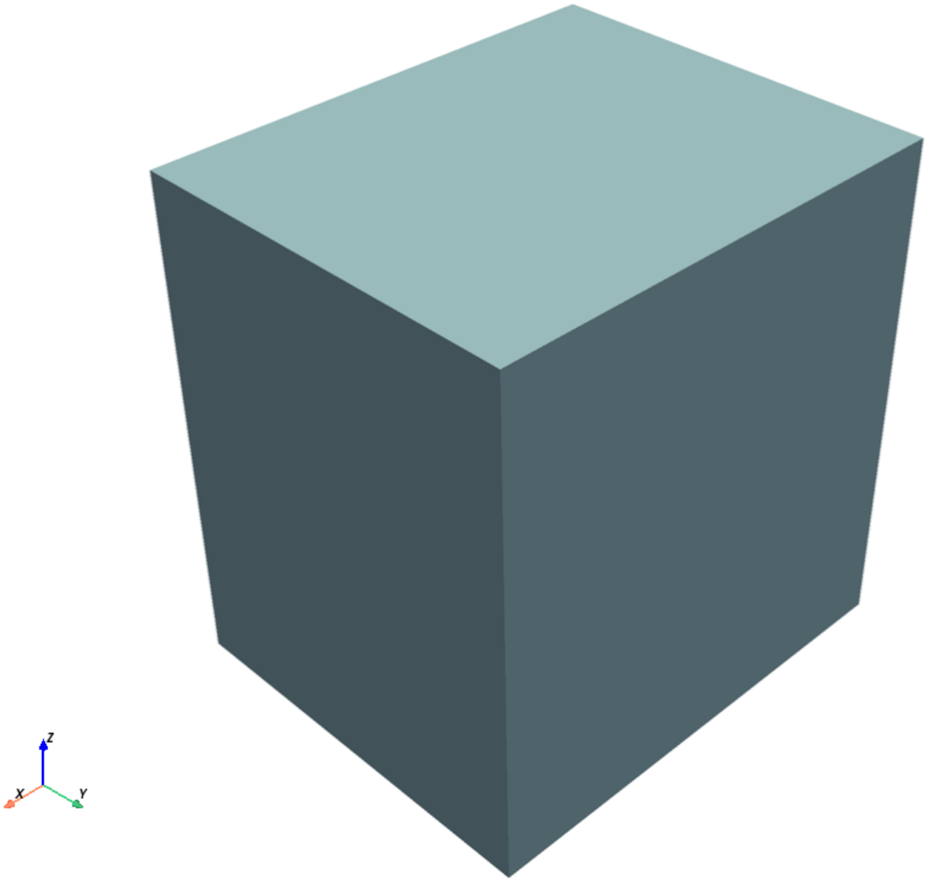
```
    def name(self):
        return self.name


pv_backend = PyVistaBackend()
pl = Plotter(backend=pv_backend)

structured_object = CustomStructuredObject()
mo_plot = MeshObjectPlot(structured_object, structured_object.get_mesh())
pl.plot(mo_plot)
pl.show()
```

Static Scene



Interactive Scene

```
[]
```

Total running time of the script: (0 minutes 0.970 seconds)

8.1.7 Create custom picker

This example shows how to create a custom picker. In this case we will show how the default picker is implemented through the `AbstractPicker` class.

Import the `AbstractPicker` class

```
# Import the abstract picker class
from ansys.tools.visualization_interface.backends.pyvista.picker import AbstractPicker

# Import custom object meshes
from ansys.tools.visualization_interface.types.mesh_object_plot import MeshObjectPlot

# Import plotter and color enum
from ansys.tools.visualization_interface import Plotter
from ansys.tools.visualization_interface.utils.color import Color
```

Create a custom picker class

```
class CustomPicker(AbstractPicker):
    """Custom picker class that extends the AbstractPicker.
    This custom picker changes the color of picked objects to red and adds a label with␣
↪the object's name.
    It also adds a label when hovering over an object.

    Parameters
    ----------
    plotter_backend : Plotter
        The plotter backend to use.
    plot_picked_names : bool, optional
        Whether to plot the names of picked objects, by default True.
    label : str, optional
        Extra parameter to exemplify the usage of custom parameters.
    """
    def __init__(self, plotter_backend: "Plotter", plot_picked_names: bool = True,␣
↪label: str = "This label: ") -> None:
        """Initialize the ``Picker`` class."""
        # Picking variables
        self._plotter_backend = plotter_backend
        self._plot_picked_names = plot_picked_names
        self._label = label

        # Map that relates PyVista actors with the added actors by the picker
        self._picker_added_actors_map = {}

        # Dictionary of picked objects in MeshObject format.
        self._picked_dict = {}

        # Map that saves original colors of the plotted objects.
        self._origin_colors = {}

        # Hovering variables
        self._added_hover_labels = []
```

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```
    def pick_select_object(self, custom_object: MeshObjectPlot, pt: "np.ndarray") ->␣
↪None:
        """Add actor to picked list and add label if required.

        Parameters
        ----------
        custom_object : MeshObjectPlot
            The object to be selected.
        pt : np.ndarray
            The point where the object was picked.
        """
        added_actors = []

        # Pick only custom objects
        if isinstance(custom_object, MeshObjectPlot):
            self._origin_colors[custom_object] = custom_object.actor.prop.color
            custom_object.actor.prop.color = Color.PICKED.value

        # Get the name for the text label
        text = custom_object.name

        # If picking names is enabled, add a label to the picked object
        if self._plot_picked_names:
            label_actor = self._plotter_backend.pv_interface.scene.add_point_labels(
                [pt],
                [self._label + text],
                always_visible=True,
                point_size=0,
                render_points_as_spheres=False,
                show_points=False,
            )
            # Add the label actor to the list of added actors
            added_actors.append(label_actor)

        # Add the picked object to the picked dictionary if not already present, to keep␣
↪track of it
        if custom_object.name not in self._picked_dict:
            self._picked_dict[custom_object.name] = custom_object
        # Add the picked object to the picked dictionary if not already present, to keep␣
↪track of it
        self._picker_added_actors_map[custom_object.actor.name] = added_actors

    def pick_unselect_object(self, custom_object: MeshObjectPlot) -> None:
        """Remove actor from picked list and remove label if required.

        Parameters
        ----------
        custom_object : MeshObjectPlot
            The object to be unselected.
        """
        # remove actor from picked list and from scene
```

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```
        if custom_object.name in self._picked_dict:
            self._picked_dict.pop(custom_object.name)

        # Restore original color if it was changed
        if isinstance(custom_object, MeshObjectPlot) and custom_object in self._origin_
↪colors:
            custom_object.actor.prop.color = self._origin_colors[custom_object]

        # Remove any added actors (like labels) associated with this picked object
        if custom_object.actor.name in self._picker_added_actors_map:
            self._plotter_backend._pl.scene.remove_actor(self._picker_added_actors_
↪map[custom_object.actor.name])
            self._picker_added_actors_map.pop(custom_object.actor.name)

    def hover_select_object(self, custom_object: MeshObjectPlot, actor: "Actor") -> None:
        """Add label to hovered object if required.

        Parameters
        ----------
        custom_object : MeshObjectPlot
            The object to be hovered over.
        actor : vtkActor
            The actor corresponding to the hovered object.
        """
        for label in self._added_hover_labels:
            self._plotter_backend._pl.scene.remove_actor(label)
        label_actor = self._plotter_backend._pl.scene.add_point_labels(
            [actor.GetCenter()],
            [custom_object.name],
            always_visible=True,
            point_size=0,
            render_points_as_spheres=False,
            show_points=False,
        )
        self._added_hover_labels.append(label_actor)

    def hover_unselect_object(self):
        """Remove all hover labels from the scene."""
        for label in self._added_hover_labels:
            self._plotter_backend._pl.scene.remove_actor(label)

    @property
    def picked_dict(self) -> dict:
        """Return the dictionary of picked objects.

        Returns
        -------
        dict
            Dictionary of picked objects.
        """
        return self._picked_dict
```

Initialize the plotter backend with the custom picker

```
from ansys.tools.visualization_interface.backends.pyvista import PyVistaBackend
pl_backend = PyVistaBackend(allow_picking=True, custom_picker=CustomPicker)
```

Create a custom object with a name to be picked

```
import pyvista as pv

class CustomObject:
    def __init__(self):
        self.name = "CustomObject"
        self.mesh = pv.Cube(center=(1, 1, 0))

    def get_mesh(self):
        return self.mesh

    def name(self):
        return self.name

# Create a custom object
custom_cube = CustomObject()
custom_cube.name = "CustomCube"
```

Create a `MeshObjectPlot` instance

```
from ansys.tools.visualization_interface import MeshObjectPlot
# Create an instance
mesh_object_cube = MeshObjectPlot(custom_cube, custom_cube.get_mesh())
```

Display the plotter and interact with the object

```
pl = Plotter(backend=pl_backend)
pl.plot(mesh_object_cube)
pl.show()
```

Total running time of the script: (0 minutes 0.428 seconds)

8.2 Basic Plotly usage examples

These examples show how to use the general plotter with Plotly backend included in the Visualization Interface Tool.

8.2.1 Plain usage of the plotly backend

This example shows the plain usage of the Plotly backend in the Visualization Interface Tool to plot different objects, including PyVista meshes, custom objects, and Plotly-specific objects.

```
from ansys.tools.visualization_interface.backends.plotly.plotly_interface import␣
↪PlotlyBackend
from ansys.tools.visualization_interface.types.mesh_object_plot import MeshObjectPlot
from ansys.tools.visualization_interface import Plotter
import pyvista as pv
from plotly.graph_objects import Mesh3d


# Create a plotter with the Plotly backend
pl = Plotter(backend=PlotlyBackend())

# Create a PyVista mesh
mesh = pv.Sphere()

# Plot the mesh
pl.plot(mesh)


# Create a PyVista MultiBlock
multi_block = pv.MultiBlock()
multi_block.append(pv.Sphere(center=(-1, -1, 0)))
multi_block.append(pv.Cube(center=(-1, 1, 0)))

# Plot the MultiBlock
pl.plot(multi_block)

# Display the plotter

pl.show()
```

Now create a custom object

```
class CustomObject:
    def __init__(self):
        self.name = "CustomObject"
        self.mesh = pv.Cube(center=(1, 1, 0))

    def get_mesh(self):
        return self.mesh

    def name(self):
        return self.name


# Create a custom object
custom_cube = CustomObject()
custom_cube.name = "CustomCube"

# Create a MeshObjectPlot instance
mesh_object_cube = MeshObjectPlot(custom_cube, custom_cube.get_mesh())

# Plot the custom mesh object
pl.plot(mesh_object_cube)
```

Display the plotter again

Since Plotly is a web-based visualization, we can show the plot again to include the new object.

```
pl.show()
```

Add a Plotly Mesh3d object directly

```
custom_mesh3d = Mesh3d(
    x=[0, 1, 2],
    y=[0, 1, 0],
    z=[0, 0, 1],
    i=[0],
    j=[1],
    k=[2],
    color='lightblue',
    opacity=0.50
)
pl.plot(custom_mesh3d)

# Show other plotly objects like Scatter3d
from plotly.graph_objects import Scatter3d

scatter = Scatter3d(
    x=[0, 1, 2],
    y=[0, 1, 0],
    z=[0, 0, 1],
    mode='markers',
    marker=dict(size=5, color='red')
```

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```
)
pl.plot(scatter)

pl.show()
```

Total running time of the script: (0 minutes 0.143 seconds)

8.3 Advanced usage examples

These examples show how to use the Visualization Interface Tool to postprocess simulation data.

8.3.1 Postprocessing simulation results using the `MeshObjectPlot` class

The Visualization Interface Tool provides the `MeshObject` helper class to relate a custom object. With a custom object, you can take advantage of the full potential of the Visualization Interface Tool.

This example shows how to use the `MeshObjectPlot` class to plot your custom objects with scalar data on mesh.

Necessary imports

```
from ansys.fluent.core import examples
import pyvista as pv

from ansys.tools.visualization_interface.backends.pyvista import PyVistaBackend
from ansys.tools.visualization_interface import MeshObjectPlot, Plotter
```

Download the VTK file

A VTK dataset can be produced utilizing PyDPF for Ansys Flagship products simulations results file format.

```
mixing_elbow_file_src = examples.download_file("mixing_elbow.vtk", "result_files/fluent-
↪mixing_elbow_steady-state")
```

Define a custom object class

Note that the `CustomObject` class must have a way to get the mesh and a name or ID.

```
class CustomObject:
    def __init__(self):
        self.name = "CustomObject"
        self.mesh = pv.read(mixing_elbow_file_src)

    def get_mesh(self):
        return self.mesh

    def get_field_array_info(self):
        return self.mesh.array_names

    def name(self):
        return self.name
```

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```
# Create a custom object
custom_vtk = CustomObject()
```

Create a MeshObjectPlot instance

```
mesh_object = MeshObjectPlot(custom_vtk, custom_vtk.get_mesh())

# Define the camera position
cpos = (
    (-0.3331763564757694, 0.08802797061044923, -1.055269197114142),
    (0.08813476356878325, -0.03975174212669032, -0.012819952697089087),
    (0.045604530283921085, 0.9935979348314435, 0.10336039239608838),
)
```

Get the available field data arrays

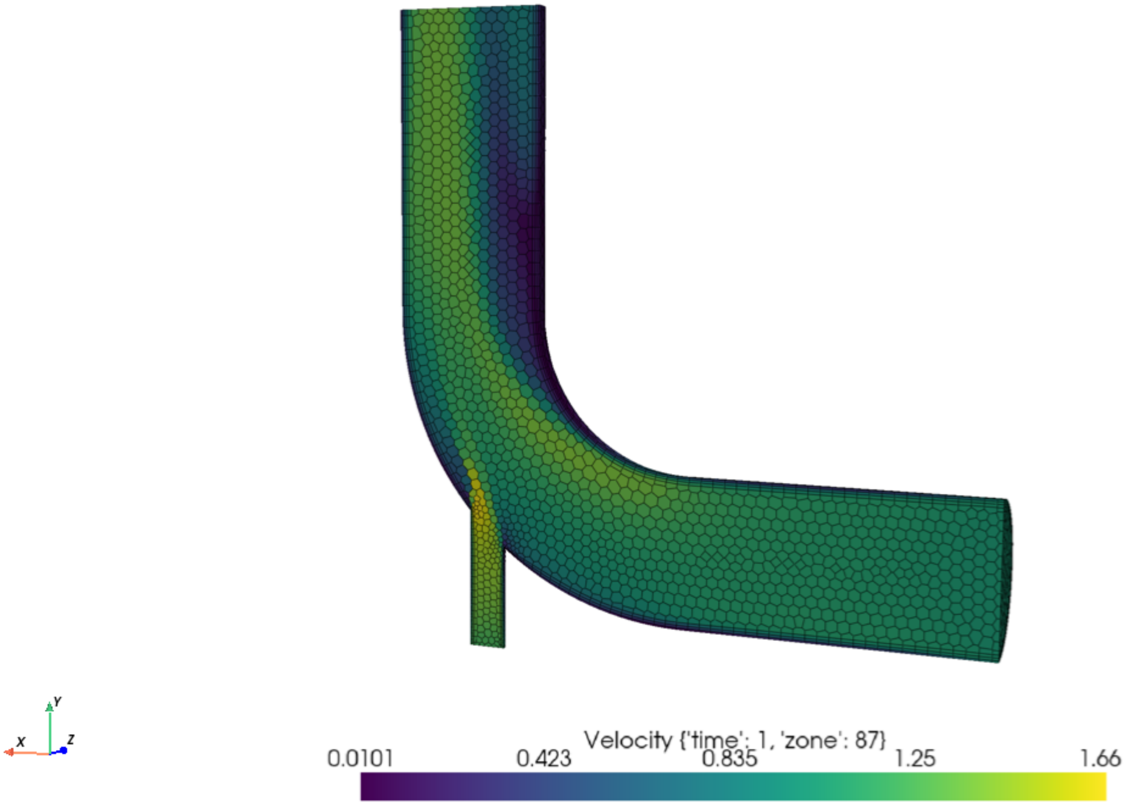
```
field_data_arrays = custom_vtk.get_field_array_info()
print(f"Field data arrays: {field_data_arrays}")
```

```
Field data arrays: ["Velocity {'time': 1, 'zone': 87}", "Temperature {'time': 1, 'zone':␣
↪87}"]
```

Plot the MeshObjectPlot instance with mesh object & field data (0)

```
pv_backend = PyVistaBackend()
pl = Plotter(backend=pv_backend)
pl.plot(
    mesh_object,
    scalars=field_data_arrays[0],
    show_edges=True,
    show_scalar_bar=True,
)
pl._backend.pv_interface.scene.camera_position = cpos
pl.show()
```

Static Scene



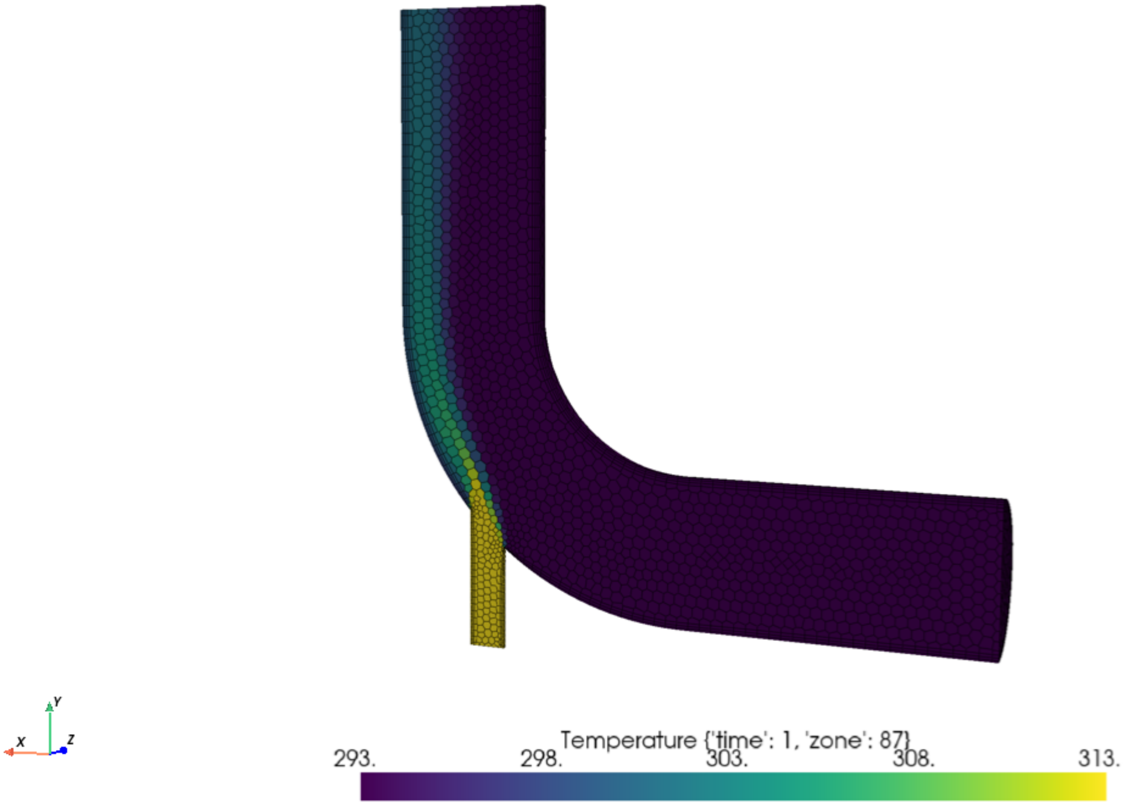
Interactive Scene

```
[]
```

Plot the `MeshObjectPlot` instance with mesh object & other field data (1)

```
pv_backend = PyVistaBackend()
pl = Plotter(backend=pv_backend)
pl.plot(
    mesh_object,
    scalars=field_data_arrays[1],
    show_edges=True,
    show_scalar_bar=True,
)
pl._backend.pv_interface.scene.camera_position = cpos
pl.show()
```

Static Scene



Interactive Scene

```
[]
```

Total running time of the script: (0 minutes 7.598 seconds)

CHAPTER

NINE

CONTRIBUTE

Overall guidance on contributing to a PyAnsys library appears in the Contributing topic in the *PyAnsys developer's guide*. Ensure that you are thoroughly familiar with this guide before attempting to contribute to the Visualization Interface Tool.

The following contribution information is specific to the Visualization Interface Tool.

9.1 Install in developer mode

Installing the Visualization Interface Tool in developer mode allows you to modify and enhance the source.

To clone and install the latest Visualization Interface Tool release in development mode, run these commands:

```
git clone https://github.com/ansys/ansys-tools-visualization-interface
cd ansys-tools-visualization-interface
python -m pip install --upgrade pip
pip install -e .
```

9.2 Run tests

The Visualization Interface Tool uses pytest for testing.

1. Prior to running tests, you must run this command to install test dependencies:

   ```
   pip install -e .[tests]
   ```

2. To then run the tests, navigate to the root directory of the repository and run this command:

   ```
   pytest
   ```

9.3 Adhere to code style

The Visualization Interface Tool follows the PEP8 standard as outlined in PEP 8 in the *PyAnsys developer's guide* and implements style checking using pre-commit.

To ensure your code meets minimum code styling standards, run these commands:

```
pip install pre-commit
pre-commit run --all-files
```

You can also install this as a pre-commit hook by running this command:

```
pre-commit install
```

This way, it’s not possible for you to push code that fails the style checks:

```
$ pre-commit install
$ git commit -am "added my cool feature"
black....................................................................Passed
blacken-docs.............................................................Passed
isort....................................................................Passed
flake8...................................................................Passed
docformatter.............................................................Passed
codespell................................................................Passed
pydocstyle...............................................................Passed
check for merge conflicts................................................Passed
debug statements (python)................................................Passed
check yaml...............................................................Passed
trim trailing whitespace.................................................Passed
Add License Headers......................................................Passed
Validate GitHub Workflows................................................Passed
```

9.4 Build the documentation

You can build the Visualization Interface Tool documentation locally.

1. Prior to building the documentation, you must run this command to install documentation dependencies:

   ```
   pip install -e .[doc]
   ```

2. To then build the documentation, navigate to the docs directory and run this command:

   ```
   # On Linux or macOS
   make html

   # On Windows
   ./make.bat html
   ```

The documentation is built in the `docs/_build/html` directory.

You can clean the documentation build by running this command:

```
# On Linux or macOS
make clean

# On Windows
./make.bat clean
```

9.5 Post issues

Use the Visualization Interface Tool Issues page to report bugs and request new features. When possible, use the issue templates provided. If your issue does not fit into one of these templates, click the link for opening a blank issue.

If you have general questions about the PyAnsys ecosystem, email pyansys.core@ansys.com. If your question is specific to the Visualization Interface Tool, ask your question in an issue as described in the previous paragraph.

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