holoscan.gxf

This module provides a Python API for GXF base classes in the C++ API.

`holoscan.gxf.Entity`	alias of `holoscan.gxf._gxf.PyEntity`
`holoscan.gxf.GXFComponent`	Base GXF-based component class.
`holoscan.gxf.GXFCondition`	Base GXF-based condition class.
`holoscan.gxf.GXFExecutionContext`	GXF execution context.
`holoscan.gxf.GXFInputContext`	GXF input context.

`holoscan.gxf.GXFNetworkContext`	Base GXF-based network context class.
`holoscan.gxf.GXFOperator`	Base GXF-based operator class.
`holoscan.gxf.GXFOutputContext`	GXF output context.
`holoscan.gxf.GXFResource`	Base GXF-based resource class.
`holoscan.gxf.GXFScheduler`	Base GXF-based scheduler class.

holoscan.gxf.Entity

alias of `holoscan.gxf._gxf.PyEntity`

class holoscan.gxf.GXFComponent

Bases: `pybind11_builtins.pybind11_object`

Base GXF-based component class.

Attributes

gxf_cid	The GXF component ID.
gxf_cname	The name of the component.
gxf_context	The GXF context of the component.
gxf_eid	The GXF entity ID.

Methods

gxf_initialize(self)	Initialize the component.

__init__(*self: holoscan.gxf._gxf.GXFComponent*)   None

Base GXF-based component class.

property gxf_cid

The GXF component ID.

property gxf_cname

The name of the component.

property gxf_context

The GXF context of the component.

property gxf_eid

The GXF entity ID.

gxf_initialize(*self: holoscan.gxf._gxf.GXFComponent*)   None

Initialize the component.

class holoscan.gxf.GXFCondition

Bases: holoscan.core._core.Condition, holoscan.gxf._gxf.GXFComponent

Base GXF-based condition class.

Attributes

args	The list of arguments associated with the component.
description	YAML formatted string describing the condition.
fragment	Fragment that the condition belongs to.
gxf_cid	The GXF component ID.
gxf_cname	The name of the component.
gxf_context	The GXF context of the component.
gxf_eid	The GXF entity ID.
id	The identifier of the component.
name	The name of the condition.

spec	

Methods

add_arg (*args, **kwargs)	Overloaded function.
gxf_initialize (self)	Initialize the component.
initialize (self)	Initialize the component.
setup (self, arg0)	setup method for the condition.

__init__(*self: holoscan.gxf._gxf.GXFCondition*)   None

Base GXF-based condition class.

add_arg(**args*, ***kwargs*)

Overloaded function.

1. add_arg(self: holoscan.core._core.ComponentBase, arg: holoscan.core._core.Arg) -> None

Add an argument to the component.

2. add_arg(self: holoscan.core._core.ComponentBase, arg: holoscan.core._core.ArgList) -> None

Add a list of arguments to the component.

property args

The list of arguments associated with the component.

Returns

arglist

property description

YAML formatted string describing the condition.

property fragment

Fragment that the condition belongs to.

Returns

name

property gxf_cid

The GXF component ID.

property gxf_cname

The name of the component.

property gxf_context

The GXF context of the component.

property gxf_eid

The GXF entity ID.

gxf_initialize(*self: holoscan.gxf._gxf.GXFComponent*) None

Initialize the component.

property id

The identifier of the component.

The identifier is initially set to `-1`, and will become a valid value when the component is initialized.

With the default executor (*holoscan.gxf.GXFExecutor*), the identifier is set to the GXF component ID.

Returns

id

initialize(*self: holoscan.gxf._gxf.GXFCondition*) None

Initialize the component.

property name

The name of the condition.

Returns

name

setup(*self: holoscan.core._core.Condition*, *arg0: holoscan.core._core.ComponentSpec*) None

setup method for the condition.

property spec

class holoscan.gxf.GXFExecutionContext

Bases: `holoscan.core._core.ExecutionContext`

GXF execution context.

__init__(*self: holoscan.gxf._gxf.GXFExecutionContext*, *context: capsule*, *op: holoscan.gxf._gxf.GXFOperator*) None

Execution context for an operator using GXF.

Parameters

op

The GXF operator that owns this context.

class holoscan.gxf.GXFInputContext

Bases: `holoscan.core._core.InputContext`

GXF input context.

Methods

`receive`(self, name)	

__init__(*self: holoscan.gxf._gxf.GXFInputContext*, *context: holoscan.core._core.ExecutionContext*, *op: holoscan.gxf._gxf.GXFOperator*) None

GXF input context.

Parameters

op

The GXF operator that owns this context.

receive(*self: holoscan.core._core.InputContext*, *name: str*) None

class holoscan.gxf.GXFNetworkContext

Bases: `holoscan.core._core.NetworkContext`, `holoscan.gxf._gxf.GXFComponent`

Base GXF-based network context class.

Attributes

`args`	The list of arguments associated with the component.
`description`	YAML formatted string describing the component.

fragment	Fragment that the network context belongs to.
gxf_cid	The GXF component ID.
gxf_cname	The name of the component.
gxf_context	The GXF context of the component.
gxf_eid	The GXF entity ID.
id	The identifier of the component.
name	The name of the network context.

spec	

Methods

add_arg (*args, **kwargs)	Overloaded function.
gxf_initialize (self)	Initialize the component.
initialize (self)	Initialize the network context.

`setup` (self, arg0)	setup method for the network context.

__init__(**args*, ***kwargs*)

add_arg(**args*, ***kwargs*)

Overloaded function.

1. add_arg(self: holoscan.core._core.ComponentBase, arg: holoscan.core._core.Arg) -> None

Add an argument to the component.

2. add_arg(self: holoscan.core._core.ComponentBase, arg: holoscan.core._core.ArgList) -> None

Add a list of arguments to the component.

property args

The list of arguments associated with the component.

Returns

arglist

property description

YAML formatted string describing the component.

property fragment

Fragment that the network context belongs to.

Returns

name

property gxf_cid

The GXF component ID.

property gxf_cname

The name of the component.

property gxf_context

The GXF context of the component.

property gxf_eid

The GXF entity ID.

gxf_initialize(*self: holoscan.gxf._gxf.GXFComponent*) None

Initialize the component.

property id

The identifier of the component.

The identifier is initially set to `-1`, and will become a valid value when the component is initialized.

With the default executor (*holoscan.gxf.GXFExecutor*), the identifier is set to the GXF component ID.

Returns

id

initialize(*self: holoscan.gxf._gxf.GXFNetworkContext*) None

Initialize the network context.

property name

The name of the network context.

Returns

name

setup(*self*: *holoscan.core._core.NetworkContext*, *arg0*: *holoscan.core._core.ComponentSpec*) None

setup method for the network context.

property spec

class holoscan.gxf.GXFOperator

Bases: holoscan.core._core.Operator

Base GXF-based operator class.

Attributes

args	The list of arguments associated with the component.
conditions	Conditions associated with the operator.
description	YAML formatted string describing the operator.
fragment	The fragment (holoscan.core.Fragment) that the operator belongs to.
gxf_cid	The GXF component ID.
gxf_context	The GXF context of the component.
gxf_eid	The GXF entity ID.
id	The identifier of the component.
name	The name of the operator.

operator_type	The operator type.
resources	Resources associated with the operator.
spec	The operator spec (holoscan.core.OperatorSpec) associated with the operator.

Methods

add_arg (*args, **kwargs)	Overloaded function.
compute (self, arg0, arg1, arg2)	Operator compute method.
initialize (self)	Initialize the operator.
setup (self, arg0)	Operator setup method.
start (self)	Operator start method.
stop (self)	Operator stop method.

OperatorType	

class OperatorType

Bases: `pybind11_builtins.pybind11_object`

Enum class for operator types used by the executor.

- NATIVE: Native operator.
- GXF: GXF operator.
- VIRTUAL: Virtual operator. (for internal use, not intended for use by application authors)

Members:

NATIVE

GXF

VIRTUAL

Attributes

`name`	

value	

GXF = *<OperatorType.GXF: 1>*

NATIVE = *<OperatorType.NATIVE: 0>*

VIRTUAL = *<OperatorType.VIRTUAL: 2>*

__init__(*self: holoscan.core._core.Operator.OperatorType*, *value: int*)   None

property name

property value

__init__(*self: holoscan.gxf._gxf.GXFOperator*) None

Base GXF-based operator class.

add_arg(**args*, ***kwargs*)

Overloaded function.

1. add_arg(self: holoscan.core._core.Operator, arg: holoscan.core._core.Arg) -> None

Add an argument to the component.

2. add_arg(self: holoscan.core._core.Operator, arg: holoscan.core._core.ArgList) -> None

Add a list of arguments to the component.

3. add_arg(self: holoscan.core._core.Operator, **kwargs) -> None

Add arguments to the component via Python kwargs.

4. add_arg(self: holoscan.core._core.Operator, arg: holoscan.core._core.Condition) -> None

5. add_arg(self: holoscan.core._core.Operator, arg: holoscan.core._core.Resource) -> None

Add a condition or resource to the Operator.

This can be used to add a condition or resource to an operator after it has already been constructed.

Parameters

arg

The condition or resource to add.

property args

The list of arguments associated with the component.

Returns

arglist

compute(*self: holoscan.core._core.Operator*, *arg0: holoscan.core._core.InputContext*, *arg1: holoscan.core._core.OutputContext*, *arg2: holoscan.core._core.ExecutionContext*) None

Operator compute method. This method defines the primary computation to be executed by the operator.

property conditions

Conditions associated with the operator.

property description

YAML formatted string describing the operator.

property fragment

The fragment (`holoscan.core.Fragment`) that the operator belongs to.

property gxf_cid

The GXF component ID.

property gxf_context

The GXF context of the component.

property gxf_eid

The GXF entity ID.

property id

The identifier of the component.

The identifier is initially set to `-1`, and will become a valid value when the component is initialized.

With the default executor (*holoscan.gxf.GXFExecutor*), the identifier is set to the GXF component ID.

Returns

id

initialize(*self: holoscan.gxf._gxf.GXFOperator*) None

Initialize the operator.

property name

The name of the operator.

property operator_type

The operator type.

holoscan.core.Operator.OperatorType enum representing the type of the operator. The two types currently implemented are native and GXF.

property resources

Resources associated with the operator.

setup(*self: holoscan.gxf._gxf.GXFOperator*, *arg0: holoscan.core._core.OperatorSpec*) None

Operator setup method.

property spec

The operator spec (`holoscan.core.OperatorSpec`) associated with the operator.

start(*self: holoscan.core._core.Operator*) None

Operator start method.

stop(*self: holoscan.core._core.Operator*) None

Operator stop method.

class holoscan.gxf.GXFOutputContext

Bases: `holoscan.core._core.OutputContext`

GXF output context.

Methods

`emit`(self, data[, name])	

OutputType	

class OutputType

Bases: `pybind11_builtins.pybind11_object`

Members:

SHARED_POINTER

GXF_ENTITY

Attributes

`name`	

value	

GXF_ENTITY = *<OutputType.GXF_ENTITY: 1>*

SHARED_POINTER = *<OutputType.SHARED_POINTER: 0>*

__init__(*self: holoscan.core._core.OutputContext.OutputType*, *value: int*) None

property name

property value

__init__(*self: holoscan.gxf._gxf.GXFOutputContext*, *context: holoscan.core._core.ExecutionContext*, *op: holoscan.gxf._gxf.GXFOperator*) None

GXF input context.

Parameters

op

The GXF operator that owns this context.

emit(*self: holoscan.core._core.OutputContext*, *data: object*, *name: str = ''*) None

class holoscan.gxf.GXFResource

Bases: `holoscan.core._core.Resource`, `holoscan.gxf._gxf.GXFComponent`

Base GXF-based resource class.

Attributes

`args`	The list of arguments associated with the component.
`description`	YAML formatted string describing the resource.
`fragment`	Fragment that the resource belongs to.
`gxf_cid`	The GXF component ID.
`gxf_cname`	The name of the component.
`gxf_context`	The GXF context of the component.

gxf_eid	The GXF entity ID.
id	The identifier of the component.
name	The name of the resource.

spec	

Methods

add_arg(*args, **kwargs)	Overloaded function.
gxf_initialize(self)	Initialize the component.
initialize(self)	Initialize the component.
setup(self, arg0)	setup method for the resource.

__init__(*self*: *holoscan.gxf._gxf.GXFResource*) None

Base GXF-based resource class.

add_arg(**args*, ***kwargs*)

Overloaded function.

1. add_arg(self: holoscan.core._core.ComponentBase, arg: holoscan.core._core.Arg) -> None

Add an argument to the component.

2. add_arg(self: holoscan.core._core.ComponentBase, arg: holoscan.core._core.ArgList) -> None

Add a list of arguments to the component.

property args

The list of arguments associated with the component.

Returns

arglist

property description

YAML formatted string describing the resource.

property fragment

Fragment that the resource belongs to.

Returns

name

property gxf_cid

The GXF component ID.

property gxf_cname

The name of the component.

property gxf_context

The GXF context of the component.

property gxf_eid

The GXF entity ID.

gxf_initialize(*self: holoscan.gxf._gxf.GXFComponent*) None

Initialize the component.

property id

The identifier of the component.

The identifier is initially set to `-1`, and will become a valid value when the component is initialized.

With the default executor (*holoscan.gxf.GXFExecutor*), the identifier is set to the GXF component ID.

Returns

id

initialize(*self: holoscan.gxf._gxf.GXFResource*) None

Initialize the component.

property name

The name of the resource.

Returns

name

setup(*self: holoscan.core._core.Resource*, *arg0: holoscan.core._core.ComponentSpec*) None

setup method for the resource.

property spec

class holoscan.gxf.GXFScheduler

Bases: `holoscan.core._core.Scheduler`, `holoscan.gxf._gxf.GXFComponent`

Base GXF-based scheduler class.

Attributes

args	The list of arguments associated with the component.
description	YAML formatted string describing the component.
fragment	Fragment that the scheduler belongs to.
gxf_cid	The GXF component ID.
gxf_cname	The name of the component.
gxf_context	The GXF context of the component.
gxf_eid	The GXF entity ID.
id	The identifier of the component.
name	The name of the scheduler.

clock	
spec	

Methods

add_arg (*args,	Overloaded function.

**kwargs)	
gxf_initialize (self)	Initialize the component.
initialize (self)	Initialize the scheduler.
setup (self, arg0)	setup method for the scheduler.

__init__(*args*, **kwargs*)

add_arg(*args*, **kwargs*)

Overloaded function.

1. add_arg(self: holoscan.core._core.ComponentBase, arg: holoscan.core._core.Arg) -> None

Add an argument to the component.

2. add_arg(self: holoscan.core._core.ComponentBase, arg: holoscan.core._core.ArgList) -> None

Add a list of arguments to the component.

property args

The list of arguments associated with the component.

Returns

arglist

property clock

property description

YAML formatted string describing the component.

property fragment

Fragment that the scheduler belongs to.

Returns

name

property gxf_cid

The GXF component ID.

property gxf_cname

The name of the component.

property gxf_context

The GXF context of the component.

property gxf_eid

The GXF entity ID.

gxf_initialize(*self: holoscan.gxf._gxf.GXFComponent*) None

Initialize the component.

property id

The identifier of the component.

The identifier is initially set to `-1`, and will become a valid value when the component is initialized.

With the default executor (*holoscan.gxf.GXFExecutor*), the identifier is set to the GXF component ID.

Returns

id

initialize(*self: holoscan.gxf._gxf.GXFScheduler*) None

Initialize the scheduler.

property name

The name of the scheduler.

Returns

name

setup(*self: holoscan.core._core.Scheduler*, *arg0: holoscan.core._core.ComponentSpec*) None

setup method for the scheduler.

property spec

holoscan.gxf.load_extensions(*context: int*, *extension_filenames: List[str] = []*, *manifest_filenames: List[str] = []*) None

Loads GXF extension libraries