

This module provides a Python API to underlying C++ API Conditions.

holos can.c onditi ons.A synch ronou sCon dition	Asynchronous condition class.
holos can.c onditi ons.B oolea nCon dition	Boolean condition.
holos can.c onditi ons.C ountC onditi on	Count condition.
holos can.c onditi ons.D ownst ream Mess ageAf forda bleCo nditio n	Condition that permits execution when the downstream operator can accept new messages.

holos can.c onditi ons. Mess ageAv ailabl eCon dition	Condition that permits execution when an upstream message is available.
holos can.c onditi ons.P eriodi cCon dition	Condition class to support periodic execution of operators.

class holoscan.conditions.AsynchronousCondition

Bases: holoscan.gxf._gxf.GXFCondition

Asynchronous condition class.

Used to control whether an entity is executed.

Attributes

args	The list of arguments associated with the component.
descr iptio n	YAML formatted string describing the condition.
event _stat e	Event state property
frag ment	Fragment that the condition belongs to.

gxf_ci d	The GXF component ID.
gxf_c nam e	The name of the component.
gxf_c onte xt	The GXF context of the component.
gxf_e id	The GXF entity ID.
gxf_t ypen ame	The GXF type name of the condition.
id	The identifier of the component.
nam e	The name of the condition.

spec	
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Methods

add_ arg (*args, **kwa rgs)	Overloaded function.
gxf_i nitiali ze (self)	Initialize the component.
initial ize (self)	Initialize the component.

setu p (self, s pec)

Define the component specification.

__init__(self: <u>holoscan.conditions._conditions.AsynchronousCondition</u>, fragment: holoscan.core._core.Fragment, name: str = 'noname_async_condition') None

Asynchronous condition.

Parameters

fragment

The fragment the condition will be associated with

name

The name of the condition.

add_arg(*args, **kwargs)

Overloaded function.

 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 event_state

Event state property

- AsynchronousEventState.READY
- AsynchronousEventState.WAIT
- AsynchronousEventState.EVENT_WAITING
- AsynchronousEventState.EVENT_DONE
- AsynchronousEventState.EVENT_NEVER

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: <u>holoscan.gxf_gxf.GXFComponent</u>) None

```
Initialize the component.
property gxf_typename
     The GXF type name of the condition.
     Returns
          str
          The GXF type name of the condition
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.conditions._conditions.AsynchronousCondition, spec:
holoscan.core._core.ComponentSpec) None
     Define the component specification.
```

Parameters

spec

Component specification associated with the condition.

property spec

class holoscan.conditions.AsynchronousEventState

Bases: pybind11_builtins.pybind11_object

Members:

READY

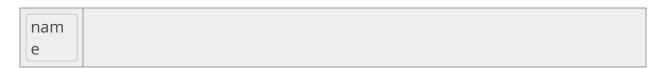
WAIT

EVENT_WAITING

EVENT_DONE

EVENT_NEVER

Attributes



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	<i>*</i> •	

EVENT_DONE = <AsynchronousEventState.EVENT_DONE: 3>

EVENT_NEVER = <AsynchronousEventState.EVENT_NEVER: 4>

EVENT_WAITING = <AsynchronousEventState.EVENT_WAITING: 2>

READY = <AsynchronousEventState.READY: 0>

WAIT = <AsynchronousEventState.WAIT: 1>

__init__(self: <u>holoscan.conditions._conditions.AsynchronousEventState</u>, value: int) None

property name

property value

class holoscan.conditions.BooleanCondition

Bases: holoscan.gxf._gxf.GXFCondition

Boolean condition.

Parameters

fragment

The fragment the condition will be associated with

enable_tick

Boolean value for the condition.

name

The name of the condition.

Attributes

args	The list of arguments associated with the component.
descr iptio n	YAML formatted string describing the condition.
frag ment	Fragment that the condition belongs to.
gxf_ci d	The GXF component ID.
gxf_c nam e	The name of the component.

gxf_c onte xt	The GXF context of the component.
gxf_e id	The GXF entity ID.
gxf_t ypen ame	The GXF type name of the condition.
id	The identifier of the component.
nam e	The name of the condition.

spec

Methods

add_ arg (*args, **kwa rgs)	Overloaded function.
chec k_tick _ena bled (self)	Check whether the condition is True.
disab le_tic k (self)	Set condition to False .
enabl e_tic k (self)	Set condition to True.

gxf_i nitiali ze (self)	Initialize the component.
initial ize (self)	Initialize the component.
setu p (self, s pec)	Define the component specification.

__init__(self: <u>holoscan.conditions._conditions.BooleanCondition</u>, fragment: holoscan.core._core.Fragment, enable_tick: bool = True, name: str = 'noname_boolean_condition') None

Boolean condition.

Parameters

fragment

The fragment the condition will be associated with

enable_tick

Boolean value for the condition.

name

The name of the condition.

add_arg(*args, **kwargs)

Overloaded function.

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

Add an argument to the component.

```
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
check tick enabled(self: holoscan.conditions. conditions.BooleanCondition)
Check whether the condition is True.
property description
YAML formatted string describing the condition.
disable tick(self: holoscan.conditions. conditions.BooleanCondition)
                                                                   None
Set condition to False .
enable_tick(self: <u>holoscan.conditions._conditions.BooleanCondition</u>)
                                                                   None
Set condition to True.
property fragment
     Fragment that the condition belongs to.
     Returns
          name
property gxf_cid
```

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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 gxf_typename
     The GXF type name of the condition.
     Returns
          str
          The GXF type name of the condition
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: <u>holoscan.conditions._conditions.BooleanCondition</u>, spec: holoscan.core._core.ComponentSpec) None

Define the component specification.

Parameters

spec

Component specification associated with the condition.

property spec

class holoscan.conditions.CountCondition

Bases: holoscan.gxf._gxf.GXFCondition

Count condition.

Parameters

fragment

The fragment the condition will be associated with

count

The execution count value used by the condition.

name

The name of the condition.

Attributes

args The list of arguments associated with the component.

coun	The execution count associated with the condition
descr iptio n	YAML formatted string describing the condition.
frag ment	Fragment that the condition belongs to.
gxf_ci d	The GXF component ID.
gxf_c nam e	The name of the component.
gxf_c onte xt	The GXF context of the component.
gxf_e id	The GXF entity ID.
gxf_t ypen ame	The GXF type name of the condition.
id	The identifier of the component.
nam	The name of the condition.

Methods

spec



gxf_i nitiali ze (self)	Initialize the component.
initial ize (self)	Initialize the component.
setu p (self, a rg0)	Define the component specification.

__init__(self: <u>holoscan.conditions._conditions.CountCondition</u>, fragment: holoscan.core._core.Fragment, count: int = 1, name: str = 'noname_count_condition') None

Count condition.

Parameters

fragment

The fragment the condition will be associated with

count

The execution count value used by the condition.

name

The name of the condition.

add_arg(*args, **kwargs)

Overloaded function.

 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 count

The execution count associated with the condition

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)
Initialize the component.
property gxf_typename
     The GXF type name of the condition.
      Returns
           str
           The GXF type name of the condition
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: <a href="holoscan.conditions.conditions">holoscan.conditions.conditions.conditions.conditions</a>, arg0:
```

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holoscan.core._core.ComponentSpec) None

Define the component specification.

Parameters

spec

Component specification associated with the condition.

property spec

class holoscan.conditions.DownstreamMessageAffordableCondition

Bases: holoscan.gxf._gxf.GXFCondition

Condition that permits execution when the downstream operator can accept new messages.

Satisfied when the receiver queue of any connected downstream operators has at least a certain number of elements free. The minimum number of messages that permits the execution of the entity is specified by *min_size*. It can be used for operators to prevent operators from sending a message when the downstream operator is not ready to receive it.

Parameters

fragment

The fragment the condition will be associated with

min_size

The minimum number of free slots present in the back buffer.

name

The name of the condition.

Attributes

args

The list of arguments associated with the component.

descr iptio n	YAML formatted string describing the condition.
frag ment	Fragment that the condition belongs to.
gxf_ci d	The GXF component ID.
gxf_c nam e	The name of the component.
gxf_c onte xt	The GXF context of the component.
gxf_e id	The GXF entity ID.
gxf_t ypen ame	The GXF type name of the condition.
id	The identifier of the component.
min_ size	The minimum number of free slots required for the downstream entity's back buffer.
nam e	The name of the condition.
trans mitte r	The transmitter associated with the condition.

spec	
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Methods

add_ arg (*args, **kwa rgs)	Overloaded function.
gxf_i nitiali ze (self)	Initialize the component.
initial ize (self)	Initialize the condition
setu p (self, s pec)	Define the component specification.

__init__(self: <u>holoscan.conditions._conditions.DownstreamMessageAffordableCondition</u>, fragment: holoscan.core._core.Fragment, min_size: int = 1, name: str = 'noname_downstream_affordable_condition') None

Condition that permits execution when the downstream operator can accept new messages.

Satisfied when the receiver queue of any connected downstream operators has at least a certain number of elements free. The minimum number of messages that permits the execution of the entity is specified by *min_size*. It can be used for operators to prevent operators from sending a message when the downstream operator is not ready to receive it.

Parameters

fragment

The fragment the condition will be associated with

min_size

The minimum number of free slots present in the back buffer.

```
name
```

The name of the condition.

```
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 gxf_typename
      The GXF type name of the condition.
      Returns
            str
            The GXF type name of the condition
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: <a href="https://holoscan.conditions._conditions.pownstreamMessageAffordableCondition">holoscan.conditions._conditions.pownstreamMessageAffordableCondition</a>)
  None
Initialize the condition
```

This method is called only once when the condition is created for the first time, and uses a light-weight initialization.

property min_size

The minimum number of free slots required for the downstream entity's back buffer.

property name

The name of the condition.

Returns

name

setup(self: <u>holoscan.conditions._conditions.DownstreamMessageAffordableCondition</u>, spec: holoscan.core._core.ComponentSpec) None

Define the component specification.

Parameters

spec

Component specification associated with the condition.

property spec

property transmitter

The transmitter associated with the condition.

class holoscan.conditions.MessageAvailableCondition

Bases: holoscan.gxf._gxf.GXFCondition

Condition that permits execution when an upstream message is available.

Satisfied when the associated receiver queue has at least a certain number of elements. The receiver is specified using the receiver parameter of the scheduling term. The minimum number of messages that permits the execution of the entity is specified by *min_size*. An optional parameter for this scheduling term is

front_stage_max_size, the maximum front stage message count. If this parameter is set, the scheduling term will only allow execution if the number of messages in the queue does not exceed this count. It can be used for operators which do not consume all messages from the queue.

Parameters

fragment

The fragment the condition will be associated with

min_size

The total number of messages over a set of input channels needed to permit execution.

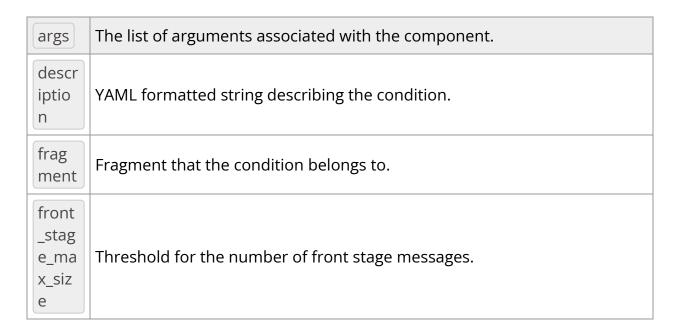
front_stage_max_size

Threshold for the number of front stage messages. Execution is only allowed if the number of front stage messages does not exceed this count.

name

The name of the condition.

Attributes



gxf_ci d	The GXF component ID.
gxf_c nam e	The name of the component.
gxf_c onte xt	The GXF context of the component.
gxf_e id	The GXF entity ID.
gxf_t ypen ame	The GXF type name of the condition.
id	The identifier of the component.
min_ size	The total number of messages over a set of input channels needed to permit execution.
nam e	The name of the condition.
recei ver	The receiver associated with the condition.

spec

Methods



gxf_i nitiali ze (self)	Initialize the component.
initial ize (self)	Initialize the condition
setu p (self, a rg0)	Define the component specification.

__init__(self: <u>holoscan.conditions._conditions.MessageAvailableCondition</u>, fragment: holoscan.core._core.Fragment, min_size: int = 1, front_stage_max_size: int = 1, name: str = 'noname_message_available_condition') None

Condition that permits execution when an upstream message is available.

Satisfied when the associated receiver queue has at least a certain number of elements. The receiver is specified using the receiver parameter of the scheduling term. The minimum number of messages that permits the execution of the entity is specified by *min_size*. An optional parameter for this scheduling term is *front_stage_max_size*, the maximum front stage message count. If this parameter is set, the scheduling term will only allow execution if the number of messages in the queue does not exceed this count. It can be used for operators which do not consume all messages from the queue.

Parameters

fragment

The fragment the condition will be associated with

min_size

The total number of messages over a set of input channels needed to permit execution.

front stage max size

Threshold for the number of front stage messages. Execution is only allowed if the number of front stage messages does not exceed this count.

name

The name of the condition.

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

Overloaded function.

 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 front_stage_max_size

Threshold for the number of front stage messages. Execution is only allowed if the number of front stage messages does not exceed this count.

```
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 gxf_typename
     The GXF type name of the condition.
     Returns
          str
```

The GXF type name of the condition

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.conditions._conditions.MessageAvailableCondition) None

Initialize the condition

This method is called only once when the condition is created for the first time, and uses a light-weight initialization.

property min_size

The total number of messages over a set of input channels needed to permit execution.

property name

The name of the condition.

Returns

name

property receiver

The receiver associated with the condition.

setup(self: <u>holoscan.conditions._conditions.MessageAvailableCondition</u>, arg0: holoscan.core._core.ComponentSpec) None

Define the component specification.

Parameters

spec

Component specification associated with the condition.

property spec

class holoscan.conditions.PeriodicCondition

Bases: holoscan.gxf._gxf.GXFCondition

Condition class to support periodic execution of operators. The recess (pause) period indicates the minimum amount of time that must elapse before the *compute()* method can be executed again. The recess period can be specified as an integer value in nanoseconds.

For example: 1000 for 1 microsecond 1000000 for 1 millisecond, and 10000000000 for 1 second.

The recess (pause) period can also be specified as a *datetime.timedelta* object representing a duration. (see https://docs.python.org/3/library/datetime.html#timedelta-objects)

For example: datetime.timedelta(minutes=1), datetime.timedelta(seconds=1), datetime.timedelta(milliseconds=1) and datetime.timedelta(microseconds=1). Supported argument names are: weeks | days | hours | minutes | seconds | millisecons | microseconds This requires *import datetime*.

Parameters

fragment

The fragment the condition will be associated with

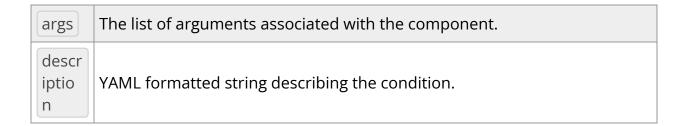
recess_period

The recess (pause) period value used by the condition. If an integer is provided, the units are in nanoseconds.

name

The name of the condition.

Attributes



frag ment	Fragment that the condition belongs to.
gxf_ci d	The GXF component ID.
gxf_c nam e	The name of the component.
gxf_c onte xt	The GXF context of the component.
gxf_e id	The GXF entity ID.
gxf_t ypen ame	The GXF type name of the condition.
id	The identifier of the component.
nam e	The name of the condition.

spec

Methods

add_ arg (*args, **kwa rgs)	Overloaded function.
gxf_i nitiali ze (self)	Initialize the component.

initial ize (self)	Initialize the component.
last_r un_ti mest amp (self)	Gets the integer representing the last run time stamp.
reces s_per iod (*args, **kwa rgs)	Overloaded function.
reces s_per iod_n s (self)	Gets the recess (pause) period value in nanoseconds.
setu p (self, a rg0)	Define the component specification.

__init__(*args, **kwargs)

Overloaded function.

- __init__(self: holoscan.conditions._conditions.PeriodicCondition, fragment: holoscan.core._core.Fragment, recess_period: int, name: str = 'noname_periodic_condition') -> None
- __init__(self: holoscan.conditions._conditions.PeriodicCondition, fragment: holoscan.core._core.Fragment, recess_period: datetime.timedelta, name: str = 'noname_periodic_condition') -> None

Condition class to support periodic execution of operators. The recess (pause) period indicates the minimum amount of time that must elapse before the

compute() method can be executed again. The recess period can be specified as an integer value in nanoseconds.

For example: 1000 for 1 microsecond 1000000 for 1 millisecond, and 1000000000 for 1 second.

The recess (pause) period can also be specified as a *datetime.timedelta* object representing a duration. (see https://docs.python.org/3/library/datetime.html#timedelta-objects)

For example: datetime.timedelta(minutes=1), datetime.timedelta(seconds=1), datetime.timedelta(milliseconds=1) and datetime.timedelta(microseconds=1). Supported argument names are: weeks | days | hours | minutes | seconds | millisecons | microseconds This requires *import datetime*.

Parameters

fragment

The fragment the condition will be associated with

recess_period

The recess (pause) period value used by the condition. If an integer is provided, the units are in nanoseconds.

name

The name of the condition.

add_arg(*args, **kwargs)

Overloaded function.

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

Add an argument to the component.

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
```

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 gxf_typename

The GXF type name of the condition.

```
Returns
           str
           The GXF type name of the condition
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.
last_run_timestamp(self: <u>holoscan.conditions._conditions.PeriodicCondition</u>)
Gets the integer representing the last run time stamp.
property name
     The name of the condition.
     Returns
           name
```

recess_period(*args, **kwargs)

Overloaded function.

recess_period(self: holoscan.conditions._conditions.PeriodicCondition, arg0: int) -> None

Sets the recess (pause) period associated with the condition. The recess period can be specified as an integer value in nanoseconds or a *datetime.timedelta* object representing a duration.

2. recess_period(self: holoscan.conditions._conditions.PeriodicCondition, arg0: datetime.timedelta) -> None

Sets the recess (pause) period associated with the condition. The recess period can be specified as an integer value in nanoseconds or a *datetime.timedelta* object representing a duration.

recess_period_ns(self: https://noisearconditions.con

Gets the recess (pause) period value in nanoseconds.

setup(self: <u>holoscan.conditions._conditions.PeriodicCondition</u>, arg0: holoscan.core._core.ComponentSpec) None

Define the component specification.

Parameters

spec

Component specification associated with the condition.

property spec

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