

# OpcShelvedStateMachineNode Class

**Namespace:** Opc.UaFx

**Assemblies:** Opc.UaFx.Advanced.dll

Defines a specialization of the [OpcFiniteStateMachineNode](#) which implements a sub-state machine that represents an advanced alarm filtering model.

**C#**

```
public class OpcShelvedStateMachineNode : OpcFiniteStateMachineNode, IOpcNode, IOpcNodeInfo
```

**Inheritance** [Object](#) > [OpcNode](#) > [OpcInstanceNode](#) > [OpcObjectNode](#) > [OpcStateMachineNode](#) > [OpcFiniteStateMachineNode](#) > [OpcShelvedStateMachineNode](#)

**Implements** [IOpcNode](#), [IOpcNodeInfo](#)

## Remarks

The state model supports two types of Shelving: OneShotShelving and TimedShelving. This includes the allowed transitions between the various sub-states. Shelving is an operator initiated activity.

In OneShotShelving, a user requests that an alarm be shelved for its current active state. This type of shelving is typically used when an alarm is continually occurring on a boundary (i.e. a condition is jumping between high alarm and high high alarm, always in the active state). The one shot shelving will automatically clear when an alarm returns to an inactive state. Another use for this type of shelving is for a plant area that is shutdown i.e. a long running alarm such as a low level alarm for a tank that is not in use. When the tank starts operation again the shelving state will automatically clear.

In TimedShelving, a user specifies that an alarm be shelved for a fixed time period. This type of shelving is quite often used to block nuisance alarms. For example, an alarm that occurs more than 10 times in a minute may get shelved for a few minutes.

In all states, the [Unshelve\(OpcContext\)](#) can be called to cause a transition to the unshelve state; this includes un-shelving an alarm that is in the timed shelf state before the time has expired and the one shot shelf state without a transition to an inactive state.

The 'Time Expired' transition is simply a system generated transition that occurs when the time value defined as part of the 'Timed Shelved Call' has expired. The 'Any Transition Occurs' transition is also a system generated transition; this transition is generated when the condition goes to an inactive state.

## Constructors

Name	Description
<code>OpcShelvedStateMachineNode(IopcNode, OpcName)</code>	Initializes a new instance of the <code>OpcShelvedStateMachineNode</code> class accessible by the <code>name</code> specified as a child node of the <code>parent</code> node given.
<code>OpcShelvedStateMachineNode(IopcNode, OpcName, OpcNodeId)</code>	Initializes a new instance of the <code>OpcShelvedStateMachineNode</code> class accessible by the <code>name</code> and <code>id</code> specified as a child node of the <code>parent</code> node given.
<code>OpcShelvedStateMachineNode(OpcName)</code>	Initializes a new instance of the <code>OpcShelvedStateMachineNode</code> class accessible by the <code>name</code> specified.
<code>OpcShelvedStateMachineNode(OpcName, OpcNodeId)</code>	Initializes a new instance of the <code>OpcShelvedStateMachineNode</code> class accessible by the <code>name</code> and <code>id</code> specified.

## Events

Name	Description
<code>AfterApplyChanges</code>	Occurs after one or more changes on the node has been notified. (Inherited from <code>OpcNode</code> )
<code>BeforeApplyChanges</code>	Occurs before one or more changes on the node are notified. (Inherited from <code>OpcNode</code> )

## Properties

Name	Description
<code>Category</code>	Gets the <code>NodeCategoryOpcAttribute</code> which identifies the kind of node and is therefore used to classify the node regarding its use and purpose. (Inherited from <code>OpcNode</code> )
<code>CurrentState</code>	Gets or sets the current state of the <code>OpcStateMachineNode</code> and provides a human readable name for the current state which may not be suitable for use in application control logic. Applications should use the <code>VariableId</code> property of the <code>CurrentStateNode</code> if they need a unique identifier for the state. (Inherited from <code>OpcStateMachineNode</code> )
<code>CurrentState</code>	Gets the current state of the <code>OpcFiniteStateMachineNode</code> and provides a human readable name for the current state which may not be suitable for use in application control logic. Applications should use the <code>VariableId</code> property of the <code>CurrentStateNode</code> if they need a unique identifier for the state. (Inherited from <code>OpcFiniteStateMachineNode</code> )
<code>CurrentStateNode</code>	Gets the <code>OpcStateVariableNode</code> of the <code>CurrentState</code> property. (Inherited from <code>OpcStateMachineNode</code> )
<code>CurrentStateNode</code>	Gets the <code>OpcFiniteStateVariableNode</code> of the <code>CurrentState</code> property. (Inherited from <code>OpcFiniteStateMachineNode</code> )
<code>DefaultReferenceTypeId</code>	Gets the default identifier which identifies the type that defines the underlying node reference within this <code>OpcInstanceNode</code> is referenced by its parent node. (Inherited from <code>OpcInstanceNode</code> )

Name	Description
DefaultReferenceTypeId	Gets the default identifier which identifies the type that defines the underlying node reference within this <a href="#">OpcInstanceNode</a> is referenced by its parent node. (Inherited from <a href="#">OpcObjectNode</a> )
DefaultTypeDefinitionId	Gets the default identifier which identifies the node that defines the underlying node type from that this <a href="#">OpcInstanceNode</a> has been created.
DefaultTypeDefinitionId	Gets the default identifier which identifies the node that defines the underlying node type from that this <a href="#">OpcInstanceNode</a> has been created. (Inherited from <a href="#">OpcInstanceNode</a> )
DefaultTypeDefinitionId	Gets the default identifier which identifies the node that defines the underlying node type from that this <a href="#">OpcInstanceNode</a> has been created. (Inherited from <a href="#">OpcObjectNode</a> )
DefaultTypeDefinitionId	Gets the default identifier which identifies the node that defines the underlying node type from that this <a href="#">OpcInstanceNode</a> has been created. (Inherited from <a href="#">OpcStateMachineNode</a> )
DefaultTypeDefinitionId	Gets the default identifier which identifies the node that defines the underlying node type from that this <a href="#">OpcInstanceNode</a> has been created. (Inherited from <a href="#">OpcFiniteStateMachineNode</a> )
Description	Gets or sets the value of the optional <a href="#">DescriptionOpcAttribute</a> which shall explain the meaning of the node. (Inherited from <a href="#">OpcNode</a> )
Descriptions	Gets the <a href="#">OpcNodeGlobalization</a> instance used to control the localization and other globalization related tasks for the <a href="#">Description</a> attribute of the current node. (Inherited from <a href="#">OpcNode</a> )
DisplayName	Gets or sets the value of the <a href="#">DisplayNameOpcAttribute</a> which defines the localizable name of the node. (Inherited from <a href="#">OpcNode</a> )
DisplayNames	Gets the <a href="#">OpcNodeGlobalization</a> instance used to control the localization and other globalization related tasks for the <a href="#">DisplayName</a> attribute of the current node. (Inherited from <a href="#">OpcNode</a> )
HasPendingChanges	Gets a value indicating whether there exists any pending change on the node. (Inherited from <a href="#">OpcNode</a> )
Id	Gets the value of the <a href="#">NodeIdOpcAttribute</a> which unambiguously identifies the node. (Inherited from <a href="#">OpcNode</a> )
LastTransition	Gets or sets the last transition which occurred in an instance and provides a human readable name for the last transition which may not be suitable for use in application control logic. Applications should use the <a href="#">VariableId</a> property of the <a href="#">LastTransitionNode</a> if they need a unique identifier for the transition. (Inherited from <a href="#">OpcStateMachineNode</a> )
LastTransition	Gets the last transition which occurred in an instance and provides a human readable name for the last transition which may not be suitable for use in application control logic. Applications should use the <a href="#">VariableId</a> property of the <a href="#">LastTransitionNode</a> if they need a unique identifier for the transition. (Inherited from <a href="#">OpcFiniteStateMachineNode</a> )
LastTransitionNode	Gets the <a href="#">OpcTransitionVariableNode</a> of the <a href="#">LastTransition</a> property. (Inherited from <a href="#">OpcStateMachineNode</a> )
LastTransitionNode	Gets the <a href="#">OpcFiniteTransitionVariableNode</a> of the <a href="#">LastTransition</a> property. (Inherited from <a href="#">OpcFiniteStateMachineNode</a> )

Name	Description
ModellingRuleId	Gets or sets the identifier which defines how the <a href="#">OpcInstanceNode</a> is used for instantiation. (Inherited from <a href="#">OpcInstanceNode</a> )
Name	Gets or sets the value of the <a href="#">BrowseNameOpcAttribute</a> which defines the non-localizable human-readable name used when browsing the address space. (Inherited from <a href="#">OpcNode</a> )
Namespace	(Inherited from <a href="#">OpcNode</a> )
OneShotShelveCallback	Gets or sets a callback used to shelve the condition node once.
OneShotShelveNode	Gets the <a href="#">OpcActionMethodNode</a> used to handle 'OneShotShelve' method calls to shelve a condition node once.
Parent	Gets the parent node of the node. (Inherited from <a href="#">OpcNode</a> )
Parent	Gets the parent node of the node. (Inherited from <a href="#">OpcInstanceNode</a> )
PendingChanges	Gets a value indicating the most recent changes performed on the node since their last notification. (Inherited from <a href="#">OpcNode</a> )
QueryEventsCallback	Gets or sets a callback used to query any event information which belongs to the node. (Inherited from <a href="#">OpcNode</a> )
ReadDescriptionCallback	(Inherited from <a href="#">OpcNode</a> )
ReadDisplayNameCallback	(Inherited from <a href="#">OpcNode</a> )
ReadUserWriteAccessCallback	(Inherited from <a href="#">OpcNode</a> )
ReadWriteAccessCallback	(Inherited from <a href="#">OpcNode</a> )
ReferenceType	Gets a value which defines a pre-defined used <a href="#">ReferenceTypeId</a> as one of the members defined by the <a href="#">OpcReferenceType</a> enumeration to simplify querying standard reference types. (Inherited from <a href="#">OpcInstanceNode</a> )
ReferenceTypeId	Gets or sets the identifier which identifies the node that defines the semantic of the reference between a source and a target node and generally reflects an operation between the two, such as "A contains B". (Inherited from <a href="#">OpcInstanceNode</a> )
SymbolicName	(Inherited from <a href="#">OpcNode</a> )
Tag	Gets or sets the object that contains additional user data about the node. (Inherited from <a href="#">OpcNode</a> )
TimedShelveCallback	Gets or sets a callback used to shelve the condition node for a specific amount of time.
TimedShelveNode	Gets the <a href="#">OpcTimedShelveMethodNode</a> used to handle 'TimedShelve' method calls to shelve a condition node for a specific amount of time.
TypeDefinitionId	Gets or sets the identifier which identifies the node that defines the underlying node type from that this <a href="#">OpcInstanceNode</a> has been created. (Inherited from <a href="#">OpcInstanceNode</a> )
UnshelveCallback	Gets or sets a callback used to unshelve the condition node.
UnshelveNode	Gets the <a href="#">OpcActionMethodNode</a> used to handle 'Unshelve' method calls to unshelve a condition node.
UnshelveTime	Gets the remaining time in milliseconds until the alarm automatically transitions into the un-shelved state.
UnshelveTimeNode	Gets the <a href="#">OpcPropertyNode</a> '1 of the <a href="#">UnshelveTime</a> property.

Name	Description
UserWriteAccess	Gets or sets the value of the optional <a href="#">UserWriteAccessOpcAttribute</a> which exposes the possibilities of a client to write the attributes of the node taking user access rights into account. (Inherited from <a href="#">OpcNode</a> )
WriteAccess	Gets or sets the value of the optional <a href="#">WriteAccessOpcAttribute</a> which exposes the possibilities of a client to write the attributes of the node. (Inherited from <a href="#">OpcNode</a> )
WriteDescriptionCallback	(Inherited from <a href="#">OpcNode</a> )
WriteDisplayNameCallback	(Inherited from <a href="#">OpcNode</a> )
WriteUserWriteAccessCallback	(Inherited from <a href="#">OpcNode</a> )
WriteWriteAccessCallback	(Inherited from <a href="#">OpcNode</a> )

## Methods

Name	Description
AddChild( <a href="#">OpcContext</a> , <a href="#">OpcInstanceNode</a> )	(Inherited from <a href="#">OpcInstanceNode</a> )
AddNotifier( <a href="#">OpcContext</a> , <a href="#">IOpcNode</a> )	(Inherited from <a href="#">OpcNode</a> )
AddNotifier( <a href="#">OpcContext</a> , <a href="#">IOpcNode</a> )	(Inherited from <a href="#">OpcObjectNode</a> )
ApplyChanges( <a href="#">OpcContext</a> )	Notifies about changes performed on the node since the last notification and resets the pending changes to <a href="#">None</a> . (Inherited from <a href="#">OpcNode</a> )
ApplyChanges( <a href="#">OpcContext</a> , <a href="#">Boolean</a> )	Notifies about changes performed on the node (and optionally on its children) since the last notification and resets the pending changes to <a href="#">None</a> . (Inherited from <a href="#">OpcNode</a> )
AttributeValue( <a href="#">OpcAttribute</a> )	Retrieves the value of the <a href="#">attribute</a> specified. (Inherited from <a href="#">OpcNode</a> )
AttributeValue`1( <a href="#">OpcAttribute</a> )	Retrieves the value of the <a href="#">attribute</a> specified. (Inherited from <a href="#">OpcNode</a> )
Child( <a href="#">OpcContext</a> , <a href="#">OpcName</a> )	Retrieves the child node its <a href="#">Name</a> property matches exactly the <a href="#">name</a> specified. (Inherited from <a href="#">OpcNode</a> )
Children( <a href="#">OpcContext</a> )	Retrieves a sequence of all nodes organized as children of this node. (Inherited from <a href="#">OpcNode</a> )
InitializeDefaults	Initializes the default values used by the node implementation represented / required. (Inherited from <a href="#">OpcNode</a> )
InitializeDefaults	Initializes the default values used by the <a href="#">OpcInstanceNode</a> . (Inherited from <a href="#">OpcInstanceNode</a> )
IsChangePending( <a href="#">OpcNodeChanges</a> )	(Inherited from <a href="#">OpcNode</a> )

Name	Description
OnAfterApplyChanges(OpcNodeChangesEventArgs)	Raises the <a href="#">AfterApplyChanges</a> event using the event data specified. (Inherited from <a href="#">OpcNode</a> )
OnBeforeApplyChanges(OpcNodeChangesEventArgs)	Raises the <a href="#">BeforeApplyChanges</a> event using the event data specified. (Inherited from <a href="#">OpcNode</a> )
OneShotShelve(OpcContext)	Shelves a condition node once using the <a href="#">context</a> specified.
OneShotShelveCore(OpcNodeContext)	Shelves a condition node once using the <a href="#">context</a> specified.
QueryEventsCore(OpcNodeContext, OpcEventCollection)	(Inherited from <a href="#">OpcNode</a> )
ReadAttributeValueCore`1(OpcReadAttributeValueContext, OpcAttributeValue)	(Inherited from <a href="#">OpcNode</a> )
RemoveChild(OpcContext, OpcInstanceNode)	(Inherited from <a href="#">OpcInstanceNode</a> )
RemoveNotifier(OpcContext, IOpcNode)	(Inherited from <a href="#">OpcNode</a> )
RemoveNotifier(OpcContext, IOpcNode)	(Inherited from <a href="#">OpcInstanceNode</a> )
RemoveNotifier(OpcContext, IOpcNode)	(Inherited from <a href="#">OpcObjectNode</a> )
ReportEvent(OpcContext, OpcEvent)	(Inherited from <a href="#">OpcNode</a> )
TimedShelve(OpcContext, TimeSpan)	Shelves a condition node for specific amount of time using the <a href="#">context</a> and <a href="#">duration</a> specified.
TimedShelveCore(OpcNodeContext, TimeSpan)	Shelves a condition node using the <a href="#">context</a> and <a href="#">duration</a> information specified.
Unshelve(OpcContext)	Unshelves a condition node using the <a href="#">context</a> specified.
UnshelveCore(OpcNodeContext)	Unshelves a condition node using the <a href="#">context</a> specified.
UpdateChanges(OpcContext, OpcNodeChanges)	Notifies about the <a href="#">changes</a> on behalf of the node and removes pending changes which intersect with the <a href="#">changes</a> specified. (Inherited from <a href="#">OpcNode</a> )
UpdateChanges(OpcContext, OpcNodeChanges, Boolean)	Notifies about the <a href="#">changes</a> on behalf of the node (and optionally on its children) and removes pending changes which intersect with the <a href="#">changes</a> specified. (Inherited from <a href="#">OpcNode</a> )
WriteAttributeValueCore`1(OpcWriteAttributeValueContext, OpcAttributeValue)	(Inherited from <a href="#">OpcNode</a> )

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