## **Generic Element-Related Methods**

Generic Elements in VisualARQ are custom parametric objects with model/plan instance definitions (blocks), position, scale, rotation. Styles define definitions; methods cover creation, mods, and checks. Similar to furniture but for general use.

AddGenericElementStyle

* Signature: Guid AddGenericElementStyle(String name, IEnumerable<string> modelInstanceDefinitionNames, IEnumerable<string> planInstanceDefinitionNames)</string></string>
* Description: Creates a new generic element style with model and plan instance definition names (blocks), returns the Guid.
* Example: from System import Array model\_defs = Array[String](["ModelDef1", "ModelDef2"]) plan\_defs = ArrayString style\_id = va.AddGenericElementStyle("MyElement", model\_defs, plan\_defs)
* Notes: Instance definition names refer to Rhino blocks. Check existence with va.GetAllGenericElementStyleIds() (returns Guid[]); use va.GetStyleName(id) for names. Use va.IsGenericElementStyle(id) to verify.

AddGenericElement

* Signature: Guid AddGenericElement(Guid styleId, Point3d position, Double scale, Double angle)
* Description: Creates a generic element at position with scale and angle using the style, returns the Guid.
* Example: pos = Point3d(0, 0, 0) element\_id = va.AddGenericElement(style\_id, pos, 1.0, 0.0) # No rotation

GetAllGenericElementStyleIds

* Signature: Guid[] GetAllGenericElementStyleIds()
* Description: Returns array of all generic element style Guids.
* Example: style\_ids = va.GetAllGenericElementStyleIds()

GetCurrentGenericElementStyle

* Signature: Guid GetCurrentGenericElementStyle()
* Description: Gets the current/default generic element style Guid.
* Example: current\_id = va.GetCurrentGenericElementStyle()

SetCurrentGenericElementStyle

* Signature: Boolean SetCurrentGenericElementStyle(Guid styleId)
* Description: Sets the current/default generic element style. Returns True on success.
* Example: success = va.SetCurrentGenericElementStyle(style\_id)

GetGenericElementStyleId

* Signature: Guid GetGenericElementStyleId(String name)
* Description: Gets the generic element style Guid by name.
* Example: style\_id = va.GetGenericElementStyleId("MyElement")

GetGenericElementPosition

* Signature: Point3d GetGenericElementPosition(Guid elementId)
* Description: Gets the position of a generic element instance.
* Example: pos = va.GetGenericElementPosition(element\_id)

SetGenericElementPosition

* Signature: Boolean SetGenericElementPosition(Guid elementId, Point3d newPosition)
* Description: Sets the position of a generic element instance. Returns True on success.
* Example: new\_pos = Point3d(5, 5, 0) success = va.SetGenericElementPosition(element\_id, new\_pos)

GetGenericElementRotation

* Signature: Double GetGenericElementRotation(Guid elementId)
* Description: Gets the rotation (radians) of a generic element instance.
* Example: rotation = va.GetGenericElementRotation(element\_id)

SetGenericElementRotation

* Signature: Boolean SetGenericElementRotation(Guid elementId, Double newAngle)
* Description: Sets the rotation of a generic element instance. Returns True on success.
* Example: success = va.SetGenericElementRotation(element\_id, math.pi / 2) # 90 degrees

GetGenericElementScale

* Signature: Double GetGenericElementScale(Guid elementId)
* Description: Gets the scale of a generic element instance.
* Example: scale = va.GetGenericElementScale(element\_id)

SetGenericElementScale

* Signature: Boolean SetGenericElementScale(Guid elementId, Double newScale)
* Description: Sets the scale of a generic element instance. Returns True on success.
* Example: success = va.SetGenericElementScale(element\_id, 1.5)

IsGenericElement

* Signature: Boolean IsGenericElement(Guid id)
* Description: Checks if the Guid is a generic element instance.
* Example: is\_element = va.IsGenericElement(id)

IsGenericElementStyle

* Signature: Boolean IsGenericElementStyle(Guid id)
* Description: Checks if the Guid is a generic element style.
* Example: is\_style = va.IsGenericElementStyle(id)

DeleteStyle

* Signature: Boolean DeleteStyle(Guid styleId)
* Description: Deletes a generic element style. Returns True on success.
* Example: success = va.DeleteStyle(style\_id)

RenameStyle

* Signature: Boolean RenameStyle(Guid styleId, String newName)
* Description: Renames a generic element style. Returns True on success.
* Example: success = va.RenameStyle(style\_id, "NewElementStyle")

GetStyleName

* Signature: String GetStyleName(Guid styleId)
* Description: Gets the name of a generic element style.
* Example: name = va.GetStyleName(style\_id)

## **Furniture-Related Methods**

Furniture in VisualARQ are parametric objects with model/plan blocks for representation, position, scale, rotation. Styles define blocks; methods cover creation, mods, and checks.

AddFurnitureStyle

* Signature: Guid AddFurnitureStyle(String name, IEnumerable<string> modelBlockNames, IEnumerable<string> planBlockNames)</string></string>
* Description: Creates a new furniture style with model and plan block names, returns the Guid.
* Example: from System import Array model\_blocks = Array[String](["Block1", "Block2"]) plan\_blocks = ArrayString style\_id = va.AddFurnitureStyle("MyFurniture", model\_blocks, plan\_blocks)
* Notes: Block names refer to Rhino blocks. Check existence with va.GetAllFurnitureStyleIds() (returns Guid[]); use va.GetStyleName(id) for names. Use va.IsFurnitureStyle(id) to verify.

AddFurniture

* Signature: Guid AddFurniture(Guid styleId, Point3d position, Double scale, Double angle)
* Description: Creates a furniture at position with scale and angle using the style, returns the Guid.
* Example: pos = Point3d(0, 0, 0) furniture\_id = va.AddFurniture(style\_id, pos, 1.0, 0.0) # No rotation

GetAllFurnitureStyleIds

* Signature: Guid[] GetAllFurnitureStyleIds()
* Description: Returns array of all furniture style Guids.
* Example: style\_ids = va.GetAllFurnitureStyleIds()

GetCurrentFurnitureStyle

* Signature: Guid GetCurrentFurnitureStyle()
* Description: Gets the current/default furniture style Guid.
* Example: current\_id = va.GetCurrentFurnitureStyle()

SetCurrentFurnitureStyle

* Signature: Boolean SetCurrentFurnitureStyle(Guid styleId)
* Description: Sets the current/default furniture style. Returns True on success.
* Example: success = va.SetCurrentFurnitureStyle(style\_id)

GetFurnitureStyleId

* Signature: Guid GetFurnitureStyleId(String name)
* Description: Gets the furniture style Guid by name.
* Example: style\_id = va.GetFurnitureStyleId("MyFurniture")

GetFurniturePosition

* Signature: Point3d GetFurniturePosition(Guid furnitureId)
* Description: Gets the position of a furniture instance.
* Example: pos = va.GetFurniturePosition(furniture\_id)

SetFurniturePosition

* Signature: Boolean SetFurniturePosition(Guid furnitureId, Point3d newPosition)
* Description: Sets the position of a furniture instance. Returns True on success.
* Example: new\_pos = Point3d(5, 5, 0) success = va.SetFurniturePosition(furniture\_id, new\_pos)

GetFurnitureRotation

* Signature: Double GetFurnitureRotation(Guid furnitureId)
* Description: Gets the rotation (radians) of a furniture instance.
* Example: rotation = va.GetFurnitureRotation(furniture\_id)

SetFurnitureRotation

* Signature: Boolean SetFurnitureRotation(Guid furnitureId, Double newAngle)
* Description: Sets the rotation of a furniture instance. Returns True on success.
* Example: success = va.SetFurnitureRotation(furniture\_id, math.pi / 2) # 90 degrees

GetFurnitureScale

* Signature: Double GetFurnitureScale(Guid furnitureId)
* Description: Gets the scale of a furniture instance.
* Example: scale = va.GetFurnitureScale(furniture\_id)

SetFurnitureScale

* Signature: Boolean SetFurnitureScale(Guid furnitureId, Double newScale)
* Description: Sets the scale of a furniture instance. Returns True on success.
* Example: success = va.SetFurnitureScale(furniture\_id, 1.5)

IsFurniture

* Signature: Boolean IsFurniture(Guid id)
* Description: Checks if the Guid is a furniture instance.
* Example: is\_furniture = va.IsFurniture(id)

IsFurnitureStyle

* Signature: Boolean IsFurnitureStyle(Guid id)
* Description: Checks if the Guid is a furniture style.
* Example: is\_style = va.IsFurnitureStyle(id)

DeleteStyle

* Signature: Boolean DeleteStyle(Guid styleId)
* Description: Deletes a furniture style. Returns True on success.
* Example: success = va.DeleteStyle(style\_id)

RenameStyle

* Signature: Boolean RenameStyle(Guid styleId, String newName)
* Description: Renames a furniture style. Returns True on success.
* Example: success = va.RenameStyle(style\_id, "NewFurnitureStyle")

GetStyleName

* Signature: String GetStyleName(Guid styleId)
* Description: Gets the name of a furniture style.
* Example: name = va.GetStyleName(style\_id)