Geometry: Solid

Geometry

Functions

afx_msg void	**OSGeometryUI::CreateSolid** (const VARIANT FAR &nSolidNo, const VARIANT FAR &nNodeA, const VARIANT FAR &nNodeB, const VARIANT FAR &nNodeC, const VARIANT FAR &nNodeD, const VARIANT FAR &nNodeE, const VARIANT FAR &nNodeF, const VARIANT FAR &nNodeG, const VARIANT FAR &nNodeH) Creates a plate with specified existing nodes in current model.
afx_msg VARIANT	**OSGeometryUI::AddSolid** (const VARIANT FAR &nNodeA, const VARIANT FAR &nNodeB, const VARIANT FAR &nNodeC, const VARIANT FAR &nNodeD, const VARIANT FAR &nNodeE, const VARIANT FAR &nNodeF, const VARIANT FAR &nNodeG, const VARIANT FAR &nNodeH) Adds a solid with specified existing nodes in current model, and returns the solid number ID automatically assigned with.
afx_msg void	**OSGeometryUI::DeleteSolid** (const VARIANT FAR &nSolidNo) Delete a specified solid.
afx_msg VARIANT	**OSGeometryUI::GetLastSolidNo** () Returns the solid number ID of the last solid in the model.
afx_msg VARIANT	**OSGeometryUI::GetNoOfSelectedSolids** () Returns the number of selected solid(s).
afx_msg void	**OSGeometryUI::GetSelectedSolids** (VARIANT FAR &naSolidNos, VARIANT FAR &nIsSorted) Returns a list of selected solid(s).
afx_msg VARIANT	**OSGeometryUI::SelectMultipleSolids** (const VARIANT FAR &naSolidNos) Selects multiple solid(s) in current model.
afx_msg VARIANT	**OSGeometryUI::SelectSolid** (const VARIANT FAR &nSolidNo) Selects the specified solid in current model.
afx_msg void	**OSGeometryUI::AddMultipleSolids** (const VARIANT FAR &naIncidences) Add multiple solids in the structure.
afx_msg VARIANT	**OSGeometryUI::GetSolidCount** () Returns the total number of solids in the current model.
afx_msg void	**OSGeometryUI::GetSolidList** (VARIANT FAR &nSolidList) Returns a list of all the solid ID(s) the current model.
afx_msg VARIANT	**OSGeometryUI::GetSolidIncidence** (const VARIANT FAR &nSolidNo, VARIANT FAR &nNodeA, VARIANT FAR &nNodeB, VARIANT FAR &nNodeC, VARIANT FAR &nNodeD, VARIANT FAR &nNodeE, VARIANT FAR &nNodeF, VARIANT FAR &nNodeG, VARIANT FAR &nNodeH)

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	Returns the number ID(s) of connecting node(s) for specified solid.
afx_msg void	**OSGeometryUI::ClearSolidSelection** () Unselect all the solid item(s).
afx_msg void	**OSGeometryUI::SetSolidUniqueID** (const VARIANT FAR &nSolidNo, const VARIANT FAR &szName) Assigns an unique string ID (GUID) to specified solid.
afx_msg VARIANT	**OSGeometryUI::GetSolidUniqueID** (const VARIANT FAR &nSolidNo) Returns the unique string ID (GUID) for specified solid.
afx_msg VARIANT	**OSGeometryUI::GetSolidIncidence_CIS2** (const VARIANT FAR &nSolidNo, VARIANT FAR &szName, VARIANT FAR &nNodeA, VARIANT FAR &nNodeB, VARIANT FAR &nNodeC, VARIANT FAR &nNodeD, VARIANT FAR &nNodeE, VARIANT FAR &nNodeF, VARIANT FAR &nNodeG, VARIANT FAR &nNodeH) Returns the number ID(s) of connecting node(s) for specified solid.

Detailed Description

These functions are related to operations of creating, adding, getting and deleting solid(s).

Function Documentation

◆ AddMultipleSolids()

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void OSGeometryUI::AddMultipleSolids (const VARIANT FAR & naIncidences) private

Add multiple solids in the structure.

Parameters

[in] **naIncidences** Long array of m * 8 dimension containing solid connectivity: [$NodeA_i$, $NodeB_i$, ..., $NodeH_i$).

C++ Syntax

```
// Add multiple solids.
OSGeometryUI::AddMultipleSolids(naIncidences);
```

VBA Syntax

```
' Add multiple solids.
OSGeometryUI.AddMultipleSolids(naIncidences)
```

See also

OSGeometryUI::CreateSolid

OSGeometryUI::AddSolid

OSGeometryUI::DeleteSolid

◆ AddSolid()

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```
VARIANT OSGeometryUI::AddSolid ( const VARIANT FAR & nNodeA,
                                 const VARIANT FAR & nNodeB,
                                 const VARIANT FAR & nNodeC,
                                 const VARIANT FAR & nNodeD,
                                 const VARIANT FAR & nNodeE,
                                 const VARIANT FAR & nNodeF,
                                 const VARIANT FAR & nNodeG,
                                 const VARIANT FAR & nNodeH )
```

private

Adds a solid with specified existing nodes in current model, and returns the solid number ID automatically assigned with.

Parameters

[in] **nNodeA** Number ID of end node (**node$_A$**) for solid connectivity.

[in] **nNodeB** Number ID of end node (**node$_B$**) for solid connectivity.

[in] **nNodeC** Number ID of end node (**node$_C$**) for solid connectivity.

[in] **nNodeD** Number ID of end node (**node$_D$**) for solid connectivity.

[in] **nNodeE** Number ID of end node (**node$_E$**) for solid connectivity.

[in] **nNodeF** Number ID of end node (**node$_F$**) for solid connectivity.

[in] **nNodeG** Number ID of end node (**node$_G$**) for solid connectivity.

[in] **nNodeH** Number ID of end node (**node$_H$**) for solid connectivity.

Return values

Id number of the added solid entity

-1 General error.

-2001 Cannot find Node(s).

-5004 Unable to add solid.

C++ Syntax

```
long nNodeA = 2;
long nNodeB = 4;
long nNodeC = 5;
long nNodeD = 6;
long nNodeE = 9;
long nNodeF = 10;
long nNodeG = 11;
long nNodeH = 12;
// Add a solid connected between nodes 2, 4, 5, 6 and 9, 10, 11, 12.
VARIANT RetVal = OSGeometryUI::AddSolid(nNodeA, nNodeB, nNodeC, nNodeD, nNodeE, nNodeF,
        nNodeG, nNodeH);
```

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VBA Syntax

```
Dim nNodeA As Long = 2
Dim nNodeB As Long = 4
Dim nNodeC As Long = 5
Dim nNodeD As Long = 6
Dim nNodeE As Long = 9
Dim nNodeF As Long = 10
Dim nNodeG As Long = 11
Dim nNodeH As Long = 12
' Add a solid connected between nodes 2, 4, 5, 6 and 9, 10, 11, 12.
Dim RetVal As VARIANT = OSGeometryUI.AddSolid(nNodeA, nNodeB, nNodeC, nNodeD, nNodeE,
        nNodeF, nNodeG, nNodeH)
```

Remarks

The difference between **OSGeometryUI::CreateSolid** CreateSolid and **OSGeometryUI::AddSolid** AddSolid is the former has an option to label the node with any user-defined number.

See also

OSGeometryUI::CreateSolid

OSGeometryUI::DeleteSolid

OSGeometryUI::AddMultipleSolids

◆ ClearSolidSelection()

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void OSGeometryUI::ClearSolidSelection ( ) private

Unselect all the solid item(s).

Return values

0 OK.

C++ Syntax

```
// Clear Solid Selection
OSGeometryUI::ClearSolidSelection();
```

VBA Syntax

```
' Clear Solid Selection
OSGeometryUI.ClearSolidSelection()
```

See also

OSGeometryUI::SelectSolid

OSGeometryUI::SelectMultipleSolids

OSGeometryUI::GetSelectedSolids

◆ CreateSolid()

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```
void OSGeometryUI::CreateSolid ( const VARIANT FAR & nSolidNo,
                                 const VARIANT FAR & nNodeA,
                                 const VARIANT FAR & nNodeB,
                                 const VARIANT FAR & nNodeC,
                                 const VARIANT FAR & nNodeD,
                                 const VARIANT FAR & nNodeE,
                                 const VARIANT FAR & nNodeF,
                                 const VARIANT FAR & nNodeG,
                                 const VARIANT FAR & nNodeH )
```

private

Creates a plate with specified existing nodes in current model.

Parameters

[in] **nSolidNo** Solid number ID to be assigned to the newly created plate.

[in] **nNodeA** Number ID of end node (**node$_A$**) for solid connectivity.

[in] **nNodeB** Number ID of end node (**node$_B$**) for solid connectivity.

[in] **nNodeC** Number ID of end node (**node$_C$**) for solid connectivity.

[in] **nNodeD** Number ID of end node (**node$_D$**) for solid connectivity.

[in] **nNodeE** Number ID of end node (**node$_E$**) for solid connectivity.

[in] **nNodeF** Number ID of end node (**node$_F$**) for solid connectivity.

[in] **nNodeG** Number ID of end node (**node$_G$**) for solid connectivity.

[in] **nNodeH** Number ID of end node (**node$_H$**) for solid connectivity.

C++ Syntax

```
long nNodeA = 2;
long nNodeB = 4;
long nNodeC = 5;
long nNodeD = 6;
long nNodeE = 9;
long nNodeF = 10;
long nNodeG = 11;
long nNodeH = 12;
// Create a solid connected between nodes 2, 4, 5, 6 and 9, 10, 11, 12. Call it Solid #
       99.
OSGeometryUI::CreateSolid(99, nNodeA, nNodeB, nNodeC, nNodeD, nNodeE, nNodeF, nNodeG,
       nNodeH);
```

VBA Syntax

```
Dim nNodeA As Long = 2
Dim nNodeB As Long = 4
```

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```
Dim nNodeE As Long = 9
Dim nNodeF As Long = 10
Dim nNodeG As Long = 11
Dim nNodeH As Long = 12
' Create a solid connected between nodes 2, 4, 5, 6 and 9, 10, 11, 12. Call it Solid #
       99.
OSGeometryUI.CreatePlate (99, nNodeA, nNodeB, nNodeC, nNodeD, nNodeE, nNodeF, nNodeG,
       nNodeH)
```

Remarks

The difference between **OSGeometryUI::CreateSolid** CreateSolid and **OSGeometryUI::AddSolid** AddSolid is the former has an option to label the node with any user-defined number.

Note

If geometry update flag is set, this function will update the solid element incidence using the input node numbers.

See also

OSGeometryUI::AddSolid

OSGeometryUI::DeleteSolid

OSGeometryUI::AddMultipleSolids

◆ DeleteSolid()

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void OSGeometryUI::DeleteSolid (const VARIANT FAR & nSolidNo) private

Delete a specified solid.

Parameters

[in] **nSolidNo** Solid number ID.

C++ Syntax

```
long nSolidNo = 25;
//Delete solid element #25
OSGeometryUI::DeleteSolid(nSolidNo);
```

VBA Syntax

```
Dim nSolidNo As Long = 25
' Delete Solid #25.
OSGeometryUI.DeleteSolid(nSolidNo)
```

See also

OSGeometryUI::CreateSolid

OSGeometryUI::AddSolid

OSGeometryUI::AddMultipleSolids

◆ GetLastSolidNo()

VARIANT OSGeometryUI::GetLastSolidNo ( ) private

Returns the solid number ID of the last solid in the model.

Return values

<Val> The number of the highest solid number ID in the model

-1 General error.

C++ Syntax

```
// Get last solid #.
VARIANT LastSolidNo = OSGeometryUI::GetLastSolidNo();
```

VBA Syntax

```
' Get last solid #.
Dim LastSolidNo As VARIANT = OSGeometryUI.GetLastSolidNo()
```

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◆ GetNoOfSelectedSolids()

VARIANT OSGeometryUI::GetNoOfSelectedSolids ( )

private

Returns the number of selected solid(s).

Returns

The number of selected plate(s).

C++ Syntax

```
// Counts for the total number of solid(s) selected.
VARIANT NoOfSelectedSolids = OSGeometryUI::GetNoOfSelectedSolids();
```

VBA Syntax

```
' Counts for the total number of solid(s) selected.
Dim NoOfSelectedSolids As VARIANT = OSGeometryUI.GetNoOfSelectedSolids()
```

See also

OSGeometryUI::SelectSolid

OSGeometryUI::ClearSolidSelection

OSGeometryUI::SelectMultipleSolids

OSGeometryUI::GetSelectedSolids

◆ GetSelectedSolids()

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void OSGeometryUI::GetSelectedSolids (VARIANT FAR & naSolidNos,
VARIANT FAR & nIsSorted) private

Returns a list of selected solid(s).

Parameters

[out] **naSolidNos** Returned selected solid number ID(s) VARIANAT array.

[in] **nIsSorted** The order of the selection(s): in sorted order (= 1), in the order of selection (= 0).

C++ Syntax

```
// Get selected solid list in the order of selection.
OSGeometryUI::GetSelectedSolids(&naSolidNos, 0);
```

VBA Syntax

```
' Get selected solid list in the order of selection.
OSGeometryUI.GetSelectedSolids(&naSolidNos, 0)
```

See also

OSGeometryUI::SelectSolid

OSGeometryUI::ClearSolidSelection

OSGeometryUI::SelectMultipleSolids

OSGeometryUI::GetNoOfSelectedSolids

◆ GetSolidCount()

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VARIANT OSGeometryUI::GetSolidCount ( )

private

Returns the total number of solids in the current model.

Return values

<Val> The total number of solid(s).

C++ Syntax

```
// Count for solids
VARIANT  lSolidCount = OSGeometryUI::GetSolidCount();
```

VBA Syntax

```
' Count for the plates.
Dim lSolidCount As VARIANT = OSGeometryUI.GetSolidCount()
```

See also

OSGeometryUI::GetSolidList

◆ GetSolidIncidence()

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```
VARIANT OSGeometryUI::GetSolidIncidence ( const VARIANT FAR & nSolidNo,
                                          VARIANT FAR &       nNodeA,
                                          VARIANT FAR &       nNodeB,
                                          VARIANT FAR &       nNodeC,
                                          VARIANT FAR &       nNodeD,
                                          VARIANT FAR &       nNodeE,
                                          VARIANT FAR &       nNodeF,
                                          VARIANT FAR &       nNodeG,
                                          VARIANT FAR &       nNodeH )
```

private

Returns the number ID(s) of connecting node(s) for specified solid.

Parameters

[in] **nSolidNo** Solid number ID.

[out] **nNodeA** Number ID of end node (**node$_A$**).

[out] **nNodeB** Number ID of end node (**node$_B$**).

[out] **nNodeC** Number ID of end node (**node$_C$**).

[out] **nNodeD** Number ID of end node (**node$_D$**).

[out] **nNodeE** Number ID of end node (**node$_E$**).

[out] **nNodeF** Number ID of end node (**node$_F$**).

[out] **nNodeG** Number ID of end node (**node$_G$**).

[out] **nNodeH** Number ID of end node (**node$_H$**).

C++ Syntax

```
// Get nodes of solid # 5.
VARIANT RetVal = OSGeometryUI::GetSolidIncidence(5, &pnNodeA, &pnNodeB, &pnNodeC,
       &pnNodeD, &pnNodeE, &pnNodeF, &pnNodeG, &pnNodeH);
```

VBA Syntax

```
' Get nodes of plate # 5.
Dim RetVal As VARIANT = OSGeometryUI.GetSolidIncidence(5, &pnNodeA, &pnNodeB, &pnNodeC,
       &pnNodeD, &pnNodeE, &pnNodeF, &pnNodeG, &pnNodeH)
```

See also

OSGeometryUI::GetSelectedSolids

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```
VARIANT OSGeometryUI::GetSolidIncidence_CIS2 ( const VARIANT FAR & nSolidNo,
                                               VARIANT FAR &       szName,
                                               VARIANT FAR &       nNodeA,
                                               VARIANT FAR &       nNodeB,
                                               VARIANT FAR &       nNodeC,
                                               VARIANT FAR &       nNodeD,
                                               VARIANT FAR &       nNodeE,
                                               VARIANT FAR &       nNodeF,
                                               VARIANT FAR &       nNodeG,
                                               VARIANT FAR &       nNodeH )
```

private

Returns the number ID(s) of connecting node(s) for specified solid.

Parameters

[in] **nSolidNo** Solid number ID.

[out] **szName** (LPCTSTR) unique string ID.

[out] **nNodeA** Number ID of end node (**node$_A$**).

[out] **nNodeB** Number ID of end node (**node$_B$**).

[out] **nNodeC** Number ID of end node (**node$_C$**).

[out] **nNodeD** Number ID of end node (**node$_D$**).

[out] **nNodeE** Number ID of end node (**node$_E$**).

[out] **nNodeF** Number ID of end node (**node$_F$**).

[out] **nNodeG** Number ID of end node (**node$_G$**).

[out] **nNodeH** Number ID of end node (**node$_H$**).

C++ Syntax

```
// Get nodes of solid # 5.
VARIANT RetVal = OSGeometryUI::GetSolidIncidence_CIS2(5, &szName, &pnNodeA, &pnNodeB,
       &pnNodeC, &pnNodeD, &pnNodeE, &pnNodeF, &pnNodeG, &pnNodeH);
```

VBA Syntax

```
' Get nodes of solid # 5.
Dim RetVal As VARIANT = OSGeometryUI.GetSolidIncidence_CIS2(5, &szName, &pnNodeA,
       &pnNodeB, &pnNodeC, &pnNodeD, &pnNodeE, &pnNodeF, &pnNodeG, &pnNodeH)
```

See also

OSGeometryUI::GetSelectedSolids

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◆ GetSolidList()

void OSGeometryUI::GetSolidList (VARIANT FAR & nSolidList) private

Returns a list of all the solid ID(s) the current model.

Parameters

[out] **nSolidList** VARIANT array of LONG type, for storing returned solid number ID(s).

C++ Syntax

```
// Get solids list
OSGeometryUI::GetSolidList(&nSolidList);
```

VBA Syntax

```
' Get solids list.
OSGeometryUI.GetSolidList(&nSolidList)
```

See also

OSGeometryUI::GetSolidCount

◆ GetSolidUniqueID()

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VARIANT OSGeometryUI::GetSolidUniqueID (const VARIANT FAR & nSolidNo) private

Returns the unique string ID (GUID) for specified solid.

Parameters

[in] **nSolidNo** Solid number ID.

Return values

<VARIANT> Unique string ID for specified solid.

The API would return an empty string if specified solid < **nSolidNo** > is *not* found

C++ Syntax

```
// Get the unique ID of solid #3.
VARIANT szName = OSGeometryUI::GetSolidUniqueID(3);
```

VBA Syntax

```
' Get the unique ID of solid #3.
Dim szName As VARIANT = OSGeometryUI.GetSolidUniqueID(3)
```

See also

OSGeometryUI::GetSolidUniqueID

◆ SelectMultipleSolids()

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VARIANT OSGeometryUI::SelectMultipleSolids (const VARIANT FAR & naSolidNos) private

Selects multiple solid(s) in current model.

Parameters

[in] **naSolidNos** Solid number ID(s) VARIANT array (type - Long/Integer).

Return values

0 Failed

1 Succeeded

C++ Syntax

```
// Select multiple solids.
OSGeometryUI::SelectMultipleSolids(naSolidNos);
```

VBA Syntax

```
Option Explicit
    Sub Main
        Dim objOpenStaad As Object
        Dim stdFile As String
        'launch STAAD.Pro application and open "Verification Models\02 Trusses\Roof Truss
       Axial Forces.STD" file from the Samples folder
        Set objOpenStaad = GetObject(,"StaadPro.OpenSTAAD")
        objOpenStaad.GetSTAADFile stdFile, "TRUE"
        If stdFile="" Then
            MsgBox"Bad"
            Set objOpenStaad = Nothing
            Exit Sub
        End If
        Dim Objs(1) As Long
        Objs(0)=5
        Objs(1)=10
        Dim bRes As Boolean
        bRes = objOpenStaad.Geometry.SelectMultipleSolids( Objs)
        If bRes Then
            MsgBox"Success"
        Else
            MsgBox"Failed"
        End If
    End Sub
```

See also

OSGeometryUI::SelectSolid

OSGeometryUI::ClearSolidSelection

OSGeometryUI::GetNoOfSelectedSolids

OSGeometryUI::GetSelectedSolids

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◆ SelectSolid()

VARIANT OSGeometryUI::SelectSolid (const VARIANT FAR & nSolidNo) private

Selects the specified solid in current model.

Parameters

[in] **nSolidNo** Solid number ID.

C++ Syntax

```
//Select solid # 3.
OSGeometryUI::SelectSolid(3);
```

VBA Syntax

```
' Select solid # 3.
OSGeometryUI.SelectSolid(3)
```

See also

OSGeometryUI::SelectMultipleSolids

OSGeometryUI::ClearSolidSelection

OSGeometryUI::GetNoOfSelectedSolids

OSGeometryUI::GetSelectedSolids

◆ SetSolidUniqueID()

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void OSGeometryUI::SetSolidUniqueID (const VARIANT FAR & nSolidNo,
const VARIANT FAR & szName) private

Assigns an unique string ID (GUID) to specified solid.

Parameters

[in] **nSolidNo** Solid number ID.

[in] **szName** (LPCTSTR) unique string ID.

C++ Syntax

```
// Set "SOLIDSP" to solid #3.
OSGeometryUI::SetSolidUniqueID(3, (LPCTSTR)"SOLIDSP");
```

VBA Syntax

```
' Set "SOLIDSP" to solid #3.
OSGeometryUI.SetSolidUniqueID(3, "SOLIDSP")
```

See also

OSGeometryUI::GetSolidUniqueID

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