Geometry: Plate

Geometry

Functions

afx_msg void	**OSGeometryUI::CreatePlate** (const VARIANT FAR &nPlateNo, const VARIANT FAR &nNodeA, const VARIANT FAR &nNodeB, const VARIANT FAR &nNodeC, const VARIANT FAR &nNodeD) Creates a plate with specified existing nodes in current model.
afx_msg VARIANT	**OSGeometryUI::AddPlate** (const VARIANT FAR &nNodeA, const VARIANT FAR &nNodeB, const VARIANT FAR &nNodeC, const VARIANT FAR &nNodeD) Adds a plate with specified existing nodes in current model, and returns the plate number ID automatically assigned with.
afx_msg void	**OSGeometryUI::DeletePlate** (const VARIANT FAR &nPlateNo) Delete a specified plate.
afx_msg VARIANT	**OSGeometryUI::GetLastPlateNo** () Returns the plate number ID of the last plate in the model.
afx_msg VARIANT	**OSGeometryUI::GetNoOfSelectedPlates** () Returns the number of selected plate(s).
afx_msg void	**OSGeometryUI::GetSelectedPlates** (VARIANT FAR &naPlateNos, VARIANT FAR &nIsSorted) Returns a list of selected plate(s).
afx_msg VARIANT	**OSGeometryUI::SelectMultiplePlates** (const VARIANT FAR &naPlateNos) Selects multiple plate(s) in current model.
afx_msg VARIANT	**OSGeometryUI::SelectPlate** (const VARIANT FAR &nPlateNo) Selects the specified plate in current model.
afx_msg void	**OSGeometryUI::CreateMultiplePlates** (const VARIANT FAR &nPlateIds, const VARIANT FAR &nPlateIncidences) Create multiple plates with specified node number ID(s).
afx_msg void	**OSGeometryUI::AddMultiplePlates** (const VARIANT FAR &naIncidences) Add multiple plates with specified node number ID(s).
afx_msg VARIANT	**OSGeometryUI::GetPlateCount** () Returns the total number of plates in the current model. Note: Count of plates can vary depending upon the flag set for consideration of hidden entities (see **OSGeometryUI::SetFlagForHiddenEntities**).
afx_msg void	**OSGeometryUI::GetPlateList** (VARIANT FAR &nPlateList) Returns a list of all the plate ID(s) the current model. Note: List of plates can be different depending upon the flag set for consideration of hidden entities (see **OSGeometryUI::SetFlagForHiddenEntities**).

afx_msg VARIANT	**OSGeometryUI::GetPlateIncidence** (const VARIANT FAR &nPlateNo, VARIANT FAR &nNodeA, VARIANT FAR &nNodeB, VARIANT FAR &nNodeC, VARIANT FAR &nNodeD) Returns the number ID(s) of connecting node(s) for specified plate.
afx_msg void	**OSGeometryUI::ClearPlateSelection** () Unselect all the plate item(s).
afx_msg void	**OSGeometryUI::SetPlateUniqueID** (const VARIANT FAR &nPlateNo, const VARIANT FAR &szName) Assigns an unique string ID (GUID) to specified plate.
afx_msg VARIANT	**OSGeometryUI::GetPlateUniqueID** (const VARIANT FAR &nPlateNo) Returns the unique string ID (GUID) for specified plate.
afx_msg VARIANT	**OSGeometryUI::GetPlateIncidence_CIS2** (const VARIANT FAR &nPlateNo, VARIANT FAR &szName, VARIANT FAR &nNodeA, VARIANT FAR &nNodeB, VARIANT FAR &nNodeC, VARIANT FAR &nNodeD) Returns the number ID(s) of connecting node(s) for specified plate.
afx_msg VARIANT	**OSGeometryUI::GetPlateNodeCount** (const VARIANT FAR &varnPlateNo) Returns the number of nodes provided with for plate connectivity.
afx_msg VARIANT	**OSGeometryUI::GetAreaOfPlates** (const VARIANT FAR &varPlateNos, VARIANT FAR &varPlatesArea) Returns an array of areas of specified plates.

Detailed Description

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

Function Documentation

◆ AddMultiplePlates()

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

Add multiple plates with specified node number ID(s).

Parameters

[in] **naIncidences** VARIANT array of m * 4 dimension containing plate connectivity: [$NodeA_i$, $NodeB_i$, $NodeC_i$, $NodeD_i$].

C++ Syntax

```
// Add multiple plates.
OSGeometryUI::AddMultiplePlates(naIncidences);
```

VBA Syntax

```
' Add multiple plates.
OSGeometryUI.AddMultiplePlates(naIncidences)
```

See also

OSGeometryUI::CreatePlate

OSGeometryUI::AddPlate

OSGeometryUI::DeletePlate

◆ AddPlate()

VARIANT OSGeometryUI::AddPlate (const VARIANT FAR & nNodeA,
const VARIANT FAR & nNodeB,
const VARIANT FAR & nNodeC,
const VARIANT FAR & nNodeD) private

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

Parameters

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

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

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

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

Return values

0 OK.

-1 General error.

-2001 Cannot find Node(s).

-4004 Unable to add plate.

C++ Syntax

```
long nNodeA = 2;
long nNodeB = 3;
long nNodeC = 4;
long nNodeD = 5;
// Add a plate between node 2, 3, 4 and 5.
VARIANT RetVal = OSGeometryUI::AddPlate(nNodeA, nNodeB, nNodeC, nNodeD);
```

VBA Syntax

```
Dim nNodeA As Long = 2
Dim nNodeB As Long = 3
Dim nNodeC As Long = 4
Dim nNodeD As Long = 5
' Add a plate between node 2, 3, 4 and 5.
Dim RetVal As VARIANT = OSGeometryUI.AddPlate(nNodeA, nNodeB, nNodeC, nNodeD)
```

Remarks

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

See also

OSGeometryUI::CreatePlate

OSGeometryUI::DeletePlate

OSGeometryUI::AddMultiplePlates

◆ ClearPlateSelection()

void OSGeometryUI::ClearPlateSelection ( )

private

Unselect all the plate item(s).

C++ Syntax

```
// Clear Plate Selection
OSGeometryUI::ClearPlateSelection();
```

VBA Syntax

```
' Clear Plate Selection
OSGeometryUI.ClearPlateSelection()
```

See also

OSGeometryUI::SelectPlate

OSGeometryUI::SelectMultiplePlates

OSGeometryUI::GetSelectedPlates

◆ CreateMultiplePlates()

void OSGeometryUI::CreateMultiplePlates (const VARIANT FAR & nPlateIds,
const VARIANT FAR & nPlateIncidences) private

Create multiple plates with specified node number ID(s).

Parameters

[in] **nPlateIds** Integer array of 1 dimension containing m plate IDs:[ID_i]

[in] **nPlateIncidences** Integer array of 2 dimensions containing M*4 elements i.e plate indices: [$NodeA_i$, $NodeB_i$, $NodeC_i$, $NodeD_i$].

C++ Syntax

```
Create Multiple Plates
int nPlateIds[] = {91, 92, 93};
int nPlateIncidences[][4] = {{3, 5, 15, 13}, {15, 25, 27, 17}, {47, 27, 29, 40}};
OSGeometryUI::CreateMultiplePlates(nPlateIds, nPlateIncidences);
```

C# Syntax

```
Create Muliple Plates
int[] nPlateIdArray = new int[3] {91, 92, 93};
int[,] nPlateIncidenceArray = new int[3, 4] {{3, 5, 15, 13}, {15, 25, 27, 17}, {47, 27,
       29, 49}};
Object objectPlateIncidenceArray = nPlateIncidenceArray as Object;
Object objectPlateIdArray = nPlateIdArray as Object;
int RetValue = m_OStd.Geometry.CreateMultiplePlates(objectPlateIdArray,
       objectPlateIncidenceArray);
```

VBA Syntax

```
Create Multiple Plates
Dim nPlateIds(1) As Integer
nPlateIds(0) = 91
nPlateIds(1) = 92
Dim nPlateIncidences(1,3) As Integer
nPlateIncidences(0,0) = 3
nPlateIncidences(0,1) = 5
nPlateIncidences(0,2) = 15
nPlateIncidences(0,3) = 13
nPlateIncidences(1,0) = 15
nPlateIncidences(1,1) = 25
nPlateIncidences(1,2) = 27
nPlateIncidences(1,3) = 17
objOpenStaad.Geometry.SetCheckForIdenticalEntity(2, 1);
objOpenStaad.Geometry.CreateMultiplePlates(nPlateIds,nPlateIncidences)
```

See also

OSGeometryUI::SetCheckForIdenticalEntity

OSGeometryUI::CreatePlate

OSGeometryUI::DeletePlate

OSGeometryUI::AddMultiplePlates

- CreatePlate()

void OSGeometryUI::CreatePlate (const VARIANT FAR & nPlateNo,
const VARIANT FAR & nNodeA,
const VARIANT FAR & nNodeB,
const VARIANT FAR & nNodeC,
const VARIANT FAR & nNodeD) private

Creates a plate with specified existing nodes in current model.

Parameters

[in] **nPlateNo** Plate number ID to be assigned to the newly created plate.

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

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

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

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

C++ Syntax

```
long nNodeA = 2;
long nNodeB = 3;
long nNodeC = 4;
long nNodeD = 5;
// Create a plate with node 2, 3, 4 and 5, call it plate # 22.
OSGeometryUI::CreatePlate(22, nNodeA, nNodeB, nNodeC, nNodeD);
```

VBA Syntax

```
Dim nNodeA As Long = 2
Dim nNodeB As Long = 3
Dim nNodeC As Long = 4
Dim nNodeD As Long = 5
' Create a plate with node 2, 3, 4 and 5, call it plate # 22.
OSGeometryUI.CreatePlate(22, nNodeA, nNodeB, nNodeC, nNodeD)
```

Remarks

The difference between **OSGeometryUI::CreatePlate** and **OSGeometryUI::AddPlate** AddPlate 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 element/plate incidence using the input node numbers.

See also

OSGeometryUI::AddPlate

OSGeometryUI::DeletePlate

OSGeometryUI::AddMultiplePlates

◆ DeletePlate()

void OSGeometryUI::DeletePlate (const VARIANT FAR & nPlateNo) private

Delete a specified plate.

Parameters

[in] **nPlateNo** Plate number ID.

C++ Syntax

```
long nPlateNo = 25;
//Delete plate #25
OSGeometryUI::DeletePlate(nPlateNo);
```

VBA Syntax

```
Dim nPlateNo As Long = 25
' Delete plate #25.
OSGeometryUI.DeletePlate(nPlateNo)
```

See also

OSGeometryUI::CreatePlate

OSGeometryUI::AddPlate

OSGeometryUI::AddMultiplePlates

◆ GetAreaOfPlates()

VARIANT OSGeometryUI::GetAreaOfPlates (const VARIANT FAR & varPlateNos,
VARIANT FAR & varPlatesArea) private

Returns an array of areas of specified plates.

Parameters

[in] **varPlateNos** array of plate numbers (type - Long/Integer).

[out] **varPlatesArea** Array of area of specified plates (type - Double).

C++ Syntax

```
// Get area of specified plates.
OSGeometryUI::GetAreaOfPlates(&varPlateNos, &varPlatesArea);
```

VBA Syntax

```
' Get area of specified plates.
OSGeometryUI.GetAreaOfPlates(&varPlateNos, &varPlatesArea)
```

◆ GetLastPlateNo()

VARIANT OSGeometryUI::GetLastPlateNo ( ) private

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

Return values

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

-1 General error.

C++ Syntax

```
// Get last plate #.
VARIANT LastPlateNo = OSGeometryUI::GetLastPlateNo();
```

VBA Syntax

```
' Get last plate #.
Dim LastPlateNo As VARIANT = OSGeometryUI.GetLastPlateNo()
```

◆ GetNoOfSelectedPlates()

VARIANT OSGeometryUI::GetNoOfSelectedPlates ( ) private

Returns the number of selected plate(s).

Returns

The number of selected plate(s).

C++ Syntax

```
// Counts for the total number of plate(s) selected.
VARIANT NoOfSelectedPlates = OSGeometryUI::GetNoOfSelectedPlates();
```

VBA Syntax

```
' Counts for the total number of plate(s) selected.
Dim NoOfSelectedPlates As VARIANT = OSGeometryUI.GetNoOfSelectedPlates()
```

See also

OSGeometryUI::SelectPlate

OSGeometryUI::ClearPlateSelection

OSGeometryUI::SelectMultiplePlates

OSGeometryUI::GetSelectedPlates

◆ GetPlateCount()

VARIANT OSGeometryUI::GetPlateCount ( )

private

Returns the total number of plates in the current model.

Note: Count of plates can vary depending upon the flag set for consideration of hidden entities (see **OSGeometryUI::SetFlagForHiddenEntities**).

Return values

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

C++ Syntax

```
// Count for the plates.
VARIANT lPlateCount = OSGeometryUI::GetPlateCount();
```

VBA Syntax

```
' Count for the plates.
Dim lPlateCount As VARIANT = OSGeometryUI.GetPlateCount()
```

See also

OSGeometryUI::GetPlateList

OSGeometryUI::GetFlagForHiddenEntities

OSGeometryUI::SetFlagForHiddenEntities

◆ GetPlateIncidence()

VARIANT OSGeometryUI::GetPlateIncidence (const VARIANT FAR & nPlateNo,
VARIANT FAR & nNodeA,
VARIANT FAR & nNodeB,
VARIANT FAR & nNodeC,
VARIANT FAR & nNodeD) private

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

Parameters

[in] **nPlateNo** Plate 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$_D$**).

Return values

0 OK.

-1 General error.

-4001 Cannot find Node < **nPlateNo** >.

C++ Syntax

```
// Get nodes of plate # 5.
VARIANT RetVal = OSGeometryUI::GetPlateIncidence(5, &nNodeA, &nNodeB, &nNodeC, &nNodeD);
```

VBA Syntax

```
' Get nodes of plate # 5.
Dim RetVal As VARIANT = OSGeometryUI.GetPlateIncidence(5, &nNodeA, &nNodeB, &nNodeC,
       &nNodeD)
```

See also

OSGeometryUI::GetPlateListAll

◆ GetPlateIncidence_CIS2()

VARIANT OSGeometryUI::GetPlateIncidence_CIS2 (const VARIANT FAR & nPlateNo,
VARIANT FAR & szName,
VARIANT FAR & nNodeA,
VARIANT FAR & nNodeB,
VARIANT FAR & nNodeC,
VARIANT FAR & nNodeD) private

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

Parameters

[in] **nPlateNo** Plate 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$_D$**).

Return values

0 OK.

-1 General error.

-4001 Cannot find Node < **nPlateNo** >.

C++ Syntax

```
// Get nodes of plate # 5.
VARIANT RetVal = OSGeometryUI::GetPlateIncidence_CIS2(5, &szName, &nNodeA, &nNodeB,
        &nNodeC, &nNodeD);
```

VBA Syntax

```
' Get nodes of plate # 5.
Dim RetVal As VARIANT = OSGeometryUI.GetPlateIncidence_CIS2(5, &szName, &nNodeA, &nNodeB,
        &nNodeC, &nNodeD)
```

See also

OSGeometryUI::GetPlateListAll

◆ GetPlateList()

void OSGeometryUI::GetPlateList (VARIANT FAR & nPlateList) private

Returns a list of all the plate ID(s) the current model.
Note: List of plates can be different depending upon the flag set for consideration of hidden entities (see **OSGeometryUI::SetFlagForHiddenEntities**).

Parameters

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

C++ Syntax

```
// Get plates list
OSGeometryUI::GetPlateList(&nPlateList);
```

VBA Syntax

```
' Get plates list.
OSGeometryUI.GetPlateList(&nPlateList)
```

See also

OSGeometryUI::GetPlateCount

OSGeometryUI::GetFlagForHiddenEntities

OSGeometryUI::SetFlagForHiddenEntities

◆ GetPlateNodeCount()

VARIANT OSGeometryUI::GetPlateNodeCount (const VARIANT FAR & varnPlateNo) private

Returns the number of nodes provided with for plate connectivity.

Returns

The number of nodes.

C++ Syntax

```
// Get Plates node Count of plate # 5.
VARIANT nPlateNo = OSGeometryUI::GetPlateNodeCount(5);
```

VBA Syntax

```
' Get Plates node Count of plate # 5.
Dim nPlateNo As VARIANT = OSGeometryUI.GetPlateNodeCount(5)
```

◆ GetPlateUniqueID()

VARIANT OSGeometryUI::GetPlateUniqueID (const VARIANT FAR & nPlateNo) private

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

Parameters

[in] **nPlateNo** Plate number ID.

Return values

<VARIANT> Unique string ID for specified plate.

The API would return an empty string if specified plate < **nPlateNo** > is *not* found

C++ Syntax

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

VBA Syntax

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

See also

OSGeometryUI::SetPlateUniqueID

◆ GetSelectedPlates()

void OSGeometryUI::GetSelectedPlates (VARIANT FAR & naPlateNos,
VARIANT FAR & nIsSorted) private

Returns a list of selected plate(s).

Parameters

[out] **naPlateNos** Returned selected plate 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 plate list in the order of selection.
OSGeometryUI::GetSelectedPlates(&naPlateNos, 0);
```

VBA Syntax

```
' Get selected plate list in the order of selection.
    Sub Main
      Dim objOpenStaad As Object
      Dim stdFile As String

      Set objOpenStaad = GetObject(,"StaadPro.OpenSTAAD")
      objOpenStaad.GetSTAADFile stdFile, "TRUE"
      If stdFile="" Then
          MsgBox"Bad"
          Set objOpenStaad = Nothing
          Exit Sub
      End If
      Dim selpno As Long
      Dim selp() As Long

      selpno = objOpenStaad.Geometry.GetNoOfSelectedPlates
      ReDim selp(selpno - 1)
      objOpenStaad.Geometry.GetSelectedPlates selp, 0
      MsgBox"Macro Ending"
      Set objOpenStaad = Nothing
  End Sub
```

See also

OSGeometryUI::SelectPlate

OSGeometryUI::ClearPlateSelection

OSGeometryUI::SelectMultiplePlates

OSGeometryUI::GetNoOfSelectedPlates

◆ SelectMultiplePlates()

VARIANT OSGeometryUI::SelectMultiplePlates (const VARIANT FAR & naPlateNos) private

Selects multiple plate(s) in current model.

Parameters

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

Return values

0 Failed

1 Succeeded

C++ Syntax

```
// Select multiple plates.
OSGeometryUI::SelectMultiplePlates(naPlateNos);
```

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.SelectMultiplePlates( Objs)
        If bRes Then
            MsgBox"Success"
        Else
            MsgBox"Failed"
        End If
    End Sub
```

See also

OSGeometryUI::SelectPlate

OSGeometryUI::ClearPlateSelection

OSGeometryUI::GetNoOfSelectedPlates

OSGeometryUI::GetSelectedPlates

◆ SelectPlate()

VARIANT OSGeometryUI::SelectPlate (const VARIANT FAR & nPlateNo) private

Selects the specified plate in current model.

Parameters

[in] **nPlateNo** Plate number ID.

C++ Syntax

```
//Select plate # 3.
OSGeometryUI::SelectPlate(3);
```

VBA Syntax

```
' Select plate # 3.
OSGeometryUI.SelectPlate(3)
```

See also

OSGeometryUI::SelectMultiplePlates

OSGeometryUI::ClearPlateSelection

OSGeometryUI::GetNoOfSelectedPlates

OSGeometryUI::GetSelectedPlates

◆ SetPlateUniqueID()

void OSGeometryUI::SetPlateUniqueID (const VARIANT FAR & nPlateNo,
const VARIANT FAR & szName) private

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

Parameters

[in] **nPlateNo** Plate number ID.

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

C++ Syntax

```
// Set "PLATESP" to plate #3.
OSGeometryUI::SetPlateUniqueID(3, (LPCTSTR)"PLATESP");
```

VBA Syntax

```
' Set "PLATESP" to plate #3.
OSGeometryUI.SetPlateUniqueID(3, "PLATESP")
```

See also

OSGeometryUI::GetPlateUniqueID