**M3d API interface as defined in M3d.tlb**

**Library: M3da**

**Objects:**

1. **CM3daDoc** (dispinterface IM3da)
2. **DBase** (dispinterface IDBase)
3. **G\_Object** (dispinterface IObject)
4. **ME\_Object** (dispinterface IME\_Object)

**Dispinterface: IM3da**

**Properties:**

* ElLen: DOUBLE, property related to element length.
* IMode: SHORT, property for mode identification.
* NoElementsH: SHORT, number of elements horizontally.
* NoElementsW: SHORT, number of elements vertically.
* ElDeg: DOUBLE, property for element degree.

**Methods:**

* GetNo(): void, gets the number of elements.
* GetModel(): IDispatch\*, gets the model.
* DeleteSelectedWG(): void, deletes the selected working group.
* DesAll(): void, deselects all.
* ReDraw(): void, redraws the view.
* GenMesh(): void, generates the mesh.
* ImportCat(BSTR FileName): void, imports catalog.
* Tog1d2d(): SHORT, toggles between 1D and 2D.
* ImportWG(BSTR sFName, BSTR WGName): SHORT, imports working group.
* GetDBNoObjs(): LONG, gets the number of database objects.
* GetName(LONG Index): BSTR, gets the name by index.
* ImpSecT(BSTR sFName): void, imports section.
* SelectWG(BSTR inName): void, selects working group.
* InvertSel(): void, inverts the selection.
* AddPoint(DOUBLE x, DOUBLE y, DOUBLE z, LONG Lab): void, adds a point.
* AddLine(DOUBLE x1, DOUBLE y1, DOUBLE z1, DOUBLE x2, DOUBLE y2, DOUBLE z2, LONG Lab): void, adds a line.
* ImportWG2(BSTR sFName, BSTR sName): SHORT, imports second working group.
* BuildAssem(LPCTSTR sModName): SHORT, builds assembly.
* DisplayAll(): void, displays all.
* ExportUNV(BSTR sFName): SHORT, exports to UNV file.
* SelectAllWGs(): void, selects all working groups.
* ExportNAS(BSTR inName): SHORT, exports to NAS file.
* MergeNodes(DOUBLE dTol): void, merges nodes.
* ExportGroups(BSTR sFName): void, exports groups.
* SendCommand(BSTR sCmd): void, sends command.

**Dispinterface: IDBase**

**Methods:**

* GetNo(): LONG, gets the number of objects in the database.
* AddNode(DOUBLE X, DOUBLE Y, DOUBLE Z, LONG ID, LONG COL): void, adds a node to the current mesh.
* ReDrawWindow(): void, redraws the graphics.
* GetObject(LONG iNo): IDispatch\*, gets the object by number.
* GetNoOnSrn(): LONG, gets the number of objects displayed on screen.
* GetOnSrnObject(LONG iNo): IDispatch\*, gets the object on screen by number.
* GetActiveMesh(): IDispatch\*, gets the active FEM model.

**Dispinterface: IObject**

**Properties:**

* iColour: LONG, specifies the color of the object.
* iLabel: LONG, object label.
* iObjType: LONG, main type of the object.
* iType: LONG, sub-type of the object.
* iFile: LONG, file number for the FE object.

**Methods:**

* GetTest(): BSTR, gets a test string.
* GetObjectHeaders(VARIANT\* pVariant): HRESULT, gets the object headers.
* GetObjectVars(VARIANT\* pVariant): HRESULT, gets object variables as strings.
* PutObjectVars(VARIANT\* pVariant): HRESULT, sets object variables from strings.
* GetObjectName(BSTR\* pName): HRESULT, gets the name of the object.

**Dispinterface: IME\_Object**

**Properties:**

* iColour: LONG, specifies the color of the object.
* iLabel: LONG, object label.
* iObjType: LONG, main type of the object.
* iType: LONG, sub-type of the object.
* iFile: LONG, file number for the FE object.
* iIntID: LONG, internal mesh ID.
* iNdNo: LONG, number of nodes.
* iElNo: LONG, number of elements.
* iBCLDs: LONG, number of boundary conditions and loads.
* iCYS: LONG, number of coordinate systems.
* iNoLCs: LONG, number of load case sets.
* iCurLC: LONG, ID of current load case set.
* iNoBCs: LONG, number of boundary condition sets.
* iCurBC: LONG, ID of current boundary condition set.
* iNoTSets: LONG, number of temperature sets.
* iCurTSet: LONG, ID of current temperature set.
* iNoRes: LONG, number of results sets.
* iCurResSetDef: LONG, results set for deformation.
* iResValDef: LONG, results variable for deformation.
* iCVarDef: LONG, posted deformation value.
* iCurResSet: LONG, results set for contour.
* iResVal: LONG, results variable for contour.
* iPostOpt: LONG, secondary variable for contour.
* iCVar: LONG, posted contour value.
* iSecID: LONG, secondary contour variable.
* iCurResVecSet: LONG, results set for vector display.
* iSecVecID: LONG, secondary option for vector display.

**Methods:**

* GetObjectHeaders(VARIANT\* pVariant): HRESULT, gets the object headers.
* GetObjectVars(VARIANT\* pVariant): HRESULT, gets object variables as strings.
* PutObjectVars(VARIANT\* pVariant): HRESULT, sets object variables from strings.
* GetObjectName(BSTR\* pName): HRESULT, gets the name of the object.
* GetFEMName(BSTR\* pName): HRESULT, gets the FEM name.
* GetNodeByInd(LONG iNo): IDispatch\*, gets the node by index.
* GetNodeByID(LONG iNID): IDispatch\*, gets the node by ID.
* GetElementByInd(LONG iNo): IDispatch\*, gets the element by index.
* GetElementByID(LONG iEID): IDispatch\*, gets the element by ID.