



Table of Contents

API OVERVIEW	5
API - DOC (PARENT OBJECT)	6
Doc Methods.....	6
Doc Properties	12
Doc Enumerators	13
API - ANNOT	14
Annot Methods.....	14
Annot Properties	14
Annot Enumerators.....	15
API - CHART	18
Chart Methods	18
Chart Properties.....	19
API - CHART AREA	20
Chart Area Methods.....	20
Chart Area Properties	20
Chart Area Enumerators.....	20
API - CHART AXIS	22
Chart Axis Methods	22
Chart Axis Properties.....	22
Chart Axis Enumerators.....	22
API - CHART LINE	23
Chart Line Methods	23
Chart Line Properties.....	23
Chart Line Enumerators.....	23
API - CONTAINER	24
Container Methods	24
Container Properties.....	24
API - DATASET	25
DataSet Methods	25
DataSet Properties	25
DataSet Enumerators	26
API - DATASOURCE	28
DataSource Methods.....	28
DataSource Properties	28
DataSource Enumerators	29
API - DBDATASOURCE	32
DbDataSource Methods	32
DbDataSource Properties.....	32



DbDataSource Enumerators..... 33

API - EVENTCHOICE..... 34
Event Choice Properties 34

API - FEATURE..... 35
Feature Methods..... 35
Feature Properties 36
Feature Enumerators..... 37

API - FILTER 40
Filter Methods 40
Filter Properties..... 40

API - FILTERS 41
Filters Methods 41

API - GRAPH 42
Graph Methods 42
Graph Properties 43
Graph Enumerators 43

API - IMAGE 45
Image Methods 45
Image Properties 45

API - IMAGES..... 46
Images Methods 46

API - LEADER 48
Leader Methods..... 48
Leader Properties 48
Leader Enumerators 48

API - LINE..... 50
Line Methods 50
Line Properties..... 50
Line Enumerators 51

API - MANAGED DOCUMENT 52
Managed Document Methods..... 52
Managed Document Properties 52
Managed Document Enumerators..... 52

API - MANAGED ROUTINE..... 54
Managed Routine Properties 54

API - PICTURE 55
Picture Methods 55
Picture Properties 55



API - PLOT SPACE.....56
Plot Space Methods.....56
Plot Space Properties56

API - QUERY58
Query Methods58
Query Properties.....59
Query Enumerators62

API - QUERY FILTER65
Query Filter Properties.....65

API - REPORT CHOICE.....66
Report Choice Properties66

API - ROUTINE.....67
Routine Methods.....67
Routine Properties67
Routine Enumerators.....67

API - SAMPLE.....69
Sample Methods69
Sample Properties69

API - SCHEDULER DATASOURCE.....70
Scheduler DataSource Methods.....70
Scheduler DataSource Properties70

API - SCORE71
Score Methods.....71
Score Properties71

API - SCORE BIN.....72
Score Bin Properties.....72

API - SHAPE.....73
Shape Methods.....73
Shape Properties73
Shape Enumerators.....74

API - SHEET75
Sheet Methods.....75
Sheet Properties76

API - SHEETSET77
SheetSet Methods77
SheetSet Properties.....77
SheetSet Enumerators77

API - SITE CONFIGURATION79
Site Configuration Properties.....79



Site Configuration Enumerators.....	79
API - STYLE	80
Style Properties.....	80
Style Enumerators	81
API - SUBROUTINE	83
Subroutine Methods.....	83
Subroutine Properties	83
API - TABLE	84
Table Methods	84
Table Properties.....	84
API - TABLE CELL.....	86
Table Cell Methods.....	86
Table Cell Properties	86
API - TEXT	87
Text Methods	87
Text Properties.....	87
API - VIEW	89
View Methods	89
View Properties.....	91
View Enumerators	91
API - WIREFRAME.....	105
Wireframe Methods	105
Wireframe Properties.....	105
Wireframe Enumerators.....	105
ENUMERATORS.....	106
EXAMPLE API SCRIPTS	108
No Events (External Event)	108
Event Trigger 2 (External Event)	109



API Overview

API (or Application Programming Interface) provides automation options for CM4D.

The only object that is created directly is the **QaDoc** object. Creating this object executes CM4D and provides an object for document manipulation. All of the other objects are created through the use of a parent object, starting with the QaDoc object at the root.

[QaDoc](#)

Some commonly used objects are:

- [DataSource](#)
- [Query](#)
- [DataSet](#)
- [Routine](#)
- [Feature](#)
- [Sample](#)
- [Annot](#)
- [Style](#)
- [Sheet/SheetSet](#)
- [Managed Document](#)
- [View](#)

Refer to the following examples of API implementation:

- [Event Trigger 2 \(External Event\)](#)
- [No Events \(External Event\)](#)
- Report Record Database and API



API - Doc (Parent Object)

The only object that is created directly is the **cm4dDoc** object. Creating this object executes CM4D and provides an object for document manipulation. All of the other objects are created through the use of a parent object, starting with the cm4dDoc object at the root.

Doc Methods

Parameter	Type	Description	Remarks
CloseDocument();	long		
CreateDataSet(BSTR label);	IQaDataSet*		
CreateQuery(eQueryType type, BSTR label);	IQaQuery*		
CreateQueryDS(short type, BSTR queryLabel, BSTR dataSourceLabel);	IQaDbDataSource*		
CreateScore(BSTR label);	IQaScore*		
CreateSheetSet(BSTR label);	IQaSheetSet*		
CreateStyle(BSTR label);	IQaStyle*		
CreateWireframe(BSTR filename);	IQaWireframe*		
FrameMaximize();	void		
FrameMinimize();	void		
FrameRestore();	void		
GetCM4DDatabaseSchema();	float		
GetCM4DVersion();	double		
GetDataSet(BSTR label);	IQaDataSet*		
GetDataSetByPos(long pos);	IQaDataSet*		
GetDataSetCount();	long		
GetDataSourceByPos(long pos_);	IQaDbDataSource*		
GetDataSourceCount();	long		
GetDocVersion();	double		



GetErrorString(long code);	BSTR		
GetFilename();	BSTR		
GetImages(void);	IQaImages*	Returns an object representing the QaImages list.	
GetLastErrorCode();	short		
GetManagedDocumentByFilename(BSTR filename_);	IQaManagedDocument*	Get a Managed Document from the loaded list by Filename (full path or filename)	
GetManagedDocumentByID(BSTR id_);	IQaManagedDocument*	Get a Managed Document from the loaded list by Managed Document unique identifier.	
GetManagedDocumentByName(BSTR name_);	IQaManagedDocument*	Get a Managed Document from the loaded list by Name.	
GetManagedDocumentByPos(LONG position_, BSTR siteCode_);	IQaManagedDocument*	Get a Managed Document from the loaded list by list position within a specific Site Code.	A passed Site Code value of "*" will be taken to mean within all loaded sites. An empty Site Code value "" will be taken to mean within the authenticated user's default site.
GetManagedDocumentCount(BSTR siteCode_);	LONG	Get Managed Document list count.	



GetPriviledgeByPos(long pos_, BSTR sitecode_);	BSTR		
GetPriviledgeCount(BSTR sitecode_);	long		
GetQuery(BSTR label);	IQaQuery*		
GetQueryByPos(long pos);	IQaQuery*		
GetQueryCount();	long		
GetSchedulerDataSource();	IQaSchedulerDataSource*		
GetScore(BSTR label);	IQaScore*		
GetScoreByPos(long pos);	IQaScore*		
GetScoreCount();	long		
GetSheet(BSTR label);	IQaSheet*		
GetSheetByPos(long pos);	IQaSheet*		
GetSheetCount();	long		
GetSheetSet(BSTR sheetSetLabel);	IQaSheetSet*		
GetSheetSetByPos(long pos);	IQaSheetSet*		
GetSheetSetCount();	long		
GetSiteByCode(BSTR siteCode_);	IQaSiteConfiguration*	Get Site Configuration by Site Code.	
GetSiteByLabel(BSTR siteLabel_);	IQaSiteConfiguration*	Get Site Configuration by Site Label.	
GetSiteByPos(LONG position_);	IQaSiteConfiguration*	Get Site Configuration by list position.	
GetSiteCodesByPos(long pos_);	BSTR		
GetSiteCodesCount();	long		



GetSiteCount(void);	LONG	Get Site Configuration list count.	
GetSiteDatabaseSchema();	float		
GetStyle(BSTR label);	IQaStyle*		
GetStyleByPos(long pos);	IQaStyle*		
GetStyleCount();	long		
GetWireframe(BSTR filename);	IQaWireframe*		
GetWireframeByPos(long pos);	IQaWireframe*		
GetWireframeCount();	long		
HideDocument();	long		
IsDocManaged();	boolean	Get Managed Document setting.	
IsDocPathUNC(BSTR path_);	boolean		This method determines whether the passed path is a UNC Path. If an empty path is passed the path of the current opened document is used if any.
LoadManagedDocumentByFilename(BSTR filename_);	IQaManagedDocument*	Load Managed Documents for the given filename.	Event Choices, Report Choices, and Managed Routines are loaded for the selected document.
LoadManagedDocumentByID(BSTR id_);	IQaManagedDocument*	Load Managed Document by unique identifier.	Event Choices, Report Choices, and Managed Routines are loaded for the selected document.
LoadManagedDocuments(BSTR siteCode_, boolean loadSubordinates_);	LONG		Loading Managed Documents obtains a representation of the requested managed documents into the internal CM4D API memory list. This list will not allow any duplicates to be loaded and any attempt to do so will cause the older copy to be removed from the list and



			<p>the new copy to be added. Keep this in mind for QaManagedDocument objects that were obtained prior to a call to this method (or other variations of this method) as they may no longer be valid. This method clears the CM4D API memory list and loads Managed Documents for the given site code. A passed Site Code value of "*" will be taken to mean all sites. An empty Site Code value "" will be taken to mean the authenticated user's default site. Event Choices, Report Choices, and Managed Routines can be loaded by passing "True" for the loadSubordinates_ parameter. Loading a managed document does not open the represented CM4D Document nor does it affect any CM4D document that is open. A loaded Managed Document is available on the internal list for subsequent GetManagedDocument... calls.</p>
MakeSnapShots(short res_);	long		
ManageCurrentDocument(BSTR name_, BSTR filename_, BSTR siteCode_, eManagedAsType type_);	LONG	Manage the current document.	<p>This method will manage the current unmanaged document using the parameters passed and save the document using the provided filename. The Site Database is updated to reflect the change. A Universal Naming Convention (UNC) filename path maybe required by the system configuration.</p>
ManageCurrentDocumentAs(BSTR name_, BSTR filename_, BSTR siteCode_, eManagedAsType type_);	LONG	Manage the current document as a copy of the current document.	<p>This method will manage the current managed document using the parameters passed and save the document as a new document using the</p>



		The Site Database is updated to reflect the change.	provided filename. The original managed document is unchanged and the current document becomes the newly saved document. The Site Database is updated to reflect the change. A UNC filename path maybe required by the system configuration.
NewDataSource();	IQaDbDataSource*		
NewDocument(BSTR filename);	long		
OpenDocument(BSTR documentName);	long		
OpenOldDocument(BSTR documentName);	long		
ProcessEvents();	long		
ReloadEligibleAnnots();	long		
SaveAsDocument(BSTR documentName);	long		
SaveDocument();	long		
ShowDocument();	long		
ShutDownCM4D();	void		
SiteDatabase();	BSTR		
UnloadManagedDocument(BSTR id_);	LONG	Unload Managed Document by unique identifier.	The identified Managed Document is removed from the CM4D API internal list.
UnLoadManagedDocuments(BSTR siteCode_);	LONG		This method unloads (removes from the internal CM4D API list) Managed Documents for the given site code. A passed Site Code value of "*" will be taken to mean all sites. An empty Site Code value "" will be taken to mean the authenticated user's default site.



UnmanageCurrentDocument(void);	LONG	This method un-manages the current document.	The current document management settings are cleared and the document is saved as an unmanaged document. The Site Database is updated to reflect the change.
Update();	long		
UpdateDatabase(void);	LONG		This method updates changes to Site Configurations and Managed Documents to the Site Database. If a CM4D Document is open it is saved to update the Managed Document event choice, report choice, and managed routine information.

Doc Properties

Parameter	Type	Description	Remarks
AllowAnnotOffSheet;	boolean		
AllowAnnotSelectByTerminator;	boolean		
AnnotErrorHandling;	eAnnotErrorHandling		
AxisLabelX;	BSTR		
AxisLabelY;	BSTR		
AxisLabelZ;	BSTR		
ChrNorLabel;	BSTR		
ChrPosLabel;	BSTR		
ComparePrecision;	long		
DecimalPlaces;	long		
DrawBlackAndWhite;	boolean		
OpenWritable;	boolean		
ScriptAnnot;	IQaAnnot*		
ScriptSheet;	IQaSheet*		
ShowAnnotGhostBorder;	boolean		
SuspendQueryRefresh;	boolean		
SuspendResolve;	boolean		
Units;	eUnits		
UseViewSnapshots;	boolean		
ViewRotationAngle;	double		



Doc Enumerators

Units - eUnits

Parameters	Help String	Description	Remarks
eUnitsInches	Inches		
eUnitsMillimeters = 1,	Millimeters		

Error Handling - eAnnotErrorHandling

Parameters	Help String	Description	Remarks
eAnnotErrorHandlingAppendCode,	Append Code		
eAnnotErrorHandlingAppendE,	Append 'E'		
eAnnotErrorHandlingAppendMessage,	Append Message		
eAnnotErrorHandlingLeaveEmpty	Leave Empty		
eAnnotErrorHandlingNone = 0,	None		



API - Annot

Annot Methods

Parameter	Type	Description	Remarks
Delete();	long	Removes the annotation.	
GetBottom();	double		
GetDataSource();	IQaDataSource*		
GetLeader();	IQaLeader*		
GetLeft();	double		
GetRight();	double		
GetStyle();	IQaStyle*		
GetTop();	double		
Refresh();	void		
Reload();	long		
SetBottom(double value);	void		
SetBox(double left, double bottom, double right, double top);	long		
SetBoxRelative(double left, double bottom, double right, double top);	long		
SetLeft(double value);	void		
SetRight(double value);	void		
SetTop(double value);	void		

Annot Properties

Parameter	Type	Description	Remarks
AnnotSheet;	IQaSheet*		
AnnotType;	eAnnotType		
AutoReloadEligible;	boolean		
BuddyDataSourceType;	eAnnotBuddyDataSourceType		
BuddyHorizontalSpace;	double		
BuddyHorizontalType;	eAnnotBuddyHorizontalType		
BuddyLabel;	BSTR		
BuddyMatchHeight;	boolean		
BuddyMatchWidth;	boolean		
BuddyVerticalSpace;	double		
BuddyVerticalType;	eAnnotBuddyVertType		
EventAction;	eAnnotEventAction		
EventStyleLabel;	BSTR		
ExecuteAction;	eAnnotExecuteAction		
Label;	BSTR		
LoadFilename;	BSTR		



Locked;	boolean		
NoDraw;	boolean		

Annot Enumerators

Event Action - eAnnotEventAction

Parameters	Help String	Description	Remarks
eEventActionDrawIfTriggered	Draw Only If Triggered		
eEventActionNone = 0,	None		
eEventActionUseStyle,	Use Style		

Execute Action - eAnnotExecuteAction

Parameters	Help String	Description	Remarks
eExecuteActionActivate	Activate Link Sheet		
eExecuteActionNone = 0,	None		

Buddy Vertical Type - eAnnotBuddyVertType

Parameters	Help String	Description	Remarks
eBuddyVertTypeBottomBottom,	Align My Bottom with My Buddy's Bottom		
eBuddyVertTypeBottomCenter,	Align My Bottom with My Buddy's Center		
eBuddyVertTypeBottomInner,	Align My Bottom with My Buddy's Inner		
eBuddyVertTypeBottomOuter,	Align My Bottom with My Buddy's Outer		
eBuddyVertTypeBottomTop,	Align My Bottom with My Buddy's Top		
eBuddyVertTypeCenterBottom,	Align My Center with My Buddy's Bottom		
eBuddyVertTypeCenterCenter,	Align My Center with My Buddy's Center		
eBuddyVertTypeCenterInner,	Align My Center with My Buddy's Inner		
eBuddyVertTypeCenterOuter,	Align My Center with My Buddy's Outer		
eBuddyVertTypeCenterTop,	Align My Center with My Buddy's Top		
eBuddyVertTypeInnerBottom,	Align My Inner with My Buddy's Bottom		
eBuddyVertTypeInnerCenter,	Align My Inner with My Buddy's Center		
eBuddyVertTypeInnerInner	Align My Inner with My Buddy's Inner		
eBuddyVertTypeInnerOuter,	Align My Inner with My Buddy's Outer		
eBuddyVertTypeInnerTop,	Align My Inner with My Buddy's Top		
eBuddyVertTypeNone = 0,	None		
eBuddyVertTypeOuterBottom,	Align My Outer with My Buddy's Bottom		
eBuddyVertTypeOuterCenter,	Align My Outer with My Buddy's Center		
eBuddyVertTypeOuterInner,	Align My Outer with My Buddy's Inner		
eBuddyVertTypeOuterOuter,	Align My Outer with My Buddy's Outer		
eBuddyVertTypeOuterTop,	Align My Outer with My Buddy's Top		
eBuddyVertTypeTopBottom,	Align My Top with My Buddy's Bottom		



eBuddyVertTypeTopCenter,	Align My Top with My Buddy's Center		
eBuddyVertTypeTopInner,	Align My Top with My Buddy's Inner		
eBuddyVertTypeTopOuter,	Align My Top with My Buddy's Outer		
eBuddyVertTypeTopTop,	Align My Top with My Buddy's Top		

Buddy Horizontal Type - eAnnotBuddyHorizontalType

Parameters	Help String	Description	Remarks
eBuddyHorizontalTypeCenterCenter,	Align My Center with My Buddy's Center		
eBuddyHorizontalTypeCenterInner,	Align My Center with My Buddy's Inner		
eBuddyHorizontalTypeCenterLeft,	Align My Center with My Buddy's Left		
eBuddyHorizontalTypeCenterOuter,	Align My Center with My Buddy's Outer		
eBuddyHorizontalTypeCenterRight,	Align My Center with My Buddy's Right		
eBuddyHorizontalTypeInnerCenter,	Align My Inner with My Buddy's Center		
eBuddyHorizontalTypeInnerInner,	Align My Inner with My Buddy's Inner		
eBuddyHorizontalTypeInnerLeft,	Align My Inner with My Buddy's Left		
eBuddyHorizontalTypeInnerOuter,	Align My Inner with My Buddy's Outer		
eBuddyHorizontalTypeInnerRight,	Align My Inner with My Buddy's Right		
eBuddyHorizontalTypeLeftCenter,	Align My Left with My Buddy's Center		
eBuddyHorizontalTypeLeftInner,	Align My Left with My Buddy's Inner		
eBuddyHorizontalTypeLeftLeft,	Align My Left with My Buddy's Left		
eBuddyHorizontalTypeLeftOuter,	Align My Left with My Buddy's Outer		
eBuddyHorizontalTypeLeftRight,	Align My Left with My Buddy's Right		
eBuddyHorizontalTypeNone = 0,	None		
eBuddyHorizontalTypeOuterCenter,	Align My Outer with My Buddy's Center		
eBuddyHorizontalTypeOuterInner,	Align My Outer with My Buddy's Inner		
eBuddyHorizontalTypeOuterLeft,	Align My Outer with My Buddy's Left		
eBuddyHorizontalTypeOuterOuter	Align My Outer with My Buddy's Outer		
eBuddyHorizontalTypeOuterRight,	Align My Outer with My Buddy's Right		



eBuddyHorizontalTypeRightCenter,	Align My Right with My Buddy's Center		
eBuddyHorizontalTypeRightInner,	Align My Right with My Buddy's Inner		
eBuddyHorizontalTypeRightLeft,	Align My Right with My Buddy's Left		
eBuddyHorizontalTypeRightOuter,	Align My Right with My Buddy's Outer		
eBuddyHorizontalTypeRightRight,	Align My Right with My Buddy's Right		

Buddy DataSource Type - eAnnotBuddyDataSourceType

Parameters	Help String	Description	Remarks
eBuddyDataSourceDataSet	Align by DataSet		
eBuddyDataSourceFeature,	Align by Feature		
eBuddyDataSourceNone = 0,	No DataSource Alignment		

Type - eAnnotType

Parameters	Help String	Description	Remarks
e_annotChart,	Chart		
e_annotContainer,	Container		
e_annotGraph,	Graph		
e_annotGroup,	Group		
e_annotLine,	Line		
e_annotPicture	Picture		
e_annotPlotSpace,	Plotspace		
e_annotShape,	Shape		
e_annotTable,	Table		
e_annotView,	View		
e_annotView2,	View2		
e_annotViewAxes,	ViewAxes		
eAnnotText = 0,	Text		
eAnnotUnknown = -1,	Unknown annotation type		



API - Chart

Chart Methods

Parameter	Type	Description	Remarks
CreateLine(BSTR label);	IQaLine*		
CreatePicture(BSTR label);	IQaPicture*		
CreatePlotSpace(BSTR label);	IQaPlotSpace*		
CreateShape(BSTR label);	IQaShape*		
CreateTable(BSTR label);	IQaTable*		
CreateText(BSTR label);	IQaText*		
CreateView(BSTR label);	IQaView*		
Delete();	long		
Duplicate(IQaChart* chart);	long		
GetBottom();	double		
GetDataSource();	IQaDataSource*		
GetLeader();	IQaLeader*		
GetLeft();	double		
GetLine(BSTR label);	IQaLine*		
GetLineByPos(long pos);	IQaLine*		
GetLineCount();	long		
GetPicture(BSTR label);	IQaPicture*		
GetPictureByPos(long pos);	IQaPicture*		
GetPictureCount();	long		
GetPlotSpace(BSTR label);	IQaPlotSpace*		
GetPlotSpaceByPos(long pos);	IQaPlotSpace*		
GetPlotSpaceCount();	long		
GetRight();	double		
GetShape(BSTR label);	IQaShape*		
GetShapeByPos(long pos);	IQaShape*		
GetShapeCount();	long		
GetStyle();	IQaStyle*		
GetTable(BSTR label);	IQaTable*		
GetTableByPos(long pos);	IQaTable*		
GetTableCount();	long		
GetText(BSTR label);	IQaText*		
GetTextByPos(long pos);	IQaText*		
GetTextCount();	long		
GetTop();	double		
GetView(BSTR label);	IQaView*		
GetViewByPos(long pos);	IQaView*		
GetViewCount();	long		
Refresh();	void		



Reload();	long		
SetBottom(double value);	void		
SetBox(double left, double bottom, double right, double top);	long		
SetBoxRelative(double left, double bottom, double right, double top);	long		
SetLeft(double value);	void		
SetRight(double value);	void		
SetTop(double value);	void		

Chart Properties

Parameter	Type	Description	Remarks
BuddyDataSourceType;	eAnnotBuddyDataSourceType		
BuddyHorizontalSpace;	double		
BuddyHorizontalType;	eAnnotBuddyHorizontalType		
BuddyLabel;	BSTR		
BuddyMatchHeight;	boolean		
BuddyMatchWidth;	boolean		
BuddyVerticalSpace;	double		
BuddyVerticalType;	eAnnotBuddyVertType		
EventAction;	eAnnotEventAction		
EventStyleLabel;	BSTR		
ExecuteAction;	eAnnotExecuteAction		
Label;	BSTR		
LoadFilename;	BSTR		
Locked;	boolean		
NoDraw;	boolean		



API - Chart Area

Chart Area Methods

Parameter	Type	Description	Remarks
CreateAxis(eChartAxisPosition axis);	IQaChartAxis*		
CreateLine(eChartAreaLine lineType, BSTR label);	IQaChartLine*		
DeleteAxis(eChartAxisPosition axis);	long		
DeleteLine(eChartAreaLine line);	long		
GetAxis(eChartAxisPosition axis);	IQaChartAxis*		
GetLineStyle(eChartAreaLine line);	IQaStyle*		
GetMarkerStyle();	IQaStyle*		
GetSeriesStyle();	IQaStyle*		
GetStyle();	IQaStyle*		
GetUserDefinedLine(BSTR label);	IQaChartLine*		
GetUserDefinedLineByPos(long linePos);	IQaChartLine*		
HasLine(eChartAreaLine line);	boolean		

Chart Area Properties

Parameter	Type	Description	Remarks
PlotScaleAutoHorz;	boolean		
PlotScaleAutoVert;	boolean		
MarkerSize;	double		
PlotScaleMaxHorz;	double		
PlotScaleMaxVert;	double		
PlotScaleMinHorz;	double		
PlotScaleMinVert;	double		
MarkerShape;	eChartAreaMarkerShape		

Chart Area Enumerators

Line Type - eChartAreaLine

Parameters	Help String	Description	Remarks
eLineCenter,	Center Line		
eLineEllipse,	Ellipse		
eLineLowerControl,	Lower Control Limit		
eLineLowerSpec = 0,	Lower Spec Limit		
eLineLRL,	Lower Reasonable Limit		
eLineLSL2,	Lower Spec Limit 2		
eLineNominalZero,	Nominal/Zero		
eLineSemiMean,	Mean		
eLineUpperControl,	Upper Control Limit		
eLineUpperSpec,	Upper Spec Limit		



eLineURL,	Upper Reasonable Limit		
eLineUserDefined,	User Defined Line		
eLineUSL2,	Upper Spec Limit 2		
eTargetLimitEllipse2,	Target Limit Ellipse 2		
eTargetLimitEllipse3	Target Limit Ellipse 3		

Marker Shape - eChartAreaMarkerShape

Parameters	Help String	Description	Remarks
eMarkerShapeAsterisk,	Asterisk		
eMarkerShapeBar	Bar		
eMarkerShapeCheck,	Check Mark		
eMarkerShapeCircle,	Circle		
eMarkerShapeDiamond,	Diamond		
eMarkerShapeEastTriangle,	East Triangle		
eMarkerShapeHollowPlus,	Hollow Plus		
eMarkerShapeHollowX,	Hollow X		
eMarkerShapeNone = 0,	No Marker		
eMarkerShapeNorthTriangle,	North Triangle		
eMarkerShapePlus,	Plus		
eMarkerShapeSouthTriangle,	South Triangle		
eMarkerShapeSquare,	Square		
eMarkerShapeStar,	Four Corner Star		
eMarkerShapeWestTriangle,	West Triangle		
eMarkerShapeX,	X		

API - Chart Axis

Chart Axis Methods

Parameter	Type	Description	Remarks
GetStyle();	IQaStyle*		

Chart Axis Properties

Parameter	Type	Description	Remarks
LabelType;	eChartAxisLabelType		
PlotScaleInc;	double		
Position;	eChartAxisPosition		

Chart Axis Enumerators

Position - eChartAxisPosition

Parameters	Help String	Description	Remarks
ePositionBottom	Bottom		
ePositionLeft = 1,	Left		
ePositionRight,	Right		
ePositionTop,	Top		

Label Type - eChartAxisLabelType

Parameters	Help String	Description	Remarks
eLabelTypeAlphaSequence	Alpha Sequence		
eLabelTypeDecimal,	Decimal		
eLabelTypeNone = 0,	None		
eLabelTypeNumberSequence,	Number Sequence		
eLabelTypeText,	Text		



API - Chart Line

Chart Line Methods

Parameter	Type	Description	Remarks
Delete();	long		
GetStyle();	IQaStyle*		

Chart Line Properties

Parameter	Type	Description	Remarks
Axis;	eChartLineAxis		
BeginX;	double		
BeginY;	double		
EllipseHorzLower;	BSTR		
EllipseHorzUpper;	BSTR		
EllipseVertLower;	BSTR		
EllipseVertUpper;	BSTR		
EndX;	double		
EndY;	double		
LineType;	eChartAreaLine		
UserLineLabel;	BSTR		
ValueText;	BSTR		

Chart Line Enumerators

Axis - eChartLineAxis

Parameters	Help String	Description	Remarks
eLineEllipses = 0,	Ellipse		
eLineHorizontal,	Horizontal		
eLineVertical,	Vertical		



API - Container

Container Methods

Parameter	Type	Description	Remarks
Delete();	long		
Duplicate(IQaContainer* container);	long		
GetBottom();	double		
GetDataSource();	IQaDataSource*		
GetLeader();	IQaLeader*		
GetLeft();	double		
GetRight();	double		
GetStyle();	IQaStyle*		
GetTop();	double		
Refresh();	void		
Reload();	long		
SetBottom(double value);	void		
SetBox(double left, double bottom, double right, double top);	long		
SetBoxRelative(double left, double bottom, double right, double top);	long		
SetLeft(double value);	void		
SetRight(double value);	void		
SetTop(double value);	void		

Container Properties

Parameter	Type	Description	Remarks
BuddyDataSourceType;	eAnnotBuddyDataSourceType		
BuddyHorizontalSpace;	double		
BuddyHorizontalType;	eAnnotBuddyHorizontalType		
BuddyLabel;	BSTR		
BuddyMatchHeight;	boolean		
BuddyMatchWidth;	boolean		
BuddyVerticalSpace;	double		
BuddyVerticalType;	eAnnotBuddyVertType		
EventAction;	eAnnotEventAction		
EventStyleLabel;	BSTR		
ExecuteAction;	eAnnotExecuteAction		
Label;	BSTR		
LoadFilename;	BSTR		
Locked;	boolean		
NoDraw;	boolean		



API - DataSet

DataSet Methods

Parameter	Type	Description	Remarks
CalcControlLimits();	void		
Delete();	long		
ExportData(short format, BSTR filename);	void		
GetCellValues(VARIANT* values_);	long		
GetDataSource();	IQaDataSource*		
Refresh();	void		

DataSet Properties

Parameter	Type	Description	Remarks
Description;	BSTR		
EventType;	eDataSetEventType		
EventType1;	eDataSetEventType		
EventType2;	eDataSetEventType		
EventValueOne;	BSTR		
EventValueOne1;	BSTR		
EventValueOne2;	BSTR		
EventValueTwo;	BSTR		
EventValueTwo1;	BSTR		
EventValueTwo2;	<u>BSTR</u>		
ExternalEventAttachmentFilename;	<u>BSTR</u>		
ExternalEventAttachmentType;	eDataSetExternalEventAttachmentType		
ExternalEventNote;	BSTR		
ExternalEventPriority;	long		
ExternalEventScope;	eDataSetExternalEventScope		
ExternalEventSheet;	BSTR		
ExternalEventSheetSet;	BSTR		
ExternalEventType;	eDataSetExternalEventType		
Format;	boolean		
FormatText;	BSTR		
Label;	BSTR		
Sort;	boolean		
SortCols;	boolean		
SortColsDirection;	eDataSetSortDirection		
SortDirection;	eDataSetSortDirection		
SortRows;	boolean		



SortRowsBy;	BSTR		
SortRowsDirection;	eDataSetSortDirection		
SubGroupSizeOverride;	long		
Transpose;	boolean		
UsageType;	eDataSetUsageType		
UseSubGroupSizeOverride;	boolean		

DataSet Enumerators

Characteristic Type - eDataSetCharacteristicType

Parameters	Help String	Description	Remarks
eDataSetCharacteristicTypeActual = 1,	Actual		
eDataSetCharacteristicTypeDataSetCar	Car		
eDataSetCharacteristicTypeDeviation,	Deviation		

Usage Type - eDataSetUsageType

Parameters	Help String	Description	Remarks
eUsageIndXMR,	Individual & Moving Range (X-MR)		
eUsageTypeAverageRange,	Moving Average & Moving Range (MA-MR)		
eUsageTypeIndValue = 1,	Individual Value a.k.a. Trend, a.k.a. Run		
eUsageTypeMeanRange,	Subgroup Mean & Range (Xbar-R)		
eUsageTypeMeanSigma	Subgroup Mean & Sigma (Xbar-S)		

Sort Direction - eDataSetSortDirection

Parameters	Help String	Description	Remarks
eSortDirectionAscending = 1,	Ascending		
eSortDirectionDescending	Descending		

Event Type - eDataSetEventType

Parameters	Help String	Description	Remarks
eEventTypeAlways,	Always		
eEventTypeBetween,	Value Between		
eEventTypeBetweenOrEqualTo,	Value Between or Equal To		
eEventTypeCollectingData,	Collecting Data		
eEventTypeEqualTo,	Value Equal To		
eEventTypeGreaterThan,	Value Greater Than		
eEventTypeGreaterThanOrEqualTo,	Value Greater Than or Equal To		
eEventTypeKeepMergedEvent	Keep Event from Merged DataSets		
eEventTypeLessThan,	Value Less Than		
eEventTypeLessThanOrEqualTo,	Value Less Than or Equal To		
eEventTypeNever = 0,	Never		
eEventTypeNoSampleData,	No Sample Data		



eEventTypeNoSpecLimits,	No Spec Limits		
eEventTypeNotBetween,	Value Not Between		
eEventTypeNotBetweenOrEqualTo,	Value Not Between or Equal To		
eEventTypeNotEqualTo,	Value Not Equal To		
eEventTypeOutOfControl,	Out Of Control		
eEventTypeOutOfControlUnassigned,	Out Of Control Unassigned		
eEventTypeOutOfReasonableTol,	Out Of Reasonable Tol		
eEventTypeOutOfTolerance,	Out Of Tolerance		
eEventTypeOutOfTolerance2,	Out Of Tolerance 2		

External Event Type - eDataSetExternalEventType

Parameters	Help String	Description	Remarks
eNeverTrigger = 0,	Never		
eOnlyTrigger1,	Trigger 1		
eOnlyTrigger2,	Trigger 2		
eTriggerBoth,	Trigger Both		
eTriggerEither	Trigger Either		

External Event Scope - eDataSetExternalEventScope

Parameters	Help String	Description	Remarks
eEventPerCell = 0,	Trigger Per Cell		
eEventPerRow,	Trigger Per Row		
eEventPerSet	Trigger Per DataSet		

External Event Attachment Type - eDataSetExternalEventAttachmentType

Parameters	Help String	Description	Remarks
eEventAttachmentBitmap	Attachment Bitmap		
eEventAttachmentJPG,	Attachment JPG		
eEventAttachmentMeta,	Attachment Metafile		
eEventAttachmentNone = 0,	Attachment None		
eEventAttachmentPDF,	Attachment PDF		



API - DataSource

DataSource Methods

Parameter	Type	Description	Remarks
DataStackDataSetAdd(BSTR label);	void		
DataStackDataSetClear();	void		
FeatureListAdd(BSTR label);	void		
FeatureListClear();	void		
GetFeatureListCount();	long		
GetFeatureListLabel(long pos);	BSTR		

DataSource Properties

Parameter	Type	Description	Remarks
DataSetLabel;	BSTR		
DataSetRowNumber;	long		
DataSetRowNumber1;	long		
DataSetRowNumber2;	long		
DataStackBinHighValue;	BSTR		
DataStackBinInterval;	BSTR		
DataStackBinLowValue;	BSTR		
DataStackBinNumber;	BSTR		
DataStackBinPrecision;	long		
DataStackBinRangeType;	eDataSourceDataStackBinRangeType		
DataStackScoreLabel;	BSTR		
DataStackType;	eDataSourceDataStackType		
FeatureAll;	boolean		
FeatureLabel;	BSTR		
FeatureNumber;	long		
FeatureSetLabel;	BSTR		
QueryLabel;	BSTR		
SampleAll;	boolean		
SampleLabel;	BSTR		
SampleNumber;	long		
SubsetCount;	long		
SubsetStart;	long		
UseDataSetRowNumber;	boolean		
UseFeatureNumber;	boolean		
UseSampleNumber;	boolean		



DataSource Enumerators

DataStack Type - eDataSourceDataStackType

Parameters	Help String	Description	Remarks
eDataStack3DMathRange	3D Math Range		
eDataStackType3DMathAdd	3D Math Add		
eDataStackType3DMathDivide	3D Math Divide		
eDataStackType3DMathHi	3D Math Hi		
eDataStackType3DMathLo	3D Math Lo		
eDataStackType3DMathMean	3D Math Mean		
eDataStackType3DMathMultiply	3D Math Multiply		
eDataStackType3DMathSubtract	3D Math Subtract		
eDataStackType3DMathWorst	3D Math Worst		
eDataStackTypeBenchmark	Statistics Benchmark		
eDataStackTypeEvalConformSummary	Evaluation Conformance Summary		
eDataStackTypeEvalDataSetVariable	Evaluation DataSet Variable		
eDataStackTypeEvalMiniballAnalysis	Evaluation Miniball Analysis		
eDataStackTypeEvalRowVariable	Evaluation Row Variable		
eDataStackTypeEvalSiftRuleVariable	Evaluation SiftRule Variable		
eDataStackTypeEvalSumSampFilt	Evaluation Summary Sample Filter		
eDataStackTypeMergeAppend	Merge Append		
eDataStackTypemergeCollate	Merge Collate		
eDataStackTypeMergeSubset	Statistics Merge Subset		
eDataStackTypeMSA	Statistics MSA		
eDataStackTypeNone = 0	None		
eDataStackTypeNormality	Statistics Normality		
eDataStackTypeProjectionBar	Statistics ProjectionBar		
eDataStackTypesKurtosis	Statistics Kurtosis		
eDataStackTypesProcessCp	Statistics ProcessCp		
eDataStackTypesProcessCpK	Statistics ProcessCpK		
eDataStackTypesProcessCpM	Statistics ProcessCpM		
eDataStackTypesProcessCR	Statistics ProcessCR		
eDataStackTypesProcessLSL	Statistics ProcessLSL		
eDataStackTypesProcessMABar	Statistics ProcessMABar		
eDataStackTypesProcessMaxSubSize	Statistics ProcessMaxSubSize		
eDataStackTypesProcessMean	Statistics ProcessMean		
eDataStackTypesProcessMRBar	Statistics ProcessMRBar		
eDataStackTypesProcessNominal	Statistics ProcessNominal		
eDataStackTypesProcessPp	Statistics ProcessPp		
eDataStackTypesProcessPpK	Statistics ProcessPpK		
eDataStackTypesProcessPR	Statistics ProcessPR		



eDataStackTypesProcessRBar	Statistics ProcessRBar		
eDataStackTypesProcessSamples	Statistics ProcessSamples		
eDataStackTypesProcessSBar	Statistics ProcessSBar		
eDataStackTypesProcessStdDev	Statistics ProcessStdDev		
eDataStackTypesProcessStdDevEst	Statistics ProcessStdDevEst		
eDataStackTypesProcessStdDevTarget	Statistics ProcessStdDevTarget		
eDataStackTypesProcessUSL	Statistics ProcessUSL		
eDataStackTypesProcessXBarBar	Statistics ProcessXBarBar		
eDataStackTypesRp	Statistics Rp		
eDataStackTypesSkewness	Statistics Skewness		
eDataStackTypesSubgroupCount	Statistics SubgroupCount		
eDataStackTypesSubgroupHi	Statistics SubgroupHi		
eDataStackTypesSubgroupInvalidCount	Statistics SubgroupInvalidCount		
eDataStackTypesSubgroupLo	Statistics SubgroupLo		
eDataStackTypesSubgroupMA	Statistics SubgroupMA		
eDataStackTypesSubgroupMean	Statistics SubgroupMean		
eDataStackTypesSubgroupMR	Statistics SubgroupMR		
eDataStackTypesSubgroupRange	Statistics SubgroupRange		
eDataStackTypesSubgroupStdDev	Statistics SubgroupStdDev		
eDataStackTypesSubgroupSum	Statistics SubgroupSum		
eDataStackTypesSubgroupValidCount	Statistics SubgroupValidCount		
eDataStackTypeStatisticsBin	Statistics Bin		
eDataStackTypeStatisticsCount	Statistics Count		
eDataStackTypeStatisticsCp	Statistics Cp		
eDataStackTypeStatisticsCpk	Statistics Cpk		
eDataStackTypeStatisticsCpm	Statistics Cpm		
eDataStackTypeStatisticsCR	Statistics CR		
eDataStackTypeStatisticsHi	Statistics Hi		
eDataStackTypeStatisticsLo	Statistics Lo		
eDataStackTypeStatisticsMean	Statistics Mean		
eDataStackTypeStatisticsPp	Statistics Pp		
eDataStackTypeStatisticsPpk	Statistics Ppk		
eDataStackTypeStatisticsPR	Statistics PR		
eDataStackTypeStatisticsRange	Statistics Range		
eDataStackTypeStatisticsScore	Statistics Score		
eDataStackTypeStatisticsSD	Statistics Standard Deviation		
eDataStackTypeStatisticsSum	Statistics Sum		
eDataStackTypeStatisticsTally	Statistics Tally		
eDataStackTypesVariance	Statistics Variance		
eDataStackTypeWorst	Statistics Worst		



DataStack Bin Range Type - eDataSourceDataStackBinRangeType

Parameters	Help String	Description	Remarks
eDataStackBinRangeTypeMinusToPlus3	Minus To Plus 3 Standard Deviation		
eDataStackBinRangeTypeMinusToPlus4	Minus To Plus 4 Standard Deviation		
eDataStackBinRangeTypeNone = 1	Lowest To Highest		
eDataStackBinRangeTypeUserDefined	User Defined Low and High		



API - DbDataSource

DbDataSource Methods

Parameter	Type	Description	Remarks
AddRoutFilterSelection(BSTR filter_, BSTR value_);	long		
Clear();	boolean		
ClearRoutines();	boolean		
Connect();	boolean		
CreateFilters();	IQaFilters*		
CreateQuery(BSTR label_);	IQaQuery*		
Delete();	long		
GetFeatureFilterByPos(long pos_);	IQaFilter*		
GetFeatureFilterCount();	long		
GetImages(void);	IQalmages*	Returns an object representing the Qalmages list.	
GetLabel();	BSTR		
GetQuery(BSTR label_);	IQaQuery*		
GetQueryByPos(long pos_);	IQaQuery*		
GetQueryCount();	long		
GetRoutFilterSelectionByPos(long pos_);	IQaFilter*		
GetRoutFilterSelectionCount();	long		
GetRoutineByName(BSTR keyLabel_);	IQaRoutine*		
GetRoutineByPos(long pos);	IQaRoutine*		
GetRoutineCount();	long		
GetRoutineFilterByPos(long pos_);	IQaFilter*		
GetRoutineFiterCount();	long		
GetSampleFilterByPos(long pos_);	IQaFilter*		
GetSampleFilterCount();	long		
Load();	boolean		
LoadRoutines();	boolean		
SiteCode();	BSTR		
Update();	long		

DbDataSource Properties

Parameter	Type	Description	Remarks
DataSourceConnectionString;	BSTR		
DataSourceDatabaseName;	BSTR		
DataSourcePassword;	BSTR		
DataSourceType;	eDataSourceType		
DataSourceUserName;	BSTR		



ManagedConnection;	BSTR		
RoutineFilterSelectionType;	eRoutineFilterType		
RoutineLabelFilter;	BSTR		

DbDataSource Enumerators

Type - eDataSourceType

Parameters	Help String	Description	Remarks
eAccess,	MS Access		
eAPI	API		
eDataSourceTypeNone = 0,	None		
eEmbedded,	Embedded		
eFutureDb1,	Future Db1		
eFutureDb2,	Future Db2		
eODBC,	ODBC		
eOracle,	Oracle		
eSQLServer,	SQL Server		



API - EventChoice

The **QaEventChoice** object represents an Event Choice entry in the CM4D Site Database. Each Event Choice is associated to one Managed Document and can be loaded when a Managed Document is loaded. Event Choices are created from DataSet entries in a CM4D Document and get updated when a CM4D Document is saved. CM4D Documents can be created, opened, managed, unmanaged, and saved via the QaDoc API object.

Event Choice Properties

Parameter	Type	Description	Remarks
EventLabel;	BSTR	Event Choice Event Label (get only)	
ID;	BSTR	Event Choice ID (get only)	
ManagedDocumentID;	BSTR	Event Choice Managed Document ID (get only)	



API - Feature

Feature Methods

Parameter	Type	Description	Remarks
FeatPointsAdd(BSTR label);	long		
FeatPointsClear();	long		
FeatPointsGetActValue(short index, short type);	double		
FeatPointsGetNomValue(short index, short type);	double		
FeatPointsGetSeq(short index);	long		
FeatPointsSetActValue(short index, short type, short value);	void		
FeatPointsSetNomValue(short index, short type, double value);	void		
FeatPointsSetSeq(short index, long seq);	void		
FeatRefsAdd(short type, BSTR label);	long		
FeatRefsClear(short type);	long		
Filter(BSTR filter);	BSTR		
Filter(BSTR filter, BSTR lpszNewValue);	void		
GetAct(eFeatChr chr, BSTR sampLabel);	double		
GetActType(eFeatChr chr, BSTR sampLabel);	eActChrType		
GetFeatPointsCount();	long		
GetFeatPointsItem(long index);	BSTR		
GetFeatRefsCount(short type, long index);	long		
GetFeatRefsLabel(short type, long index);	BSTR		
GetFilterByID(short id_);	IQaFilter*		
GetHand();	short		
GetKeyLabel();	BSTR		
GetLabel();	BSTR		
GetLCL(eFeatChr chr, eControlLimitType usage);	double		
GetLRL(eFeatChr chr_, eFeatLimitValueType limitValueType_, eFeatLimitLateralType limitLateralType_);	double		
GetLSL(eFeatChr chr_, [optional] eFeatLimitValueType limitValueType_, [optional] eFeatLimitLateralType limitLateralType_);	double		
GetLSL2(eFeatChr chr_, eFeatLimitValueType limitValueType_, eFeatLimitLateralType limitLateralType_);	double		
GetNom(eFeatChr chr);	double		
GetRoutine();	IDispatch*		
GetUCL(eFeatChr chr, eControlLimitType usage);	double		
GetURL(eFeatChr chr_, eFeatLimitValueType limitValueType_, eFeatLimitLateralType limitLateralType_);	double		
GetUSL(eFeatChr chr_, [optional] eFeatLimitValueType limitValueType_, [optional] eFeatLimitLateralType limitLateralType_);	double		



GetUSL2(eFeatChr chr_, eFeatLimitValueType limitValueType_, eFeatLimitLateralType limitLateralType_);	double		
HasLowerLimit(eFeatChr chr_, eLimitType limitType_, eFeatLimitValueType valueType_, eFeatLimitLateralType lateralType_);	long		
HasNom(eFeatChr chr_);	long		
HasUpperLimit(eFeatChr chr_, eLimitType limitType_, eFeatLimitValueType valueType_, eFeatLimitLateralType lateralType_);	long		
ResolveString(BSTR CM4DVariable_);	BSTR		
SetAct(eFeatChr chr, eActChrType type, double value, BSTR sampLabel);	void		
SetLCL(eFeatChr chr, eControlLimitType usage, double value);	void		
SetLRL(eFeatChr chr_, double value_, eFeatLimitValueType limitValueType_, eFeatLimitLateralType limitLateralType_);	void		
SetLSL(eFeatChr chr_, double value_, [optional] eFeatLimitValueType limitValueType_, [optional] eFeatLimitLateralType limitLateralType_);	void		
SetLSL2(eFeatChr chr_, double value_, eFeatLimitValueType limitValueType_, eFeatLimitLateralType limitLateralType_);	void		
SetNom(eFeatChr chr, double value);	void		
SetUCL(eFeatChr chr, eControlLimitType usage, double value);	void		
SetURL(eFeatChr chr_, double value_, eFeatLimitValueType limitValueType_, eFeatLimitLateralType limitLateralType_);	void		
SetUSL(eFeatChr chr_, double value_, [optional] eFeatLimitValueType limitValueType_, [optional] eFeatLimitLateralType limitLateralType_);	void		
SetUSL2(eFeatChr chr_, double value_, eFeatLimitValueType limitValueType_, eFeatLimitLateralType limitLateralType_);	void		

Feature Properties

Parameter	Type	Description	Remarks
Alias;	BSTR		
Alias2;	BSTR		
Alias3;	BSTR		
Alias4;	BSTR		
AxisMethod;	short		
ConstructMethod;	short		
Description;	BSTR		
EndType;	short		
ExtrapolateAxis;	short		



som;	short		
Type;	eFeatureType		

Feature Enumerators

Types - eFeatureType

Parameters	Help String	Description	Remarks
eFeatureCircle = 6,	Circle		
eFeatureCone = 9,	Cone		
eFeatureCylinder = 8,	Cylinder		
eFeatureEllipse = 13	Ellipse		
eFeatureLine = 11,	Line		
eFeaturePlane = 12,	Plane		
eFeaturePoint = 5,	Point		
eFeatureSlot = 7,	Slot		
eFeatureSmiHole = 2,	SmiHole		
eFeatureSmiPoint = 1,	SmiPoint		
eFeatureSmiSlot = 3,	SmiSlot		
eFeatureSmiStud = 4,	SmiStud		
eFeatureSphere = 10,	Sphere		
eFeatureUndefined = 0,	Undefined		

Characteristic - eFeatChr

Parameters	Help String	Description	Remarks
eFeatChrAngle = 19,	Angle		
eFeatChrAzimuth = 47,	Azimuth		
eFeatChrDiameter = 14,	Diameter		
eFeatChrDistance = 18,	Distance		
eFeatChrFlush = 21,	Flush		
eFeatChrGap = 20,	Gap		
eFeatChrHorizon = 48	Horizon		
eFeatChrI = 29,	I		
eFeatChrJ = 30,	J		
eFeatChrK = 31,	K		
eFeatChrLength = 16,	Length		
eFeatChrNormal = 45,	Normal		
eFeatChrPolar = 46,	Polar		
eFeatChrPosition = 1,	Position		
eFeatChrRadius = 17,	Radius		
eFeatChrU = 32,	U		
eFeatChrV = 33,	V		
eFeatChrW = 34,	W		
eFeatChrWidth = 15,	Width		



eFeatChrX = 2,	X		
eFeatChrY = 3,	Y		
eFeatChrZ = 4,	Z		

Limit Value Type - eFeatLimitValueType

Parameters	Help String	Description	Remarks
eLimitValueAbsolute = 1	Absolute		
eLimitValueRelative	Relative		

Limit Lateral Type - eFeatLimitLateralType

Parameters	Help String	Description	Remarks
eLimitLateralUnilateralLo = 1,	Unilateral Lo		
eLimitLateralUnilateralHi,	Unilateral Hi		
eLimitLateralBilateral	Bilateral		

Actual Characteristic Type - eActChrType

Parameters	Help String	Description	Remarks
eFeatActChrTypeActual = 1,	Actual		
eFeatActChrTypeCar,	Car		
eFeatActChrTypeDeviation,	Deviation		
eFeatActChrTypeOffset,	Offset		
eFeatActChrTypeOrdinate	Ordinate		

Control Limit Type - eControlLimitType

Parameters	Help String	Description	Remarks
eFeatControlLimitTypeControlLimitMa	MA		
eFeatControlLimitTypeControlLimitMr,	MR		
eFeatControlLimitTypeControlLimitR,	R		
eFeatControlLimitTypeControlLimitS,	S		
eFeatControlLimitTypeControlLimitXbr = 2,	Xbar with R		
eFeatControlLimitTypeControlLimitXbs,	Xbar with S		
eFeatControlLimitTypeControlLimitXmr,	X with MR		

Limit Type - eLimitType

Parameters	Help String	Description	Remarks
eFeatLimitTypeControlLimitMa,	MA		
eFeatLimitTypeControlLimitMr,	MR		
eFeatLimitTypeControlLimitR,	R		
eFeatLimitTypeControlLimitS,	S		
eFeatLimitTypeControlLimitXbr,	Xbar with R		
eFeatLimitTypeControlLimitXbs,	Xbar with S		
eFeatLimitTypeControlLimitXmr,	X with MR		



eFeatLimitTypeRL	Reasonable Limits		
eFeatLimitTypeSL = 1,	SL		
eFeatLimitTypeSL2,	Spec Limits 2		

Reference Feature Type - eFeatRefType

Parameters	Help String	Description	Remarks
eFeatRefConsSubFeat,	Reference Constructed Sub-Feature		
eFeatRefDatumSubFeat,	Reference Datum Sub-Feature		
eFeatRefFeat	Reference Feature		
eFeatRefGdtFeat,	Reference GDT Feature		
eFeatRefPlane = 1,	Reference Plane		

Construct Method - eFeatConsMethod

Parameters	Help String	Description	Remarks
eFeatConsBestFit,	Construct BestFit		
eFeatConsCentroid,	Construct Centroid		
eFeatConsCurve	Construct Curve		
eFeatConsIntersect,	Construct Intersect		
eFeatConsMiddle = 1,	Construct Middle		
eFeatConsParallel,	Construct Parallel		
eFeatConsPerpendicular,	Construct Perpendicular		
eFeatConsProject,	Construct Project		
eFeatConsTangent,	Construct Tangent		
eFeatConsTangentThru,	Construct TangentThru		
eFeatConsTranslate,	Construct Translate		
eFeatConsVertex,	Construct Vertex		



API - Filter

Filter Methods

Parameter	Type	Description	Remarks
GetIndex();	short		

Filter Properties

Parameter	Type	Description	Remarks
Exclude;	boolean		
Label;	BSTR		
Value;	BSTR		
Type;	short		



API - Filters

Filters Methods

Parameter	Type	Description	Remarks
AddFilterObject(IQaFilter* filterObject_);	long		
GetCount();	long		
GetFilterObjectByPos(long pos_);	IQaFilter*		



API - Graph

Graph Methods

Parameter	Type	Description	Remarks
CreateChart(BSTR label);	IQaChart*		
CreateLine(BSTR label);	IQaLine*		
CreatePicture(BSTR label);	IQaPicture*		
CreateShape(BSTR label);	IQaShape*		
CreateTable(BSTR label);	IQaTable*		
CreateText(BSTR label);	IQaText*		
CreateView(BSTR label);	IQaView*		
Delete();	long		
Duplicate(IQaGraph* chart);	long		
GetBottom();	double		
GetChart(BSTR label);	IQaChart*		
GetChartByPos(long pos);	IQaChart*		
GetChartCount();	long		
GetDataSource();	IQaDataSource*		
GetLeader();	IQaLeader*		
GetLeft();	double		
GetLine(BSTR label);	IQaLine*		
GetLineByPos(long pos);	IQaLine*		
GetLineCount();	long		
GetPicture(BSTR label);	IQaPicture*		
GetPictureByPos(long pos);	IQaPicture*		
GetPictureCount();	long		
GetRight();	double		
GetShape(BSTR label);	IQaShape*		
GetShapeByPos(long pos);	IQaShape*		
GetShapeCount();	long		
GetStyle();	IQaStyle*		
GetTable(BSTR label);	IQaTable*		
GetTableByPos(long pos);	IQaTable*		
GetTableCount();	long		
GetText(BSTR label);	IQaText*		
GetTextByPos(long pos);	IQaText*		
GetTextCount();	long		
GetTop();	double		
GetView(BSTR label);	IQaView*		
GetViewByPos(long pos);	IQaView*		
GetViewCount();	long		
Refresh();	void		



Reload();	long		
SetBottom(double value);	void		
SetBox(double left, double bottom, double right, double top);	long		
SetBoxRelative(double left, double bottom, double right, double top);	long		
SetLeft(double value);	void		
SetRight(double value);	void		
SetTop(double value);	void		

Graph Properties

Parameter	Type	Description	Remarks
BuddyDataSourceType;	eAnnotBuddyDataSourceType		
BuddyHorizontalSpace;	double		
BuddyHorizontalType;	eAnnotBuddyHorizontalType		
BuddyLabel;	BSTR		
BuddyMatchHeight;	boolean		
BuddyMatchWidth;	boolean		
BuddyVerticalSpace;	double		
BuddyVerticalType;	eAnnotBuddyVertType		
Characteristic;	eCharacteristic		
CharacteristicHorz;	eCharacteristic		
CharacteristicType;	eGraphCharacteristicType		
CharacteristicTypeHorz;	eGraphCharacteristicType		
EventAction;	eAnnotEventAction		
EventStyleLabel;	BSTR		
ExecuteAction;	eAnnotExecuteAction		
GraphType;	eGraphType		
Label;	BSTR		
LoadFilename;	BSTR		
Locked;	boolean		
NoDraw;	boolean		
ScoreLabel;	BSTR		

Graph Enumerators

Characteristic Type - eGraphCharacteristicType

Parameters	Help String	Description	Remarks
eCharacteristicTypeActual = 1,	Actual		
eCharacteristicTypeCar,	Car		
eCharacteristicTypeDeviation,	Deviation		
eCharacteristicTypeOffset,	Offset		
eCharacteristicTypeOrdinate	Ordinate		



Graph Type - eGraphType

Parameters	Help String	Description	Remarks
eGraphTypeBenchmark,	Benchmark		
eGraphTypeBoxWhisker,	BoxWhisker		
eGraphTypeHistogram,	Histogram		
eGraphTypeMAMR,	MA-MR		
eGraphTypeNormality,	Normality		
eGraphTypePareto,	Pareto		
eGraphTypeSixSigma,	SixSigma		
eGraphTypeTargetChart	Target Chart		
eGraphTypeTrend = 1,	Trend		
eGraphTypeXBarR,	XBar-R		
eGraphTypeXBarS,	XBar-S		
eGraphTypeXMR,	X-MR		

API - Image

Qalmage is an object that represents a single document or routine 3D view image. All properties can be retrieved and set except for the **Label** property.

Image Methods

Parameter	Type	Description	Remarks
DeletImage(void)	boolean	Deletes the image represented by the Qalmage object.	Document images are removed from the document. Routine images are removed from the database. Image files are not deleted by this method since they may be used by multiple documents or routines. Management of image files is done using the Windows file system.
LoadImage(void)	boolean	Loads the image into a CM4D document so it can appear in a CM4D 3D View.	

Image Properties

Parameters	Type	Description	Remarks
Layer	short	Image Layer	
Child	BSTR	Image Child	
Descr	BSTR	Image Description	
Label	BSTR	Image Label (get only)	
OffsetX	double	Image Offset X	
OffsetY	double	Image Offset Y	
OffsetZ	double	Image Offset Z	
Path	BSTR	Image Filename Path	
Scale	double	Image Scale	

API - Images

Qalmages is a list object that provides access to a Document or Routine image list. It is obtainable from a QaDoc, QaRoutine, or QaDbDataSource object via the new method "IQaImages* GetImages(void)" which returns an object representing the Qalmages list. Any methods that return an image object may return no object if no object is available for the request.

Images Methods

Parameter	Type	Description	Remarks
GetCount(void);	LONG	Returns the number of images in the list.	
GetFirstImage(void);	IQaImage*	Returns an image object that represents the first image in the list.	
GetImage(BSTR label_);	IQaImage*	Returns an image with the provided label.	The label of the image is always the filename title without the filename extension.
GetImageByPosition(LONG position_);	IQaImage*	Returns an image object that represents the image in the list at the position requested.	The number One (1) represents the first image.
GetNextImage(void);	IQaImage*	Returns an image object that represents the next image in the list that follows the previous image obtained by any of the other "GetImage..." methods.	
NewImageForDocument(BSTR imagePath_);	IQaImage*	Creates a new document image for "imagePath_" and returns an image object that represents it.	This method can used with any Qalmages list.
NewImageForRoutine(BSTR routineKeyLabel_, BSTR imagePath_);	IQaImage*	Creates a new routine image for "routineKeyLabel_" and "imagePath_" and returns an image object that represents it.	The "routineKeyLabel_" is a label that uniquely identifies a routine and includes the handedness and routine key filters. It will have the form: RoutineA ^ LH ^ keyA ^ keyB. This method can only be used with a Qalmages list obtained from a QaRoutine or QaDbDataSource object. If the Qalmages list was obtained from a QaRoutine object the



			<p>“routineKeyLabel_” can be an empty string and the new image will be associated to the respective routine object.</p>
--	--	--	---



API - Leader

Leader Methods

Parameter	Type	Description	Remarks
ClearKinks()	long		
CreateKink(long pos)	long		
DeleteKink(long pos)	long		
GetKinkA(long pos)	double		
GetKinkB(long p)	double		
GetKinkCount()	long		
GetStyle()	IQaStyle*		
SetKinkA(long pos, double a)	long		
SetKinkB(long pos, double b)	long		

Leader Properties

Parameter	Type	Description	Remarks
AttachBottomCenter	boolean		
AttachBottomLeft	boolean		
AttachBottomRight	boolean		
AttachLeftCenter	boolean		
AttachRightCenter	boolean		
AttachTopCenter	boolean		
AttachTopLeft	boolean		
AttachTopRight	boolean		
FeatureLabel	BSTR		
LocateA	double		
LocateB	double		
StubLength	double		
TerminatorLength	double		
TerminatorSize	double		
TerminatorType	eLeaderTerminatorType		
TerminatorWidth	double		
Thickness	double		
Type	eLeaderType		
ViewLabel	BSTR		

Leader Enumerators

Type - eLeaderType

Parameters	Help String	Description	Remarks
eLeaderTypeDataSourceFeat	Use DataSource Feature		
eLeaderTypeFeatByLabel	Use Feature By Label		



eLeaderTypeLocate	Locate at A,B		
eLeaderTypeNone = 0	None		

Terminator Type - eLeaderTerminatorType

Parameters	Help String	Description	Remarks
eTerminatorTypeArrow	Arrow		
eTerminatorTypeAsterisk	Asterisk		
eTerminatorTypeCheck	Check Mark		
eTerminatorTypeDiamond	Diamond		
eTerminatorTypeDot	Dot		
eTerminatorTypeStar	Four Corner Star		
eTerminatorTypeHollowPlus	Hollow Plus		
eTerminatorTypeHollowX	Hollow X		
eTerminatorTypeNone = 0	No Terminator		
eTerminatorTypePlus	Plus		
eTerminatorTypeSquare	Square		
eTerminatorTypeX	X		



API - Line

Line Methods

Parameter	Type	Description	Remarks
Delete();	long		
Duplicate(IQaLine* line);	long		
GetBottom();	double		
GetDataSource();	IQaDataSource*		
GetLeader();	IQaLeader*		
GetLeft();	double		
GetRight();	double		
GetStyle();	IQaStyle*		
GetTop();	double		
Refresh();	void		
Reload();	long		
SetBottom(double value);	void		
SetBox(double left, double bottom, double right, double top);	long		
SetBoxRelative(double left, double bottom, double right, double top);	long		
SetLeft(double value);	void		
SetRight(double value);	void		
SetTop(double value);	void		

Line Properties

Parameter	Type	Description	Remarks
BuddyDataSourceType;	eAnnotBuddyDataSourceType		
BuddyHorizontalSpace;	double		
BuddyHorizontalType;	eAnnotBuddyHorizontalType		
BuddyLabel;	BSTR		
BuddyMatchHeight;	boolean		
BuddyMatchWidth;	boolean		
BuddyVerticalSpace;	double		
BuddyVerticalType;	eAnnotBuddyVertType		
EndA;	double		
EndB;	double		
EndOffsetAngle;	double		
EndOffsetEnabled;	boolean		
EndOffsetLength;	double		
EndTerminatorDia;	double		
EndTerminatorLength;	double		
EndTerminatorType;	eLineTerminatorType		



EndTerminatorWidth;	double		
EventAction;	eAnnotEventAction		
EventStyleLabel;	BSTR		
ExecuteAction;	eAnnotExecuteAction		
Label;	BSTR		
LoadFilename;	BSTR		
Locked;	boolean		
NoDraw;	boolean		
StartA;	double		
StartB;	double		
StartOffsetAngle;	double		
StartOffsetEnabled;	boolean		
StartOffsetLength;	double		
StartTerminatorDia;	double		
StartTerminatorLength;	double		
StartTerminatorType;	eLineTerminatorType		
StartTerminatorWidth;	double		

Line Enumerators

Terminator Type - eLineTerminatorType

Parameters	Help String	Description	Remarks
eLineTerminatorTypeArrow,	Arrow		
eLineTerminatorTypeDot	Dot		
eLineTerminatorTypeNone = 0,	None		



API - Managed Document

The **QaManagedDocument** object represents a Managed Document entry in the CM4D Site database. A Managed Document represents a CM4D Document that exists somewhere in the network file system. Managed Documents are created by managing a new or existing CM4D Document via methods in the QaDoc API object or via the CM4D application interface.

The CM4D API will maintain a list of Managed Documents as loaded by various QaDoc.LoadManagedDocument... methods. Managed Documents can be loaded with or without their associated subordinate objects (Event Choices, Report Choices, and Managed Routines). If loaded, this object has methods, as listed below, to obtain their representative objects. Document Manager Privilege is required to modify Managed Documents.

Managed Document Methods

Parameter	Type	Description	Remarks
GetEventChoiceByPos(LONG position_);	IQaEventChoice*	Get report Choice by list position	
GetManagedRoutineByPos(LONG position_);	IQaManagedRoutine*	Get Managed Routine by list position	
GetReportChoiceByPos(LONG position_);	IQaReportChoice*	Get Event Choice by list position	
GetEventChoiceCount(void);	LONG	Count of subordinate Event Choices	
GetManagedRoutineCount(void);	LONG	Count of subordinate Managed Routines	
GetReportChoiceCount(void);	LONG	Count of subordinate Report Choices	

Managed Document Properties

Parameter	Type	Description	Remarks
CreateTime;	DATE	Managed Document Create Date/Time	Get-only
Filename;	BSTR	Document Path and Filename	Get-only; fully qualified path
ID;	BSTR	Managed Document Unique Identifier	Get-only
Name;	BSTR	Managed Document Name	
SiteID;	BSTR	Site Unique Identifier	Get-only
Status;	eManagedStatus	Document Status	
Type;	eManagedAsType	Document Type	

Managed Document Enumerators

Managed Document Status - eManagedStatus

Parameters	Help String	Description	Remarks
eManagedDisabled = 0,	Managed Document Disabled		
eManagedEnabled = 1	Managed Document Enabled		



Managed Document Type - eManagedAsType

Parameters	Help String	Description	Remarks
eManagedAsCM4Di = 3,	CM4Di		
eManagedAsDynamicCM4D = 4,	Dynamic CM4D		
eManagedAsStaticCM4D = 1,	Static CM4D		
eManagedAsWorkcellCM4D = 5	Workcell CM4D		



API - Managed Routine

The **QaManagedRoutine** object represents a Managed Routine entry in the CM4D Site Database. Each Managed Routine is associated to one Managed Document and can be loaded when a Managed Document is loaded. Managed Routines are created from Query entries in a CM4D Document and get updated when a CM4D Document is saved. CM4D Documents can be created, opened, managed, unmanaged, and saved via the QaDoc API object.

Managed Routine Properties

Parameter	Type	Description	Remarks
AccessControlCode;	BSTR	Managed Routine Access Control Code	Get-only
DataSourceID;	BSTR	Managed Routine DataSource ID	Get-only
ManagedDocumentID;	BSTR	Managed Routine Managed Document ID	Get-only
RoutineDescription;	BSTR	Managed Routine Description	Get-only
RoutineID;	BSTR	Managed Routine ID	Get-only
RoutineLabel;	BSTR	Managed Routine Routine Label	Get-only



API - Picture

Picture Methods

Parameter	Type	Description	Remarks
Delete();	long		
Duplicate(IQaTable* table);	long		
GetBottom();	double		
GetDataSource();	IQaDataSource*		
GetLeader();	IQaLeader*		
GetLeft();	double		
GetRight();	double		
GetStyle();	IQaStyle*		
GetTop();	double		
Refresh();	void		
Reload();	long		
SetBottom(double value);	void		
SetBox(double left, double bottom, double right, double top);	long		
SetBoxRelative(double left, double bottom, double right, double top);	long		
SetLeft(double value);	void		
SetRight(double value);	void		
SetTop(double value);	void		

Picture Properties

Parameter	Type	Description	Remarks
BuddyDataSourceType;	eAnnotBuddyDataSourceType		
BuddyHorizontalSpace;	double		
BuddyHorizontalType;	eAnnotBuddyHorizontalType		
BuddyLabel;	BSTR		
BuddyMatchHeight;	boolean		
BuddyMatchWidth;	boolean		
BuddyVerticalSpace;	double		
BuddyVerticalType;	eAnnotBuddyVertType		
EventAction;	eAnnotEventAction		
EventStyleLabel;	BSTR		
ExecuteAction;	eAnnotExecuteAction		
Label;	BSTR		
LoadFilename;	BSTR		
Locked;	boolean		
NoDraw;	boolean		
PictureFilename;	BSTR		



API - Plot Space

Plot Space Methods

Parameter	Type	Description	Remarks
CreateBottomArea();	IQaChartArea*		
CreateTopArea();	IQaChartArea*		
Delete();	long		
GetBottom();	double		
GetBottomArea();	IQaChartArea*		
GetDataSource();	IQaDataSource*		
GetLeader();	IQaLeader*		
GetLeft();	double		
GetRight();	double		
GetStyle();	IQaStyle*		
GetTop();	double		
GetTopArea();	IQaChartArea*		
Reload();	long		
SetBottom(double value);	void		
SetBox(double left, double bottom, double right, double top);	long		
SetBoxRelative(double left, double bottom, double right, double top);	long		
SetLeft(double value);	void		
SetRight(double value);	void		
SetTop(double value);	void		

Plot Space Properties

Parameter	Type	Description	Remarks
BottomAreaPercent;	double		
BuddyDataSourceType;	eAnnotBuddyDataSourceType		
BuddyHorizontalSpace;	double		
BuddyHorizontalType;	eAnnotBuddyHorizontalType		
BuddyLabel;	BSTR		
BuddyMatchHeight;	boolean		
BuddyMatchWidth;	boolean		
BuddyVerticalSpace;	double		
BuddyVerticalType;	eAnnotBuddyVertType		
CustomLabel;	BSTR		
EventAction;	eAnnotEventAction		
EventStyleLabel;	BSTR		
ExecuteAction;	eAnnotExecuteAction		
Label;	BSTR		



LoadFilename;	BSTR		
Locked;	boolean		
NoDraw;	boolean		
TopAreaPercent;	double		



API - Query

Query Methods

Parameter	Type	Description	Remarks
ActivateSubroutine(IQaSubroutine* pSubroutine_);	short		
AddFeatFilter(BSTR filter_, BSTR value_);	long		
AddFeatureToFeatListByKeys(BSTR featureKeyLabel_, BSTR routineKeyLabel_);	long		
AddFeatureToFeatureList(IQaFeature* feature_);	long		
AddRoutineToQuery(BSTR keyLabel_);	long		
AddSampFilter(BSTR filter_, BSTR value_);	long		
AddSampleToSampList(IQaSample* sample_);	long		
AddSampleToSampListByKey(BSTR keyLabel_);	long		
ClearFeatFilters();	long		
ClearRoutFilters();	long		
ClearSampFilters();	long		
CreateFeature(BSTR label, [optional] variant routineKeyLabel_);	IQaFeature*		
CreateRoutine(BSTR label_, eHandedness hand_, IQaFilters* keyFilters_);	IQaRoutine*		
CreateSample(BSTR label, [optional] variant routineKeyLabel_);	IQaSample*		
CreateSMIHole(BSTR label, double x, double y, double z, double i, double j, double k, double dia, [optional] variant routineKeyLabel_);	IQaFeature*		
CreateSMIPoint(BSTR label, double x, double y, double z, double i, double j, double k, [optional] variant routineKeyLabel_);	IQaFeature*		
CreateSMISlot(BSTR label, double x, double y, double z, double i, double j, double k, double len, double wid, [optional] variant routineKeyLabel_);	IQaFeature*		
Delete();	long		
DeviationType(eDeviationSmiType smiType, eDeviationCharacteristicType chrType);	eDeviationType		
DeviationType(eDeviationSmiType smiType, eDeviationCharacteristicType chrType, eDeviationType newType);	void		
GetDataSourceFeatsFiltersByPos(short pos);	IQaQueryFilter*		
GetDataSourceFeatsFiltersCount();	long		
GetDataSourceLabel();	BSTR		
GetDataSourceSampFiltersByPos(short pos);	IQaQueryFilter*		
GetDataSourceSampFiltersCount();	long		
GetFeature(BSTR featureLabel);	IQaFeature*		
GetFeaturebyPos(long pos);	IQaFeature*		
GetFeatureCount();	long		



GetFeatureListCount();	long		
GetFeatureListFeatByPos(long pos_);	IQaFeature*		
GetRoutineByName(BSTR keyLabel_);	IQaRoutine*		
GetRoutineByPos(long pos);	IQaRoutine*		
GetRoutineCount();	long		
GetSample(BSTR sampleLabel);	IQaSample*		
GetSamplebyPos(long pos);	IQaSample*		
GetSampleCount();	long		
GetSampleListCount();	long		
GetSampleListKeyLabelByPos(long pos_);	BSTR		
GetSampleListSampByPos(long pos_);	IQaSample*		
GetSubroutineByName(BSTR keyLabel_);	IQaSubroutine*		
GetSubroutineByPos(long pos_);	IQaSubroutine*		
GetSubroutineCount();	long		
IsLoaded();	boolean		
Load();	boolean		
LoadSubroutineByFilter(BSTR filter_, BSTR value_);	long		
MakeFeatureList();	long		
MakeSampleList();	long		
Refresh();	long		
RemoveFeatFilter(BSTR label_, BSTR value_);	long		
RemoveRoutFilter(BSTR label_, BSTR value_);	long		
RemoveRoutineFromQuery(BSTR keyLabel_);	long		
RemoveSampFilter(BSTR label_, BSTR value_);	long		
SetActiveSample(BSTR label_);	BOOL		
UnLoadSubroutines();	long		
Update();	long		

Query Properties

Parameter	Type	Description	Remarks
DataSourceConnectionString;	BSTR		
DataSourceDatabaseName;	BSTR		
DataSourceFeatSelectionsType;	eFeatureFilterSelectionType		
DataSourceFeatureFilterLabel;	BSTR		
DataSourceFeaturesFilter;	VARIANT		
DataSourceFeaturesFilterType;	eFeatureFilterType		
DataSourcePassword;	BSTR		
DataSourceRoutineCode;	BSTR		
DataSourceRoutineLabel;	BSTR		
DataSourceSampleFilterLabel;	BSTR		
DataSourceSamplesAfterDateTime;	DATE		
DataSourceSamplesBeforeDateTime;	DATE		



DataSourceSamplesBeforeDays;	long		
DataSourceSamplesBeforeHours;	long		
DataSourceSamplesBeforeMinutes;	long		
DataSourceSamplesBeforeTime;	DATE		
DataSourceSamplesCutOffDate;	DATE		
DataSourceSamplesCutOffDateType;	eSampleCutoffDateType		
DataSourceSamplesCutOffDays;	long		
DataSourceSamplesDuringBeginType;	eSampleDuringType		
DataSourceSamplesDuringMinusCount;	long		
DataSourceSamplesDuringMinusType;	eSampleDuringType		
DataSourceSamplesDuringPeriodCount;	long		
DataSourceSamplesDuringPeriodType;	eSampleDuringType		
DataSourceSamplesFilters;	VARIANT		
DataSourceSamplesFilterType;	eSampleFilterType		
DataSourceSamplesLast;	long		
DataSourceSamplesLoadLikeQuery;	BSTR		
DataSourceSamplesLoadOrder;	eSampleOrder		
DataSourceSamplesOrder;	eSampleOrder		
DataSourceSamplesQueryDate;	DATE		
DataSourceSamplesSkip;	long		
DataSourceSamplesSortOrder;	eSampleOrder		
DataSourceSamplesType;	eSampleType		
DataSourceSamplesUseQueryDate;	BOOL		
DataSourceUserName;	BSTR		
Label;	BSTR		
ManagedConnection;	BSTR		
OracleConnectionString;	BSTR		
OracleFeaturesFilter;	VARIANT		
OracleFeaturesFilterType;	eFeatureFilterType		
OraclePassword;	BSTR		
OracleRoutineLabel;	BSTR		
OracleSamplesAfterDateTime;	DATE		
OracleSamplesBeforeDateTime;	DATE		
OracleSamplesBeforeDays;	long		
OracleSamplesBeforeHours;	long		
OracleSamplesBeforeMinutes;	long		
OracleSamplesBeforeTime;	DATE		
OracleSamplesDuringBeginType;	eSampleDuringType		
OracleSamplesDuringMinusCount;	long		
OracleSamplesDuringMinusType;	eSampleDuringType		
OracleSamplesDuringPeriodCount;	long		
OracleSamplesDuringPeriodType;	eSampleDuringType		



OracleSamplesFilters;	VARIANT		
OracleSamplesFilterType;	eSampleFilterType		
OracleSamplesLast;	long		
OracleSamplesLoadOrder;	eSampleOrder		
OracleSamplesOrder;	eSampleOrder		
OracleSamplesSkip;	long		
OracleSamplesSortOrder;	eSampleOrder		
OracleSamplesType;	eSampleType		
OracleUserName;	BSTR		
QueryType;	eQueryType		
SQLServerConnectionString;	BSTR		
SQLServerDatabaseName;	BSTR		
SQLServerFeaturesFilter;	VARIANT		
SQLServerFeaturesFilterType;	eFeatureFilterType		
SQLServerPassword;	BSTR		
SQLServerRoutineLabel;	BSTR		
SQLServerSamplesAfterDateTime;	DATE		
SQLServerSamplesBeforeDateTime;	DATE		
SQLServerSamplesBeforeDays;	long		
SQLServerSamplesBeforeHours;	long		
SQLServerSamplesBeforeMinutes;	long		
SQLServerSamplesBeforeTime;	DATE		
SQLServerSamplesDuringBeginType;	eSampleDuringType		
SQLServerSamplesDuringMinusCount;	long		
SQLServerSamplesDuringMinusType;	eSampleDuringType		
SQLServerSamplesDuringPeriodCount;	long		
SQLServerSamplesDuringPeriodType;	eSampleDuringType		
SQLServerSamplesFilters;	VARIANT		
SQLServerSamplesFilterType;	eSampleFilterType		
SQLServerSamplesLast;	long		
SQLServerSamplesLoadOrder;	eSampleOrder		
SQLServerSamplesOrder;	eSampleOrder		
SQLServerSamplesSkip;	long		
SQLServerSamplesSortOrder;	eSampleOrder		
SQLServerSamplesType;	eSampleType		
SQLServerUserName;	BSTR		
SubGroupSize;	long		



Query Enumerators

Types - eQueryType

Parameters	Help String	Description	Remarks
eQueryAccess,	MS Access		
eQueryAccessODBC,	Access/ODBC (obsolete)		
eQueryApi	API		
eQueryODBC,	ODBC (obsolete)		
eQueryOracle,	Oracle		
eQueryPersOracle,	Personal Oracle (obsolete)		
eQueryQuantum,	Quantum (obsolete)		
eQuerySQLServer,	SQL Server		
eQueryUndefined = 0,	Undefined		

Sample Types - eSampleType

Parameters	Help String	Description	Remarks
eSampleAll,	All Sample		
eSampleDuring,	During Timeframe		
eSampleLast,	Last 'n' Sample		
eSampleList,	Only Selected Samples		
eSampleNone = 0,	No Sample		
eSamplePrevious,	Previous Timeframe		
eSampleQuery	Query Samples		
eSampleSince,	Since Date/Time		

Sample Order Types - eSampleOrder

Parameters	Help String	Description	Remarks
eSampleOrderDate = 1,	Date		
eSampleOrderDesc,	Description		
eSampleOrderFilter	Filter		
eSampleOrderLabel,	Label		
eSampleOrderSeq,	Sequence		
eSampleOrderSer,	Serial		

Feature Filter Selection Types - eFeatureFilterSelectionType

Parameters	Help String	Description	Remarks
eAllFeaturesAsFiltered,	Only Features that match at least 1 specifier		
eListOfFeatures,	Only Features that match all specifiers		
eNoFeatures = -1,	No filtering (All Features)		
eQueryFeatures	Only Features from active subroutine		
eSubroutineFeatures,	Only Features selected from list		



Feature Filter Types - eFeatureFilterType

Parameters	Help String	Description	Remarks
eFeatureFilterAll	Only Features that match all specifiers		
eFeatureFilterNone = 0,	No filtering (All Features)		
eFeatureFilterOne,	Only Features that match at least 1 specifier		

Sample Filter Types - eSampleFilterType

Parameters	Help String	Description	Remarks
eSampleFilterNone = 0,	No filtering (All Samples)		
eSampleFilterOne,	Only Samples that match at least 1 specifier		
eSampleFilterAll	Only Samples that match all specifiers		

Routine Filter Types - eRoutineFilterType

Parameters	Help String	Description	Remarks
eRoutineFilterAll	Only Routines that match all specifiers		
eRoutineFilterNone = 0,	No filtering (All Routines)		
eRoutineFilterOne,	Only Routines that match at least 1 specifier		

Sample During Types - eSampleDuringType

Parameters	Help String	Description	Remarks
eSampleDuringDay = 1,	Day		
eSampleDuringMonth,	Month		
eSampleDuringWeek,	Week		
eSampleDuringYear	Year		

Sample Cutoff Date Type - eSampleCutoffDateType

Parameters	Help String	Description	Remarks
eAbsolute,	Absolute		
eNoCutoff,	No Cutoff		
eRelative	Relative		

Deviation Characteristic Type - eDeviationCharacteristicType

Parameters	Help String	Description	Remarks
e_chrAngle,	Angle		
e_chrAzi,	Azimuth		
e_chrDia,	Diameter		
e_chrDist,	Distance		
e_chrFlush,	Flush		
e_chrGap,	Gap		
e_chrHor,	Horizon		
e_chrLen,	Length		
e_chrNor = 66,	Normal		



e_chrP,	Primary		
e_chrPol,	Polar		
e_chrPos = 0,	Position		
e_chrRadius,	Radius		
e_chrS,	Secondary		
e_chrSig = 36,	Significant		
e_chrT,	Tertiary		
e_chrTol	Toleranced		
e_chrWid,	Width		
e_chrX,	X		
e_chrY,	Y		
e_chrZ,	Z		

Deviation SMI Type - eDeviationSmiType

Parameters	Help String	Description	Remarks
e_smiDist,	Distance		
e_smiFlush,	Flush		
e_smiGap	Gap		
e_smiHole,	Hole		
e_smiMid,	Midpoint		
e_smiNon = 0,	Non		
e_smiRef,	Reference		
e_smiSlot,	Slot		
e_smiSurf,	Surface		
e_smiVar,	Variance		

Deviation Type - eDeviationType

Parameters	Help String	Description	Remarks
e_DevCar,	Car		
e_DevOffset	Offset		
e_DevVector = 1,	Vector		



API - Query Filter

Query Filter Properties

Parameter	Type	Description	Remarks
Exclude;	boolean		
Label;	BSTR		
Value;	BSTR		



API - Report Choice

The **QaReportChoice** object represents a Report Choice entry in the CM4D Site Database. Each Report Choice is associated to one Managed Document and can be loaded when a Managed Document is loaded. Report Choices are created from Sheet entries in a CM4D Document and get updated when a CM4D Document is saved. CM4D Documents can be created, opened, managed, unmanaged, and saved via the [QaDoc](#) API object.

Report Choice Properties

Parameter	Type	Description	Remarks
ID;	BSTR	Report Choice Unique Identifier	Get-only
ManagedDocumentID;	BSTR	Report Choice Managed Document Unique Identifier	Get-only
ReportLabel;	BSTR	Report Choice Report Label	Get-only
ReportSequence;	LONG	Report Choice Report Sequence	Get-only
SheetLabel;	BSTR	Report Choice Sheet Label	Get-only
SheetSetLabel;	BSTR	Report Choice Sheet Set Label	Get-only



API - Routine

Routine Methods

Parameter	Type	Description	Remarks
Delete();	long		
Filter(BSTR Filter_);	BSTR		
Filter(BSTR Filter_, BSTR lpszNewValue);	void		
GetCode();	BSTR		
GetFeatureByPos(short pos_);	IQaFeature*		
GetFeatureCount();	long		
GetFeaturesAvailable();	long		
GetFilterByID(short id_);	IQaFilter*		
GetFilters();	IQaFilters*		
GetHand();	BSTR		
GetImages(void);	IQalmages*	Returns an object representing the Qalmages list.	
GetSamplesAvailable();	long		
KeyLabel();	BSTR		
NewFeature(BSTR label_);	IQaFeature*		
SetHand(eRoutHandedness hand_);	long		

Routine Properties

Parameter	Type	Description	Remarks
AccessCode;	BSTR		
Label;	BSTR		
MonitorDataProcessed;	boolean		
MonitorEndOfSubgroup;	boolean		
MonitorOutOfSpec;	boolean		
Units;	eUnits		

Routine Enumerators

Handedness - eRoutHandedness

Parameters	Help String	Description	Remarks
eBothHanded = 4	Both		
eLeftHanded = 2,	LH		
eNotHanded = 0,	Not Handed		
eRightHanded = 1,	RH		



Monitor Flag - eRoutMonitor

Parameters	Help String	Description	Remarks
eDataProcessed = 1,	Data Processed		
eEndOfSubgroup = 4	End of Subgroup		
eNotMonitored = 0,	Not Monitored		
eOutOfSpec = 2,	Out of Spec		



API - Sample

Sample Methods

Parameter	Type	Description	Remarks
GetFilter(BSTR filter_);	BSTR		
GetFilterByID(short id_);	IQaFilter*		
GetKeyLabel();	BSTR		
GetLabel();	BSTR		
GetRoutine();	IDispatch*		

Sample Properties

Parameter	Type	Description	Remarks
DateTime;	DATE		
Description;	BSTR		
Sequence;	long		
Status;	short		



API - Scheduler DataSource

Scheduler DataSource Methods

Parameter	Type	Description	Remarks
GetDataSource();	IQaDataSource*		

Scheduler DataSource Properties

Parameter	Type	Description	Remarks
IsActive;	boolean		
ReportNameDefault;	BSTR		



API - Score

Score Methods

Parameter	Type	Description	Remarks
CreateBin(BSTR label);	IQaScoreBin*		
GetBin(BSTR label);	IQaScoreBin*		
GetBinByPos(long pos);	IQaScoreBin*		
GetBinCount();	long		
GetLabel();	BSTR		
GetStartBin();	IQaScoreBin*		

Score Properties

Parameter	Type	Description	Remarks
StartBinType;	short		



API - Score Bin

Score Bin Properties

Parameter	Type	Description	Remarks
BoundaryText;	BSTR		
Label;	BSTR		
ScoreText;	BSTR		
ScoreValue;	double		
StyleLabel;	BSTR		



API - Shape

Shape Methods

Parameter	Type	Description	Remarks
Delete();	long		
Duplicate(IQaShape* shape);	long		
GetBottom();	double		
GetDataSource();	IQaDataSource*		
GetLeader();	IQaLeader*		
GetLeft();	double		
GetRight();	double		
GetStyle();	IQaStyle*		
GetTop();	double		
Refresh();	void		
Reload();	long		
SetBottom(double value);	void		
SetBox(double left, double bottom, double right, double top);	long		
SetBoxRelative(double left, double bottom, double right, double top);	long		
SetLeft(double value);	void		
SetRight(double value);	void		
SetTop(double value);	void		

Shape Properties

Parameter	Type	Description	Remarks
BuddyDataSourceType;	eAnnotBuddyDataSourceType		
BuddyHorizontalSpace;	double		
BuddyHorizontalType;	eAnnotBuddyHorizontalType		
BuddyLabel;	BSTR		
BuddyMatchHeight;	boolean		
BuddyMatchWidth;	boolean		
BuddyVerticalSpace;	double		
BuddyVerticalType;	eAnnotBuddyVertType		
EventAction;	eAnnotEventAction		
EventStyleLabel;	BSTR		
ExecuteAction;	eAnnotExecuteAction		
Label;	BSTR		
LoadFilename;	BSTR		
Locked;	boolean		
NoDraw;	boolean		
ShapeType;	eShapeType		



Shape Enumerators

Shape Type - eShapeType

Parameters	Help String	Description	Remarks
eShapeTypeAsterisk = 1,	Asterisk		
eShapeTypeCheck,	Check Mark		
eShapeTypeDiamond,	Diamond		
eShapeTypeEastTriangle,	East Triangle		
eShapeTypeEllipse,	Ellipse		
eShapeTypeHollowPlus,	Hollow Plus		
eShapeTypeHollowX,	Hollow X		
eShapeTypeNorthTriangle,	North Triangle		
eShapeTypePlus,	Plus		
eShapeTypeRectangle,	Rectangle		
eShapeTypeSouthTriangle,	South Triangle		
eShapeTypeStar	Four Corner Star		
eShapeTypeWestTriangle,	West Triangle		
eShapeTypeX,	X		



API - Sheet

Sheet Methods

Parameter	Type	Description	Remarks
Activate();	void		
CreateChart(BSTR label);	IQaChart*		
CreateContainer(BSTR label, BSTR filename);	IQaContainer*		
CreateGraph(BSTR label);	IQaGraph*		
CreateLine(BSTR label);	IQaLine*		
CreatePicture(BSTR label);	IQaPicture*		
CreateShape(BSTR label);	IQaShape*		
CreateTable(BSTR label);	IQaTable*		
CreateText(BSTR label);	IQaText*		
CreateView(BSTR label);	IQaView*		
Delete();	long		
GetAnnot(BSTR label);	IQaAnnot*		
GetAnnotByPos(long pos);	IQaAnnot*		
GetAnnotCount();	long		
GetChart(BSTR label);	IQaChart*		
GetChartByPos(long pos);	IQaChart*		
GetChartCount();	long		
GetContainer(BSTR label);	IQaContainer*		
GetContainerByPos(long pos);	IQaContainer*		
GetContainerCount();	long		
GetGraph(BSTR label);	IQaGraph*		
GetGraphByPos(long pos);	IQaGraph*		
GetGraphCount();	long		
GetLine(BSTR label);	IQaLine*		
GetLineByPos(long pos);	IQaLine*		
GetLineCount();	long		
GetSchedulerDataSource();	IQaSchedulerDataSource*		
GetShape(BSTR label);	IQaShape*		
GetShapeByPos(long pos);	IQaShape*		
GetShapeCount();	long		
GetTable(BSTR label);	IQaTable*		
GetTableByPos(long pos);	IQaTable*		
GetTableCount();	long		
GetText(BSTR label);	IQaText*		
GetTextByPos(long pos);	IQaText*		
GetTextCount();	long		
GetView(BSTR label);	IQaView*		



GetViewByPos(long pos);	IQaView*		
GetViewCount();	long		
Print();	long		
PrintBitmap(BSTR filename, long width, long height);	long		
PrintClipboard();	long		
PrintJPEG(BSTR filename, long width, long height);	long		
PrintMetafile(BSTR filename);	long		
PrintPDF(BSTR filename);	long		

Sheet Properties

Parameter	Type	Description	Remarks
Color;	eColor		
Label;	BSTR		



API - SheetSet

SheetSet Methods

Parameter	Type	Description	Remarks
CreateSheet(BSTR label);	IQaSheet*		
Delete();	long		
GetSchedulerDataSource();	IQaSchedulerDataSource*		
GetSheet(BSTR sheetLabel)	IQaSheet*		
GetSheetByPos(long pos);	IQaSheet*		
GetSheetCount();	long		
HasAutoReport();	boolean		
Print();	long		
PrintPDF(BSTR filename);	long		
UndefineAutoReport();	long		

SheetSet Properties

Parameter	Type	Description	Remarks
AllowPrintScheduler;	boolean		
AllowPrintWTC;	boolean		
Label;	BSTR		
Length;	double		
Orientation;	eSheetSetOrientation		
SchedulerRefreshAutoReport;	boolean		
Size;	eSheetSetSize		
Width;	double		

SheetSet Enumerators

Size - eSheetSetSize

Parameters	Help String	Description	Remarks
eSizeA,	A		
eSizeA0	A0		
eSizeA1,	A1		
eSizeA2,	A2		
eSizeA3,	A3		
eSizeA4,	A4		
eSizeB,	B		
eSizeC,	C		
eSizeCustom = 0,	Custom		
eSizeD,	D		
eSizeE,	E		



Orientation - eSheetSetOrientation

Parameters	Help String	Description	Remarks
eOrientationLandscape = 1,	Landscape		
eOrientationPortrait	Portrait		



API - Site Configuration

The **QaSiteConfiguration** object represents a Site Configuration entry in the CM4D Site Database. When CM4D is started all Site Configurations are loaded from the Site Database and become available to the API. The QaDoc API object has methods to get Site Configurations. Changes to Site Configurations must be committed via the QaDoc.UpdateDatabase method. A CM4D document does not need to be opened (via QaDoc.OpenDocument) to obtain or update Site Configurations. New Site Configurations must be added via the SiteManager application. Site Manager Privilege is required to modify Site Configurations.

Site Configuration Properties

Parameter	Type	Description	Remarks
ChangeLogging;	eChangeLogging	Site Change Logging Status	
Code;	BSTR	Site Code	Get-only
Description;	BSTR	Site Description	
ID;	BSTR	Site Unique Identifier	Get-only
ImagePath;	BSTR	Site Image Path	
Label;	BSTR	Site Label	
UncPath;	BSTR	Site UNC Path	

Site Configuration Enumerators

Change Logging - eChangeLogging

Parameters	Help String	Description	Remarks
eChangeLoggingOff = 0,	Change Logging Off		
eChangeLoggingOn = 1	Change Logging On		



API - Style

Style Properties

Parameter	Type	Description	Remarks
BaseStyleLabel;	BSTR		
BorderMarginBottom;	double		
BorderMarginLeft;	double		
BorderMarginRight;	double		
BorderMarginTop;	double		
BorderSize;	double		
BorderType;	eStyleBorderType		
BrushColor;	eColor		
BrushHatch;	eStyleBrushHatch		
BrushHatchSize;	long		
FontAlignment;	eAlignment		
FontColor;	eColor		
FontFaceName;	BSTR		
FontItalics;	boolean		
FontOrientation;	eStyleFontOrientation		
FontPointSize;	long		
FontSizeToFit;	boolean		
FontUnderline;	boolean		
FontWeight;	eStyleFontWeight		
FontWordWrap;	boolean		
FormatDecimalPlaces;	long		
FormatFieldWidth;	long		
FormatLeadCharacters;	eStyleFormatLeadChar		
FormatSigned;	boolean		
Label;	BSTR		
PenColor;	eColor		
PenStyle;	eStylePenStyle		
PenWidth;	double		
UseBorderMarginBottom;	boolean		
UseBorderMarginLeft;	boolean		
UseBorderMarginRight;	boolean		
UseBorderMarginTop;	boolean		
UseBorderType;	boolean		
UseBrushColor;	boolean		
UseBrushHatch;	boolean		
UseFontAlignment;	boolean		
UseFontColor;	boolean		
UseFontFaceName;	boolean		



UseFontItalics;	boolean		
UseFontOrientation;	boolean		
UseFontPointSize;	boolean		
UseFontSizeToFit;	boolean		
UseFontUnderline;	boolean		
UseFontWeight;	boolean		
UseFontWordWrap;	boolean		
UseFormat;	boolean		
UsePenColor;	boolean		
UsePenStyle;	boolean		
UsePenWidth;	boolean		

Style Enumerators

Pen Style - eStylePenStyle

Parameters	Help String	Description	Remarks
ePenStyleDash,	Dash		
ePenStyleDashDot,	Dash Dot		
ePenStyleDashDotDot	Dash Dot Dot		
ePenStyleDot,	Dot		
ePenStyleSolid = 1,	Solid		

Brush Hatch - eStyleBrushHatch

Parameters	Help String	Description	Remarks
eBrushHatchCross,	Cross		
eBrushHatchDiagonal,	Diagonal		
eBrushHatchDownDiagonal,	Down Diagonal		
eBrushHatchHorizontal,	Horizontal		
eBrushHatchNone = 0,	None		
eBrushHatchUpDiagonal,	Up Diagonal		
eBrushHatchVertical	Vertical		

Border Type - eStyleBorderType

Parameters	Help String	Description	Remarks
eBorderTypeBox,	Box		
eBorderTypeButton	Button		
eBorderTypeCircumEllipse,	Circumscribed Ellipse		
eBorderTypeInscribedEllipse,	Inscribed Ellipse		
eBorderTypeInvisible,	Invisible		
eBorderTypeNone = 0,	None		
eBorderTypeRoundedBox,	Rounded Box		
eBorderTypeShadow,	Shadow		

**Font Weight - eStyleFontWeight**

Parameters	Help String	Description	Remarks
eFontWeightBold,	Bold		
eFontWeightExtaBold,	Extra Bold		
eFontWeightExtaThin,	Extra Thin		
eFontWeightHeavy	Heavy		
eFontWeightLight,	Light		
eFontWeightMedium,	Medium		
eFontWeightNormal,	Normal		
eFontWeightSemiBold,	Semi Bold		
eFontWeightThin = 1,	Thin		

Alignment - eAlignment

Parameters	Help String	Description	Remarks
eAlignmentCenter,	Center		
eAlignmentLeft = 1,	Left		
eAlignmentRight	Right		

Font Orientation - eStyleFontOrientation

Parameters	Help String	Description	Remarks
eFontOrientationHorizontal = 1,	Horizontal		
eFontOrientationVerticalLeft,	Vertical Left		
eFontOrientationVerticalRight	Vertical Right		

Format Lead Character - eStyleFormatLeadChar

Parameters	Help String	Description	Remarks
eFormatLeadCharNone = 0,	None		
eFormatLeadCharSpaces,	Spaces		
eFormatLeadCharZero	Zero		



API - Subroutine

Subroutine Methods

Parameter	Type	Description	Remarks
Filter(BSTR Filter_);	BSTR		
Filter(BSTR Filter_, BSTR IpszNewValue);	void		
GetFilters();	IQaFilters*		
GetHand();	BSTR		
KeyLabel();	BSTR		
SetHand(eRoutHandedness hand_);	long		

Subroutine Properties

Parameter	Type	Description	Remarks
AccessCode;	BSTR		
Label;	BSTR		
MonitorDataProcessed;	boolean		
MonitorEndOfSubgroup;	boolean		
MonitorOutOfSpec;	boolean		



API - Table

Table Methods

Parameter	Type	Description	Remarks
Delete();	long		
Duplicate(IQaTable* table);	long		
GetBottom();	double		
GetCell(long row, long col);	IQaTableCell*		
GetCellStyle();	IQaStyle*		
GetDataSource();	IQaDataSource*		
GetLeader();	IQaLeader*		
GetLeft();	double		
GetRight();	double		
GetStyle();	IQaStyle*		
GetTop();	double		
Refresh();	void		
Reload();	long		
SetBottom(double value);	void		
SetBox(double left, double bottom, double right, double top);	long		
SetBoxRelative(double left, double bottom, double right, double top);	long		
SetLeft(double value);	void		
SetRight(double value);	void		
SetTop(double value);	void		

Table Properties

Parameter	Type	Description	Remarks
BuddyDataSourceType;	eAnnotBuddyDataSourceType		
BuddyHorizontalSpace;	double		
BuddyHorizontalType;	eAnnotBuddyHorizontalType		
BuddyLabel;	BSTR		
BuddyMatchHeight;	boolean		
BuddyMatchWidth;	boolean		
BuddyVerticalSpace;	double		
BuddyVerticalType;	eAnnotBuddyVertType		
ColCount;	long		
DisplayColHeaders;	boolean		
DisplayRowHeaders;	boolean		
EventAction;	eAnnotEventAction		
EventStyleLabel;	BSTR		
ExecuteAction;	eAnnotExecuteAction		



Label;	BSTR		
LoadFilename;	BSTR		
Locked;	boolean		
NoDraw;	boolean		
RowCount;	long		



API - Table Cell

Table Cell Methods

Parameter	Type	Description	Remarks
GetDataSource();	IQaDataSource*		
GetStyle();	IQaStyle*		

Table Cell Properties

Parameter	Type	Description	Remarks
ExpandByFeature;	boolean		
ExpandBySample;	boolean		
ExpandFeaturesAcrossSamplesDown;	boolean		
Text;	BSTR		
UseTableDataSource;	boolean		
UseTableStyle;	boolean		



API - Text

Text Methods

Parameter	Type	Description	Remarks
Delete();	long		
Duplicate(IQaText* text);	long		
GetBottom();	double		
GetDataSource();	IQaDataSource*		
GetLeader();	IQaLeader*		
GetLeft();	double		
GetResolvedText();	BSTR		
GetRight();	double		
GetStyle();	IQaStyle*		
GetTop();	double		
Refresh();	void		
Reload();	long		
SetBottom(double value);	void		
SetBox(double left, double bottom, double right, double top);	long		
SetBoxRelative(double left, double bottom, double right, double top);	long		
SetLeft(double value);	void		
SetRight(double value);	void		
SetTop(double value);	void		

Text Properties

Parameter	Type	Description	Remarks
BuddyDataSourceType;	eAnnotBuddyDataSourceType		
BuddyHorizontalSpace;	double		
BuddyHorizontalType;	eAnnotBuddyHorimzontalType		
BuddyLabel;	BSTR		
BuddyMatchHeight;	boolean		
BuddyMatchWidth;	boolean		
BuddyVerticalSpace;	double		
BuddyVerticalType;	eAnnotBuddyVertType		
EventAction;	eAnnotEventAction		
EventStyleLabel	BSTR		
ExecuteAction;	eAnnotExecuteAction		
Label;	BSTR		
LoadFilename;	BSTR		
Locked;	boolean		
NoDraw;	boolean		



Text;	BSTR		
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API - View

View Methods

Parameter	Type	Description	Remarks
Delete();	long		
Duplicate(IQaView* view);	long		
GetBottom();	double		
GetDataSource();	IQaDataSource*		
GetFeatureMarkerArrowLength(eFeatureMarkerFeatureType featureMarkerFeatureType);	short		
GetFeatureMarkerArrowWidth(eFeatureMarkerFeatureType featureMarkerFeatureType);	short		
GetFeatureMarkerLength(eFeatureMarkerFeatureType featureMarkerFeatureType);	short		
GetFeatureMarkerMaterialID(eFeatureMarkerFeatureType featureMarkerFeatureType);	eFeatureMarkerMaterial		
GetFeatureMarkerRootLength(eFeatureMarkerFeatureType featureMarkerFeatureType);	short		
GetFeatureMarkerText(eFeatureMarkerFeatureType featureMarkerFeatureType);	BSTR		
GetFeatureMarkerTextColor(eFeatureMarkerFeatureType featureMarkerFeatureType);	eColor		
GetFeatureMarkerTextEnabled(eFeatureMarkerFeatureType featureMarkerFeatureType);	boolean		
GetFeatureMarkerTextHeight(eFeatureMarkerFeatureType featureMarkerFeatureType);	double		
GetFeatureMarkerType(eFeatureMarkerFeatureType featureMarkerFeatureType);	eFeatureMarkerType		
GetFeatureMarkerWidth(eFeatureMarkerFeatureType featureMarkerFeatureType);	short		
GetFeatureMode();	eFeatureMode		
GetLeader();	IQaLeader*		
GetLeft();	double		
GetMarkerStyle();	IQaStyle*		
GetRight();	double		
GetSpectrum();	IQaSpectrum*		
GetStyle();	IQaStyle*		
GetTop();	double		
LayerAdd(long layer);	long		
LayerAll();	long		
LayerNone();	long		
LayerRel(long layer);	long		
Refresh();	void		
Reload();	long		



RotateA(double angle);	long		
RotateB(double angle);	long		
RotateIso(eViewRotateIsoX x,eAlignment y,eViewRotateIsoZ z);	long		
RotateSpin(double angle);	long		
SetBottom(double value);	void		
SetBox(double left, double bottom, double right, double top);	long		
SetBoxRelative(double left, double bottom, double right, double top);	long		
SetFeatureMarker(eFeatureMarkerFeatureType featureMarkerFeatureType, eFeatureMarkerType featureMarkerType, short markerLen, short markWid, short arrowLen, short arrowWid, short rootLen, eFeatureMarkerMaterial featureMarkerMaterialID);	void		
SetFeatureMarkerArrowLength(eFeatureMarkerFeatureType featureMarkerFeatureType, short arrowLen);	void		
SetFeatureMarkerArrowWidth(eFeatureMarkerFeatureType featureMarkerFeatureType, short arrowWid);	void		
SetFeatureMarkerLength(eFeatureMarkerFeatureType featureMarkerFeatureType, short markerLen);	void		
SetFeatureMarkerMaterialID(eFeatureMarkerFeatureType featureMarkerFeatureType, eFeatureMarkerMaterial featureMarkerMaterialID);	void		
SetFeatureMarkerRootLength(eFeatureMarkerFeatureType featureMarkerFeatureType, short rootLen);	void		
SetFeatureMarkerText(eFeatureMarkerFeatureType featureMarkerFeatureType, LPCTSTR lpszNewValue);	void		
SetFeatureMarkerTextColor(eFeatureMarkerFeatureType featureMarkerFeatureType, eColor textColor);	void		
SetFeatureMarkerTextEnabled(eFeatureMarkerFeatureType featureMarkerFeatureType, boolean bNewValue);	void		
SetFeatureMarkerTextHeight(eFeatureMarkerFeatureType featureMarkerFeatureType, double textHeight);	void		
SetFeatureMarkerType(eFeatureMarkerFeatureType featureMarkerFeatureType, eFeatureMarkerType featureMarkerType);	void		
SetFeatureMarkerWidth(eFeatureMarkerFeatureType featureMarkerFeatureType, short markWid);	void		
SetFeatureMode(eFeatureMode featureMode);	void		
SetLeft(double value);	void		
SetRight(double value);	void		
SetTop(double value);	void		
ZoomFit();	long		



View Properties

Parameters	Type	Description	Remarks
AutoUncross;	boolean		
BuddyDataSourceType;	eAnnotBuddyDataSourceType		
BuddyHorizontalSpace;	double		
BuddyHorizontalType;	eAnnotBuddyHorizontalType		
BuddyLabel;	BSTR		
BuddyMatchHeight;	boolean		
BuddyMatchWidth;	boolean		
BuddyVerticalSpace;	double		
BuddyVerticalType;	eAnnotBuddyVertType		
EventAction;	eAnnotEventAction		
EventStyleLabel;	BSTR		
ExecuteAction;	eAnnotExecuteAction		
Label;	BSTR La		
LoadFilename;	BSTR		
Locked;	boolean		
MarkerLength;	double		
MarkerSize;	double		
MarkerType;	eMarkerType		
MarkerWidth;	double		
NoDraw;	boolean		
OffsetA;	double		
OffsetB;	double		
Scale;	double		
WireHandedness;	eHandedness		

View Enumerators

Rotate Iso X - eViewRotateloX

Parameters	Help String	Description	Remarks
eRotateloFront = 1	Front		
eRotateloRear	Rear		
eRotateloXCenter	Center		

Rotate Iso Z - eViewRotateloZ

Parameters	Help String	Description	Remarks
eRotateloBottom	Bottom		
eRotateloTop = 1	Top		
eRotateloZCenter	Center		



Feature Marker Type - eFeatureMarkerType

Parameter	Help String	Description	Remarks
eFeatureMarkerTypeArrow	Arrow		
eFeatureMarkerTypeCone	Cone		
eFeatureMarkerTypeCube	Cube		
eFeatureMarkerTypeNone = 0	No Marker		
eFeatureMarkerTypeRoundedCross	Rounded Cross		
eFeatureMarkerTypeSphere	Sphere		
eFeatureMarkerTypeSquaredCross	Squared Cross		
eFeatureMarkerTypeTube	Tube		

Marker Type - eMarkerType

Parameters	Help String	Description	Remarks
eMarkerTypeAsterisk	Asterisk		
eMarkerTypeCheck	Check Mark		
eMarkerTypeCircle	Circle		
eMarkerTypeDiamond	Diamond		
eMarkerTypeEastTriangle	East Triangle		
eMarkerTypeHollowPlus	Hollow Plus		
eMarkerTypeHollowX	Hollow X		
eMarkerTypeNone = 0	No Marker		
eMarkerTypeNorthTriangle	North Triangle		
eMarkerTypePlus	Plus		
eMarkerTypeSouthTriangle	South Triangle		
eMarkerTypeSquare	Square		
eMarkerTypeStar	Four Corner Star		
eMarkerTypeWestTriangle	West Triangle		
eMarkerTypeX	X		

Feature Marker Feature Type - eFeatureMarkerFeatureType

Parameters	Help String	Description	Remarks
e_featureMarkerDist	Distance		
e_featureMarkerFlush	Flush		
e_featureMarkerGap	Gap		
e_featureMarkerHole	Hole		
e_featureMarkerMid	Midpoint		
e_featureMarkerNon	Non		
e_featureMarkerPlane	Plane		
e_featureMarkerPolar	Polar		
e_featureMarkerRange	Range		
e_featureMarkerRef	Reference		
e_featureMarkerSlot	Slot		



e_featureMarkerSurf=0	Surface		
e_featureMarkerXyz	XYZ		

Feature Mode - eFeatureMode

Parameters	Help String	Description	Remarks
eFeatureModeActual	Actual		
eFeatureModeAnimateAligment	AnimateAlignment		
eFeatureModeStandard = 0	Standard		

Feature Marker Material - eFeatureMarkerMaterial

Parameters	Help String	Description	Remarks
e_MaterialArtdeco00 = 1100	Artdeco 00		
e_MaterialArtdeco01 = 1101	Artdeco 01		
e_MaterialArtdeco02 = 1102	Artdeco 02		
e_MaterialArtdeco03 = 1103	Artdeco 03		
e_MaterialArtdeco04 = 1104	Artdeco 04		
e_MaterialArtdeco05 = 1105	Artdeco 05		
e_MaterialArtdeco06 = 1106	Artdeco 06		
e_MaterialArtdeco07 = 1107	Artdeco 07		
e_MaterialArtdeco08 = 1108	Artdeco 08		
e_MaterialArtdeco09 = 1109	Artdeco 09		
e_MaterialArtdeco10 = 1110	Artdeco 10		
e_MaterialArtdeco11 = 1111	Artdeco 11		
e_MaterialArtdeco12 = 1112	Artdeco 12		
e_MaterialArtdeco13 = 1113	Artdeco 13		
e_MaterialArtdeco14 = 1114	Artdeco 14		
e_MaterialArtdeco15 = 1115	Artdeco 15		
e_MaterialArtdeco16 = 1116	Artdeco 16		
e_MaterialArtdeco17 = 1117	Artdeco 17		
e_MaterialArtdeco18 = 1118	Artdeco 18		
e_MaterialArtdeco19 = 1119	Artdeco 19		
e_MaterialArtdeco20 = 1120	Artdeco 20		
e_MaterialArtdeco21 = 1121	Artdeco 21		
e_MaterialArtdeco22 = 1122	Artdeco 22		
e_MaterialArtdeco23 = 1123	Artdeco 23		
e_MaterialArtdeco24 = 1124	Artdeco 24		
e_MaterialArtdeco25 = 1125	Artdeco 25		
e_MaterialArtdeco26 = 1126	Artdeco 26		
e_MaterialArtdeco27 = 1127	Artdeco 27		
e_MaterialArtdeco28 = 1128	Artdeco 28		
e_MaterialArtdeco29 = 1129	Artdeco 29		
e_MaterialArtdeco30 = 1130	Artdeco 30		



e_MaterialArtdeco31 = 1131	Artdeco 31		
e_MaterialArtdeco32 = 1132	Artdeco 32		
e_MaterialArtdeco33 = 1133	Artdeco 33		
e_MaterialArtdeco34 = 1134	Artdeco 34		
e_MaterialAutumn00 = 1200	Autumn 00		
e_MaterialAutumn01 = 1201	Autumn 01		
e_MaterialAutumn02 = 1202	Autumn 02		
e_MaterialAutumn03 = 1203	Autumn 03		
e_MaterialAutumn04 = 1204	Autumn 04		
e_MaterialAutumn05 = 1205	Autumn 05		
e_MaterialAutumn06 = 1206	Autumn 06		
e_MaterialAutumn07 = 1207	Autumn 07		
e_MaterialAutumn08 = 1208	Autumn 08		
e_MaterialAutumn09 = 1209	Autumn 09		
e_MaterialAutumn10 = 1210	Autumn 10		
e_MaterialAutumn11 = 1211	Autumn 11		
e_MaterialAutumn12 = 1212	Autumn 12		
e_MaterialAutumn13 = 1213	Autumn 13		
e_MaterialAutumn14 = 1214	Autumn 14		
e_MaterialAutumn15 = 1215	Autumn 15		
e_MaterialAutumn16 = 1216	Autumn 16		
e_MaterialAutumn17 = 1217	Autumn 17		
e_MaterialAutumn18 = 1218	Autumn 18		
e_MaterialAutumn19 = 1219	Autumn 19		
e_MaterialAutumn20 = 1220	Autumn 20		
e_MaterialAutumn21 = 1221	Autumn 21		
e_MaterialAutumn22 = 1222	Autumn 22		
e_MaterialAutumn23 = 1223	Autumn 23		
e_MaterialAutumn24 = 1224	Autumn 24		
e_MaterialAutumn25 = 1225	Autumn 25		
e_MaterialAutumn26 = 1226	Autumn 26		
e_MaterialAutumn27 = 1227	Autumn 27		
e_MaterialAutumn28 = 1228	Autumn 28		
e_MaterialAutumn29 = 1229	Autumn 29		
e_MaterialAutumn30 = 1230	Autumn 30		
e_MaterialAutumn31 = 1231	Autumn 31		
e_MaterialAutumn32 = 1232	Autumn 32		
e_MaterialAutumn33 = 1233	Autumn 33		
e_MaterialAutumn34 = 1234	Autumn 34		
e_MaterialGlass00 = 1300	Glass 00		
e_MaterialGlass01 = 1301	Glass 01		
e_MaterialGlass02 = 1302	Glass 02		



e_MaterialGlass03 = 1303	Glass 03		
e_MaterialGlass04 = 1304	Glass 04		
e_MaterialGlass05 = 1305	Glass 05		
e_MaterialGlass06 = 1306	Glass 06		
e_MaterialGlass07 = 1307	Glass 07		
e_MaterialGlass08 = 1308	Glass 08		
e_MaterialGlass09 = 1309	Glass 09		
e_MaterialGlass10 = 1310	Glass 10		
e_MaterialGlass11 = 1311	Glass 11		
e_MaterialGlass12 = 1312	Glass 12		
e_MaterialGlass13 = 1313	Glass 13		
e_MaterialGlass14 = 1314	Glass 14		
e_MaterialGlass15 = 1315	Glass 15		
e_MaterialGlass16 = 1316	Glass 16		
e_MaterialGlass17 = 1317	Glass 17		
e_MaterialGlass18 = 1318	Glass 18		
e_MaterialGlass19 = 1319	Glass 19		
e_MaterialGlass20 = 1320	Glass 20		
e_MaterialGlass21 = 1321	Glass 21		
e_MaterialGlass22 = 1322	Glass 22		
e_MaterialGlass23 = 1323	Glass 23		
e_MaterialGlass24 = 1324	Glass 24		
e_MaterialGlass25 = 1325	Glass 25		
e_MaterialGlass26 = 1326	Glass 26		
e_MaterialGlass27 = 1327	Glass 27		
e_MaterialGlass28 = 1328	Glass 28		
e_MaterialGlass29 = 1329	Glass 29		
e_MaterialGlass30 = 1330	Glass 30		
e_MaterialGlass31 = 1331	Glass 31		
e_MaterialGlass32 = 1332	Glass 32		
e_MaterialGlass33 = 1333	Glass 33		
e_MaterialGlass34 = 1334	Glass 34		
e_MaterialMetal00 = 1400	Metal 00		
e_MaterialMetal01 = 1401	Metal 01		
e_MaterialMetal02 = 1402	Metal 02		
e_MaterialMetal03 = 1403	Metal 03		
e_MaterialMetal04 = 1404	Metal 04		
e_MaterialMetal05 = 1405	Metal 05		
e_MaterialMetal06 = 1406	Metal 06		
e_MaterialMetal07 = 1407	Metal 07		
e_MaterialMetal08 = 1408	Metal 08		
e_MaterialMetal09 = 1409	Metal 09		



e_MaterialMetal10 = 1410	Metal 10		
e_MaterialMetal11 = 1411	Metal 11		
e_MaterialMetal12 = 1412	Metal 12		
e_MaterialMetal13 = 1413	Metal 13		
e_MaterialMetal14 = 1414	Metal 14		
e_MaterialMetal15 = 1415	Metal 15		
e_MaterialMetal16 = 1416	Metal 16		
e_MaterialMetal17 = 1417	Metal 17		
e_MaterialMetal18 = 1418	Metal 18		
e_MaterialMetal19 = 1419	Metal 19		
e_MaterialMetal20 = 1420	Metal 20		
e_MaterialMetal21 = 1421	Metal 21		
e_MaterialMetal22 = 1422	Metal 22		
e_MaterialMetal23 = 1423	Metal 23		
e_MaterialMetal24 = 1424	Metal 24		
e_MaterialMetal25 = 1425	Metal 25		
e_MaterialMetal26 = 1426	Metal 26		
e_MaterialMetal27 = 1427	Metal 27		
e_MaterialMetal28 = 1428	Metal 28		
e_MaterialMetal29 = 1429	Metal 29		
e_MaterialMetal30 = 1430	Metal 30		
e_MaterialMetal31 = 1431	Metal 31		
e_MaterialMetal32 = 1432	Metal 32		
e_MaterialMetal33 = 1433	Metal 33		
e_MaterialMetal34 = 1434	Metal 34		
e_MaterialNeon00 = 1500	Neon 00		
e_MaterialNeon01 = 1501	Neon 01		
e_MaterialNeon02 = 1502	Neon 02		
e_MaterialNeon03 = 1503	Neon 03		
e_MaterialNeon04 = 1504	Neon 04		
e_MaterialNeon05 = 1505	Neon 05		
e_MaterialNeon06 = 1506	Neon 06		
e_MaterialNeon07 = 1507	Neon 07		
e_MaterialNeon08 = 1508	Neon 08		
e_MaterialNeon09 = 1509	Neon 09		
e_MaterialNeon10 = 1510	Neon 10		
e_MaterialNeon11 = 1511	Neon 11		
e_MaterialNeon12 = 1512	Neon 12		
e_MaterialNeon13 = 1513	Neon 13		
e_MaterialNeon14 = 1514	Neon 14		
e_MaterialNeon15 = 1515	Neon 15		
e_MaterialNeon16 = 1516	Neon 16		



e_MaterialNeon17 = 1517	Neon 17		
e_MaterialNeon18 = 1518	Neon 18		
e_MaterialNeon19 = 1519	Neon 19		
e_MaterialNeon20 = 1520	Neon 20		
e_MaterialNeon21 = 1521	Neon 21		
e_MaterialNeon22 = 1522	Neon 22		
e_MaterialNeon23 = 1523	Neon 23		
e_MaterialNeon24 = 1524	Neon 24		
e_MaterialNeon25 = 1525	Neon 25		
e_MaterialNeon26 = 1526	Neon 26		
e_MaterialNeon27 = 1527	Neon 27		
e_MaterialNeon28 = 1528	Neon 28		
e_MaterialNeon29 = 1529	Neon 29		
e_MaterialNeon30 = 1530	Neon 30		
e_MaterialNeon31 = 1531	Neon 31		
e_MaterialNeon32 = 1532	Neon 32		
e_MaterialNeon33 = 1533	Neon 33		
e_MaterialNeon34 = 1534	Neon 34		
e_MaterialRococo00 = 1600	Rococo 00		
e_MaterialRococo01 = 1601	Rococo 01		
e_MaterialRococo02 = 1602	Rococo 02		
e_MaterialRococo03 = 1603	Rococo 03		
e_MaterialRococo04 = 1604	Rococo 04		
e_MaterialRococo05 = 1605	Rococo 05		
e_MaterialRococo06 = 1606	Rococo 06		
e_MaterialRococo07 = 1607	Rococo 07		
e_MaterialRococo08 = 1608	Rococo 08		
e_MaterialRococo09 = 1609	Rococo 09		
e_MaterialRococo10 = 1610	Rococo 10		
e_MaterialRococo11 = 1611	Rococo 11		
e_MaterialRococo12 = 1612	Rococo 12		
e_MaterialRococo13 = 1613	Rococo 13		
e_MaterialRococo14 = 1614	Rococo 14		
e_MaterialRococo15 = 1615	Rococo 15		
e_MaterialRococo16 = 1616	Rococo 16		
e_MaterialRococo17 = 1617	Rococo 17		
e_MaterialRococo18 = 1618	Rococo 18		
e_MaterialRococo19 = 1619	Rococo 19		
e_MaterialRococo20 = 1620	Rococo 20		
e_MaterialRococo21 = 1621	Rococo 21		
e_MaterialRococo22 = 1622	Rococo 22		
e_MaterialRococo23 = 1623	Rococo 23		



e_MaterialRococo24 = 1624	Rococo 24		
e_MaterialRococo25 = 1625	Rococo 25		
e_MaterialRococo26 = 1626	Rococo 26		
e_MaterialRococo27 = 1627	Rococo 27		
e_MaterialRococo28 = 1628	Rococo 28		
e_MaterialRococo29 = 1629	Rococo 29		
e_MaterialRococo30 = 1630	Rococo 30		
e_MaterialRococo31 = 1631	Rococo 31		
e_MaterialRococo32 = 1632	Rococo 32		
e_MaterialRococo33 = 1633	Rococo 33		
e_MaterialRococo34 = 1634	Rococo 34		
e_MaterialSantafe00 = 1700	Santafe 00		
e_MaterialSantafe01 = 1701	Santafe 01		
e_MaterialSantafe02 = 1702	Santafe 02		
e_MaterialSantafe03 = 1703	Santafe 03		
e_MaterialSantafe04 = 1704	Santafe 04		
e_MaterialSantafe05 = 1705	Santafe 05		
e_MaterialSantafe06 = 1706	Santafe 06		
e_MaterialSantafe07 = 1707	Santafe 07		
e_MaterialSantafe08 = 1708	Santafe 08		
e_MaterialSantafe09 = 1709	Santafe 09		
e_MaterialSantafe10 = 1710	Santafe 10		
e_MaterialSantafe11 = 1711	Santafe 11		
e_MaterialSantafe12 = 1712	Santafe 12		
e_MaterialSantafe13 = 1713	Santafe 13		
e_MaterialSantafe14 = 1714	Santafe 14		
e_MaterialSantafe15 = 1715	Santafe 15		
e_MaterialSantafe16 = 1716	Santafe 16		
e_MaterialSantafe17 = 1717	Santafe 17		
e_MaterialSantafe18 = 1718	Santafe 18		
e_MaterialSantafe19 = 1719	Santafe 19		
e_MaterialSantafe20 = 1720	Santafe 20		
e_MaterialSantafe21 = 1721	Santafe 21		
e_MaterialSantafe22 = 1722	Santafe 22		
e_MaterialSantafe23 = 1723	Santafe 23		
e_MaterialSantafe24 = 1724	Santafe 24		
e_MaterialSantafe25 = 1725	Santafe 25		
e_MaterialSantafe26 = 1726	Santafe 26		
e_MaterialSantafe27 = 1727	Santafe 27		
e_MaterialSantafe28 = 1728	Santafe 28		
e_MaterialSantafe29 = 1729	Santafe 29		
e_MaterialSantafe30 = 1730	Santafe 30		



e_MaterialSantafe31 = 1731	Santafe 31		
e_MaterialSantafe32 = 1732	Santafe 32		
e_MaterialSantafe33 = 1733	Santafe 33		
e_MaterialSantafe34 = 1734	Santafe 34		
e_MaterialSheen00 = 1800	Sheen 00		
e_MaterialSheen01 = 1801	Sheen 01		
e_MaterialSheen02 = 1802	Sheen 02		
e_MaterialSheen03 = 1803	Sheen 03		
e_MaterialSheen04 = 1804	Sheen 04		
e_MaterialSheen05 = 1805	Sheen 05		
e_MaterialSheen06 = 1806	Sheen 06		
e_MaterialSheen07 = 1807	Sheen 07		
e_MaterialSheen08 = 1808	Sheen 08		
e_MaterialSheen09 = 1809	Sheen 09		
e_MaterialSheen10 = 1810	Sheen 10		
e_MaterialSheen11 = 1811	Sheen 11		
e_MaterialSheen12 = 1812	Sheen 12		
e_MaterialSheen13 = 1813	Sheen 13		
e_MaterialSheen14 = 1814	Sheen 14		
e_MaterialSheen15 = 1815	Sheen 15		
e_MaterialSheen16 = 1816	Sheen 16		
e_MaterialSheen17 = 1817	Sheen 17		
e_MaterialSheen18 = 1818	Sheen 18		
e_MaterialSheen19 = 1819	Sheen 19		
e_MaterialSheen20 = 1820	Sheen 20		
e_MaterialSheen21 = 1821	Sheen 21		
e_MaterialSheen22 = 1822	Sheen 22		
e_MaterialSheen23 = 1823	Sheen 23		
e_MaterialSheen24 = 1824	Sheen 24		
e_MaterialSheen25 = 1825	Sheen 25		
e_MaterialSheen26 = 1826	Sheen 26		
e_MaterialSheen27 = 1827	Sheen 27		
e_MaterialSheen28 = 1828	Sheen 28		
e_MaterialSheen29 = 1829	Sheen 29		
e_MaterialSheen30 = 1830	Sheen 30		
e_MaterialSheen31 = 1831	Sheen 31		
e_MaterialSheen32 = 1832	Sheen 32		
e_MaterialSheen33 = 1833	Sheen 33		
e_MaterialSheen34 = 1834	Sheen 34		
e_MaterialSilky00 = 1900	Silky 00		
e_MaterialSilky01 = 1901	Silky 01		
e_MaterialSilky02 = 1902	Silky 02		



e_MaterialSilky03 = 1903	Silky 03		
e_MaterialSilky04 = 1904	Silky 04		
e_MaterialSilky05 = 1905	Silky 05		
e_MaterialSilky06 = 1906	Silky 06		
e_MaterialSilky07 = 1907	Silky 07		
e_MaterialSilky08 = 1908	Silky 08		
e_MaterialSilky09 = 1909	Silky 09		
e_MaterialSilky10 = 1910	Silky 10		
e_MaterialSilky11 = 1911	Silky 11		
e_MaterialSilky12 = 1912	Silky 12		
e_MaterialSilky13 = 1913	Silky 13		
e_MaterialSilky14 = 1914	Silky 14		
e_MaterialSilky15 = 1915	Silky 15		
e_MaterialSilky16 = 1916	Silky 16		
e_MaterialSilky17 = 1917	Silky 17		
e_MaterialSilky18 = 1918	Silky 18		
e_MaterialSilky19 = 1919	Silky 19		
e_MaterialSilky20 = 1920	Silky 20		
e_MaterialSilky21 = 1921	Silky 21		
e_MaterialSilky22 = 1922	Silky 22		
e_MaterialSilky23 = 1923	Silky 23		
e_MaterialSilky24 = 1924	Silky 24		
e_MaterialSilky25 = 1925	Silky 25		
e_MaterialSilky26 = 1926	Silky 26		
e_MaterialSilky27 = 1927	Silky 27		
e_MaterialSilky28 = 1928	Silky 28		
e_MaterialSilky29 = 1929	Silky 29		
e_MaterialSilky30 = 1930	Silky 30		
e_MaterialSilky31 = 1931	Silky 31		
e_MaterialSilky32 = 1932	Silky 32		
e_MaterialSilky33 = 1933	Silky 33		
e_MaterialSilky34 = 1934	Silky 34		
e_MaterialSpring00 = 2000	Spring 00		
e_MaterialSpring01 = 2001	Spring 01		
e_MaterialSpring02 = 2002	Spring 02		
e_MaterialSpring03 = 2003	Spring 03		
e_MaterialSpring04 = 2004	Spring 04		
e_MaterialSpring05 = 2005	Spring 05		
e_MaterialSpring06 = 2006	Spring 06		
e_MaterialSpring07 = 2007	Spring 07		
e_MaterialSpring08 = 2008	Spring 08		
e_MaterialSpring09 = 2009	Spring 09		



e_MaterialSpring10 = 2010	Spring 10		
e_MaterialSpring11 = 2011	Spring 11		
e_MaterialSpring12 = 2012	Spring 12		
e_MaterialSpring13 = 2013	Spring 13		
e_MaterialSpring14 = 2014	Spring 14		
e_MaterialSpring15 = 2015	Spring 15		
e_MaterialSpring16 = 2016	Spring 16		
e_MaterialSpring17 = 2017	Spring 17		
e_MaterialSpring18 = 2018	Spring 18		
e_MaterialSpring19 = 2019	Spring 19		
e_MaterialSpring20 = 2020	Spring 20		
e_MaterialSpring21 = 2021	Spring 21		
e_MaterialSpring22 = 2022	Spring 22		
e_MaterialSpring23 = 2023	Spring 23		
e_MaterialSpring24 = 2024	Spring 24		
e_MaterialSpring25 = 2025	Spring 25		
e_MaterialSpring26 = 2026	Spring 26		
e_MaterialSpring27 = 2027	Spring 27		
e_MaterialSpring28 = 2028	Spring 28		
e_MaterialSpring29 = 2029	Spring 29		
e_MaterialSpring30 = 2030	Spring 30		
e_MaterialSpring31 = 2031	Spring 31		
e_MaterialSpring32 = 2032	Spring 32		
e_MaterialSpring33 = 2033	Spring 33		
e_MaterialSpring34 = 2034	Spring 34		
e_MaterialSummer00 = 2100	Summer 00		
e_MaterialSummer01 = 2101	Summer 01		
e_MaterialSummer02 = 2102	Summer 02		
e_MaterialSummer03 = 2103	Summer 03		
e_MaterialSummer04 = 2104	Summer 04		
e_MaterialSummer05 = 2105	Summer 05		
e_MaterialSummer06 = 2106	Summer 06		
e_MaterialSummer07 = 2107	Summer 07		
e_MaterialSummer08 = 2108	Summer 08		
e_MaterialSummer09 = 2109	Summer 09		
e_MaterialSummer10 = 2110	Summer 10		
e_MaterialSummer11 = 2111	Summer 11		
e_MaterialSummer12 = 2112	Summer 12		
e_MaterialSummer13 = 2113	Summer 13		
e_MaterialSummer14 = 2114	Summer 14		
e_MaterialSummer15 = 2115	Summer 15		
e_MaterialSummer16 = 2116	Summer 16		



e_MaterialSummer17 = 2117	Summer 17		
e_MaterialSummer18 = 2118	Summer 18		
e_MaterialSummer19 = 2119	Summer 19		
e_MaterialSummer20 = 2120	Summer 20		
e_MaterialSummer21 = 2121	Summer 21		
e_MaterialSummer22 = 2122	Summer 22		
e_MaterialSummer23 = 2123	Summer 23		
e_MaterialSummer24 = 2124	Summer 24		
e_MaterialSummer25 = 2125	Summer 25		
e_MaterialSummer26 = 2126	Summer 26		
e_MaterialSummer27 = 2127	Summer 27		
e_MaterialSummer28 = 2128	Summer 28		
e_MaterialSummer29 = 2129	Summer 29		
e_MaterialSummer30 = 2130	Summer 30		
e_MaterialSummer31 = 2131	Summer 31		
e_MaterialSummer32 = 2132	Summer 32		
e_MaterialSummer33 = 2133	Summer 33		
e_MaterialSummer34 = 2134	Summer 34		
e_MaterialTropical00 = 2200	Tropical 00		
e_MaterialTropical01 = 2201	Tropical 01		
e_MaterialTropical02 = 2202	Tropical 02		
e_MaterialTropical03 = 2203	Tropical 03		
e_MaterialTropical04 = 2204	Tropical 04		
e_MaterialTropical05 = 2205	Tropical 05		
e_MaterialTropical06 = 2206	Tropical 06		
e_MaterialTropical07 = 2207	Tropical 07		
e_MaterialTropical08 = 2208	Tropical 08		
e_MaterialTropical09 = 2209	Tropical 09		
e_MaterialTropical10 = 2210	Tropical 10		
e_MaterialTropical11 = 2211	Tropical 11		
e_MaterialTropical12 = 2212	Tropical 12		
e_MaterialTropical13 = 2213	Tropical 13		
e_MaterialTropical14 = 2214	Tropical 14		
e_MaterialTropical15 = 2215	Tropical 15		
e_MaterialTropical16 = 2216	Tropical 16		
e_MaterialTropical17 = 2217	Tropical 17		
e_MaterialTropical18 = 2218	Tropical 18		
e_MaterialTropical19 = 2219	Tropical 19		
e_MaterialTropical20 = 2220	Tropical 20		
e_MaterialTropical21 = 2221	Tropical 21		
e_MaterialTropical22 = 2222	Tropical 22		
e_MaterialTropical23 = 2223	Tropical 23		



e_MaterialTropical24 = 2224	Tropical 24		
e_MaterialTropical25 = 2225	Tropical 25		
e_MaterialTropical26 = 2226	Tropical 26		
e_MaterialTropical27 = 2227	Tropical 27		
e_MaterialTropical28 = 2228	Tropical 28		
e_MaterialTropical29 = 2229	Tropical 29		
e_MaterialTropical30 = 2230	Tropical 30		
e_MaterialTropical31 = 2231	Tropical 31		
e_MaterialTropical32 = 2232	Tropical 32		
e_MaterialTropical33 = 2233	Tropical 33		
e_MaterialTropical34 = 2234	Tropical 34		
e_MaterialWinter00 = 2300	Winter 00		
e_MaterialWinter01 = 2301	Winter 01		
e_MaterialWinter02 = 2302	Winter 02		
e_MaterialWinter03 = 2303	Winter 03		
e_MaterialWinter04 = 2304	Winter 04		
e_MaterialWinter05 = 2305	Winter 05		
e_MaterialWinter06 = 2306	Winter 06		
e_MaterialWinter07 = 2307	Winter 07		
e_MaterialWinter08 = 2308	Winter 08		
e_MaterialWinter09 = 2309	Winter 09		
e_MaterialWinter10 = 2310	Winter 10		
e_MaterialWinter11 = 2311	Winter 11		
e_MaterialWinter12 = 2312	Winter 12		
e_MaterialWinter13 = 2313	Winter 13		
e_MaterialWinter14 = 2314	Winter 14		
e_MaterialWinter15 = 2315	Winter 15		
e_MaterialWinter16 = 2316	Winter 16		
e_MaterialWinter17 = 2317	Winter 17		
e_MaterialWinter18 = 2318	Winter 18		
e_MaterialWinter19 = 2319	Winter 19		
e_MaterialWinter20 = 2320	Winter 20		
e_MaterialWinter21 = 2321	Winter 21		
e_MaterialWinter22 = 2322	Winter 22		
e_MaterialWinter23 = 2323	Winter 23		
e_MaterialWinter24 = 2324	Winter 24		
e_MaterialWinter25 = 2325	Winter 25		
e_MaterialWinter26 = 2326	Winter 26		
e_MaterialWinter27 = 2327	Winter 27		
e_MaterialWinter28 = 2328	Winter 28		
e_MaterialWinter29 = 2329	Winter 29		
e_MaterialWinter30 = 2330	Winter 30		



e_MaterialWinter31 = 2331	Winter 31		
e_MaterialWinter32 = 2332	Winter 32		
e_MaterialWinter33 = 2333	Winter 33		
e_MaterialWinter34 = 2334	Winter 34		



API - Wireframe

Wireframe Methods

Parameter	Type	Description	Remarks
Delete();	long		
Refresh();	long		

Wireframe Properties

Parameter	Type	Description	Remarks
ColorOverride;	eColor		
Filename;	BSTR		
HandOverride;	eHandedness		
LayerOverride;	long		
StyleOverride;	eWireframeStyle		
ThickOverride;	double		
UseColorOverride;	boolean		
UseHandOverride;	boolean		
UseLayerOverride;	boolean		
UseStyleOverride;	boolean		
UseThickOverride;	boolean		

Wireframe Enumerators

Style - eWireframeStyle

Parameters	Help String	Description	Remarks
eStyleCenterline	Centerline		
eStyleDashed,	Dashed		
eStylePhantom,	Phantom		
eStyleSolid = 1,	Solid		

Enumerators

Characteristic - eCharacteristic

Parameters	Help String	Description	Remarks
eCharacteristicAngle	Angle		
eCharacteristicDiameter,	Diameter		
eCharacteristicDistance,	Distance		
eCharacteristicLength,	Length		
eCharacteristicPosition = 1,	Position		
eCharacteristicPrimary,	Primary Coordinate		
eCharacteristicSecondary,	Secondary Coordinate		
eCharacteristicTertiary,	Tertiary Coordinate		
eCharacteristicWidth,	Width		
eCharacteristicXCoordinate,	X Coordinate		
eCharacteristicYCoordinate,	Y Coordinate		
eCharacteristicZCoordinate,	Z Coordinate		

Color - eColor

Parameters	Help String	Description	Remarks
eColorAqua	Aqua		
eColorBlack = 1	Black		
eColorBlue	Blue		
eColorFushcia	Fushcia		
eColorGray	Gray		
eColorGreen	Green		
eColorLightAqua	LightAqua		
eColorLightBlue	LightBlue		
eColorLightFuchsia	LightFuchsia		
eColorLightGray	LightGray		
eColorLightGreen	LightGreen		
eColorLightLime	LightLime		
eColorLightMaroon	LightMaroon		
eColorLightNavy	LightNavy		
eColorLightOlive	LightOlive		
eColorLightOrange	LightOrange		
eColorLightPurple	LightPurple		
eColorLightRed	LightRed		
eColorLightSilver	LightSilver		
eColorLightTeal	LightTeal		
eColorLightYellow	LightYellow		
eColorLime	Lime		
eColorMaroon	Maroon		



eColorNavy	Navy		
eColorOlive	Olive		
eColorOrange	Orange		
eColorPurple	Purple		
eColorRed	Red		
eColorSilver	Silver		
eColorTeal	Teal		
eColorWhite	White		
eColorYellow	Yellow		

Handedness - eHandedness

Parameters	Help String	Description	Remarks
eHandednessNone = 0	None		
eHandednessRight	Right		
eHandednessLeft	Left		
eHandednessOther	Other		
eHandednessBoth	Both		

Example API Scripts

No Events (External Event)

VB Code Snippet (in "Immediate" format) to set up for external no Events (Never Trigger):

```

set doc = CreateObject("QaDoc")

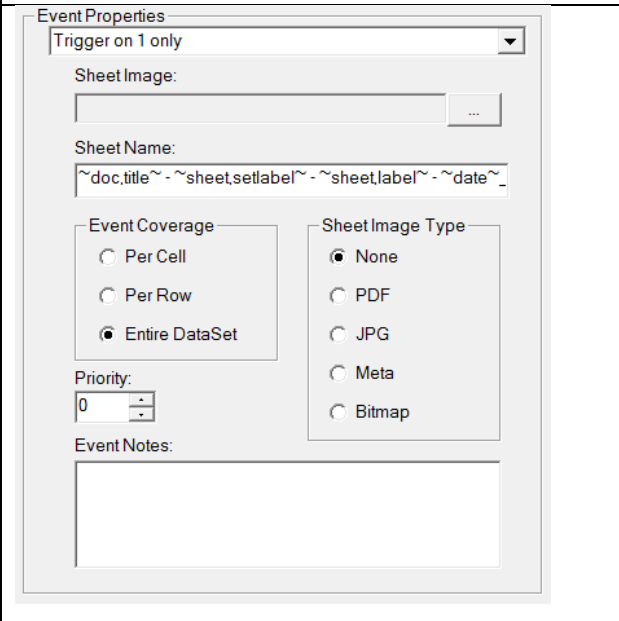
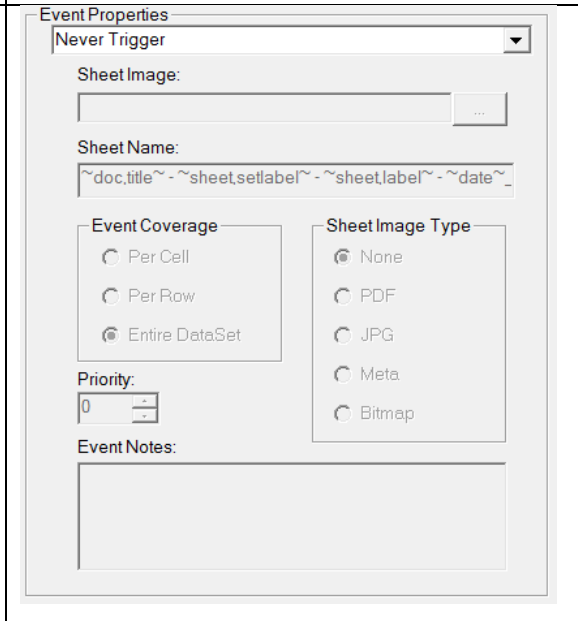
io = doc.OpenDocument("C:\Testing\~tEvents\Event API Test.4dc")

set ds = doc.GetDataSet("My DataSet")

ds.ExternalEventType(eNeverTrigger)

doc.SaveDocument()

doc.CloseDocument()
  
```

CM4D Settings Before Example Script	CM4D Settings After Example Script
 <p>Event Properties</p> <p>Trigger on 1 only</p> <p>Sheet Image: []</p> <p>Sheet Name: ~doc.title~ - ~sheet.setlabel~ - ~sheet.label~ - ~date~</p> <p>Event Coverage</p> <p><input type="radio"/> Per Cell</p> <p><input type="radio"/> Per Row</p> <p><input checked="" type="radio"/> Entire DataSet</p> <p>Sheet Image Type</p> <p><input checked="" type="radio"/> None</p> <p><input type="radio"/> PDF</p> <p><input type="radio"/> JPG</p> <p><input type="radio"/> Meta</p> <p><input type="radio"/> Bitmap</p> <p>Priority: 0</p> <p>Event Notes: []</p>	 <p>Event Properties</p> <p>Never Trigger</p> <p>Sheet Image: []</p> <p>Sheet Name: ~doc.title~ - ~sheet.setlabel~ - ~sheet.label~ - ~date~</p> <p>Event Coverage</p> <p><input type="radio"/> Per Cell</p> <p><input type="radio"/> Per Row</p> <p><input checked="" type="radio"/> Entire DataSet</p> <p>Sheet Image Type</p> <p><input checked="" type="radio"/> None</p> <p><input type="radio"/> PDF</p> <p><input type="radio"/> JPG</p> <p><input type="radio"/> Meta</p> <p><input type="radio"/> Bitmap</p> <p>Priority: 0</p> <p>Event Notes: []</p>

Event Trigger 2 (External Event)

VB Code Snippet (in "Immediate" format) to set up for the external Event Trigger 2 (Trigger on 2 only):

```

set doc = CreateObject("QaDoc")
io = doc.OpenDocument("C:\Testing\~tEvents\Event API Test.4dc")
set ds = doc.GetDataSet("My DataSet")

ds.ExternalEventType(eOnlyTrigger2)
ds.ExternalEventScope(eEventPerSet)
ds.ExternalEventAttachmentType(eEventAttachmentPDF)
ds.ExternalEventNote("My event note for testing")
doc.SaveDocument()
doc.CloseDocument()
  
```

CM4D Settings Before Example Script	CM4D Settings After Example Script
