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alias Alias_fltXformPtr {
    record fltXmTranslate;
    record fltXmScale;
    record fltXmRotate;
    record fltXmPut;
    record fltXmGeneral;
    record fltXmRotateEdge;
    record fltXmScaleToPoint;
}

record fltBoundingBox {
    record fltBox*          fltBox          Bounding box opcode 74
    int (4)                fltFreezeBox
    int (4)                fltBoundingType
    record fltIcoord*       fltBoundingCenter
    record fltBoundingOrientation* fltBoundingOrientation
    record fltBoundingSphere* fltBoundingSphere
    record fltBoundingCylinder* fltBoundingCylinder
}

record fltBoundingCylinder {
    double (8)              fltBCRadius      Bounding cylinder radius of base
    double (8)              fltBCHeight      Bounding cylinder height
}

record fltBoundingOrientation {
    double (8)              fltBYaw          Yaw angle
    double (8)              fltBPitch        Pitch angle
    double (8)              fltBRoll         Roll angle
}

record fltBoundingSphere {
    double (8)              fltBSRadius      Bounding sphere radius
}

record fltBox {
    double (8)              fltBottomLeftFrontX X coordinate of lowest corner
    double (8)              fltBottomLeftFrontY Y coordinate of lowest corner
    double (8)              fltBottomLeftFrontZ Z coordinate of lowest corner
    double (8)              fltTopRightBackX    X coordinate of highest corner
    double (8)              fltTopRightBackY    Y coordinate of highest corner
    double (8)              fltTopRightBackZ    Z coordinate of highest corner
}

record fltBsp {
    record fltDPlane        fltDPlane        Plane coefficients record (A,B,C,D)
}

record fltColorRGBA {
    float (4)              fltColorR          Red color component (0.0 - 1.0)
    float (4)              fltColorG          Green color component (0.0 - 1.0)
    float (4)              fltColorB          Blue color component (0.0 - 1.0)
    float (4)              fltColorA          Alpha (transparency) color component (0.0 - 1.0)
}

record fltCylinder {
    double (8)              fltRadius          Radius of cylinder base
    double (8)              fltHeight          Height of cylinder
}

```

record fltDPlane {		
double (8)	fltDPlaneA	First plane equation coefficient (a)
double (8)	fltDPlaneB	Second plane equation coefficient (b)
double (8)	fltDPlaneC	Third plane equation coefficient (c)
double (8)	fltDPlaneD	Fourth plane equation coefficient (d)
}		
record fltDof {		
double (8)	fltDofPutAnchorX	Origin of the DOF's local coordinate system (X)
double (8)	fltDofPutAnchorY	Origin of the DOF's local coordinate system (Y)
double (8)	fltDofPutAnchorZ	Origin of the DOF's local coordinate system (Z)
double (8)	fltDofPutAlignX	Point on the x-axis of the DOF's local coordinate system (X)
double (8)	fltDofPutAlignY	Point on the x-axis of the DOF's local coordinate system (Y)
double (8)	fltDofPutAlignZ	Point on the x-axis of the DOF's local coordinate system (Z)
double (8)	fltDofPutTrackX	Point in the xy plane of the DOF's local coordinate system (X)
double (8)	fltDofPutTrackY	Point in the xy plane of the DOF's local coordinate system (Y)
double (8)	fltDofPutTrackZ	Point in the xy plane of the DOF's local coordinate system (Z)
double (8)	fltDofMinZ	Minimum z value with respect to the local coordinate system
double (8)	fltDofMaxZ	Maximum z value with respect to the local coordinate system
double (8)	fltDofCurZ	Current z value with respect to the local coordinate system
double (8)	fltDofIncrementZ	Increment in z
double (8)	fltDofMinY	Minimum y value with respect to the local coordinate system
double (8)	fltDofMaxY	Maximum y value with respect to the local coordinate system
double (8)	fltDofCurY	Current y value with respect to the local coordinate system
double (8)	fltDofIncrementY	Increment in y
double (8)	fltDofMinX	Minimum x value with respect to the local coordinate system
double (8)	fltDofMaxX	Maximum x value with respect to the local coordinate system
double (8)	fltDofCurX	Current x value with respect to the local coordinate system
double (8)	fltDofIncrementX	Increment in x
double (8)	fltDofMinAzim	Minimum pitch (rotation about the x-axis)
double (8)	fltDofMaxAzim	Maximum pitch
double (8)	fltDofCurAzim	Current pitch
double (8)	fltDofIncrementAzim	Increment in pitch
double (8)	fltDofMinIncl	Minimum roll (rotation about the y-axis)
double (8)	fltDofMaxIncl	Maximum roll
double (8)	fltDofCurIncl	Current roll
double (8)	fltDofIncrementIncl	Increment in roll
double (8)	fltDofMinTwist	Minimum yaw (rotation about the z-axis)
double (8)	fltDofMaxTwist	Maximum yaw
double (8)	fltDofCurTwist	Current yaw
double (8)	fltDofIncrementTwist	Increment in yaw
double (8)	fltDofMinZScale	Minimum z scale (about local origin)
double (8)	fltDofMaxZScale	Maximum z scale (about local origin)
double (8)	fltDofCurZScale	Current z scale (about local origin)
double (8)	fltDofIncrementZScale	Increment for scale in z
double (8)	fltDofMinYScale	Minimum y scale (about local origin)
double (8)	fltDofMaxYScale	Maximum y scale (about local origin)
double (8)	fltDofCurYScale	Current y scale (about local origin)
double (8)	fltDofIncrementYScale	Increment for scale in y
double (8)	fltDofMinXScale	Minimum x scale (about local origin)
double (8)	fltDofMaxXScale	Maximum x scale (about local origin)
double (8)	fltDofCurXScale	Current x scale (about local origin)
double (8)	fltDofIncrementXScale	Increment for scale in x
}		
record fltFCoord {		
float (4)	fltFCoordX	
float (4)	fltFCoordY	

float (4)	fltFCoordZ	
}		
record fltFMaterial {		
record fltIMaterial	fltIMaterial	Material components
int (4)	fltMatIndex	Material index
}		
record fltFPoint {		
double (8)	fltFPointX	
double (8)	fltFPointY	
}		
record fltGroup {		
short (2)	fltGrpPrio	Group relative priority
mgbool (4)	fltGrpFlagAnimation	Forward animation
mgbool (4)	fltGrpFlagAnimationFB	Cycling animation
mgbool (4)	fltGrpFlagBoxed	Bounding box follows
mgbool (4)	fltGrpFlagFreezeBox	Freeze bounding box
mgbool (4)	fltGrpFlagDefaultParent	Default parent, KEY=2
short (2)	fltGrpSpecial1	Special effects ID 1 - defined by real time
short (2)	fltGrpSpecial2	Special effects ID 2 - defined by real time
short (2)	fltGrpSignificance	Significance Flags
char (1)	fltGrpLayer	Layer Number
record fltBoundingBox*	fltBoundingBox	Bounding box
short (2)	fltRepCnt	Replicate count
}		
record fltHeader {		
int (4)	fltHdrFormatRev	Format revision level
int (4)	fltHdrDbRev	This database revision level
char* (32)	fltHdrLastDate	Date and time of last revision
unsigned char (1)	fltHdrUnits	Vertex coordinate units
		0 = Meters
		1 = Kilometers
		4 = Feet
		5 = Inches
		8 = Nautical miles
char (1)	fltHdrTexWhite	if TRUE set texwhite on new polygons
mgbool (4)	fltHdrFlagVtxNorms	Save vertex normals flag
double (8)	fltSWCornerLat1	the south west corner latitude
double (8)	fltSWCornerLong1	the south west corner longitude
double (8)	fltNECornerLat1	the north east corner latitude
double (8)	fltNECornerLong1	the north east corner longitude
double (8)	fltOriginLat1	origin latitude - 0, 0
double (8)	fltOriginLong1	origin longitude - 0, 0
double (8)	fltUpperLat1	Lambert upper latitude
double (8)	fltLowerLat1	Lambert lower latitude
}		
record fltIMaterial {		
record fltNormColor	fltAmbient	Ambient component of material
record fltNormColor	fltDiffuse	Diffuse component of material
record fltNormColor	fltSpecular	Specular component of material
record fltNormColor	fltEmissive	Emissive red component of material
float (4)	fltShininess	Shininess. (Single precision float in the range [0.0-128.0])
float (4)	fltMatAlpha	Alpha. (Single precision float in [0.0-1.0], where 1.0 is opaque)
}		

		2 = TV_DECAL; 3 = TV_COLOR	
color.	int (4)	fltImgInAlpha	TRUE if intensity pattern to be loaded in alpha with white in
	float (4)	fltImgRwSizeUf	Real world size u for Floating point databases.
	float (4)	fltImgRwSizeVf	Real world size v for Floating point databases.
	int (4)	fltImgInternalFormat	Internal Format type: 0 = default; 1 = TX_I_12A_4; 2 = TX_IA_8; 3 = TX_RGB_5; 4 = TX_RGBA_4; 5 = TX_IA_12; 6 = TX_RGBA_8; 7 = TX_RGBA_12; 8 = TX_I_16 (shadow mode only); 9 = TX_RGB_12
	int (4)	fltImgExternalFormat	External Format type: 0 = default; 1 = TX_PACK_8; 2 = TX_PACK_16
	int (4)	fltImgControlPoint	Boolean: if TRUE send:
	float (4)	fltImgLod0	LOD0 for TX_CONTROL_POINT
	float (4)	fltImgScale0	SCALE0 for TX_CONTROL_POINT
	float (4)	fltImgLod1	LOD1 for TX_CONTROL_POINT
	float (4)	fltImgScale1	SCALE1 for TX_CONTROL_POINT
	float (4)	fltImgLod2	LOD2 for TX_CONTROL_POINT
	float (4)	fltImgScale2	SCALE2 for TX_CONTROL_POINT
	float (4)	fltImgLod3	LOD3 for TX_CONTROL_POINT
	float (4)	fltImgScale3	SCALE3 for TX_CONTROL_POINT
	float (4)	fltImgLod4	LOD4 for TX_CONTROL_POINT
	float (4)	fltImgScale4	SCALE4 for TX_CONTROL_POINT
	float (4)	fltImgLod5	LOD5 for TX_CONTROL_POINT
	float (4)	fltImgScale5	SCALE5 for TX_CONTROL_POINT
	float (4)	fltImgLod6	LOD6 for TX_CONTROL_POINT
	float (4)	fltImgScale6	SCALE6 for TX_CONTROL_POINT
	float (4)	fltImgLod7	LOD7 for TX_CONTROL_POINT
	float (4)	fltImgScale7	SCALE7 for TX_CONTROL_POINT
	float (4)	fltImgClamp	clamp
	int (4)	fltImgMagFilterAlpha	magfilteralpha: 0 = TX_POINT; 1 = TX_BILINEAR; 2 = None; 3 = TX_BICUBIC; 4 = TX_SHARPEN; 5 = TX_ADD_DETAIL; 6 = TX_MODULATE_DETAIL; 7 = TX_BILINEAR_GEQUAL; 8 = TX_BILINEAR_LEQUAL; 9 = TX_BICUBIC_GEQUAL; 10 = TX_BIBICUBIC_LEQUAL
	int (4)	fltImgMagFilterColor	magfiltercolor: 0 = TX_POINT; 1 = TX_BILINEAR; 2 = None; 3 = TX_BICUBIC; 4 = TX_SHARPEN; 5 = TX_ADD_DETAIL; 6 = TX_MODULATE_DETAIL;

		7 = TX_BILINEAR_GEQUAL; 8 = TX_BILINEAR_LEQUAL; 9 = TX_BICUBIC_GEQUAL; 10 = TX_BIBICUBIC_LEQUAL Lambert Conformal Conic Projection parameters
double (8)	fltImgLon0	
double (8)	fltImgLat0	
double (8)	fltImgLat1	
double (8)	fltImgLat2	
float (4)	fltNpscale	
int (4)	fltImgDetail	Boolean TRUE if using next 5 integers for Detail Texture
int (4)	fltImgJ	J argument for TX_DETAIL.
int (4)	fltImgK	K argument for TX_DETAIL
int (4)	fltImgM	M argument for TX_DETAIL
int (4)	fltImgN	N argument for TX_DETAIL
int (4)	fltImgScramble	Scramble argument for TX_DETAIL
int (4)	fltImgTile	Boolean TRUE if using next four floats for TX_TILE.
float (4)	fltImgLowerLeftU	Lower left u value for TX_TILE
float (4)	fltImgLowerLeftV	Lower left v value for TX_TILE
float (4)	fltImgUpperRightU	Upper right u value for TX_TILE
float (4)	fltImgUpperRightV	Upper right v value for TX_TILE
int (4)	fltImgProjection	
int (4)	fltImgEarthModel	
int (4)	fltImgUTMzone	
int (4)	fltImgImageOrigin	upperleft or lowerleft
int (4)	fltImgUnits	feet, meters, inches, etc.
int (4)	fltPixelScaleUnits	
int (4)	fltImgHemisphere	northern = 1, southern = 0
int (4)	fltMirrorSmoothFlags	Mirror and Smooth flags 1 = UMIRROR 2 = VMIRROR 4 = USMOOTH 8 = VSMOOTH
char* (512)	fltImgComment	Comments
int (4)	fltImgVersion	
record fltTxtGetCoordLst*	fltImgGeoCoords	
}		
record fltLightSource {		
int (4)	fltLtsIndex	Index into light palette
mgbool (4)	fltLtsEnabled	enabled
mgbool (4)	fltLtsGlobal	global
mgbool (4)	fltLtsExport	export
record fltLccoord	fltLtsPosition	XYZ coordinates
float (4)	fltLtsYaw	Yaw
float (4)	fltLtsPitch	Pitch
}		
record fltLightSourcePalette {		
int (4)	fltLtspPaletteId	Palette index
record fltColorRGBA	fltLtspAmbient	Ambient RGBA (alpha component is currently unused)
record fltColorRGBA	fltLtspDiffuse	Diffuse RGBA (alpha component is currently unused)
record fltColorRGBA	fltLtspSpecular	Specular RGBA (alpha component is currently unused)
int (4)	fltLtspType	Light type 0 = INFINITE 1 = LOCAL 2 = SPOT
float (4)	fltLtspSpotExp	Spot exponential dropoff term
float (4)	fltLtspSpotSpread	Spot cutoff angle (in degrees)
float (4)	fltLtspYaw	Yaw

float (4)	fltLtspPitch	Pitch
float (4)	fltLtspConstAtten	Constant attenuation coefficient
float (4)	fltLtspLinearAtten	Linear attenuation coefficient
float (4)	fltLtspQuadAtten	Quadratic attenuation coefficient
int (4)	fltLtspModeling	Modeling Light (TRUE/FALSE)
}		
record fltLod {		
double (8)	fltLodSwitchIn	Switch in distance
double (8)	fltLodSwitchOut	Switch out distance
short (2)	fltLodSpecial1	Special effects ID 1 - defined by real time
short (2)	fltLodSpecial2	Special effects ID 2 - defined by real time
mgbool (4)	fltLodFlagRange	Use previous slant range
mgbool (4)	fltLodFlagAdditive	SPT flag: set to 0 for replacement LOD, 1 for additive LOD
mgbool (4)	fltLodFlagFreezeCenter	Freeze center (don't recalculate)
record fltIcoord	fltLodCenterPoint	Center coordinate of LOD block
double (8)	fltLodTransition	Transition Range for Morphing
}		
record fltMatrix {		
double (8)	fltMatrix00	
double (8)	fltMatrix01	
double (8)	fltMatrix02	
double (8)	fltMatrix03	
double (8)	fltMatrix10	
double (8)	fltMatrix11	
double (8)	fltMatrix12	
double (8)	fltMatrix13	
double (8)	fltMatrix20	
double (8)	fltMatrix21	
double (8)	fltMatrix22	
double (8)	fltMatrix23	
double (8)	fltMatrix30	
double (8)	fltMatrix31	
double (8)	fltMatrix32	
double (8)	fltMatrix33	
}		
record fltNormColor {		
float (4)	fltNColorR	Red color component (0.0 - 1.0)
float (4)	fltNColorG	Green color component (0.0 - 1.0)
float (4)	fltNColorB	Blue color component (0.0 - 1.0)
}		
record fltObject {		
mgbool (4)	fltObjFlagDay	Don't display in daylight
mgbool (4)	fltObjFlagDusk	Don't display at dusk
mgbool (4)	fltObjFlagNight	Don't display at night
mgbool (4)	fltObjFlagNoillum	Don't illuminate
mgbool (4)	fltObjFlagNoshade	Flat shaded
mgbool (4)	fltObjFlagShadow	Group's shadow object
short (2)	fltObjPrio	Object relative priority
unsigned short (2)	fltObjTransparency	Transparency factor
short (2)	fltObjSpecial1	Special effects ID 1 - defined by real time
short (2)	fltObjSpecial2	Special effects ID 2 - defined by real time
short (2)	fltObjSignificance	Significance
}		

record fltPath {		
char* (120)	fltPathName	Name of Path
double (8)	fltPathSpeedlimit	Speed limit along this path
int (4)	fltPathNoPass	No passing flag
int (4)	fltPathType	0 = lane, 1 = centerline
}		
record fltPolygon {		
int (4)	fltPolyInfrared	IR Color Code
short (2)	fltPolyPrio	Polygon relative priority
char (1)	fltPolyDrawType	How to draw the polygon
		0 = Draw solid backfaced
		1 = Draw solid no backface
		2 = Draw wireframe and not closed
		3 = Draw closed wireframe
		4 = Surround with wireframe in alternate color
		8 = Omni-directional light
		9 = Unidirectional light
		10 = Bidirectional light
char (1)	fltPolyTexWhite	Texwhite = if TRUE, draw textured polygon white
unsigned short (2)	fltPolyColor	Primary color/intensity code
unsigned short (2)	fltPolyColor2	Secondary color code, if any
char (1)	fltPolyMgTemplate	Set template transparency
		0 = None
		1 = Fixed
		3 = Axis type rotate
		5 = Point rotate
short (2)	fltPolyTexture1	Detail texture pattern no. -1 if none
short (2)	fltPolyTexture	Texture pattern no. -1 if none
short (2)	fltPolyMaterial	Material code [0-63]. -1 if none
short (2)	fltPolySmc	Surface material code (for DFAD)
short (2)	fltPolyFid	Feature ID (for DFAD)
int (4)	fltPolyIrMaterial	IR Material codes
unsigned short (2)	fltPolyTransparency	Transparency
		0 = for solid
		0xffff = for totally clear
unsigned char (1)	fltPolyLodControl	Influences LOD Generation
unsigned char (1)	fltPolyLineStyle	Linestyle Index
mgbool (4)	fltPolyFlagTerrain	Terrain
mgbool (4)	fltPolyFlagNocolor	No Color
mgbool (4)	fltPolyFlagNocolor2	No Alt Color
mgbool (4)	fltPolyFlagRgbMode	RGB Mode
mgbool (4)	fltPolyFlagFootprint	TRUE if face is a footprint for CAT cutout
mgbool (4)	fltPolyFlagHidden	TRUE if face is a hidden face - not drawn
unsigned char (1)	fltGcLightMode	Polygon lighting mode
		0 = None
		1 = Gouraud
		2 = Dynamic
		3 = Dynamic Gouraud
short (2)	fltPolyTexmap	texture mapping index
short (2)	fltPolyTexmap1	detail texture mapping index
unsigned int (4)	fltPolyPrimeColor	color code (without intensity) - in index mode
float (4)	fltPolyPrimeIntensity	color intensity (0-1.0) - in index mode
unsigned int (4)	fltPolyAltColor	2nd color code (without intensity) - in index mode
float (4)	fltPolyAltIntensity	2nd color intensity (0-1.0) - in index mode
}		
record fltSound {		

int (4)	fltSndIndex	Sound palette index value
record fltIcoord	fltSndOffset	Offset from local origin
record fltVector	fltSndNormal	Sound direction wrt local coordinate axes
float (4)	fltSndAmplitude	Amplitude of sound
float (4)	fltSndPitchBend	Pitch bend of sound
float (4)	fltSndPriority	Priority of sound
float (4)	fltSndFallOff	Falloff of sound
float (4)	fltSndWidth	Width of sound lobe
mgbool (4)	fltSndDoppler	Doppler effect on/off
mgbool (4)	fltSndAbsorption	Sound absorption on/off
mgbool (4)	fltSndDelay	Sound delay for distance on/off
mgbool (4)	fltSndDirection	0-omni 1-unidirectional 2-bidirectional
mgbool (4)	fltSndActive	Sound played when database loaded
}		
record fltSwitch {		
mgbool (4)	fltSwDynamic	
int (4)	fltSwCurMask	Index of Current Mask
int (4)	fltSwMaxMask	Number of Words Required for Each Mask (# Children / 32 + #
Children% 32)		
int (4)	fltSwCount	Number of Masks
record fltRecDummy*	fltSwSwitches	First Mask (Length = Number of Words Required for Each
Mask)		
}		
record fltTxtGeoCoord {		
record fltTxtGeoCoord*	fltTGNext	
record fltTxtGeoCoordData	fltTGData	
}		
record fltTxtGeoCoordData {		
double (8)	fltTGU	
double (8)	fltTGV	
double (8)	fltTGLat	
double (8)	fltTGLon	
}		
record fltTxtGetCoordLst {		
int (4)	fltTGNumCoords	
record fltTxtGeoCoord*	fltTGCoords	
}		
record fltVector {		
float (4)	fltVectorI	i component of vector
float (4)	fltVectorJ	j component of vector
float (4)	fltVectorK	k component of vector
}		
record fltVertex {		
mgbool (4)	fltVHard	TRUE if vertex to get face's normal
mgbool (4)	fltVLeaveNorm	TRUE to leave normal alone when shading
mgbool (4)	fltVHard2	TRUE if 2nd vertex of hardedge
unsigned int (4)	fltVColor	vertex color, if any, without intensity component
float (4)	fltVIntensity	intensity of the vertex color, if any
record fltIcoord	fltVCoord	the coordinate x, y, z
record fltVector	fltVNormal	vertex normal,if any
float (4)	fltVU	Texture mapping coordinate (U)
float (4)	fltVV	Texture mapping coordinate (V)
}		

record fltXmGeneral { record fltMatrix }	fltMatrix	General transformation matrix
record fltXmHeader { record fltMatrix alias Alias_fltXformPtr* record fltXmLimits* }	fltMatrix fltXformPtr fltXmLimits	General transformation matrix
record fltXmLimits { double (8) double (8) double (8) double (8) }	fltXmLimitCur fltXmLimitMin fltXmLimitMax fltXmLimitInc	
record fltXmPut { record fltIcoord record fltIcoord record fltIcoord record fltIcoord record fltIcoord record fltIcoord }	fltXmPutFromOrigin fltXmPutFromAlign fltXmPutFromTrack fltXmPutToOrigin fltXmPutToAlign fltXmPutToTrack	FROM origin FROM align FROM track TO origin TO align TO track
record fltXmRotate { record fltIcoord record fltVector float (4) }	fltXmRotateCenter fltXmRotateAxis fltXmRotateAngle	center of rotation axis of rotation Angle by which to rotate
record fltXmRotateEdge { record fltIcoord record fltIcoord float (4) }	fltXmRotRefPoint1 fltXmRotRefPoint2 fltXmRotEdgeAngle	first reference point second reference point Angle by which to rotate
record fltXmScale { record fltIcoord float (4) float (4) float (4) }	fltXmScaleCenter fltXmScaleX fltXmScaleY fltXmScaleZ	center of scale amount by which to scale in x amount by which to scale in y amount by which to scale in z
record fltXmScaleToPoint { record fltIcoord record fltIcoord record fltIcoord float (4) float (4) float (4) }	fltXmScalePointCenter fltXmScaleRefPoint1 fltXmScaleRefPoint2 fltXmScaleOverAll fltXmScaleAxis fltXmScaleRotAngle	center of scale first reference point second reference point Overall scale factor Scale factor in direction of axis Angle by which to rotate
record fltXmTranslate { record fltIcoord record fltIcoord }	fltXmTranslateFrom fltXmTranslateDelta	reference FROM point Delta to translate bead by

record fltXref {		
char* (200)	fltXrefFilename	External reference file name
mgbool (4)	fltGcColPal	External reference color palette override
mgbool (4)	fltGcMatPal	External reference material palette override
mgbool (4)	fltGcTxtPal	External reference texture palette override
}		