# AVW 3.0 Library Functions and Structures

## Categories



## Bits/Bytes/Bands Routines

*AVW_DataTypeToBands* type | **returns** value
*AVW_DataTypeToBytes* type | **returns** value
*AVW_QuadSwapImage* image | **returns** AVW_SUCCESS
*AVW_ReverseBits* in out bytes | **void (Not Supported in AVWTCL)**
*AVW_SwapBlock* pntr bytes | **void (Not Supported in AVWTCL)**
*AVW SwapDouble* pntr | **void (Not Supported in AVWTCL)**
*AVW SwapFloat* pntr | **void (Not Supported in AVWTCL)**
*AVW_SwapImage* image | **returns** AVW_SUCCESS
*AVW SwapInt* pntr | **void (Not Supported in AVWTCL)**
*AVW SwapLong* pntr | **void (Not Supported in AVWTCL)**
*AVW SwapShort* pntr | **void (Not Supported in AVWTCL)**
*AVW_VerifyDataType* type | **returns** AVW_TRUE

## Algebraic Routines

*AVW_BestOpDataType* dt1 max1 min1 op dt2 max2 min2 | **returns** DataType
*AVW_ConstantOpImage* value operation in_image out_image | **returns** AVW_Image
*AVW_ConstantOpVolume* value operation in_volume out_volume | **returns** AVW_Volume
*AVW_DestroyInstructions* instructions | **void**
*AVW_DoInstructions* instructions | **returns** AVW_SUCCESS
*AVW_FunctionImage* function_code in_image out_image | **returns** AVW_Image
*AVW_FunctionVolume* function_code in_volume out_volume | **returns** AVW_Volume
*AVW_ImageOpConstant* in_image operation value out_image | **returns** AVW_Image
*AVW_ImageOpImage* in_image1 operation in_image2 out_image | **returns** AVW_Image
*AVW_Parse* formula | **returns** AVW_Instructions
*AVW_VolumeOpConstant* in_volume operation value out_volume | **returns** AVW_Volume
*AVW_VolumeOpVolume* in_volume1 operation in_volume2 out_volume | **returns** AVW_Volume

## Analysis Routines

*AVW_Compute2DShapeStats* mask_image mask_value stats | **returns** AVW_SUCCESS
*AVW_ComputeCircularity* mask_image mask_value | **returns** circularity
*AVW_ComputeFullWidthHalfMax* list base search fwhm | **returns** AVW_SUCCESS
*AVW_ComputeImageCentroid* mask_image mask_value centroid count | **returns** AVW_SUCCESS
*AVW_ComputeImageFractalSig* in_image mask_image mask_val scalemin scalemax slope coeff reg_pts bfloat areas| **returns** AVW_SUCCESS
*AVW_ComputeImageIntensityStats* in_image mask_image mask_val sample_max sample_min stats | **returns** AVW_SUCCESS
*AVW_ComputeLineProfile* image trace length | **returns** AVW_PointValueList
*AVW_ComputeMEB* mask_volume maks_value resolution volume angle boxest | **returns** AVW_SUCCESS
*AVW_ComputeMER* boundary resolution area angle aspect merpts **returns** AVW_SUCCESS
*AVW_ComputeObjectStats* in_volume om seed min max bound_box centroid count | **returns** AVW_SUCCESS
*AVW_ComputePerimeter* boundary | **returns** value
*AVW_ComputeRFF* mask_image maks_value | **returns** value
*AVW_ComputeThickLineProfile* image line thickness length | **returns** AVW_PointValueList
*AVW_ComputeVolume* mask_volume mask_value | **returns** value
*AVW_ComputeVolumeCentroid* mask_volume mask_value centroid count | **returns** AVW_SUCCESS
*AVW_ComputeVolumeIntensityStats* in_vol mask_vol mask_val sample_max sample_min stats | **returns** AVW_SUCCESS
*AVW_GetImageIntensities* image mask maskval pvlist | **returns** AVW_PointValueList
*AVW_ResetIntensityStats* stats | **returns** AVW_SUCCESS
*AVW_SumIntensityStats*stats stats_sum | **void**

## Border Routines

*AVW_AutoTrace* in_image max min seedpt type exterior_only gap_size out_image | **returns** AVW_Image
*AVW_FindImageEdges* in_image edge_flag connectivity out_image | **returns** AVW_Image
*AVW_FindVolumeEdges* in_volume edge_flag connectivity out_volume | **returns** AVW_Volume
*AVW_GetBoundaryAndDelete* image thresh_max thresh_min seed_point del_value trace | **returns** AVW_PointList2
*AVW_GetClippedBoundary* image thresh_max thresh_min seed_point type gap_size trace | **returns** AVW_PointList2
*AVW_GetMaskBoundary* in_mask mask_value out_boundary | **returns** AVW_PointList2
*AVW_GetOutsideEdges* image mask_value connectivity mlist2 | **returns** AVW_MultiList2
*AVW_GetThresholdedBoundary* image thresh_max thresh_min seed_ppoint trace | **returns** AVW_PointList2

## Classification Routines

*AVW_ClassifiedImageToCentroidFile* imgs numimgs classImage CentroidFile | **returns** AVW_SUCCESS
*AVW_ClassifiedVolumeToCentroidFile* vols numvols classVolume CentroidFile | **returns** AVW_SUCCESS
*AVW_ClassifyFromScattergram* image1 image2 scattergram out_image | **returns** AVW_Image
*AVW_ClassifyImage* imgs numimgs train_img autotype maxdist sigma kvalue epochs hiddenepochs out_image | **returns** AVW_Image
*AVW_ClassifyImageFromSampleFile* imgs numimgs SampleFile autotype maxdist sigma kvalue epochs hiddenepochs out_image | **returns** AVW_Image
*AVW_ClassifyScattergram* mask autotype maxdist sigma kvalue epochs hiddenunits out_image | **returns** AVW_Image
*AVW_ClassifyVolume* vols numbols train_vol autotype maxdist sigma kvalue epochs hiddenepochs out_volume | **returns** AVW_Volume
*AVW_ClassifyVolumeFromSampleFile* vols numvols SampleFile autotype maxdist sigma kvalue epochs hiddenepochs out_vol | **returns** AVW_Volume
*AVW_ChangeIsolatedPixels* in_image changePixels out_image | **returns** AVW_Image
*AVW_GetLiklihoods* interleaved | **returns** AVW_Volume
*AVW_MaskImageToSampleFile* imgs numimgs maskImage SampleFile | **returns** AVW_SUCCESS
*AVW_MaskVolumeToSampleFile* vols numvols maskVolume SampleFile | **returns** AVW_SUCCESS
*AVW_GetScatLiklihoods* intin_img1 in_img2 climgerleaved | **returns** AVW_Volume
*AVW_PCAImages* images num_images scaleflag| **returns** AVW_SUCCESS
*AVW_PCAVolumes* volumes num_vols scaleflag| **returns** AVW_SUCCESS
*AVW_Scattergram* img1 img2 mask scattergram | **returns** AVW_Image
*AVW_ScattergramFromImages* img1 img2 mask scattergram | **returns** AVW_Image
*AVW_ScattergramFromVolumes* vol1 vol2 mask scattergram | **returns** AVW_Image
*AVW_UnsuperClassifyImage* imgs numimgs type centroidArray threshold pchange classes out_image | **returns** AVW_Image
*AVW_UnsuperClassifyVolume* vols numvols type centroidfile threshold pchange classes out_vol | **returns** AVW_Volume
*AVW_UpdateConfidenceClasses* class_image lik_vol alpha | **returns** numberofchanges
*AVW_UpdateImageClassification* class_image lik_vol alpha | **returns** numberofchanges

## Colormap Routines

*AVW_CopyColormap* in_colormap out_colormap | **returns** AVW_Colormap
*AVW_CreateColormap* size | **returns** AVW_Colormap
*AVW_DestroyColormap* colormap | **void**
*AVW_IsGrayColormap* map| **returns** AVW_TRUE
*AVW_LoadColormap* file | **returns** AVW_Colormap
*AVW_ReduceColors* image method ncolors | **returns** value
*AVW_SaveColormap* filename colormap | **returns** AVW_SUCCESS

## Conversion Routines

*AVW_ConvertImage* in_volume datatype out_volume | **returns** AVW_Image
*AVW_ConvertVolume* in_volume datatype out_volume | **returns** AVW_Volume
*AVW_DitherImage* in_image ncolors out_image | **returns** AVW_Image
*AVW_DitherVolume* in_volume ncolors out_volume | **returns** AVW_Volume
*AVW_MakeComplexImageViewable* in_image displaytype halfflag out_image | **returns** AVW_Image
*AVW_RoundImage* in_image datatype out_image | **returns** AVW_Image
*AVW_RoundVolume* in_volume datatype out_volume | **returns** AVW_Volume

## Comparison Routines

*AVW_IsASubsetImage* image1 image2 | **returns** AVW_TRUE
*AVW_IsGrayColormap* map| **returns** AVW_TRUE
*AVW_IsImageZero* in_image | **returns** AVW_TRUE
*AVW_IsVolumeZero* in_volume | **returns** AVW_TRUE

## Display Routines

*AVW_ShowImage* image | **returns** AVW_SUCCESS

## Draw Routines

*AVW_DrawFilledPointList2* image pt_list2 value | **returns** AVW_SUCCESS
*AVW_DrawImageLine* image pt1 pt2 value | **returns** AVW_SUCCESS
*AVW_DrawImageText* image string pt value | **returns** AVW_SUCCES
*AVW_DrawPointList2* image list value | **returns** AVW_SUCCESS
*AVW_DrawPointList3* volume list value | **returns** AVW_SUCCESS
*AVW_DrawRenderedBackDrop* rendered value | **returns** AVW_SUCCESS
*AVW_DrawRenderedLine* rendered start end value | **returns** AVW_SUCCESS
*AVW_DrawRenderedPoint* rendered in value | **returns** AVW_SUCCESS
*AVW_DrawVolumeLine* volume pt1 pt2 value | **returns** AVW_SUCCESS

## Error Routines

*AVW_Error* string | **void**
*AVW_GetErrorMessage* | **returns** error_message
*AVW_GetErrorNumber* | **returns** error_number
*AVW_SetError* number string | **void**
*AVW_ValidationErrorHandler* int (*function)() | **void**

## Frequency Domain Processing Routines

*AVW_ConvolveImage* in_image psf out_image | **returns** AVW_Image
*AVW_ConvolveVolume* in_volume psf out_volume | **returns** AVW_Volume
*AVW_CorrelateImage* in_image psf out_image | **returns** AVW_Image
*AVW_CorrelateVolume* in_volume psf out_volume | **returns** AVW_Volume
*AVW_CreateButterworthCoeffs* type f1 f2 order numsamples coeffs | **returns** AVW_FilterCoeffs
*AVW_CreateCircularMTF* coeffs out_image | **returns** AVW_Image
*AVW_CreateCoeffs* numsamples coeffs | **returns** AVW_FilterCoeffs
*AVW_CreateGaussianCoeffs* dev numsamples coeffs | **returns** AVW_FilterCoeffs
*AVW_CreateSphericalMTF* coeffs out_vol | **returns** AVW_Volume
*AVW_CreateStoksethMTF* xnum slice_no slice_thick numap pixel_width wavelength refr_index focal_dist out_image | **returns** AVW_Image
*AVW_DeconvDivideImage* spectrum transfer_func fmin out_image | **returns** AVW_Image
*AVW_DeconvDivideVolume* spectrum transfer_func fmin out_volume | **returns** AVW_Volume
*AVW_DeconvWienerImage* spectrum transfer_func alpha out_image | **returns** AVW_Image
*AVW_DeconvWienerVolume* spectrum transfer_func alpha out_volume | **returns** AVW_Volume
*AVW_DestroyCoeffs* coeffs | **void**
*AVW_FFT2D* input_image direction output_image | **returns** AVW_Image
*AVW_FFT3D* input_volume direction output_volume | **returns** AVW_Volume
*AVW_IterDeconvImage* obs_image transfer_func update_rule no_iter guess_image | **returns** AVW_Image

*AVW_IterDeconvVolume* obs_volume transfer_func update_rule no_iter guess_volume | **returns** AVW_Volume
*AVW_NearestNeighborDeconv* in_image slice_above slice_below in_focus_filt out_focus_filt cons alpha out_image | **returns** AVW_Image

## Filtering Routines

*AVW_AHEImage* in_image numb_x_regions num_y_regions clip_maximum clip_mminimum Clip_fraction out_image | **returns** AVW_Image
*AVW_AHEVolume* in_volume num_x_regions num_y_regions num_z_regions clip_maximum clip_minimum clip_fraction out_volume | **returns** AVW_Volume
*AVW_AnisotropicAffineImage* in_image dt iterations out_image | **returns** AVW_Image
*AVW_AnisotropicDiffusionImage* in_image iterations kappa bias_flag out_image | **returns** AVW_Image
*AVW_AnisotropicDiffusionImages* in_images num_images iterations kappa bias_flag | **returns** AVW_SUCCESS
*AVW_AnisotropicDiffusionVolumes* in_volumes num_volumes iterations kappa bias_flag | **returns** AVW_SUCCESS
*AVW_InhomogeneityCorrectVolume* in_volume mask_volume mask_value window_size out_volume | **returns** AVW_Volume
*AVW_LowpassFilterImage* in_image extents out_image | **returns** AVW_Image
*AVW_LowpassFilterVolume* in_volume extents out_volume | **returns** AVW_Volume
*AVW_MedianFilterImage* in_image xdim ydim out_image | **returns** AVW_Image
*AVW_MedianFilterVolume* in_volume xdim ydim zdim out_volume | **returns** AVW_Volume
*AVW_OrthoGradFilterImage* in_image out_image | **returns** AVW_Image
*AVW_OrthoGradFilterVolume* in_volume out_volume | **returns** AVW_volume
*AVW_RankFilterImage* in_image extents rank out_image | **returns** AVW_Image
*AVW_RankFilterVolume* in_image extents rank out_volume | **returns** AVW_Volume
*AVW_SigmaFilterImage* in_image extents sigma out_image | **returns** AVW_Image
*AVW_SigmaFilterVolume* in_volume extents sigma out_volume | **returns** AVW_Volume
*AVW_SobelFilterEnhanceImage* in_image extents out_image | **returns** AVW_Image
*AVW_SobelFilterEnhanceVolume* in_volume extents out_volume | **returns** AVW_Volume
*AVW_SobelFilterImage* in_image extents out_image | **returns** AVW_Image
*AVW_SobelFilterVolume* in_volume extents out_volume | **returns** AVW_Volume
*AVW_UnsharpFilterEnhanceImage* in_image extents out_image | **returns** AVW_Image
*AVW_UnsharpFilterEnhanceVolume* in_volume extents out_volume | **returns** AVW_Volume
*AVW_UnsharpFilterImage* in_image extents out_image | **returns** AVW_Image
*AVW_UnsharpFilterVolume* in_volume extents out_volume | **returns** AVW_Volume
*AVW_VSFMeanFilterVolume* in_volume ring sigma out_volume | **returns** AVW_Volume

## Histogram Routines

*AVW_ClearHistogram* histo | **returns** AVW_SUCCESS
*AVW_CreateHistogram* mem max min step | **returns** AVW_Histogram
*AVW_DestroyHistogram* histo | **void**
*AVW_GetHistogramMedianValue* histogram | **returns** value
*AVW_GetHistogramModeValue* histogram | **returns** value
*AVW_GetImageHistogram* in_image mask_image mask_value sumflag histo | **returns** AVW_Histogram
*AVW_GetVolumeHistogram* in_volume mask_volume mask_value histo | **returns** AVW_Histogram
*AVW_NormalizeHistogram* histo norm_histo | **returns** AVW_Histogram
*AVW_ReadHistogram* filename histo | **returns** AVW_Histogram
*AVW_SmoothHistogram* histo half_width | **returns** AVW_SUCCESS
*AVW_VerifyHistogram* histo | **returns** AVW_TRUE
*AVW_WriteHistogram* histo filename | **returns** AVW_SUCCESS

## Histogram Filters

*AVW_FlattenImageHistogram* in_image max min out_image | **returns** AVW_Image
*AVW_FlattenVolumeHistogram* in_vol max min out_vol | **returns** AVW_Volume
*AVW_MatchImageHistogram* in_image mhisto out_image | **returns** AVW_Image
*AVW_MatchVolumeHistogram* in_vol mhisto out_vol | **returns** AVW_Volume
*AVW_PreserveImageHistogram* in_image max min fill_type out_image | **returns** AVW_Image
*AVW_PreserveVolumeHistogram* in_vol max min fill_type out_volume | **returns** AVW_Volume

## I/O Routines

*AVW_CloseImageFile* imgfile | **returns** AVW_SUCCESS
*AVW_CreateImageFile* filename format width height depth datatype | **returns** AVW_ImageFile
*AVW_DisableImageFileFormat* file_format | **returns** supported_properties
*AVW_EnableImageFileFormats* file_format properties | **returns** supported_properties
*AVW_ExtendExternalLibs* | **void**
*AVW_ExtendImageFile* file | **returns** value
*AVW_FormatSupports* format property | **returns** AVW_TRUE
*AVW_ListFormats* properties | **returns** AVW_List
*AVW_MMapSelect* vol which | **returns** AVW_SUCCESS
*AVW_MMapVolume* imgfile | **returns** AVW_Volume
*AVW_OpenImageFile* filename modes | **returns** AVW_ImageFile
*AVW_OpenImageFileList* filename modes | **returns** AVW_ImageFile
*AVW_ReadImageFile* imagefile image | **returns** AVW_Image
*AVW_ReadVolume* imgfile volnum vol | **returns** AVW_Volume
*AVW_SeekImageFile* imgfile volume slice | **returns** AVW_SUCCESS
*AVW_WriteImageFile* imgfile image | **returns** AVW_SUCCESS
*AVW_WriteSubVolumeDescription* outname infile involnum subv info | **returns** AVW_SUCCESS
*AVW_WriteVolume* imgfile volnum volume | **returns** AVW_SUCCESS

## Image Get/Put Routines

*AVW_GetCurved* volume orientation trace | **returns** AVW_Image
*AVW_GetOblique* volume matrix interpolate out_image | **returns** AVW_Image
*AVW_GetOrthogonal* vol orient slice out_image | **returns** AVW_Image
*AVW_PutOblique* image volume matrix | **returns** AVW_SUCCESS
*AVW_PutOrthogonal* image volume orient slice | **returns** AVW_SUCCESS

## Image Resource Routines

*AVW_ClosestPointInImage* image point value | **returns** AVW_SUCCESS
*AVW_CopyImage* in_image out_image | **returns** AVW_Image
***AVW_CreateImage*** mem width height type **| returns** AVW_Image
*AVW_DestroyImage* image | **void**
*AVW_VerifyImage* image | **returns** AVW_TRUE

## Information Routines

*AVW_GetNumericInfo* match_string info_string | **returns** value
*AVW_GetStringInfo* match_string info_string | **returns** pointer
*AVW_ListInfo* info_string | **returns** AVW_List

*AVW_MergeInfo* info1 info2 | **returns** pointer
*AVW_PutHistoryInfo* string info | **returns** pointer
*AVW_PutNumericInfo* match_string numeric_value info_string | **returns** pointer
*AVW_PutStringInfo* match_string string_value info_string | **returns** pointer
*AVW_RemoveInfo* match_string info_string | **returns** pointer

## Intensity Manipulation Routines

*AVW_IntensityClipImage* in_image clip_max clip_min clip_maxval clip_minval out_image | **returns** AVW_Image
*AVW_IntensityClipVolume* in_volume clip_max clip_min clip_maxval clip_minval out_volume | **returns** AVW_Volume
*AVW_IntensityScaleImage* in_image in_max in_min out_max out_min out_dt out_image | **returns** AVW_Image
*AVW_IntensityScaleVolume* in_volume in_max in_min out_max out_min out_dt out_volume | **returns** AVW_Volume
*AVW_InvertImage* in_image maximum minimum out_image | **returns** AVW_Image
*AVW_InvertVolume* in_volume maximum minimum out_volume | **returns** AVW_Volume
*AVW_MakeMonoImage* in_image out_image | **returns** AVW_Image
*AVW_TableImage* in_image table out_image | **returns** AVW_Image
*AVW_TableVolume* in_volume table out_volume | **returns** AVW_Volume

## List Routines

*AVW_DestroyList* list | **void**
*AVW_DestroyMultiList2* multi_list2 | **void**

## Masking Routines

*AVW_GetMaskedImage* in_image mask out_image | **returns** AVW_Image
*AVW_GetMaskedVolume* in_volume mask out_volume | **returns** AVW_Volume
*AVW_MakeMaskFromTrace* trace point width height under_border out_image | **returns** AVW_Image
*AVW_PutMaskedImage* from_image to_image mask | **returns** AVW_SUCCESS
*AVW_PutMaskedVolume* from_volume to_volume mask | **returns** AVW_SUCCESS
*AVW_UpdateImageMask* maks update mode value | **returns** AVW_SUCCESS
*AVW_UpdateVolumeMask* mask update mode value | **returns** AVW_SUCCESS

## Matrix Routines

*AVW_CopyMatrix* in_matrix out_matrix| **returns** AVW_Matrix
*AVW_CreateMatrix* rows columns | **returns** AVW_Matrix
*AVW_DestroyMatrix* matrix | **void**
*AVW_InvertMatrix* in_matrix out_matrix | **returns** AVW_Matrix
*AVW_MakeMatrixFrom3Points* p1 p2 p3 xd yd zd out_matrix | **returns** AVW_SUCCESS
*AVW_MakeMatrixFromAxis* axis xc yd zd midpoint out_matrix | **returns** AVW_SUCCESS
*AVW_MatrixAngles* mat xangle yangle zangle | **void**
*AVW_MirrorMatrix* in_matrix axis out_matrix | **returns** AVW_Matrix
*AVW_MultiplyMatrix* mat_in1 mat_in2 mat_out | **returns** AVW_Matrix
*AVW_RotateMatrix* in_matrix xangle yangle zangle out_matrix | **returns** AVW_Matrix
*AVW_ScaleMatrix* in_matrix xfactor yfactor zfactor out_matrix | **returns** AVW_Matrix
*AVW_SetIdentityMatrix* mat | **void**
*AVW_TranslateMatrix* in_matrix xvoxels yvoxels zvoxels out_matrix | **returns** AVW_Matrix

## Max/Min Routines

*AVW_FindImageMaxMin* image max_val min_val | **returns** AVW_SUCCESS
*AVW_FindVolumeMaxMin* volume max_val min_val | **returns** AVW_SUCCESS
*AVW_MaximumDataValue* type | **returns** value
*AVW_MinimumDataValue* type | **returns** value
*AVW_QuickImageMaxMin* image max_val min_val | **returns** AVW_SUCCESS
*AVW_QuickVolumeMaxMin* volume max_val min_val | **returns** AVW_SUCCESS

## Memory Routines

*AVW_Calloc* num size | **void**
*AVW_Free* ptr | **void**
*AVW_Malloc* size | **void**
*AVW_MMapSelect* vol which | **returns** AVW_SUCCESS
*AVW_MMapVolume* imgfile | **returns** AVW_Volume
*AVW_Realloc* size ptr | **void**

## Morphology Routines

*AVW_ConditionalDilateGreyVolume* in_vol cond_vol thresh_max thresh_min element out_vol | **returns** AVW_Volume
*AVW_ConditionalDilateImage* in_image cond_image element out_image | **returns** AVW_Image
*AVW_ConditionalDilateVolume* in_vol cond_vol element out_vol | **returns** AVW_Volume
*AVW_CreateStructuringImage* type width height out_image | **returns** AVW_Image
*AVW_CreateStructuringVolume* type width height depth out_vol | **returns** AVW_Volume
*AVW_DilateImage* in_image element out_image | **returns** AVW_Image
*AVW_DilateVolume* in_volume element out_volume | **returns** AVW_Volume
*AVW_ErodeImage* in_volume element out_volume | **returns** AVW_Volume
*AVW_ErodeVolume* in_volume element out_volume | **returns** AVW_Volume
*AVW_ExtractObject* in_vol orient slice seedlist thresh_max thresh_min mask_image out_volume | **returns** AVW_Volume
*AVW_FillHolesImage* in_image connectivity out_image | **returns** AVW_Image
*AVW_FillHolesVolume* in_vol connectivity out_vol | **returns** AVW_Volume
*AVW_HomotopicThickenImage* in_image cond_image iterations out_image | **returns** AVW_Image
*AVW_HomotopicThickenVolume* in_vol cond_vol iterations out_vol | **returns** AVW_Volume
*AVW_MedialAxisTransformVolume* in_vol axis_flag out_vol | **returns** AVW_Volume
*AVW_MorphCloseImage* in_image element out_image | **returns** AVW_Image
*AVW_MorphCloseVolume* in_vol element out_vol | **returns** AVW_Volume
*AVW_MorphMaxImage* in_image element out_image | **returns** AVW_Image
*AVW_MorphMaxVolume* in_vol element out_vol | **returns** AVW_Volume
*AVW_MorphMinImage* in_image element out_image | **returns** AVW_Image
*AVW_MorphMinVolume* in_vol element out_vol | **returns** AVW_Volume
*AVW_MorphOpenImage* in_image element out_image | **returns** AVW_Image
*AVW_MorphOpenVolume* in_vol element out_vol | **returns** AVW_Volume
*AVW_NonMaxImage* in_image element out_image | **returns** AVW_Image
*AVW_NonMaxVolume* in_vol element out_vol | **returns** AVW_Volume
*AVW_ObjectSeparator* in_volume seeds omap max min | **returns** AVW_Volume

*AVW_UltimateErosionImage* in_image element out_image | **returns** AVW_Image
*AVW_UltimateErosionVolume* in_vol element out_vol | **returns** AVW_Volume

## Object Map Routines

*AVW_AddObject* object_map | **returns** AVW_SUCCESS
*AVW_CalculateObjectRegions* object_map flag | **returns** AVW_SUCCESS
*AVW_ComputeObjectStats* in_vol object_map seed min max bound_box centroid count | **returns** AVW_TRUE
*AVW_CopyObjectMap* in_map out_map | **returns** AVW_ObjectMap
*AVW_CreateObjectMap* width height depth | **returns** AVW_ObjectMap
*AVW_DeleteObject* object_map object | **returns** AVW_SUCCESS
*AVW_DestroyObjectMap* object_map | **void**
*AVW_GetObject* object_map object out_volume | **returns** AVW_Volume
*AVW_LoadObjectMap* file | **returns** AVW_ObjectMap
*AVW_ObjectScaleImage* in_image in_max in_min object_image object_map enhanced_flag out_image | **returns** AVW_Image
*AVW_PutMultipleObjects* volume omap | **returns** AVW_SUCCESS
*AVW_PutObject* volume omap object | **returns** AVW_SUCCESS
*AVW_ReassignObject* omap from to | **returns** AVW_SUCCESS
*AVW_RegenerateObjectMap* omap vol | **returns** AVW_ObjectMap
*AVW_RemoveUnusedObjects* omap | **returns** num_removed
*AVW_SaveObjectMap* file object_map | **returns** AVW_SUCCESS

## Point/PointList Routines

*AVW_AddFPoint2* trace point | **returns** AVW_SUCCESS
*AVW_AddFPoint3* trace point | **returns** AVW_SUCCESS
*AVW_AddIPoint2* trace point | **returns** AVW_SUCCESS
*AVW_AddIPoint3* trace point | **returns** AVW_SUCCESS
*AVW_AddPoint2* trace point | **returns** AVW_SUCCESS
*AVW_AddPoint3* trace point | **returns** AVW_SUCCESS
*AVW_AddPointValue* trace point value | **returns** AVW_SUCCESS
*AVW_ClipPointList2* list lowx lowy highx highy out_list | **returns** AVW_PointList2
*AVW_ClosestInPointList2* point2 plist | **returns** index
*AVW_ComputeDividedTrace* outside inside distance middle | **returns** AVW_PointList2
*AVW_CopyFPointList2* in_pl out_pl | **returns** AVW_FPointList2
*AVW_CopyFPointList3* in_pl out_pl | **returns** AVW_FPointList3
*AVW_CopyIPointList2* in_pl out_pl | **returns** AVW_IPointList2
*AVW_CopyIPointList3* in_pl out_pl | **returns** AVW_IPointList3
*AVW_CopyPointList2* in_pl out_pl | **returns** AVW_PointList2
*AVW_CopyPointList3* in_pl out_pl | **returns** AVW_PointList3
*AVW_CopyPointValueList* in_pl out_pl | **returns** AVW_PointValueList
*AVW_CreateFPointList2* block_size | **returns** AVW_FPointList2
*AVW_CreateFPointList3* block_size | **returns** AVW_FPointList3
*AVW_CreateIPointList2* block_size | **returns** AVW_IPointList2
*AVW_CreateIPointList3* block_size | **returns** AVW_IPointList3
*AVW_CreatePointList2* block_size | **returns** AVW_PointList2
*AVW_CreatePointList3* block_size | **returns** AVW_PointList3
*AVW_CreatePointValueList* block_size | **returns** AVW_PointValueList
*AVW_DestroyFPointList2* trace | **void**
*AVW_DestroyFPointList3* trace | **void**
*AVW_DestroyIPointList2* trace | **void**
*AVW_DestroyIPointList3* trace | **void**
*AVW_DestroyPointList2* trace | **void**
*AVW_DestroyPointList3* trace | **void**
*AVW_DestroyPointValueList* trace | **void**
*AVW_EditPointList2* orig_trace new_segment new_trace | **returns** AVW_PointList2
*AVW_ExtractControlPoints* plist2 step close distance plist2 | **returns** AVW_PointList2
*AVW_FillPointList2* plist out_plist | **returns** AVW_PointList2
*AVW_FillPointList3* plist out_plist | **returns** AVW_PointList3
*AVW_FindTraceCenter* trace point | **returns** AVW_SUCCESS
*AVW_GetFPoint2* trace which_point point | **returns** AVW_SUCCESS
*AVW_GetFPoint3* trace which_point point | **returns** AVW_SUCCESS
*AVW_GetIPoint2* trace which_point point | **returns** AVW_SUCCESS
*AVW_GetIPoint3* trace which_point point | **returns** AVW_SUCCESS
*AVW_GetPoint2* trace which_point point | **returns** AVW_SUCCESS
*AVW_GetPoint3* trace which_point point | **returns** AVW_SUCCESS
*AVW_GetPointValue* trace which_point point value | **returns** AVW_SUCCESS
*AVW_InsertFPoint2* fplist2 index fpt2 | **returns** AVW_SUCCESS
*AVW_InsertFPoint3* fplist3 index fpt3 | **returns** AVW_SUCCESS
*AVW_InsertIPoint2* iplist2 index ipt2 | **returns** AVW_SUCCESS
*AVW_InsertIPoint3* iplist3 index ipt3 | **returns** AVW_SUCCESS
*AVW_InsertPoint2* plist2 index pt2 | **returns** AVW_SUCCESS
*AVW_InsertPoint3* plist3 index pt3 | **returns** AVW_SUCCESS
*AVW_InsertPointValue* pvlist index pt2 value | **returns** AVW_SUCCESS
*AVW_MakeFPointList2* plist fplist | **returns** AVW_FPointList2
*AVW_MakeSpline* control_ptlist2 step close ptlist2 | **returns** AVW_PointList2
*AVW_RemoveFPoint2* trace which_point | **returns** AVW_SUCCESS
*AVW_RemoveFPoint3* trace which_point | **returns** AVW_SUCCESS
*AVW_RemoveIPoint2* trace which_point | **returns** AVW_SUCCESS
*AVW_RemoveIPoint3* trace which_point | **returns** AVW_SUCCESS
*AVW_RemovePoint2* trace which_point | **returns** AVW_SUCCESS
*AVW_RemovePoint3* trace which_point | **returns** AVW_SUCCESS
*AVW_RemovePointValue* trace which_point | **returns** AVW_SUCCESS
*AVW_RotatePointList2* ptlist angle | **returns** AVW_SUCCESS
*AVW_ScalePointList2* ptlist scale yscale | **returns** AVW_SUCCESS
*AVW_ShiftPointList2* list right_shift up_shift out_list | **returns** AVW_PointList2
*AVW_TransformFPoint2* point2 matrix in_image out_image | **returns** AVW_SUCCESS
*AVW_TransformFPoint3* point3 matrix in_volume out_volume | **returns** AVW_SUCCESS
*AVW_TransformFPointList2* ptlist matrix in_image out_image | **returns** AVW_SUCCESS
*AVW_TransformFPointList3* ptlist matrix in_volume out_volume | **returns** AVW_SUCCESS
*AVW_TransformIPoint2* point2 matrix in_image out_image | **returns** AVW_SUCCESS
*AVW_TransformIPoint3* point3 matrix in_volume out_volume | **returns** AVW_SUCCESS
*AVW_TransformIPointList2* ptlist matrix in_image out_image | **returns** AVW_SUCCESS
*AVW_TransformIPointList3* ptlist matrix in_volume out_volume | **returns** AVW_SUCCESS
*AVW_TransformPoint2* point2 matrix in_image out_image | **returns** AVW_SUCCESS
*AVW_TransformPoint3* point3 matrix in_volume out_volume | **returns** AVW_SUCCESS
*AVW_TransformPointList2* ptlist matrix in_image out_image | **returns** AVW_SUCCESS
*AVW_TransformPointList3* ptlist matrix in_volume out_volume | **returns** AVW_SUCCESS
*AVW_TranslatePointList2* ptlist xshift yshift | **returns** AVW_SUCCESS

## Progress Routines

*AVW_Counter* count | **returns** value
*AVW_CounterFunction* function | **void**
*AVW_DisableProgress* | **void**
*AVW_EnableProgress* | **void**
*AVW_Progress* percent | **returns** value
*AVW_ProgressFunction* function | **returns** value

## Region Growing Routines

*AVW_AutoTrace* in_image max min seedpt type exterior_only gap_size out_image | **returns** AVW_Image
*AVW_ConnectAndDeleteImage* in_image seeds connectivity min max deleted_value count out_image | **returns** AVW_Image

*AVW_ConnectAndDeleteVolume* in_volume object_map seeds connectivity min max deleted_value count out_volume | **returns** AVW_Volume
*AVW_ConnectAndKeepImage* in_image seeds connectivity min max deleted_value count out_image | **returns** AVW_Image
*AVW_ConnectAndKeepVolume* in_vol object_map seeds connectivity min max deleted_value count out_vol | **returns** AVW_Volume
*AVW_DefineConnected* in_vol object_map seeds connectivity min max defined_object count | **returns** AVW_SUCCESS
*AVW_DefineUnconnected* in_vol object_map seeds connectivity min max defined_object count | **returns** AVW_SUCCESS
*AVW_ExtractObject* in_vol orient slice seedlist thresh_max thresh_min mask_image out_volume | **returns** AVW_Volume
*AVW_FindImageComponents* in_image label_flag connectivity max_size min_size out_image | **returns** AVW_Image
*AVW_FindVolumeComponents* in_vol label_flag connectivity max_size min_size out_vol | **returns** AVW_Volume
*AVW_LabelImageFromEdges* in_image connectivity out_image | **returns** AVW_Image
*AVW_LabelVolumeFromEdges* in_vol connectivity out_vol | **returns** AVW_Volume
*AVW_ObjectSeparator* in_volume seeds omap max min | **returns** AVW_Volume

## Registration Routines

*AVW_BoundedStepSearchExtreme* dirflag base match points steps func interpolation matrix | **returns** AVW_Matrix
*AVW_BoundedStepSearchExtreme2D* dirflag base match points steps func interpolation matrix | **returns** AVW_Matrix
*AVW_ChamferDistanceImage* in_image out_image | **returns** AVW_Image
*AVW_ChamferDistanceVolume* in_volume out_volume | **returns** AVW_Volume
*AVW_DestroyMatchVoxelParams* param | **void**
*AVW_ImageSampleEntropy* image points interpolate | **returns** value
*AVW_ImageSampleJointEntropy* base match points matrix interpolate | **returns** value
*AVW_ImageSampleNMI* base match points matrix interpolate | **returns** value
*AVW_InitializeMatchVoxelParams* param | **returns** AVW_MatchVoxelParams
*AVW_MatchQuick* base_volume match_volume base_max base_min match_max match_min matrix | **returns** AVW_Matrix
*AVW_MatchSurfaces* base_vol match_vol free_flag param | **returns** AVW_MatchResult
*AVW_MatchVoxels* vol_1 vol_2 m_param matrix | **returns** AVW_Matrix
*AVW_SetupImageSample* spec fptlist2 | **returns** AVW_FPointList2
*AVW_SetupVolumeSample* spec fptlist3 | **returns** AVW_FPointList3
*AVW_StepSearchExtreme* dirflag base match points steps func interpolation matrix | **returns** AVW_Matrix
*AVW_StepSearchExtreme2D* dirflag base match points steps func interpolation matrix | **returns** AVW_Matrix
*AVW_VolumeSampleEntropy* volume points interpolate | **returns** value
*AVW_VolumeSampleJointEntropy* base match points matrix interpolate | **returns** value
*AVW_VolumeSampleNMI* base match points matrix interpolate | **returns** value

## Resizing Routines

*AVW_CropImage* in_image out_image | **returns** AVW_Image
*AVW_GetSubImage* in_image region out_image | **returns** AVW_Image
*AVW_GetSubImageWithIncrements* in_image region xinc yinc out_image | **returns** AVW_Image
*AVW_GetSubVolume* in_vol region out_vol | **returns** AVW_Volume
*AVW_PadImage* in_image out_width out_height location pad_type out_image | **returns** AVW_Image
*AVW_PadVolume* in_vol out_width out_height out_depth location pad_type out_vol | **returns** AVW_Volume
*AVW_PutSubImage* from_image to_image location | **returns** AVW_SUCCESS
*AVW_PutSubVolume* from_vol to_vol frontupperleft | returns AVW_SUCCESS
*AVW_ResizeImage* in_image width height interpolate out_image | **returns** AVW_Image
*AVW_ResizeSubImage* in_image in_rect2 interpolate_type out_image out_rect2 | **returns** AVW_SUCCESS
*AVW_ResizeSubVolume* in_vol in_rect3 interpolate_type out_vol out_rect3 | **returns** AVW_SUCCESS
*AVW_ResizeVolume* in_vol out_width out_height out_slices interpolate out_vol | **returns** AVW_Volume
*AVW_ResizeVolumeSliceBySlice* in_image in_count in_slices out_width out_height out_slices out_count interpolate out_image | **returns** AVW_Image
*AVW_ResizeVolumeUsingShapeInt* in_vol out_vol | **returns** AVW_Volume

## RGB Routines

*AVW_BlendImages* image1 factor image2 blend_type out_image | **returns** AVW_Image
*AVW_GetImageChannel* in_image channel out_image | **returns** AVW_Image
*AVW_GetVolumeChannel* in_vol channel out_vol | **returns** AVW_Volume
*AVW_MakeColorImage* red_image green_image blue_image out_image | **returns** AVW_Image
*AVW_MakeColorVolume* red_vol green_vol blue_vol out_vol | **returns** AVW_Volume
*AVW_MakeGrayImage* in_image out_image | **returns** AVW_Image
*AVW_MakeGrayVolume* in_vol out_vol | **returns** AVW_Volume
*AVW_PutImageChannel* image channel rgb_image | **returns** AVW_SUCCESS
*AVW_PutVolumeChannel* volume channel rgb_image | **returns** AVW_SUCCESS

## Security Routines

*AVW_RegisterProgramName* name | **returns** AVW_SUCCESS

## Thinning Routines

*AVW_Thin2D* in_image iterations out_image | **returns** AVW_Image
*AVW_Thin3D* in_vol iterations out_vol | **returns** AVW_Volume

## Thresholding Routines

*AVW_RenderableVolume* in_volume omap tmax tmin out_volume | **returns** AVW_Volume
*AVW_ThresholdImage* in_image threshold_max threshold_min out_image | **returns** AVW_Image
*AVW_ThresholdVolume* in_vol threshold_max threhold_min out_vol | **returns** AVW_Volume

## Tiling Routines

*AVW_ConvertSurfaceToVolume* surface faces truncated fill | **returns** AVW_Volume
*AVW_DestroyContourSurface* contour_surface | **returns** AVW_SUCCESS
*AVW_DestroyRPParam* rp_param | **returns** AVW_SUCCESS
*AVW_DestroyTileParameters* tile_param | **returns** AVW_SUCCESS
*AVW_DestroyTiledSurface* surface | **returns** AVW_SUCCESS
*AVW_InitializeRPParam* volume rp_param | **returns** AVW_RPParam
*AVW_InitializeTileParameters* vol object_map last_tile_param | **returns** AVW_TileParameters
*AVW_LoadContourSurface* filename format srfc | **returns** AVW_ContourSurface
*AVW_LoadTiledSurface* path format outSrfc | **returns** AVW_TiledSurface
*AVW_SaveContourSurface* srfc path rp_param | **returns**

AVW_SUCCESS
*AVW_SliceVolume* rp_param old_surface | **returns** AVW_ContourSurface
*AVW_SaveTiledSurface* srfc path format | **returns** AVW_SUCCESS
*AVW_TileVolume* tile_param surface | **returns** AVW_TiledSurface
*AVW_VolumeToSLC* path vol orient maskVal | **returns** AVW_SUCCESS

## Transformation Routines

*AVW_FlipImage* in_image axes out_image | **returns** AVW_Image
*AVW_FlipVolume* in_vol axes out_volume | **returns** AVW_Volume
*AVW_Rotate90Image* in_image direction out_image | **returns** AVW_Image
*AVW_ShiftImage* in_image right_shift up_shift wrap out_image | **returns** AVW_Image
*AVW_TransformImage* in_image matrix interpolate_flag trans_image | **returns** AVW_Image
*AVW_TransformVolume* in_vol matrix interpolate_flag trans_vol | returns AVW_Volume
*AVW_TransformVolumeSliceBySlice* in_vol matrix interpolate_flag nslices slice trans_image | **returns** AVW_Image

## Tree Routines

*AVW_AddTreeChild* tree parent child | **returns** AVW_SUCCESS
*AVW_CreateTree* block_size | **returns** AVW_Tree
*AVW_DestroyTree* tree | **void**
*AVW_FindTreeIndex* tree point | **returns** index
*AVW_FindTreeStart* in_vol startpos | **returns** AVW_SUCCESS
*AVW_LoadTree* file | **returns** AVW_Tree
*AVW_MakeTree* in_vol start_pt minlen maxlen | **returns** AVW_Tree
*AVW_PruneVolume* in_vol minlen | **returns** voxels_removed
*AVW_SaveTree* tree file | **returns** AVW_SUCCESS
*AVW_TreeAnalysis* tree volume t_max t_min c_radius filename | **returns** AVW_SUCCESS

## Value Get/Put Routines

*AVW_CubicSplineInterpolatedPixel* image point | **returns** value
*AVW_CubicSplineInterpolatedVoxel* volume point | **returns** value
*AVW_GetImageIntensities* image mask maskval pvlist | **returns** AVW_PointValueList
*AVW_GetPixel* image point | **returns** value
*AVW_GetVoxel* volume point | **returns** value
*AVW_InterpolatedPixel* image point | **returns** value
*AVW_InterpolatedVoxel* volume point | **returns** value
*AVW_NearestNeighborPixel* image point | **returns** value
*AVW_NearestNeighborVoxel* volume point | **returns** value
*AVW_PutPixel* image point value | **returns** AVW_SUCCESS
*AVW_PutVoxel* volume point value | **returns** AVW_SUCCESS
*AVW_SetImage* image value | **returns** AVW_SUCCESS
*AVW_SetVolume* volume value | **returns** AVW_SUCCESS
*AVW_SincInterpolatedPixel* image point | **returns** value
*AVW_SincInterpolatedVoxel* volume point | **returns** value
*AVW_SincWindowLimit* windowsize | **returns** value

## Volume Resource Routines

*AVW_CopyVolume* in_volume out_volume | **returns** AVW_Volume
*AVW_CreateVolume* mem width height depth type | **returns** AVW_Volume
*AVW_DestroyVolume* volume | **void**
*AVW_MakeVolumeFromImage* image volume | **returns** AVW_Volume
*AVW_VerifyVolume* volume | **returns** AVW_TRUE

## Volume Rendering Routines

*AVW_CopyRenderedImage* in_rendered out_rendered | **returns** AVW_RenderedImage
*AVW_CreateCompositeInfo* | **void**
*AVW_CubeSections* volume lowx lowy lowz highx highy highz matrix interpolate_flag shading_fraction last_rendered | **returns** AVW_RenderedImage
*AVW_DestroyCompositeInfo* composite_info | **void**
*AVW_DestroyGradients* surface | **void**
*AVW_DestroyMergedMap* merged_map | **void**
*AVW_DestroyRenderParameters* render_param | **void**
*AVW_DestroyRenderedImage* image | **void**
*AVW_DestroyVisibleSurface* surface | **void**
*AVW_DrawRenderedBackDrop* rendered value | **returns** AVW_SUCCESS
*AVW_DrawRenderedLine* rendered start end value | **returns** AVW_SUCCESS
*AVW_DrawRenderedPoint* rendered in value | **returns** AVW_SUCCESS
*AVW_ExtractGradients* param last_gradients | **returns** AVW_Gradients
*AVW_ExtractVisibleSurface* rendered last_surface | **returns** AVW_VisibleSurface
*AVW_FindRenderedPoint* rendered in out | **returns** AVW_SUCCESS
*AVW_FindRotation* pt3 pt2 r_param | **returns** AVW_SUCCESS
*AVW_FindSurfaceArea* rendered mask mask_depth surface_voxels surface_faces planar_area surface_area | **returns** AVW_TRUE
*AVW_FindSurfaceDistance* rendered pt1 pt2 curved | **returns** AVW_TRUE
*AVW_FindSurfacePoints* volume object_map thresh_max thresh_min | **returns** AVW_PointList3
*AVW_FindVolumePoint* rendered_image ipt3 opt3 | **returns** AVW_SUCCESS
*AVW_GetRGBAFromCompositeInfo* info red green blue alpha value | **void**
*AVW_InitializeRenderParameters* volume object_map last_param | **returns** AVW_RenderParameters
*AVW_IntersectingSections* volume x y z matrix interpolate_flag shading_fraction last_rendered | **returns** AVW_RenderedImage
*AVW_LoadCompositeInfo* file | **returns** AVW_ComposteInfo
*AVW_MergeRendered* in1_rendered factor1 in2_rendered factor2 out_rendered | **returns** AVW_RenderedImage
*AVW_MirrorRendered* rendered direction position out_image | **returns** AVW_Image
*AVW_ProcessRenderWedge* param region flag | **returns** AVW_SUCCESS
*AVW_ProcessZGradients* rendered coef out_image | **returns** AVW_Image
*AVW_RemoveUnrenderable* image threshmax threshmin oimage omap | **returns** AVW_SUCCESS
*AVW_RenderableVolume* in_volume omap tmax tmin out_volume | **returns** AVW_Volume
*AVW_RenderGradients* gradients param last_rendered | **returns** AVW_RenderedImage
*AVW_RenderOblique* volume ow oh omat matrix interpolate_flag shading_fraction last_rendered | **returns** AVW_RenderedImage
*AVW_RenderSections* volume list mat interpolate shading_fraction rendered | **returns** AVW_RenderedImage
*AVW_RenderVisibleSurface* surface param last_rendered | **returns** AVW_RenderedImage
*AVW_RenderVolume* param last_rendered | **returns** AVW_RenderedImage
*AVW_SaveCompositeInfo* file cinfo | **returns** AVW_SUCCESS

## Wavelet Routines

*AVW_DecompressWaveletBuffer* buffer | **returns** AVW_Image
*AVW_WaveletCompressAndDecompressImage* in_img levels hvsflag masterbin compressedsize | **returns** AVW_Image
*AVW_WaveletCompressImage* in_img levels hvs_flag master_bin return_buffer_size | **returns** buffer
*AVW_WaveletCompressImageFile* in_name levels hvsflag masterbin outname | **returns** AVW_SUCCESS

## Wiregrid Routines

*AVW_WireGrid* image matrix xspace yspace out_plist | **returns**
    AVW_PointList2

## Structures

*AVW_2DShapeStats*
    float Area
    float Perimeter
    float MERAngle
    float MERArea
    float MERAspect
    float RFF
    float Circularity
    AVW_FPoint2 Centroid
    AVW_FPoint2 MER1
    AVW_FPoint2 MER2
    AVW_FPoint2 MER3
    AVW_FPoint2 MER4
*AVW_Colormap*
    floint Size
    unsigned char *Red
    unsigned char *Green
    unsigned char *Blue
*AVW_Complex*
    float Real, Imaginary
*AVW_CompositeInfo*
    int Recalculate Slope
    int RedType
    int GreenType
    int BlueType
    int AlphaType
    int ColorSpace
    AVW_FPointList3 *Red
    AVW_FPointList3 *Green
    AVW_FPointList3 *Blue
    AVW_FPointList3 *Alpha
*AVW_ContourSurface*
    AVW_MultiList2 *Interior
    AVW_MultiList2 *Exterior
    AVW_Point3 MinExtent
    AVW_Point3 MaxExtent
    unsigned int StartSlice
    unsigned int EndSlice
    unsigned int TotalSlices
    double LayerThickness
*AVW_ExtendIO*
    char  *Extension
    char *Description
    int  MagicNumber
    int Properties
    AVW_ImageFile  *(*Open)()
    int  (*Seek)()
    AVW_Image *(*Read)()
    int (*Write)()
    int (*Close)()
    AVW_ImageFile  *(*Create)()
    int  (*Query)()
*AVW_FPoint2*
    float X
    float Y
*AVW_FPoint3*
    float X
    float Y
    float Z
*AVW_FPointList2*
    unsigned int NumberOfPoints
    unsigned int MaximumPoints
    unsigned int BlockSize
    AVW_FPoint2 *Points
*AVW_FPointList3*
    unsigned int NumberOfPoints
    unsigned int MaximumPoints
    unsigned int BlockSize
    AVW_FPoint3 *Point
*AVW_FilterCoeffs*
    int Number
    float *Coeffs
*AVW_FullWidthHalfMax*
    AVW_Point2 Start
    AVW_Point2 End
    double Maximum;
    AVW_Point2 MaximumPoint
    double HalfMax
    int StartIndex
    AVW_FPoint2 HM_Start
    int EndIndex
    AVW_FPoint2 HM_End
    double FWHM_Distance
    double Mean
    double StdDev
*AVW_GradientPoint*
    AVW_Point3 Location
    AVW_Point3 Gradient
*AVW_Gradients*
    int NumberOfGradients
    int MaximumGradients
    AVW_GradientPoint *GradientPoint
*AVW_Histogram*
    double *mem
    double Max
    double Min
    double Step
    Unsigned int Bins
*AVW_IPoint2*
    int X
    int Y
*AVW_IPoint3*
    int X
    int Y
    int Z
*AVW_IPointList2*
    unsigned int NumberOfPoints
    unsigned int MaximumPoints
    unsigned int BlockSize
    AVW_IPoint2 *Points
*AVW_IPointList3*
    unsigned int NumberOfPoints
    unsigned int MaximumPoints
    unsigned int BlockSize
    AVW_IPoint3 *Points
*AVW_Image*
    void *Mem
    int DataType
    unsigned int Width
    unsigned int Height
    unsigned int BytesPerPixel
    unsigned int BytesPerLine
    unsigned int BytesPerImage
    unsigned int PixelsPerImage
    AVW_Colormap *Colormap
    char *Info
    unsigned int *YTable
*AVW_ImageFile*
    char *FileName
    char *FileModes
    int DataFormat
    int DataType
    unsigned int Width
    unsigned int Height
    unsigned int Depth

unsigned int NumVols
unsigned int BitsPerPixel
unsigned int BytesPerPixel
unisigned int BytesPerLine
unsigned int BytesPerImage
unsigned int BytesPerVolume
unsigned int BytesPerFile
unsigned int PixelsPerImage
unsigned int VoxelsPerVolume
unsigned int VoxelPerFile
int CurrentSlice
int CurrentVolume
AVW_Colormap *Colormap
void *NativeData
char *Info

*AVW_Instructions*
int NumberOfOperations
unsigned short **Operations
int NumberOfConstants
char **ConstantNames
int NumberOfVariables
char **VariableNames
char **FileName
char **DataFormat
int *DataType
int *StartingVolume
int *VolumeIncrement
int *VolumesToProcess
int *StartingSlice
int *SliceIncrement
int *SlicesToProcess
int *SlicesPerVolume
int *MaxMinOption
int (*Communicator)()

*AVW_IntensityStats*
double Mean
double StandardDeviation
double Variance
double Sum
double SumOfSquares
unsigned long NumberOfVoxels
double Area
double Volume
double HighestIntensity
AVW_Point3 HighestPoint
double LowestIntensity
AVW_Point3 LowestPoint
double RangeMaximum
double RangeMinimum
double MeanInRange
double StandardDeviationInRange
double VarianceInRange
double SumInRange
double SumOfSquaresInRange
unsigned long NumberBelowRange
unsigned long NumberInRange
unsigned long NumberAboveRange
double AreaInRange
double VolumeInRange
double BrightnessAreaProduct

*AVW_Line2*
AVW_Point2 Start
AVW_Point2 End

*AVW_Line3*
AVW_Point3 Start
AVW_Point3 End

*AVW_List*
int NumberOfEntries
char **Entry

*AVW_MatchParameters*
int SamplePoints
int Centroid
float TranslationX
float TranslationY
float TranslationZ
float TranslationRange
float RotationPrecession
float RotationNutation
float RotationSpin
float RotationRange
float RotationInterval

*AVW_MatchResult*
AVW_Matrix *Matrix
float MenaSquareDistance
AVW_MatchParameters *NextInput

*AVW_MatchVoxelParams*
double Ftol
double Ptol
int Iterations
int Interpolate
int Smpl1to1[3]
int Smpl2to1[3]
int Smpl4to1[3]
int Smpl8to1[3]
double InitGuess[6]
double SearchLength[6]

*AVW_Matrix*
unsigned int Rows
unsigned int Columns
doubel **Matrix

*AVW_MergedMap*
int NumberMerged
AVW_Image *Image
AVW_Matrix **Matrix

*AVW_MultiList2*
unsigned int NumberOfList
AVW_PointList2 **Lists

*AVW_Object*
char Name[32]
int DisplayFlag
unsigned char TransformFlag
unsigned char MirrorFlag
unsigned char StatusFlag
unsigned char NeighborsUsedFlag
int Shades
int StartRed
int StartGreen
int StartBlue
int EndRed
int EndGreen
int EndBlue
int XRotation
int YRotation
int ZRotation
int XTranslation
int YTranslation
int ZTranslation
int XCenter
int YCenter
int ZCenter
int XRotationIncrement
int YRotationIncrement
int ZRotationIncrement
int XTranslationIncrement
int YTranslationIncrement
int ZTranslationIncrement
short int MinimumXValue
short int MinimumYValue
short int MinimumZValue\
short int MaximumXvalue
short int MaximumYValue

short int MaximumZValue
float Opacity
int OpacityThickness
int Dummy

*AVW_ObjectMap*
int Version
intNumberOfObjects
AVW_Volume *Volume
AVW_Object *Object[256]
unsigned char ShowObject[256]
unsigned char MinimumPixelValue[256]
unsigned char MaximumPixelValue[256]
int NeedsSaving
int NeedsRegionsCalculated

*AVW_Point2*
short X
short Y

*AVW_Point3*
short X
short Y
short Z

*AVW_PointList2*
unsigned int NumberOfPoints
unsigend int MaximumPoints
unsigned int BlockSize
AVW_Point2 *Points

*AVW_PointList3*
unsigned int NumberOfPoints
unsigned int maximumPoints
unsigned int BlockSize
AVW_Point3 *Points

*AVW_PointValueList*
unsigned int NumberOfPoints
unsigned int MaximumPoints
unsigned int BlockSize
AVW_Point2 *Points
double *Values

*AVW_RPParam*
double MaskValue
double AngleResolution
int InterpolateFlag
int SubvolumeFlag
int Format
int Orientation
int HandleBlankSlices
int Connectivity

*AVW_Rect2*
AVW_Point2 PointA
AVW_Point2 PointB

*AVW_Rect3*
AVW_Point3 PointA
AVW_Point3 Pointb

*AVW_RenderParameters*
int Type
double ThresholdMinimum, ThresholdMaximum
int ClipLowX, ClipLowY, ClipLowZ
int ClipHighX, ClipHighY, ClipHighZ
int ClipPlaneMinimum ClipPlaneMaximum
int ClipShading
int RenderWidth, RenderHeight, RenderDepth
int MaximumPixelValue, MinimumPixelValue
int SurfaceThickness
AVW_Matrix *Matrix
AVW_Matrix *LightMatrix
AVW_Image *RenderMask
int MaskValue
int DeleteDepth
double DeleteValue
double ScaleX, ScaleY, ScaleZ
int PerspectiveType
AVW_FPoint3 EyePosition
Double XFieldOfViewAngle, YFieldOfViewAngle
double SpecularFactor
double Specular Exponent
int SurfaceSkip
int MIP_Weight
AVW_CompositeInfo *CompositeInfo
int BackgroundColor
double BackgroundValue
int RenderMode
int InteractiveObject
AVW_InternalParameters Internal

*AVW_RenderedImage*
int Width, Height, Depth
double MaximumPixelValue MinimumPixelValue
AVW_Image *Image
AVW_Image *ZBuffer
AVW_Image *PBuffer
AVW_Volume *Volume
AVW_ObjectMap *ObjectMap
AVW_Matrix *Matrix
AVW_Matrix *InverseMatrix
int PerspectiveType
AVW_FPoint3 EyePosition
double XFieldOfViewAngle, YFieldOfViiewAngle
AVW_MergedMap *MergedMap
AVW_VisibleSurface *InteractiveSurface
double ReservedForFuture1
double ReservedForFuture2
double ReservedForFuture3

*AVW_SampleSpec*
int SampleType
int Interpolation
int XSamples, YSamples, ZSamples
double XStart, YStart,ZStart
double XEnd, YEnd, ZEnd

*AVW_StepSearchSpec*
double XStep, YStep, ZStep
double XRStep, YRStep, ZRStep
int XBound, YBound, ZBound
int XRBound, YRBound, ZRBound

*AVW_TileParameters*
AVW_Volume *Vol
AVW_ObjectMap *Omap
unsigned int Type
unsigned int Checkpoint
int MaskValue
int CurveOpRadius
int CloseSrfcFlag
int KohonenMajorAxis
unsigned int KohonenShapeOrient
Float KohonenShapeOffset
unsigned int KohonenFlag
unsigned int PolygonBudget
unsigned int KohonenRepetitions
unsigned int KohonenNeighborhood
unsigned int KohonenTopology
float KohonenNeighborRadius
float KohonenAlpha
unsigned int AddNodeFreq
unsigned int MaximumAge
float Eb, En
float Growing Alpha
float GrowingD
int Edge
int Iteration
double Step
double Kd
double Kj

*AVW_TiledSurface*
AVW_FPointList3 *Coords

unsigned int Number OfIndices
unsigned int MaximumIndices
unsigned int BlockSize
int *Indices

*AVW_Tree*

unsigned int NumberOfPoints
unsigned int MaximumPoints
unsigned int BlockSize
AVW_TreePoint *Points

*AVW_TreePoint*

short X, Y, Z
unsigend short Level
int ParentIndex
unsigned int Number Of Children
unsigned int *ChildIndex

*AVW_VisibleSurface*

int NumberOfSurfaces
int MaximumSurfaces
AVW_VisibleSurfacePoint *SurfacePoint

*AVW_VisibleSurfacePoint*

short int X, Y, Z;
short int Padding;
double Value;

*AVW_Volume*

void *Mem
int DataType
unsigned int Width
unsigned int Height
unsigned int Depth
unsigned int BytesPerPixel
unsigned int BytesPerLine
unsigned int BytesPerImage
unsigned int PixelsPerImage;
unsigned int BytesPerVolume
unsigned int VoxelsPerVolume
AVW_Colormap *Colormap
char *Info
unsigned int *ZTable
unsigned int *YTable