

Appendix A.

Reference Summary

Topic: Ignore

This appendix provides a summary of the reference items defined in the Component Name. Just the name and a brief description of each item is given. There is a separate section for each type of item (class, function, Scheme extension, test harness command, etc.).

Classes

Topic:	Ignore
DM_act_icon	This class is used for drawing area constraint tag objects in deformable modeling.
DM_ald_icon	This class is used for drawing area load tag objects in deformable modeling.
DM_att_icon	This class is used for drawing point attractor tag objects in deformable modeling.
DM_cct_icon	This class is used for drawing curve constraint tag objects in deformable modeling.
DM_cld_icon	This class is used for drawing curve load tag objects in deformable modeling.
DM_cpt_icon	The DM_cpt_icon draws an array of control points.
DM_crv_icon	This class is used for drawing deformable curve tag objects in deformable modeling.
DM_dbl_array	This class is a pseudo-read-only container class for double type supporting deformable modeling geometry query methods.
DM_dbx_icon	The DM_dbx_icon draws and manages an outline corresponding to the image of a parameter sub-rectangle on a deformable surface.



DM_default_icon	Base class for the icon objects in the dmicon and admicon libraries.
DM_default_icon_factory	This is an example of the icon class factory implementation.
DM_def_icon_cmd_args	This class provides a common interface (an Execute method) to the DM_default_icons for encapsulating state change commands.
DM_def_icon_draw_args	This class provides a common interface between ACIS rendering libraries.
DM_def_icon_query_args	This class provides a common interface to the DM_default_icons for encapsulating query commands.
DM_dpr_icon	This class is used for drawing distributed pressure tag objects in deformable modeling.
DM_draw_engine	This class provides an abstract draw primitive interface between the deformable modeling icons and the view-controller.
DM_draw_engine_mgr	This class manages the singleton DM_draw_engine, providing global access to the unique instance.
DM_grd_icon	This class draws and manages a rectangular grid of lines.
DM_ica_draw_option	This class is a DM_def_icon_cmd_args that encapsulates a command to set a DM_default_icon draw options, e.g., which tag objects to draw.
DM_ica_grid	This class is a DM_def_icon_cmd_args that encapsulates a command to set a DM_default_icon draw grid density.
DM_ica_on_off	This class is a DM_def_icon_cmd_args that encapsulates a command to switch an icon on or off (draw or don't draw).
DM_ica_width	This class is a DM_def_icon_cmd_args that encapsulates a command to set a DM_default_icon draw width.

DM_icon	This class provides abstract notify methods to the deformable modeling kernel for drawing services.
DM_icon_cmd_args	This interface class provides a command object to forward client requests through the DM_icon::Set_state method to the DM_icon.
DM_icon_draw_args	This interface class provides a command object to forward client requests through the DM_icon::Draw method to the DM_draw_engine.
DM_icon_factory	The DM_icon_factory class provides an abstract interface to the deformable modeling kernel for creating and destroying DM_icon objects.
DM_icon_factory_mgr	This class manages the singleton DM_icon_factory, providing global access to the unique instance.
DM_icon_query_args	This interface class provides a common interface between icon libraries.
DM_icq_draw_grid	This class is a DM_def_icon_query_args that encapsulates a command to query DM_default_icon draw grid density.
DM_icq_draw_option	This class is a DM_def_icon_query_args that encapsulates a command to query DM_default_icon draw options, e.g., which tag objects to draw.
DM_lct_icon	This class is used for drawing curve link constraint tag objects in deformable modeling.
DM_lld_icon	This class is used for drawing curve link load tag objects in deformable modeling.
DM_pct_icon	This class is used for drawing point constraint tag objects in deformable modeling.
DM_ppr_icon	This class is used for drawing point pressure tag objects in deformable modeling.
DM_rend_options	This class is used internally by the dmicon library for encapsulating draw options.

DM_rtnerr_hurler	This class provides a protocol for handling exceptions across interfaces.
DM_spr_icon	This class is used for drawing point spring load tag objects in deformable modeling.
DM_sps_icon	This class is used for drawing point spring set load tag objects in deformable modeling.
DM_srf_icon	This class is used for drawing deformable surface tag objects in standalone deformable modeling.
DM_syserr_hurler	This class provides a protocol for handling exceptions across interfaces.
DM_tag_array	The DM_tag_array class supports tag query methods and icon broadcast methods.
DM_vec_icon	This class is used for drawing vector load tag objects in deformable modeling.
DS_area_load	A DS_area_load is used to force a subarea of a deformable surface onto a target surface. For example, the DM_area_load can force part of a deformable surface to retain its current shape, while another part changes its shape.
DS_dmod	Pointer to this class acts as an handle.
DS_pfunc	Pointer to this class acts as an handle.
DS_poly_zone	The DS_poly_zone is used for building a DS_area_load.
DS_zone	Pointer to this class acts as an handle.
SDM_options	Provides an optional argument to all DM_ interface functions.
Spatial_abs_hurler	This class provides a protocol for handling exceptions across interfaces.

Enumerations

Topic:

Ignore

DM_flipped_state	Specifies relative handedness of two surfaces linked together.
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DM_target_memory	Specifies what happens to target curve (or point) when converting between constraints and loads.
DS_CSTRN_SRC	Classifies and identifies constraint purpose and behaviour.
DS_PFN	Enumerator for DS_pfunc type_id.
DS_TAGS	Enumeration of all possible tag object types.

Functions

Topic:

Ignore

DM_add_area_cstrn	Applies an area constraint that fixes a subarea of a deformable model.
DM_add_attractor	Adds an attractor to a deformable model and returns the new tag identifier or negative error code.
DM_add_crv_cstrn	Adds a curve constraint to the target model and returns a new tag identifier or a negative error code.
DM_add_crv_load	Adds a distributed curve spring and returns a new tag identifier or negative error code.
DM_add_curve_patch	Makes and adds a patch- to-patch hierarchy and returns a new patch tag identifier or an error.
DM_add_dist_press	Adds a distributed pressure attribute to the deformable model and returns a new tag identifier.
DM_add_link_C0_load	Adds a link constraint to connect two root siblings to make two deformable models act as one.
DM_add_link_C1_load	Adds a link constraint to connect two root siblings to make two deformable models act as one.
DM_add_link_cstrn	Adds a link constraint to connect two root siblings to make two deformable models act as one.

DM_add_pt_cstrn	Adds a point constraint to the target deformable model and returns a new tag identifier or an error.
DM_add_pt_press	Adds a pressure point to deformable model and returns a new tag identifier or an error.
DM_add_spring	Adds a spring to a deformable model and returns a new tag identifier or an error.
DM_add_spring_set	Adds a set of springs to a deformable model and returns a new tag identifier or an error.
DM_add_surface_patch	Creates and adds a patch to the patch hierarchy and returns a new patch tag identifier or an error.
DM_add_vector_load	Adds a vector load to deformable model and returns a tag identifier or an error.
DM_assign_next_tag	Increments and returns the tag count and the next available tag number or an error.
DM_build_ellipse_seam	Builds a curve set to act as a seam.
DM_build_fillet_square_seam	Builds a curve set to act as a seam.
DM_build_square_seam	Builds a curve set to act as a child patch's seam given the parent's deformable model.
DM_build_square_zone	Builds and returns a DS_zone object suitable for use as an area constraint.
DM_classify_tag	Checks the deformable model tree for a tag.
DM_convert_loads_and_cstrns	Converts curve objects into load objects and vice versa and returns a new tag identifier or an error.
DM_copy_dmod	Creates a deep copy of the input deformable model and returns a pointer to new deformable model object.
DM_copy_pfunc	Creates a deep copy of the input pfunc and returns a pointer to the new DS_pfunc object.
DM_delete_dmod	Clears the deformable model's data structure.

DM_delete_pfunc	Clears the pfunc data structure.
DM_delete_zone	Clears the zone data structure.
DM_draw_icon	Broadcast draw method. Draw these icons using the data encapsulated by the draw_args.
DM_elevate_dmod_degree	Increases the deformable model's polynomial degree by adding more degrees of freedom per element.
DM_eval_crv_src_domain	Evaluate an embedded source curve for the given tag.
DM_eval_crv_tgt	Evaluate a target curve for the given tag. Returns the xyz points corresponding to the input curve parameter points.
DM_eval_dmod	Calculates image positions for the uv location and returns 0 or an error.
DM_eval_pfunc	Calculates image positions for the input domain location and returns 0 or an error.
DM_extrapolate_dmod	Extends the deformable model domain by a small amount and returns 0 for success or an error.
DM_find_cstrn_by_tag	Checks the entire hierarchy for a constraint with matching tag value.
DM_find_load_by_tag	Checks the entire hierarchy for a load with matching tag value.
DM_find_patch_by_entity	Finds and returns pointer to DS_dmod deformable model whose entity pointer matches the input entity pointer or returns NULL.
DM_find_patch_by_tag	Finds and returns the pointer to the DS_dmod deformable model whose tag matches the input tag value or returns NULL.
DM_find_patch_by_tag_flag	Converts a tag_flag identifier into a deformable model pointer and a walk_flag value.
DM_find_tag_by_image_line	Checks the entire hierarchy for the load, constraint, or control point closest to the input image_line.

DM_get_active_patch	Gets the pointer to the hierarchy's active patch or NULL.
DM_get_active_patch_tag	Gets the tag number of the hierarchy's active patch.
DM_get_alpha	Gets the deformable model's alpha values and returns 0 or an error.
DM_get_area_cstrn_flag	Returns the area constraint's fixed inside/outside flag. 0=zone is free, 1=zone compliment area is free.
DM_get_attractor	Writes the place load data into return arguments and returns 0 or an error.
DM_get_beta	Gets the deformable model's beta values and returns 0 or an error.
DM_get_bspline_curve	Gets B-spline curve data and returns 0 for success or DM_NOT_A_B-spline.
DM_get_bspline_surface	Retrieves B-spline surface data and returns 0 for success or an error.
DM_get_child	Gets a deformable model's child and returns the child pointer or NULL.
DM_get_circ_curve	Retrieves circular curve data and returns 0 for success or DM_NOT_A_CIRC.
DM_get_comb_graphics	Gets the parameters of the deformable model's curvature comb graphics and returns 0 for success or an error.
DM_get_cstrn	Loads constraint data into return arguments and returns 0 for success or an error.
DM_get_cstrn_behavior	Gets the constraint's pos/tang behavior and returns 0 for success or an error.
DM_get_cstrn_rights	Gets a constraint's deletable/stoppable rights.
DM_get_cstrn_src_data	Returns the pass-through user data pointer stored with a constraint.
DM_get_cstrn_src_pfuncs	Returns pointers to a curve or link constraint's source DS_pfunc objects, which define the shape of the constraint.

DM_get_cstrn_state	Gets the state for a constraint and returns a 0=success or an error.
DM_get_cstrn_type_id	Gets the type identifier of a constraint's tangent gain.
DM_get_cstrn_value	Gets the value for a point constraint's constraint behavior.
DM_get_curve_load	Sets load data into return arguments and returns 0 for success or an error.
DM_get_default_shape	Gets the deformable model's default shape values.
DM_get_delta	Gets the deformable model's delta values and returns 0 for success or an error.
DM_get_dist_press	Gets and places the place load data into return arguments.
DM_get_dmods	Gets the tags of all DS_dmods in the hierarchy containing the input DS_dmod.
DM_get_dmod_cstrn	Gets the deformable model's first constraint if it exists.
DM_get_dmod_curve	Gets deformable curve data.
DM_get_dmod_degree	Gets the deformable model's basis degree and returns 0 for success or an error.
DM_get_dmod_domain_max	Gets the maximum domain point for a dmod and returns 0 for success or an error.
DM_get_dmod_domain_min	Gets the minimum domain point for a dmod and returns 0 for success or an error.
DM_get_dmod_domain_scale	Returns the scale factor that relates the adjustable DS_pfunc domain range to the constant DS_dmod domain range.
DM_get_dmod_knots	Writes the deformable models into output arrays and returns 0 for success or an error.
DM_get_dmod_load	Gets the deformable model for a load and returns 0 for success or an error.

DM_get_dmod_pfunc	Gets deformable model's pfunc and returns input's DS_pfunc shape pointer.
DM_get_dmod_surface	Gets deformable surface data.
DM_get_dmod_tag	Gets the type for DS_pfunc and returns the deformable model's tag number or an error.
DM_get_dmod_tags	Gets the tags of all tag objects on a single DS_dmod.
DM_get_dmod_type_id	Gets the tag type for DS_pfunc and returns 0 for success or an error.
DM_get_dof_state	Gets the deformable model's dof_state values and returns 0 for success or an error.
DM_get_domain_dim	Gets the domain space dimension for a deformable model.
DM_get_draw_count	Gets the deformable model's mesh graphics parameters.
DM_get_draw_state	Gets the deformable model's draw state and returns an integer bit array.
DM_get_dynamics	Gets the deformable model's dynamic values and returns 0 for success or an error.
DM_get_elem_count	Gets the deformable model's elem_count values and returns 0 for success or an error.
DM_get_end_conds	Gets end states for target deformable model and returns 0 for success or an error.
DM_get_entity	Gets the deformable model's entity pointer value and returns 0 for success or an error.
DM_get_epsilon	Gets the deformable model's epsilon value and returns 0 or an error.
DM_get_gamma	Gets the deformable model's gamma values and returns 0 for success or an error.
DM_get_icon	Gets the icon associated with a tag object and returns 0 for success or an error.
DM_get_image_dim	Gets the image space dimension size and returns the deformable model's image dimension or an error.

DM_get_integral_degree	Gets the deformable model's integral degree.
DM_get_interior_state	Gets the deformable model's interior state value.
DM_get_load_gain	Gets the load's gain and returns 0 for success or an error.
DM_get_load_type_id	Gets type identifier for a load.
DM_get_mesh_count	Gets the deformable model's mesh graphics parameters and returns 0 for success or an error.
DM_get_nurb_curve	Gets NURB curve data and returns 0 for success or DM_NOT_A_NURB.
DM_get_nurb_surface	Gets NURB surface data and returns 0 for success or an error.
DM_get_parent	Gets the deformable model's parent and returns the parent pointer or NULL.
DM_get_patch_continuity	Gets the patch-to-parent continuity and returns 0 for C0 (position continuity) or 1 for C1 (pos and tang continuity).
DM_get_patch_seam_count	Gets the number of seam curve.
DM_get_patch_seam_tag	Gets the tag number for a seam curve and returns the seam curve tag or an error.
DM_get_pfunc_default_state	Gets the pfunc's default state value.
DM_get_pfunc_degrees	Gets degree of freedom or dof values.
DM_get_pfunc_dofs	Gets the degrees of freedom value of a pfunc and returns 0 for success or an error.
DM_get_pfunc_dof_count	Returns the pfunc's dof_count value.
DM_get_pfunc_domain_dim	Gets the pfunc's domain dimension.
DM_get_pfunc_domain_max	Gets the maximum domain point for a pfunc and returns 0 for success or an error.
DM_get_pfunc_domain_min	Gets the minimum domain point for a pfunc and returns 0 for success or an error.
DM_get_pfunc_elem_count	Returns the pfunc's elem_count value.

DM_get_pfunc_image_dim Gets the pfunc's image dimension value.

DM_get_pfunc_knots Gets the dof values for the pfunc and returns 0 for success or an error.

DM_get_pfunc_knot_counts Gets the pfunc's knot count values (*u* and *v* directions).

DM_get_pfunc_type_id Gets the type of a DS_pfunc and returns a DS_PFN DS_pfunc enumeration type.

DM_get_pt_press Gets the load data into return arguments and returns 0 for success or an error.

DM_get_pt_uv Gets the tag's current *uv* location and returns 0 for success or an error.

DM_get_pt_xyz Gets the tag's current *xyz* location and returns 0 for success or an error.

DM_get_sibling Gets the deformable model's sibling and returns the sibling pointer or NULL.

DM_get_sibling_list Builds and returns a root sibling list.

DM_get_spring Gets the load data and places it into return arguments. Returns 0 for success or an error.

DM_get_spring_length Gets the spring or spring set length and returns 0 for success or an error.

DM_get_spring_set Gets the spring set load data and places it into return arguments.

DM_get_tags Gets the tags of all tag objects in a DS_dmod hierarchy.

DM_get_tag_count Gets the deformable model's dmo_tag_count value and returns the largest tag value currently assigned.

DM_get_tag_summary Gets the build and return tag summary list and returns 0 for success or an error.

DM_get_tan_display_gain Gets a display scaling for tangent vectors.

DM_get_tight_state Gets the tight state for a constraint/load.

DM_get_tolerance	Gets the tolerance limits.
DM_get_vector_load	Gets the vector load data and places it into return arguments. returns 0 for success or an error.
DM_journal_off	Closes a journal file and stops further journaling of DM API calls.
DM_journal_on	Enables journaling and opens a file for write.
DM_journal_play	Replays a sequence of DM API calls from a DM API journal file for debugging purposes only.
DM_make_bspline_curve	Creates a B-spline curve from data and returns a pointer to the DS_pfunc B-spline curve or NULL.
DM_make_bspline_surface	Creates a B-spline surface from data and returns a pointer to DS_pfunc B-spline surf or NULL.
DM_make_circ_curve	Creates a circular curve and returns a pointer to DS_pfunc circular curve or NULL.
DM_make_dcurve_image	Creates a projected domain curve and returns the projected domain curve or NULL.
DM_make_dmod_curve	Creates a deformable curve model and returns a pointer to the deformable model object.
DM_make_dmod_surface	Creates a deformable surface model and returns a pointer to the deformable model object or NULL.
DM_make_nurb_curve	Creates a NURB curve from data and returns a pointer to DS_pfunc, NURB curve or NULL.
DM_make_nurb_surface	Constructs a NURB surface from data and returns pointer to DS_pfunc NURB surf or NULL.
DM_make_orig_dmod_space_pfunc	Creates a pfunc copy with the pfunc's domain set to equal the orig_dmod_space domain range.
DM_param_max	Gets the tag object maximum parameterization value.

DM_param_min	Gets the tag object minimum parameterization value.
DM_parse_tag_flag	Converts a tag_flag identifier into a deformable model pointer and a walk_flag value.
DM_print_dmod	Generates a deformable model report and returns 0 for success or an error.
DM_print_dmod_cstrns	Generates a deformable model reports and returns 0 for success or an error.
DM_query_icon	Passes the command encapsulated by the query_args to the icon. Used to query the icon state.
DM_refine_dmod_fit	Modifies the shape of the deformable model to fit to its constraints. This function should be used after sculpting.
DM_rm_patch	Removes and deletes a patch from a target deformable modeling hierarchy.
DM_rm_tag_object	Removes a deformable modeling tag object from a deformable modeling hierarchy.
DM_scale_pfunc_image	Scales the image of the input pfunc.
DM_scale_unit_dpt_array_from_dmod ..	Scales an array of dpts from a deformable model's parameter range to the unit_square parameter range.
DM_scale_unit_dpt_array_from_pfunc ..	Scales an array of dpts from a pfunc's param range to the unit_square parameter range.
DM_scale_unit_dpt_array_to_dmod	Scales an array of domain point values that lie from 0 to 1 into the dmod's actual domain_space range.
DM_scale_unit_dpt_array_to_pfunc	Scales an array of domain point values that lie from 0 to 1 into the pfunc's actual domain_space range.
DM_scale_unit_dpt_from_dmod	Scales domain point values specified in the deformable model's domain space into the unit_square domain space.
DM_scale_unit_dpt_from_pfunc	Scales domain point values specified in the pfunc's domain_space into the unit_square domain_space.

DM_scale_unit_dpt_to_dmod	Scales domain points from the unit domain range into the dmod's actual domain range.
DM_scale_unit_dpt_to_pfunc	Scales domain points from the unit domain range into the pfunc's actual domain range.
DM_scale_unit_dvec_to_dmod	Scales domain vector values that are specified in a unit domain space that ranges from 0 to 1 into the deformable model's domain range.
DM_scale_unit_dvec_to_pfunc	Scales domain vector values that are specified in a unit domain space that ranges from 0 to 1 into the pfunc's domain range.
DM_setstate_icon	Broadcasts the command encapsulated by the cmd_args to the icons.
DM_set_active_patch	Sets the input deformable model to the hierarchy's active deformable model.
DM_set_alpha	Sets the deformable model's alpha and returns 0 for success or an error.
DM_set_area_cstrn_flag	Modifies the fixed inside/outside flag for an area constraint.
DM_set_array_size	Sets the size of a DM_dbl_array and initializes the memory.
DM_set_attractor_power	Sets an attractor's power and returns 0 for success or an error.
DM_set_beta	Sets the deformable model's beta and returns 0 for success or an error.
DM_set_comb_graphics	Sets the deformable model's comb_graphics and returns 0 for success or an error.
DM_set_cstrn_behavior	Modifies the behavior of a constraint and returns 0 for success or an error.
DM_set_cstrn_pttan_uv_dir	Sets the surface domain space direction for a point constraint's tangent and curvature constraint behaviors.
DM_set_cstrn_src_data	Modifies the value of the pass through src_data pointer stored with each constraint.

DM_set_cstrn_src_pfuncs	Sets a curve or link constraint's source DS_pfunc objects, which are used to specify the shape of the constraint.
DM_set_cstrn_state	Modifies the enabled/disabled state for a deformable modeling constraint.
DM_set_cstrn_value	Sets the value for a point constraint's constraint behavior.
DM_set_default_shape	Sets the deformable model's default shape and returns 0 for success or an error.
DM_set_delta	Sets the deformable model's delta and returns 0 for success or an error.
DM_set_dmod_tag	Checks and returns the tag type for DS_pfunc and returns 0 for success or an error.
DM_set_draw_state	Sets the target deformable model's draw_state.
DM_set_dynamics	Sets the deformable model's dynamics and returns 0 for success or an error.
DM_set_end_conds	Sets the end states for a deformable model and returns 0 for success or returns an error.
DM_set_entity	Sets the deformable model's entity pointer value and returns 0 for success or an error.
DM_set_epsilon	Sets the deformable model's epsilon value and returns 0 or an error.
DM_set_gamma	Sets the deformable model's gamma and returns 0 for success or an error.
DM_set_icon	Sets the icon for a tag object.
DM_set_icon_owner	Sets the icon's owner.
DM_set_interior_state	Sets the deformable model's interior state value and returns 0 for success or a negative error code.
DM_set_load_gain	Sets the deformable model's load_gain and returns 0 for success or an error.
DM_set_mesh_count	Sets the deformable model's mesh_count and returns 0 for success or an error.

DM_set_patch_continuity Sets patch-to-parent continuity.

DM_set_pfunc_default_state Sets the pfunc's default state.

DM_set_pt_uv Sets domain points in a load or and returns 0 for success or an error.

DM_set_pt_xyz Sets the image space point for a constraint or control point.

DM_set_tag_count Sets the deformable model's dmo_tag_count value and returns 0 for success or an error.

DM_set_tan_display_gain Sets display gain for the deformable model's tangent vectors and returns 0 for success or an error.

DM_set_tight_state Modifies the tight enabled/disabled state.

DM_set_tolerance Sets tolerance limits and returns 0 for success or an error.

DM_solve Computes a deformable model's optimal control point positions or its current set of constraints and loads.

DM_split_dmod Splits the deformable model into finer elements and returns 0 for success or an error.

DM_update_cstrn_src_pts Forces a curve or link constraint to update its internally stored data after the constraint's source points have been modified.

DM_xsect_dmod_by_image_line Finds uv_params for a ray deformable model intersection and returns 0 for success or an error.