Schema documentation for drakeURDF.xsd

september 7, 2013

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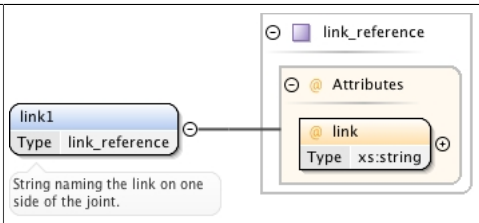
Schema(s)

Main schema `drakeURDF.xsd`

Element(s)

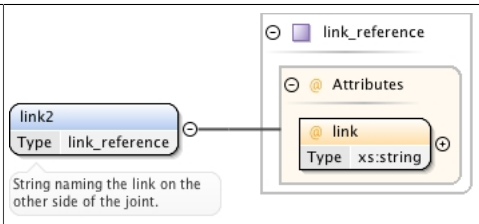
Element `loop_joint / link1`

Diagram	

Attributes

QName	Type	Use	
link	xs:string	required	

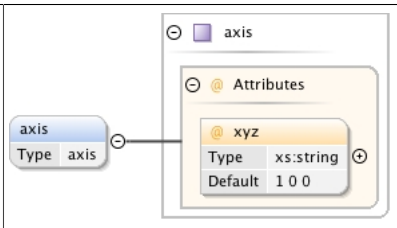
Element `loop_joint / link2`

Diagram	

Attributes

QName	Type	Use	
link	xs:string	required	

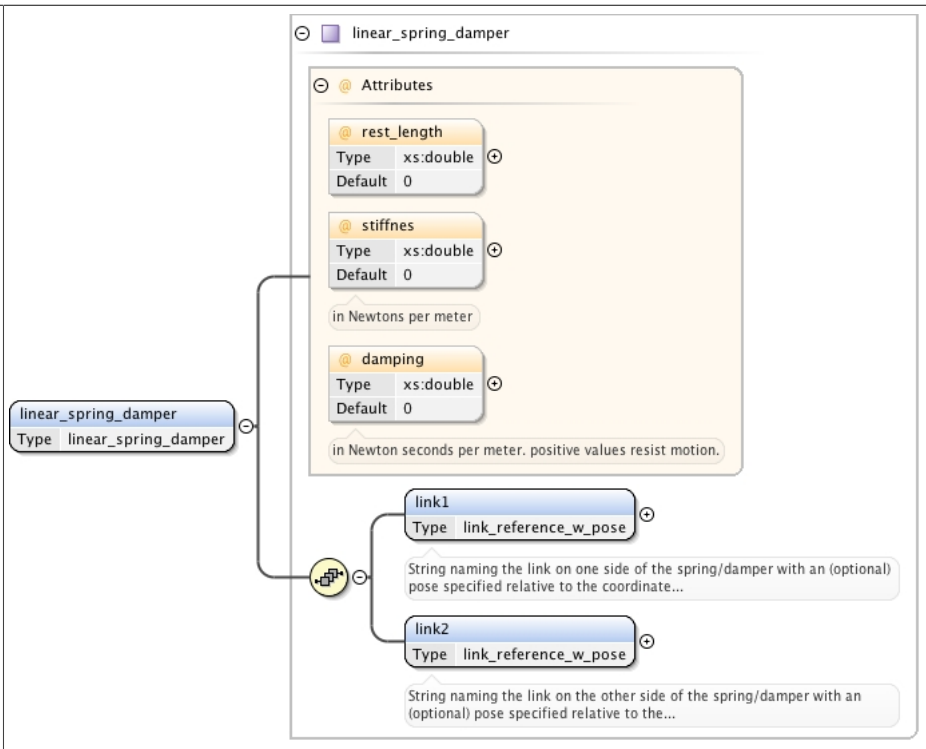
Element `loop_joint / axis`

Diagram	

Attributes

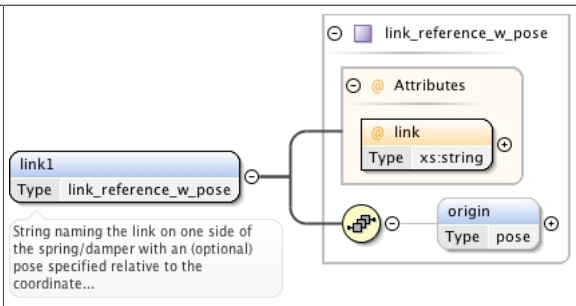
QName	Type	Default	Use	
xyz	xs:string	1 0 0	optional	

Element `force_element / linear_spring_damper`

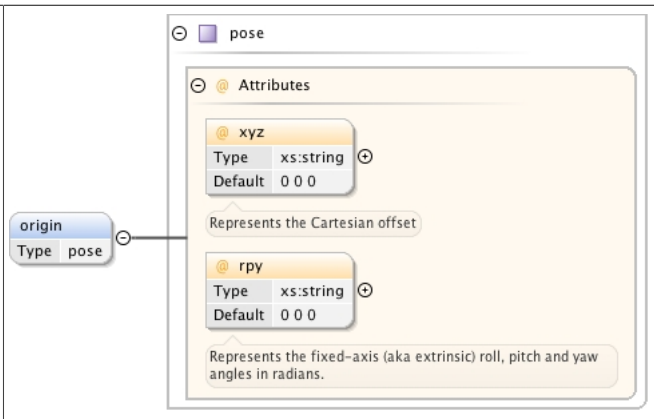
Diagram	
Children	link1, link2

Attributes	**QName** / **Type** / **Default** / **Use**
	damping / xs:double / 0 / optional
	`in Newton seconds per meter.  positive values resist motion.`
	rest_length / xs:double / 0 / optional
	stiffnes / xs:double / 0 / optional
	`in Newtons per meter`

Element `linear_spring_damper / link1`

Diagram	
Children	origin
Attributes	**QName** / **Type** / **Use** **link** / xs:string / required

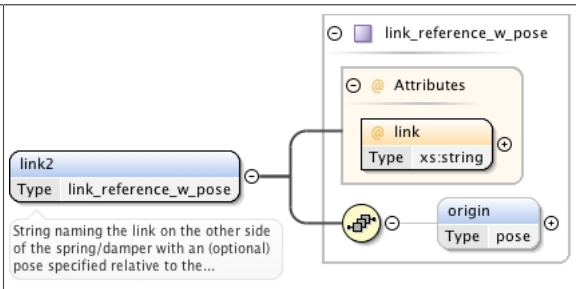
Element `link_reference_w_pose / origin`

Diagram	

Attributes

QName	Type	Default	Use	
rpy	xs:string	0 0 0	optional	
	`Represents the fixed-axis (aka extrinsic) roll, pitch and yaw angles in radians.`			
xyz	xs:string	0 0 0	optional	
	`Represents the Cartesian offset`			

Element `linear_spring_damper / link2`

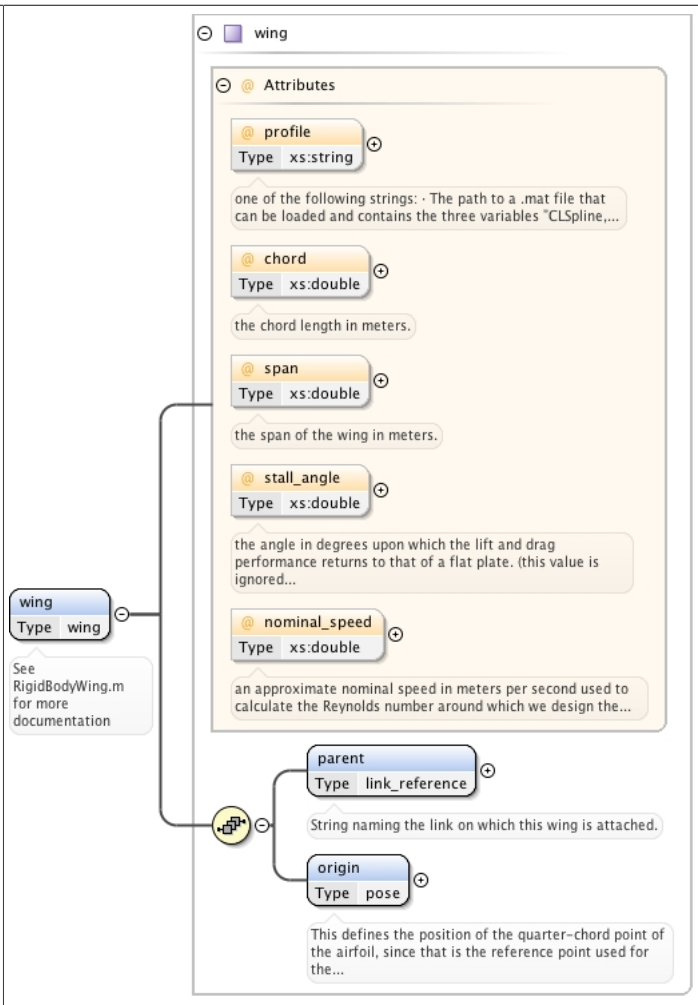
Diagram	
Children	origin

Attributes

QName	Type	Use	
link	xs:string	required	

Element `force_element / wing`

Diagram



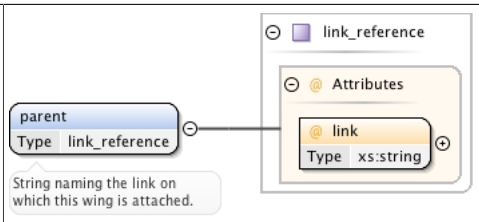
Children: origin, parent

Attributes

QName	Type	Use	
chord	xs:double	optional	
	the chord length in meters.		
nominal_speed	xs:double	optional	
	an approximate nominal speed in meters per second used to calculate the Reynolds number around which we design the aerodynamic coefficients.		
profile	xs:string	optional	
	one of the following strings: · The path to a .mat file that can be loaded and contains the three variables ”CLSpline, CDSpline, CMSpline” · The string, ’flat plate’ 39 · File location of a .dat file generated by Xfoil · A NACA airfoil designation: ’NACA0012’		
span	xs:double	optional	
	the span of the wing in meters.		
stall_angle	xs:double	optional	
	the angle in degrees upon which the lift and drag performance returns to that of a flat plate. (this value is ignored if the profile is set to a flat plate).		

Element `wing / parent`

Diagram

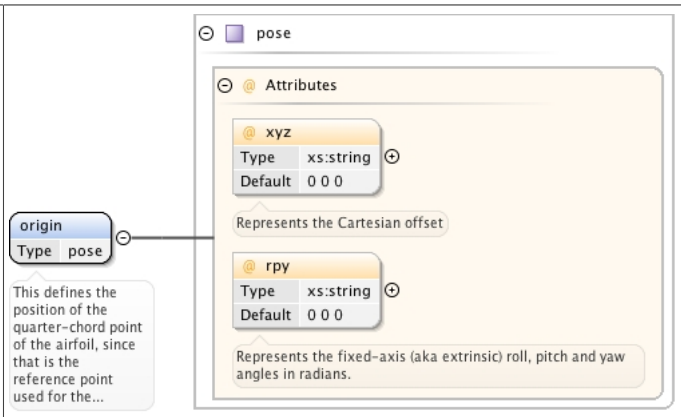


Attributes

QName	Type	Use	
link	xs:string	required	

Element `wing / origin`

Diagram

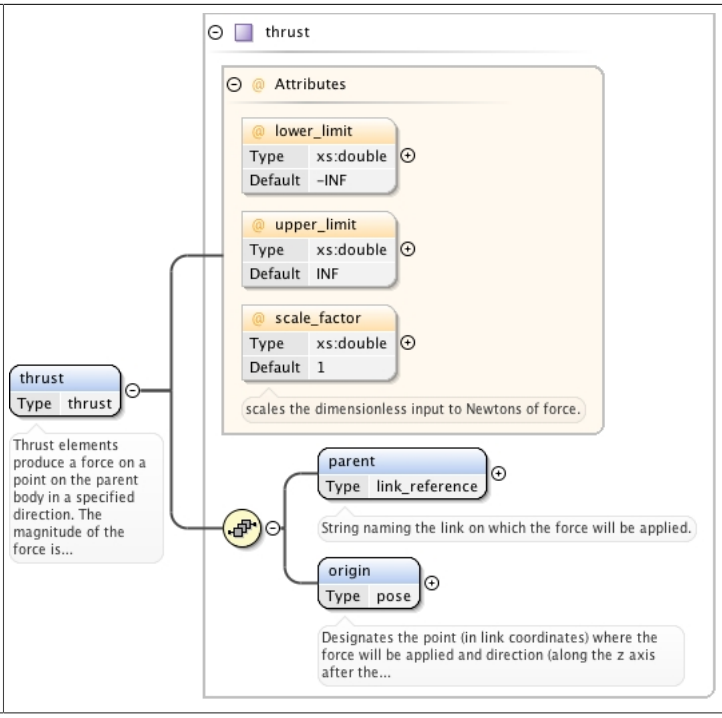


Attributes

QName	Type	Default	Use	
rpy	xs:string	0 0 0	optional	
	`Represents the fixed-axis (aka extrinsic) roll, pitch and yaw angles in radians.`			
xyz	xs:string	0 0 0	optional	
	`Represents the Cartesian offset`			

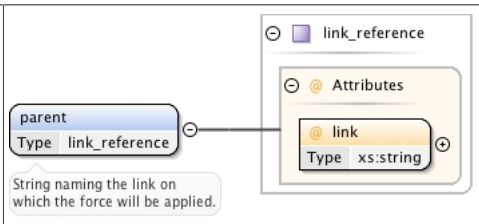
Element `force_element / thrust`

Diagram

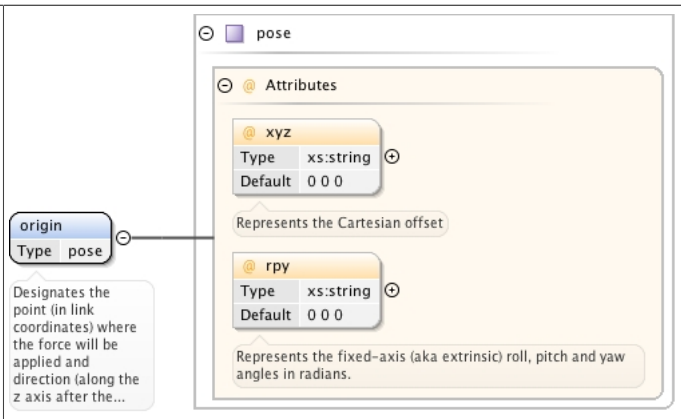


Children	origin, parent				
Attributes	**QName**	**Type**	**Default**	**Use**	
	lower_limit	xs:double	-INF	optional	
	scale_factor	xs:double	1	optional	
		`scales the dimensionless input to Newtons of force.`			
	upper_limit	xs:double	INF	optional	

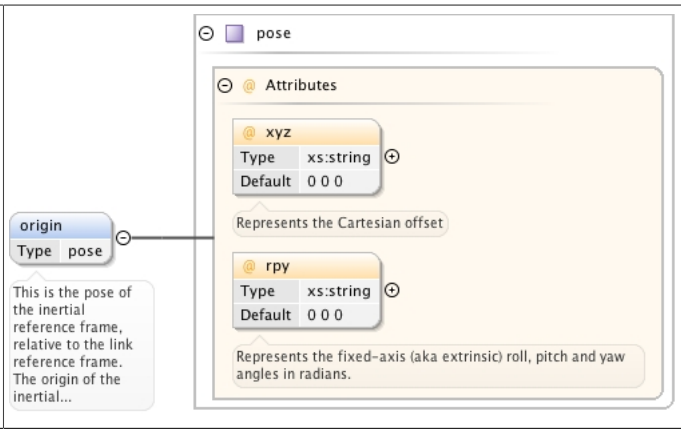
Element `thrust / parent`

Diagram					
Attributes	**QName**	**Type**	**Use**		
	link	xs:string	required		

Element `thrust / origin`

Diagram					
Attributes	**QName**	**Type**	**Default**	**Use**	
	rpy	xs:string	0 0 0	optional	
		`Represents the fixed-axis (aka extrinsic) roll, pitch and yaw angles in radians.`			
	xyz	xs:string	0 0 0	optional	
		`Represents the Cartesian offset`			

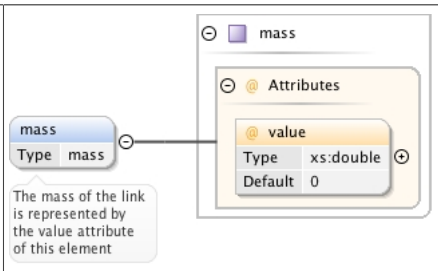
Element `inertial / origin`

Diagram					

Attributes	QName	Type	Default	Use	
	rpy	xs:string	0 0 0	optional	
		Represents the fixed-axis (aka extrinsic) roll, pitch and yaw angles in radians.			
	xyz	xs:string	0 0 0	optional	
		Represents the Cartesian offset			

Element `inertial / mass`

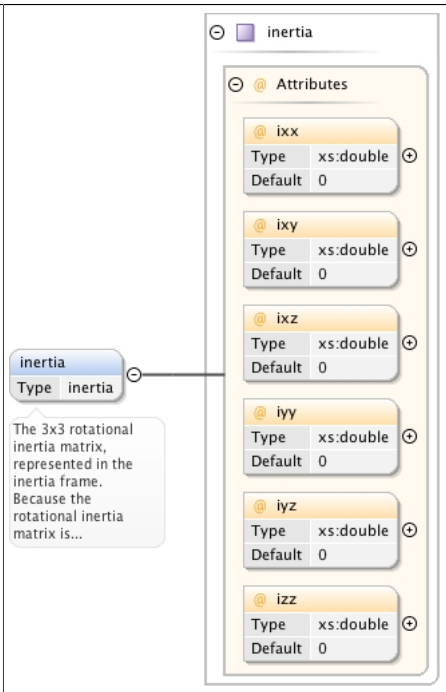
Diagram	



Attributes	QName	Type	Default	Use	
	value	xs:double	0	optional	

Element `inertial / inertia`

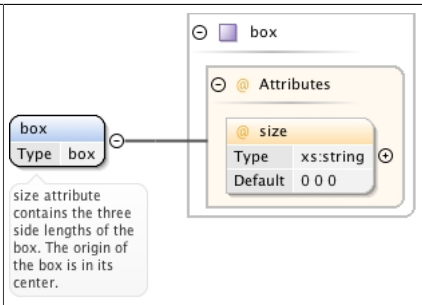
Diagram	



Attributes	QName	Type	Default	Use	
	ixx	xs:double	0	optional	
	ixy	xs:double	0	optional	
	ixz	xs:double	0	optional	
	iyy	xs:double	0	optional	
	iyz	xs:double	0	optional	
	izz	xs:double	0	optional	

Element geometry / box

Diagram

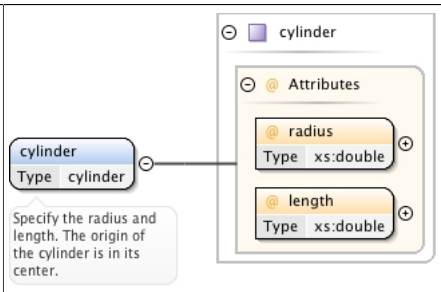


Attributes

QName	Type	Default	Use
size	xs:string	0 0 0	optional

Element geometry / cylinder

Diagram

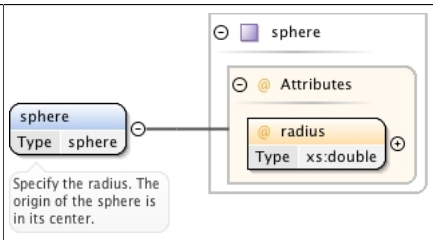


Attributes

QName	Type	Use
length	xs:double	required
radius	xs:double	required

Element geometry / sphere

Diagram

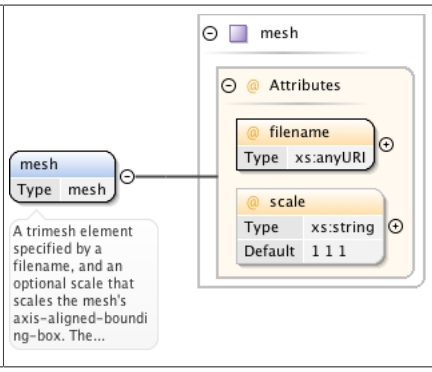


Attributes

QName	Type	Use
radius	xs:double	required

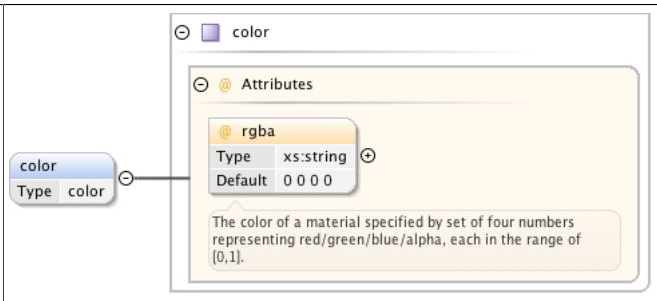
Element geometry / mesh

Diagram

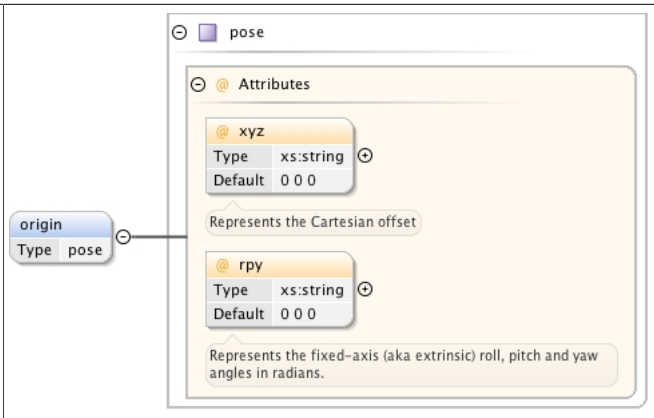


Attributes	QName	Type	Default	Use	
	filename	xs:anyURI		required	
	scale	xs:string	1 1 1	optional	

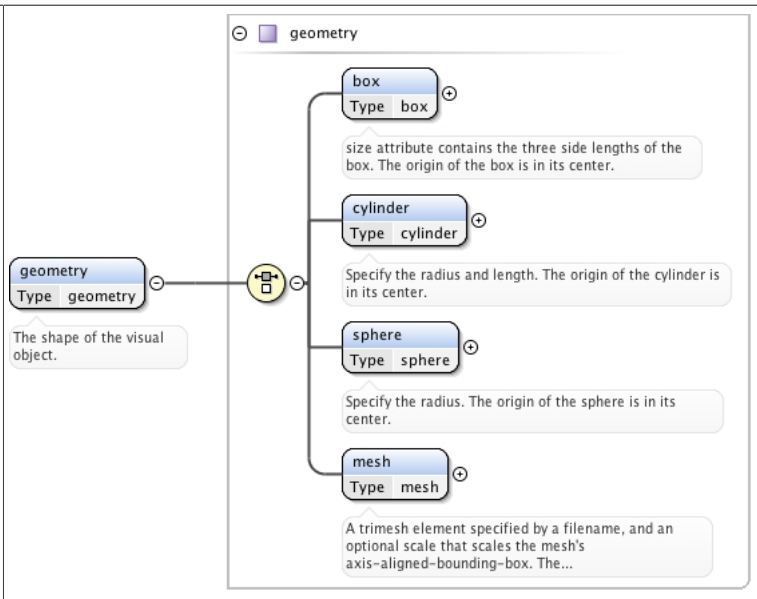
Element `material / color`

Diagram					
Attributes	**QName**	**Type**	**Default**	**Use**	
	rgba	xs:string	0 0 0 0	optional	
		`The color of a material specified by set of four numbers representing red/green/blue/alpha, each in the range of [0,1].`			

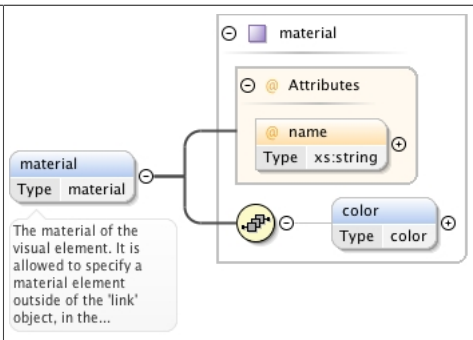
Element `visual / origin`

Diagram					
Attributes	**QName**	**Type**	**Default**	**Use**	
	rpy	xs:string	0 0 0	optional	
		`Represents the fixed-axis (aka extrinsic) roll, pitch and yaw angles in radians.`			
	xyz	xs:string	0 0 0	optional	
		`Represents the Cartesian offset`			

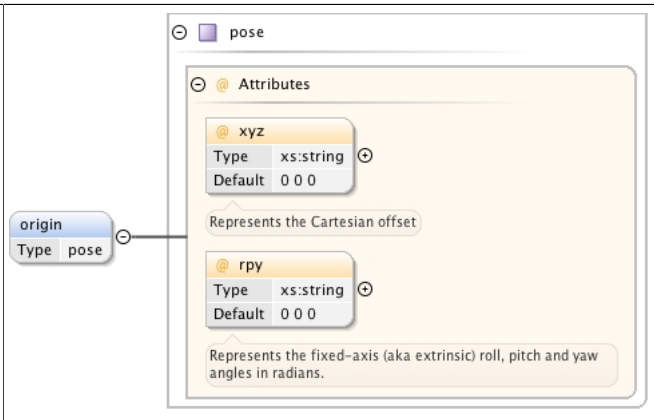
Element `visual / geometry`

Diagram	
Children	box, cylinder, mesh, sphere

Element `visual / material`

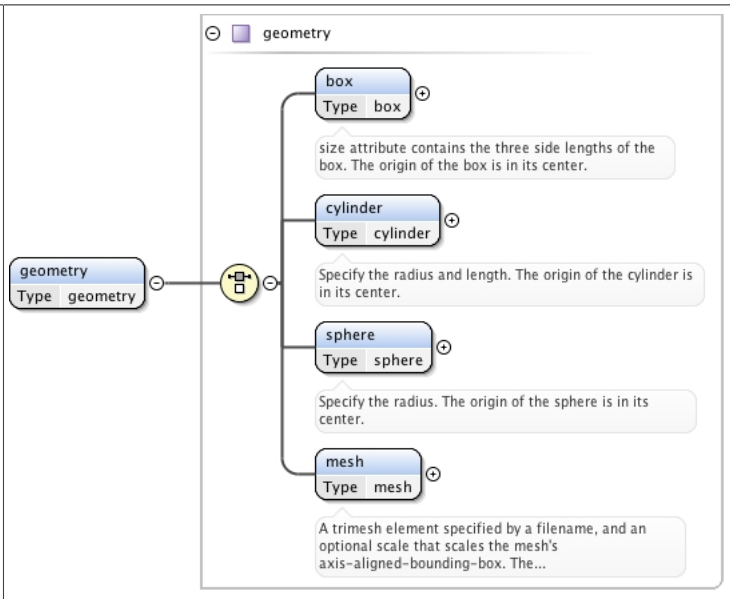
Diagram	
Children	color
Attributes	**QName** | **Type** | **Use** **name** | xs:string | optional

Element `collision / origin`

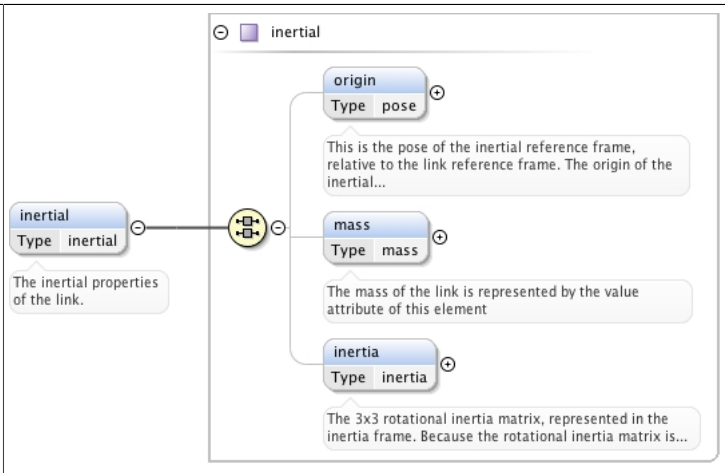
Diagram	
Attributes	**QName** | **Type** | **Default** | **Use** **rpy** | xs:string | 0 0 0 | optional Represents the fixed-axis (aka extrinsic) roll, pitch and yaw angles in radians.

QName	Type	Default	Use	
xyz	xs:string	0 0 0	optional	
	Represents the Cartesian offset			

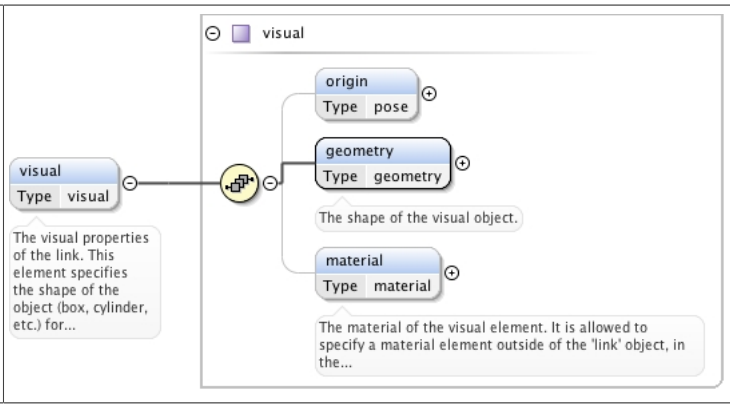
Element collision / geometry

Diagram	
Children	box, cylinder, mesh, sphere

Element link / inertial

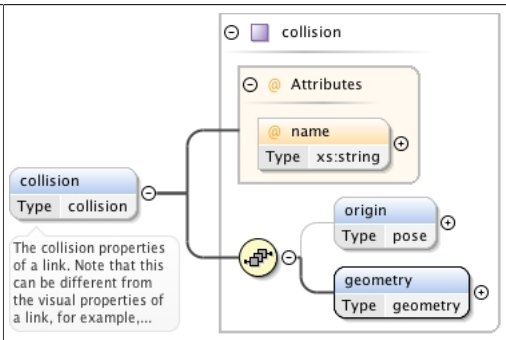
Diagram	
Children	inertia, mass, origin

Element link / visual

Diagram	

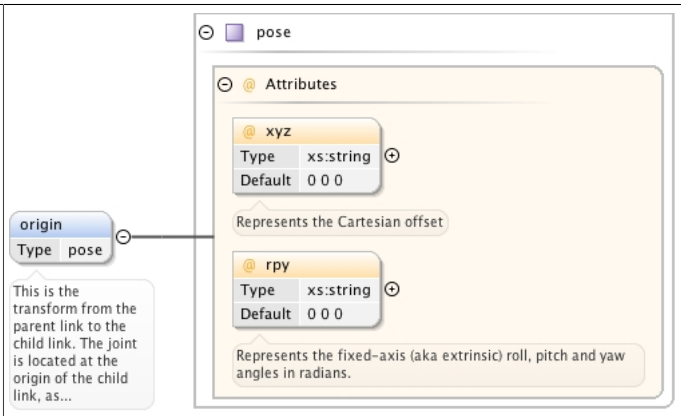
Children	geometry, material, origin

Element `link / collision`

Diagram	
Children	geometry, origin

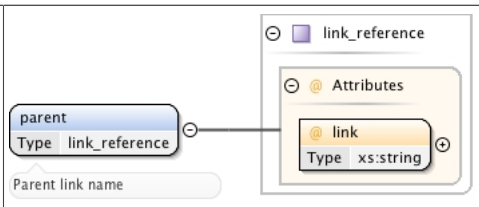
Attributes	QName	Type	Use	
	name	xs:string	optional	

Element `joint / origin`

Diagram	

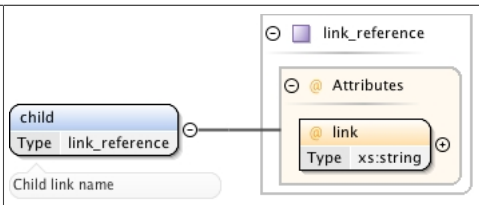
Attributes	QName	Type	Default	Use	
	rpy	xs:string	0 0 0	optional	
		`Represents the fixed-axis (aka extrinsic) roll, pitch and yaw angles in radians.`			
	xyz	xs:string	0 0 0	optional	
		`Represents the Cartesian offset`			

Element `joint / parent`

Diagram	

Attributes	QName	Type	Use	
	link	xs:string	required	

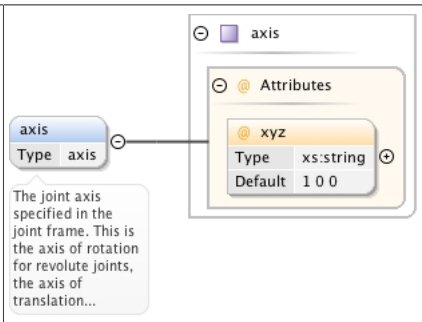
Element `joint / child`

Diagram	

Attributes

QName	Type	Use	
link	xs:string	required	

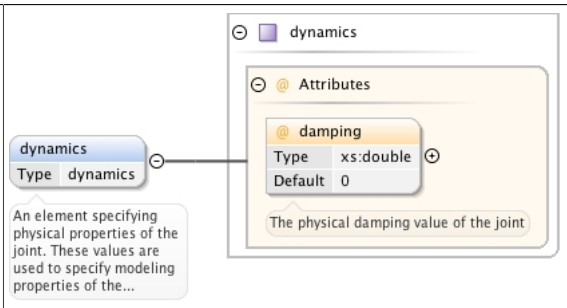
Element `joint / axis`

Diagram	

Attributes

QName	Type	Default	Use	
xyz	xs:string	1 0 0	optional	

Element `joint / dynamics`

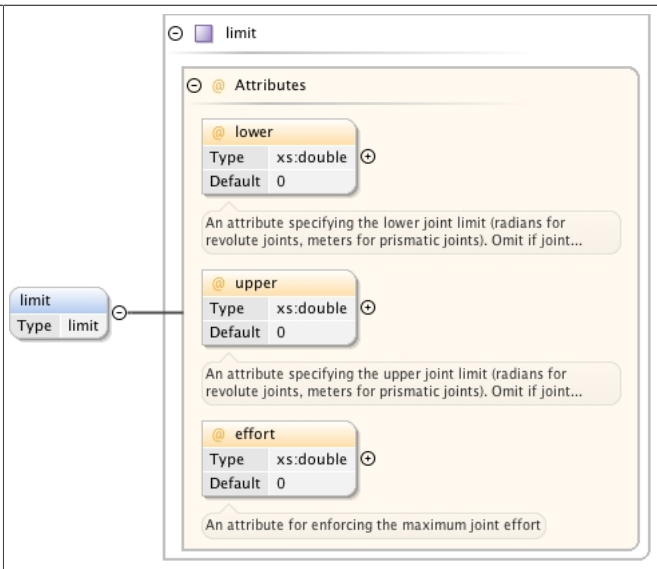
Diagram	

Attributes

QName	Type	Default	Use	
damping	xs:double	0	optional	
	`The physical damping value of the joint`			

Element `joint / limit`

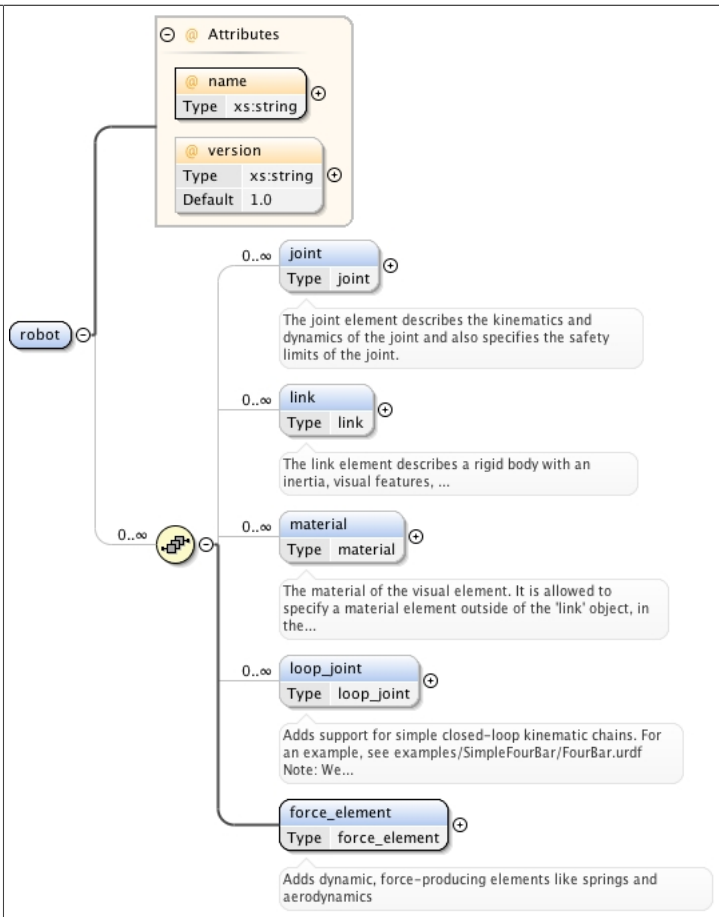
Diagram



Attributes

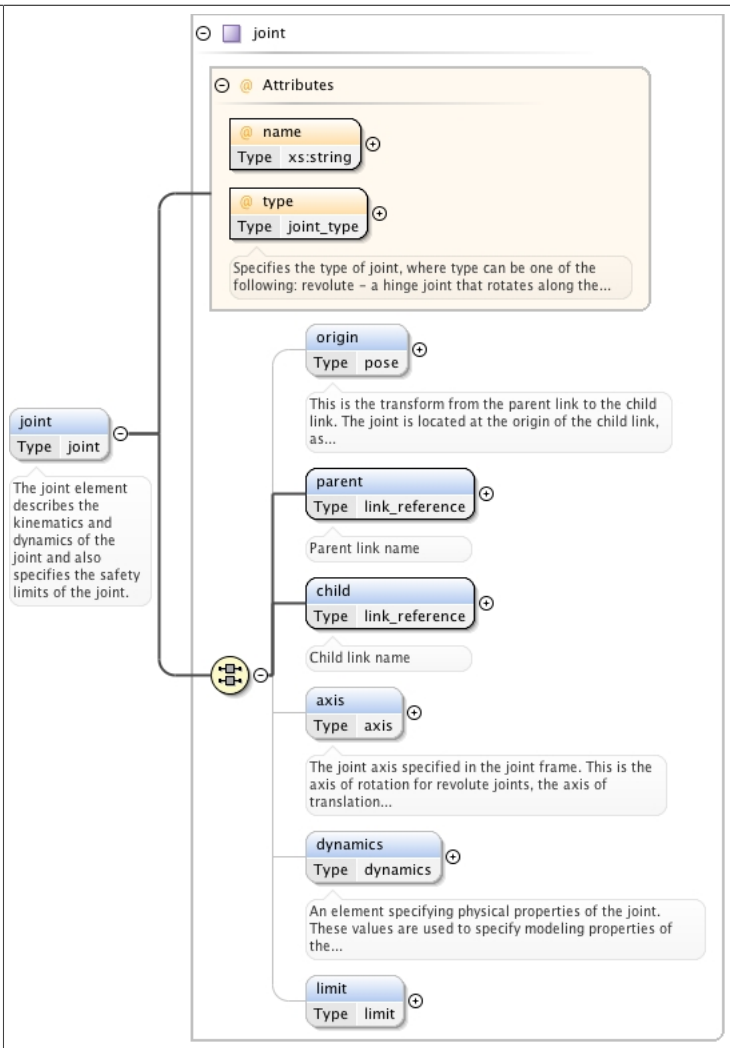
QName	Type	Default	Use	
effort	xs:double	0	optional	
	`An attribute for enforcing the maximum joint effort`			
lower	xs:double	0	optional	
	`An attribute specifying the lower joint limit (radians for revolute joints, meters for prismatic joints). Omit if joint is continuous.`			
upper	xs:double	0	optional	
	`An attribute specifying the upper joint limit (radians for revolute joints, meters for prismatic joints). Omit if joint is continuous.`			

Element `robot`

Diagram	
Children	force_element, joint, link, loop_joint, material
Attributes	**QName** | **Type** | **Default** | **Use** **name** | xs:string | | required **version** | xs:string | 1.0 | optional

Element `robot / joint`

Diagram

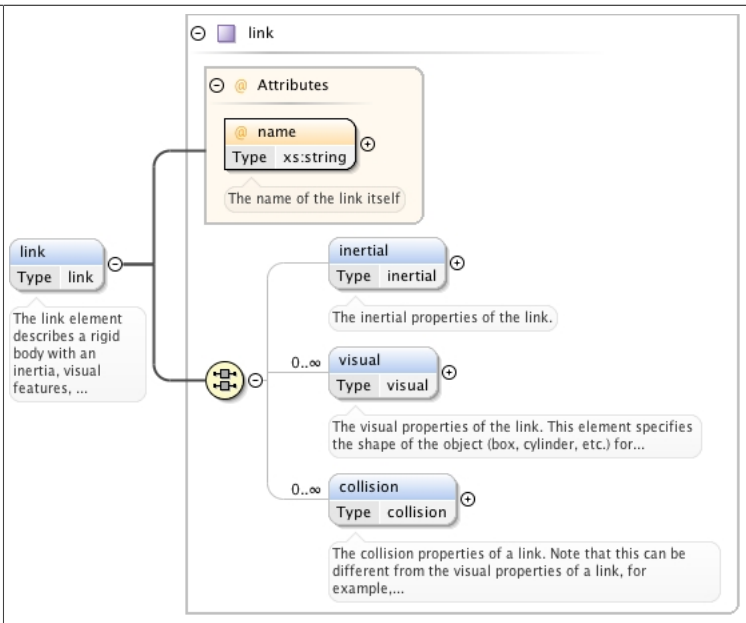


Children: axis, child, dynamics, limit, origin, parent

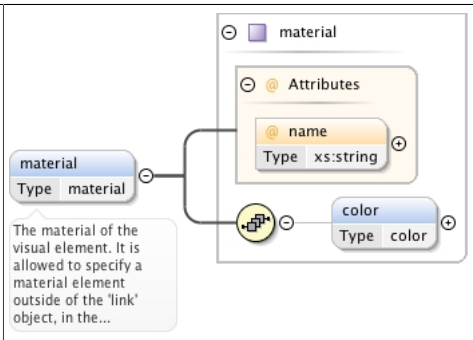
Attributes

QName	Type	Use	
name	xs:string	required	
type	joint_type	required	
	Specifies the type of joint, where type can be one of the following: revolute - a hinge joint that rotates along the axis and has a limited range specified by the upper and lower limits. continuous - a continuous hinge joint that rotates around the axis and has no upper and lower limits prismatic - a sliding joint that slides along the axis, and has a limited range specified by the upper and lower limits. fixed - This is not really a joint because it cannot move. All degrees of freedom are locked. This type of joint does not require the axis, calibration, dynamics, limits or safety_controller. floating - This joint allows motion for all 6 degrees of freedom. planar - This joint allows motion in a plane perpendicular to the axis.		

Element `robot / link`

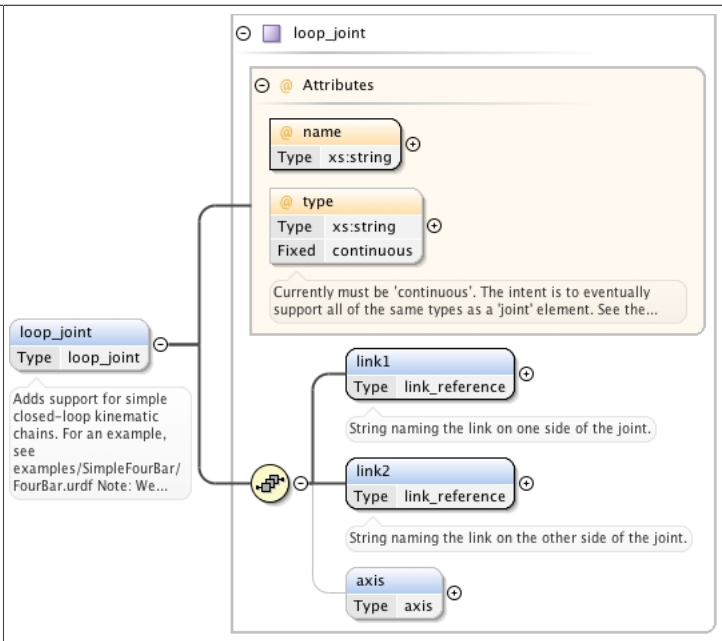
Diagram	
Children	collision, inertial, visual
Attributes	**QName** | **Type** | **Use** **name** | xs:string | required `The name of the link itself`

Element `robot / material`

Diagram	
Children	color
Attributes	**QName** | **Type** | **Use** **name** | xs:string | optional

Element `robot / loop_joint`

Diagram



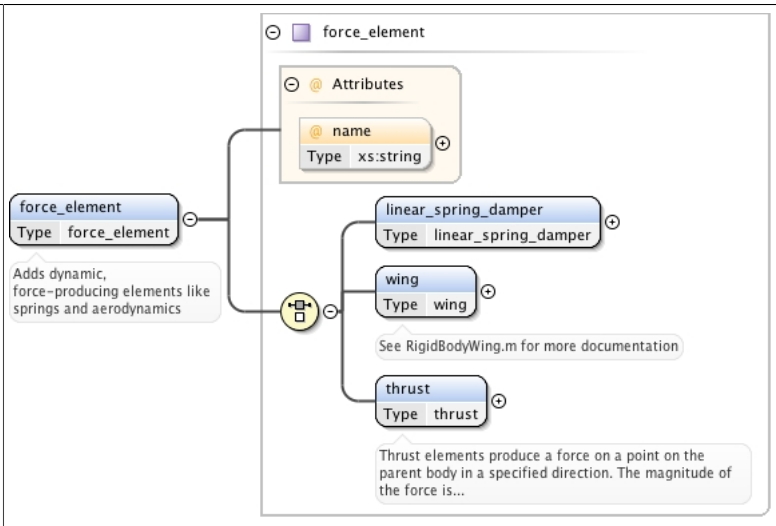
Children: axis, link1, link2

Attributes

QName	Type	Fixed	Use	
name	xs:string		required	
type	xs:string	continuous	optional	
	`Currently must be 'continuous'. The intent is to eventually support all of the same types as a 'joint' element. See the joint element documentation.`			

Element `robot / force_element`

Diagram



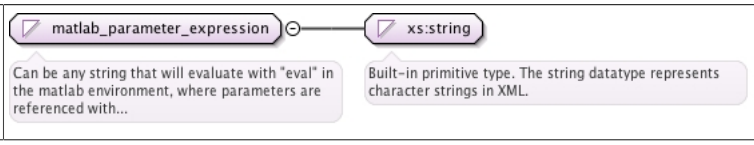
Children: linear_spring_damper, thrust, wing

Attributes

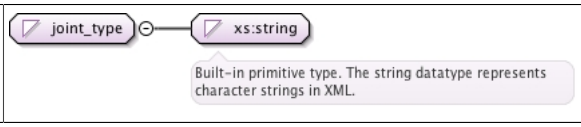
QName	Type	Use	
name	xs:string	optional	

Simple Type(s)

Simple Type `matlab_parameter_expression`

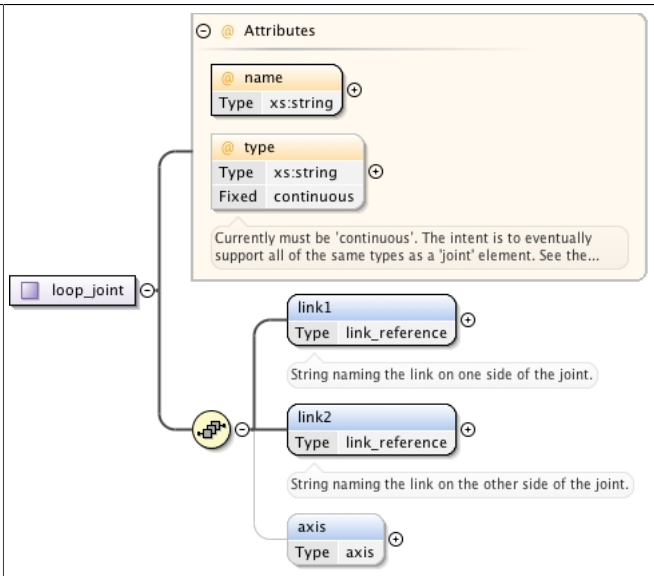
Diagram	

Simple Type `joint_type`

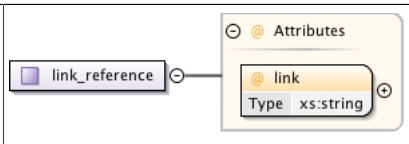
Diagram	

Complex Type(s)

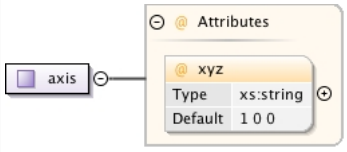
Complex Type `loop_joint`

Diagram	
Children	axis, link1, link2
Attributes	**QName** / **Type** / **Fixed** / **Use** **name** / xs:string / / required **type** / xs:string / continuous / optional Currently must be 'continuous'. The intent is to eventually support all of the same types as a 'joint' element. See the joint element documentation.

Complex Type `link_reference`

Diagram	
Attributes	**QName** / **Type** / **Use** **link** / xs:string / required

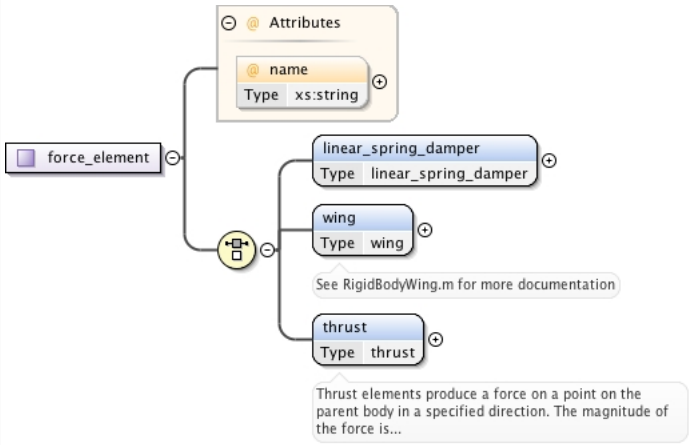
Complex Type `axis`

Diagram	

Attributes

QName	Type	Default	Use	
xyz	xs:string	1 0 0	optional	

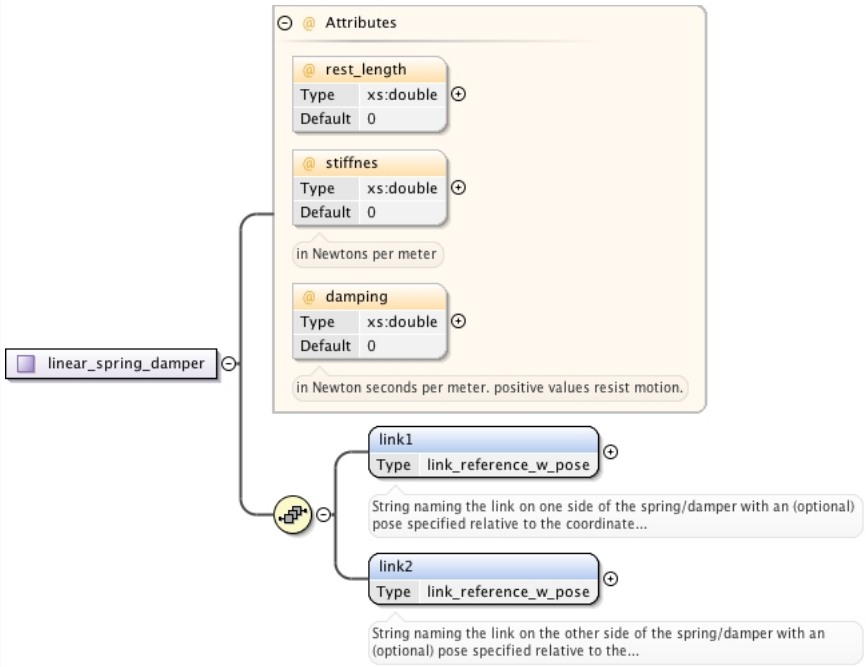
Complex Type `force_element`

Diagram	
Children	linear_spring_damper, thrust, wing

Attributes

QName	Type	Use	
name	xs:string	optional	

Complex Type `linear_spring_damper`

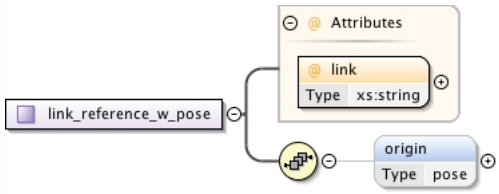
Diagram	
Children	link1, link2

Attributes

QName	Type	Default	Use	
damping	xs:double	0	optional	

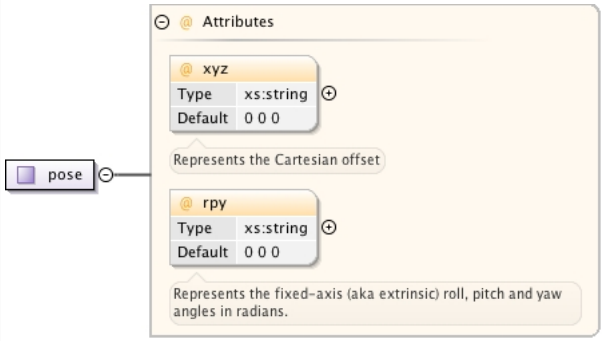
	QName	Type	Default	Use	
		in Newton seconds per meter. positive values resist motion.			
	rest_length	xs:double	0	optional	
	stiffnes	xs:double	0	optional	
		in Newtons per meter			

Complex Type `link_reference_w_pose`

Diagram	
Children	origin

Attributes	QName	Type	Use	
	link	xs:string	required	

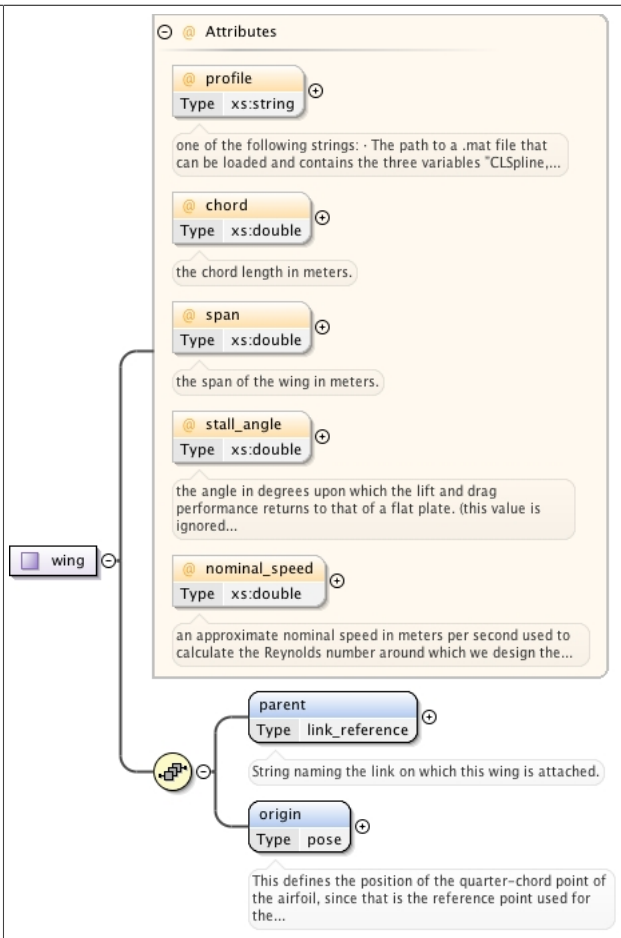
Complex Type pose

Diagram	

Attributes	QName	Type	Default	Use	
	rpy	xs:string	0 0 0	optional	
		Represents the fixed-axis (aka extrinsic) roll, pitch and yaw angles in radians.			
	xyz	xs:string	0 0 0	optional	
		Represents the Cartesian offset			

Complex Type `wing`

Diagram

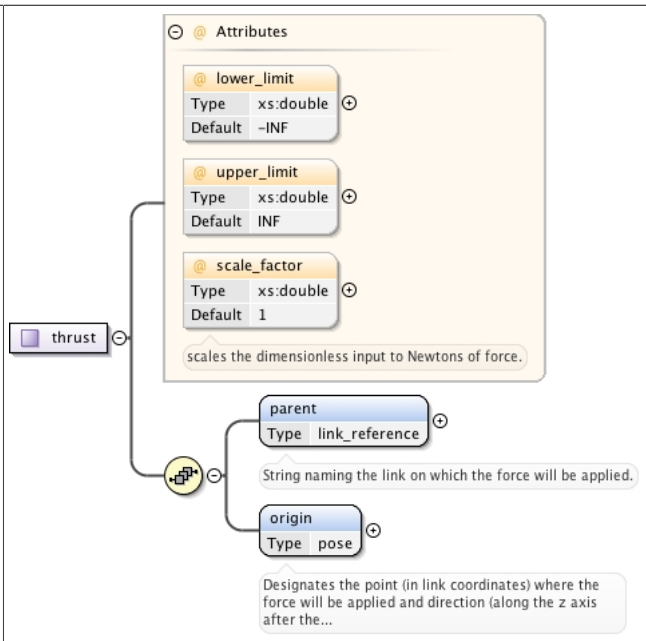


Children: origin, parent

Attributes

QName	Type	Use	
chord	xs:double	optional	
	the chord length in meters.		
nominal_speed	xs:double	optional	
	an approximate nominal speed in meters per second used to calculate the Reynolds number around which we design the aerodynamic coefficients.		
profile	xs:string	optional	
	one of the following strings: · The path to a .mat file that can be loaded and contains the three variables ”CLSpline, CDSpline, CMSpline” · The string, ’flat plate’ 39 · File location of a .dat file generated by Xfoil · A NACA airfoil designation: ’NACA0012’		
span	xs:double	optional	
	the span of the wing in meters.		
stall_angle	xs:double	optional	
	the angle in degrees upon which the lift and drag performance returns to that of a flat plate. (this value is ignored if the profile is set to a flat plate).		

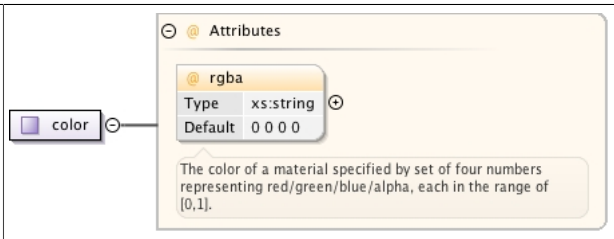
Complex Type `thrust`

Diagram	
Children	origin, parent

Attributes

QName	Type	Default	Use	
lower_limit	xs:double	-INF	optional	
scale_factor	xs:double	1	optional	
	`scales the dimensionless input to Newtons of force.`			
upper_limit	xs:double	INF	optional	

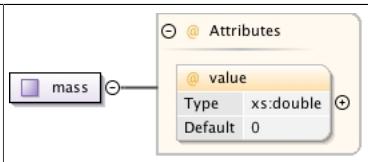
Complex Type `color`

Diagram	

Attributes

QName	Type	Default	Use	
rgba	xs:string	0 0 0 0	optional	
	`The color of a material specified by set of four numbers representing red/green/blue/alpha, each in the range of [0,1].`			

Complex Type `mass`

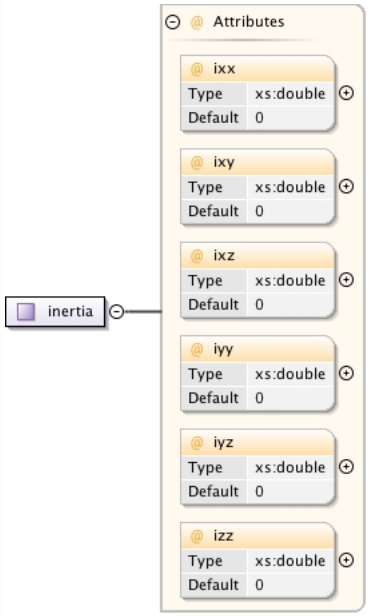
Diagram	

Attributes

QName	Type	Default	Use	
value	xs:double	0	optional	

Complex Type `inertia`

Diagram

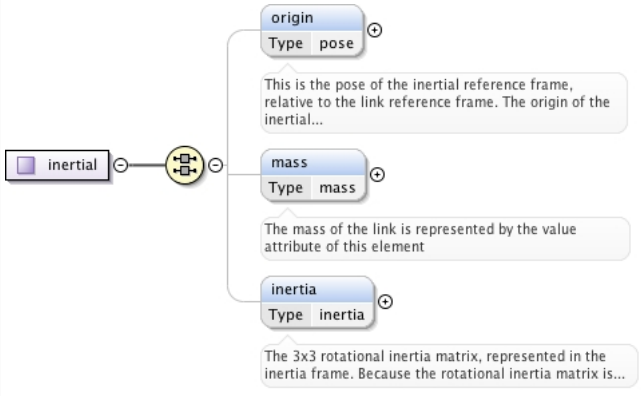


Attributes

QName	Type	Default	Use
ixx	xs:double	0	optional
ixy	xs:double	0	optional
ixz	xs:double	0	optional
iyy	xs:double	0	optional
iyz	xs:double	0	optional
izz	xs:double	0	optional

Complex Type `inertial`

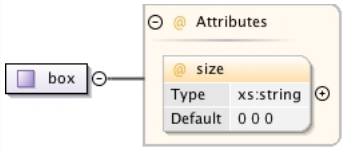
Diagram



Children: inertia, mass, origin

Complex Type box

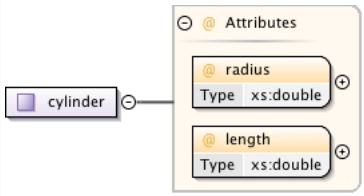
Diagram



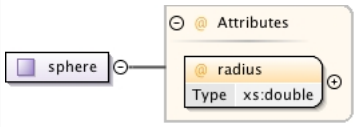
Attributes

QName	Type	Default	Use
size	xs:string	0 0 0	optional

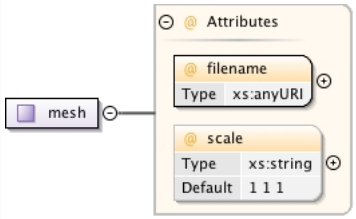
Complex Type `cylinder`

Diagram	
Attributes	**QName** / **Type** / **Use** **length** / xs:double / required **radius** / xs:double / required

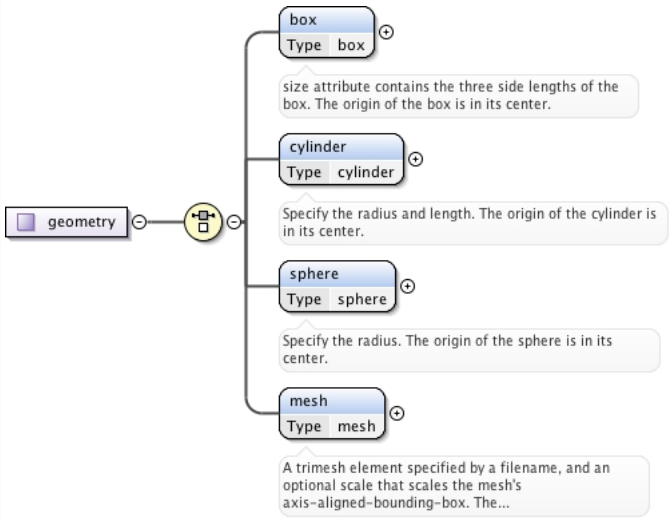
Complex Type `sphere`

Diagram	
Attributes	**QName** / **Type** / **Use** **radius** / xs:double / required

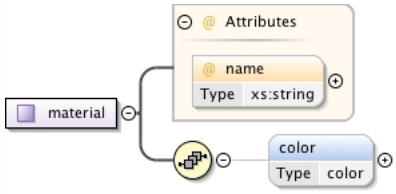
Complex Type `mesh`

Diagram	
Attributes	**QName** / **Type** / **Default** / **Use** **filename** / xs:anyURI / / required **scale** / xs:string / 1 1 1 / optional

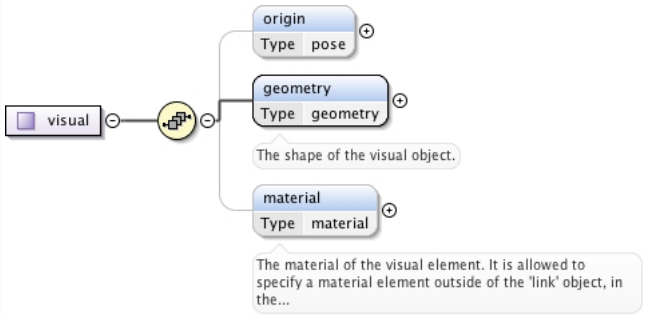
Complex Type `geometry`

Diagram	
Children	box, cylinder, mesh, sphere

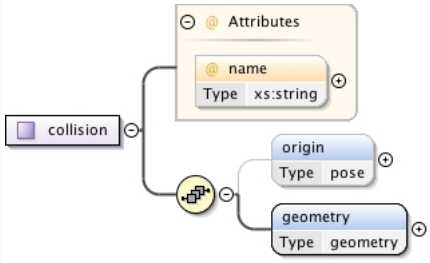
Complex Type `material`

Diagram	
Children	color
Attributes	**QName** | **Type** | **Use** **name** | xs:string | optional

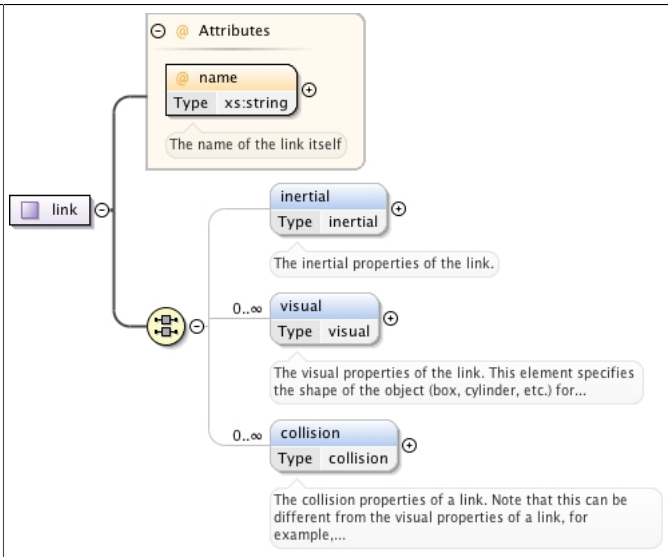
Complex Type `visual`

Diagram	
Children	geometry, material, origin

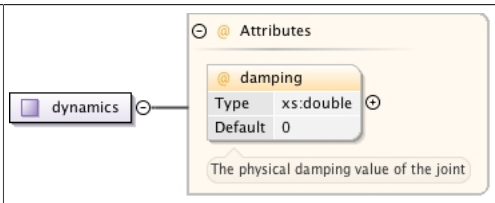
Complex Type `collision`

Diagram	
Children	geometry, origin
Attributes	**QName** | **Type** | **Use** **name** | xs:string | optional

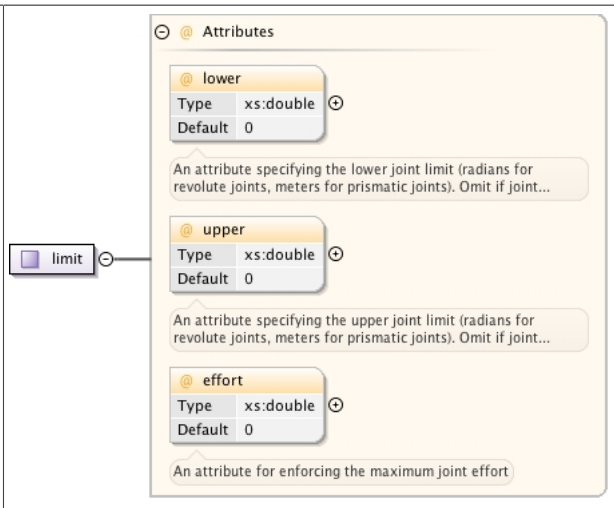
Complex Type `link`

Diagram	
Children	collision, inertial, visual
Attributes	**QName** | **Type** | **Use** **name** | xs:string | required `The name of the link itself`

Complex Type `dynamics`

Diagram	
Attributes	**QName** | **Type** | **Default** | **Use** **damping** | xs:double | 0 | optional `The physical damping value of the joint`

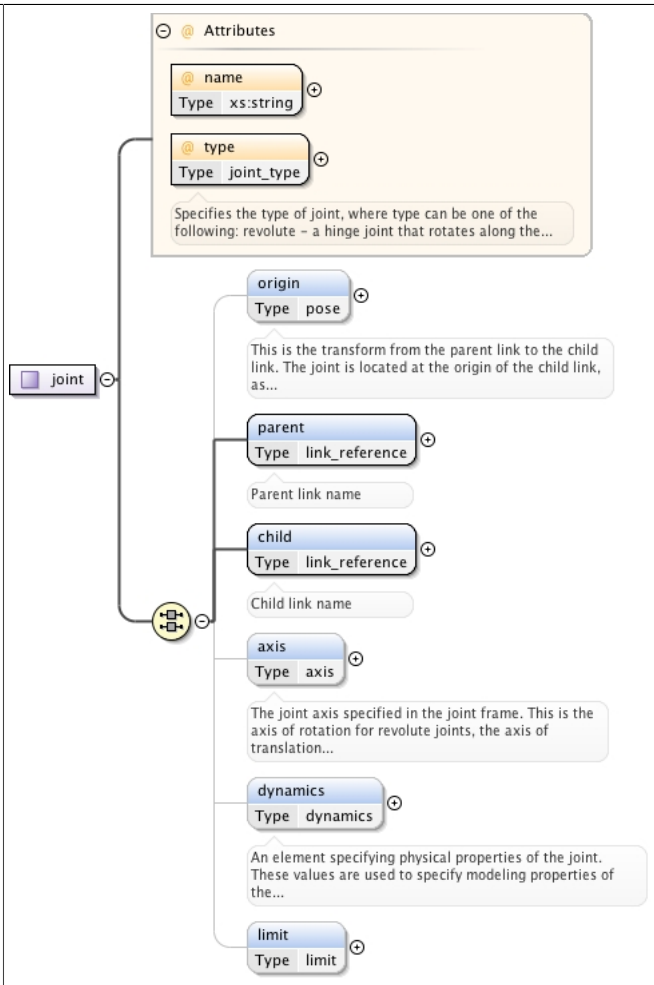
Complex Type `limit`

Diagram	
Attributes	**QName** | **Type** | **Default** | **Use** **effort** | xs:double | 0 | optional

QName	Type	Default	Use	
	An attribute for enforcing the maximum joint effort			
lower	xs:double	0	optional	
	An attribute specifying the lower joint limit (radians for revolute joints, meters for prismatic joints). Omit if joint is continuous.			
upper	xs:double	0	optional	
	An attribute specifying the upper joint limit (radians for revolute joints, meters for prismatic joints). Omit if joint is continuous.			

Complex Type `joint`

Diagram



Children: axis, child, dynamics, limit, origin, parent

Attributes

QName	Type	Use	
name	xs:string	required	
type	joint_type	required	
	Specifies the type of joint, where type can be one of the following: revolute - a hinge joint that rotates along the axis and has a limited range specified by the upper and lower limits. continuous - a continuous hinge joint that rotates around the axis and has no upper and lower limits prismatic - a sliding joint that slides along the axis, and has a limited range specified by the upper and lower limits. fixed - This is not really a joint because it cannot move. All degrees of freedom are locked. This type of joint does not require the axis, calibration, dynamics, limits or safety_controller. floating - This joint allows motion for all 6 degrees of freedom. planar - This joint allows motion in a plane perpendicular to the axis.		

Attribute(s)

Attribute `link_reference / @link`
Attribute `axis / @xyz`
Attribute `loop_joint / @name`
Attribute `loop_joint / @type`
Attribute `pose / @xyz`
Attribute `pose / @rpy`
Attribute `link_reference_w_pose / @link`
Attribute `linear_spring_damper / @rest_length`
Attribute `linear_spring_damper / @stiffnes`
Attribute `linear_spring_damper / @damping`
Attribute `wing / @profile`
Attribute `wing / @chord`
Attribute `wing / @span`
Attribute `wing / @stall_angle`
Attribute `wing / @nominal_speed`
Attribute `thrust / @lower_limit`
Attribute `thrust / @upper_limit`
Attribute `thrust / @scale_factor`
Attribute `force_element / @name`
Attribute `color / @rgba`
Attribute `mass / @value`
Attribute `inertia / @ixx`
Attribute `inertia / @ixy`
Attribute `inertia / @ixz`
Attribute `inertia / @iyy`
Attribute `inertia / @iyz`
Attribute `inertia / @izz`
Attribute `box / @size`
Attribute `cylinder / @radius`
Attribute `cylinder / @length`
Attribute `sphere / @radius`
Attribute `mesh / @filename`
Attribute `mesh / @scale`
Attribute `material / @name`
Attribute `collision / @name`
Attribute `link / @name`
Attribute `dynamics / @damping`
Attribute `limit / @lower`
Attribute `limit / @upper`
Attribute `limit / @effort`
Attribute `joint / @name`
Attribute `joint / @type`
Attribute `robot / @name`
Attribute `robot / @version`