

# **SBMLToolbox**

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# MATLAB\_SBML STRUCTURE

Outline of the structure of an SBML Model in Matlab

## Model

Fieldname	Type	
	C	MATLAB
typecode	char *	mxArray of char
notes	char *	mxArray of char
annotation	char *	mxArray of char
name	char *	mxArray of char
level	unsigned int	mxArray of int32
version	unsigned int	mxArray of int32
unitDefinition	List of structures	array of structures of type UnitDefinition
compartment	List of structures	array of structures of type Compartment
species	List of structures	array of structures of type Species
parameter	List of structures	array of structures of type Parameter
rule	List of structures	array of structures of type Rule
reaction	List of structures	array of structures of type Reaction
Additional for Level 2		
id	char *	mxArray of char
functionDefinitions	List of structures	array of structures of type FunctionDefinition
event	List of structures	array of structures of type Event

## Compartment

Fieldname	Type	
	C	MATLAB
typecode	char *	mxArray of char
notes	char *	mxArray of char
annotation	char *	mxArray of char
name	char *	mxArray of char
**volume	double	mxArray of double
units	char *	mxArray of char
outside	char *	mxArray of char
isSetVolume	unsigned int	mxArray of int32
** implies NOT in Level 2		
Additional for Level 2		
id	char *	mxArray of char
spatialdimensions	unsigned int	mxArray of int32
size	double	mxArray of double
constant	int	mxArray of int32
isSetSize	unsigned int	mxArray of int32

## Event (Level 2 ONLY)

Fieldname	Type	
	C	MATLAB
typecode	char *	mxArray of char
notes	char *	mxArray of char
annotation	char *	mxArray of char
id	char *	mxArray of char
name	char *	mxArray of char
trigger	char *	mxArray of char
delay	char *	mxArray of char
timeunits	char *	mxArray of char
eventAssignment	List of structures	array of structures of type EventAssignment

## EventAssignment (Level 2 ONLY)

Fieldname	Type	
	C	MATLAB
typecode	char *	mxArray of char
notes	char *	mxArray of char
annotation	char *	mxArray of char
variable	char *	mxArray of char
math	char *	mxArray of char

## FunctionDefinition (Level 2 ONLY)

Fieldname	Type	
	C	MATLAB
typecode	char *	mxArray of char
notes	char *	mxArray of char
annotation	char *	mxArray of char
id	char *	mxArray of char
name	char *	mxArray of char
math	char *	mxArray of char

## KineticLaw

Fieldname	Type	
	C	MATLAB
typecode	char *	mxArray of char
notes	char *	mxArray of char
annotation	char *	mxArray of char
formula	char *	mxArray of char
parameter	List of structures	array of structures of type Parameter
timeunits	char *	mxArray of char
substanceunits	char *	mxArray of char
Additional for Level 2		
math	char *	mxArray of char

## ModifierSpeciesReference (Level 2 ONLY)

Fieldname	Type	
	C	MATLAB
typecode	char *	mxArray of char
notes	char *	mxArray of char
annotation	char *	mxArray of char
species	char *	mxArray of char

## Parameter

Fieldname	Type	
	C	MATLAB
typecode	char *	mxArray of char
notes	char *	mxArray of char
annotation	char *	mxArray of char
name	char *	mxArray of char
value	double	mxArray of double
units	char *	mxArray of char
isSetValue	unsigned int	mxArray of int32
Additional for Level 2		
id	char *	mxArray of char
constant	int	mxArray of int32

## Reaction

Fieldname	Type	
	C	MATLAB
typecode	char *	mxArray of char
notes	char *	mxArray of char
annotation	char *	mxArray of char
name	char *	mxArray of char
reactant	List of structures	array of structures of type SpeciesReference
product	List of structures	array of structures of type SpeciesReference
kineticlaw	Structure	structures of type KineticLaw
reversible	int	mxArray of int32
fast	int	mxArray of int32
Additional for Level 2		
id	char *	mxArray of char
modifier	List of structures	array of structures of type ModifierSpeciesReference
isSetFast	unsigned int	mxArray of int32

## Rule

Fieldname	Type	
	C	MATLAB
typecode	char *	mxArray of char
notes	char *	mxArray of char
annotation	char *	mxArray of char
formula	char *	mxArray of char
variable	char *	mxArray of char
species	char *	mxArray of char
compartment	char *	mxArray of char
name	char *	mxArray of char
units	char *	mxArray of char

## Species

Fieldname	Type	
	C	MATLAB
typecode	char *	mxArray of char
notes	char *	mxArray of char
annotation	char *	mxArray of char
name	char *	mxArray of char
compartment	char *	mxArray of char
initialAmount	double	mxArray of double
**units	char *	mxArray of char
boundaryCondition	int	mxArray of int32
Charge	int	mxArray of int32
isSetInitialAmount	unsigned int	mxArray of int32
isSetCharge	unsigned int	mxArray of int32
** implies NOT in Level 2		
Additional for Level 2		
id	char *	mxArray of char
initialConcentration	double	mxArray of double
substanceUnits	char *	mxArray of char
spatialSizeUnits	char *	mxArray of char
hasOnlySubstanceUnits	int	mxArray of int32
constant	int	mxArray of int32
isSetInitialConcentration	unsigned int	mxArray of int32

## SpeciesReference

Fieldname	Type	
	C	MATLAB
typecode	char *	mxArray of char
notes	char *	mxArray of char
annotation	char *	mxArray of char
species	char *	mxArray of char
stoichiometry	int	mxArray of int32
denominator	int	mxArray of int32
Additional for Level 2		
stoichiometryMath	char *	mxArray of char

## Unit

Fieldname	Type	
	C	MATLAB
typecode	char *	mxArray of char
notes	char *	mxArray of char
annotation	char *	mxArray of char
kind	char *	mxArray of char
exponent	int	mxArray of int32
scale	int	mxArray of int32
Additional for Level 2		
multiplier	double	mxArray of double
offset	double	mxArray of double

## UnitDefinition

Fieldname	Type	
	C	MATLAB
typecode	char *	mxArray of char
notes	char *	mxArray of char
annotation	char *	mxArray of char
name	char *	mxArray of char
unit	List of structures	array of structures of type Unit
Additional for Level 2		
id	char *	mxArray of char