## 2.7 User Manual

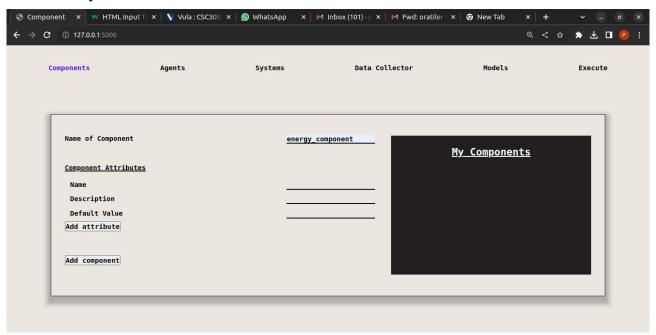
See Apendix A

## Appendix A — Code Legibility and Output

User Manual AGE\_ABM Creation System

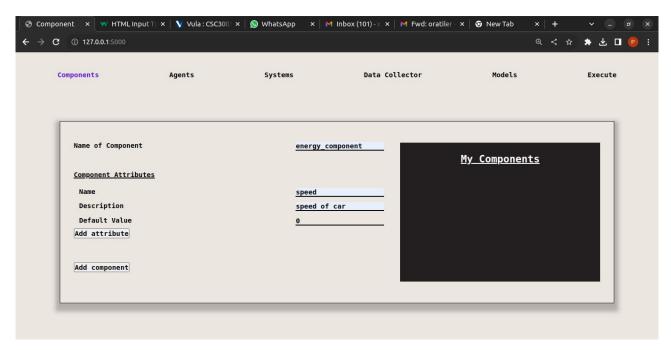
For the agent based modelling creation system to function as intended, Please follow these steps when creating your system.

Step1
Select Components tab

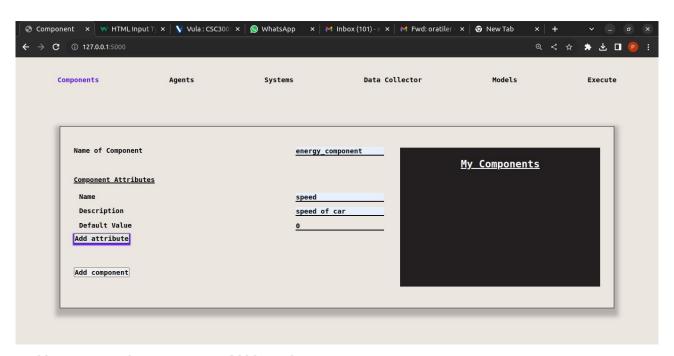


- 1) Add Name of component you want to create.
- 2) Configure attributes
  - Add Name of attribute you ant to associate with component "Energy Component"

- Add Description of the attributes
- Add the Default value of the attribute

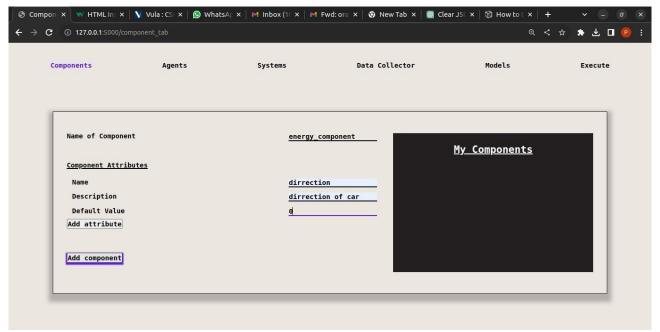


3) Select Add Attribute to save component Attribute

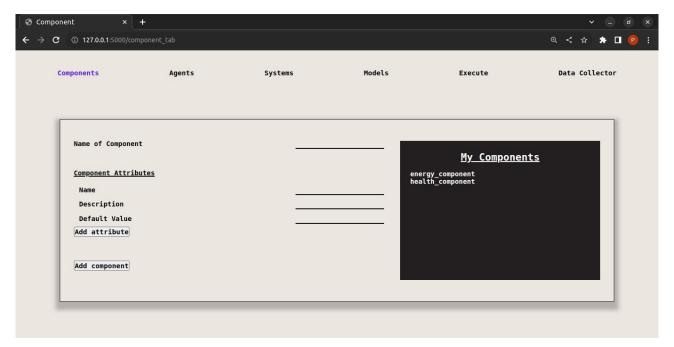


Add as many attributes as you would like to the component

4) When done adding attributes click Add Component to save the component

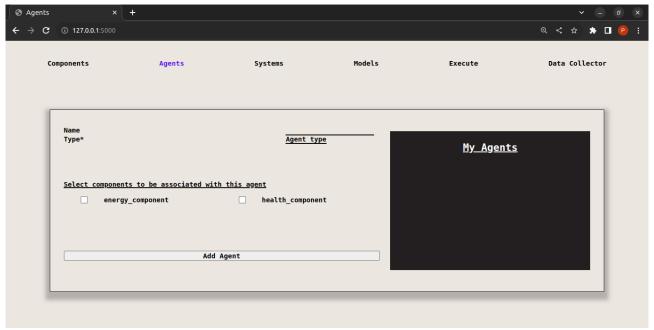


5) All saved components should appear in the "My components" section of the page



All components will be saved in a .json file to be reused for the other steps

# Step 2. Select Agents tab



- 1) Add name for the name of Agent
- 2) Select the type of agent you would like to save. You can Choose fro "SIMPLE" or "COMPLEX"

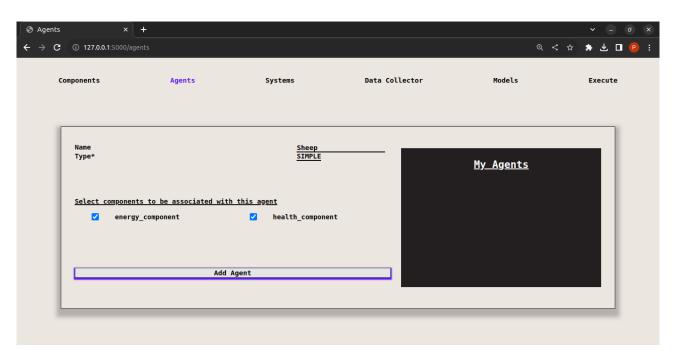


Fig 7: Simple component view

If selected type is "COMPLEX", pick the name of class component from the list of saved components



Fig 9. Adding class component

3) Once class component has been added. Select components to associate with Agent

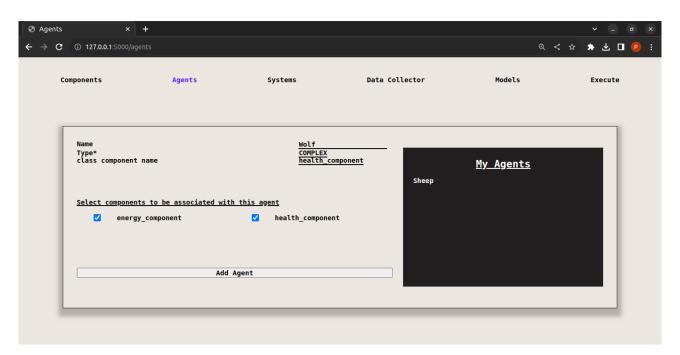


Fig 10: Select components for agent

4) Add Agent to the agents list



Fig 11: Add Agent to agents list

5) Final View once agent has been added



Fig 12. View after adding Agent

6) Add as many Agents as you would like for your Model.

# Step 3 Select Systems tab

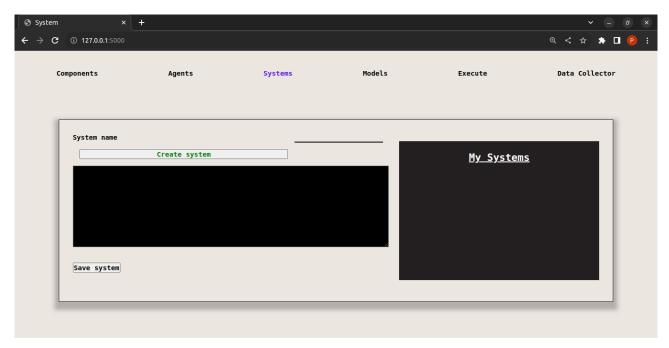


Fig 13: Systems tab default look

1)Enter the name of the system

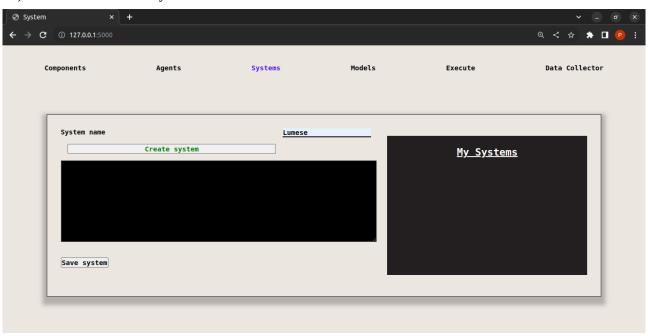


Fig 14: Add system Name

2) Press create system

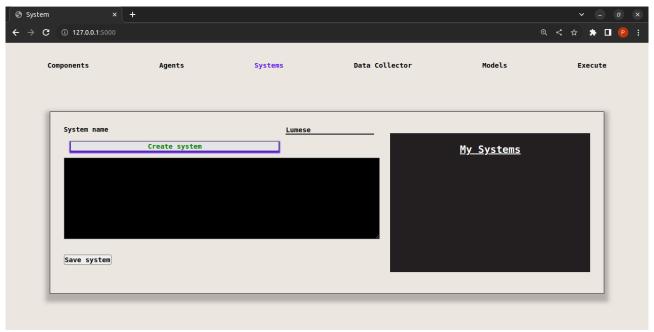


Fig 15: Select create system button

3) Edit the system in the black section. Please ensure that you use 4 spaces for indentation Tab is deactivated

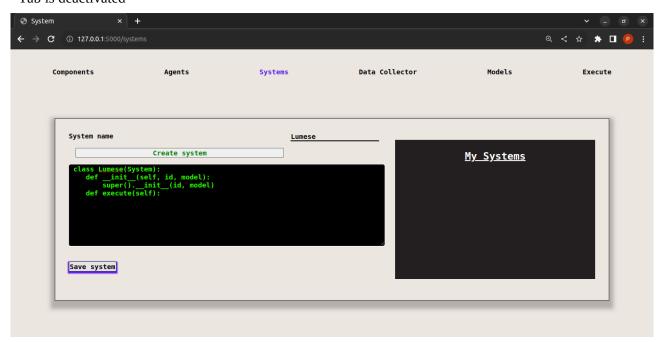


Fig 16: Page for editing system

4) Press the Save system button to save the system

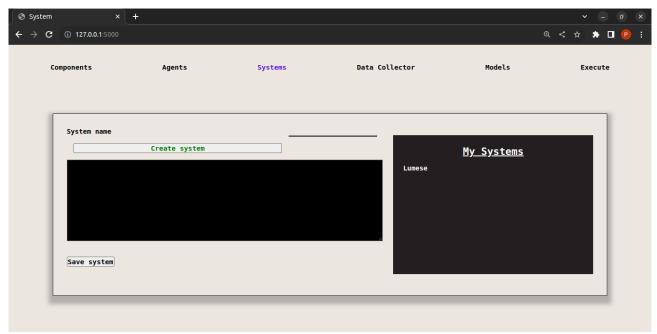


Fig 17: Showing page of All saved systems after all systems have been added.

## Step 4

**Select Data Collector Tab** 

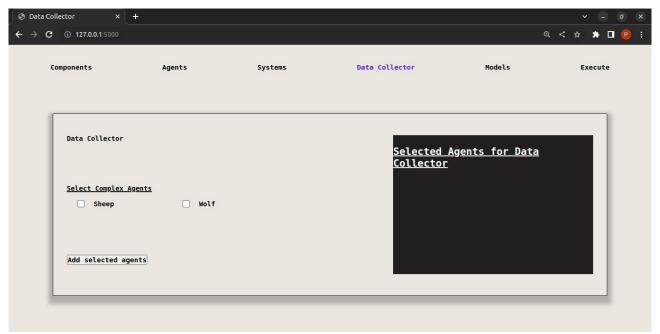


Fig 18: Default view for data collector

1) Select complex agents you would like to track with the data collector

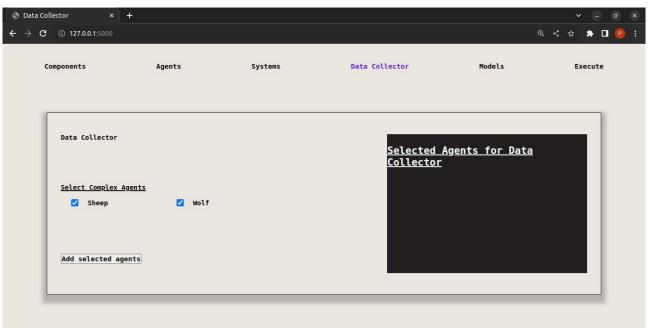


Fig 19: Select agents to add to collector

2)Select Add selected agents to save the agents to data collector

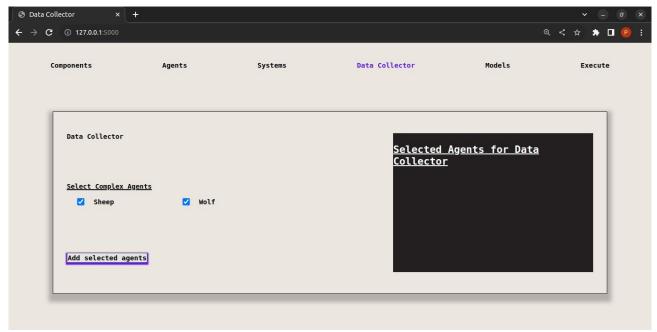


Fig 20: Saving agents to data collector

3) Selected components should appear in the selected agents for data collector section

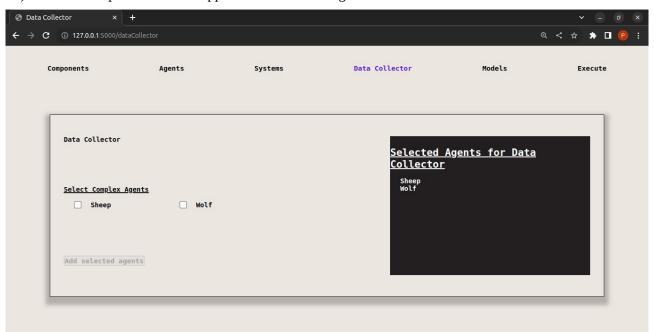


Fig 21: Saved Data collector agents

## Step 5

## **Select Add Models Tab**

1) Select type of Model you would like to create and press Save type button

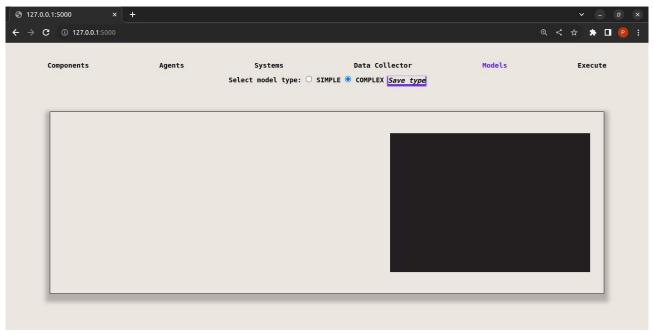


Fig 22. Selecting model type of complex

2) Mode to step one of setting up model. Enter name of Model

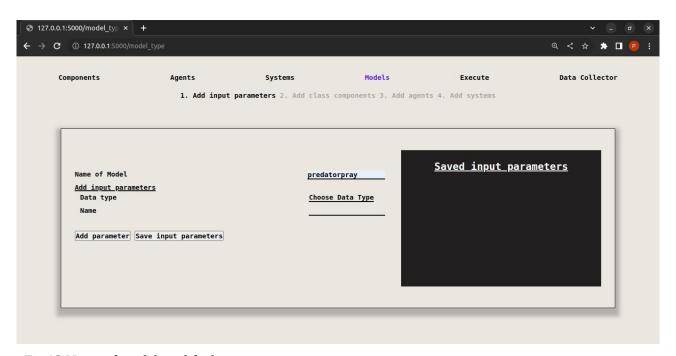


Fig 23 Name of model modified

3) Add input parameters for model: select data type of the input parameter

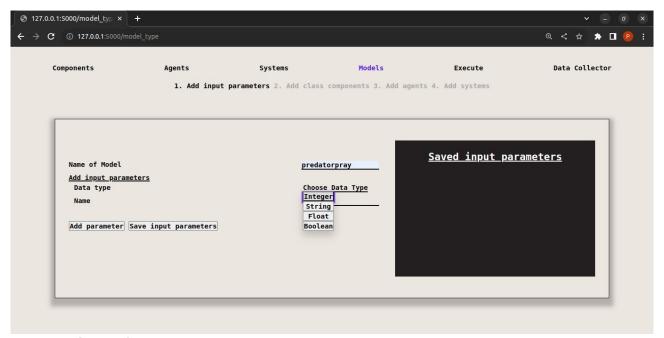


Fig 24: Selecting data type

4)Add Name of input parameters and press Add parameter button

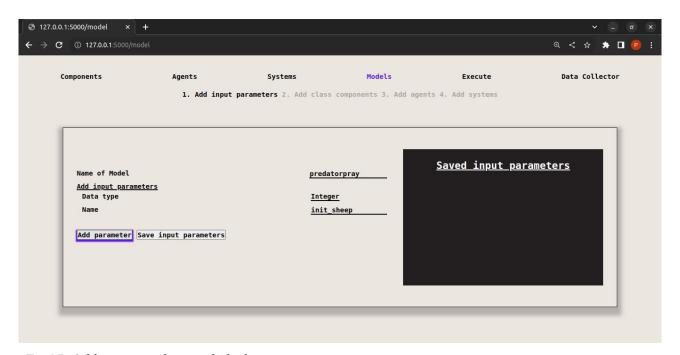


Fig 25: Add parameter button clicked

5) Repeat 3) and 4) for all input parameters you want to add to the model

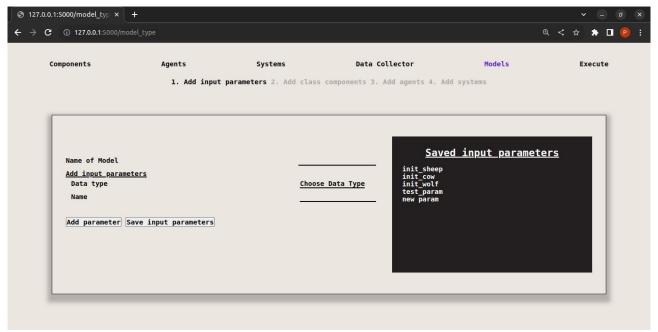


Fig 26. Adding multiple input parameters

6) Once Done adding input parameters select Save input parameters button to move to Step 2 and save input parameters for the model



Fig 27: Step 2 to add Class component for COMPLEX model

7) Choose class component Name of agent from complex agents

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← → C ③ 127.0.0.1:5000/model					७ < ☆ 🖈 🗆 🕑 :
Components	Agents 1. Add input para	Systems Ameters 2. Add class	Models components 3. Add age	<b>Execute</b> ints 4. Add systems	Data Collector
Name of Model  Add class component Name of agent Name of component Select component at init_sheep	tribute(s) to associate init_wolf	Cow	Agent Component	Saved class comp	oonents
Add class component	Save class components		_		

Fig 28. Selecting name of Agent

8) Select Name of Component

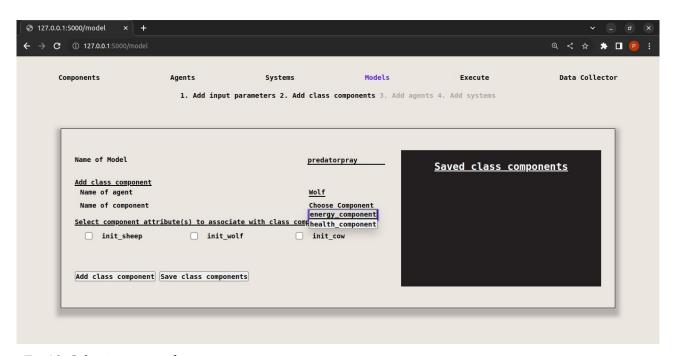


Fig 29. Selecting name of component

- 9) Select component attributes to associate with your class component (Make sure to select the specified amount that is written in red for example, select 1 parameters for this model).
- 10)Select Add class component to save class component

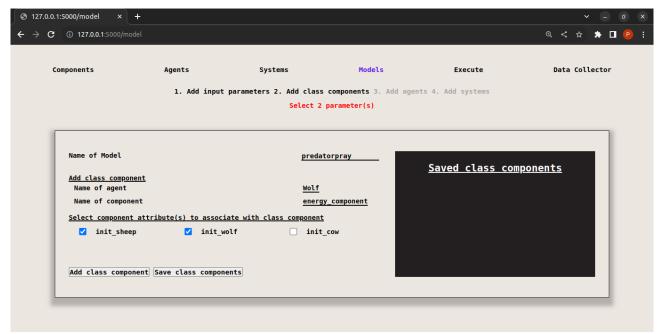


Fig 30. Select required input parameters and press add class component

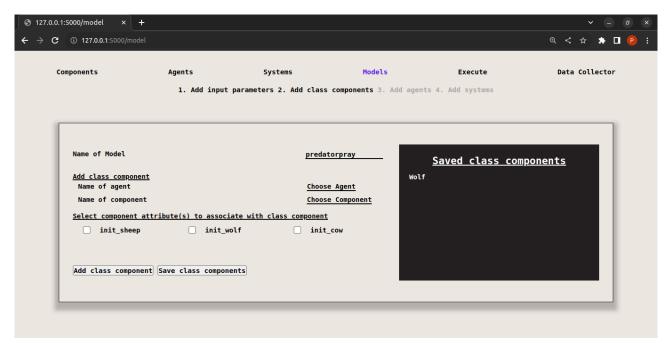


Fig 31. Page after adding class component

- 11) Repeat 7) 8) 9) and 10) until you have added all required class components
- 12) Select Save class components to save current class components and move to step 3
- 13) Select Name of agent you would like to add and the input parameter to associate with it and press add agent to model button

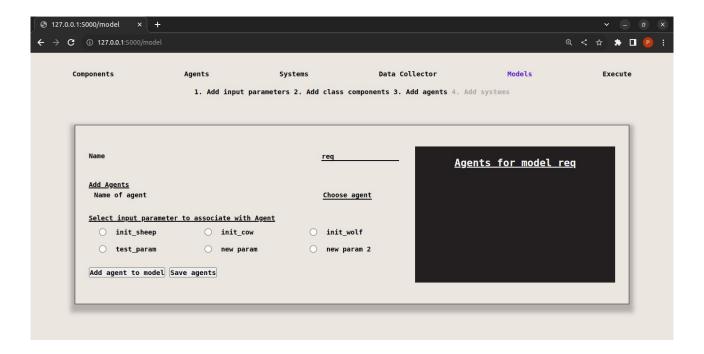


Fig 32. Adding agent to model

14) Repeat 13 until you have all the agents for your model and press Save agents to move to to step 4 of model configuration

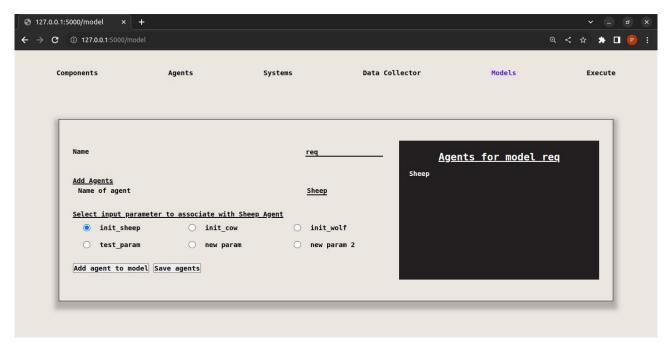


Fig 33. All saved agents to move to step 4 Save agents button will be pressed

15)Add systems to model step 4 of model

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← → 0	3 127.0.0.1:5000/model					@ < ☆ 🖈 🗖 🕑 :
	Components	Agents 1. Add input param	Systems neters 2. Add class com	Models sponents 3. Add agents	Execute : 4. Add systems	Data Collector
	□ init_sheep	r(s) to associate with some init_cow	Choose sy  System (optional)  init_wol	Syst nvironment sstem	ems for model p	predatorpray.

Fig 34. Add system step of model

16. Add System ID, Name of system and pick name of system from the available systems

Components	Agents	Systems	Models	Execute	Data Collector
	1. Add input p	arameters 2. Add class	components 3. Add ager	ts 4. Add systems	
Name		preda	torpray	stems for model p	redatorpray
Add Systems			0.00 (8.00 (0		,
System ID  Name of system			e_environment e system		
Select input param	eter(s) to associate w	Lume	ile		
init_sheep	_ init_cow	init	wolf		
Save System Save	systems and execute mo	odel			

Fig 35. Picking system

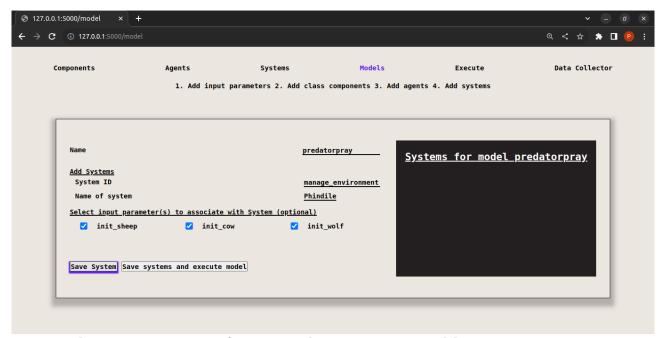


Fig 36. Selecting input parameters for system and Saving system to model

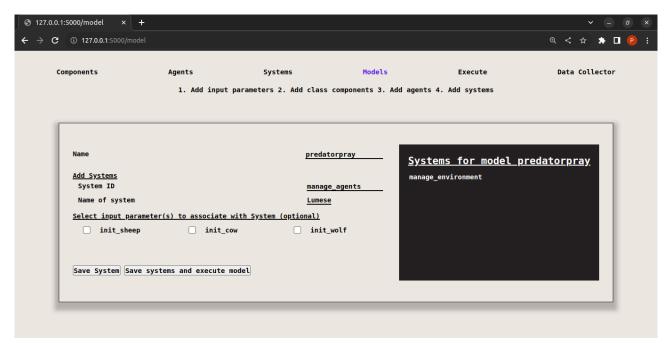


Fig 37. Systems that have been added to model

- 17)Repeat 15 and 16 until you have all required systems
- 18) Select Save System and execute model to execute model

#### Step 6

**Execute model tab** 

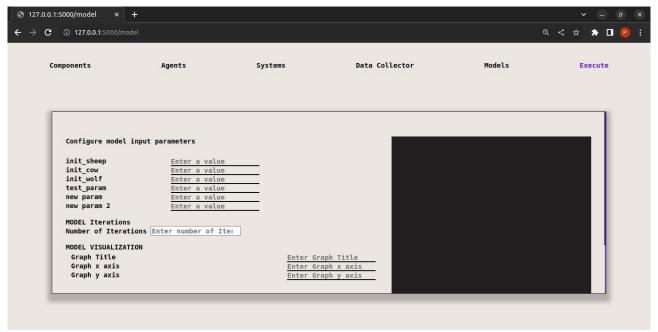


Fig 38: Execute model page

1) Configure input parameter values for the model

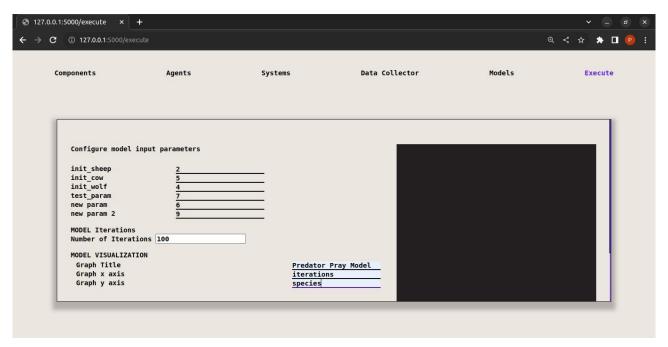


Fig 39. input parameters with added values

2)Select update to save the updated input parameters

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test_param new param new param new param 2 MODEL Iterations Number of Iterat MODEL VISUALIZAT Graph Title Graph x axis Graph y axis  Update Execute	ions 100	Predator iteratio species	Pray Model ns		

Fig 40. Update parameters button activated

## 3)Press execute to execute model

