Log Data

- Current format for log data includes
  - User(string): user of the generate log statement
  - Team(string): team of the user
  - Action(string): description of the log action, where currently tokens of the action are delimited with ;
    - The first token is the role of designer, planner, or business
  - Time(datetime): time of the user log
- The above and included schemas are initial implementations and can be modified based on user feedback

Example Log Data

{"id":1681,"user":"user4","team":"Jan10","action":"designer;Evaluated;*aMM0++*bNM2++*cMN1++*dLM2++*eML1++^ab^ac^ad^ae,7,3;range=4.824924;velocity=8.466886;cost=2557.977","time":"2020-01-10T20:15:52.087275Z"},

{"id":1682,"user":"user2","team":"Jan10","action":"planner;SelectPath;2","time":"2020-01-10T20:15:57.201791Z"},

{"id":1683,"user":"user3","team":"Jan10","action":"designer;Evaluate;*aMM0+++++*bNM2+++*cMN1+++*dLM2+++*eML1+++^ab^ac^ad^ae,5,3","time":"2020-01-10T20:15:58.296529Z"},

{"id":1684,"user":"user2","team":"Jan10","action":"planner;SelectPath;1","time":"2020-01-10T20:15:58.784224Z"},

{"id":1685,"user":"user3","team":"Jan10","action":"designer;Evaluated;*aMM0+++++*bNM2+++*cMN1+++*dLM2+++*eML1+++^ab^ac^ad^ae,5,3;range=10.67849;velocity=8.859694;cost=3470.2","time":"2020-01-10T20:15:59.360295Z"},

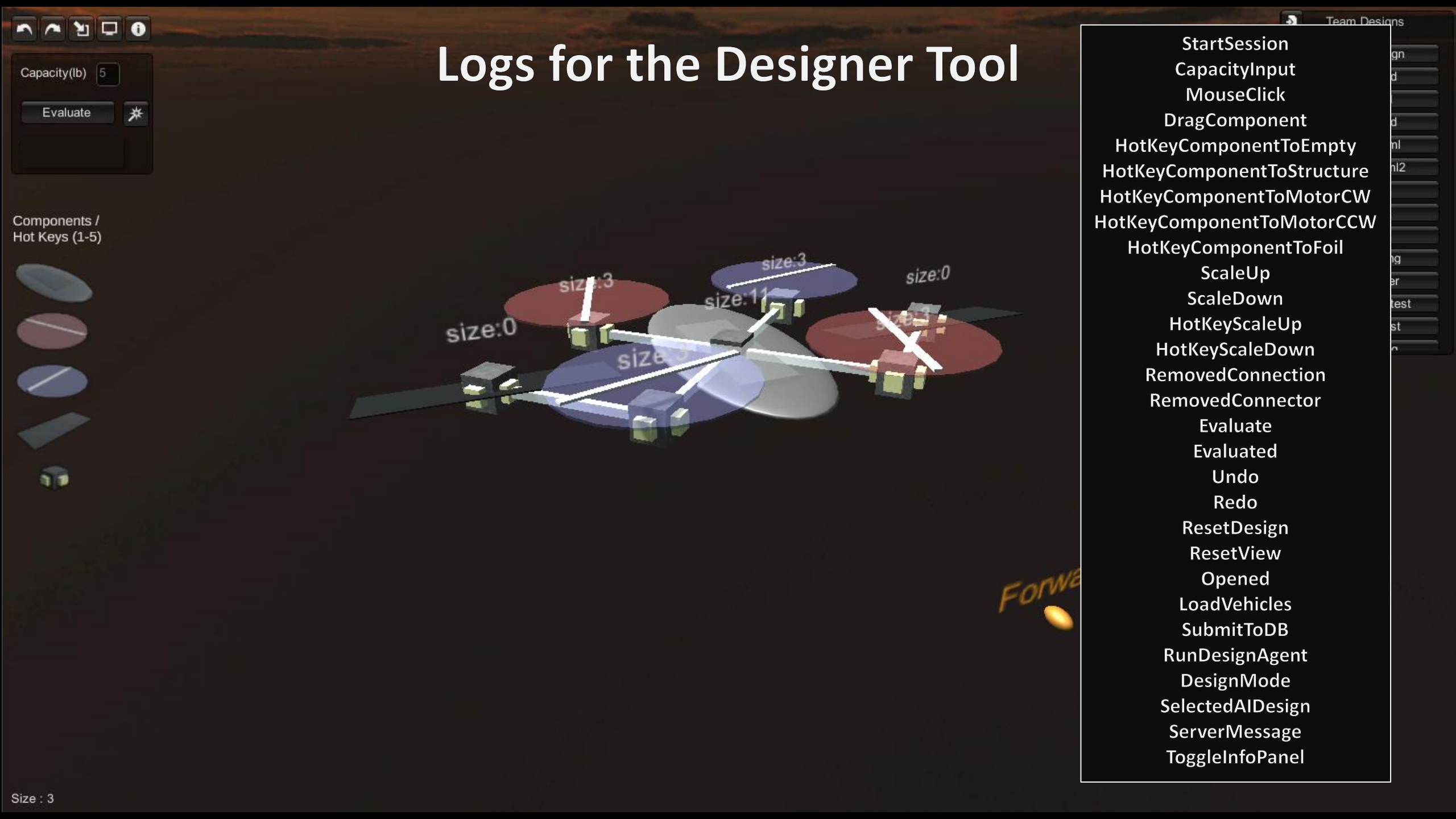
{"id":1686,"user":"user4","team":"Jan10","action":"designer;Evaluate;*aMM0++*bNM2++*cMN1++*dLM2++*eML1++^ab^ac^ad^ae,5,3","time":"2020-01-10T20:15:59.734896Z"},

{"id":1687,"user":"user2","team":"Jan10","action":"planner;SelectPath;0","time":"2020-01-10T20:16:00.101445Z"},

{"id":1688,"user":"user4","team":"Jan10","action":"designer;Evaluated;*aMM0++*bNM2++*cMN1++*dLM2++*eML1++^ab^ac^ad^ae,5,3;range=6.02437;velocity=9.105762;cost=2557.977","time":"2020-01-10T20:16:00.468385Z"},

{"id":1689,"user":"user2","team":"Jan10","action":"planner;ManualPath;PayloadConstraint","time":"2020-01-10T20:16:02.067726Z"},

Logs for the Designer Tool

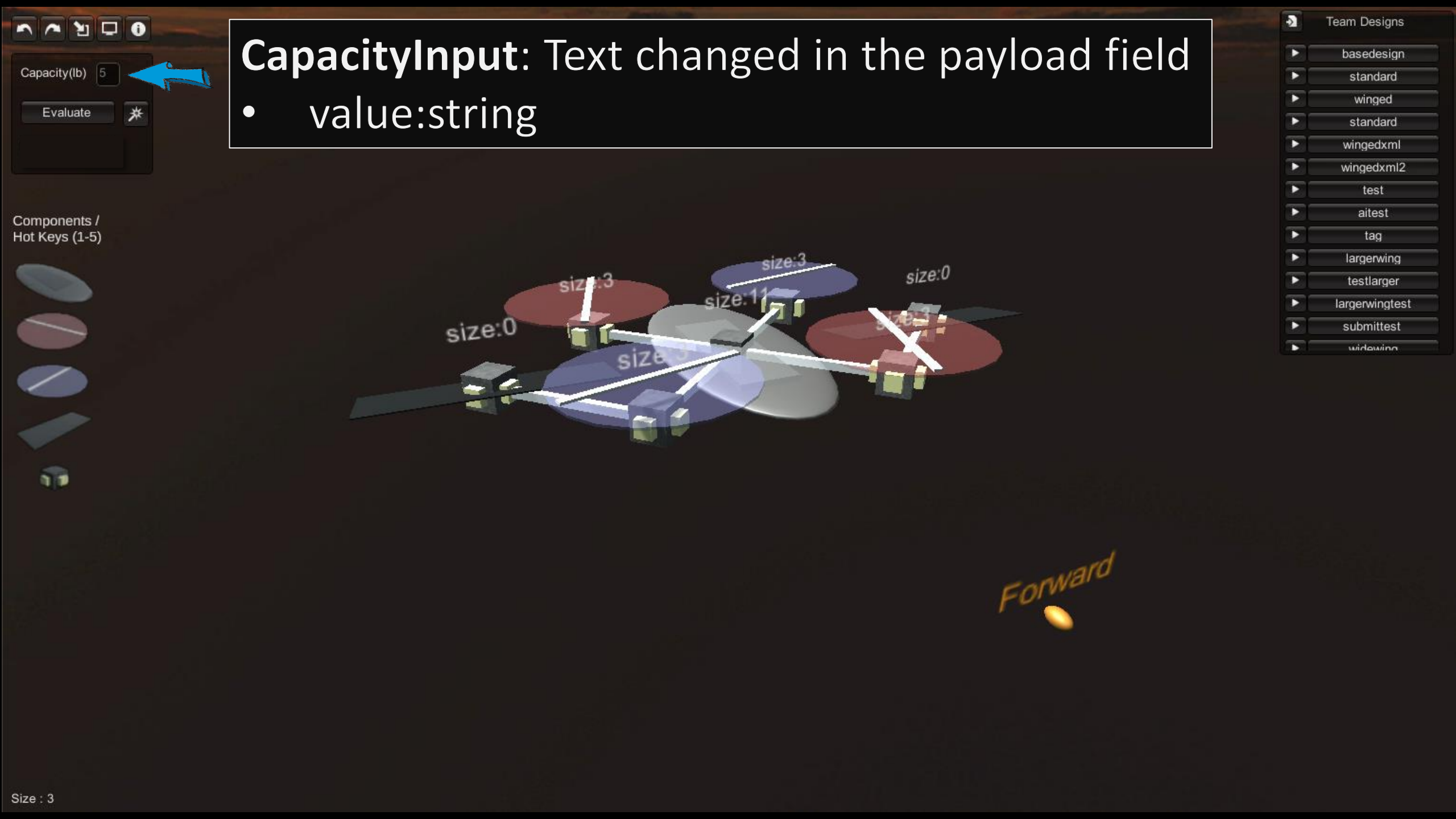


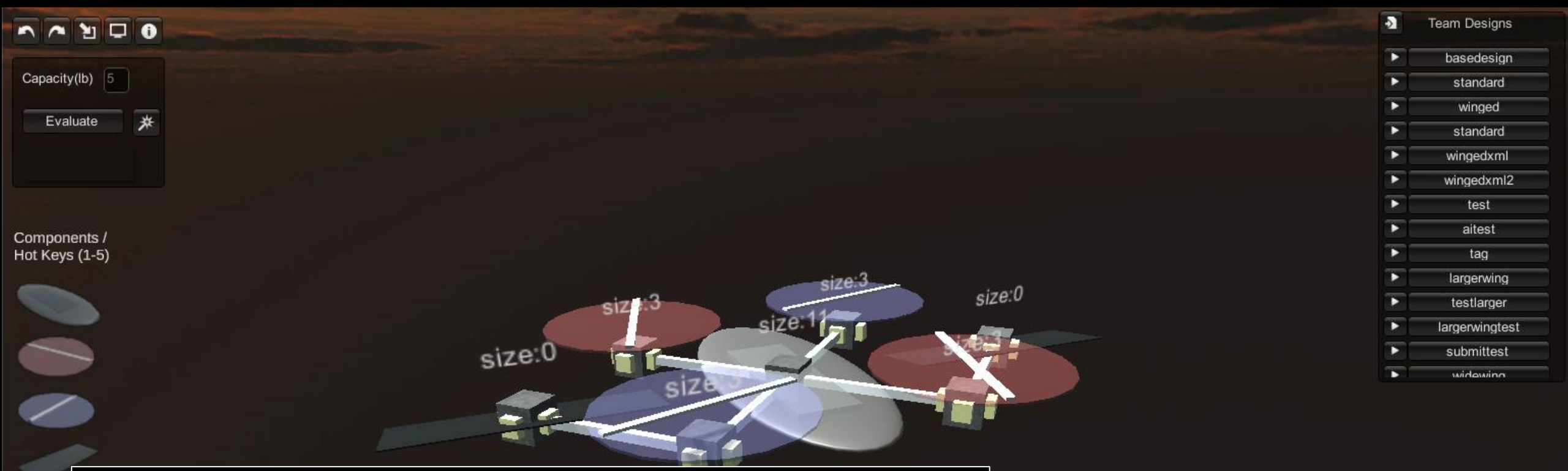
StartSession
CapacityInput
MouseClick
DragComponent
HotKeyComponentToEmpty
HotKeyComponentToStructure
HotKeyComponentToMotorCW
HotKeyComponentToMotorCCW
HotKeyComponentToFoil
ScaleUp
ScaleDown
HotKeyScaleUp
HotKeyScaleDown
RemovedConnection
RemovedConnector
Evaluate
Evaluated
Undo
Redo
ResetDesign
ResetView
Opened
LoadVehicles
SubmitToDB
RunDesignAgent
DesignMode
SelectedAIDesign
ServerMessage
ToggleInfoPanel

StartSession: Time the interface is started

CapacityInput: Text changed in the payload field

- value:string

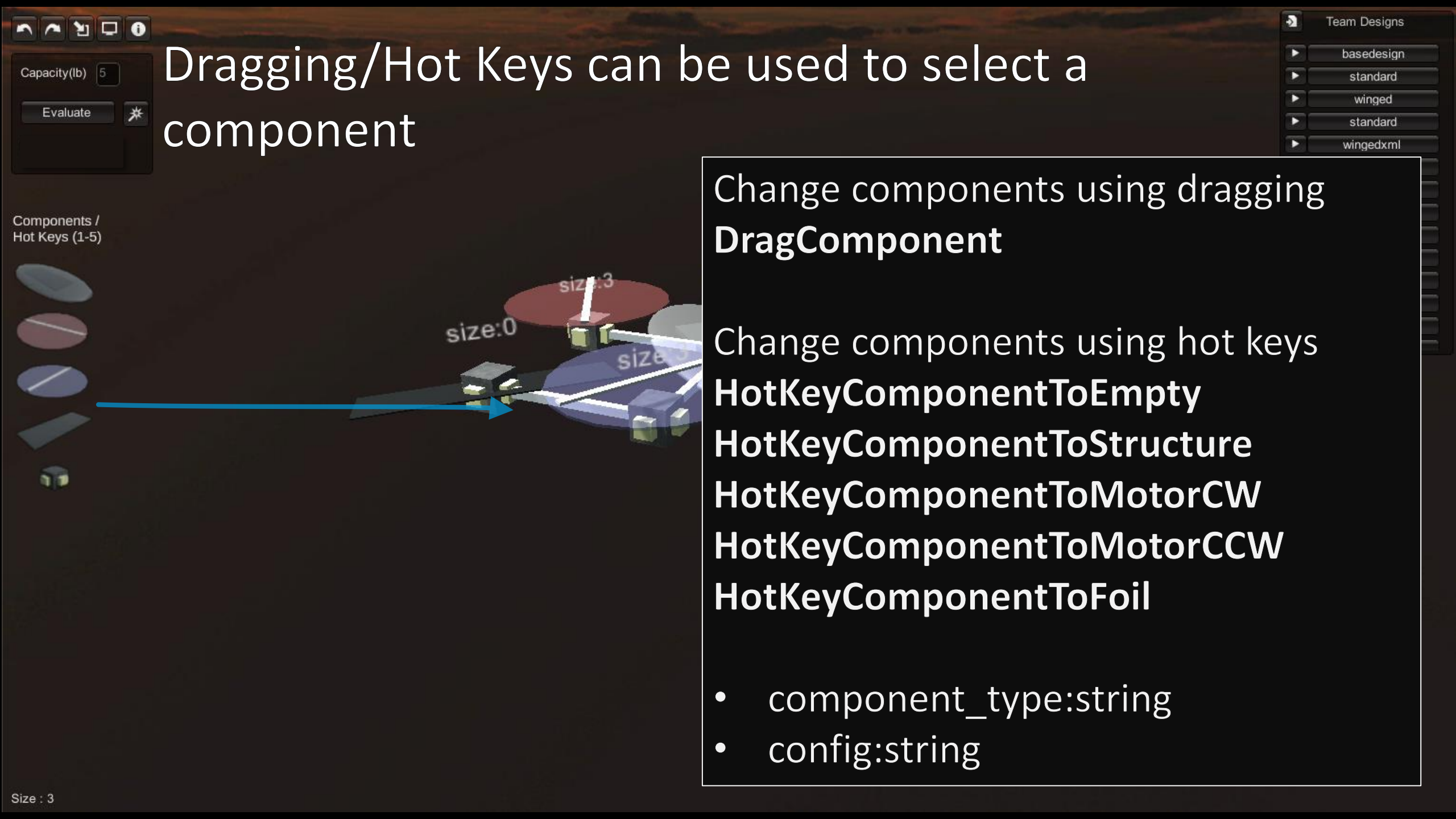




MouseClick: User performs a left-click to change a component or add to the assembly

- action:string
  - AssemblyChange
  - ToggleStructure
  - ToggleMotorCW
  - ToggleMotorCCW
  - ToggleFoil
  - ToggleEmpty
- config:string

Dragging/Hot Keys can be used to select a component



Change components using dragging

DragComponent

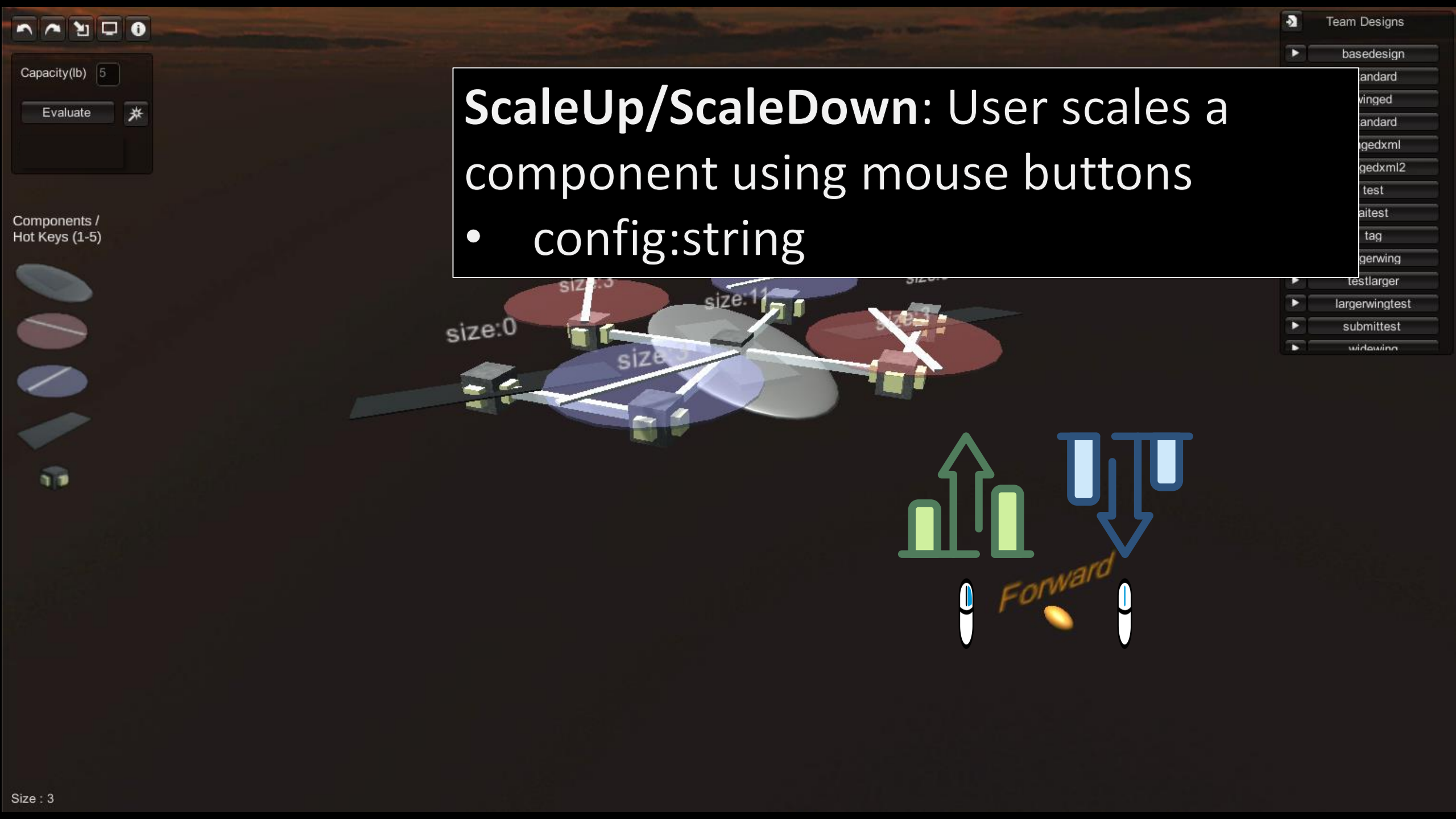
Change components using hot keys

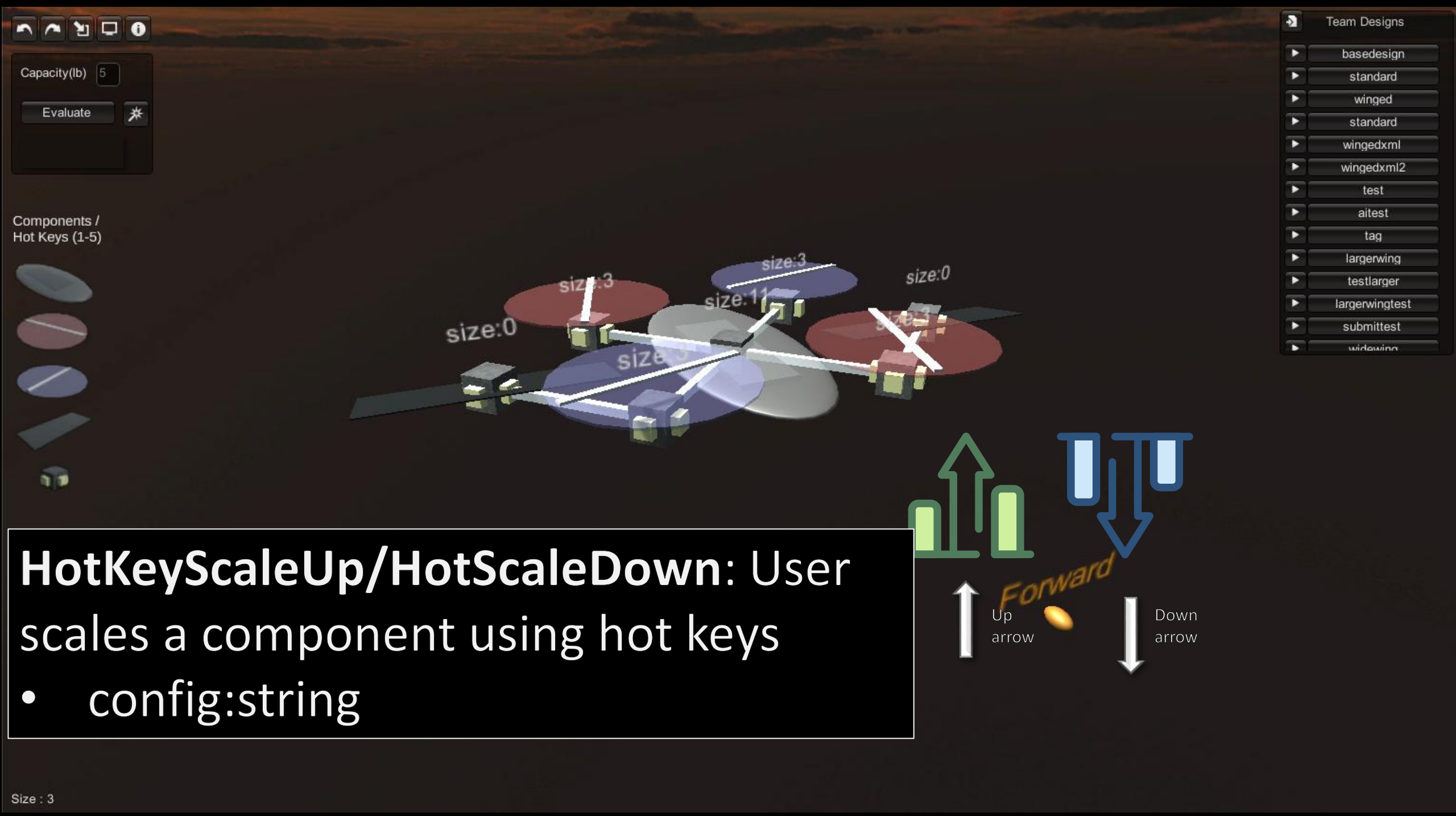
HotKeyComponentToEmpty
HotKeyComponentToStructure
HotKeyComponentToMotorCW
HotKeyComponentToMotorCCW
HotKeyComponentToFoil

- component_type:string
- config:string

ScaleUp/ScaleDown: User scales a component using mouse buttons

- config:string

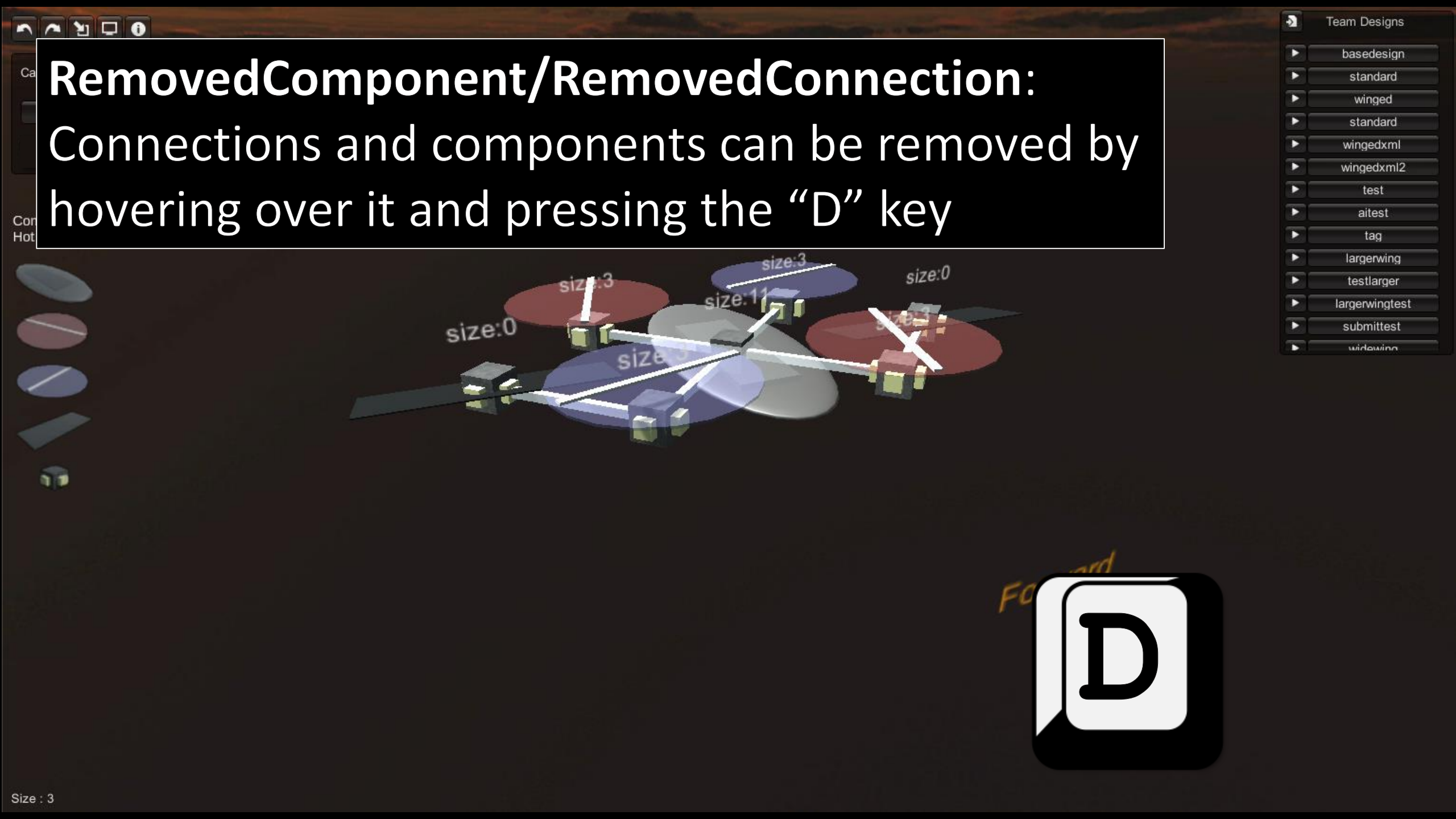


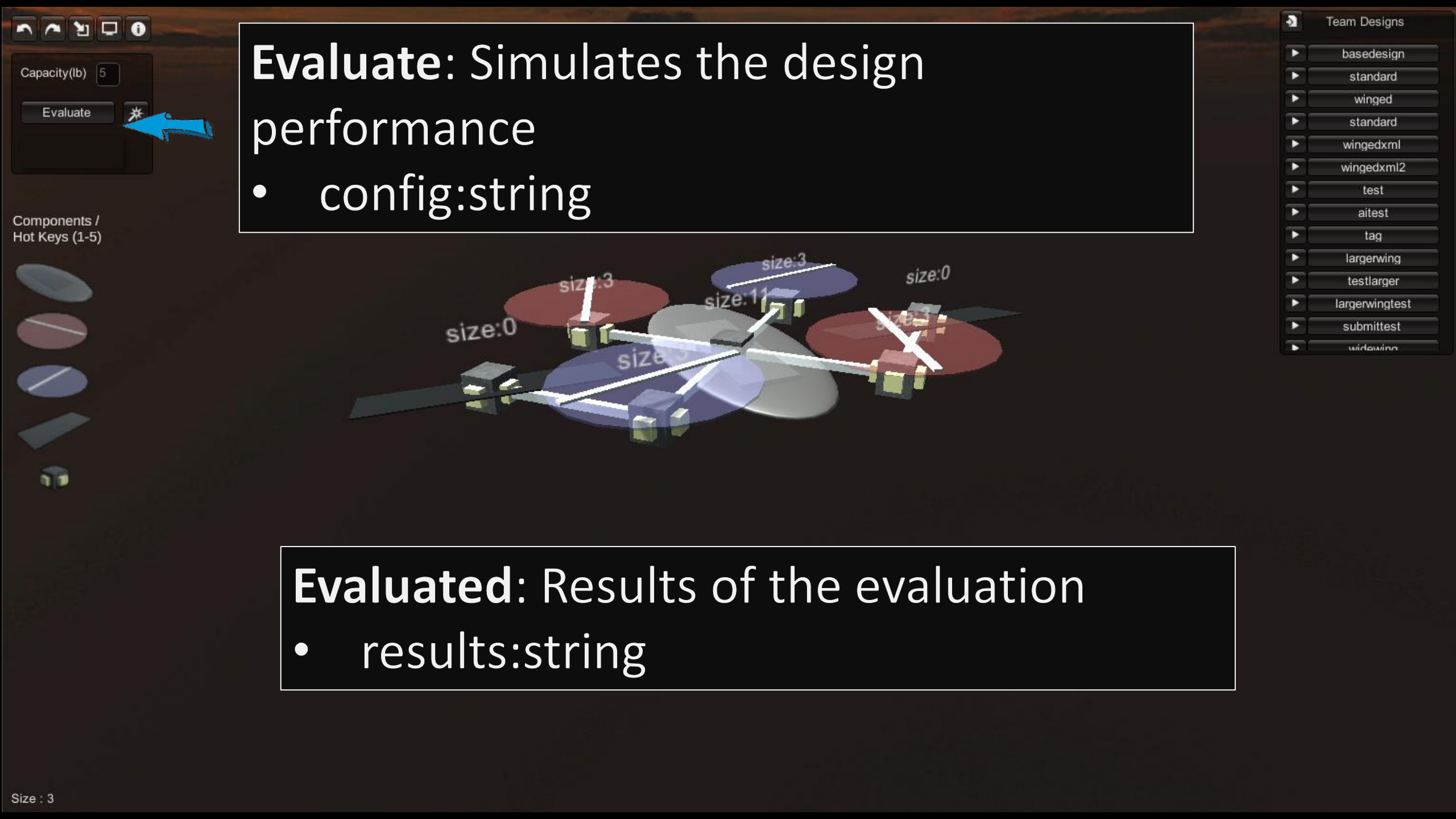


HotKeyScaleUp/HotScaleDown: User scales a component using hot keys

- config:string

RemovedComponent/RemovedConnection: Connections and components can be removed by hovering over it and pressing the “D” key





Evaluate: Simulates the design performance

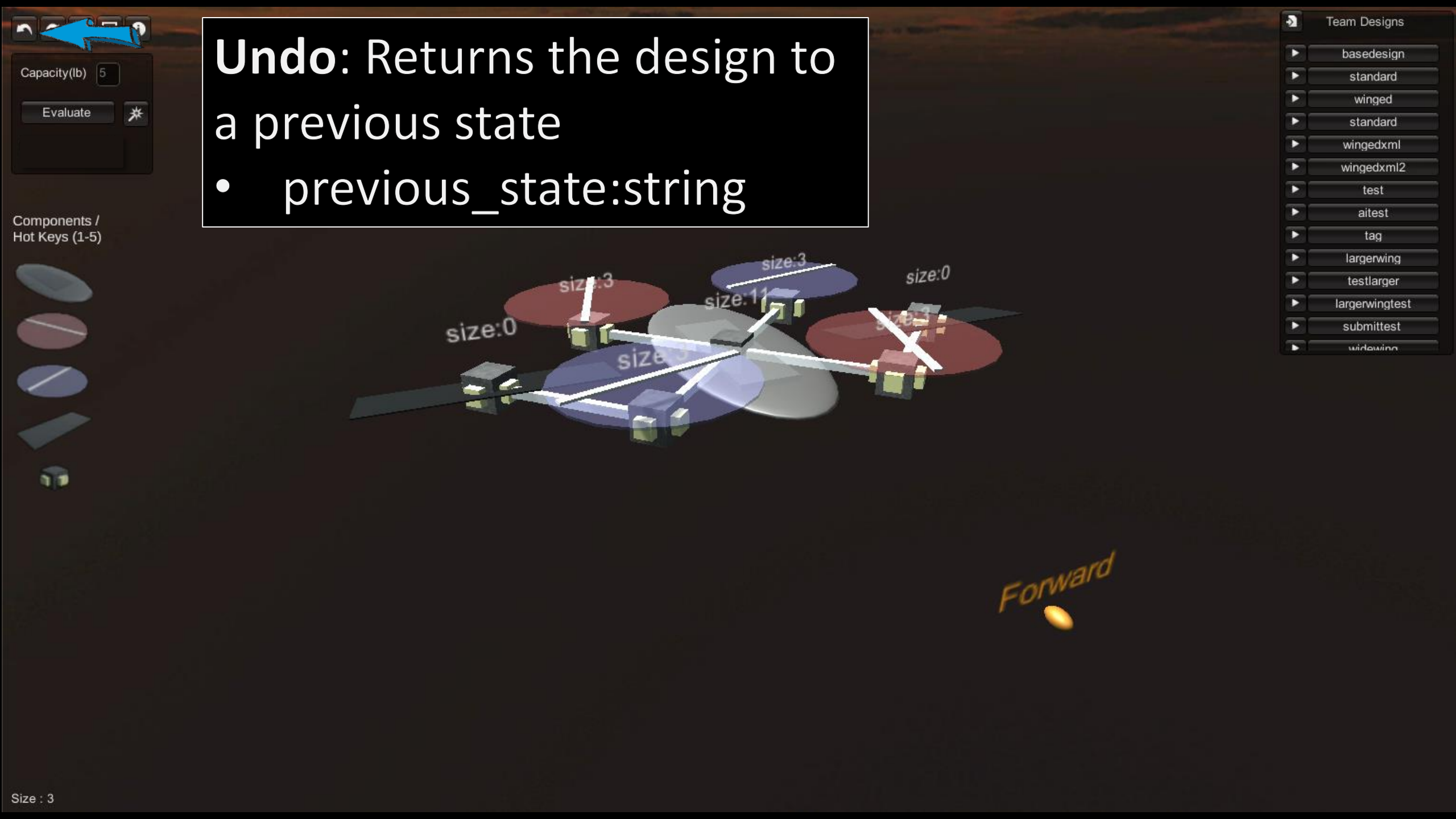
- config:string

Evaluated: Results of the evaluation

- results:string

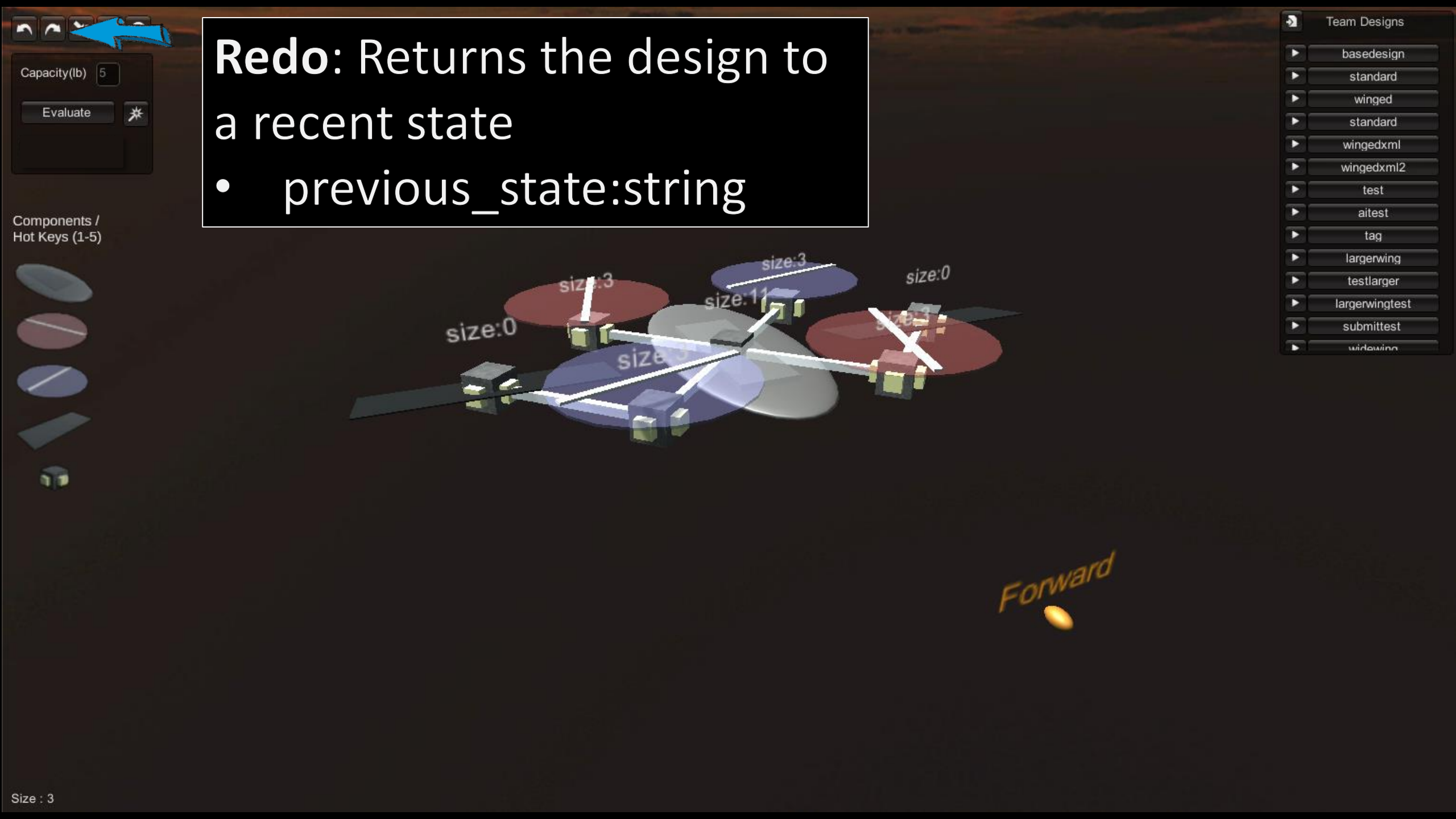
Undo: Returns the design to a previous state

- previous_state:string

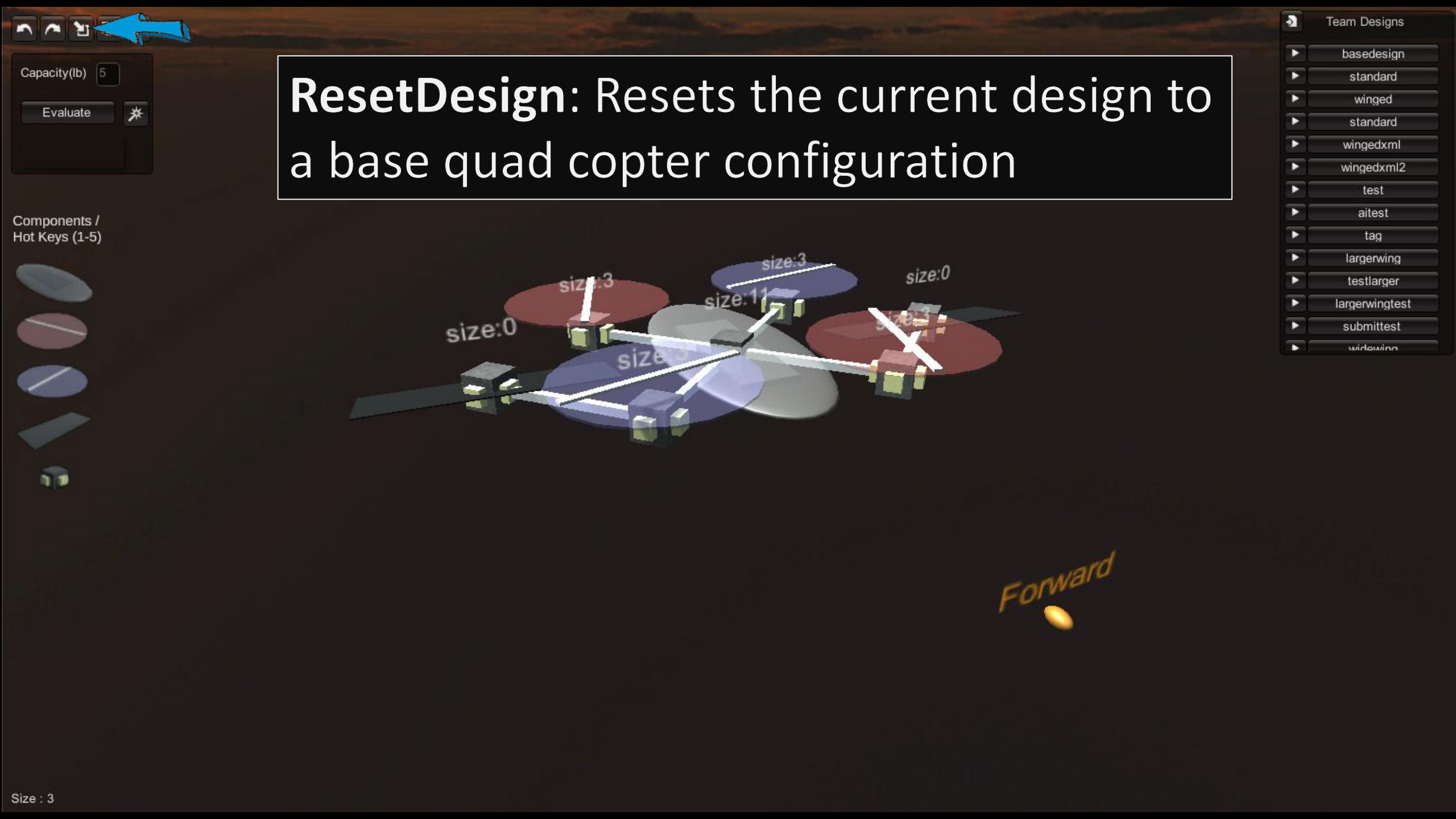


Redo: Returns the design to a recent state

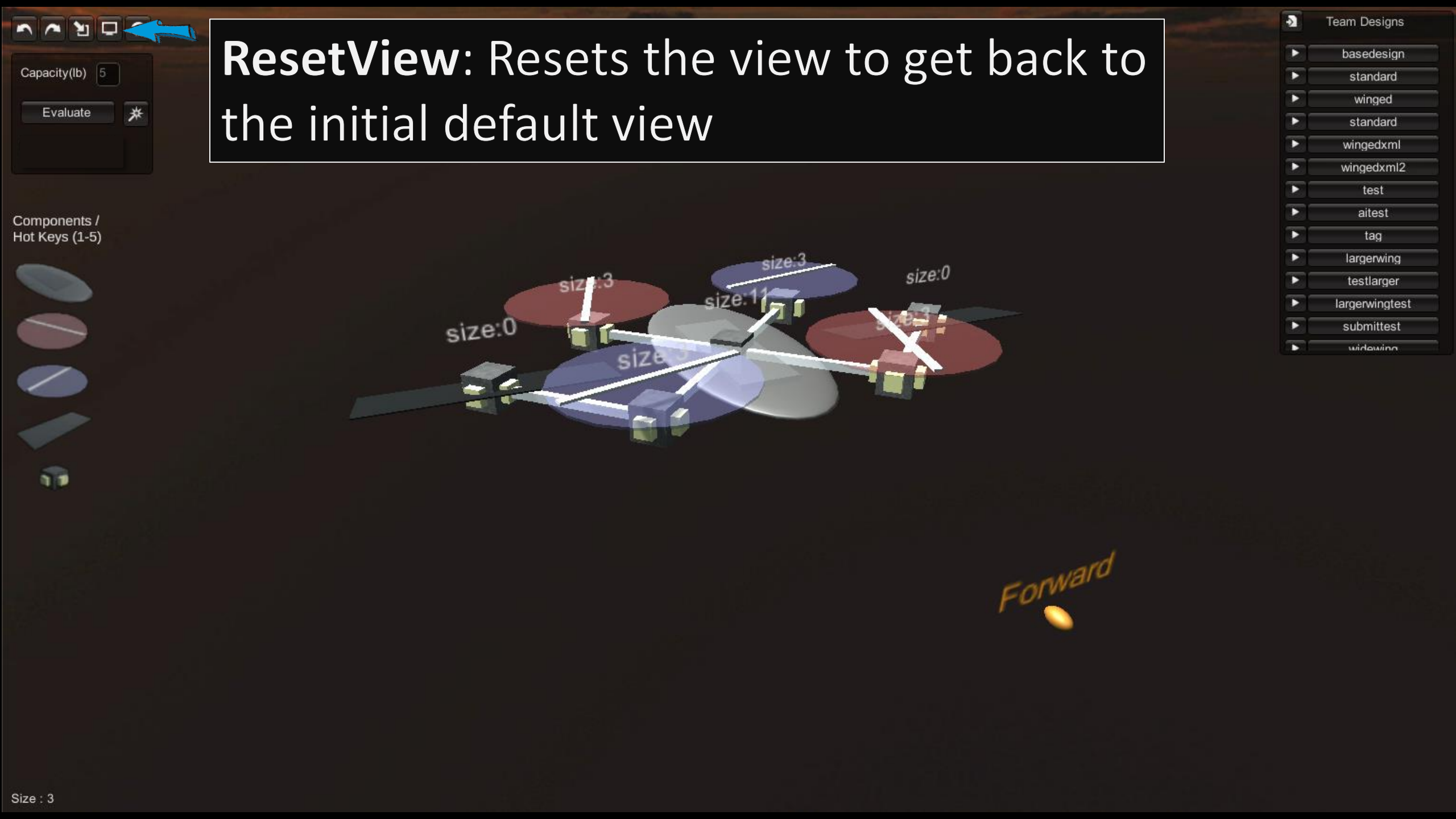
- previous_state:string



ResetDesign: Resets the current design to a base quad copter configuration



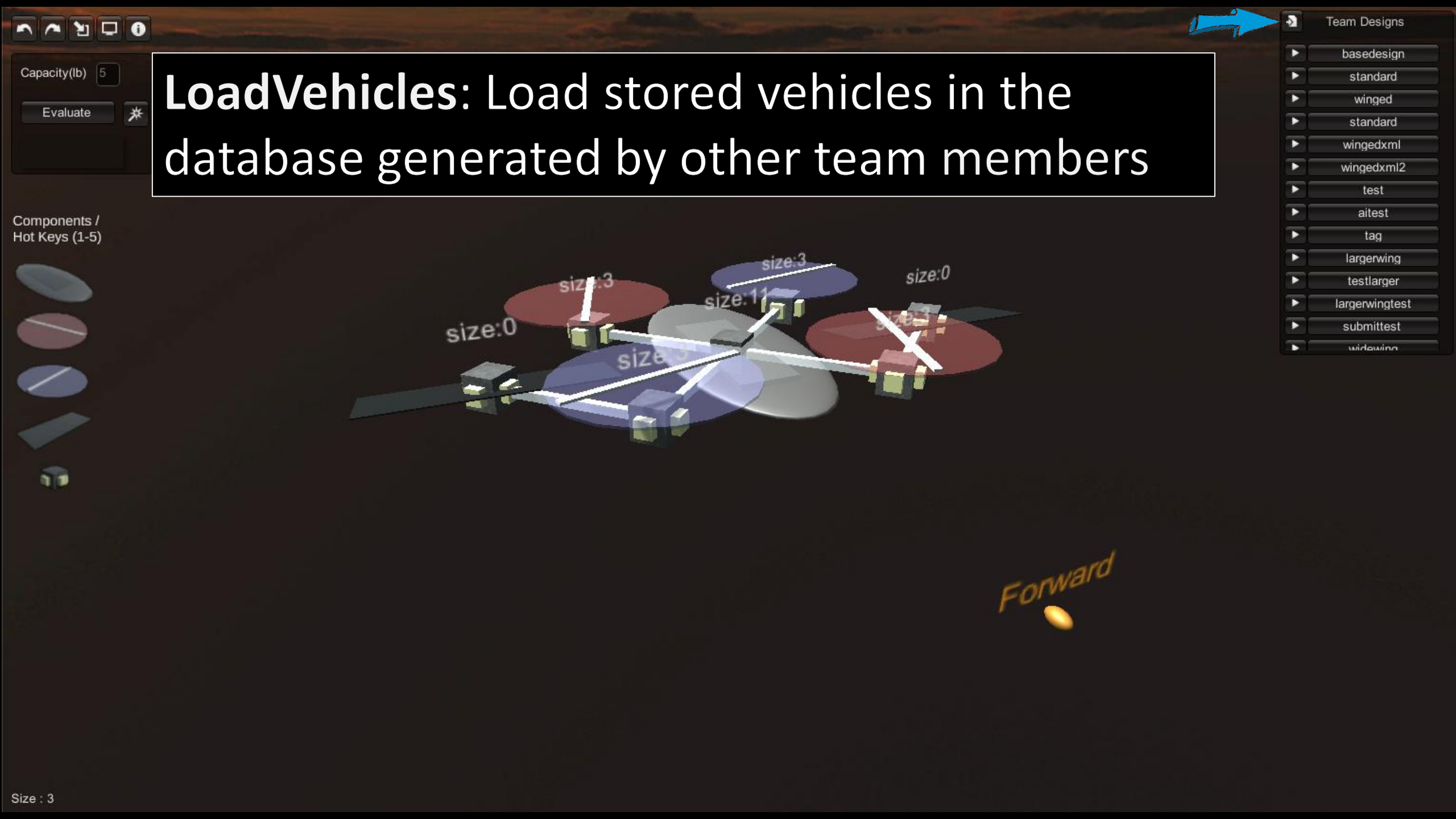
ResetView: Resets the view to get back to the initial default view

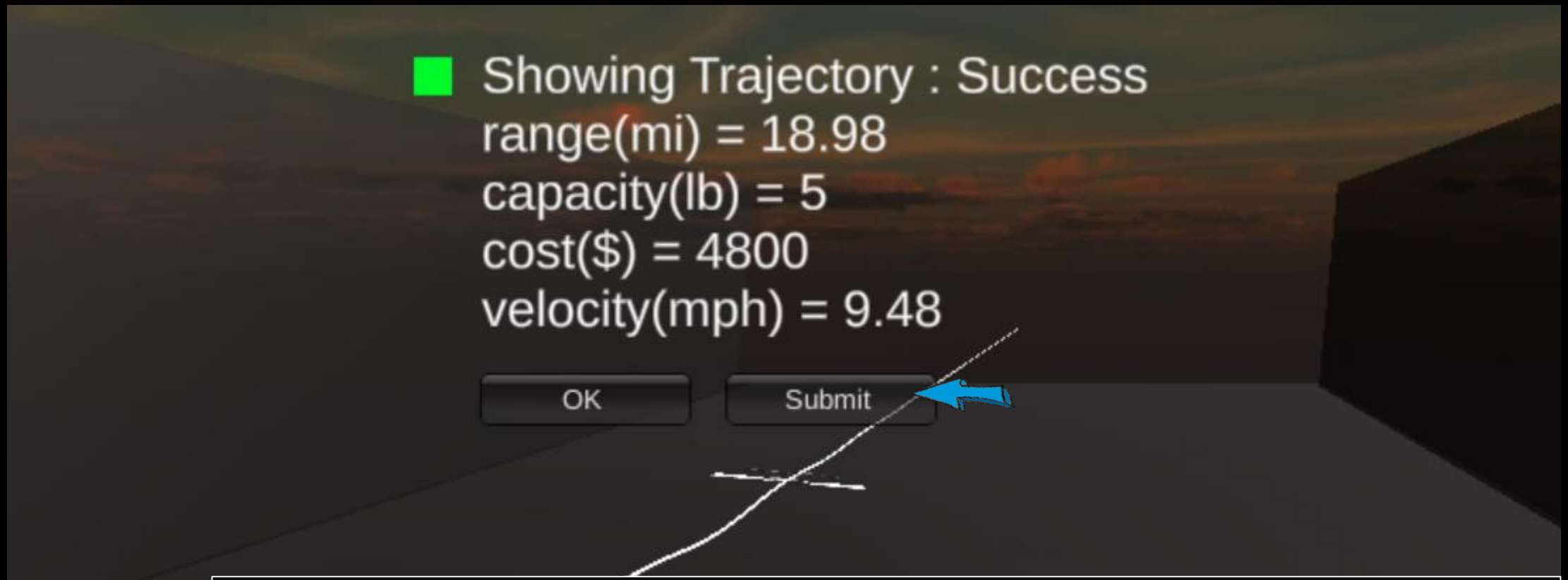


Opened: Loads and imports a saved configuration

- tag:string
- config:string

LoadVehicles: Load stored vehicles in the database generated by other team members

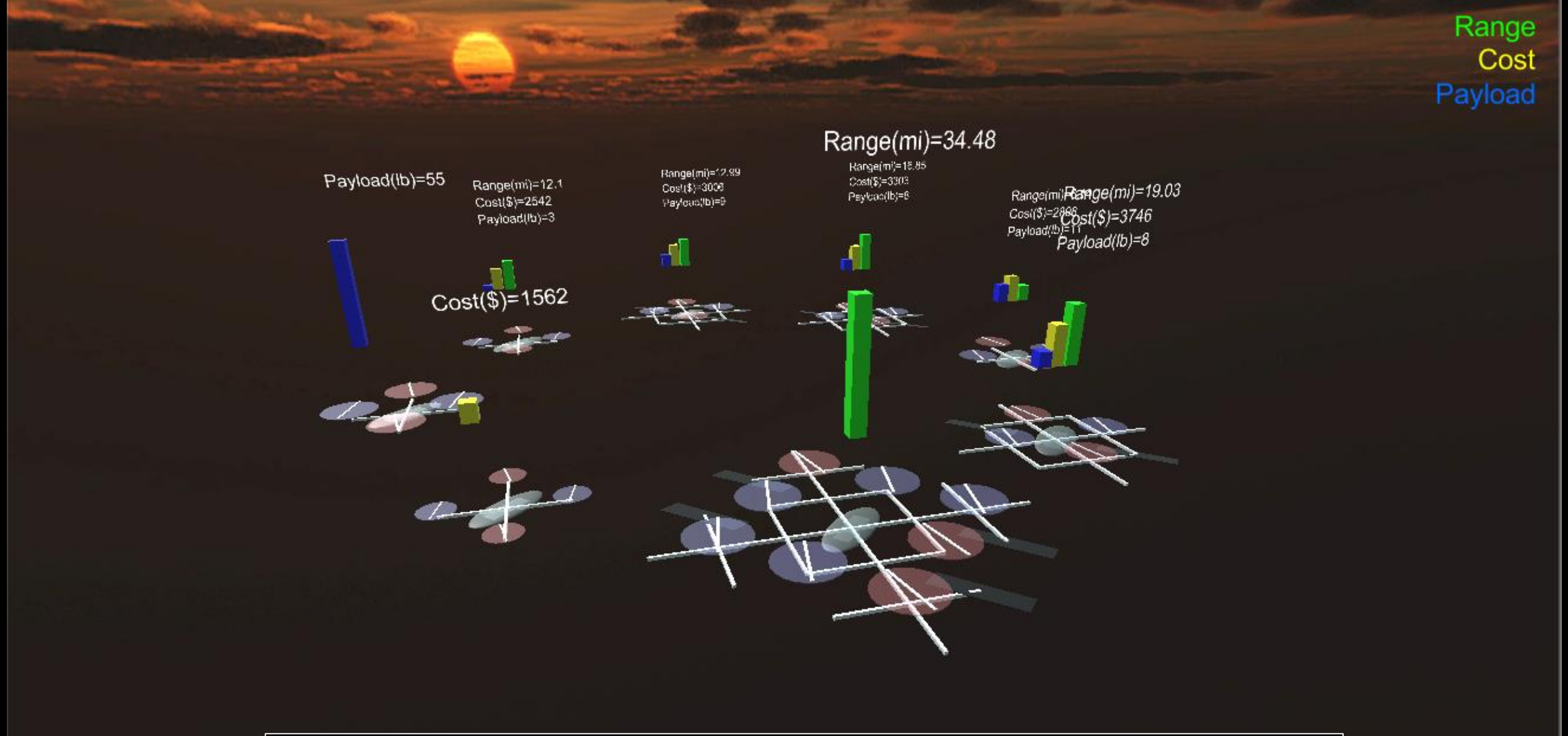




SubmitToDB: Users submit a current design to the central database with a tag id

- config:string

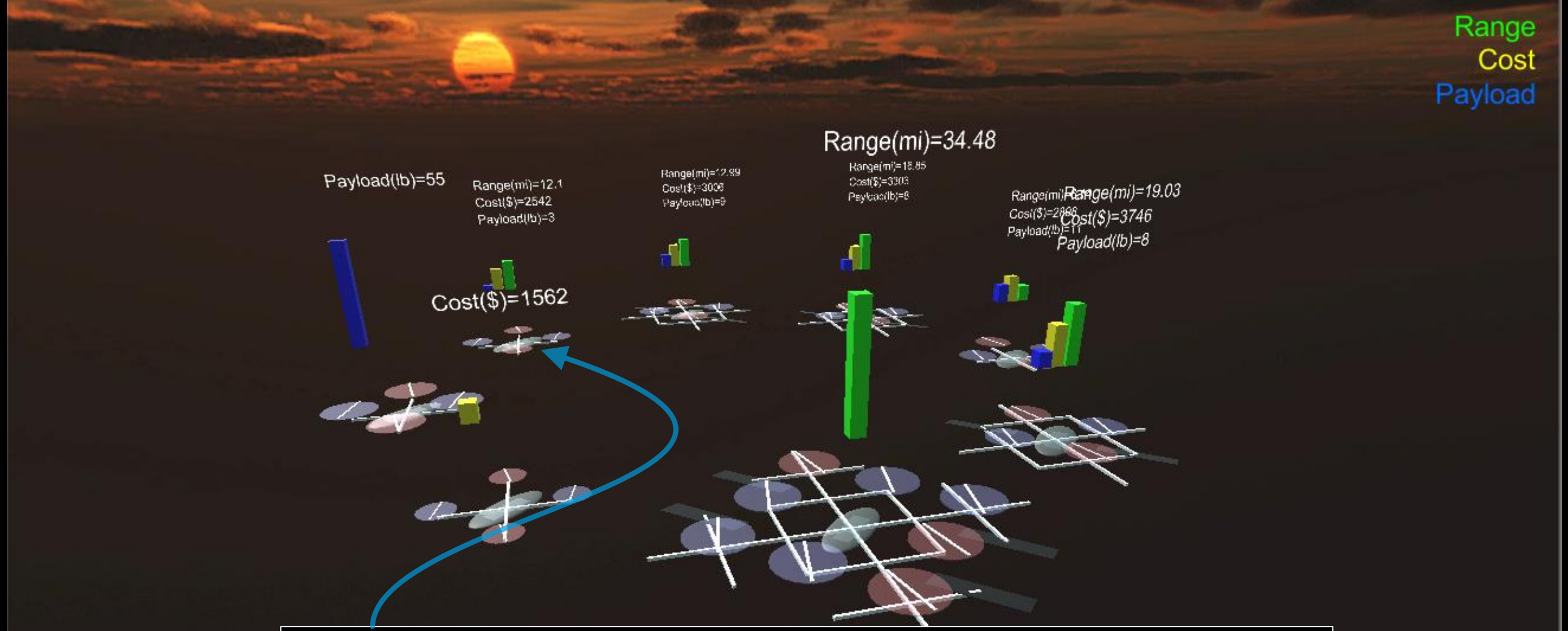
RunDesignAgent: Starts the Design Agent



Design Mode

DesignMode: Returns to Design Mode

>> size : 2



SelectedAIDesign: Selected a new design based on AI results

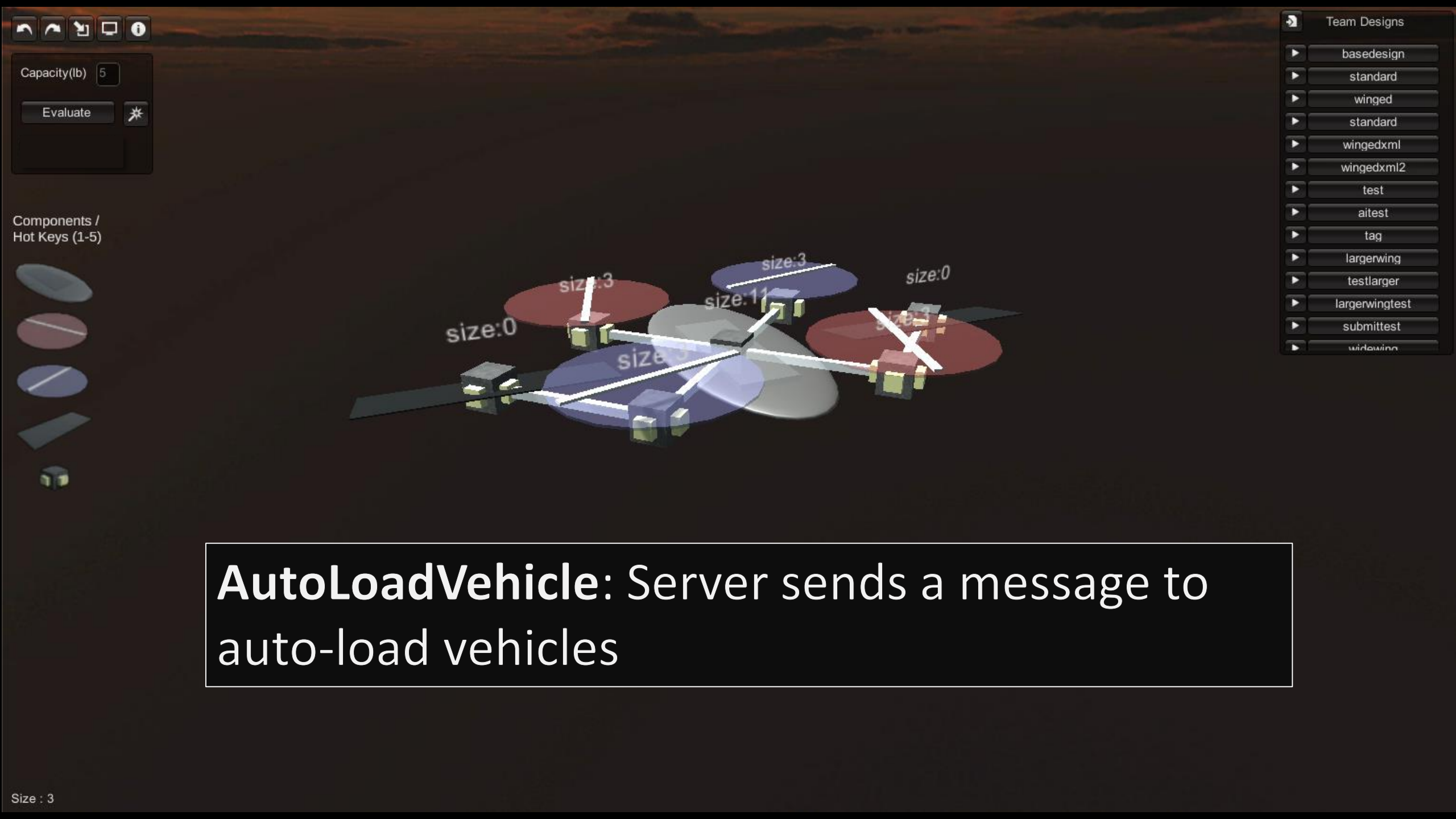
config_with_metrics:string

Design Mode

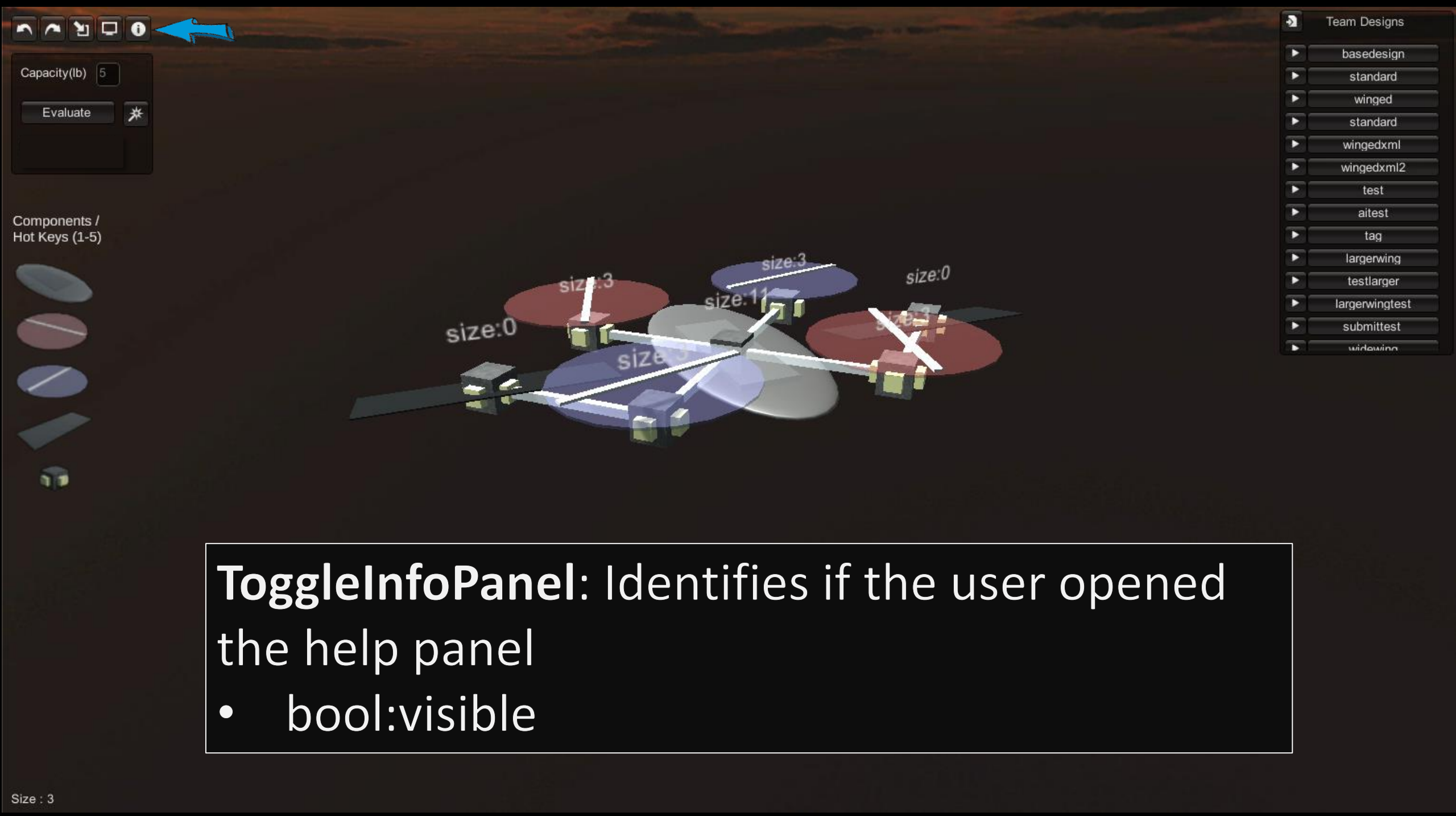
>> size : 2

ServerMessage: Logs messages returned from the server

- result:string



AutoLoadVehicle: Server sends a message to auto-load vehicles



ToggleInfoPanel: Identifies if the user opened the help panel

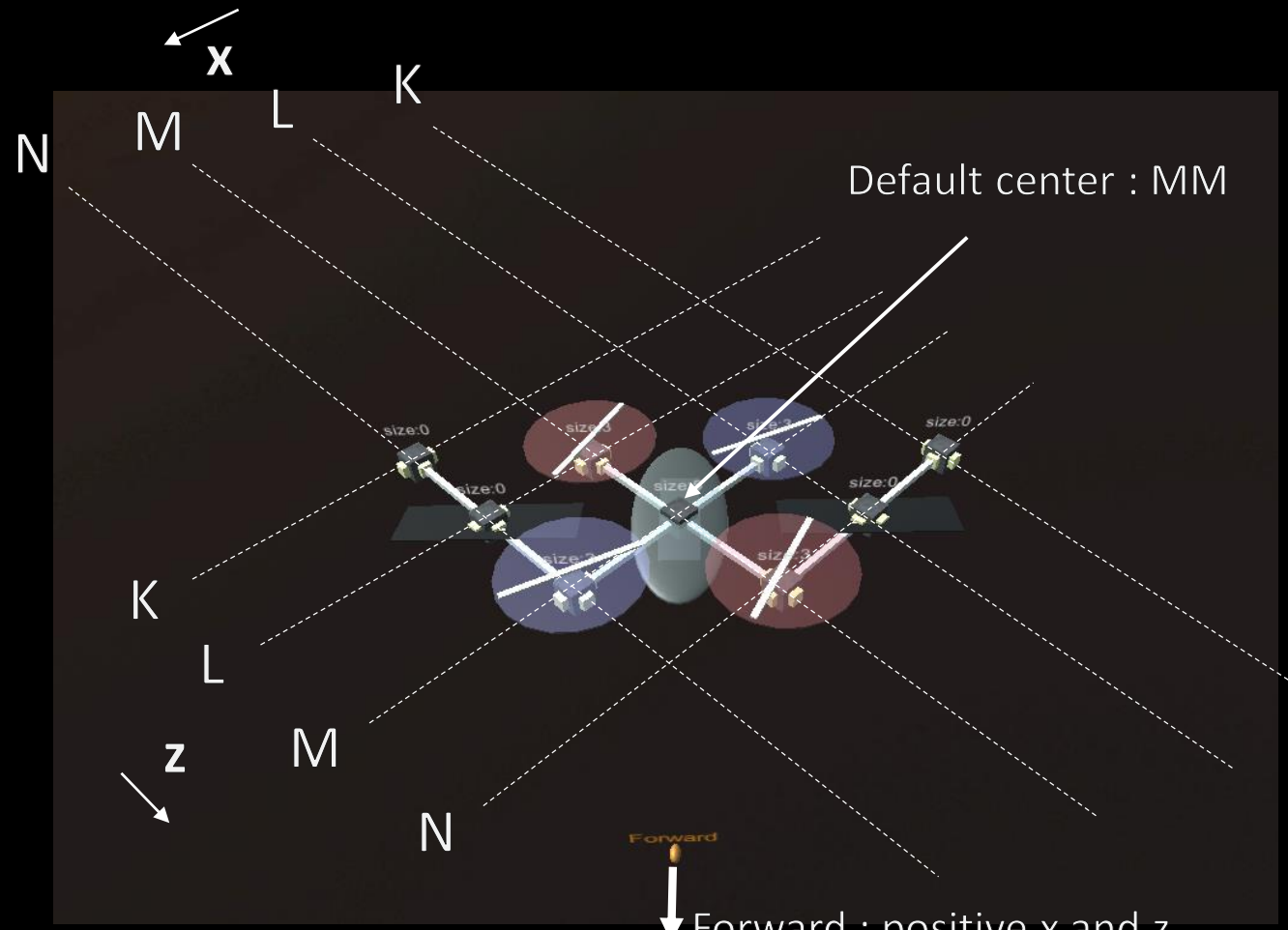
- bool:visible

Description of Design Configuration in Log Data

*aMM0+++++*bNM2+++*cMN1+++*dML1+++*eLM2+++*fLN3*gNL3*hKN4*iNK4^ab^ac^ad^ae^cf^bg^fh^gi,5,3

Node (*) : *bNM2+++

- b : node id
- N : x position
- M : z position
- 2 : Component type
  - 0 : structure
  - 1 : CW motor
  - 2 : CCW motor
  - 3 : foil
  - 4 : empty
- +++ : size of component
  - + represents increment up
  - - represents increment down



Forward : positive x and z

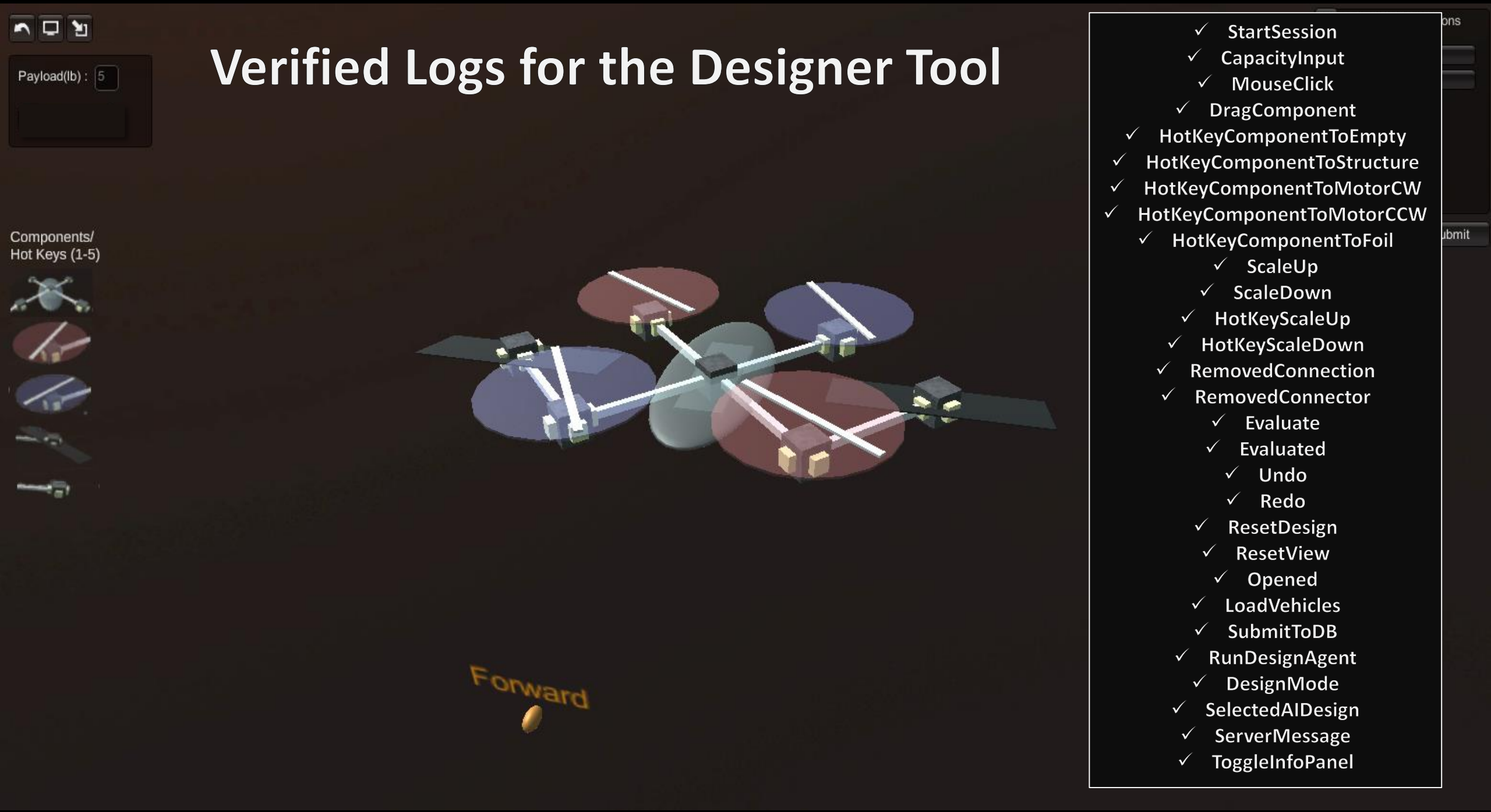
Edge (^) : ^cf

- c: first node
- f: second node

,5,3

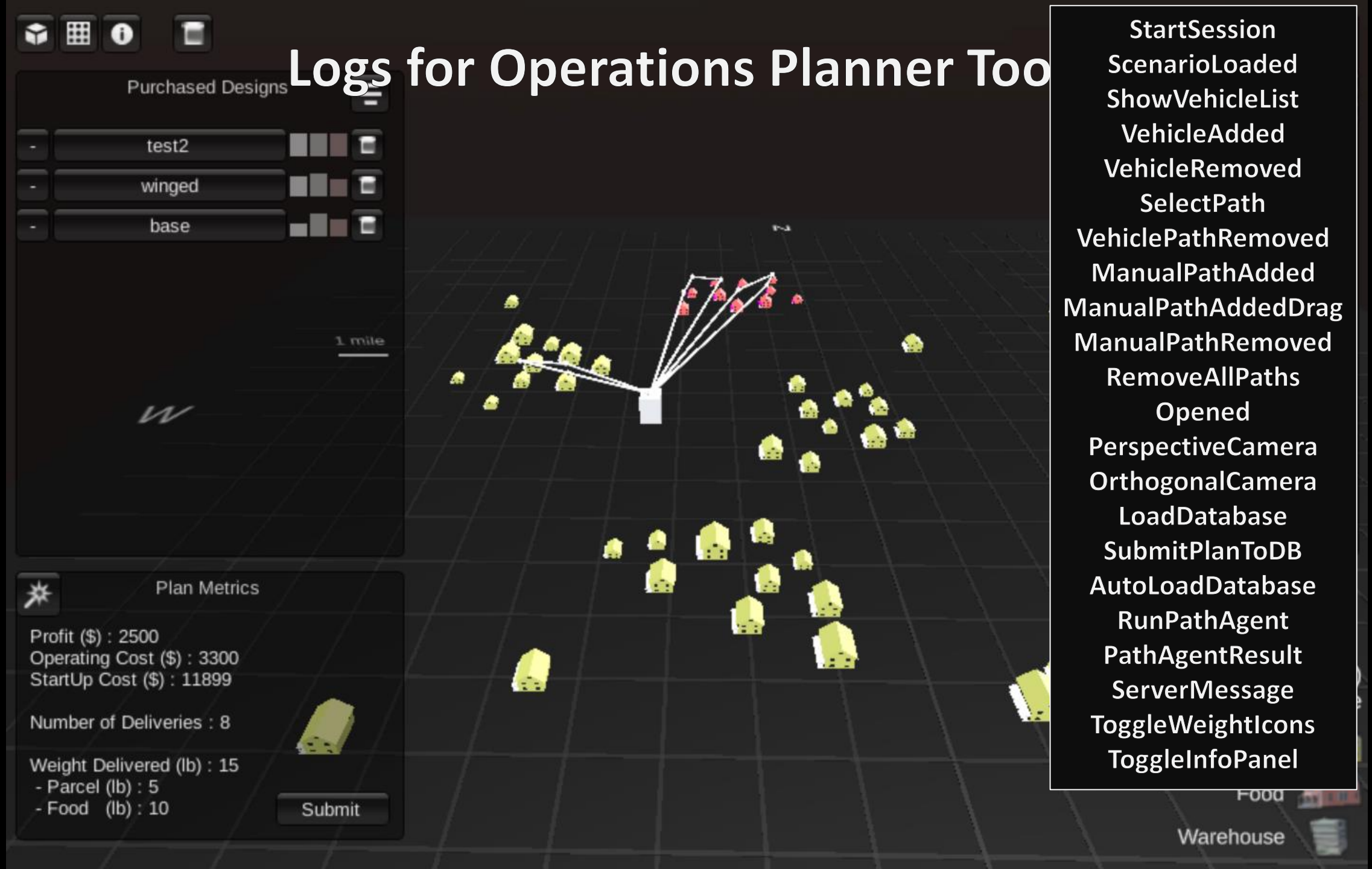
- 5: Maximum payload (lb)
- 3: Controller index (this remains fixed for now at 3)

Verified Logs for the Designer Tool

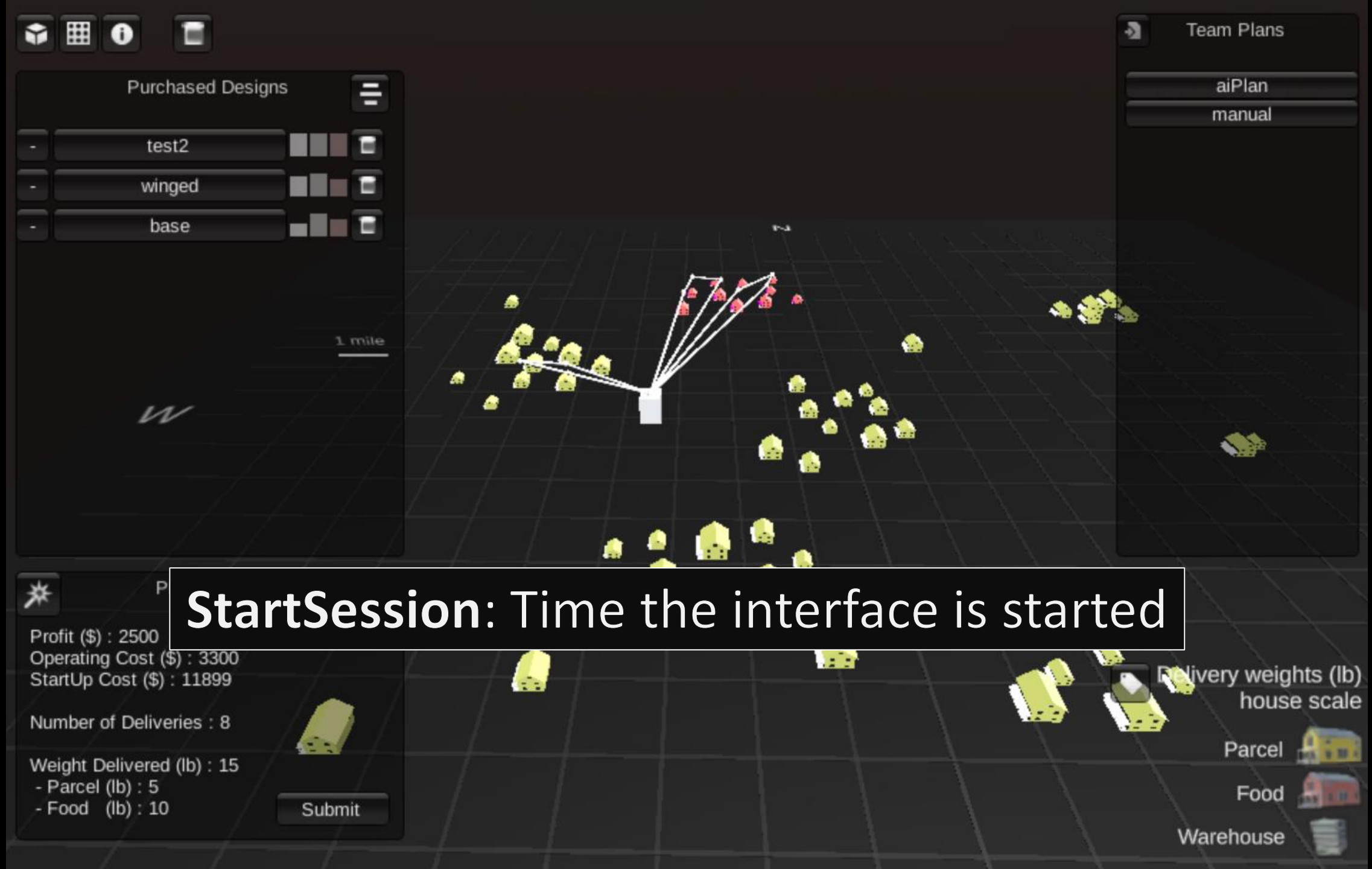


- ✓ StartSession
- ✓ CapacityInput
- ✓ MouseClick
- ✓ DragComponent
- ✓ HotKeyComponentToEmpty
- ✓ HotKeyComponentToStructure
- ✓ HotKeyComponentToMotorCW
- ✓ HotKeyComponentToMotorCCW
- ✓ HotKeyComponentToFoil
- ✓ ScaleUp
- ✓ ScaleDown
- ✓ HotKeyScaleUp
- ✓ HotKeyScaleDown
- ✓ RemovedConnection
- ✓ RemovedConnector
- ✓ Evaluate
- ✓ Evaluated
- ✓ Undo
- ✓ Redo
- ✓ ResetDesign
- ✓ ResetView
- ✓ Opened
- ✓ LoadVehicles
- ✓ SubmitToDB
- ✓ RunDesignAgent
- ✓ DesignMode
- ✓ SelectedAIDesign
- ✓ ServerMessage
- ✓ ToggleInfoPanel

Logs for Operations Planner Too



StartSession
ScenarioLoaded
ShowVehicleList
VehicleAdded
VehicleRemoved
SelectPath
VehiclePathRemoved
ManualPathAdded
ManualPathAddedDrag
ManualPathRemoved
RemoveAllPaths
Opened
PerspectiveCamera
OrthogonalCamera
LoadDatabase
SubmitPlanToDB
AutoLoadDatabase
RunPathAgent
PathAgentResult
ServerMessage
ToggleWeightIcons
ToggleInfoPanel



StartSession: Time the interface is started

ScenarioLoaded: loaded scenario from the business planner

ShowVehicleList: Shows the available vehicles

- visible:bool

VehicleAdded: Includes vehicle in the purchased list

- vehicletag:string
- jsonplan:string

VehicleRemoved: Removes vehicle in the purchased list

- vehicle_tag:string
- json_plan:string

SelectPath: Selects the vehicle and highlights the current path if one exists

- vehicleindex:int
- vehicletag:string

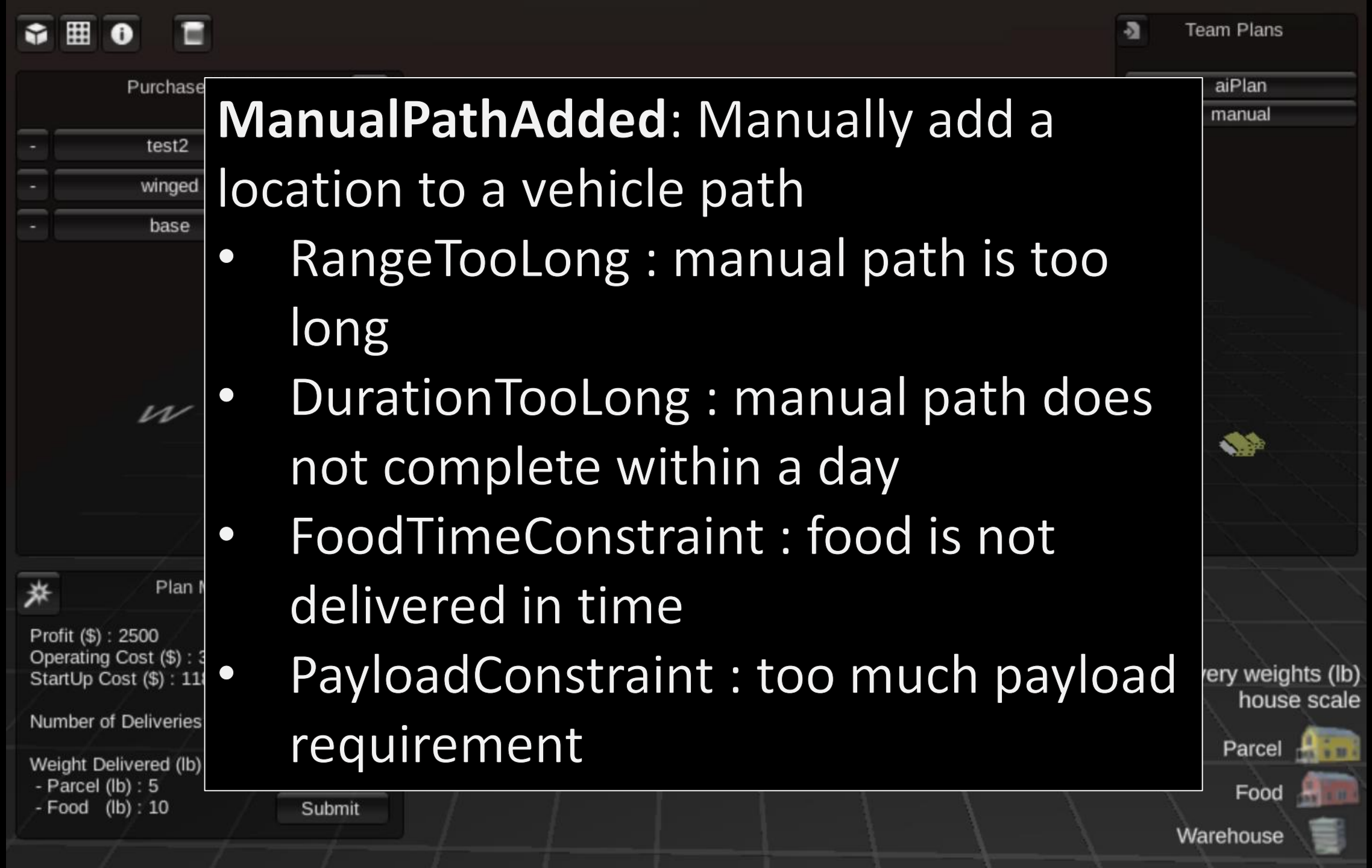
VehiclePathRemoved: Remove the path of the vehicle by selecting the trash icon

- vehicleindex:int
- vehicletag:string
- jsonplan:string

ManualPathAdded: Manually add a location to a vehicle path

- vehicleindex:int
- locationindex:int
- vehicletag:string
- jsonplan:string

or ....



ManualPathAdded: Manually add a location to a vehicle path

- RangeTooLong : manual path is too long
- DurationTooLong : manual path does not complete within a day
- FoodTimeConstraint : food is not delivered in time
- PayloadConstraint : too much payload requirement

ManualPathRemoved: Manually remove a location to a vehicle path

- vehicleindex:int
- locationindex:int
- vehicletag:string
- jsonplan:string

ManualPathAddedDrag: Selects a path segment and drags to add a new location

RemoveAllPaths: Removes all paths from the plan

- jsonplan:string

Opened: Load an operational plan stored in the database generated by other team members

- jsonplan:string

PerspectiveCamera: Sets the camera to 3D perspective view

OrthogonalCamera: Sets the camera to 2D orthogonal view

LoadDatabase: Load plans from the central database

SubmitPlanToDB: Submit plan to the central database

- tag:string
- jsonplan:string

AutoLoadDatabase: Testbed autoloads plans

RunPathAgent: Runs the path agent to generate a routing plan

PathAgentResult: Results from the path agent

- jsonplan:string

ServerMessage: Logs messages returned from the server

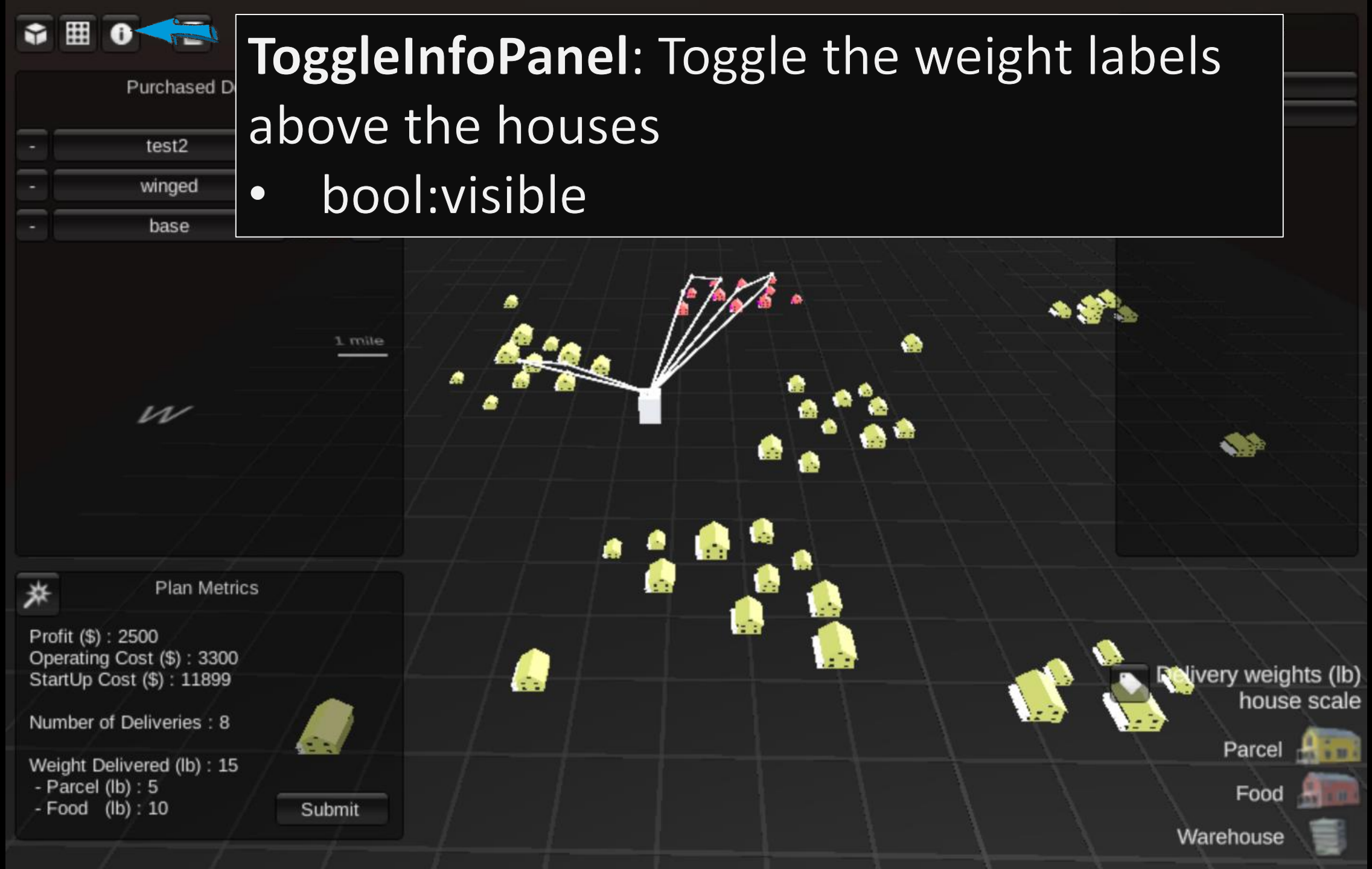
- result:string

ToggleWeightIcons: Toggle the weight labels above the houses

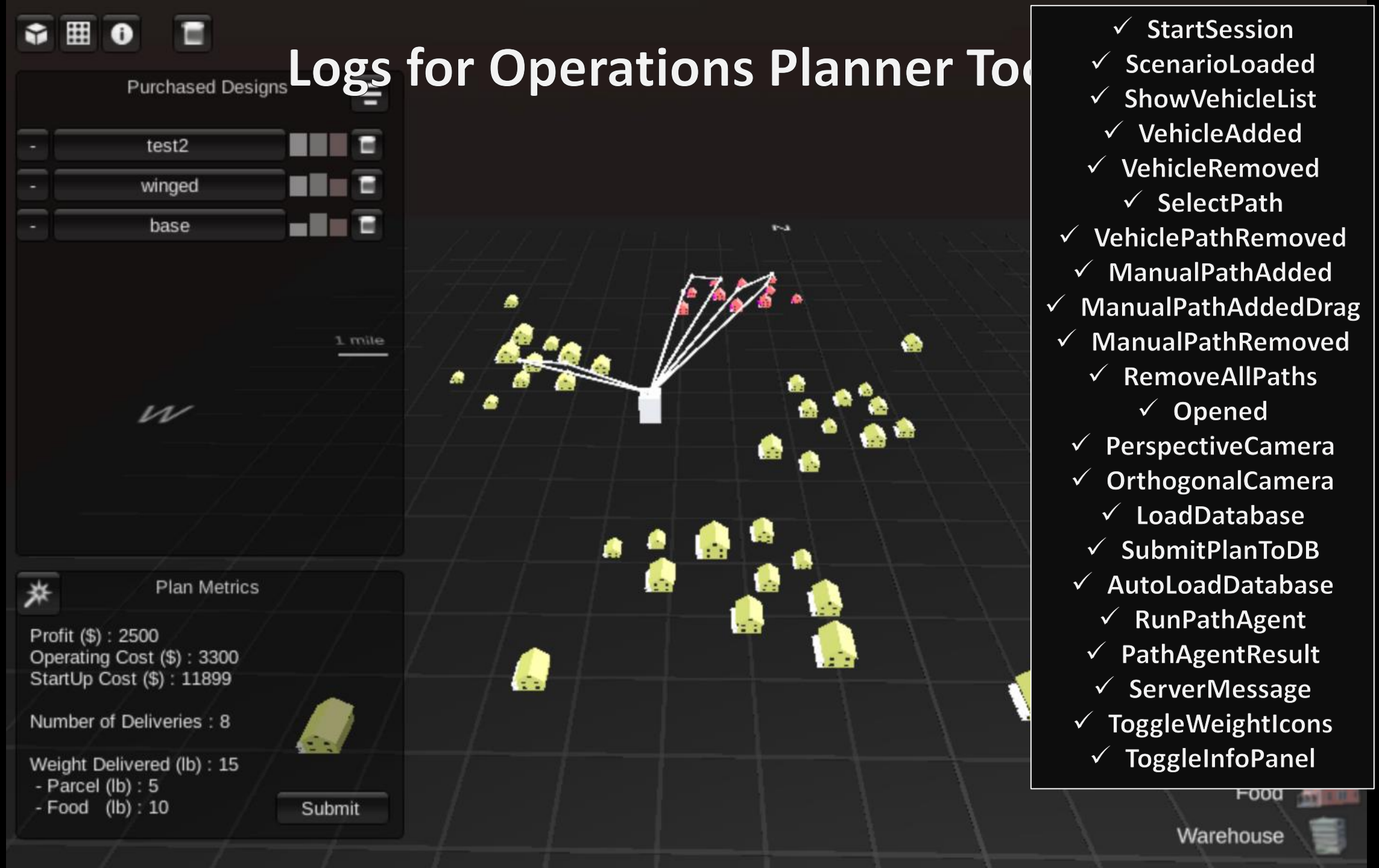
- bool:visible

ToggleInfoPanel: Toggle the weight labels above the houses

- bool:visible

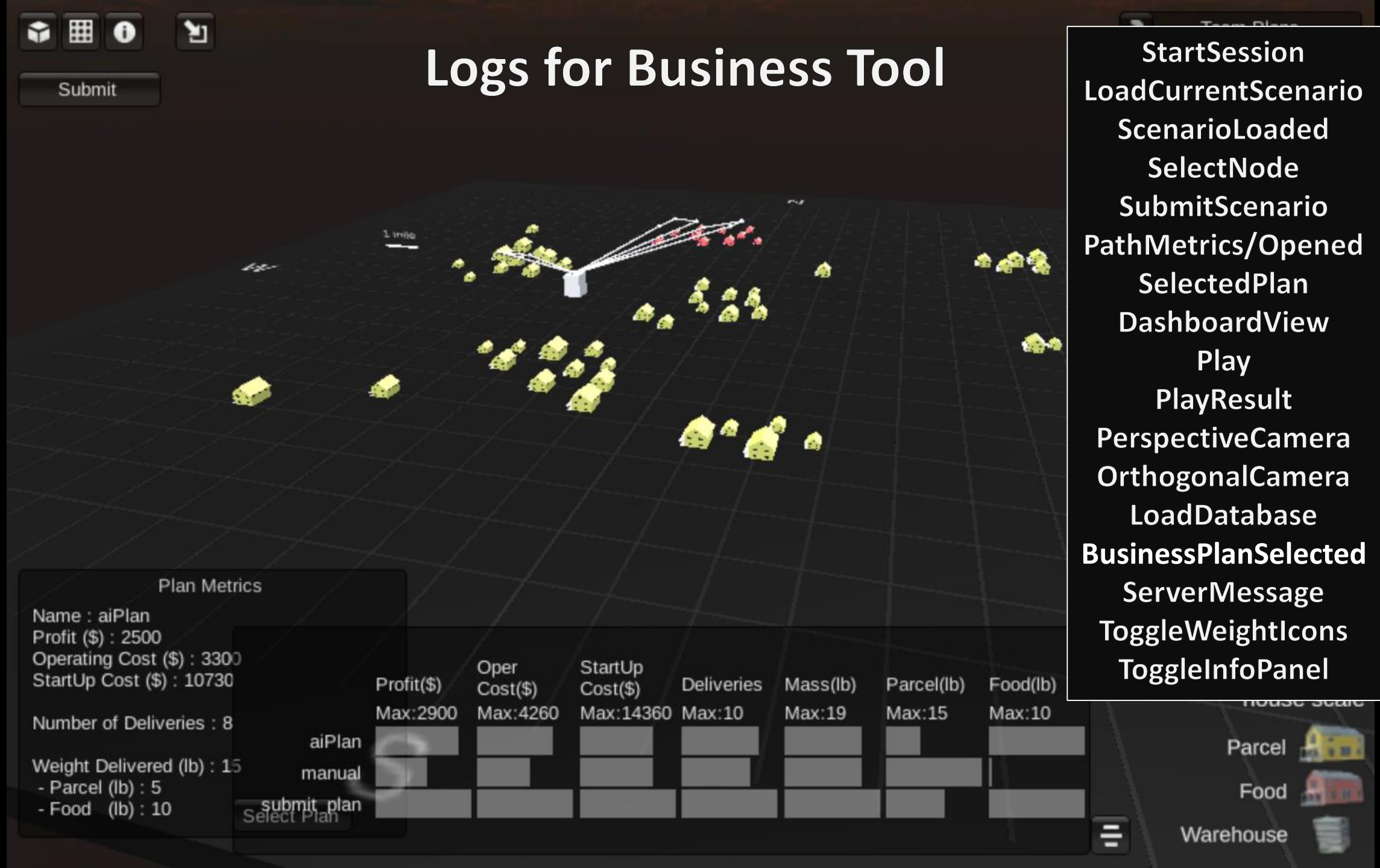


Logs for Operations Planner Tool

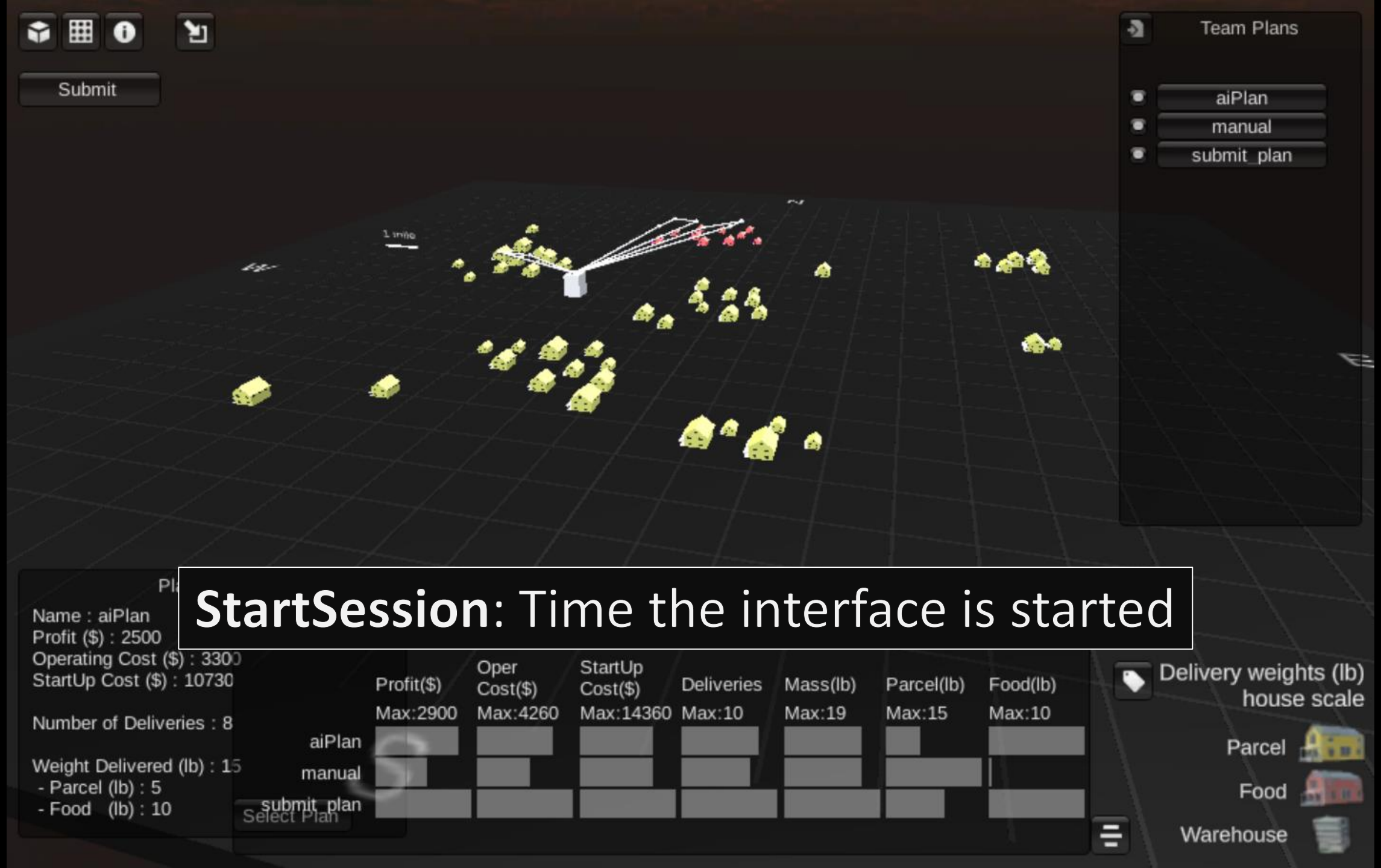


- ✓ StartSession
- ✓ ScenarioLoaded
- ✓ ShowVehicleList
- ✓ VehicleAdded
- ✓ VehicleRemoved
- ✓ SelectPath
- ✓ VehiclePathRemoved
- ✓ ManualPathAdded
- ✓ ManualPathAddedDrag
- ✓ ManualPathRemoved
- ✓ RemoveAllPaths
- ✓ Opened
- ✓ PerspectiveCamera
- ✓ OrthogonalCamera
- ✓ LoadDatabase
- ✓ SubmitPlanToDB
- ✓ AutoLoadDatabase
- ✓ RunPathAgent
- ✓ PathAgentResult
- ✓ ServerMessage
- ✓ ToggleWeightIcons
- ✓ ToggleInfoPanel

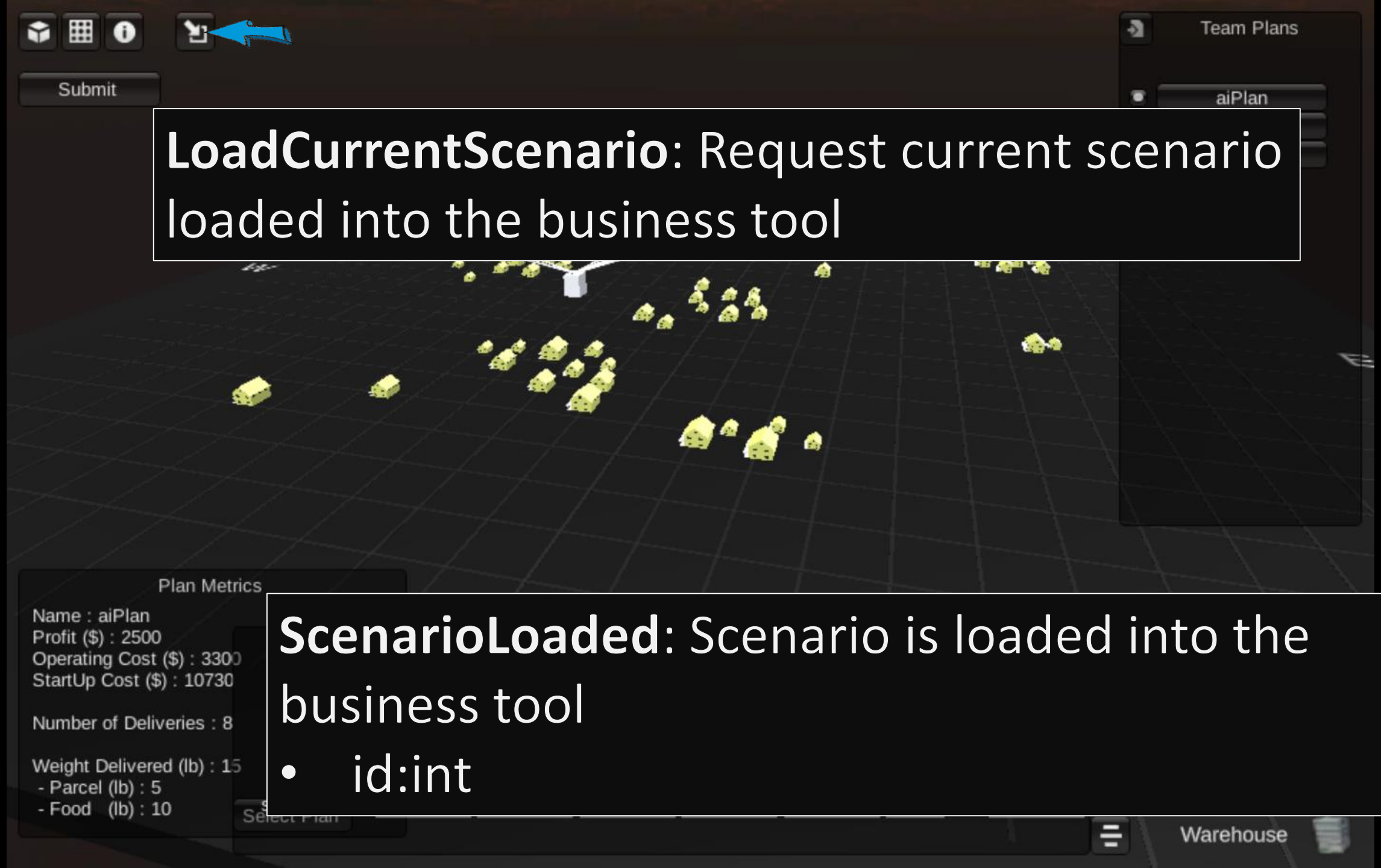
Logs for Business Tool



StartSession
LoadCurrentScenario
ScenarioLoaded
SelectNode
SubmitScenario
PathMetrics/Opened
SelectedPlan
DashboardView
Play
PlayResult
PerspectiveCamera
OrthogonalCamera
LoadDatabase
BusinessPlanSelected
ServerMessage
ToggleWeightIcons
ToggleInfoPanel



StartSession: Time the interface is started



LoadCurrentScenario: Request current scenario loaded into the business tool

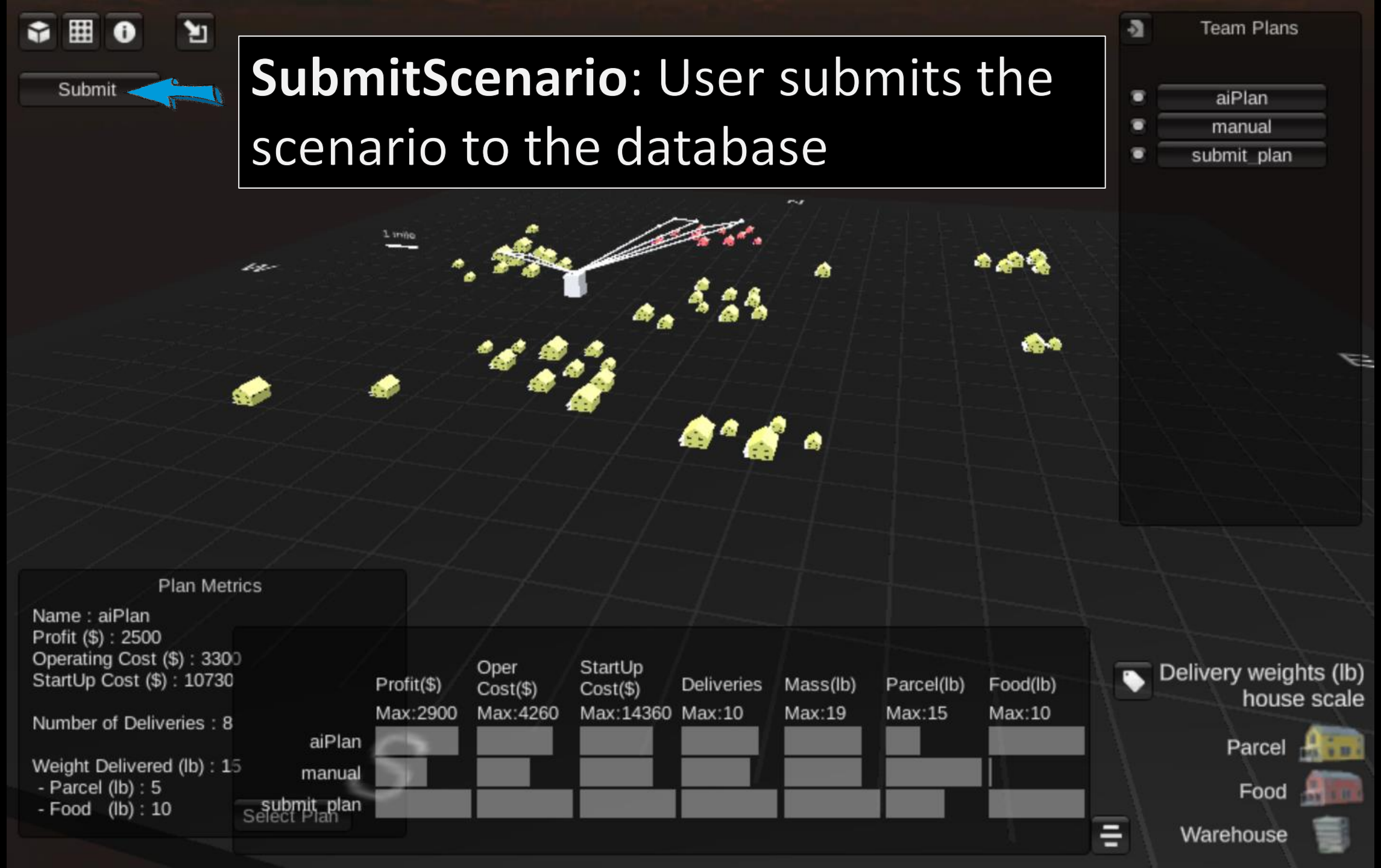
ScenarioLoaded: Scenario is loaded into the business tool

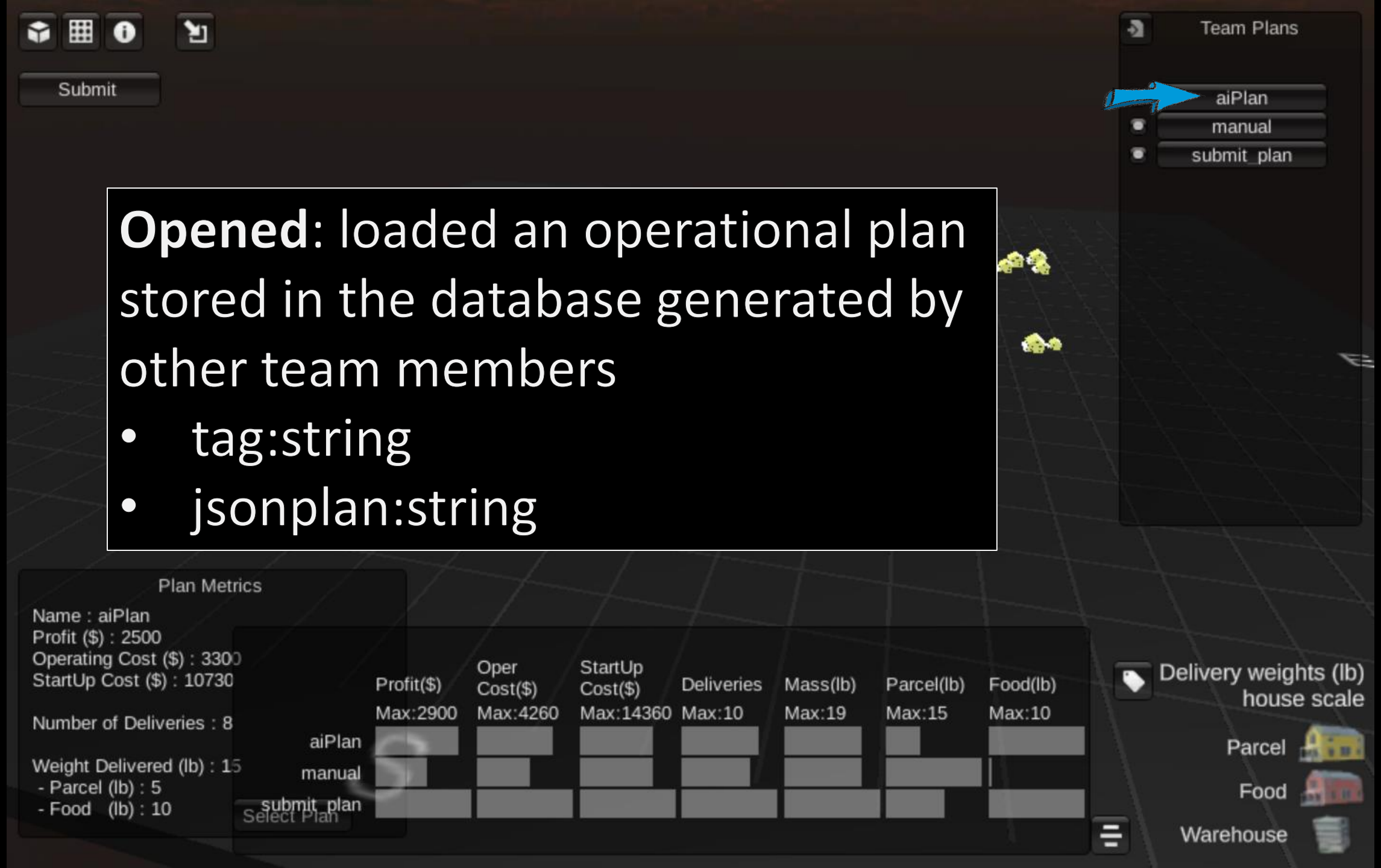
- id:int

SelectNode: User selected a house

- locationIndex:int
- selected:bool
- jsonplan:string

SubmitScenario: User submits the scenario to the database





Opened: loaded an operational plan stored in the database generated by other team members

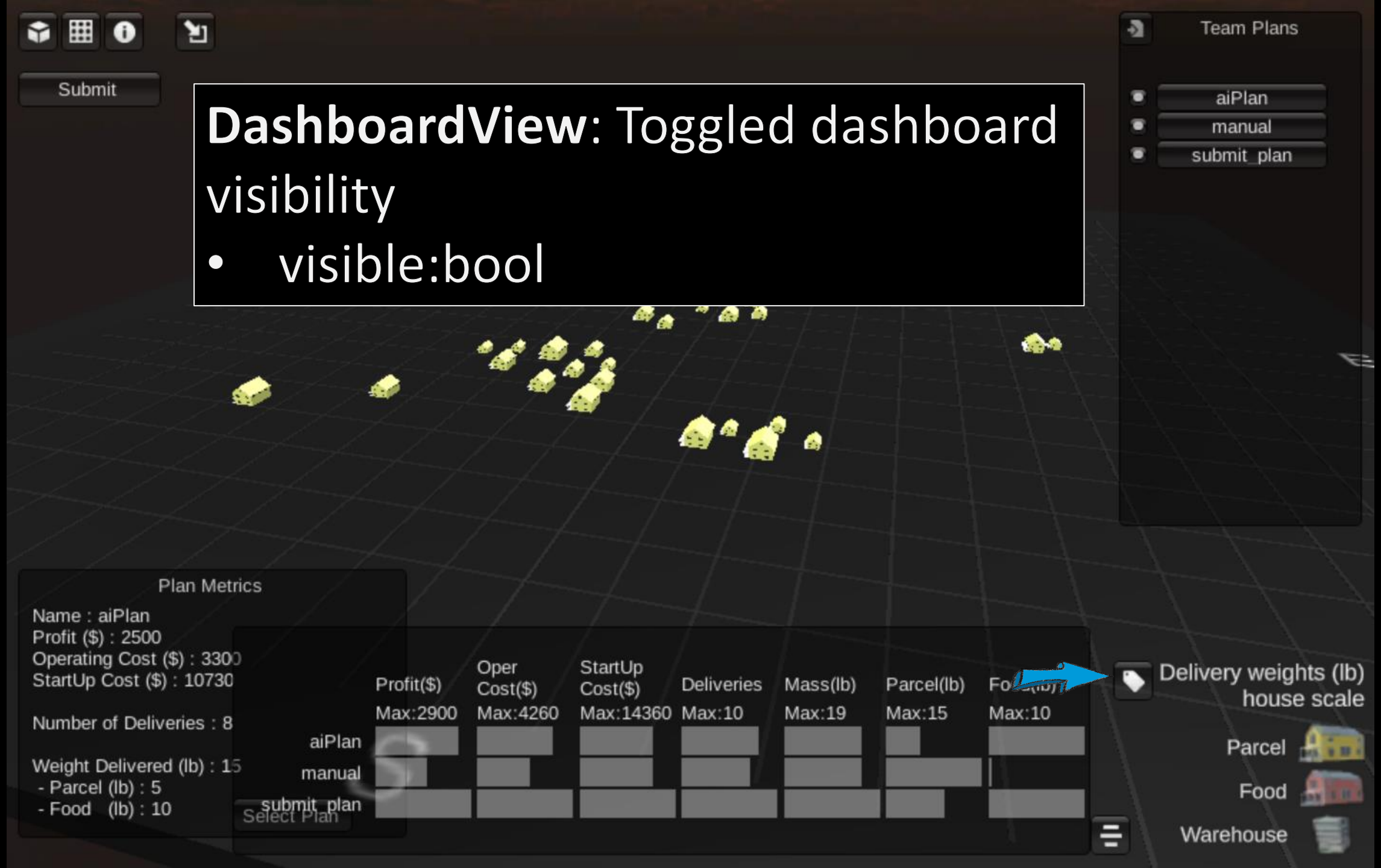
- tag:string
- jsonplan:string

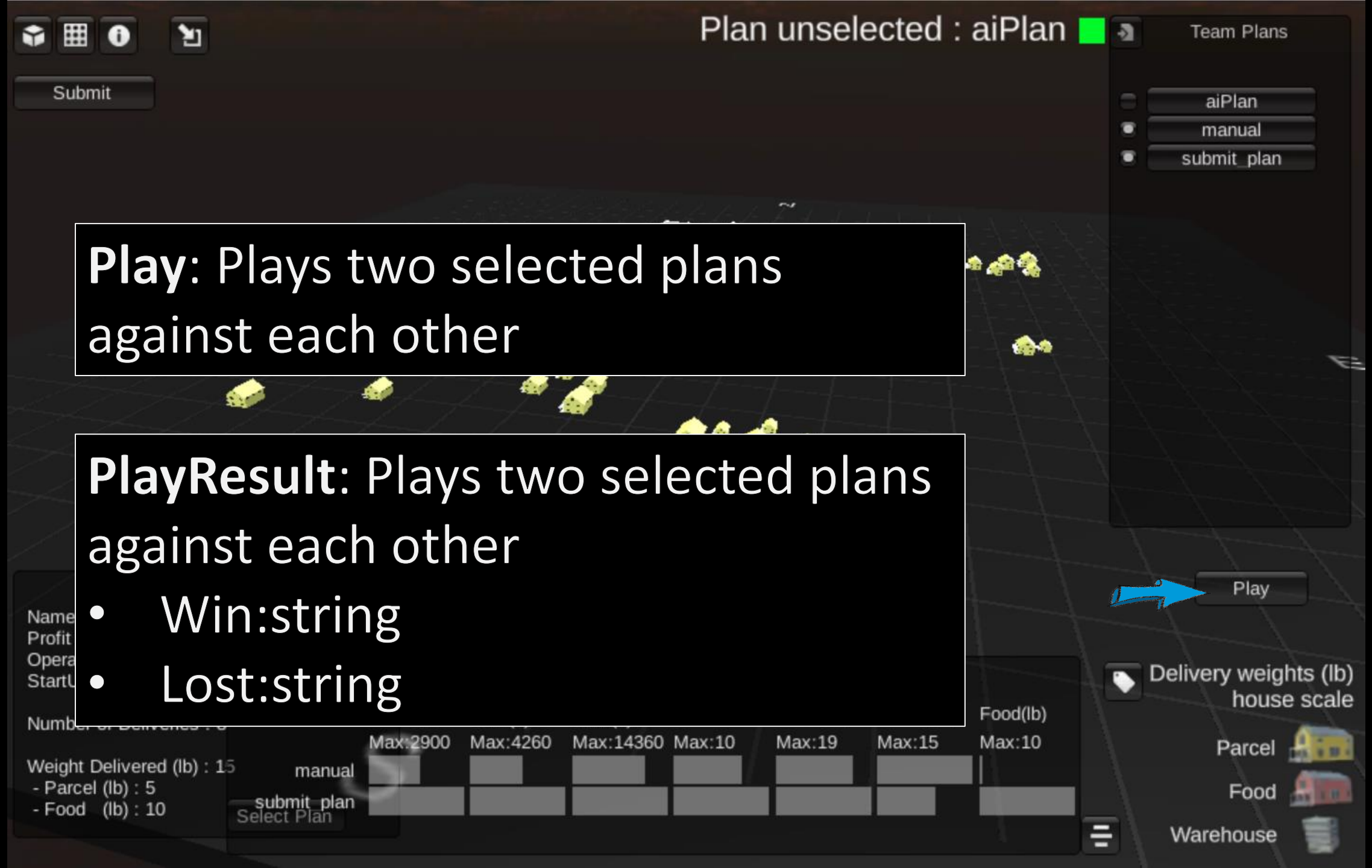
SelectedPlan: Highlight a plan of interest and display in dashboard

- tag:string
- Selected:bool

DashboardView: Toggled dashboard visibility

- visible:bool



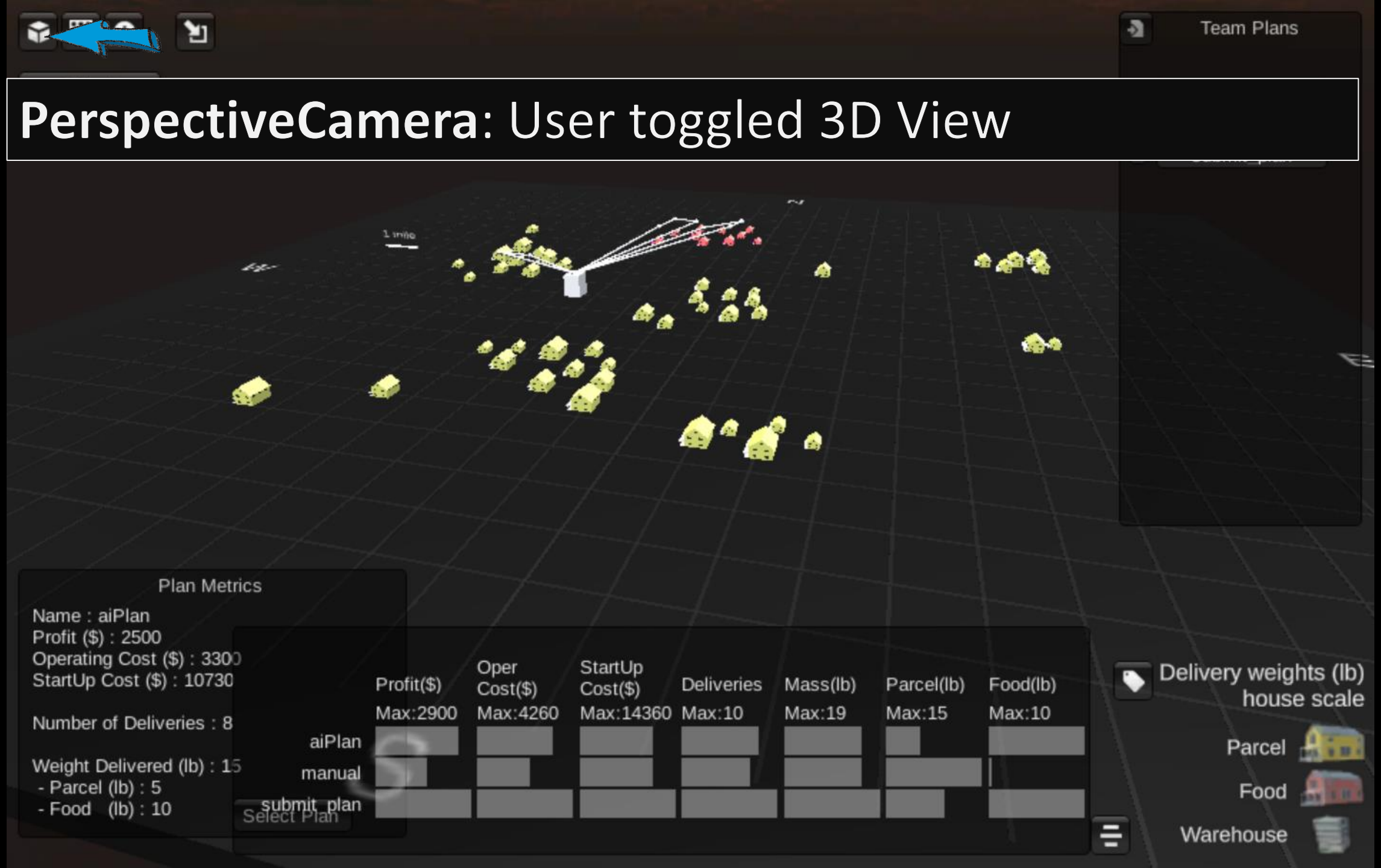


Play: Plays two selected plans against each other

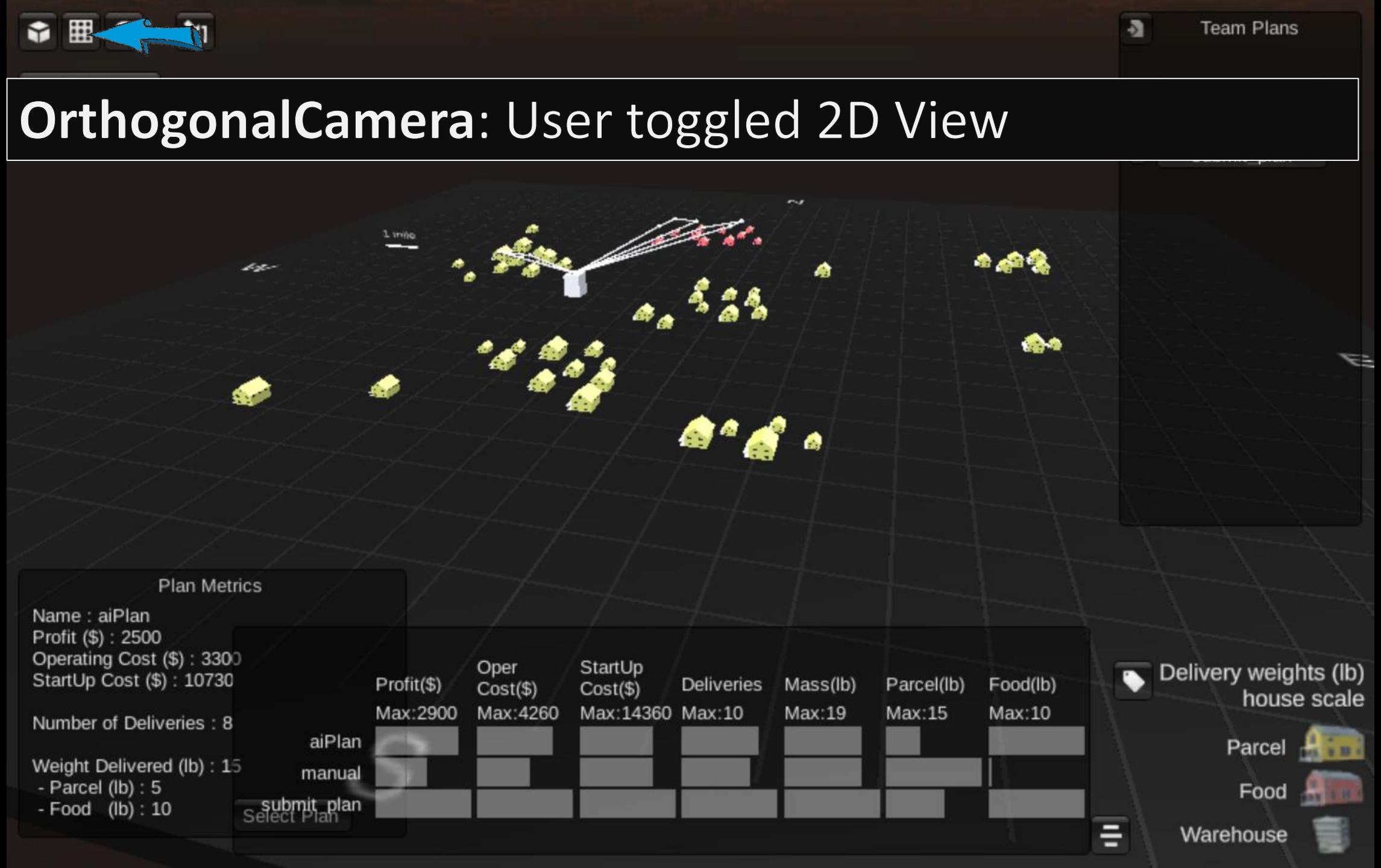
PlayResult: Plays two selected plans against each other

- Win:string
- Lost:string

PerspectiveCamera: User toggled 3D View



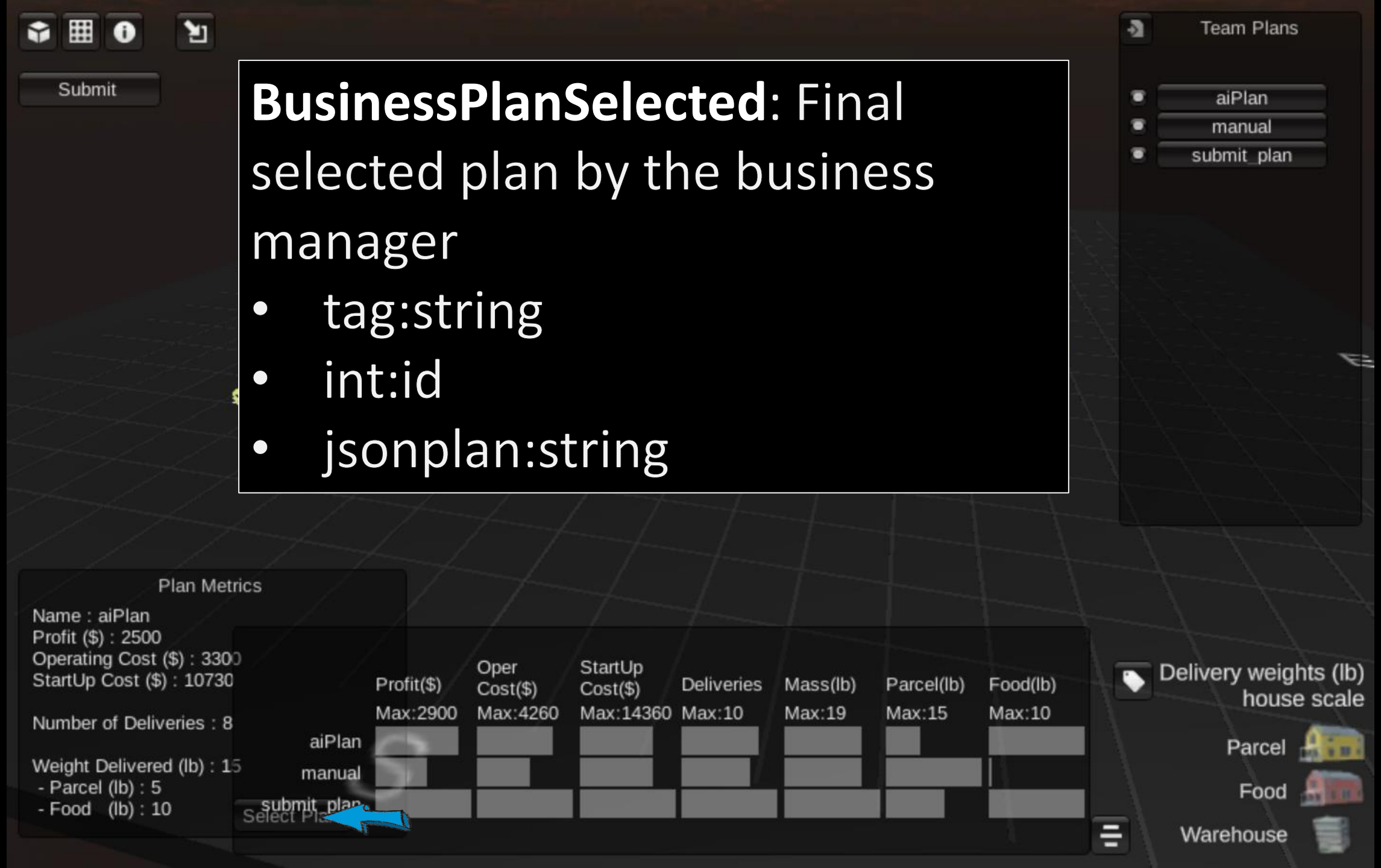
OrthogonalCamera: User toggled 2D View



LoadPlansDatabase: Load plans from the central database

BusinessPlanSelected: Final selected plan by the business manager

- tag:string
- int:id
- jsonplan:string

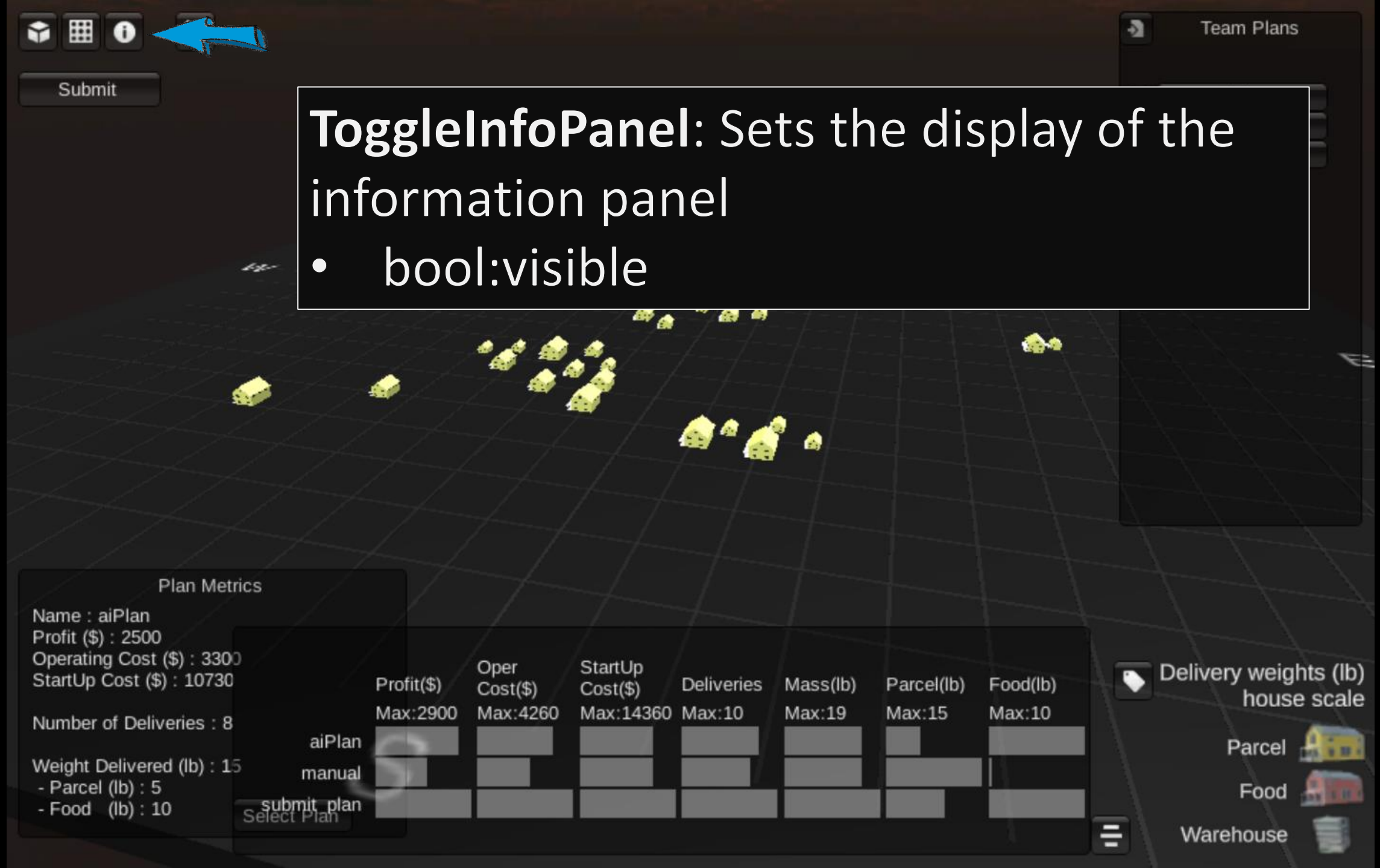


ServerMessage: Logs messages returned from the server

- result:string

ToggleWeightIcons: Displays weight labels about the houses

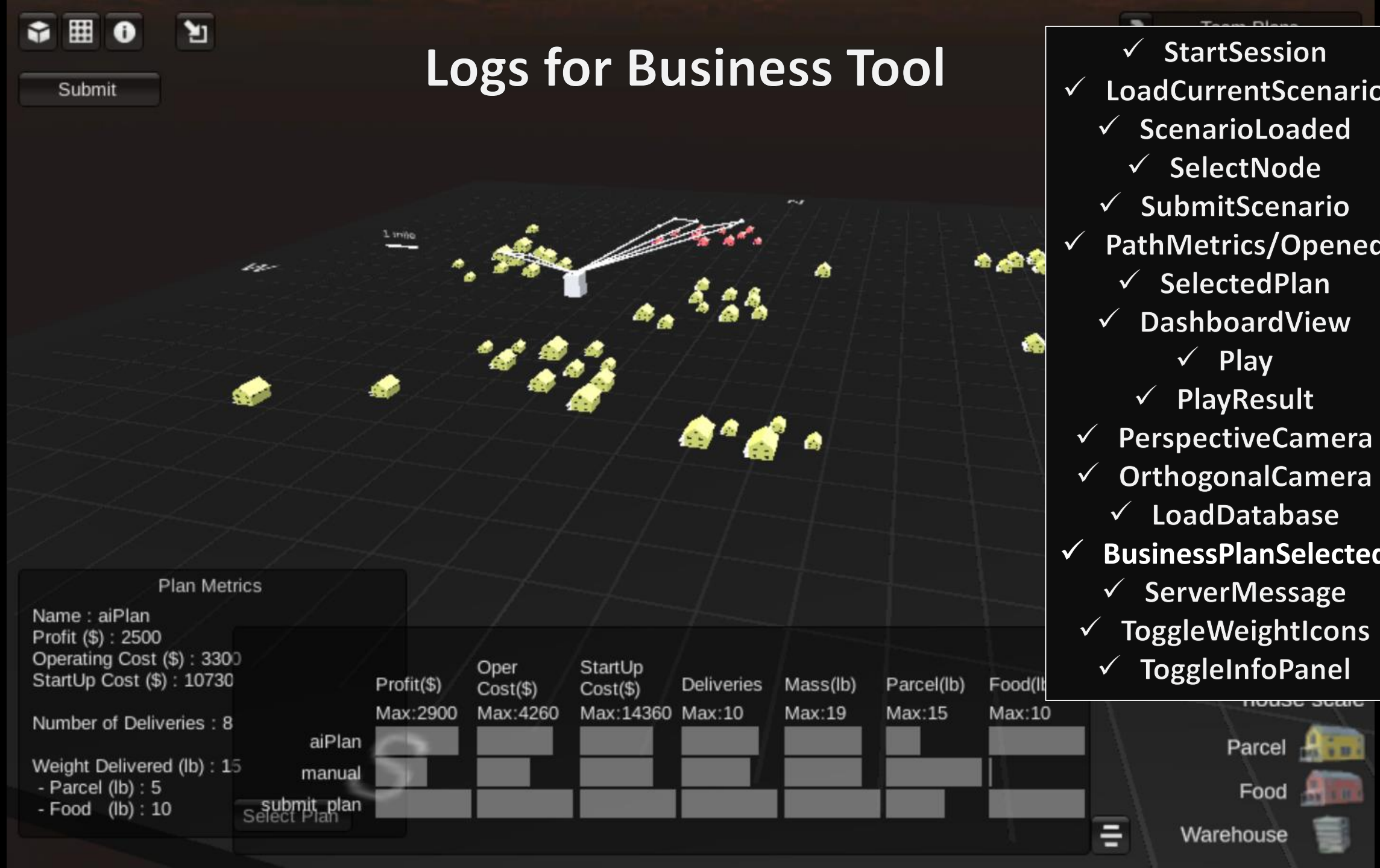
- bool:visible



ToggleInfoPanel: Sets the display of the information panel

- bool:visible

Logs for Business Tool



- ✓ StartSession
- ✓ LoadCurrentScenario
- ✓ ScenarioLoaded
- ✓ SelectNode
- ✓ SubmitScenario
- ✓ PathMetrics/Opened
- ✓ SelectedPlan
- ✓ DashboardView
- ✓ Play
- ✓ PlayResult
- ✓ PerspectiveCamera
- ✓ OrthogonalCamera
- ✓ LoadDatabase
- ✓ **BusinessPlanSelected**
- ✓ ServerMessage
- ✓ ToggleWeightIcons
- ✓ ToggleInfoPanel

Description of Scenario/ Operational Plan Configurations in Log Data

Json Format

Plan

Scenario

- Tag
- Version
- Warehouse
  - Address
    - X
    - Z
- Customers
  - Payload
  - Weight
  - Selected
  - Address
    - X
    - Z
- Paths
  - Vehicle
    - Config
    - Range
    - Velocity
    - Cost
    - Payload
  - Customers
    - Payload
    - Weight
    - Selected
    - Address
      - X
      - Z