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"},

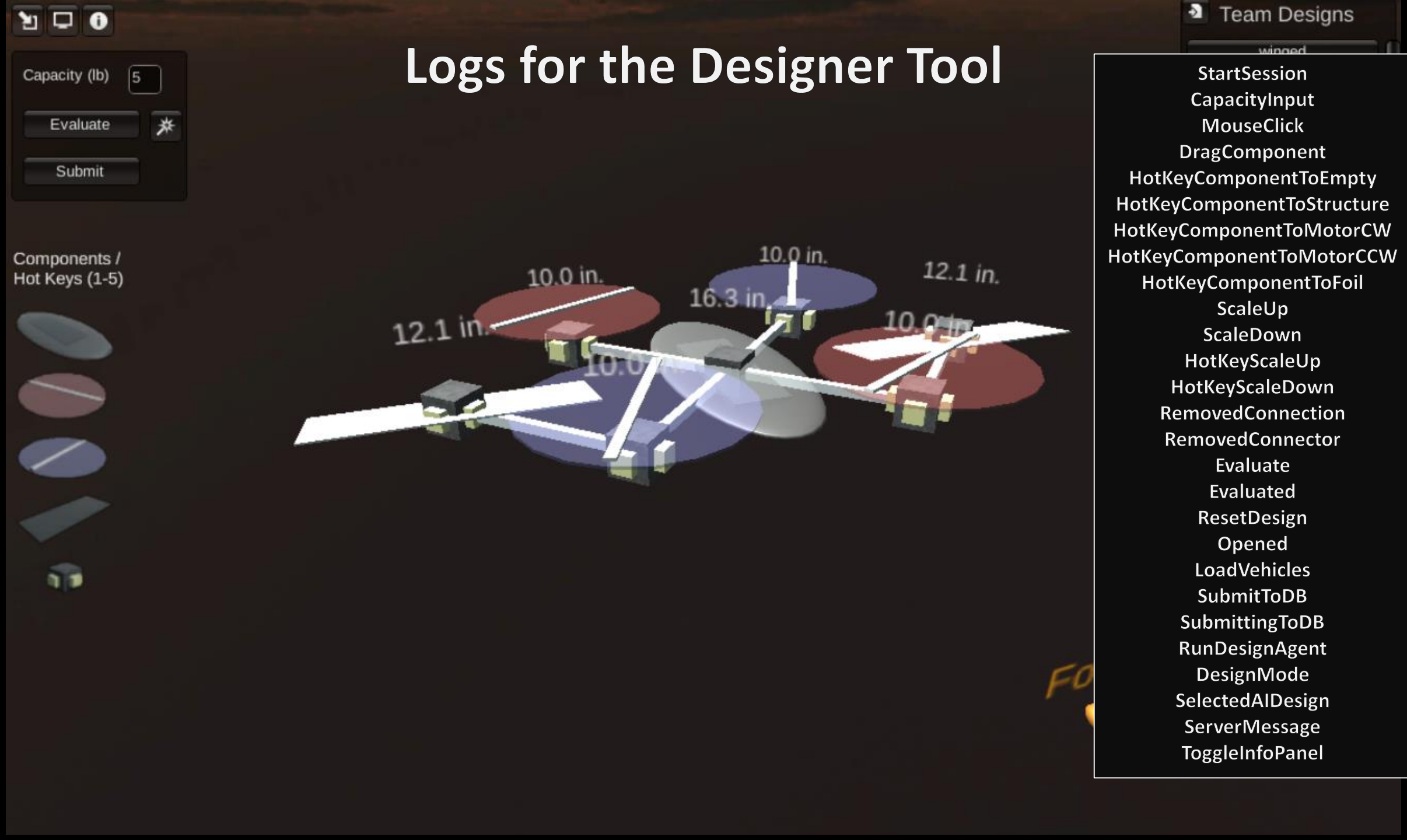
{"id":1686,"user":"user4","team":"Jan10","action":"designer;Evaluate;*aMM0++*bNM2++*cMN1++*dLM2++*eML1++^ab^ac^ad^ae,5,3","time":"2020-01-10T20:15:59.734896Z"},

{"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

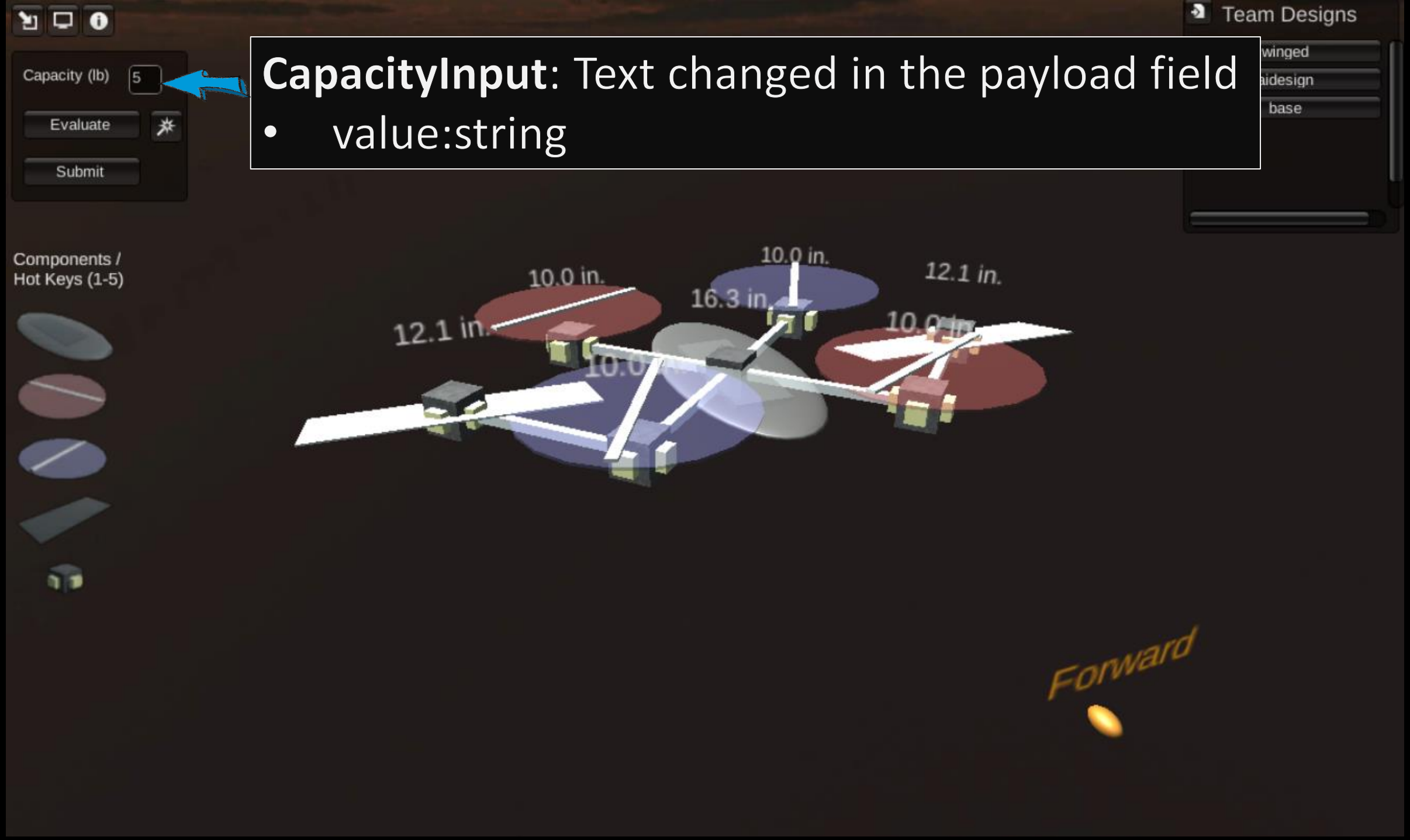


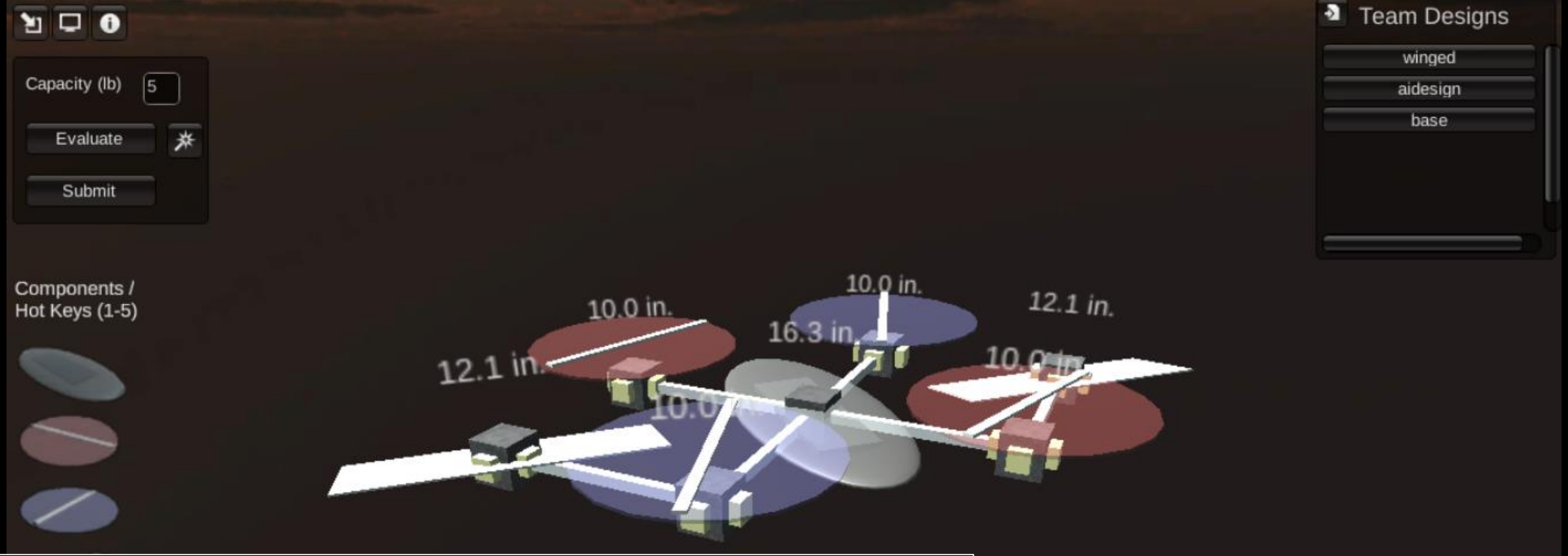
StartSession
CapacityInput
MouseClick
DragComponent
HotKeyComponentToEmpty
HotKeyComponentToStructure
HotKeyComponentToMotorCW
HotKeyComponentToMotorCCW
HotKeyComponentToFoil
ScaleUp
ScaleDown
HotKeyScaleUp
HotKeyScaleDown
RemovedConnection
RemovedConnector
Evaluate
Evaluated
ResetDesign
Opened
LoadVehicles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

StartSession: Time the interface is started

CapacityInput: Text changed in the payload field

- value:string

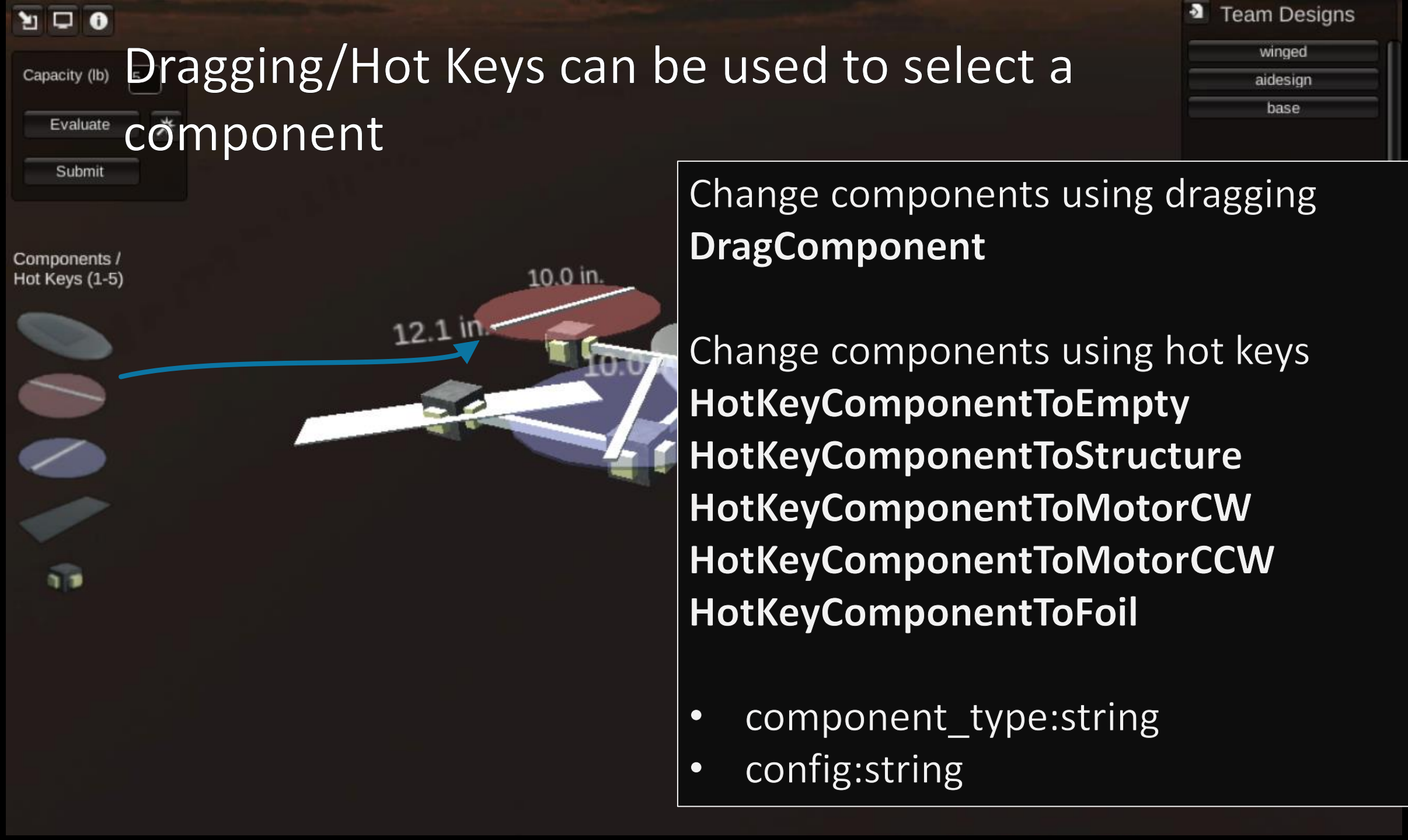




MouseClick: User performs a left-click to change a component or add to the assembly

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

Dragging/Hot Keys can be used to select a component



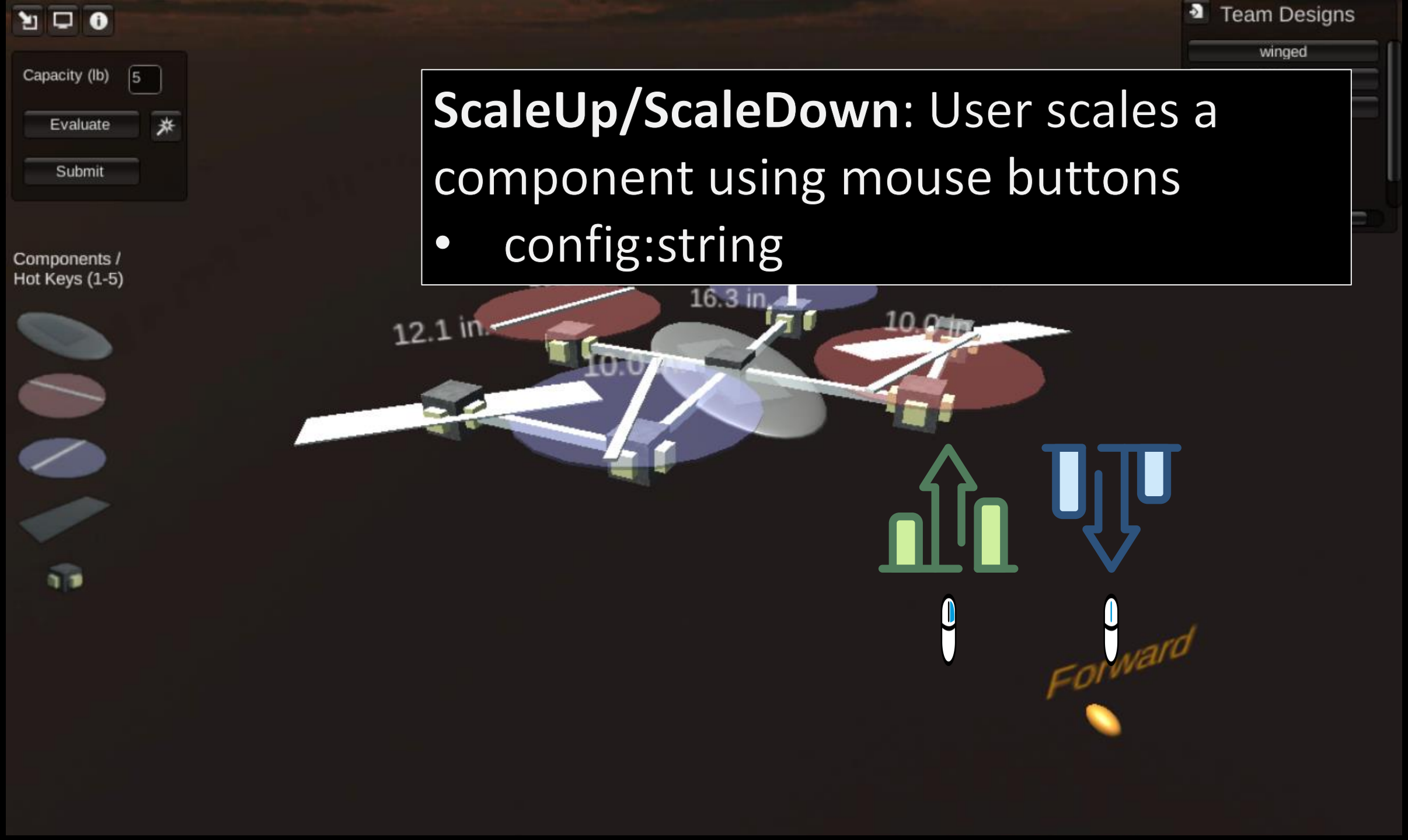
Change components using dragging
DragComponent

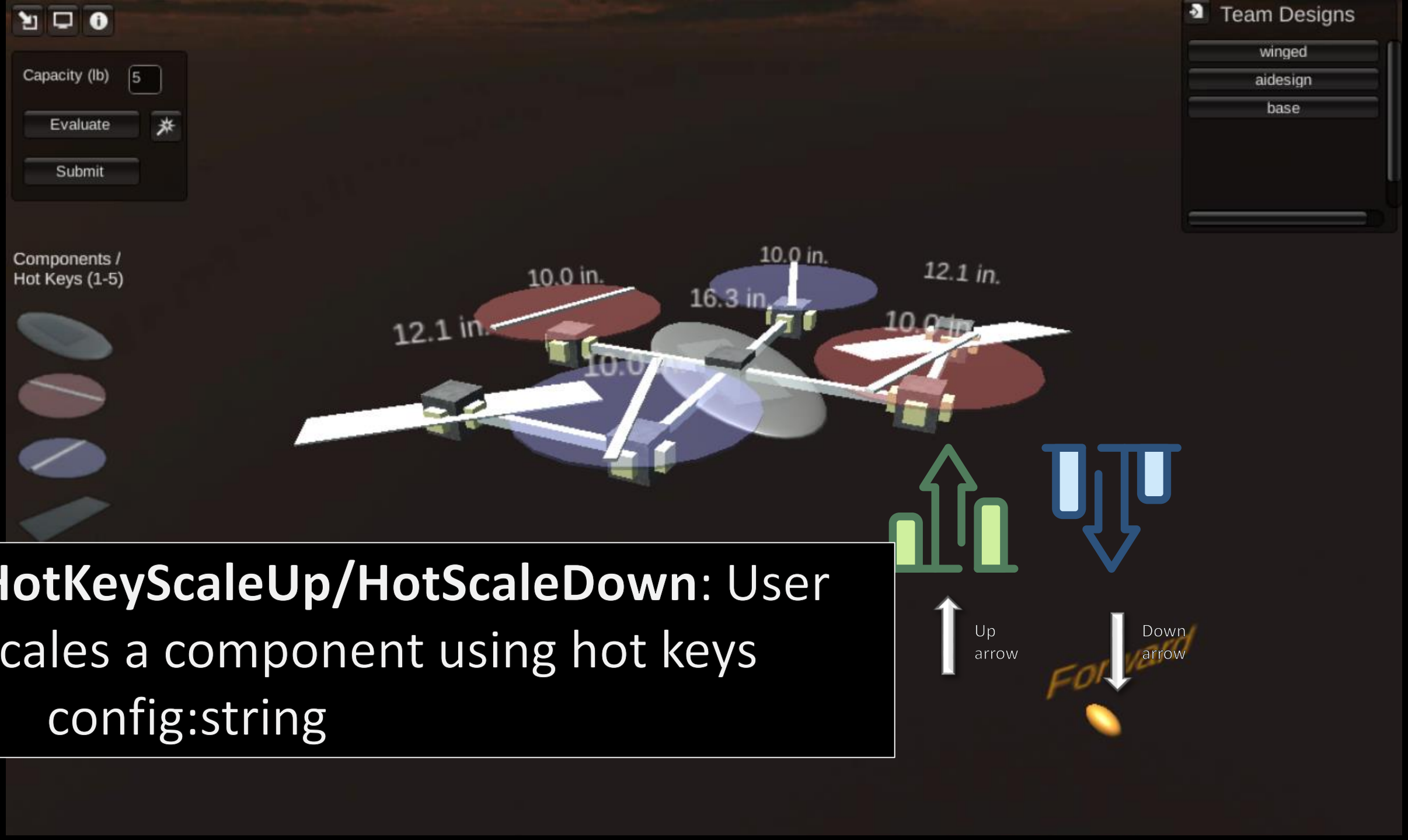
Change components using hot keys
HotKeyComponentToEmpty
HotKeyComponentToStructure
HotKeyComponentToMotorCW
HotKeyComponentToMotorCCW
HotKeyComponentToFoil

- component_type:string
- config:string

ScaleUp/ScaleDown: User scales a component using mouse buttons

- config:string

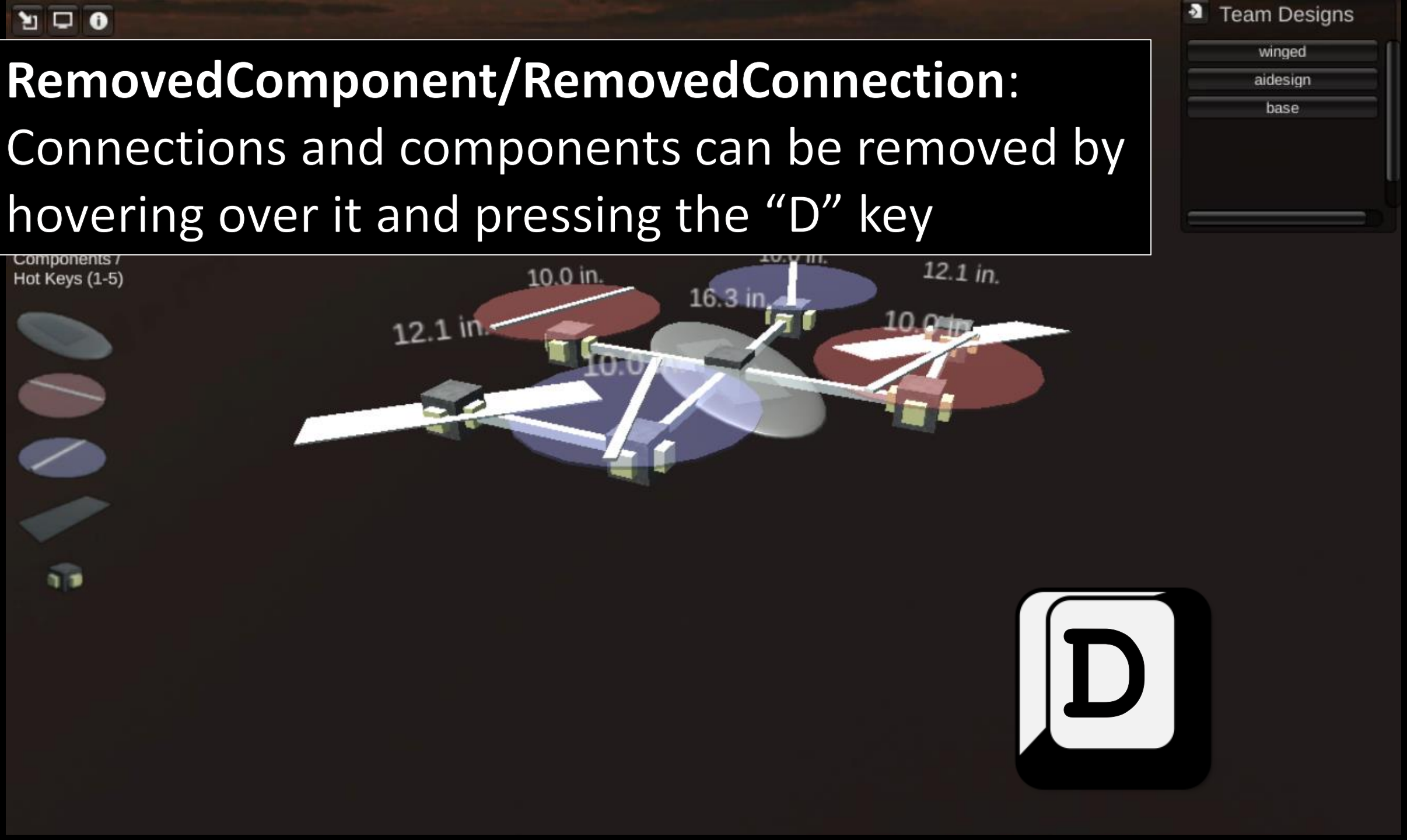


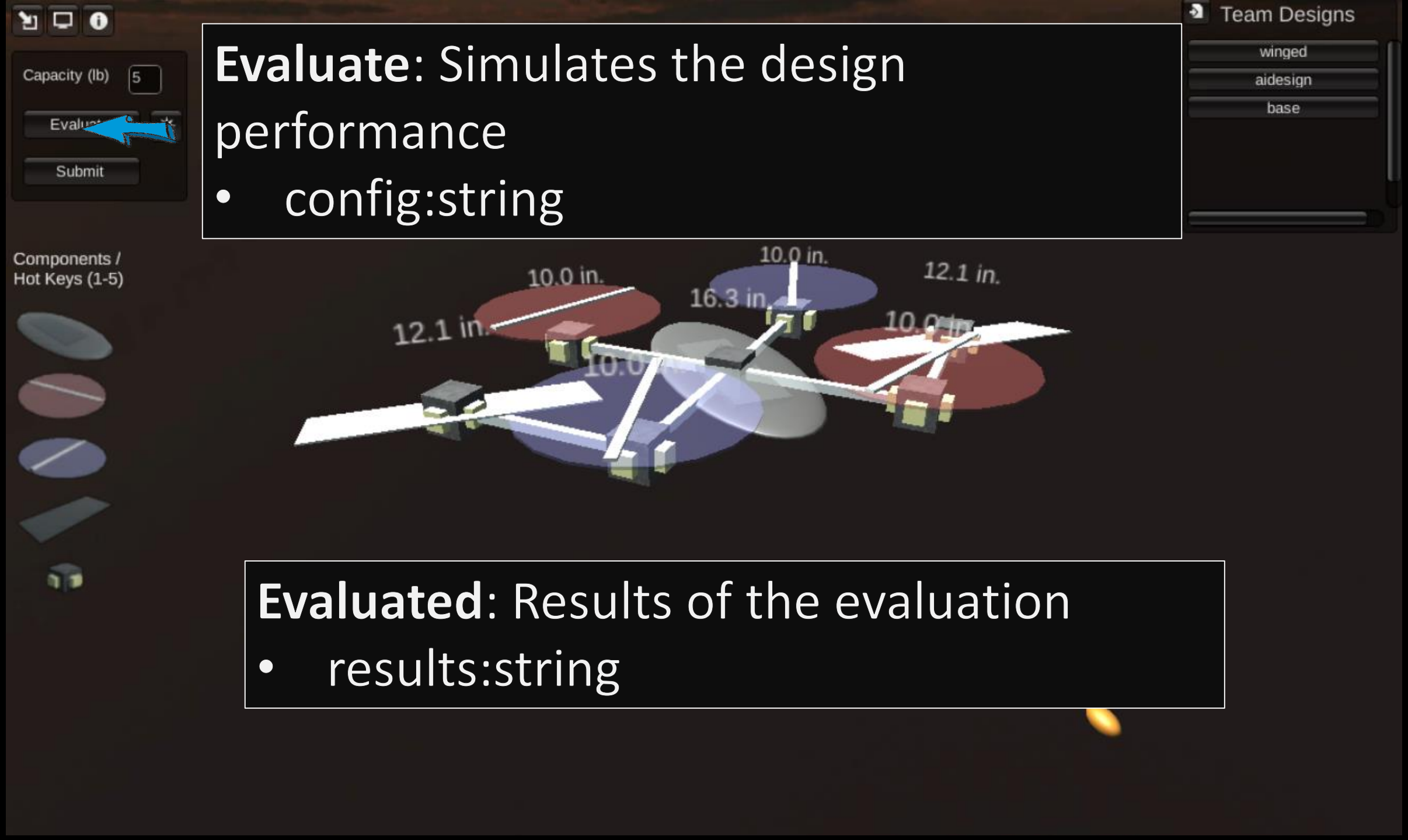


HotKeyScaleUp/HotScaleDown: User scales a component using hot keys

- config:string

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





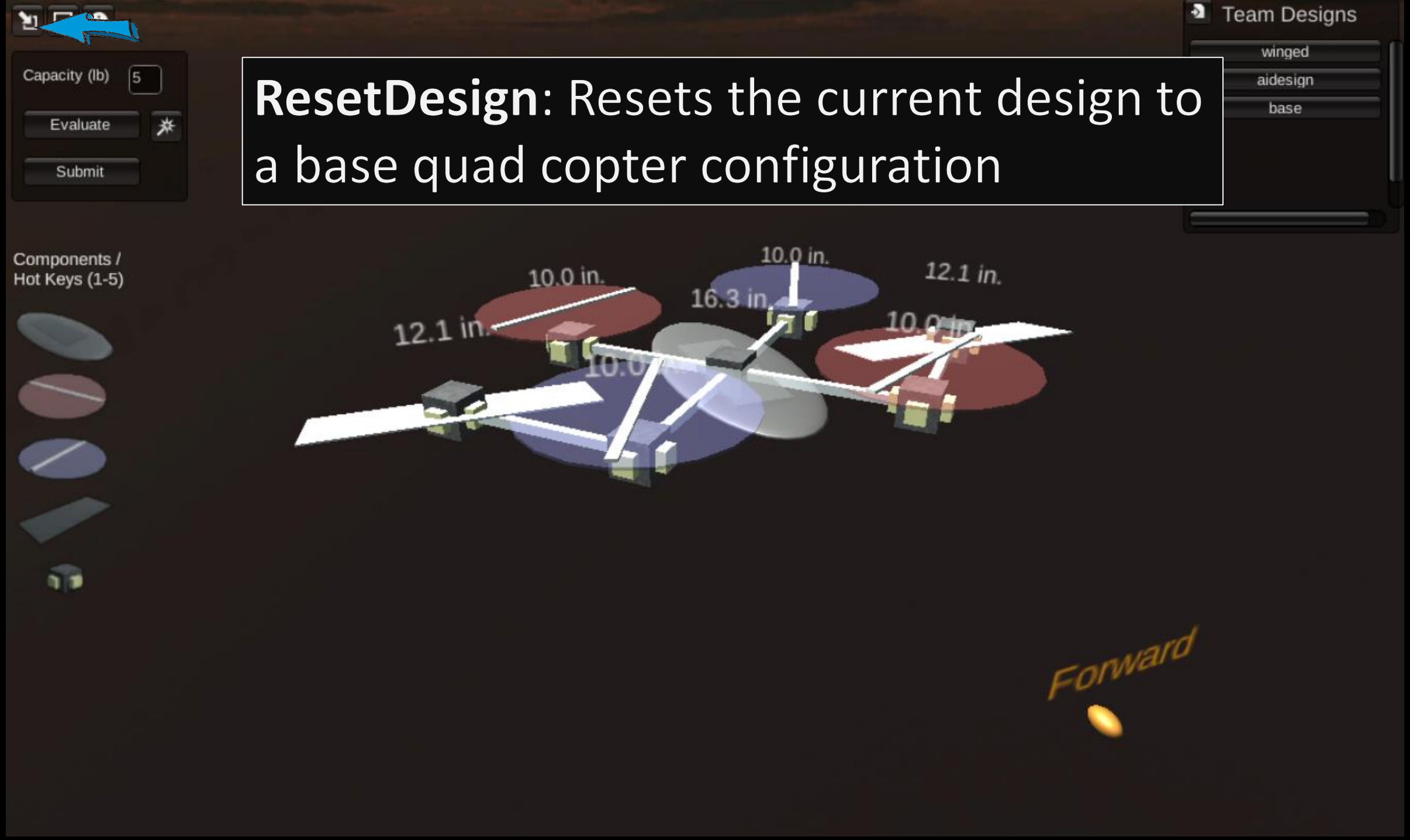
Evaluate: Simulates the design performance

- config:string

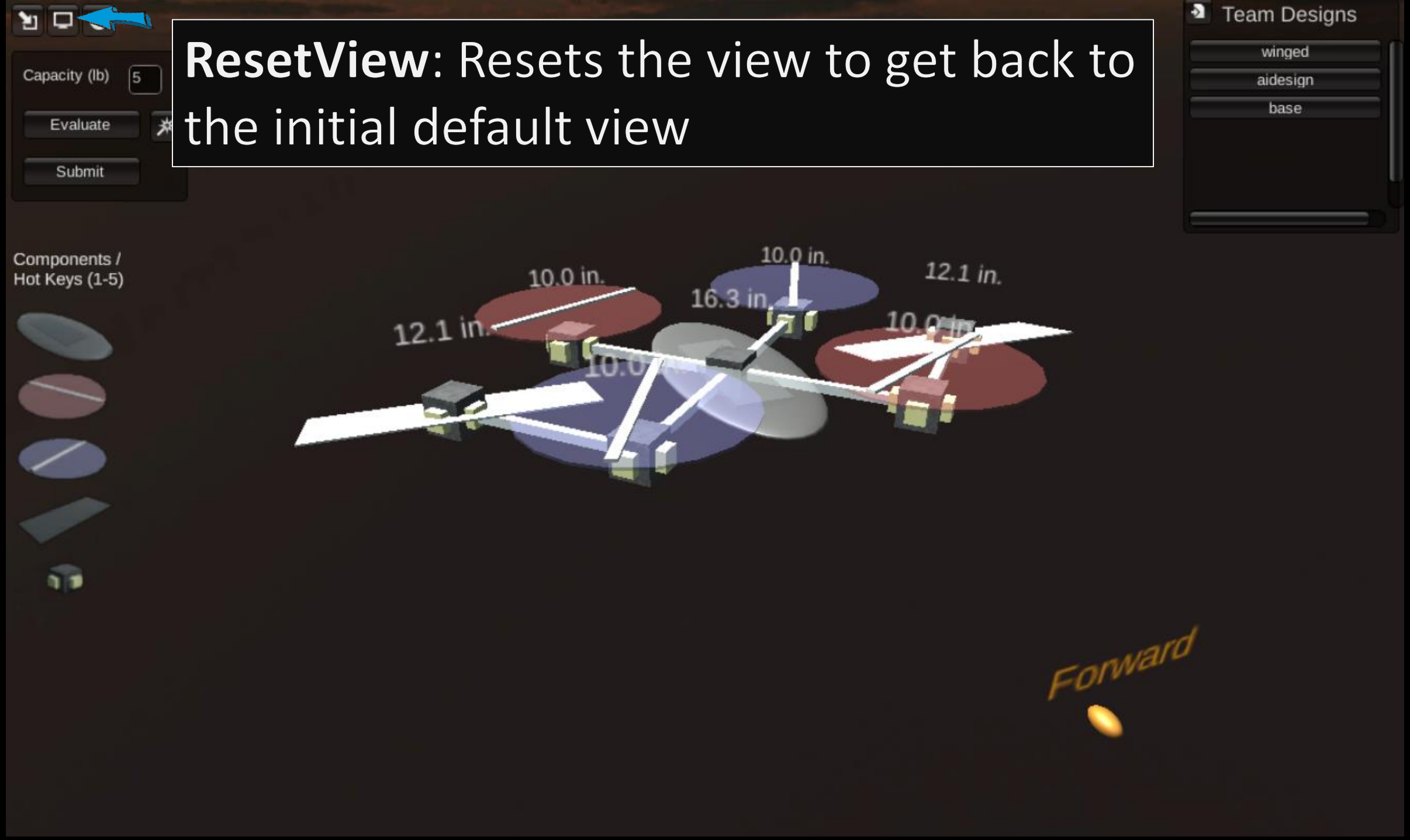
Evaluated: Results of the evaluation

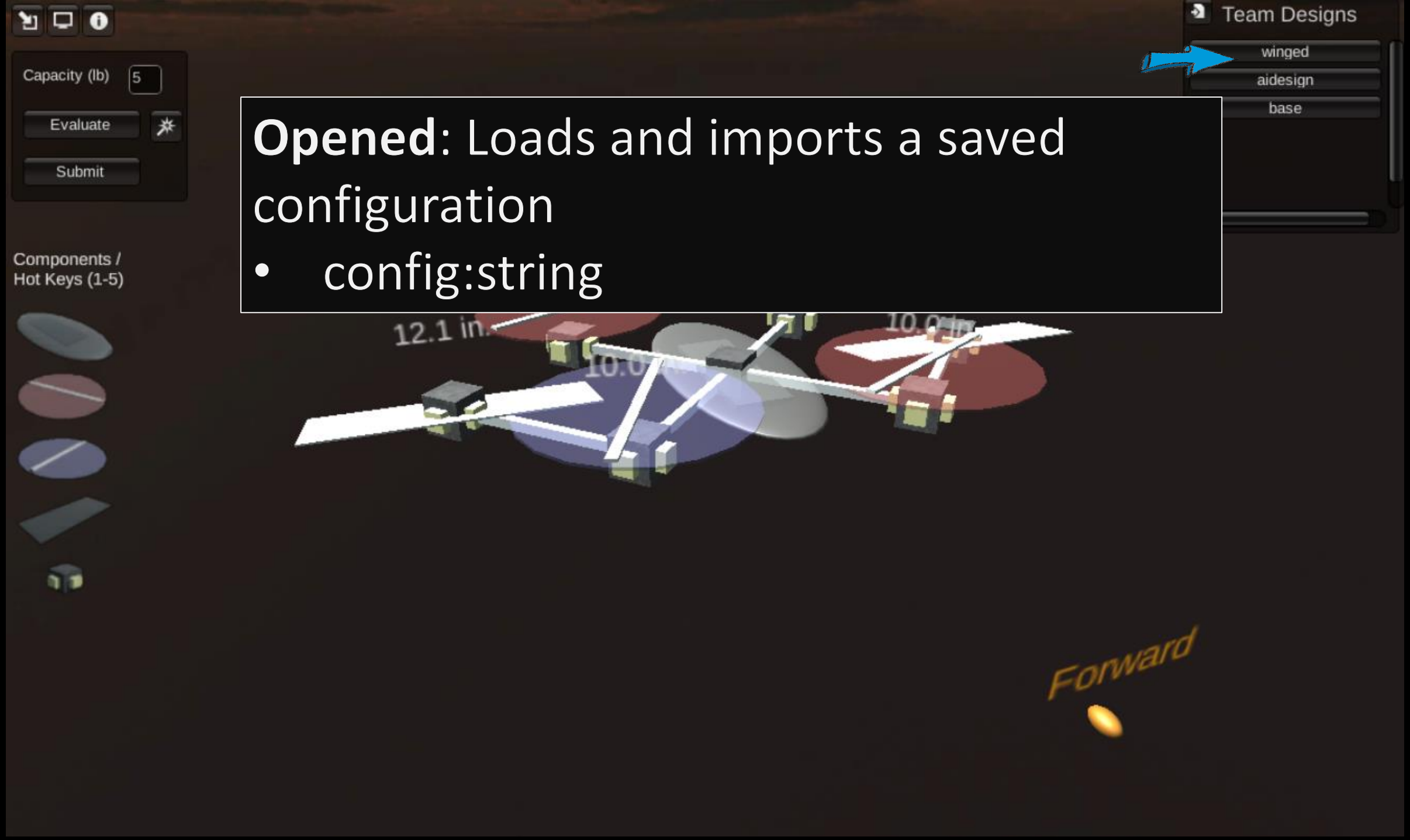
- results:string

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



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

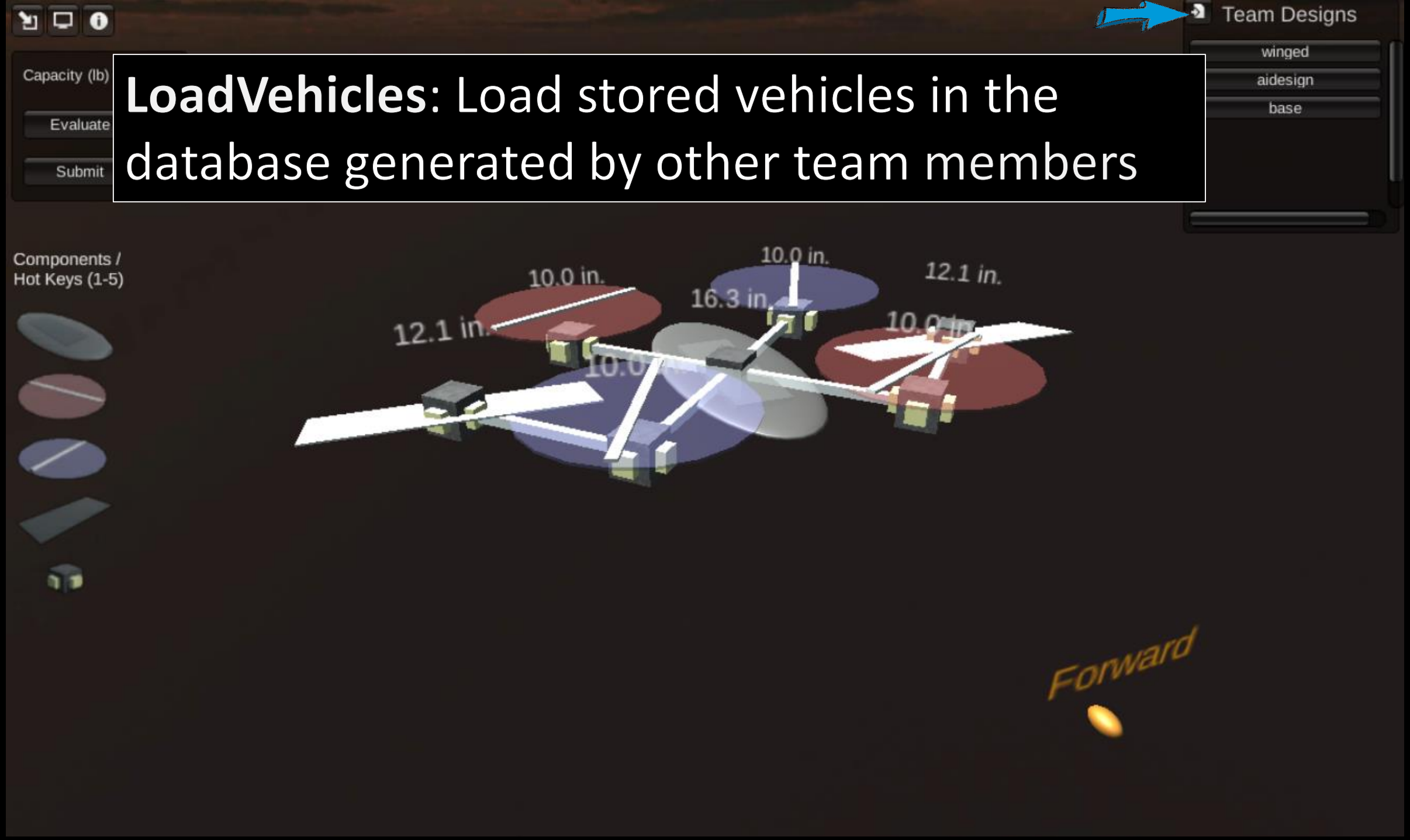


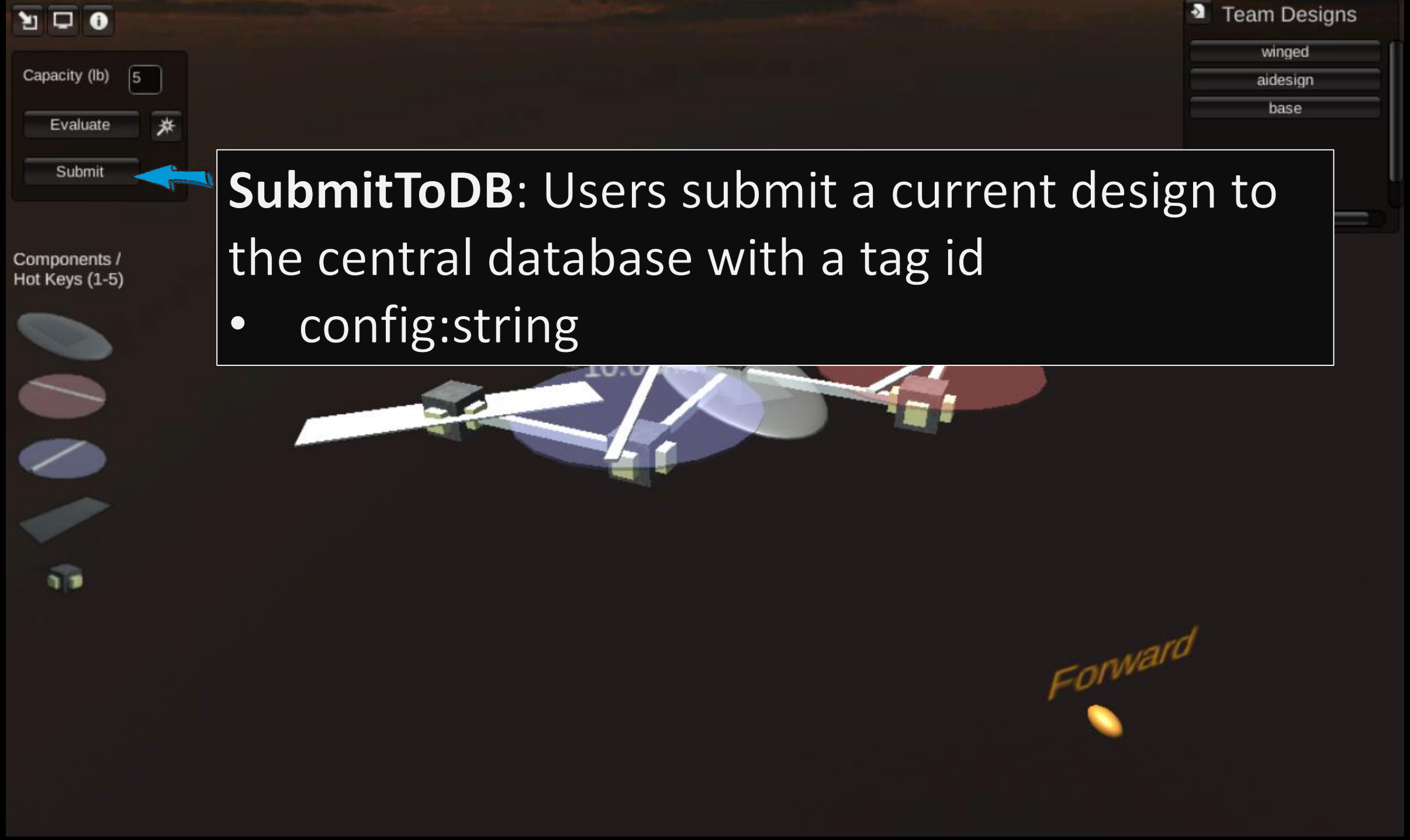


Opened: Loads and imports a saved configuration

- config:string

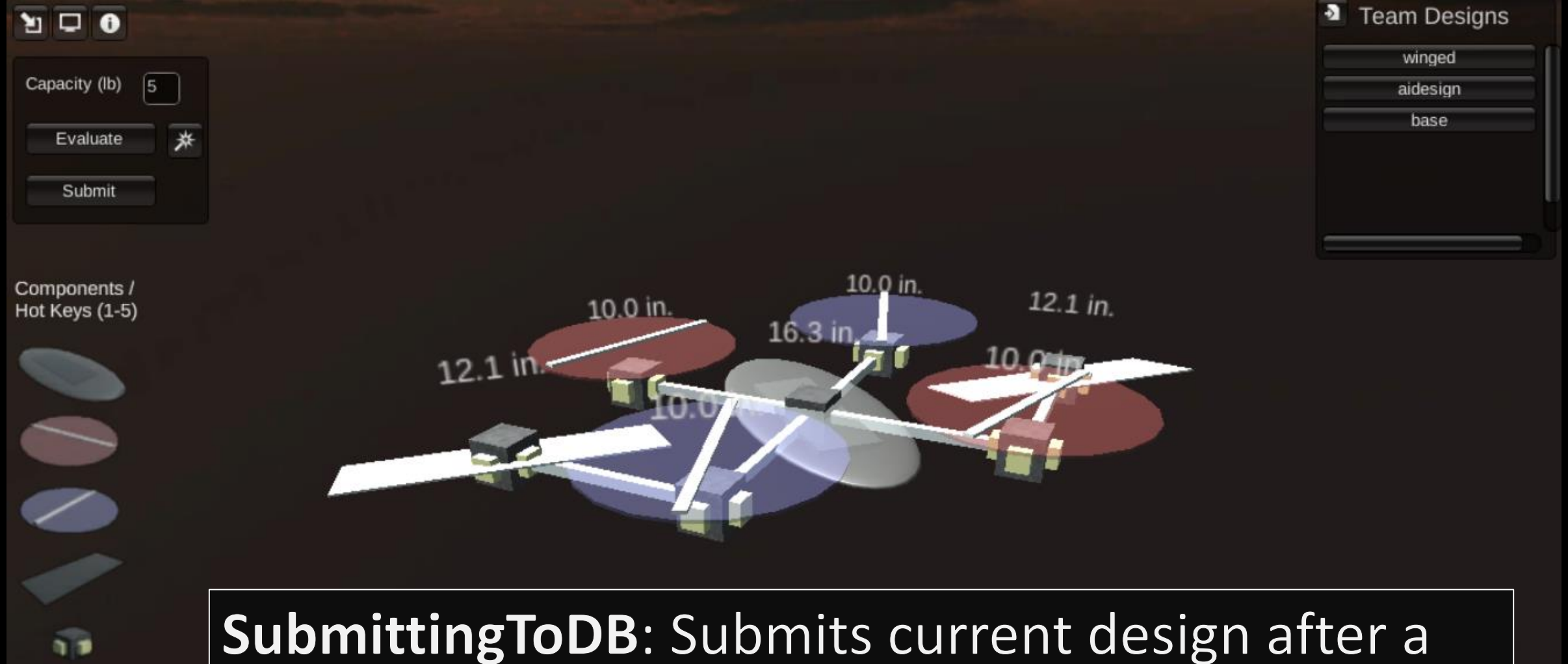
LoadVehicles: Load stored vehicles in the database generated by other team members





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

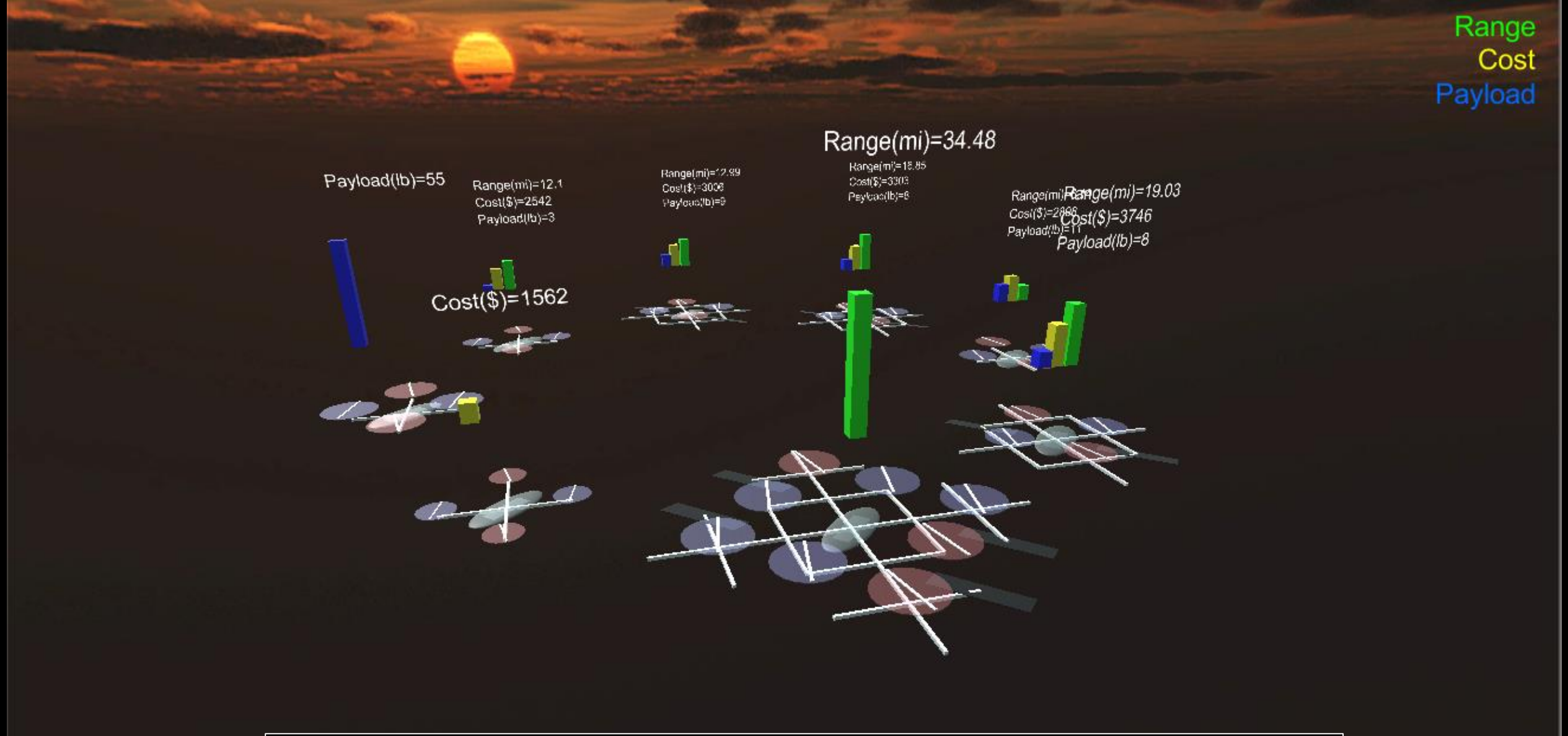
- config:string



SubmittingToDB: Submits current design after a successful evaluation

- config:string

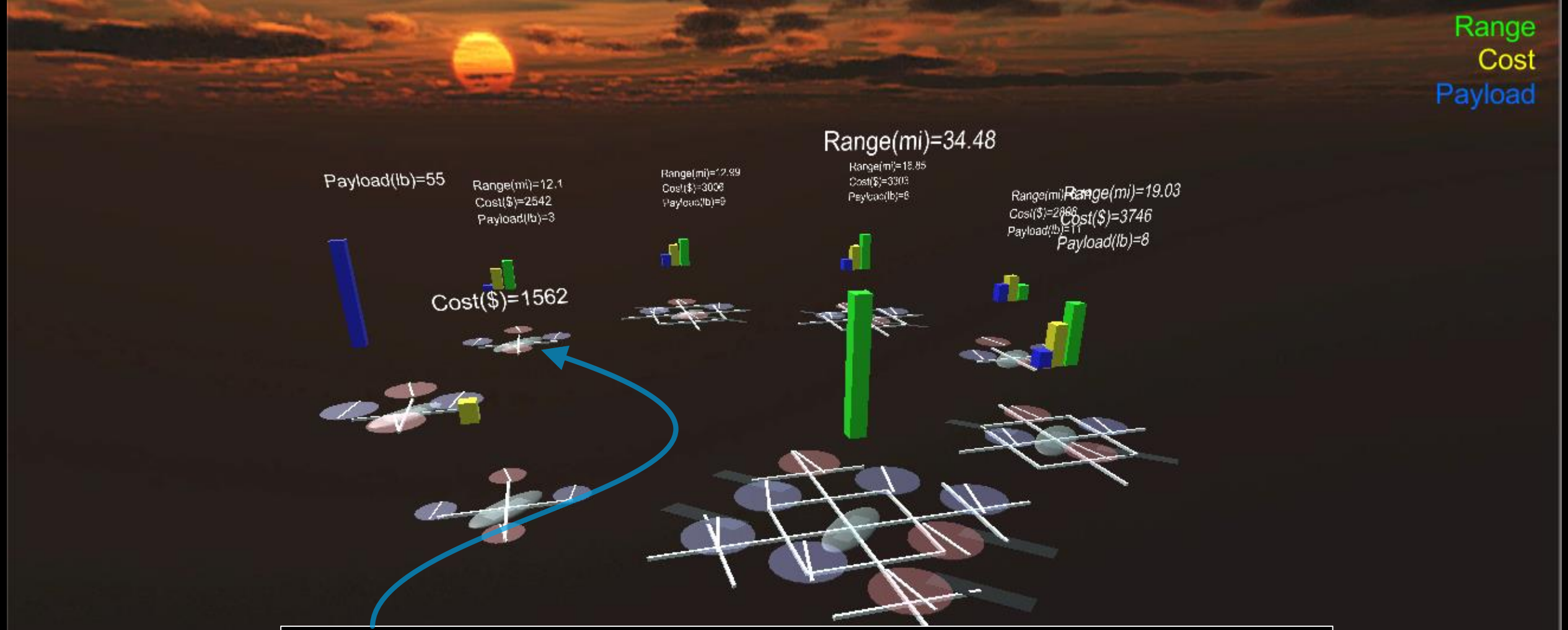
RunDesignAgent: Starts the Design Agent



Design Mode

DesignMode: Returns to Design Mode

>> size : 2



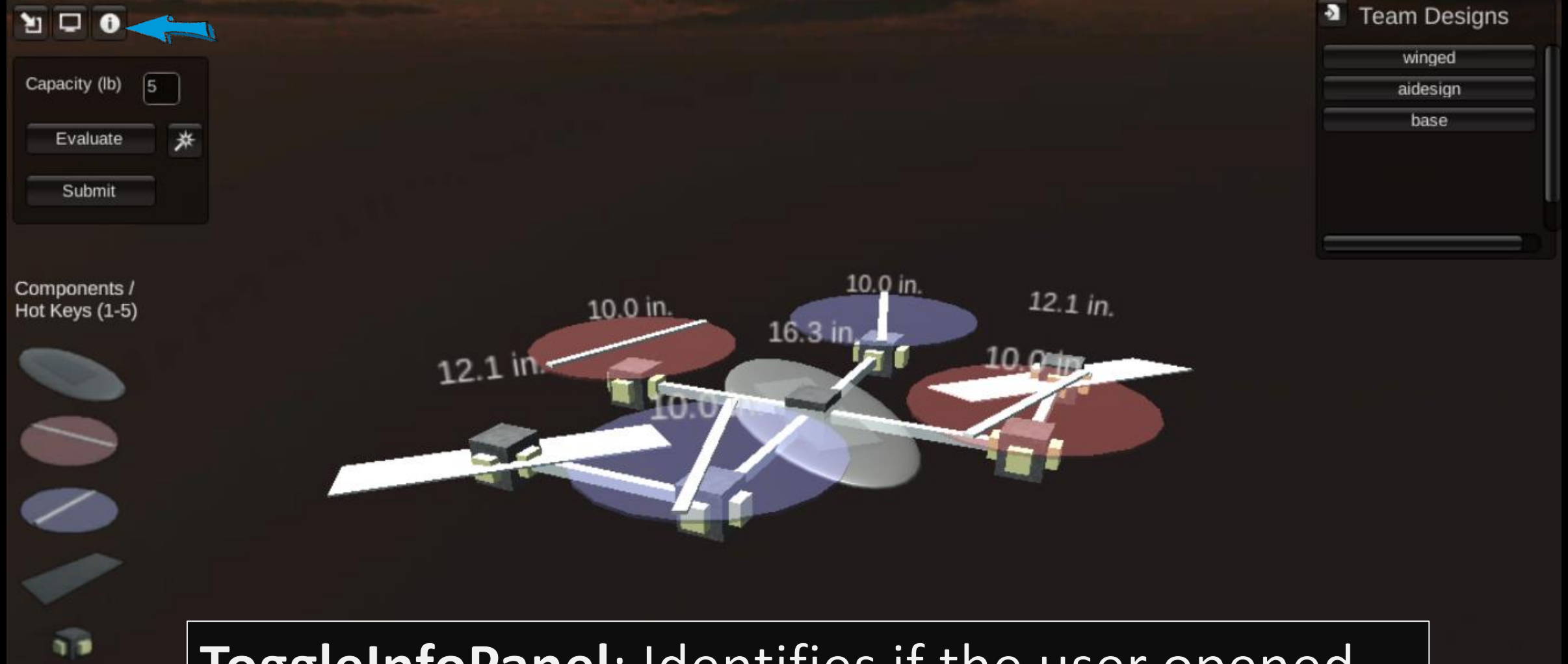
SelectedAIDesign: Selected a new design based on AI results

Design Mode

>> size : 2

ServerMessage: Logs messages returned from the server

- result:string



ToggleInfoPanel: Identifies if the user opened the help panel

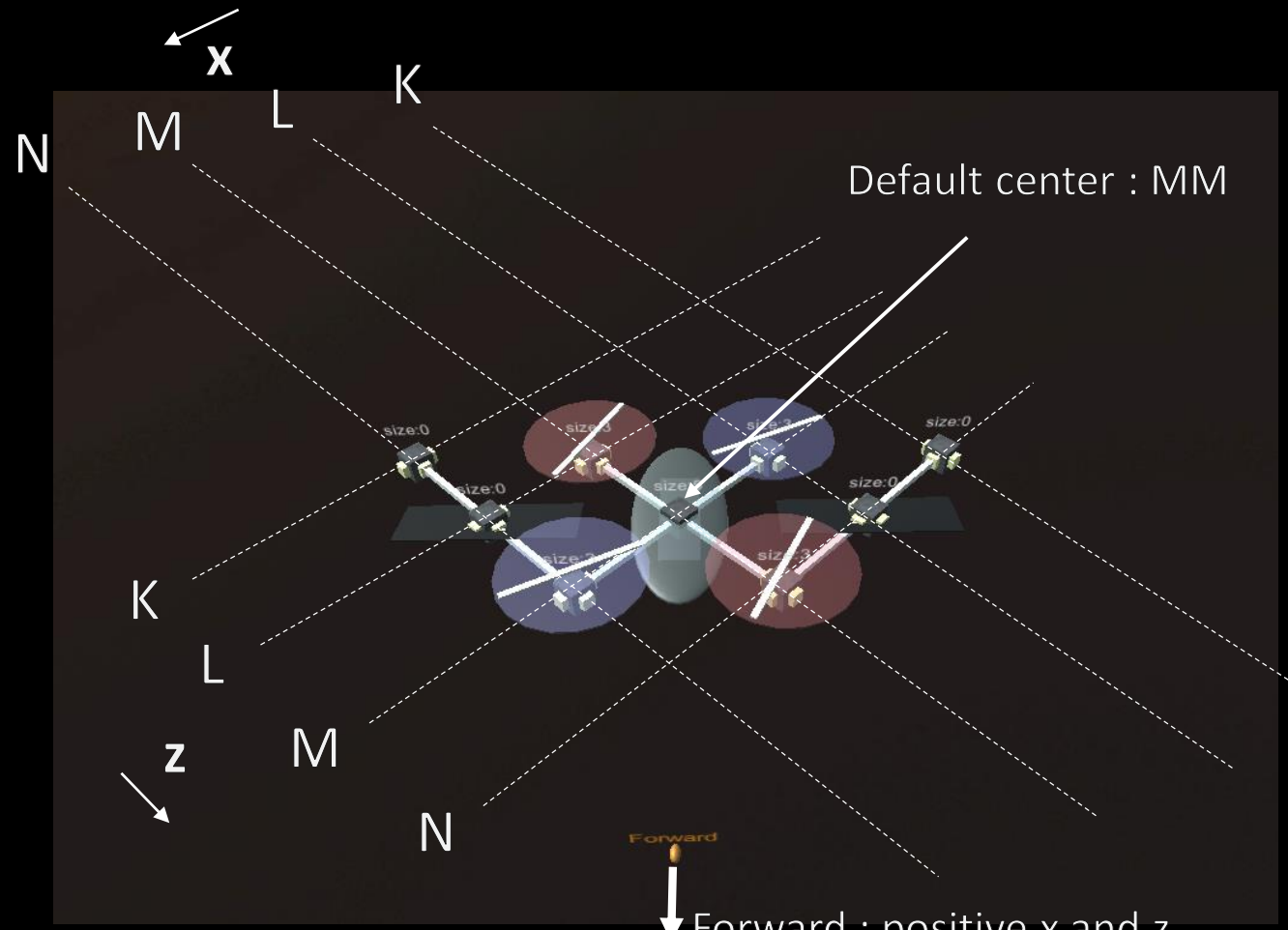
- bool:visible

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

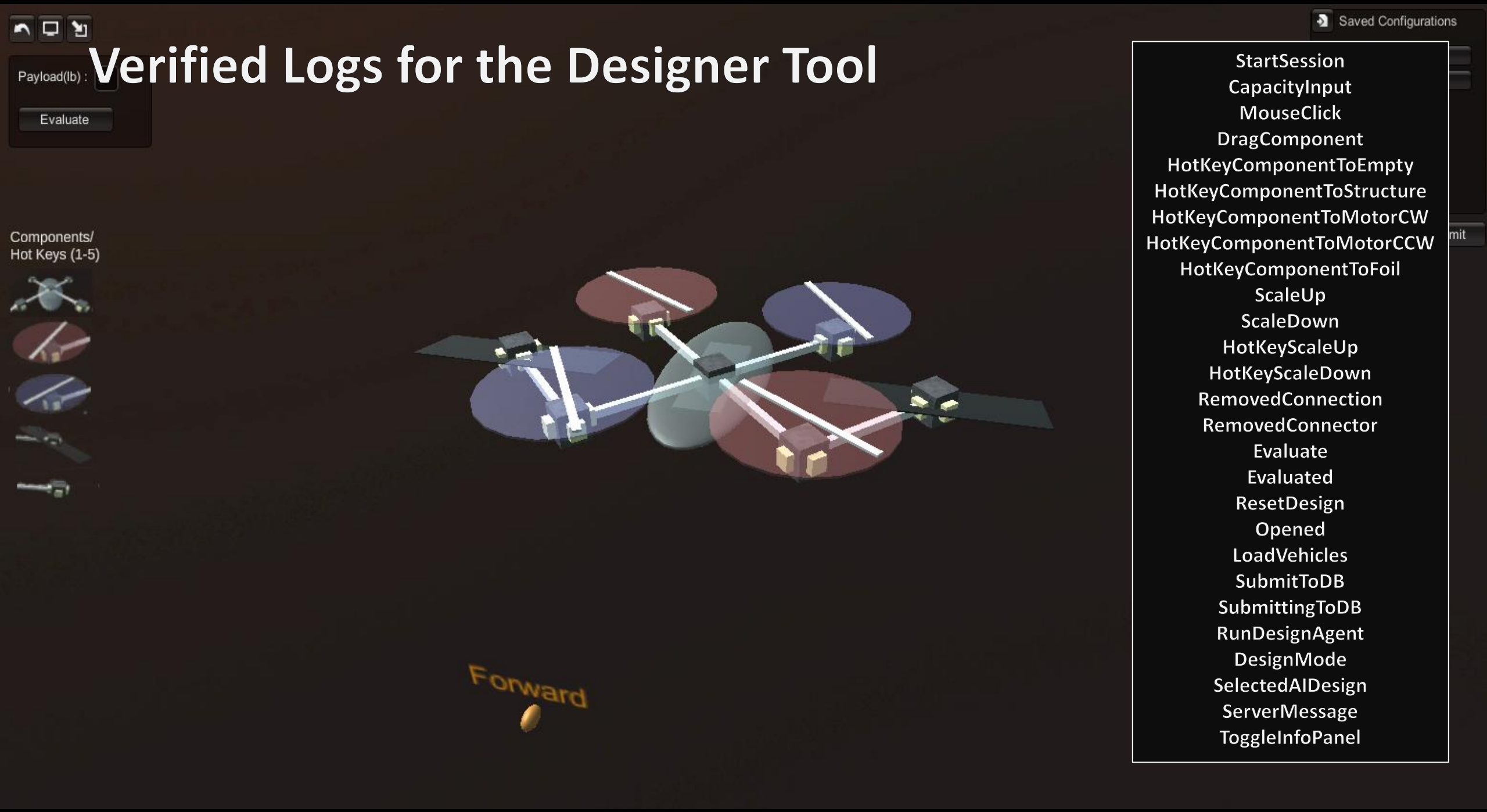
Edge (^) : ^cf

- c: first node
- f: second node

,5,3

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

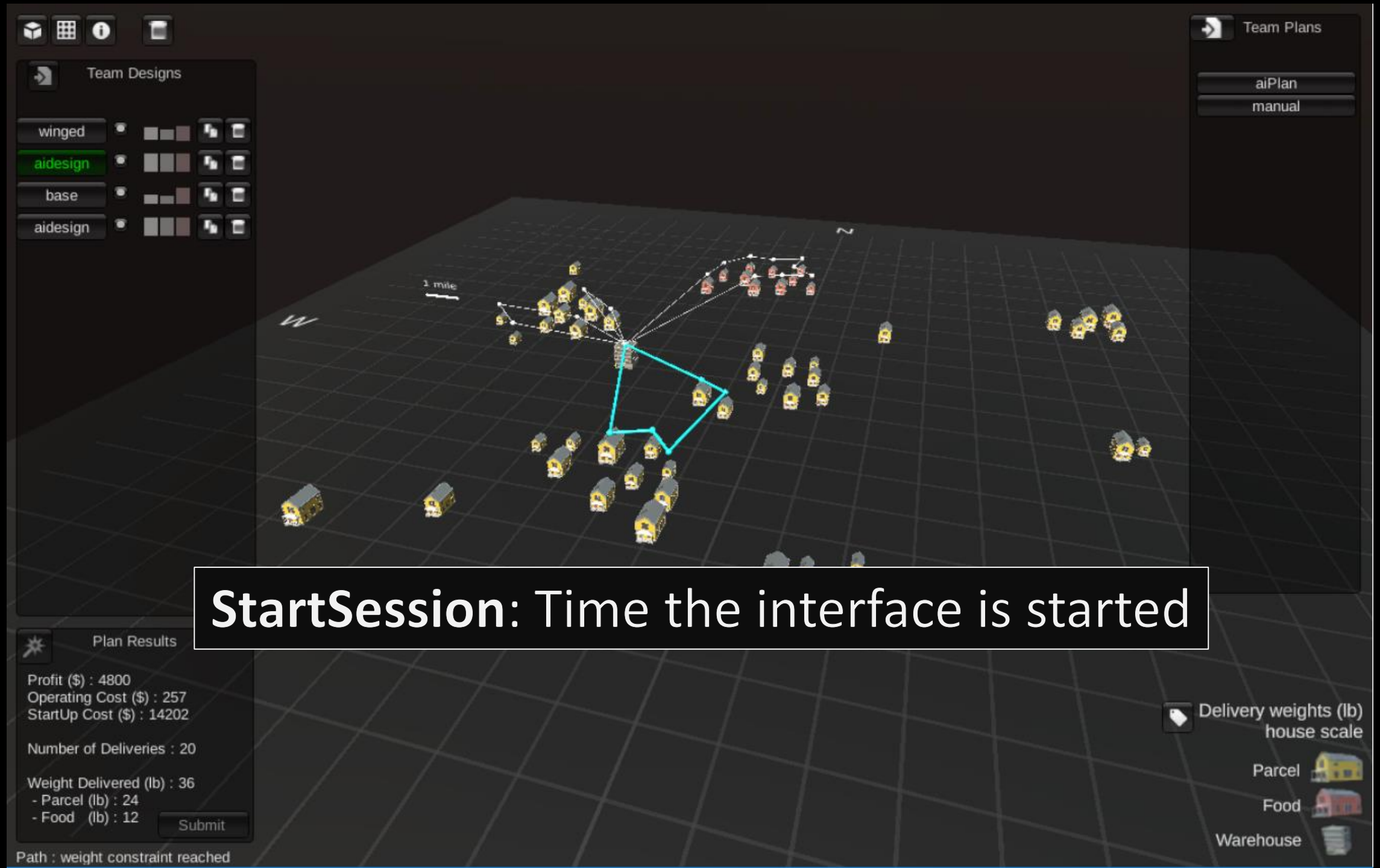
Verified Logs for the Designer Tool



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

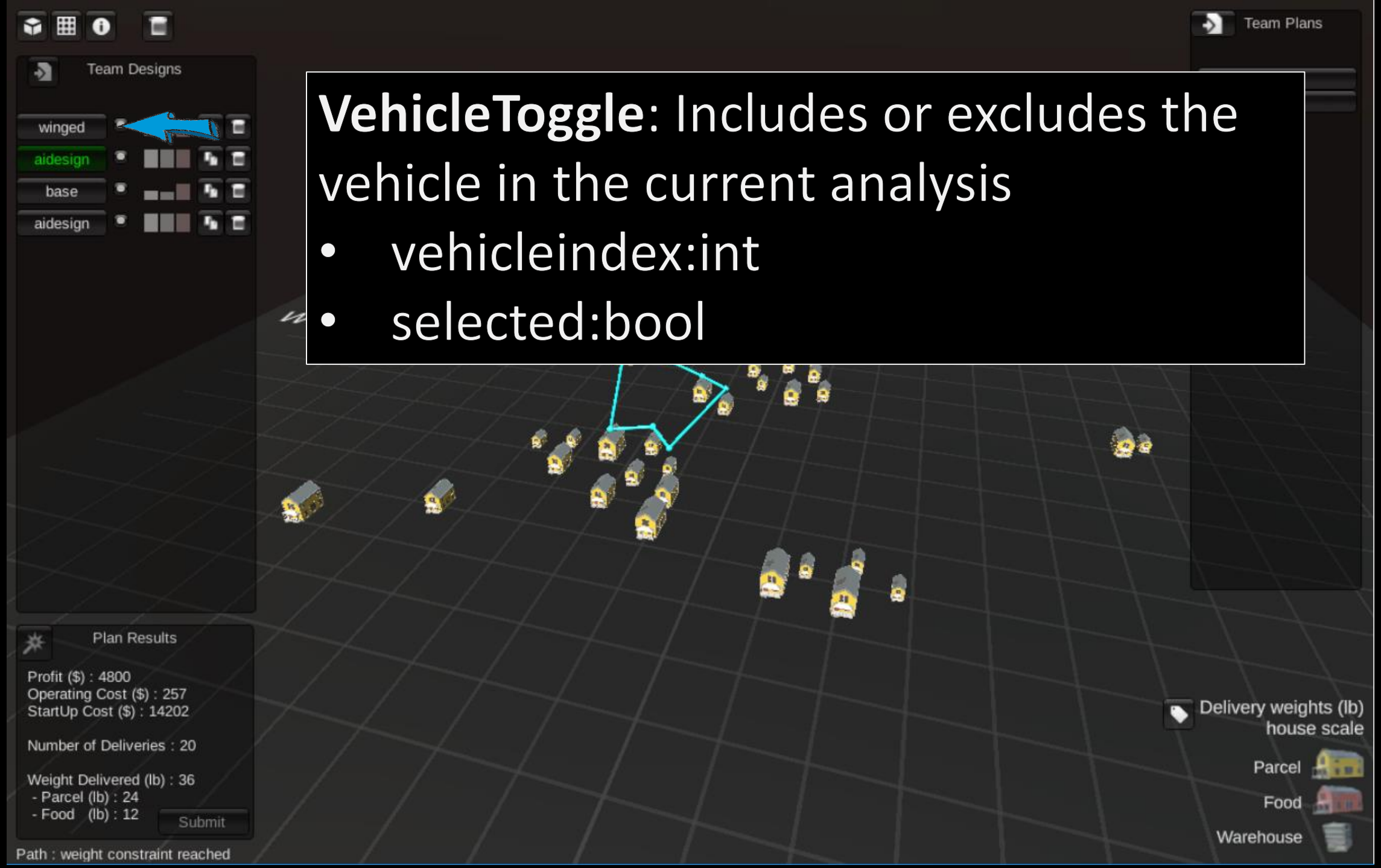
Logs for Operations Planner Tool

StartSession
ScenarioLoaded
RemoveAllPaths
VehicleToggle
SelectPath
VehicleDuplicated
VehiclePathRemoved
ManualPathAdded
ManualPathRemoved
PathMetrics
Opened
PerspectiveCamera
OrthogonalCamera
RemoveAllPaths
LoadDatabase
SubmitPlanToDB
RunPathAgent
ServerMessage
ToggleWeightIcons
ToggleInfoPanel



StartSession: Time the interface is started

ScenarioLoaded: loaded scenario from the business planner

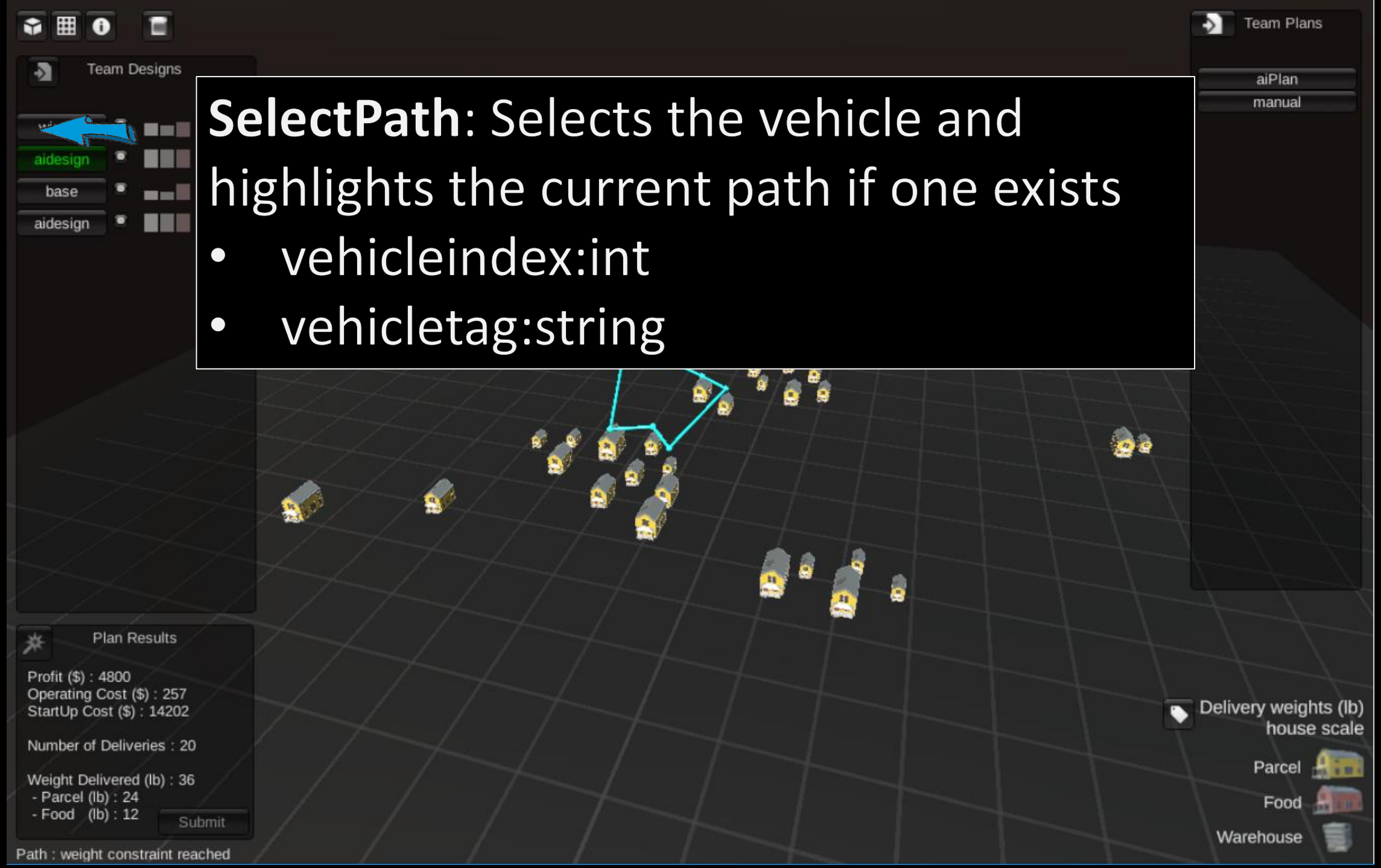


VehicleToggle: Includes or excludes the vehicle in the current analysis

- vehicleindex:int
- selected:bool

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

- vehicleindex:int
- vehicletag:string

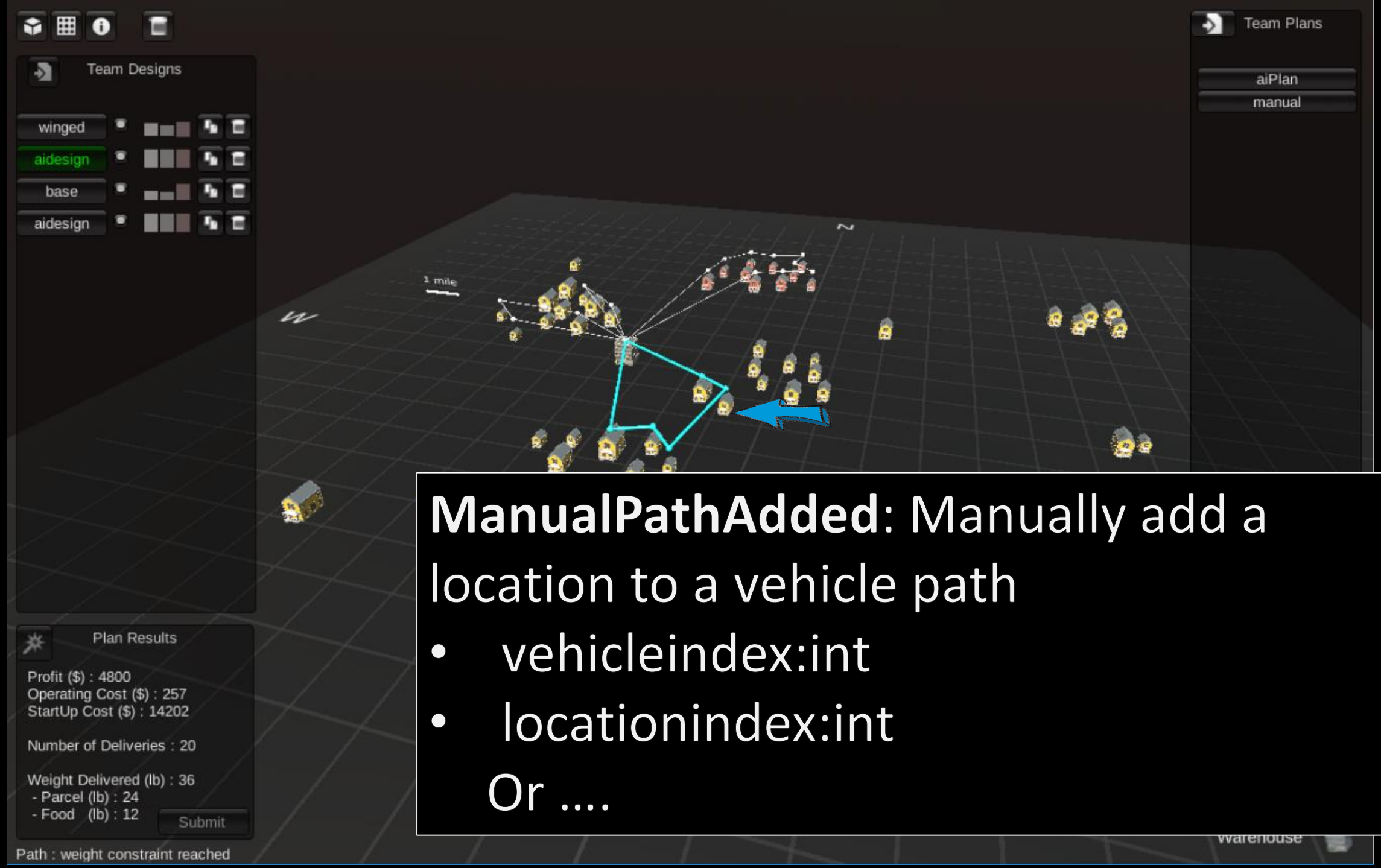


VehicleDuplicated: Adds a new vehicle as a duplicate of the selected one

- vehicleindex:int
- vehicletag:string
- vehicleconfig:string
- toindex:int

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

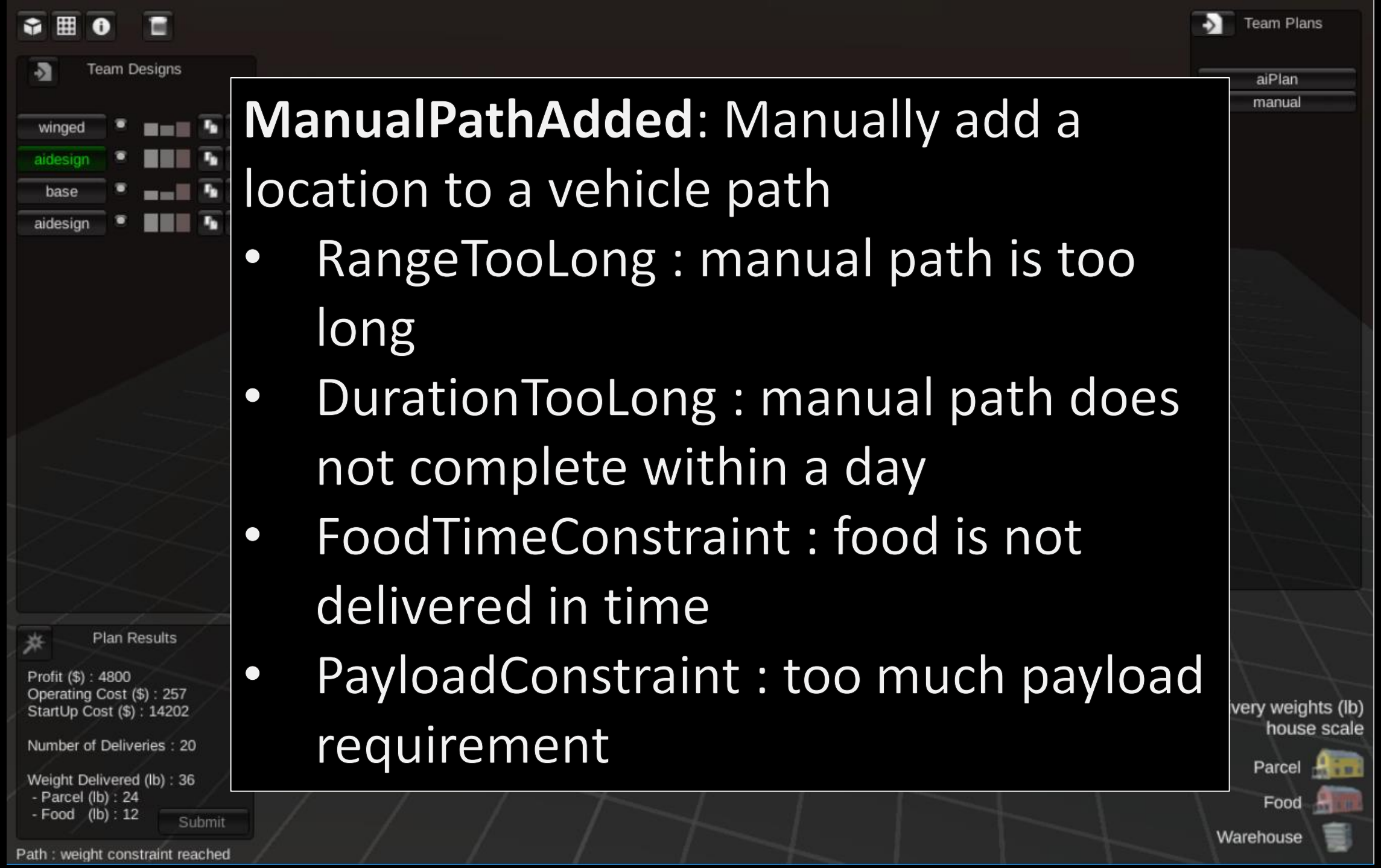
- vehicleindex:int
- vehicletag:string



ManualPathAdded: Manually add a location to a vehicle path

- vehicleindex:int
- locationindex:int

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

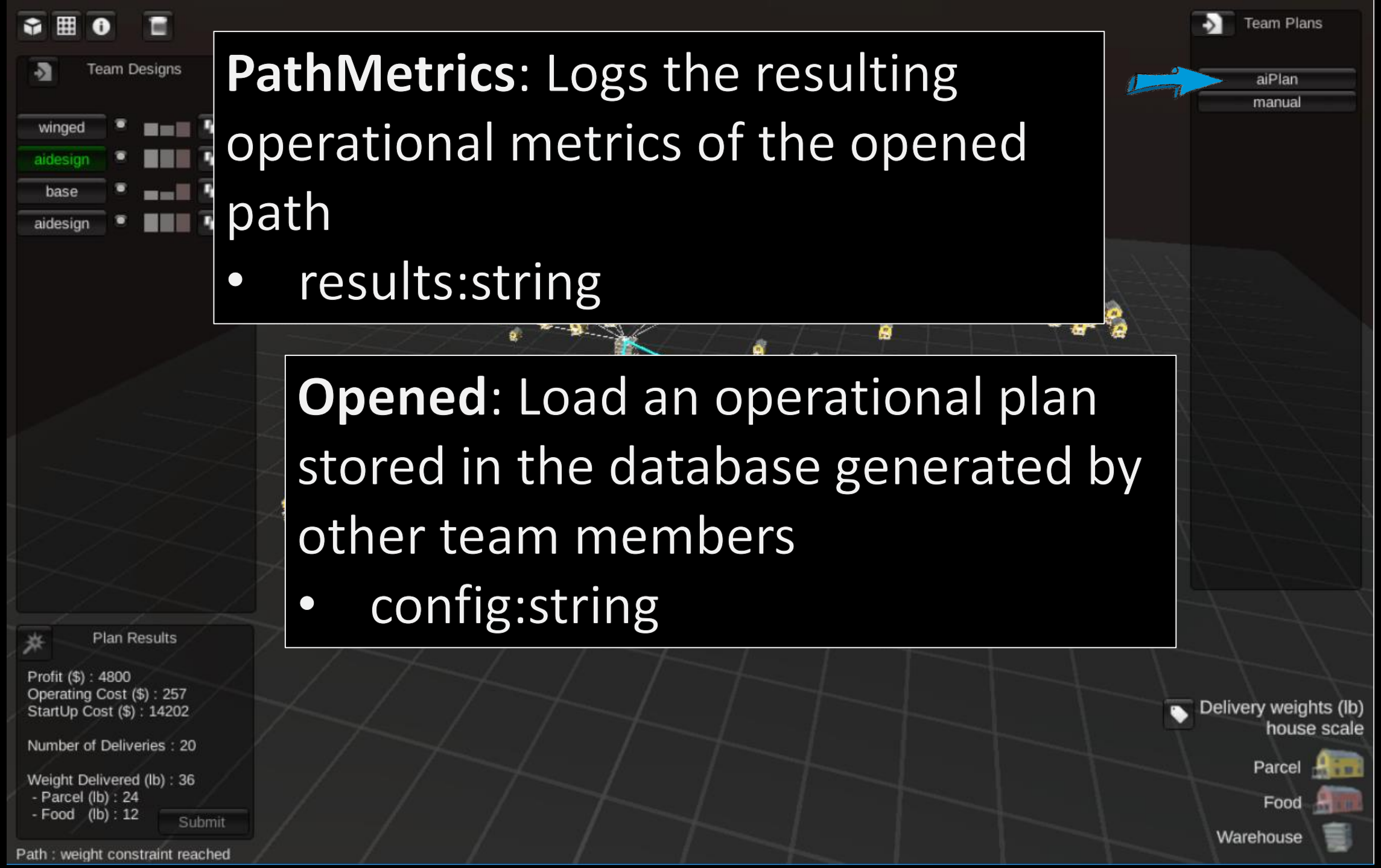
- vehicleindex:int
- locationindex:int

PathMetrics: Logs the resulting operational metrics of the opened path

- results:string

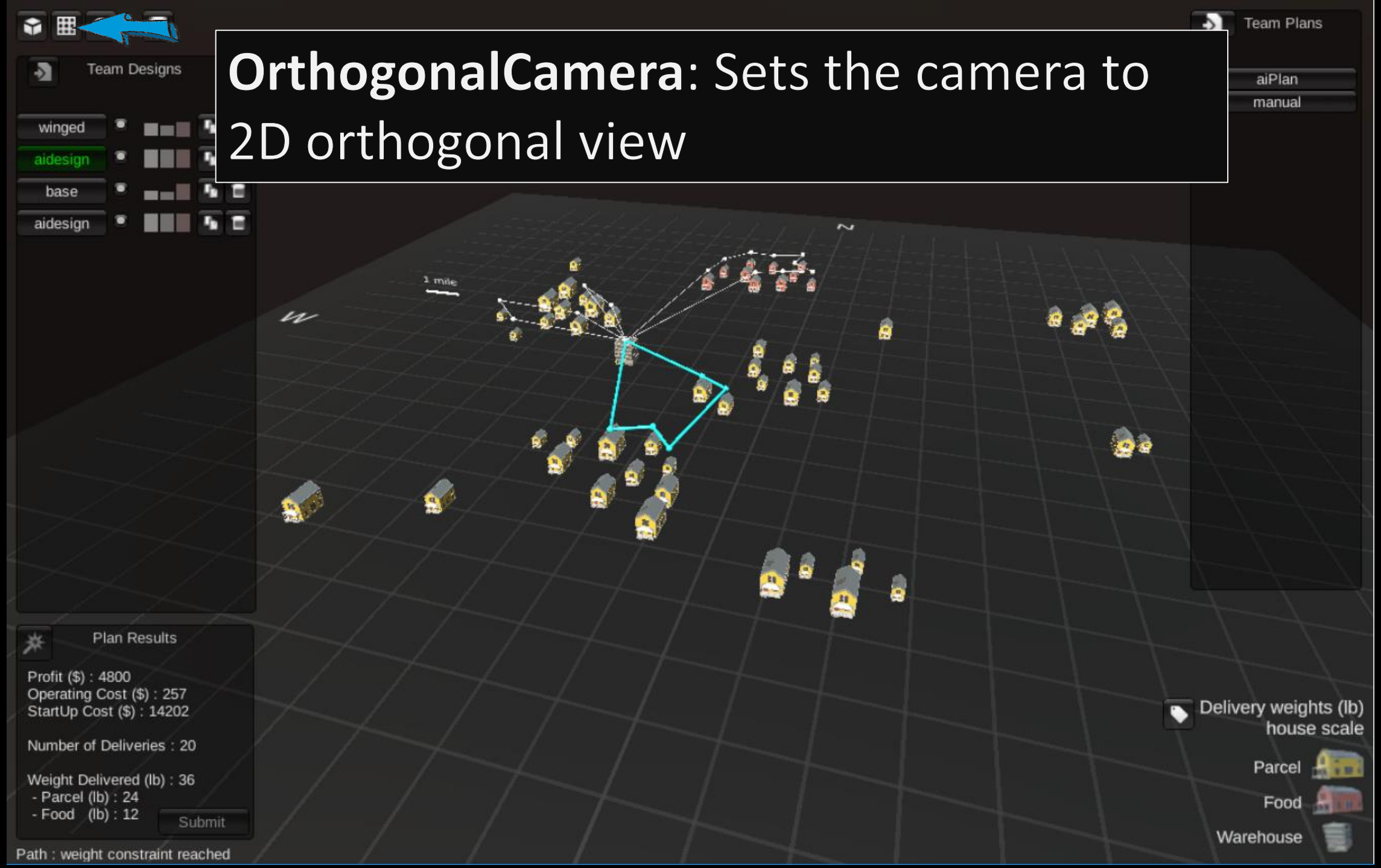
Opened: Load an operational plan stored in the database generated by other team members

- config:string



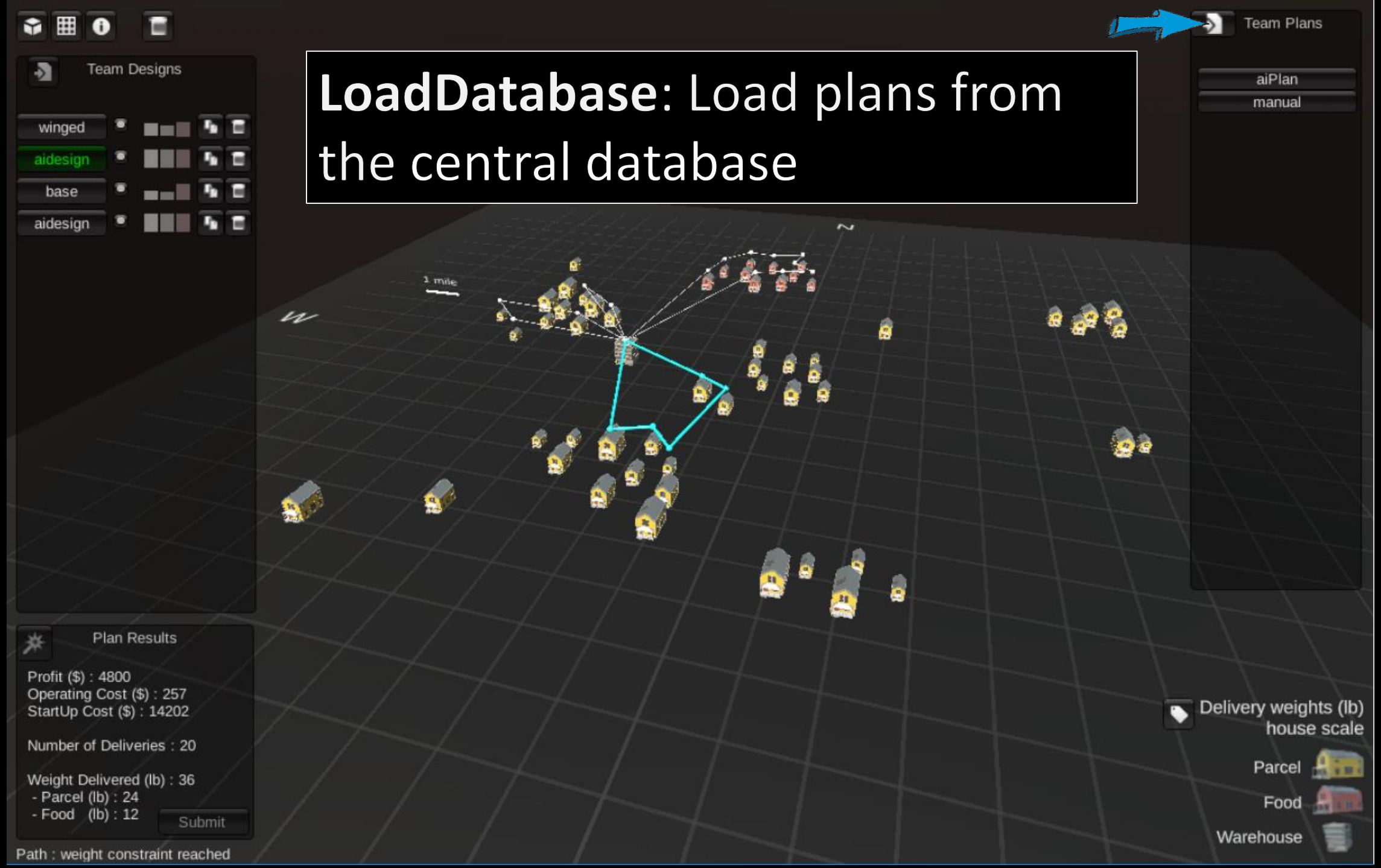
PerspectiveCamera: Sets the camera to 3D perspective view

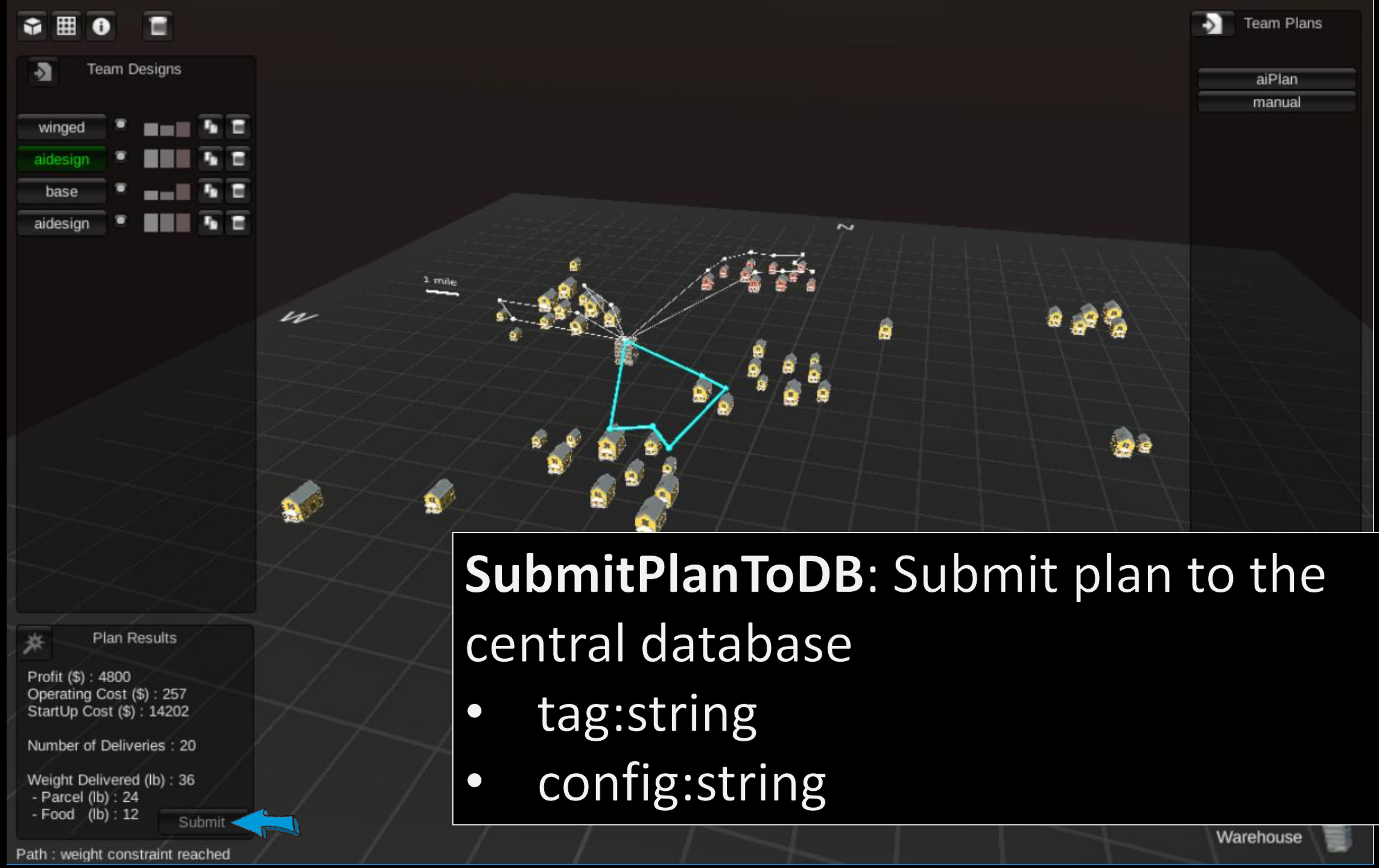
OrthogonalCamera: Sets the camera to 2D orthogonal view



RemoveAllPaths: Removes all paths for all vehicles

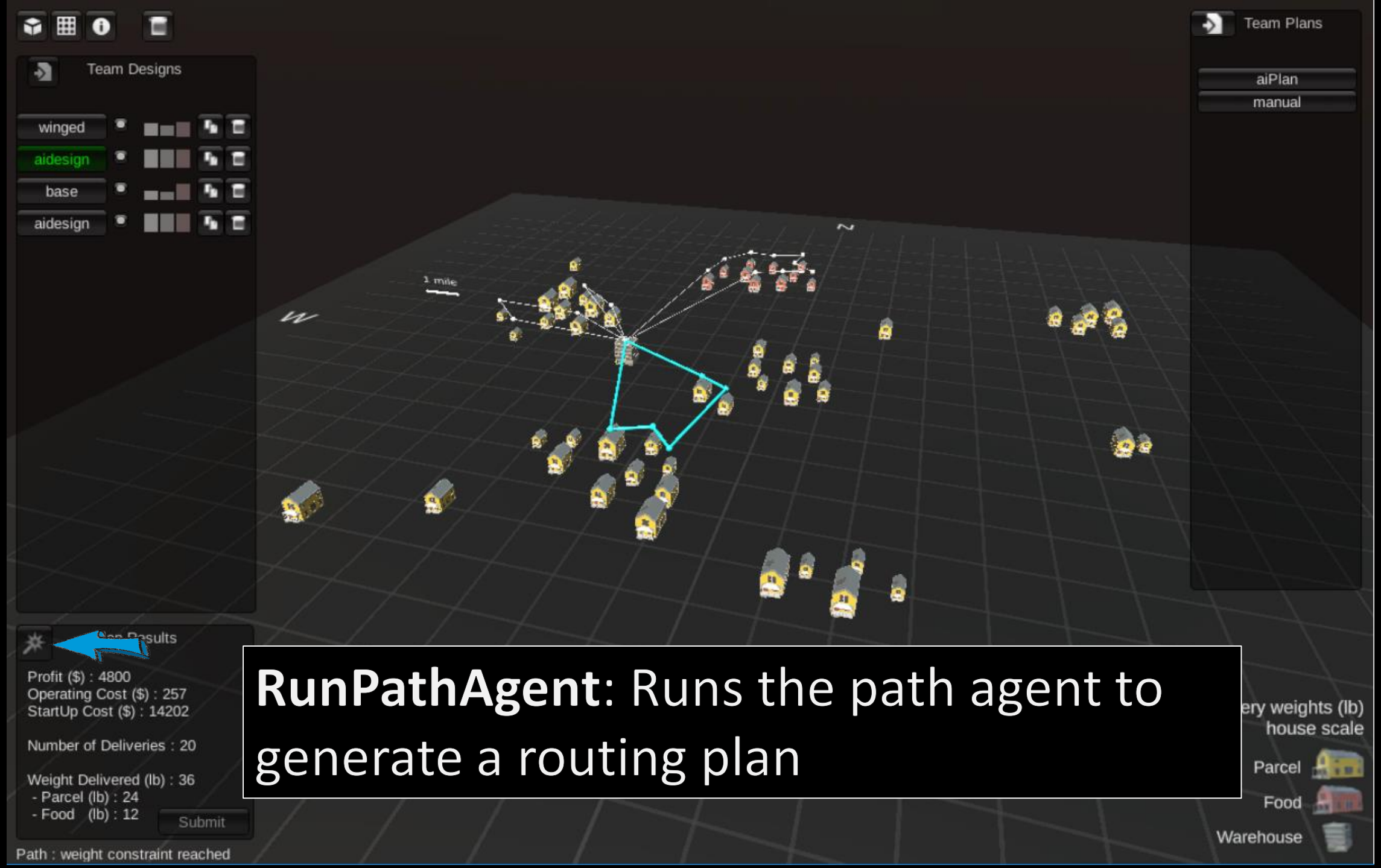
LoadDatabase: Load plans from the central database





SubmitPlanToDB: Submit plan to the central database

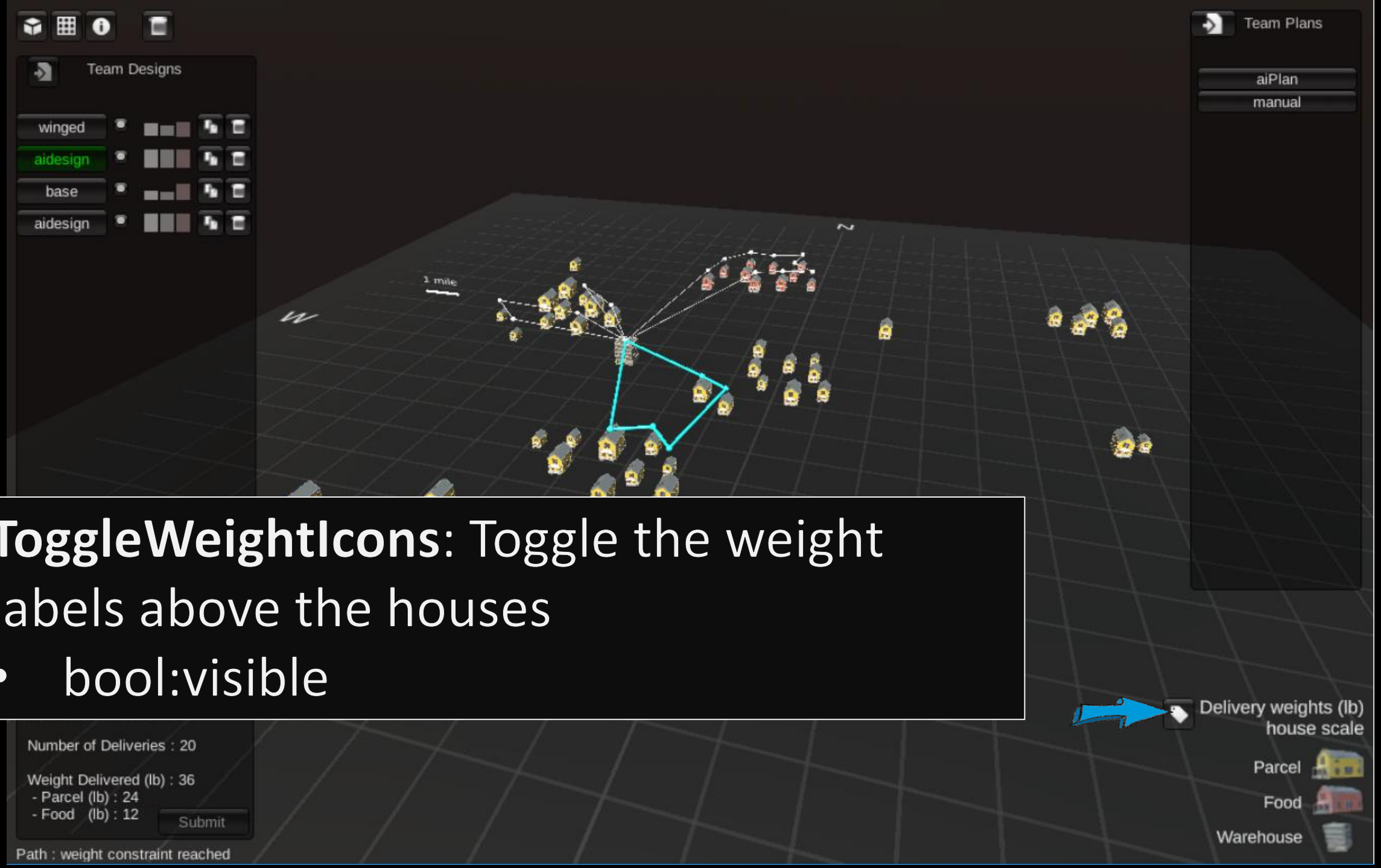
- tag:string
- config:string



RunPathAgent: Runs the path agent to generate a routing plan

ServerMessage: Logs messages returned from the server

- result:string

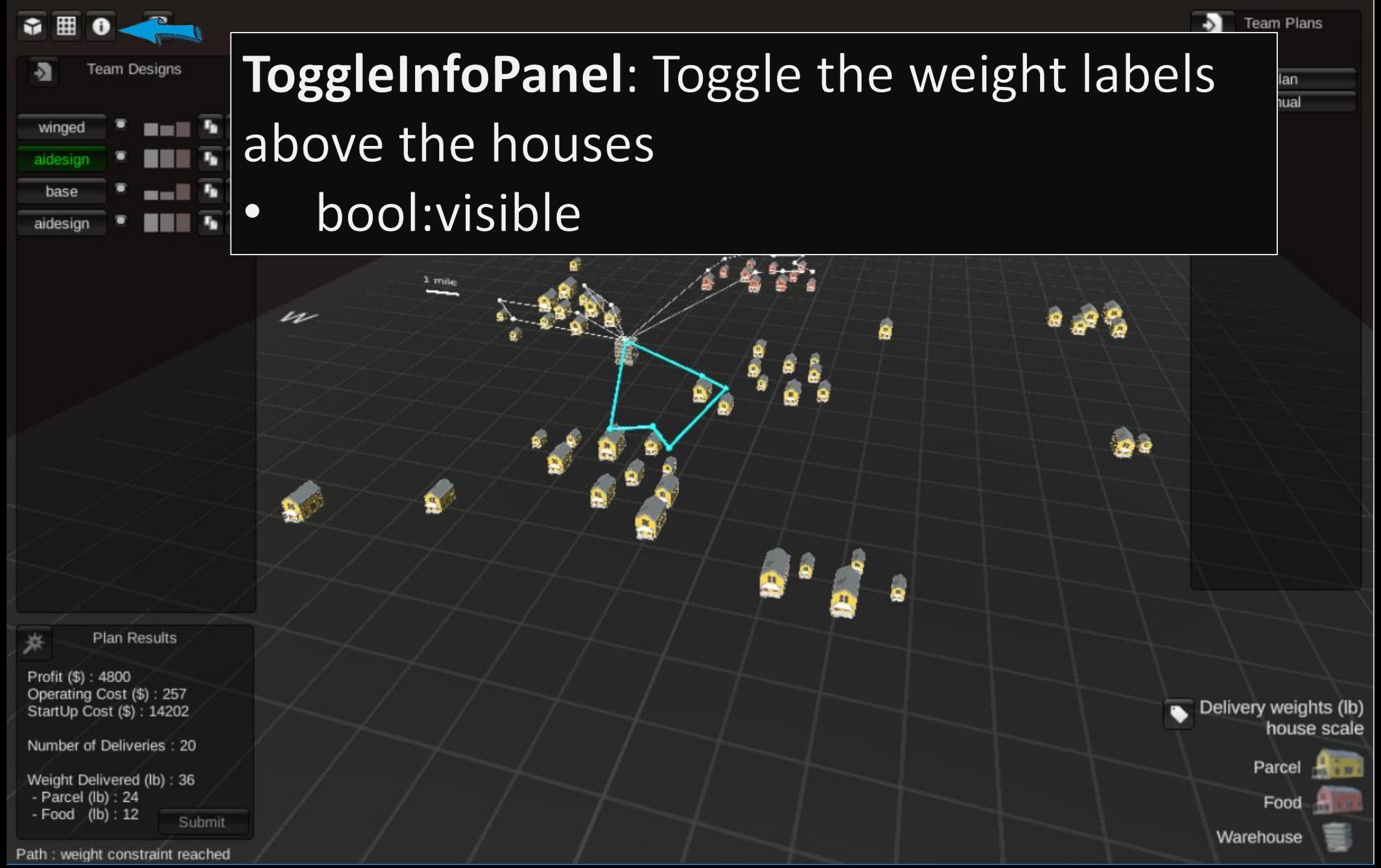


ToggleWeightIcons: Toggle the weight labels above the houses

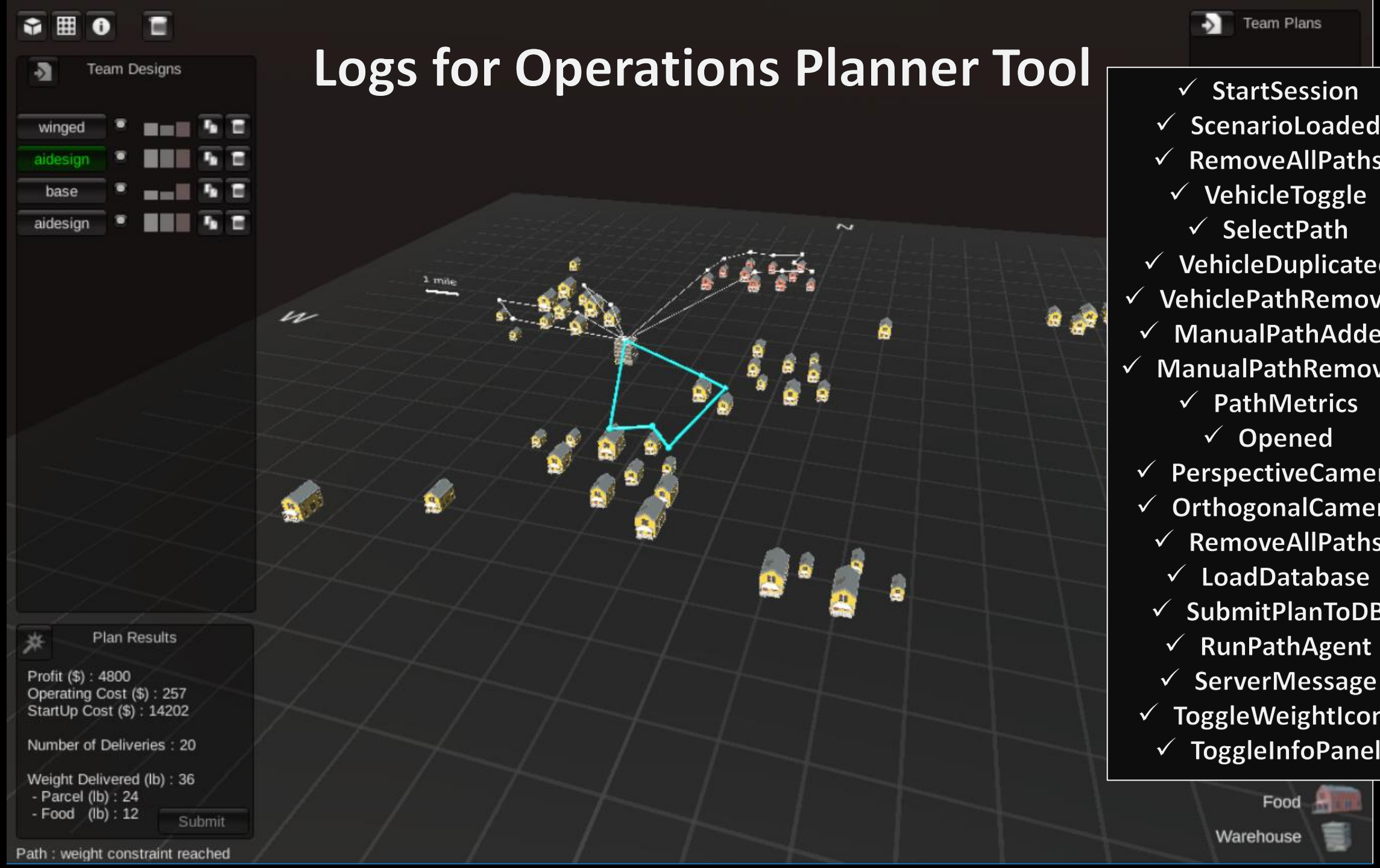
- bool:visible

ToggleInfoPanel: Toggle the weight labels above the houses

- bool:visible

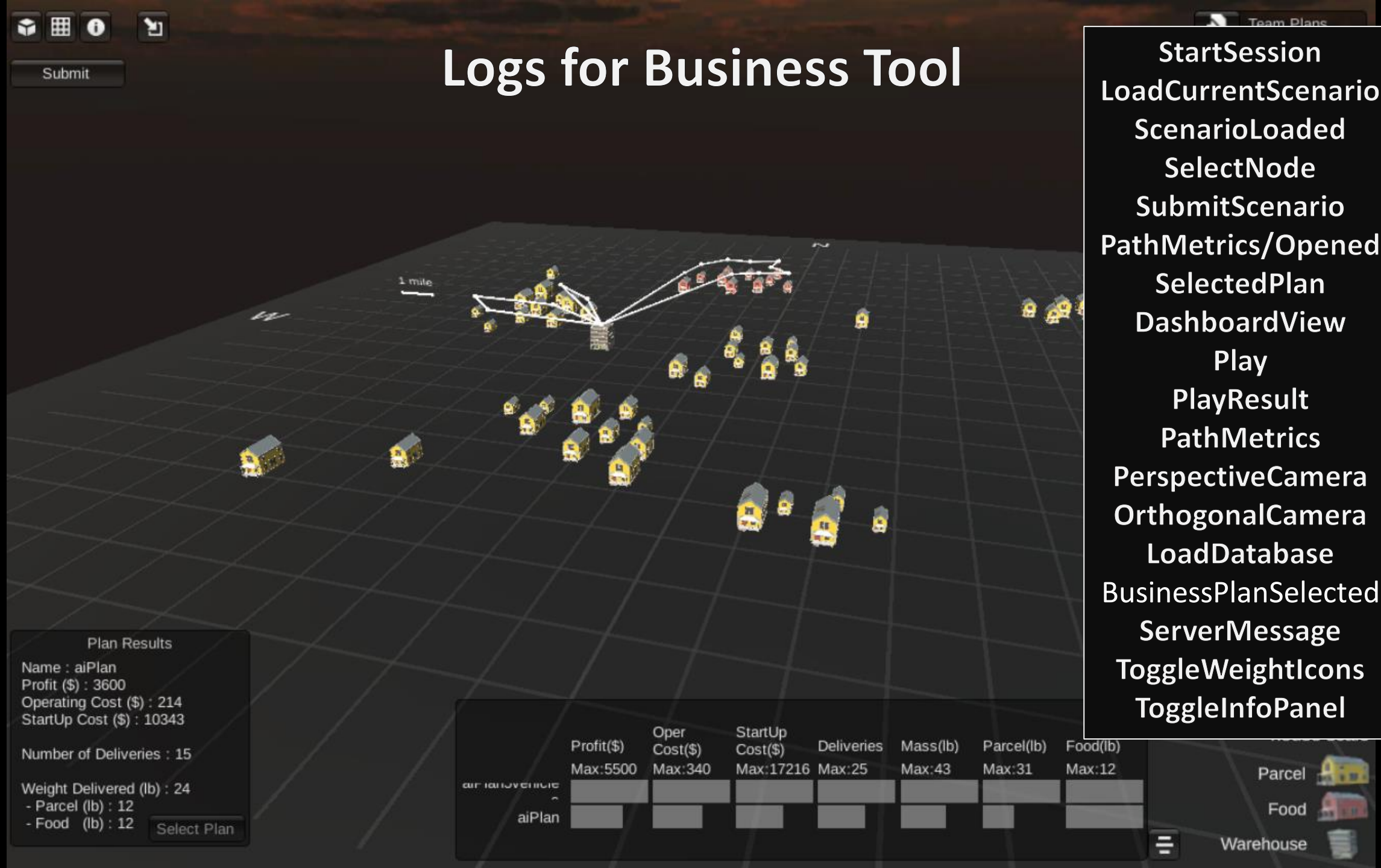


Logs for Operations Planner Tool

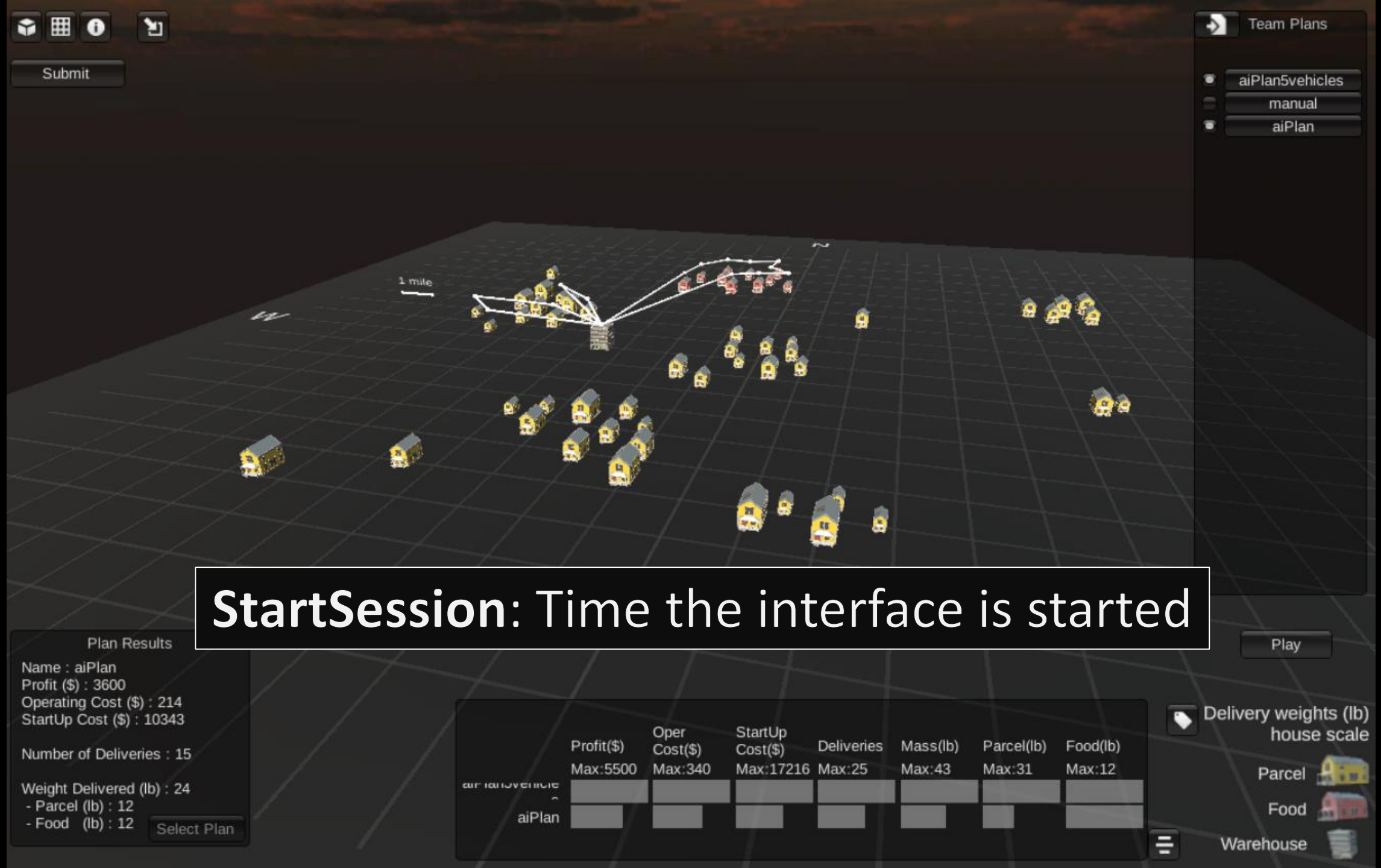


- ✓ StartSession
- ✓ ScenarioLoaded
- ✓ RemoveAllPaths
- ✓ VehicleToggle
- ✓ SelectPath
- ✓ VehicleDuplicated
- ✓ VehiclePathRemoved
- ✓ ManualPathAdded
- ✓ ManualPathRemoved
- ✓ PathMetrics
- ✓ Opened
- ✓ PerspectiveCamera
- ✓ OrthogonalCamera
- ✓ RemoveAllPaths
- ✓ LoadDatabase
- ✓ SubmitPlanToDB
- ✓ RunPathAgent
- ✓ ServerMessage
- ✓ ToggleWeightIcons
- ✓ ToggleInfoPanel

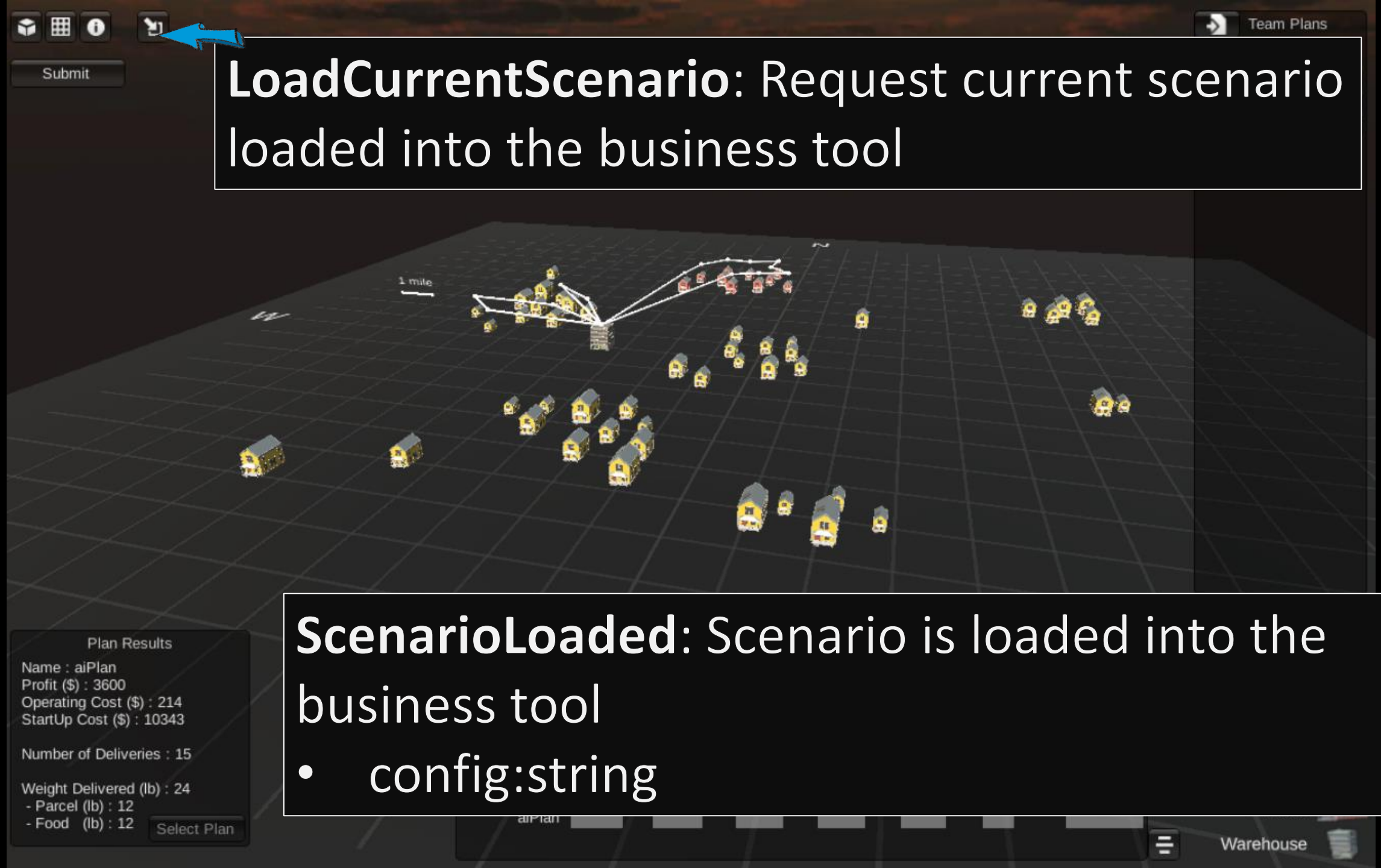
Logs for Business Tool



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



StartSession: Time the interface is started



LoadCurrentScenario: Request current scenario loaded into the business tool

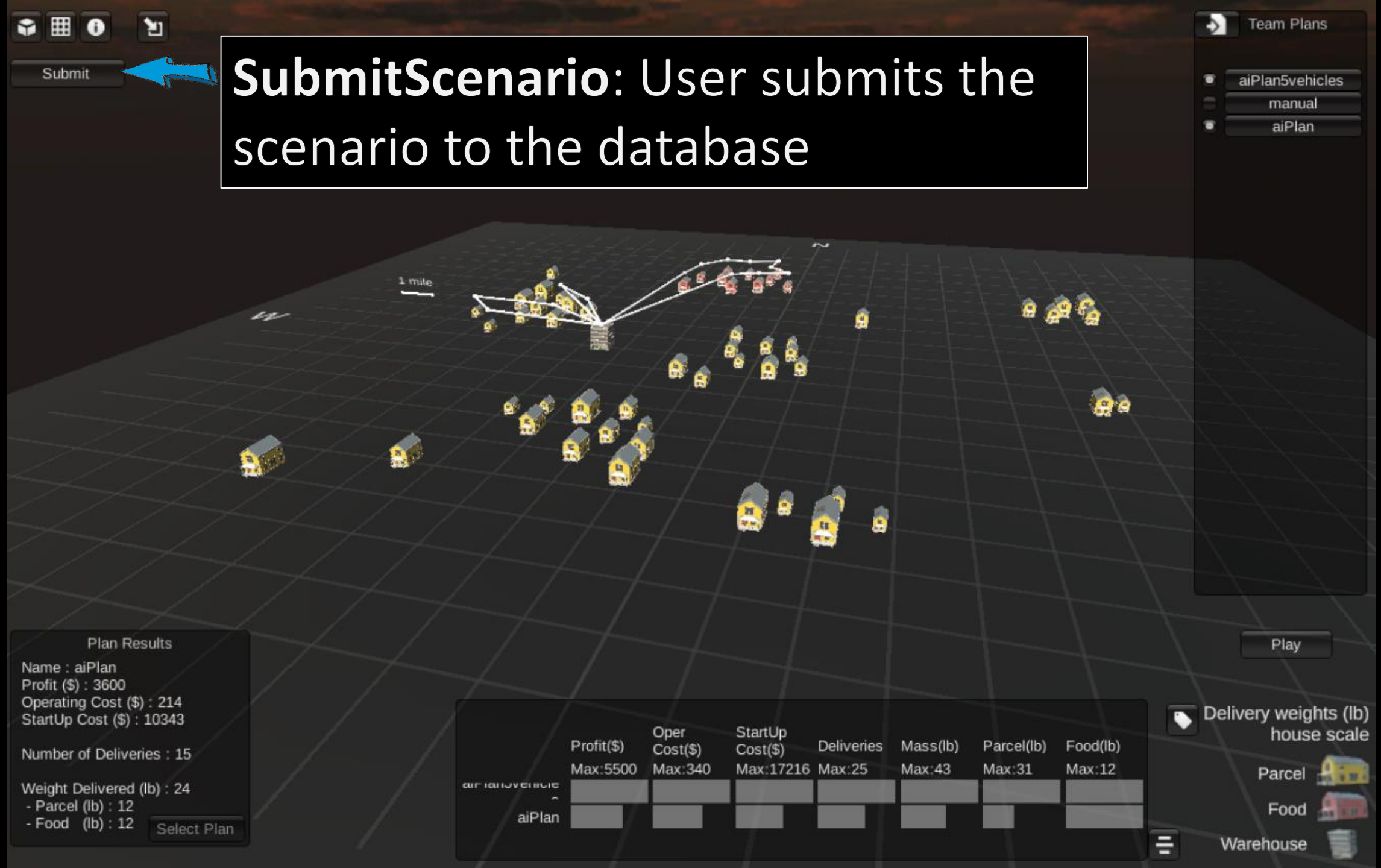
ScenarioLoaded: Scenario is loaded into the business tool

- config:string

SelectNode: User selected a house

- locationIndex:int
- selected:bool

SubmitScenario: User submits the scenario to the database

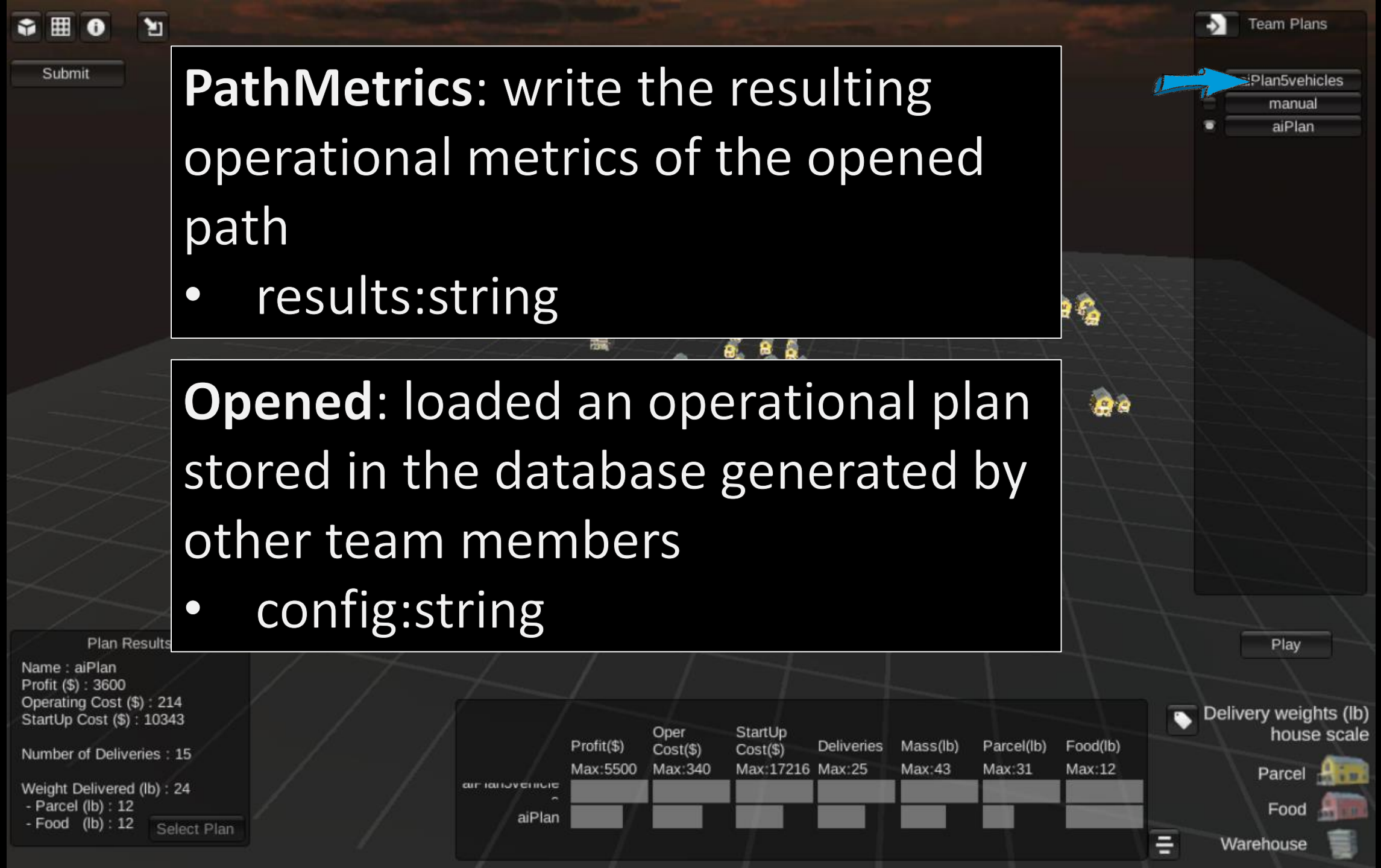


PathMetrics: write the resulting operational metrics of the opened path

- results:string

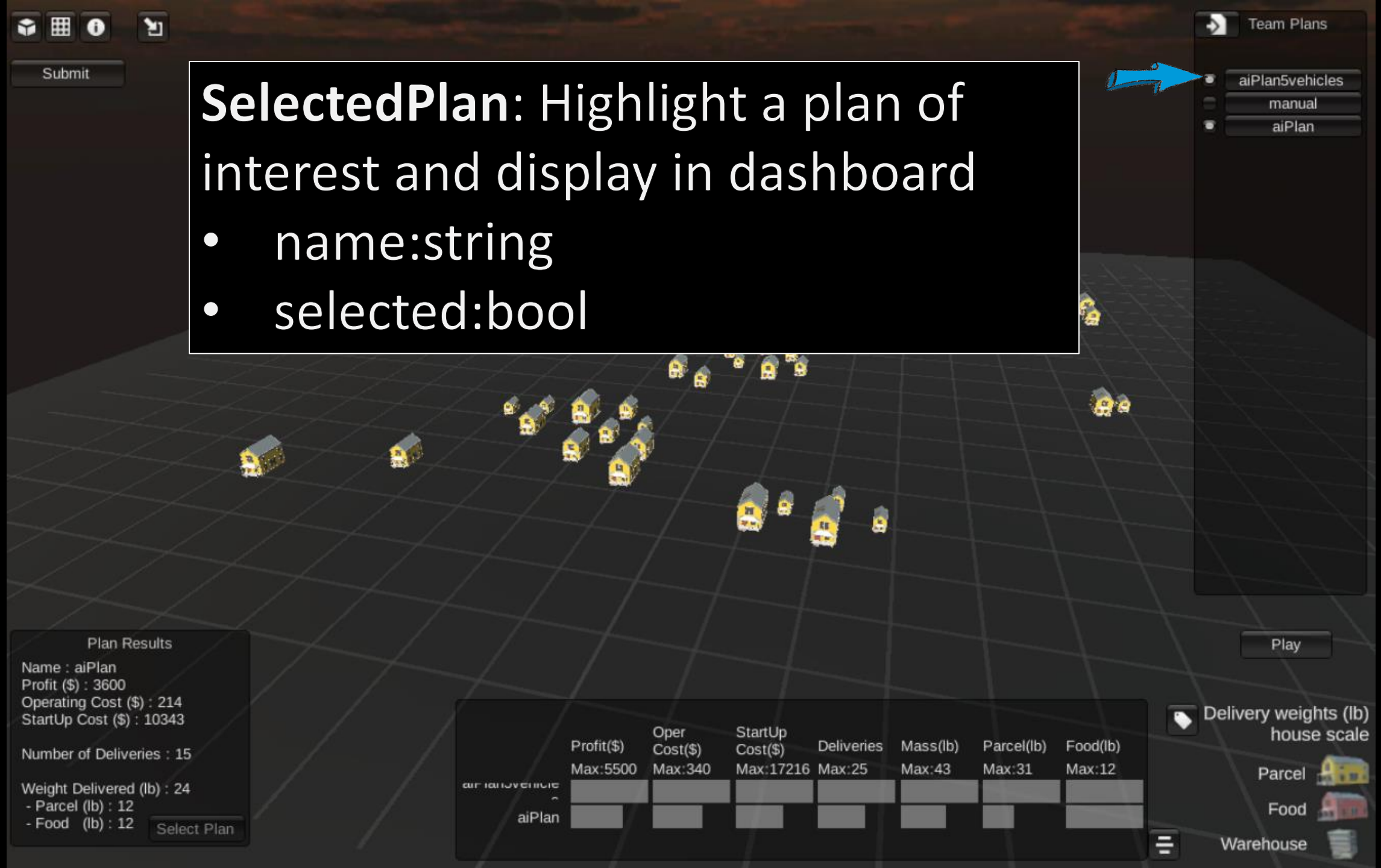
Opened: loaded an operational plan stored in the database generated by other team members

- config:string



SelectedPlan: Highlight a plan of interest and display in dashboard

- name:string
- selected:bool



DashboardView: Toggled dashboard visibility

- visible:bool

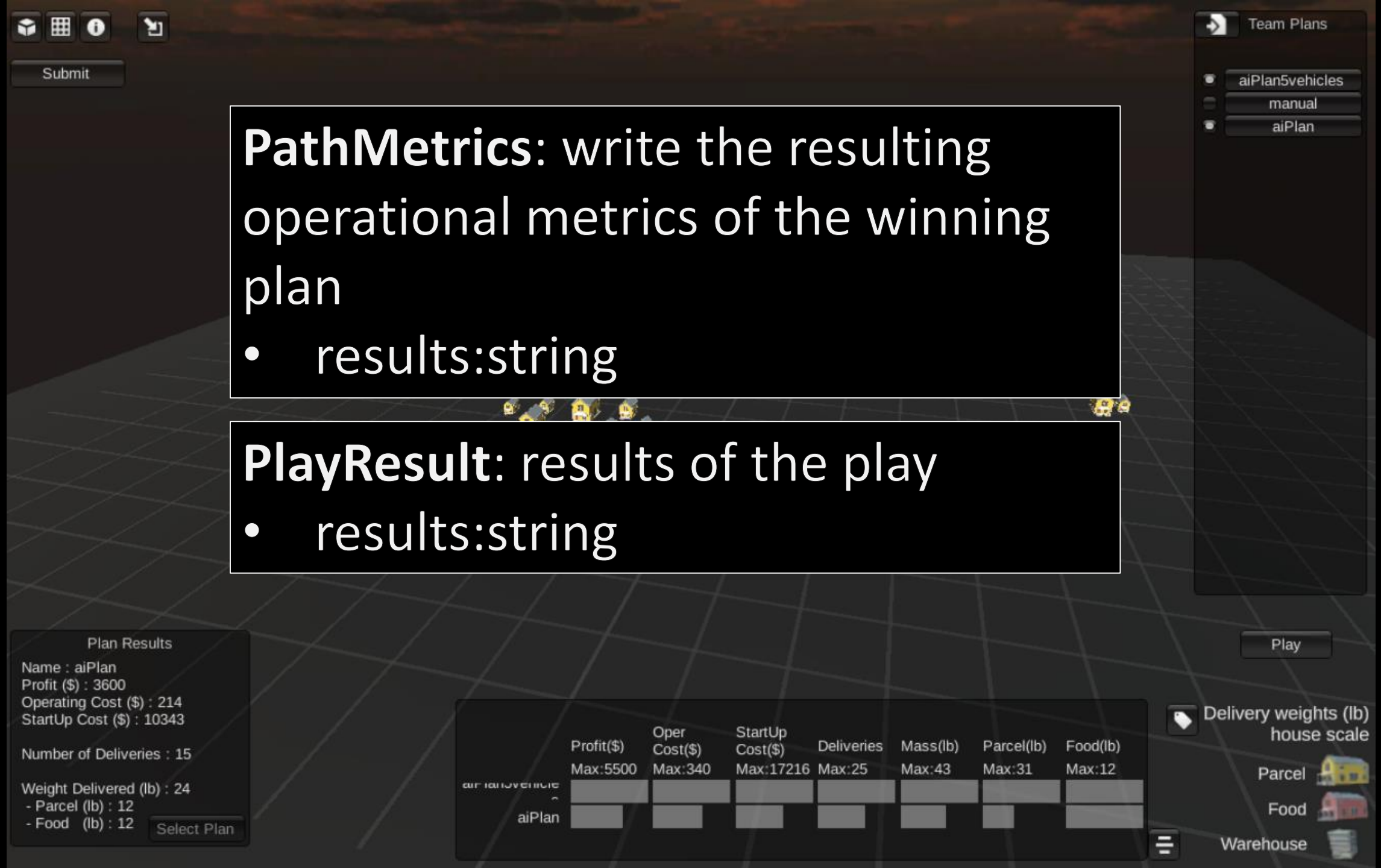
Play: Plays two selected plans against each other

PathMetrics: write the resulting operational metrics of the winning plan

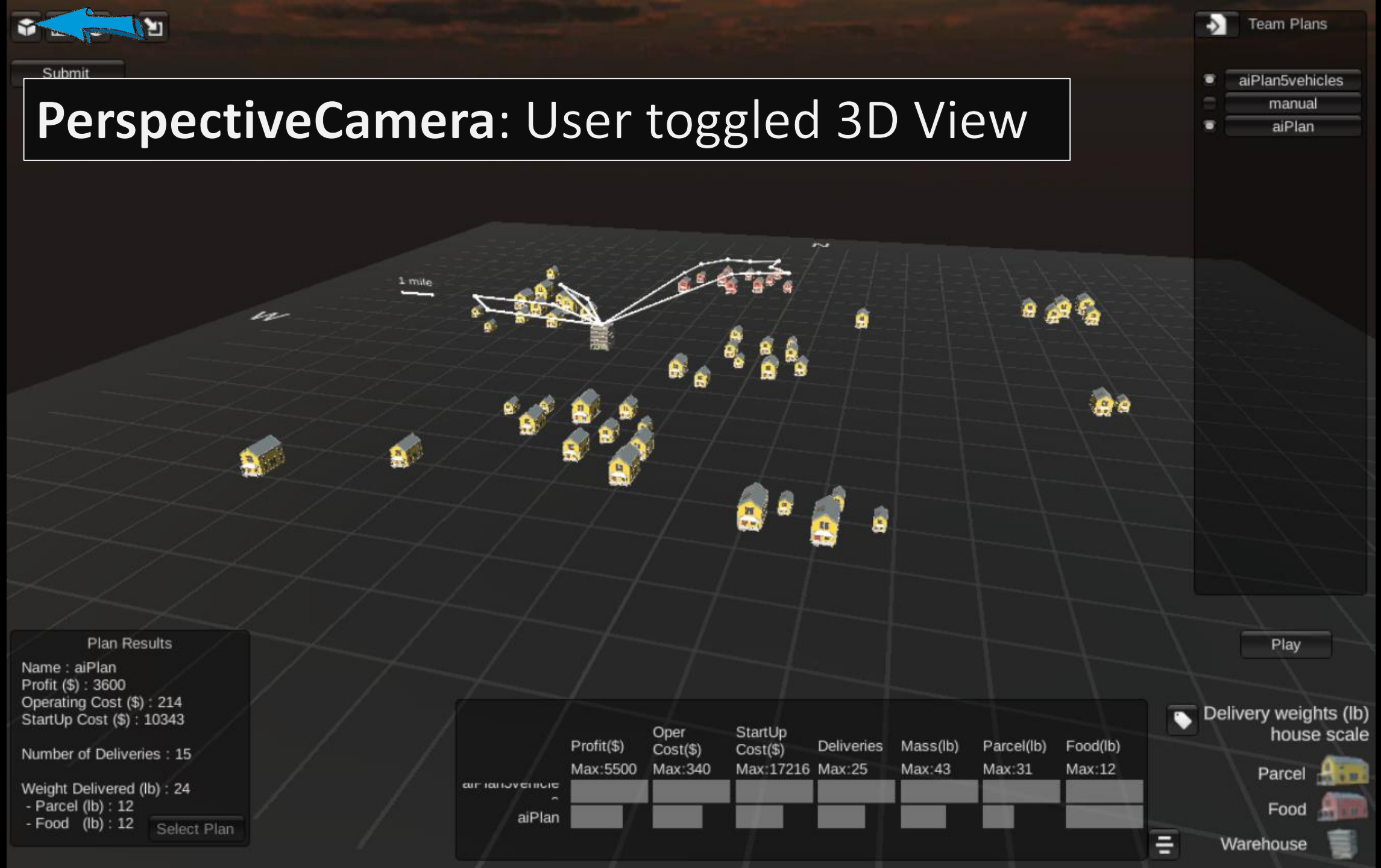
- results:string

PlayResult: results of the play

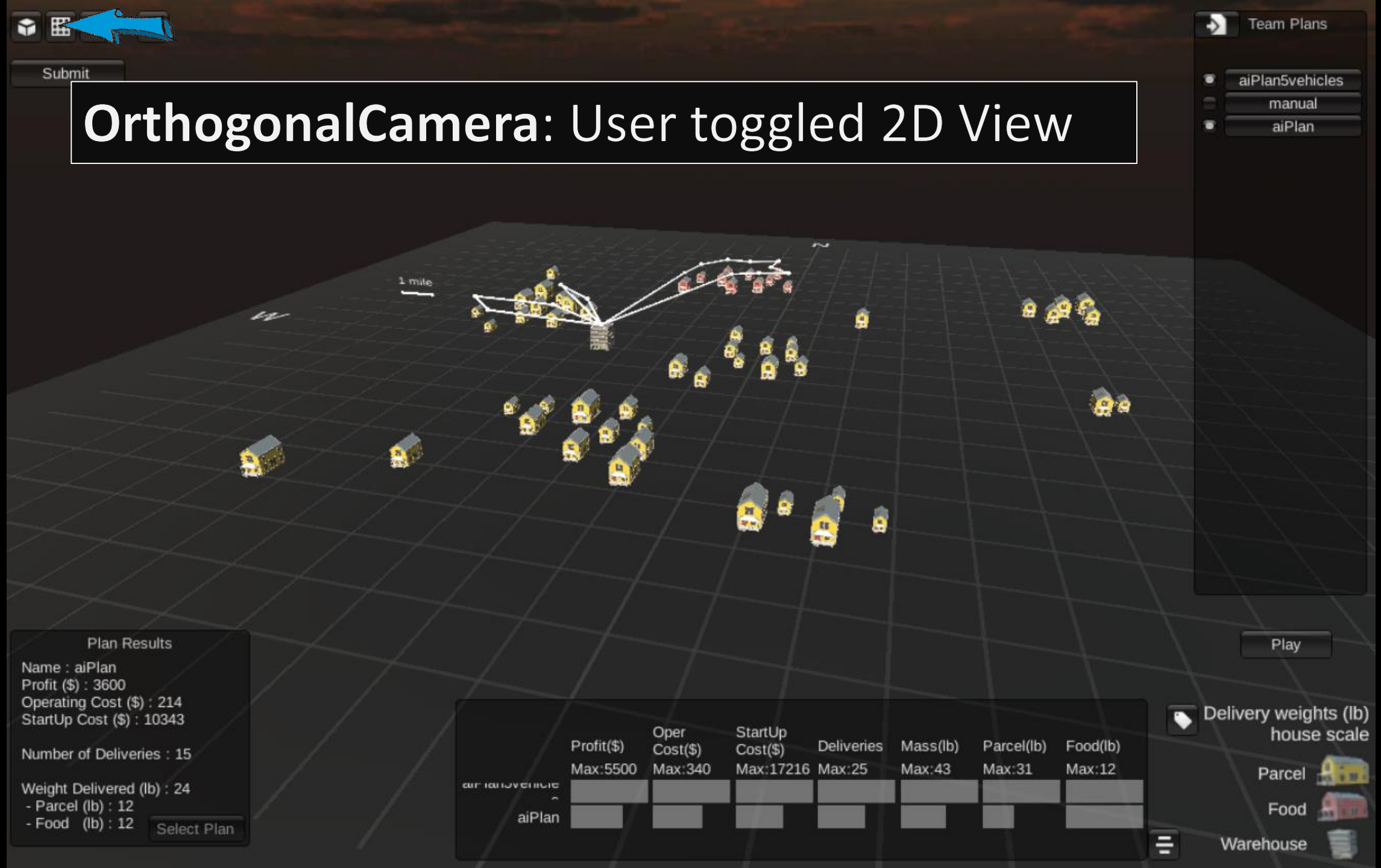
- results:string



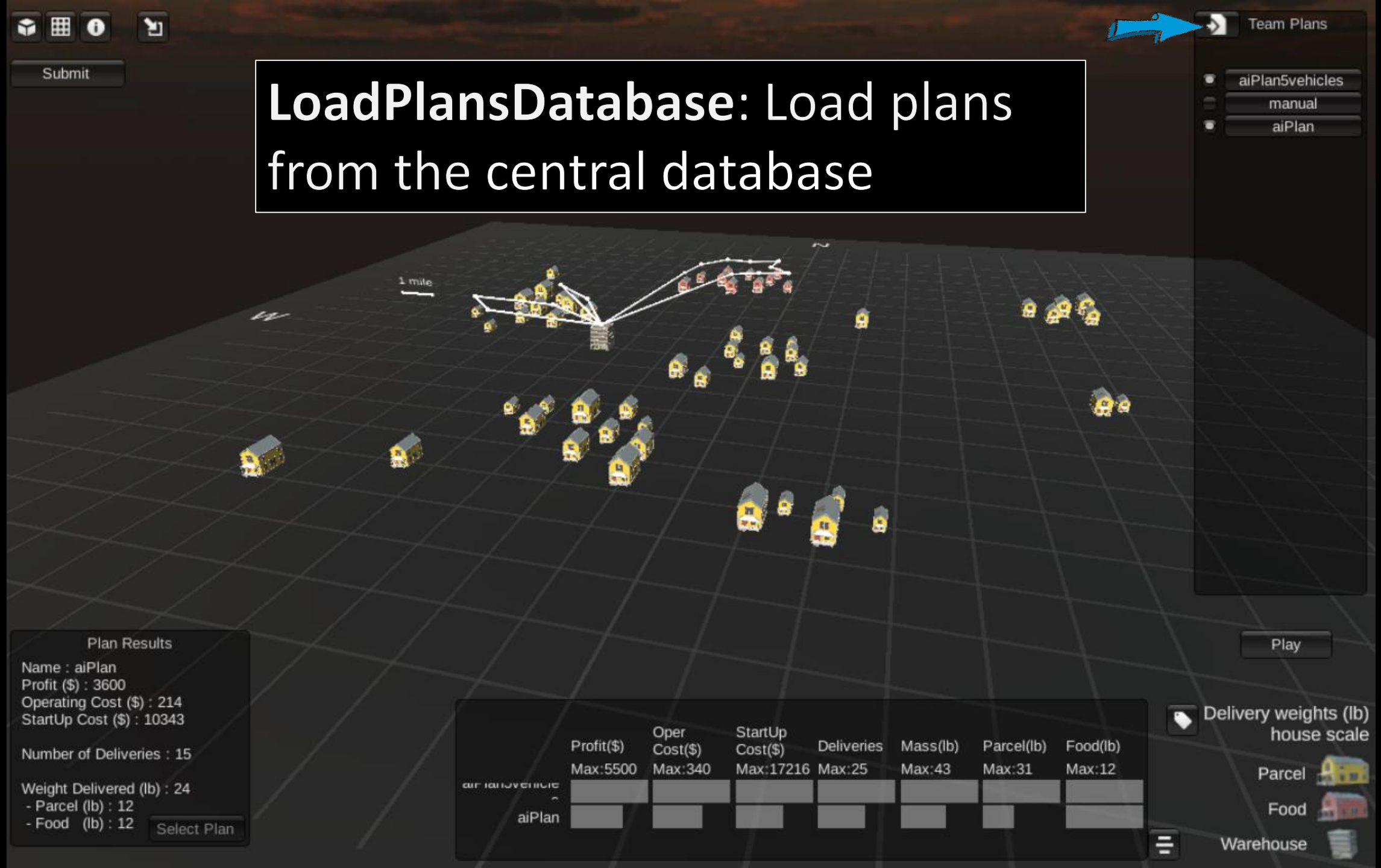
PerspectiveCamera: User toggled 3D View



OrthogonalCamera: User toggled 2D View

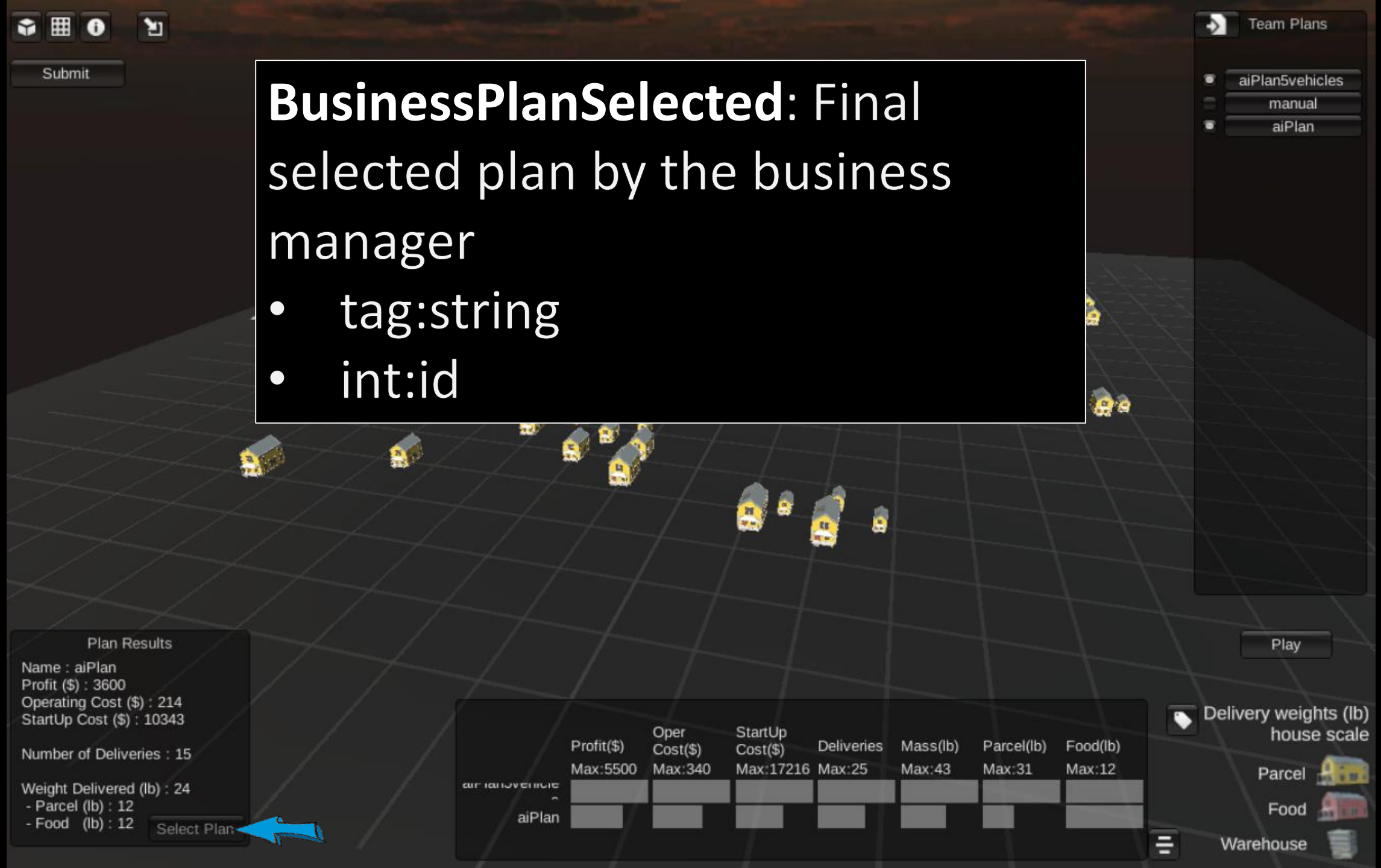


LoadPlansDatabase: Load plans from the central database



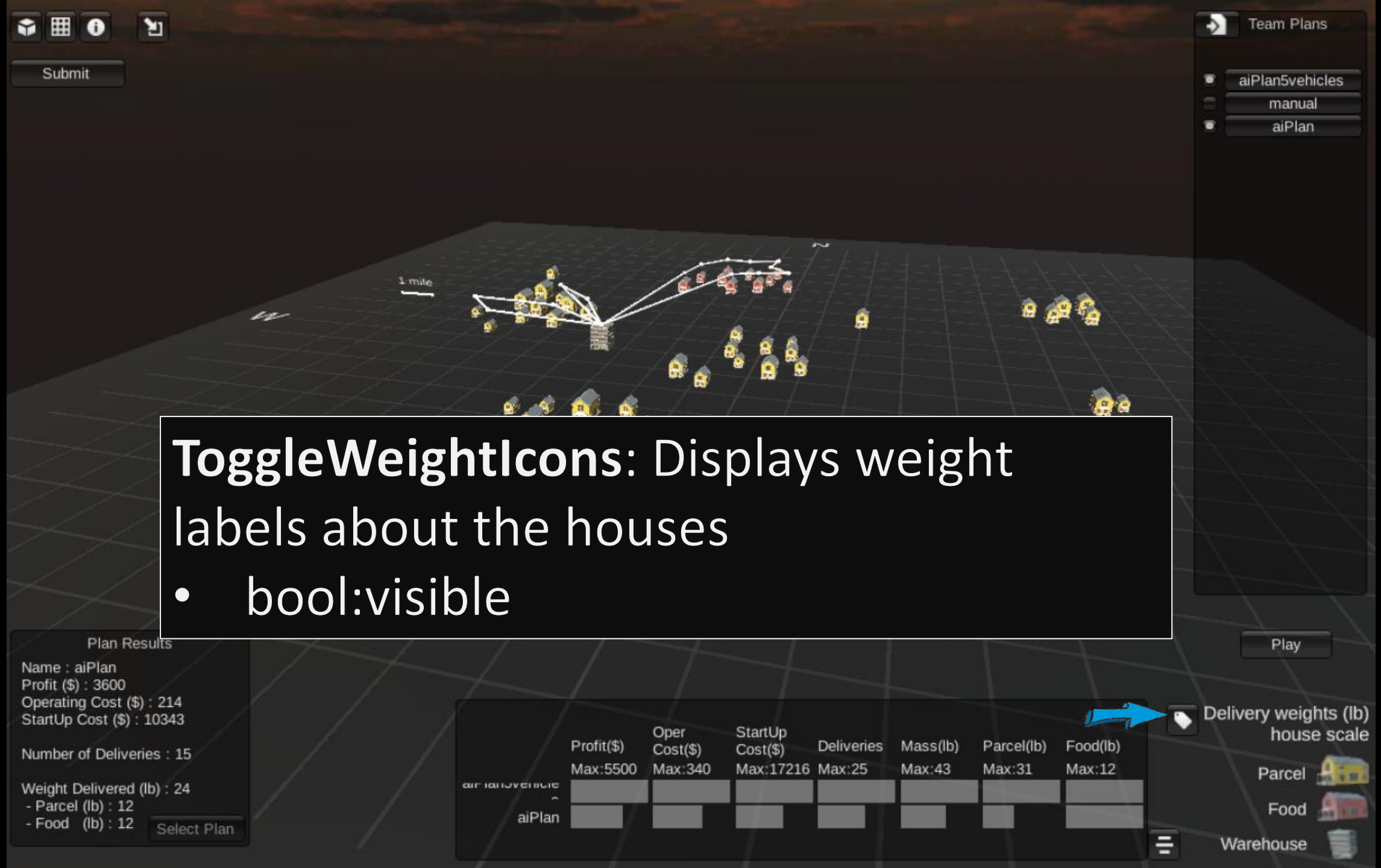
BusinessPlanSelected: Final selected plan by the business manager

- tag:string
- int:id



ServerMessage: Logs messages returned from the server

- result:string

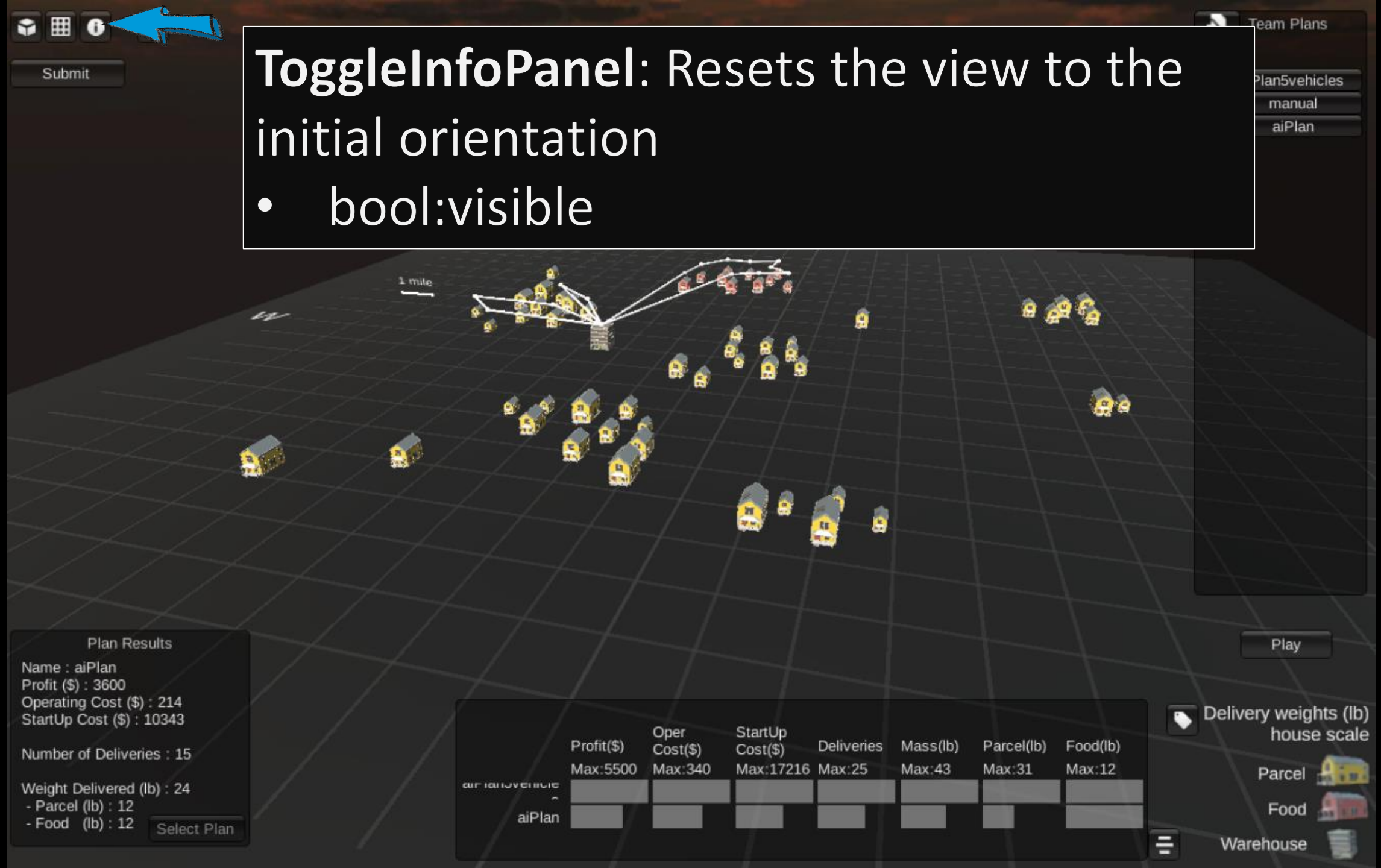


ToggleWeightIcons: Displays weight labels about the houses

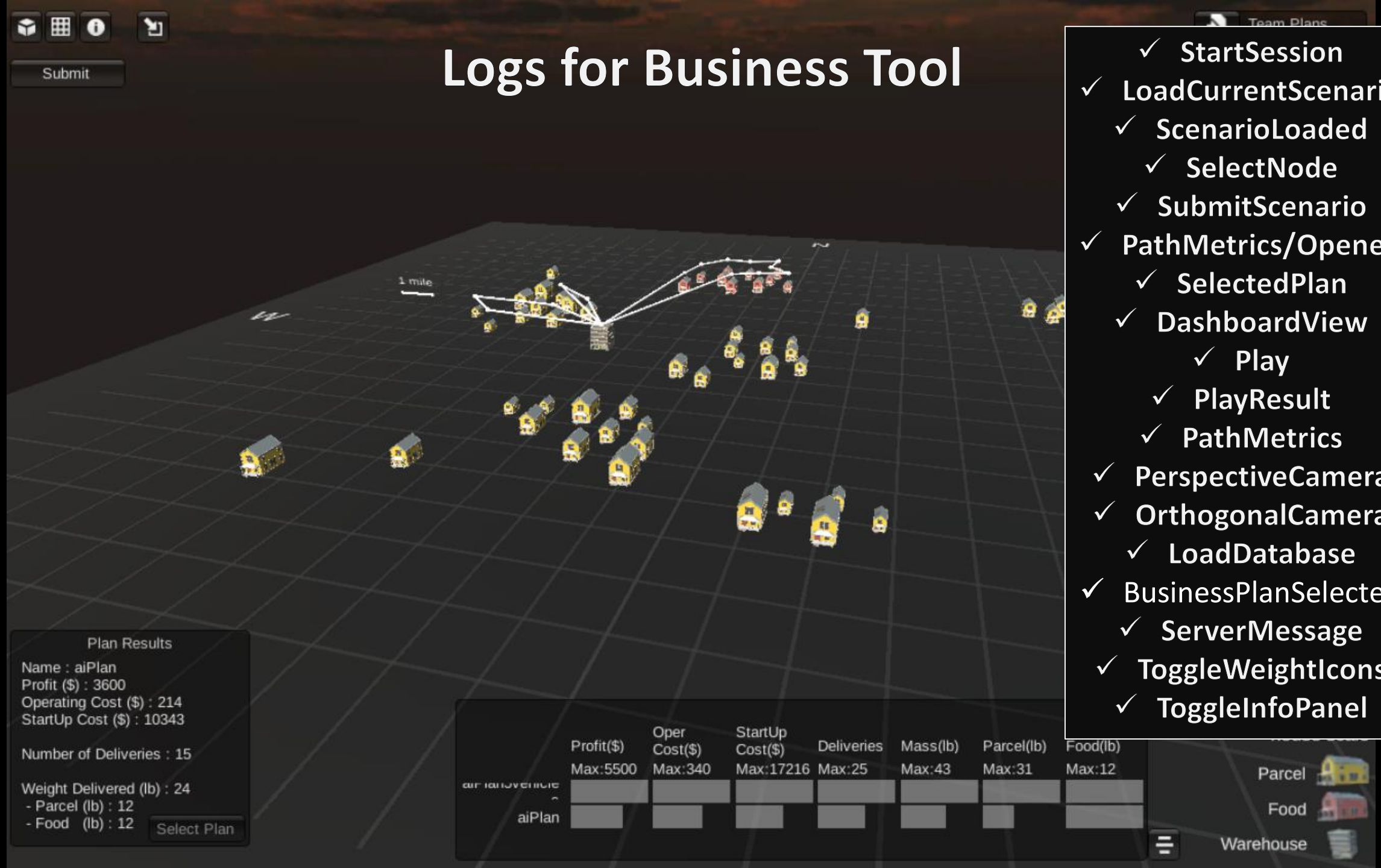
- bool:visible

ToggleInfoPanel: Resets the view to the initial orientation

- bool:visible



Logs for Business Tool



- ✓ StartSession
- ✓ LoadCurrentScenario
- ✓ ScenarioLoaded
- ✓ SelectNode
- ✓ SubmitScenario
- ✓ PathMetrics/Opened
- ✓ SelectedPlan
- ✓ DashboardView
- ✓ Play
- ✓ PlayResult
- ✓ PathMetrics
- ✓ 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