OOPS AML Script Writer's Guide

Target Audience:
Customer(s) & Application Engineer(s)

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OOPS Application Modelling Language (AML)

This section describes the application modelling language (AML) for the PPS family. This AML defines a specification language intended for the user of the software to specify requirements and for the application engineer to understand those requirements and easily implement them.

The AML defined here is called Object-Oriented Predation Specification, otherwise known as OOPS. It is inspired by the object-oriented syntax of the C# programming language, but is not to be confused with the actual C# syntax, and is composed entirely of OOPS Structures.

Using OOPS Structures

OOPS Structures are used to easily specify all the characteristics of each habitat such as: AFM, EFM, WM, FM, list of all seasons possible in the habitat, and the list of all species in the habitat. Below is the syntax for specifying the above information.

```
Habitat NameOfHabitat
[
      // How big the land is.
      Area = ##

      // List of all seasons experienced in habitat.
      Season(##)
      Season(##)
      ...

      // Whether there is disease that leads to epidemic.
      Epidemic = true or false

      // All food sources with growth rate and initial size. Format
      //(foodSource, growthRate, initialSize)
      FoodSources(nameOfFoodSource, growthRate##, initialSize##)
      FoodSources(nameOfFoodSource, growthRate##, initialSize##)
      ...

      // Water from all sources. Format (growthRate, initialSize)
      WaterSource(growthRate##, initialSize##)

      Specie NameOfSpecie
      {
            // Initial population
            InitialPopulation = ##

            // Birth & death rates of specie
            BirthRate = ##
            DeathRate = ##
```

```
            // Hunting rate
            HuntingRate = ##

            // Whether specie hunts in a pack. 0 = no = alone, 1 = yes
            // = pack.
            HuntingStyle = 0 or 1

            // Aggressiveness & evasiveness factors
            AggressivenessFactor = ##
            EvasivenessFactor = ##

            // Number of water drinks
            WaterDrinks = ##

            // Species considered preys. Format (SpecieName,
            // numberOfMeals)
            Prey(nameOfPrey, numberOfMeals##)
            Prey(nameOfPrey, numberOfMeals##)
            ...

            // Food sources. Format (foodSource, numberOfMeals)
            AnimalFoodSource(nameOfFoodSource, numberOfMeals##)
            AnimalFoodSource(nameOfFoodSource, numberOfMeals##)
            ...
      }
      ...
]
...
```

Where:

- `...` represents that you can have any number of that structure. e.g. You can have as many number of `Habitat` or `Season` or `FoodSources` or `Specie` or `Prey` or `AnimalFoodSource` as desired within a single OOPS AML file.
- The AML file must have the extension ".oops" in the filename.

Below is Example 1 of a habitat structure with stubbed values for all the required fields

```
Habitat Meadows
[
      // How big the land is.
      Area = 1200

      // List of all seasons experienced in habitat.
```

```
Season(Winter)
Season(Spring)
Season(Summer)
Season(Fall)

// Whether there is disease that leads to epidemic.
Epidemic = false

// All food sources with growth rate and initial size. Format
// (foodSource, growthRate, initialSize)
FoodSources(Grass, 5.5, 2000)
FoodSources(Leaves, 10.3, 3000)
FoodSources(Carrots, 2.5, 1500)
FoodSources(Apples, 1.5, 500)
FoodSources(Eucalyptus, 4.5, 1000)
FoodSources(Acorn, 5.5, 5000)
FoodSources(Nuts, 4.4, 3000)

// Water from all sources. Format (growthRate, initialSize)
WaterSource(2.4, 1000)

Specie Cheetah
{
      // Initial population
      InitialPopulation = 500

      // Birth & death rates of specie
      BirthRate = 5
      DeathRate = 2

      // Hunting rate
      HuntingRate = 4

      // Whether specie hunts in a pack. 0 = no = alone, 1 = yes
      // = pack.
      HuntingStyle = 0

      // Aggressiveness & evasiveness factors
      AggressivenessFactor = 2
      EvasivenessFactor = 1

      // Number of water drinks
      WaterDrinks = 6

      // Species considered preys. Format (SpecieName,
```

```
	// numberOfMeals)
	Prey(Deer, 5)
	Prey(Gazelle, 5)

	// No food source.
}
Specie Lion
{
	// Initial population
	InitialPopulation = 400

	// Birth & death rates of specie
	BirthRate = 5
	DeathRate = 2

	// Hunting rate
	HuntingRate = 4

	// Whether specie hunts in a pack. 0 = no = alone, 1 = yes
	// = pack.
	HuntingStyle = 0

	// Aggressiveness & evasiveness factors
	AggressivenessFactor = 2
	EvasivenessFactor = 1

	// Number of water drinks
	WaterDrinks = 7

	// Species considered preys. Format (SpecieName,
	// numberOfMeals)
	Prey(Deer, 3)
	Prey(Gazelle, 4)

	// No food source.
}
Specie Deer
{
	// Initial population
	InitialPopulation = 1000

	// Birth & death rates of specie
	BirthRate = 8
	DeathRate = 3
```

```
	// Hunting rate
	HuntingRate = 1

	// Whether specie hunts in a pack. 0 = no = alone, 1 = yes
	// = pack.
	HuntingStyle = 1

	// Aggressiveness & evasiveness factors
	AggressivenessFactor = 1
	EvasivenessFactor = 1

	// Number of water drinks
	WaterDrinks = 10

	// No preys.

	// Food sources. Format (foodSource, numberOfMeals)
	AnimalFoodSource(Grass, 20)
	AnimalFoodSource(Leaves, 15)
}
Specie Gazelle
{
	// Initial population
	InitialPopulation = 1500

	// Birth & death rates of specie
	BirthRate = 5
	DeathRate = 2

	// Hunting rate
	HuntingRate = 1

	// Whether specie hunts in a pack. 0 = no = alone, 1 = yes
	// = pack.
	HuntingStyle = 1

	// Aggressiveness & evasiveness factors
	AggressivenessFactor = 1
	EvasivenessFactor = 1

	// Number of water drinks
	WaterDrinks = 15

	// No preys.
```

```
            // Food sources. Format (foodSource, numberOfMeals)
            AnimalFoodSource(Grass, 20)
            AnimalFoodSource(Leaves, 15)
      }
]
```

Example 1: Example of use OOPS AML to define Meadows habitat

You may also view the “SampleAML.oops” file to view a full example with multiple habitats.