Lua scripting in Eufloria

Created by
Rudolf Kremers & Alex May

Music & Audio by
Brian Grainger

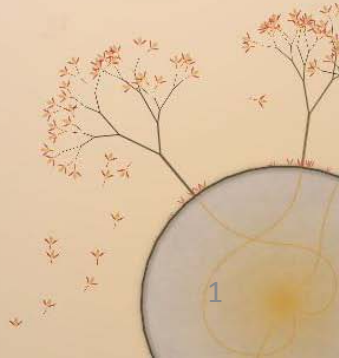


Table of Contents

lua script command

CURRENTLY EXISTING COMMANDS

Function prototype	Return type	Description
GameRunning()	bool	returns true if the game is still running
AddAsteroid(x, y)	Asteroid	Adds an asteroid to the game at the given coordinates during setup.
AddAsteroidWithAttribs (x, y, energy, strength, speed)	Asteroid	Adds an asteroid with the given attributes at the given x,y location, during setup.
GetAsteroid(id)	Asteroid	Get a specific asteroid. Asteroid ID starts at zero and goes up by one with each asteroid created. **All of the GetAsteroid functions may return nil if you pass in an invalid ID, so ideally you will check the return value if you are at all uncertain.**
GetRandomAsteroid()	Asteroid	Get any asteroid in the current game, at random.
GetRandomRangeAsteroid(start, end)	Asteroid	Get a random asteroid from the given range of IDs (start is inclusive, end is exclusive, so e.g. a range of (4, 10) would select a random asteroid from the asteroids with IDs of 4, 5, 6, 7, 8, and 9)
GetRandomEmptyAsteroid()	Asteroid	Get a random asteroid in the game that is empty (that is, it has no trees or seedlings on it and is owned by the grey team)
GetRandomRangeEmptyAsteroid(start, end)	Asteroid	Get an empty asteroid from the given range of asteroid IDs.
GetGameTime()	number	Returns a real number in seconds showing the time the current game has been running.

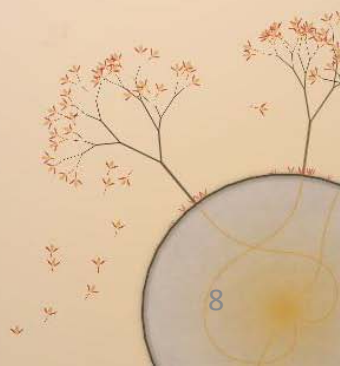
Function prototype	Return type	Description
MessageBox(string message)	nil	Pops up a message box with an OK button and the given message.
AddAsteroidRing(int numAsteroids, float x, float y, float centreRadius, float beltWidth)	nil	Adds an asteroid ring containing *numAsteroids* asteroids, centred around coordinates (*x*, *y*), with radius *centreRadius*, and spreading asteroids out over a ring thickness of *beltWidth* game units.
GetDialogActive()	bool	returns whether there is an active dialog on the screen (from MessageBox).
Pause()	nil	Pauses the game (without popping up the pause menu).
Unpause()	nil	Unpauses the game (without removing the pause menu if it is active)
GetNumInactiveFactions	number	Returns the number of currently inactive factions.
GetFirstInactiveFactionID	number	Returns the number of the first faction number which is 'dead', i.e. has no asteroids.
GetRandomInactiveFactionID	number	Gets a random dead faction and returns its id number.
Quit(bool win)	nil	Stops the game and returns to the main menu. Set the parameter to true if the game was won, false if not.
GetEmpire(int faction)	Empire	Gets the empire with the given ID.
GetAI(int faction)	AI or nil	Gets the AI with the given ID. can return nil, e.g. if you ask for team 1 (the player) the function will return nil as the player has no AI.
SetBackdropColor / SetBackdropColour	nil	Set the level colour (r, g, b values from 0 - 255)
SetVignetteAlpha	nil	Set the darkness of the vignette (value from 0 - 255)
print	nil	

Function prototype	Return type	Description
SetDysonTreeButtonAvailable(bool available)	nil	Sets the availability of this button.
SetDefenseTreeButtonAvailable(bool available)	nil	Sets the availability of this button.
SetFlowerDefenseButtonAvailable(bool available)	nil	Sets the availability of this button.
SetFlowerSeederButtonAvailable(bool available)	nil	Sets the availability of this button.
SetTreeInfoAvailable(bool available)	nil	Sets the availability of this information on the info panel.
SetEnemyInfoAvailable(bool available)	nil	Sets the availability of this information on the info panel.
SetCoreInfoAvailable(bool available)	nil	Sets the availability of this information on the info panel.
SetAttribsInfoAvailable(bool available)	nil	Sets the availability of this information on the info panel.
SetCameraPosition(float x, float y)	nil	Sets the camera's position, without causing it to smoothly transition.
SetCameraTarget(float x, float y)	nil	Sets the camera target, causing it to smoothly move from the current location to the new target.
SetCameraPositionToAsteroidID(int id)	nil	Sets the camera's position to that of the given asteroid's ID, without causing it to smoothly transition. Will do nothing if the asteroid does not exist.
SetCameraTargetToAsteroidID(int id)	nil	Sets the camera target position to that of the given asteroid's ID, causing it to smoothly move from the current location to the new target.
SetCameraZoom(float zoom)	nil	Sets the camera zoom. The camera will smoothly zoom to the given value.
SetCameraZoomNow(float zoom)	nil	Sets the camera zoom bypassing any smooth transition.
GetNumFactions	int	How many factions are there? This one will tell you.
UnlockArenaLevel(int level)	void	Unlock an arena level (pass in 1 to unlock the first arena, 2 for the second etc)

Function prototype	Return type	Description
DrawLine(x1,y1,x2,y2,r1,g1,b1,a1,r2,g2,b2,a2, thickness	void	(all parameters floating point) Draws a line from (x1,y1) to (x2,y2) with starting colour (r1,g1,b1,a1) and ending colour (r2,g2,b2,a2) where colour values are from 0 to 1. use alpha <1 (e.g. 0.99) rather than 1 in general.
DrawTexLine(int id, x1,y1,x2,y2,r1,g1,b1,a1,r2,g2,b2,a2,thickness)	void	As for DrawLine except applies a texture (see below for id indexes)
DrawSprite(int id, x,y, r,g,b,a, size)	void	Draws sprite of size size and index id at (x,y) in colour (r,g,b,a).
IsOnScreen(x,y, radius)	bool	returns true if the object at x,y with radius radius would be on the screen at the time of drawing.
GetLODAlpha(int LOD)	float	returns the alpha of the given LOD (0,1,2). LOD 2 is the most zoomed-in; LOD 0 is the farthest zoomed-out.
GetCameraScale()	float	returns the current scale of the camera. Divide a value by this to get a size in pixels on-screen to pass to draw functions.
SaveStats(string filename)	float	e.g. SaveStats("myfile.bin") - saves out the current game stats to the given file
LoadStats(string filename)	float	e.g. LoadStats("myfile.bin") - loads myfile.bin into the current stats register
GetCameraX()	float	Get camera's x position
GetCameraY()	float	Get camera's y position
GetCameraZoom()	float	Gets the camera zoom - warning this value is different from the value passed in from SetCameraZoom for arcane and ridiculous reasons... the formula is (0.05f + ((float)(Zoom * Zoom * Math.Sign(Zoom)) / 10)) where Zoom is the value you passed in

They are floats or ints. Try not to put floating point numbers into int vars... I have put the type after the var name

ALL ACCESSIBLE FROM LUA



CAMERA & FLOWER VARS

Function var	Return type	Description
Camera vars		
Globals.Camera.ViewSupplement(float)	Float	
Flower vars		
Globals.Flowers.GrowTime	Float	
Globals.Flowers.MinSpeed (float)	Float	
Globals.Flowers.MaxSpeed (float)	Float	
Globals.Flowers.SpeedPower (float)	Float	
Globals.Flowers.MinHealth (int)	Int	
Globals.Flowers.MaxHealth (int)	Int	
Globals.Flowers.HealthPower (float)	Float	
Globals.Flowers.Available (int)	Int	Sets whether or not flowers will grow (0 = won't grow, anything else = will grow)

MINE VARS

Function var	Return type	Description
Mine vars		
Globals.Mines.GrowTime (float)	float	
Globals.Mines.MinSpeed (float)	Float	
Globals.Mines.MaxSpeed (float)	Float	
Globals.Mines.SpeedPower (float)	Float	
Globals.Mines.MinHealth (int)	Int	
Globals.Mines.MaxHealth (int)	Int	
Globals.Mines.HealthPower (float)	Float	
Globals.Mines.NumberOfLasers (int)	Int	
Globals.Mines.LaserPowerMin (float)	Float	
Globals.Mines.LaserPowerMax (float)	Float	
Globals.Mines.LaserPowerRule (float)	float	
Globals.Mines.ExplosionPowerMin (float)	Float	
Globals.Mines.ExplosionPowerMax (float)	Float	
Globals.Mines.ExplosionPowerRule (float)	Float	
Globals.Mines.ExplosionRadiusMin (float)	Float	
Globals.Mines.ExplosionRadiusMax (float)	Float	
Globals.Mines.ExplosionRadiusPower (float)	Float	
Globals.Mines.LaserRange (float)	Float	

MISSILE VARS

Function var	Return type	Description
Missile vars		
Globals.Missiles.AmmoAvailable1 (int)	Int	
Globals.Missiles.AmmoAvailable2 (int)	Int	
Globals.Missiles.AmmoAvailable3 (int)	Int	
Globals.Missiles.AmmoAvailable4 (int)	Int	
Globals.Missiles.DamageMin (float)	Float	
Globals.Missiles.DamageMax (float)	Float	
Globals.Missiles.DamagePowerRule (float)	Float	
Globals.Missiles.RadiusMin (float)	Float	
Globals.Missiles.RadiusMax (float)	Float	
Globals.Missiles.RadiusPowerRule (float)	Float	
Globals.Missiles.SpeedMin (float)	Float	
Globals.Missiles.SpeedMax (float)	Float	
Globals.Missiles.SpeedPowerRule (float)	Float	
Globals.Missiles.TriggerDistance (float)	Float	
Globals.Missiles.ReloadMin (float)	Float	
Globals.Missiles.ReloadMax (float)	Float	
Globals.Missiles.ReloadPowerRule (float)	Float	
Globals.Missiles.TurnRate (float)	Float	
Globals.Missiles.LaunchDuration (float)	Float	
Globals.Missiles.CheckTimer (float)	Float	

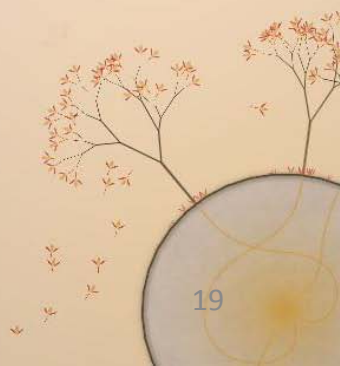
SEEDLING VARS

Function var	Return type	Description
Seedling vars		
Globals.Agents.MaxSpeed (float)	Float	
Globals.Agents.MinSpeed (float)	Float	
Globals.Agents.SpeedPower (float)	Float	
Globals.Agents.WanderAttackTime (float)	Float	
Globals.Agents.AttackRepeatTime (float)	Float	
Globals.Agents.MinDamage (float)	Float	
Globals.Agents.MaxDamage (float)	Float	
Globals.Agents.DamagePower (float)	Float	
Globals.Agents.MinAltitude (float)	Float	
Globals.Agents.MaxAltitude (float)	Float	
Globals.Agents.AttackDist (float)	Float	
Globals.Agents.BomVolume (int)	Int	
Globals.Agents.MinHealth (int)	Int	
Globals.Agents.MaxHealth (int)	Int	
Globals.Agents.HealthPower (float)	Float	
Globals.Agents.RegenRate (float)	Float	
Globals.Agents.NoseLengthMin (float)	Float	
Globals.Agents.NoseLengthMax (float)	Float	
Globals.Agents.TurnRate (float)	Float	
Globals.Agents.AttackTravellerMultiplier (float)	Float	
Globals.Agents.AttackAgentDistanceSuper (float)	Float	
Globals.Agents.AttackRepeatTimeSuper (float)	Float	
Globals.Agents.SendThresholdEnergy (float)	Float	
Globals.Agents.SendThresholdStrength (float)	Float	
Globals.Agents.SendThresholdSpeed (float)	Float	

ASTEROID VARS

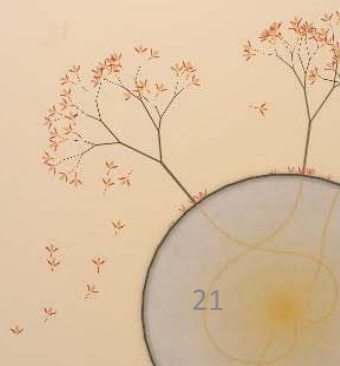
Function var	Return type	Description
Asteroid vars		
Globals.Asteroids.MaxVolume (int)	Int	
Globals.Asteroids.TakeoverVolume (int)	Int	
Globals.Asteroids.MaxTrees (int)	Int	
Globals.Asteroids.MinRadius (float)	Float	
Globals.Asteroids.MaxRadius (float)	Float	
Globals.Asteroids.RadiusPowerRule (float)	Float	
Globals.Asteroids.SizeFromEnergy (float)	Float	
Globals.Asteroids.SizeFromStrength (float)	Float	
Globals.Asteroids.SizeFromSpeed (float)	Float	
Globals.Asteroids.AttributeMinimum (float)	Float	
Globals.Asteroids.AttributeDivisions (int)	Int	
Globals.Asteroids.SendVolume (int)	Int	
Globals.Asteroids.AsteroidSelectRadius (int)	Int	
Globals.Asteroids.MinSendDistance (float)	Float	
Globals.Asteroids.MaxSendDistance (float)	Float	
Globals.Asteroids.SendPowerRule (float)	Float	
Globals.Asteroids.MinCoreHealth (float)	Float	
Globals.Asteroids.MaxCoreHealth (float)	Float	
Globals.Asteroids.CoreHealthPower (float)	Float	
Globals.Asteroids.SeedlingCap (int)	Int	
Globals.Asteroids.SpawnCap (int)	Int	

DYSON TREE VARS



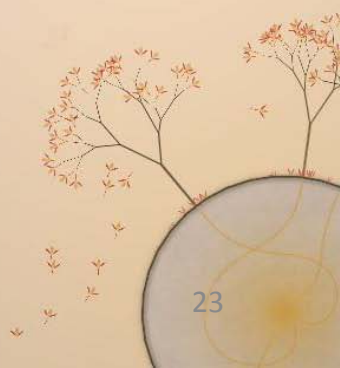
Function var	Return type	Description
Dyson tree vars		
Globals.Structures.TreeCost (int)	Int	
Globals.Structures.MinHealth (float)	Float	
Globals.Structures.MaxHealth (float)	Float	
Globals.Structures.HealthPower (float)	Float	
Globals.Structures.RegenRate (float)	Float	
Globals.Structures.LevelTime1 (float)	Float	
Globals.Structures.LevelTime2 (float)	Float	
Globals.Structures.LevelTime3 (float)	Float	
Globals.Structures.LevelTime4 (float)	Float	
Globals.Structures.SpawnTime1 (float)	Float	
Globals.Structures.SpawnTime2 (float)	Float	
Globals.Structures.SpawnTime3 (float)	Float	
Globals.Structures.SpawnTime4 (float)	Float	
Globals.Structures.SoundVolume (float)	Float	
Globals.Structures.MinSoundTime (float)	Float	
Globals.Structures.MaxSoundTime (float)	Float	
Globals.Structures.MaxDamage (float)	Float	
Globals.Structures.MinDamage (float)	Float	
Globals.Structures.DamagePower (float)	Float	
Globals.Structures.FlowerProbability (float)	Float	
Globals.Structures.RootSpeed (float)	Float	affects all roots in the game

DEFENSE TREE VARS



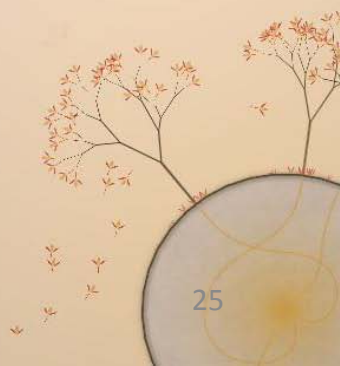
Function var	Return type	Description
Defense tree vars		
Globals.StructuresDefense.TreeCost (int)		
Globals.StructuresDefense.MinHealth (float)		
Globals.StructuresDefense.MaxHealth (float)		
Globals.StructuresDefense.HealthPower (float)		
Globals.StructuresDefense.RegenRate (float)		
Globals.StructuresDefense.LevelTime1 (float)		
Globals.StructuresDefense.LevelTime2 (float)		
Globals.StructuresDefense.LevelTime3 (float)		
Globals.StructuresDefense.LevelTime4 (float)		
Globals.StructuresDefense.SpawnTime1 (float)		
Globals.StructuresDefense.SpawnTime2 (float)		
Globals.StructuresDefense.SpawnTime3 (float)		
Globals.StructuresDefense.SpawnTime4 (float)		
Globals.StructuresDefense.MaxDamage (float)		
Globals.StructuresDefense.MinDamage (float)		
Globals.StructuresDefense.DamagePower (float)		

AI STUFF & PROGRAM VARS



Function var	Return type	Description
AI stuff		
Globals.AI.MinDecisionTime (float)		
Globals.AI.MaxDecisionTime (float)		
Globals.AI.GraceTimer (int)		
Program vars - try not to change these yourself		
Globals.P.ToolTipWait (float)		
Globals.P.ToolTipWaitUI (float)		
Globals.P.AutoHide (int)		
Globals.P.FullScreen (int)		
Globals.P.SeenHelp (int)		
Globals.P.FontSize (float)		
Globals.P.BGFade (float)		
Globals.P.PlayerColour (int)		

GAME VARS



Function var	Return type	Description
Game vars		
Globals.G.EnemyFactionsMin (int)		
Globals.G.EnemyFactionsMax (int)		
Globals.G.BeltRadius (int)		
Globals.G.BeltWidth (int)		
Globals.G.Asteroids (int)		
Globals.G.MinAsteroidSeparation (int)		
Globals.G.StartingSeedlings (int)		
Globals.G.StartingSeedlingsPlayer (int)		
Globals.G.MaxAsteroidNeighbourDist (int)		
Globals.G.GreysProbability (float)		
Globals.G.GreysMin (int)		
Globals.G.GreysMax (int)		

WHAT GOES IN THE LUA FILE?

function LevelSetup()

ExampleCalledonce at the start of the game - use it to set up asteroids and stuff. Example:

```
function LevelSetup()

SetBackdropColour(237,220,198)

   Globals.Asteroids.MaxTrees=0
   Globals.Asteroids.MinRadius=85
   Globals.Asteroids.MaxRadius=800
   Globals.Asteroids.RadiusPowerRule=1.5
   Globals.Asteroids.MinSendDistance=2500
   Globals.Asteroids.MaxSendDistance=4000
   Globals.Asteroids.SendPowerRule=2.5
Globals.G.MinAsteroidSeparation = 500

AddAsteroidRing(4, 0, 0, 900, 150)

a = GetAsteroid(0)
a.Owner = 1
a:AddSeedlings(4)

a = GetAsteroid(1)
a.Owner = 0
a:AddSeedlings(4)
a:Reveal(1)

a = GetAsteroid(2)
a.Owner = 1
a:AddSeedlings(4)
a:Hide(1)

a = GetAsteroid(3)
a.Owner = 1
a:AddSeedlings(4)
a:Hide(1)

end
```

function LevelLogic()

Called as a coroutine. Put in while loops with coroutine.yield() in them to hold up your script.
Example:

- function LevelLogic()

```
Pause()
MessageBox("Starting message\n\nThis
message pops up before the level begins.")
WaitDialog()
Unpause()

player = GetEmpire(1)

while player.NumSeedlings <= 15 do

coroutine.yield()
end

Pause()
MessageBox("Ending message\n\nYou
totally won the level.\n\nGo you.")
WaitDialog()
Unpause()

 "Quit(true)" or "Quit(false)"
end
```

Other Function's

- **function LevelDraw()**
  Optional. Called every time the game draws to the screen. Fill it with your lovely drawing code. Check the script examples thread for an example.

- **function OnAsteroidTaken(id, owner)**
  This is optional but if defined will be called whenever an asteroid changes hands. Use it to check for specific asteroids being taken over by specific teams, or whatever you like.

- function OnAsteroidTaken(id, owner)
  if id == 1 then MessageBox("Asteroid "..id.." was taken by faction "..owner..".") end
  end

- **function OnAsteroidRevealed(id, owner)**
  This is optional but if defined will be called whenever an asteroid is revealed to an owner. So when you discover an asteroid, this will be called with the id of the asteroid and owner 1, for example

- function OnAsteroidRevealed(id, owner)
  if id == 1 then MessageBox("Asteroid "..id.." was discovered by faction "..owner..".") end
  end

These are the most important functions and fields available to you as a scripter
(there are tons more but listing them all would take ages and confuse people)

DOCUMENTATION OF ASTEROIDS AND EMPIRES

ASTEROIDS

Info

- Let's say you have an Asteroid called a. To call functions on a, you use the colon like so
  Code:

```
a:AddTrees(1,2)
```

- and to set fields you use the dot like so
  Code:

```
a.Owner = 3
```

Function name	Return value	Description
MoveBy(float, float)	nil	Moves the asteroid by the given offset.
MoveTo(float, float)	nil	Moves the asteroid to the given position.
GetNumSeedlings()	int	Counts the number of seedlings present at the asteroid.
GetNumSeedlings(int faction)	int	Counts the number of seedlings present at the asteroid belonging to the given faction/empire.
GetNumSeedlingsExcluding(int faction)	int	Counts the number of seedlings present at the asteroid, excluding seedlings from the given faction.
GetNumFlowers(int faction)	int	Counts the number of flowers present at the asteroid belonging to the given faction/empire.
GetNumMines(int faction)	int	Counts the number of mines present at the asteroid belonging to the given faction/empire.
GetFlower(int faction)	Flower	Gets one of the flowers of the given faction present on the asteroid. Will return nil if there are none available.
GetMine(int faction)	Mine	Gets one of the mines of the given faction present on the asteroid. Will return nil if there are none available.
GetNumTrees()	int	Counts the number of trees present at the asteroid.
GetNumDysonTrees()	int	Counts the number of these trees present at the asteroid.
GetNumDefenseTrees()	int	Counts the number of these trees present at the asteroid.

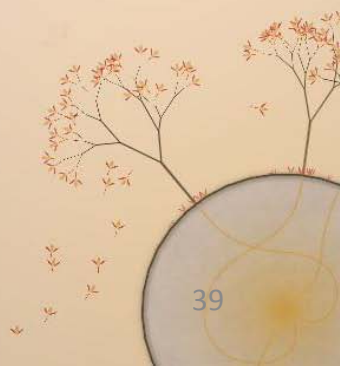
Function name	Return value	Description
FreeSlots()	int	Returns how many places for trees are left here.
AvailableStructureSpace()	bool	Tells you if there is space for any trees here.
SetRadius(float radius)	nil	Set the radius of the asteroid. Probably best not to call this after level setup.
SendSeedlingsToTarget(int faction, int number, Asteroid asteroid)	int	Attempt to send *number* seedlings from faction *faction* to asteroid *asteroid*.
CanAddSeedling(int faction)	bool	Check to see if faction *faction* can add any seedlings to this asteroid.
CanSpawnSeedling(int faction)	bool	Check to see if faction *faction* can spawn any seedlings on this asteroid.
AddDysonTree()	Structure	Attempt to add a Dyson tree to the asteroid; if nothing can be done (all tree slots are taken) the function does nothing and returns nil. Otherwise the function returns a Structure, which is the base type of the trees in Dyson.
AddDefenseTree()	Structure	See above.
PlantDysonTree(int faction)	Structure	Attempt to plant a Dyson tree using the seedlings present at the asteroid; if nothing can be done (all tree slots are taken, or there are not enough seedlings or the asteroi is owned by some other faction than team 0 or the given faction) the function does nothing and returns nil. Otherwise the function returns a Structure, which is the base type of the trees in Dyson.
PlantDefenseTree(int faction)	Structure	See above.
ChangeOwner(int faction)	nil	Instantly transfers ownership of the asteroid to the given team.
GetSendDistance()	float	Instantly transfers ownership of the asteroid to the given team.
IsBarren()	bool	Informs of the asteroid's barren status (barren is when team 0 (the greys) is the owner and there are no trees).

Function name	Return value	Description
AddSeedlings(int numberToAdd)	nil	Adds *numberToAdd* seedlings to the asteroid of the current asteroid owner's team.
AddSuperSeedlings(int numberToAdd)	nil	Adds *numberToAdd* enhanced seedlings to the asteroid of the current asteroid owner's team.
AddSeedlings(int numberToAdd, int faction, float energy, float strength, float speed)	nil	Adds *numberToAdd* seedlings to the asteroid of the given team and with the given attributes.
AddSuperSeedlings(int numberToAdd, int faction, float energy, float strength, float speed)	nil	Adds *numberToAdd* enhanced seedlings to the asteroid of the given team and with the given attributes.
RemoveSeedlings(int faction, int numberToRemove)	nil	Removes *numberToAdd* seedlings at random from the asteroid of the given owner's team.
AddFlower()	Flower	Adds a flower of the asteroid's owners type to the asteroid. May return nil if there are too many flowers in the game.
AddFlower(int faction)	Flower	Adds a flower of the given faction type to the asteroid.
AddMine()	Mine	Adds a mine of the asteroid's owners type to the asteroid. May return nil if there are too many mines in the game.
AddMine(int faction)	Mine	Adds a mine of the given faction type to the asteroid.
AddTrees(int dyson, int defense)	nil	Add the given number of trees to the asteroid.
SetGraceTime(float gracetime)	nil	Sets the grace time for the current owner of the asteroid - stops the owner's AI from doing anything with the asteroid while the grace timer is still above 0.
SetFlowerProbability(float probability)	nil	Override the probability (0 = no chance -> 1 = guaranteed) of flowers being grown on trees planted on this asteroid. Will also affect any trees currently planted here - if they are currently not going to grow a flower (as this is decided when they are created), they will "roll the die" again to see if they will grow a flower

Function name	Return value	Description
GetRandomDefenseTree() and GetRandomDefenseTree(bool ignoreEnhance)	Structure or nil	This gets a random defense tree. If you send in false as the parameter, it will choose a tree without a flower already planted on it. If no tree is suitable the function returns nil.
GetRandomDysonTree() and GetRandomDysonTree(bool ignoreEnhance)	Structure or nil	This gets a random dyson tree. If you send in false as the parameter, it will choose a tree without a flower already planted on it. If no tree is suitable the function returns nil.
GetRandomTree() and GetRandomTree(bool ignoreEnhance)	Structure or nil	This gets a random tree. If you send in false as the parameter, it will choose a tree without a flower already planted on it. If no tree is suitable the function returns nil.

Field name	Return value	Description
ID	int	The ID of the asteroid, corresponding to when it was created in the level setup. Do not edit this value unless you want trouble.
Moveable	bool	Can the game move the asteroid around during setup to make sure it isn't too close / far away from other asteroids? This field will have no effect after level setup.
Name	string	The name of the asteroid. You can name your asteroids if you like.
SeedlingCap	int	Set the maximum number of seedlings allowed on an asteroid.
SpawnCap	int	Set the number of seedlings at an asteroid before Dyson trees stop producing seedlings.
TreeCap	int	Set the maximum number of trees allowed on an asteroid.
CoreHealth	int	Set the asteroid's core health.
MaxCoreHealth	int	Set the asteroid's maximum core health.
SendDistance	float	Set the asteroid's sending distance.

TREES ~ FLOWER ~ MINE



Function name	Return value	Description
Trees		
LevelUp()	nil	Level the tree up. If called during setup the tree will start the game with a fully grown root and at the next level up. Call it multiple times have the tree at higher levels.
SetFlowerProbability(float probability)	nil	Override the probability (0 = no chance -> 1 = guaranteed) of flowers being grown on a tree. The tree will "roll the die" again to see if it will grow a flower.
AddFlower()	Flower/Mine or nil	If the tree is a dyson tree this will add a Flower. If the tree is a Defense tree it will add a Mine. If the tree already has a flower or mine this will return nil.

Field name	Type	Description
Enhanced	bool	Sets the tree to have been enhanced (to make super seedlings).

Function name		Description
Flower/Mine		
GrowToMax()	nil	The flower will immediately grow to full age, ready to be plucked.
Pluck()	nil	The flower or mine will detatch itself from its tree, if it is attached.
SendTo(Asteroid destination)	nil	Attempt to send the flower/mine to the destination asteroid.
Plant(Structure tree)	bool	Plant the flower on the given tree, returns false if it couldn't plant.
PlantOnRandomTree()	bool	Plant the flower on a random tree, returns false if it couldn't plant.
PlantOnRandomDysonTree()	bool	Plant the flower on a random dyson tree, returns false if it couldn't plant.
PlantOnRandomDefenseTree()	bool	Plant the flower on a random defense tree, returns false if it couldn't plant.

EMPIRES

Function name	Return value	Description
Empires		
GetRandomAsteroid()	Asteroid	.
GetNumOwnedAsteroids()	int	How many asteroids the empire owns
GetNumVisibleAsteroids()	int	How many asteroids the empire knows about
OwnsAsteroidID(int id)	bool	returns true if the empire currently owns asteroid with given id.
Field name	**Type**	**Description**
NumSeedlings	int	.
NumTrees	int	.
NumDysonTrees	int	.
NumDefenseTrees	int	.
Defeated	bool	set by the game to true when the empire has been defeated

AIs are also Empires, so you can also call/set anything in the above Empire reference on any AI you might have around.

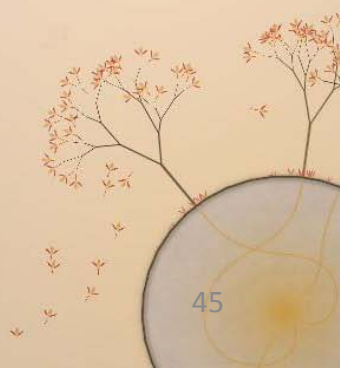
e.g. num = GetAI(3).NumSeedlings

AIS

Field name	Return value	Description
MinScoutTime	float	scout timer - how often will we check to scout.
MaxScoutTime	float	.
MinScoutableArmy	int	won't scout from asteroids with this number or fewer seedlings.
MinBattleAnalysisTime	float	analysis of battles in progress.
MaxBattleAnalysisTime	float	.
Cowardice	float (0-1)	chances of retreating a battle we are losing.
BattleSavvy	float (0-1)	chances of picking a battle for a valuable asteroid - don't put this at 1 or the AI will only look at one asteroid at a time!
RecognisableThreatProportion	float (0-1)	enemy army size relative to ours before it's considered a threat.
ReinforcementGreed	float (0-1)	proportion of existing forces elsewhere to send in aid of battle.
AidEnthusiasm	float (0-1)	how much to overshoot the battle rating when sending aid, to allow for inbound enemy forces, estimate errors, travel time, wanting to win, etc.
MinExpansionTime	float	expand the empire. expansion won't happen if forces are below a certain value
MaxExpansionTime	float	.
MinExpansionForce	int	this should be at least the cost of a tree.
ExpandToValuableAsteroidChance	float (0-1)	likelihood of choosing a more valuable asteroid to expand to.
GreedyExpansion	float (0-1)	likelihood of sending all/most of the seedlings to expand.
ExpandBlind	float (0-1)	likelihood of expanding to asteroids that haven't been scouted yet.
MinAttackTime	float	attack enemies.
MaxAttackTime	float	.
MinPlantTime	float	plant trees.
MaxPlantTime	float	.
MinFlowerTime	float	pluck, plant and send flowers.
MaxFlowerTime	float	.
MinGatherTime	float	gather armies on asteroids, and send them to take over enemy asteroids too.
MaxGatherTime	float	.
MinTotalSeedlings	int	the minimum number of seedlings allowed in the empire. if the actual number is below this then the AI will stop expanding and planting trees.
MinTotalAddPerAsteroid	int	adds this number on to the above minimum, per asteroid in the empire.

these functions can be used on most anything in the game
(seedlings, trees, asteroids, etc)

GENERAL GAME ENTITIES



Field name	Return value	Description
Hide(int faction)	nil	Hides the entity from the given faction.
Reveal(int faction)	nil	Reveals the entity to the given faction.
IsVisible(int faction)	bool	Tells if the entity is visible to the given faction.
IsVisible()	bool	Tells if the entity is visible to the game (i.e. will it render if it comes onscreen).
Die()	nil	Deactivate the entity and do whatever else happens when it dies.
SetEnergy(float energy)	nil	Set the energy attribute of the entity from 0.0 to 1.0
SetStrength(float strength)	nil	Set the strength attribute of the entity from 0.0 to 1.0
SetSpeed(float speed)	nil	Set the speed attribute of the entity from 0.0 to 1.0

Field name	Type	Description
CurrentEnergy	float	Current hit points of the entity.
MaxEnergy	float	Max hitpoints of the entity.