Game Objects

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| GameObject | |
| Subclasses: GameAgent, Mineral, Structure | |
| Responsibilities | Collaborations |
| World Position |  |
| Grid Position |  |
| Mesh/Model |  |
| Get Grid Position |  |
| Get World Position |  |
| Get Orientation |  |
| Set Grid Position |  |
| Set World Position |  |
| Set Orientation |  |

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| GameAgent | |
| Superclass: GameObject | |
| Subclasses: AirUnit, GroundUnit, SpaceUnit | |
| Responsibilities | Collaborations |
| Health | Grid |
| Speed | Tile |
| Production Time | Particle Emitter |
| Cost |  |
| Damage |  |
| Particle System |  |
| State |  |
| Grid Position |  |
| Is moving |  |
| Construct |  |
| Attack |  |
| Take Damage |  |
| Move To |  |
| Heal |  |
| Destroy |  |
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| AirUnit | |
| Superclass: GameAgent | |
| Subclasees: Bomber, Fighter | |
| Responsibilities | Collaborations |
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| GroundUnit | |
| Superclass: GameAgent | |
| Subclasses: Artillery, Infantry, Tank, Worker | |
| Responsibilities | Collaborations |
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| SpaceUnit | |
| Superclass: GameAgent | |
| Subclasses: Mothership, SpaceFighter, Transport | |
| Responsibilities | Collaborations |
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| Bomber | |
| Superclass: AirUnit | |
| Responsibilities | Collaborations |
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| Fighter | |
| Superclass: AirUnit | |
| Responsibilities | Collaborations |
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| Artillery | |
| Superclass: GroundUnit | |
| Responsibilities | Collaborations |
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| Infantry | |
| Superclass: GroundUnit | |
| Responsibilities | Collaborations |
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| Tank | |
| Superclass: GroundUnit | |
| Responsibilities | Collaborations |
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| Worker | |
| Superclass: GroundUnit | |
| Responsibilities | Collaborations |
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| Mothership | |
| Superclass: SpaceUnit | |
| Responsibilities | Collaborations |
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| SpaceFighter | |
| Superclass: SpaceUnit | |
| Responsibilities | Collaborations |
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| Transport | |
| Superclass: SpaceUnit | |
| Responsibilities | Collaborations |
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| Mineral | |
| Superclass: GameObject | |
| Responsibilities | Collaborations |
| Amount |  |
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| --- | --- |
| Production | |
| Superclass: Structure | |
| Subclasses: Barracks, ComCentre, Hellipad, SpaceCentre | |
| Responsibilities | Collaborations |
| Respective agents | GameAgent |
| Production queue |  |
| Add to Queue |  |
| Update Production |  |
| Remove From Queue |  |
| Create Agent |  |
| Update Key Presses |  |
| Update |  |
| Display Info |  |

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| --- | --- |
| Structure | |
| Superclass: GameObject | |
| Subclass: Production, Static | |
| Responsibilities | Collaborations |
| Health | Grid |
|  |  |
| Build Time | Tile |
| Repair Speed | Particle Emitter |
| Whether it has been built |  |
| State of Structure |  |
| Cost to build |  |
| Type of Structure |  |
| Grid Position |  |
| Grid Squares occupied |  |
| Create Structure |  |
| Get and Set Structure Data |  |
| Destroy Structure |  |
| Take Damage |  |
| Repair |  |
| Determine collision |  |

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| Barracks | |
| Superclass: Production | |
| Responsibilities | Collaborations |
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| ComCentre | |
| Superclass: Production | |
| Responsibilities | Collaborations |
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| Hellipad | |
| Superclass: Production | |
| Responsibilities | Collaborations |
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| SpaceCentre | |
| Superclass: Production | |
| Responsibilities | Collaborations |
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| Static | |
| Superclass: Structure | |
| Subclasses: House | |
| Responsibilities | Collaborations |
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| House | |
| Superclass: Static | |
| Responsibilities | Collaborations |
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Particles

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| --- | --- |
| ParticleEmitter | |
| Subclasses: Fire, Smoke, Explosion | |
| Responsibilities | Collaborations |
| Number of Particles | Particle |
| Particles |  |
| Emitter Parent |  |
| Construct |  |
| Update System |  |
| Destroy |  |

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| Fire | |
| Superclass: ParticleEmitter | |
| Responsibilities | Collaborations |
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| Smoke | |
| Superclass: ParticleEmitter | |
| Responsibilities | Collaborations |
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| Explosion | |
| Superclass: ParticleEmitter | |
| Responsibilities | Collaborations |
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| Particles | |
| Responsibilities | Collaborations |
| Move Vector |  |
| Position |  |
| Skin |  |
| LifeTime |  |

Player

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| --- | --- |
| Player | |
| Subclasses: AIPlayer, HumanPlayer | |
| Responsibilities | Collaborations |
| Name | Structure |
| Number of Minerals | GameAgent |
| Owned Structures | SpaceUnit |
| Owned Units | Fleet |
| Owned space crafts | Grid |
| Population Limit | Tile |
| Whether Comm Centre is destroyed |  |
| Construct |  |
| Mineral Transaction |  |
| Purchase Structure |  |
| Queue Unit |  |
| Launch Attack |  |

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| --- | --- |
| AIPlayer | |
| Superclass: Player | |
| Responsibilities | Collaborations |
| Name | Structure |
| Number of Minerals | GameAgent |
| Owned Structures | SpaceUnit |
| Owned Units | Fleet |
| Owned space crafts | Grid |
| Population Limit | Tile |
| Whether Comm Centre is destroyed |  |
| Construct |  |
| Mineral Transaction |  |
| Purchase Structure |  |
| Queue Unit |  |
| Launch Attack |  |

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| --- | --- |
| Grid | |
| Responsibilities | Collaborations |
| Start Position | Tile |
| End Position |  |
| Area |  |
| Setup Grid |  |
| Get Grid Data |  |
| Get Tiles |  |
| Reset Tile Data |  |
| Turn on Tiles |  |

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| --- | --- |
| Tile | |
| Responsibilities | Collaborations |
| Start Position | Game Agent |
| End Position |  |
| Whether Tile is used |  |
| Object on Tile |  |
| Parent Tile |  |
| Get Tile Data |  |
| Set Tile Data |  |
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| --- | --- |
| Sound | |
| Responsibilities | Collaborations |
| Buffer |  |
| Source |  |
| Source Position |  |
| Source Velocity |  |
| Listener Position |  |
| Listener Velocity |  |
| Listener Orientation |  |
| Whether sound is playing |  |
| Construct |  |
| Play Sound |  |
| Stop Sound |  |

States

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| --- | --- |
| StateControl | |
| Responsibilities | Collaborations |
| Current state | Game State |
| Set Current State | Play State |
| Manage State Change | Menu Sate |
| Get Current State | World State |
| Update State |  |

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| --- | --- |
| GameState | |
| Subclasses: MenuState, PlayState, SpaceState, WorldState | |
| Responsibilities | Collaborations |
| State setup |  |
| Setup State |  |
| Update State |  |
| Clean Up State |  |
| Save State |  |
| Load State |  |

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| Menu State | |
| Superclass: GameState | |
| Responsibilities | Collaborations |
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| Play State | |
| Superclass: GameState | |
| Responsibilities | Collaborations |
|  | CHumanPlayer |
|  | CAIPlayer |
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| Space State | |
| Superclass: GameState | |
| Responsibilities | Collaborations |
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| World State | |
| Superclass: GameState | |
| Responsibilities | Collaborations |
|  | CGrid |
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