**Schema Dictionary**

**Relations**

| Name: Ally  Description: The ally ships are minions of the Megaship and are the ships that the player can manipulate for combat and resource gathering in the game.  Attributes:   * PK\_CombatantID: CHAR(36), Primary Key, Foreign Key to Combatant * TaskState: ENUM * CombatStyle: ENUM * ModeState: ENUM * MaximumCapacity: INT * MaximumSpeed: FLOAT * MaximumLifeAmount: FLOAT * MaxDamageBufferAmount: FLOAT * TravelMode: ENUM * FK\_TravelTarget: CHAR(36), Foreign Key to Map Object * TravelX: FLOAT * TravelZ: FLOAT * WeaponCollisionBox: ENUM * DamageValue: FLOAT * PowerLevel: FLOAT * DespawnRange: FLOAT * Autostate Cooldown: FLOAT * FK\_Megaship: CHAR(36), Foreign Key to Megaship   Notes: Disjoint subclass of Combatant, primary key is the inherited Object ID from Map Object |
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| Name: Ally Targets Enemy  Description: A relationship describing how an Ally ship can target multiple Planet Guards at a time, but does not need to target any Planet Guard at all, and not all Planet Guards need to be targeted.  Attributes:   * FK\_Ally: CHAR(36), Primary Key, Foreign Key to Ally, part of Super Key * FK\_Enemy: CHAR(36), Primary Key, Foreign Key to Planet Guard, part of Super Key * QueueNumber: INT |
| Name: Combatant  Description: A type of Ship that can initiate combat; a Combatant has different AI depending on whether it is an Ally or a Planet Guard.  Attributes:   * PK\_ShipID: CHAR(36), Primary Key, Foreign Key to Combatant * Docked: BOOLEAN * Detected: BOOLEAN * WeaponCoolDownState: FLOAT * TravelVelocityX: FLOAT * TravelVelocityY: FLOAT * TravelVelocityZ: FLOAT   Notes: Disjoint superclass of Ally and Planet Guard; disjoint subclass of Ship, primary key is the inherited Object ID from Map Object |
| Name: Map Object  Description: A Map Object is any object in the game with a drawable position; all Map Objects in a scene need their states to be preserved for a Saved Game in order for the application to appropriately reconstruct the map at a later point in time.  Attributes:   * ObjectID: CHAR(36), Primary Key * FK\_SavedGame: INT, Foreign Key to Saved Game * EntityTypeID: ENUM * PositionX: FLOAT * PositionZ: FLOAT   Notes: Disjoint superclass of Planet, Ship, Star, and Weapon Emission |
| Name: Megaship  Description: The Megaship is a type of Ship and represents the player’s primary presence on the game map.  Attributes:   * PK\_ShipID: CHAR(36), Primary Key, Foreign Key to Ship * FuelLimit: INT * FuelConsumption Rate: FLOAT * FirstLoadFlag: BOOLEAN   Notes: Disjoint subclass of Ship, primary key is the inherited Object ID from Map Object. |
| Name: Newmap Template  Description: A Newmap Template is the map and metadata for a blank game; new games are initialized by cloning the keymap stored by the Newmap Template so all new games initialized by the Newmap Template are initially the same.  Attributes:   * TemplateNumber: CHAR(36), Primary Key * FK\_SaveID: CHAR(36), Foreign Key to SavedGame * Version: INT |
| Name: Planet  Description: A Planet is a location entity that generates resources that Allies can gather; a Planet is guarded by a set of Planet Guards.  Attributes:   * PK\_MapObjectID: CHAR(36), Primary Key, Foreign Key to Map Object * Name: VARCHAR(80) * First Load Flag: BOOLEAN * RelationshipState: BOOLEAN, derived attribute * LifeState: BOOLEAN, derived attribute   Notes: Disjoint subclass of Map Object, primary key is the inherited Object ID from Map Object. Life State is a derived attribute calculated from the formula: FALSE if all the Planetary Resources held in the Exists On relationship have Current Resource Count <= 1 and TRUE otherwise. Relationship State is a derived attribute calculated from the formula: FALSE if all Planet Guards in the Protects relationship have a Life State of FALSE and TRUE otherwise. |
| Name: Planet Guard  Description: A Planet Guard is a type of enemy Combatant that is assigned to guard a specific planet.  Attributes:   * PK\_CombatantID: CHAR(36), Primary Key, Foreign Key to Combatant * RegenerationRate: FLOAT * FK\_TargetAlly: CHAR(36), Foreign Key to Ship * FK\_Planet: CHAR(36), Foreign Key to Planet   Notes: Disjoint subclass of Combatant, primary key is the inherited Object ID from Map Object |
| Name: Planetary Resource  Description: The Planetary Resource is equivalent to a ‘resource mine’; the Planetary Resource represents a generator that spawns Resources.  Attributes:   * FK\_PlanetID: CHAR(36), Primary Key, Foreign Key to Planet, part of Super Key * Type: ENUM, Primary Key, part of Super Key * RegenerationRate: FLOAT * CurrentResourceCount: FLOAT * MaximumResourceCount: INT   Notes: Weak entity with owner Planet. |
| Name: Resource  Description: A Resource represents a unit type and count of a currency in a larger inventory.  Attributes:   * FK\_ShipID: CHAR(36), part of Super Key, Foreign Key to Map Object * Type: ENUM, part of Super Key * Quantity, INT   Notes: Weak entity that can be collected by Ship. |
| Name: Saved Game  Description: A Saved Game represents the state of a game (all information needed to reconstruct the game map) and some identifying metadata to describe the Saved Game.  Attributes:   * SaveID: CHAR(36), Primary Key * FK\_Username: VARCHAR(80), Foreign Key to User * Name: VARCHAR(80) * Timestamp: TIMESTAMP * FK\_TemplateNumber: CHAR(36), Foreign Key to Newmap Template * GameProgressState: BOOLEAN, derived attribute * SaveParent, CHAR(36)   Notes: Game Progress State is a derived attribute with the formula: FALSE if Megaship has Current Life Amount <= 0 or [inclusive] Megaship has no Allies in the Commands relationship with a Life State of TRUE, and is TRUE otherwise. |
| Name: Ship  Description: A Ship is a type of Map Object that is equipped with movement and the ability to die in combat and to interact with certain types of other objects.  Attributes:   * PK\_MapObjectID: CHAR(36), Primary Key, Foreign Key to Map Object * Name: VARCHAR(80) * CurrentDamageBufferAmount: FLOAT * CurrentLifeAmount: FLOAT * ArmorClass: FLOAT * CurrentSpeed: FLOAT * RotationX: FLOAT * RotationY: FLOAT * RotationZ: FLOAT * VelocityX: FLOAT * VelocityY: FLOAT * VelocityZ: FLOAT * LifeState: BOOLEAN, derived attribute   Notes: Disjoint superclass of Combatant and Megaship, disjoint subclass of Map Object, primary key is the inherited Object ID from Map Object. Life State is a derived attribute calculated from the formula: FALSE if Current Life Amount <= 0 and TRUE otherwise. |
| Name: Star  Description: A location object that can provide fuel to an entity capable of collecting solar energy.  Attributes:   * PK\_MapObjectID: CHAR(36), Primary Key, Foreign Key to Map Object * Name: VARCHAR(80)   Notes: Disjoint subclass to Map Object, primary key is the inherited Object ID from Map Object |
| Name: User  Description: A User is a player profile for the game; a User includes personalizations like default settings and also a list of saved games the player can choose between to load.  Attributes:   * Username: VARCHAR(80), Primary Key * MasterVolume: FLOAT * MusicVolume: FLOAT * EffectVolume: FLOAT * MenuVolume: FLOAT * Salt, VARCHAR(80) * Hash, VARCHAR(80) |
| Name: Weapon Emission  Description: A Weapon Emission is the actual ‘bullet’ fired by a given weapon; its values are instantiated by the weapon’s current state but are independent of the weapon state after initialization.  Attributes:   * PK\_MapObjectID: CHAR(36), Primary Key, foregin key to Map Object * RotationX: FLOAT * RotationY: FLOAT * RotationZ: FLOAT * DamageLevel: FLOAT * PowerLevel: FLOAT * DespawnRange: FLOAT * FK\_Combatant: CHAR(36), Foreign Key to Combatant   Notes: Disjoint subclass to Map Object, primary key is the inherited Object ID from Map Object |