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OVERVIEW

The Orbital Real-Time Strategy (ORTS) gameplay prototype needs to include a few units to properly showcase its unique orbital gameplay.

This document describes those units, and gives specific numbers for their stats.

FACTIONS

The gameplay prototype will include units from two factions, designed to exemplify ORTS' orbital and multi-planet gameplay. These factions also have extremely different unit styles, so as to convey the science-fiction variety of exotic faction designs that are possible in ORTS.

- ➢ The Solarian Union (Human race faction)
    - o Excels at hit & run attacks across planets, but limited by ammo requirements
    - o Powerful long-range missile weapons that can circumnavigate a planet
- ➢ The Prysim Concordiat (Prysim race faction)
    - o Strong beam weaponry, but short range and needs direct line-of-sight.
    - o Ships can combine beams to combine DPS and increase range.

Though both factions have production buildings & space stations, the gameplay prototype will primarily focus on their mobile ships.

SOLARIAN UNION SHIPS

Solarian ships use Hyperdrive technology to move between planets.

Hyperdrive Sequence:

1) A second or two to power-up a ship's Hyperdrive.
2) Jump to hyperspeed to travel between planets. It takes ~30 seconds for a ship to arrive at its destination. During this time, the ship is off the play map, and cannot be given orders.
3) Ship arrives at destination.

Hyperdrive technology gives no warning to enemy planets that a ship is headed there, so is ideal for hit & run tactics.

MISSILE FRIGATE

Solarian Union - Missile Frigate	
Description	Fragile long-range bombardment ship
Hitpoints	1000
Size	Small
Movement Speed (1k meters/second)	5
Rotation Speed (degrees/second)	180
Weapons	Missile Barrage (Special Ability Toggle), AutoCannon Turret

This unit packs a brutal punch with its "Missile Barrage" special ability. It can fire at extreme ranges, sometimes targeting enemies all the way on the other side of a small planet. Its missiles can circumnavigate a planet, so this ship does not require a direct line-of-sight to its target.

Though relatively slow and fragile, its Hyperdrive and powerful missiles make it very effective for hit & run strategies. However, its Missile Barrage requires ammunition, so Solarian players should bring along Supply Freighters.

Note: The implementation of weapons and projectiles are meant to be modular, and easily reusable with different units and different settings.

Special Ability - Missile Barrage	
Description	Fires a group of 12 missiles in an anime-style barrage.
Attack Ability	Requires an enemy target to fire.
Auto-Cast Toggle	This ability can be set to auto-cast.
Range (in 1k meters)	30
Ammo Capacity	10
Ammo Cost per Activation	1
Cooldown (seconds)	18
Angle of Fire (degrees)	20
Projectile type	Solarian Cruise Missile
Projectiles per activation	12
Seconds between shots	0.2
Projectiles per shot	2

Projectile - Solarian Cruise Missile	
Description	Long-range, slow missile which deals extreme damage to a single target on collision.
Damage	100
Maximum Range (in 1k meters)	70
Maximum Lifetime (seconds)	40
Movement Speed (1k meters/second)	10
Rotation Speed (degrees/second)	360

The Missile Frigate also has an Autocannon Turret that does not require ammo. It is a very short range weapon, would only typically used as a backup weapon when out of missile ammo. The Autocannon's wide spray of projectiles also has a chance of shooting down incoming enemy missiles.

Weapon - AutoCannon Turret	
Description	Weapon which fires a short-range spray of small projectiles.
Attack Ability	Automatically fires at enemy units in range, as well as enemy missile projectiles.
Range (in 1k meters)	5
Ammo Capacity	Infinite
Ammo Cost per Activation	0
Cooldown (seconds)	2
Angle of Fire (degrees)	360
Inaccuracy Cone of Fire (degrees)	30
Projectile type	AutoCannon Bullet
Projectiles per activation	7
Seconds between shots	0.1
Projectiles per shot	1

Projectile - AutoCannon Bullet	
Description	Small, single bullet projectile.
Damage	10
Maximum Range (in 1k meters)	5
Maximum Lifetime (seconds)	1
Movement Speed (1k meters/second)	10
Rotation Speed (degrees/second)	0

SUPPLY FREIGHTER

Solarian Union - Supply Freighter	
Description	Unarmed ship which reloads ammo and repairs damage on friendly ships.
Hitpoints	1000
Size	Medium
Movement Speed (1k meters/second)	5
Rotation Speed (degrees/second)	180
Weapons	Repair (Special Ability Toggle), Resupply Ammo (Special Ability Toggle)

The Supply Freighter has no offensive weaponry, but is a vital part of Solarian battle fleets. This is because Supply Freighters can resupply weapons that require ammo, and repair battle damage with its spare parts.

All of these attributes also make it a tempting target for its enemies.

Ships cannot fight while continuously being repaired and resupplied by a nearby Supply Freighter. The Supply Freighter shuts down its target while performing its work, making it unable to move or attack. Repair and Resupply take time, in proportion to the amount of repair or ammunition needed. Hitpoints and ammo are only refilled at the end of the work – aborting early results in nothing being refilled.

Multiple Supply Freighters can work together on the same ship to increase the speed of the work.

Special Ability - Resupply Ammo	
Description	Shuts down target friendly ship, and refills its ammo at the end of its duration. Aborting early results in no ammo being restored.
Attack Ability	Requires a friendly target that is not full on ammo.
Auto-Cast Toggle	This ability can be set to auto-cast.
Range (in 1k meters)	5
Ammo Capacity	Infinite
Ammo Cost per Activation	0
Cooldown (seconds)	0
Angle of Fire (degrees)	360
Rate of Resupply (ammo/second)	0.5

Special Ability – Repair	
Description	Shuts down target friendly ship, and repairs damage at the end of its duration. Aborting early results in no ammo being restored.
Attack Ability	Requires a friendly target that is not at full health.
Auto-Cast Toggle	This ability can be set to auto-cast.
Range (in 1k meters)	5
Ammo Capacity	Infinite
Ammo Cost per Activation	0
Cooldown (seconds)	0
Angle of Fire (degrees)	360
Rate of Repair (damage/second)	50

AI Note: With both its Repair and Resupply special abilities having an auto-cast toggle, the Supply Freighter can automatically detect nearby friendly ships that need its help. It should automatically move to those ships and shut them down for repair/resupply if these conditions are met:

➢ The Supply Freighter must not have an explicit command from the player to do something else, or to assist a different ship.
➢ The target ship must not have an explicit command from the player to do something else.
➢ The target ship must not be in combat. It must not have an enemy ship in attack range, and it must not be in attack range of an enemy ship.
➢ The target ship must be in need of repair/resupply

PRYSIM CONCORDIAT SHIPS

The Prysim use crystalline technology, growing their ships out of smaller crystals. The Concordiat faction primarily uses energy-beam weaponry.

They use a Wormhole Tear technique to travel between planets. Concordiat ships focus their beam weapons on a single spot in space, tearing open a wormhole to their destination:

1) One or more Prysim ships shoot at a single spot in space to begin opening a rift. These ships are stationary and cannot attack. Ordering a ship to move or attack makes it abort.
2) This process takes up to 1 minute, and is shortened by 20% with each additional Prysim ship shooting at the rift.
3) The other end of the rift is visible at the destination planet during this process, providing warning of the pending arrival of Prysim ships.
4) Once the process time finishes, a one-way wormhole forms for 10 seconds, allowing all nearby ships to use it.
5) Travel through the wormhole is instantaneous. Ships arrive at the destination immediately.

Concordiat ships can also focus their beam weaponry through other ships in order to create powerful and unique special attacks. For example, the basic Reflector ship can focus the beam power of up to 4 other Prysim ships into a combined damaging beam.

SHARD

Prysim Concordiat – Shard	
Description	Basic & cheap Prysim ship, mounted with a single short-range beam weapon. Can be upgraded to other ship types.
Hitpoints	3000
Size	Small
Movement Speed (1k meters/second)	6
Rotation Speed (degrees/second)	180
Weapons	Short-Range Prysim Beam

This is the basic Prysim ship type. The Prysim grow their larger and more advanced crystalline ships out of the Shard ship.

The Shard is also an effective combat ship by itself. It is moderately maneuverable and has short-range beam weapon that deals damage-over-time.

Weapon - Short-Range Prysim Beam	
Description	Fires a single beam that deals damage-over-time.
Attack Ability	Fires on enemies in range, or on other Prysim ships that can channel beams.
Damage Per Second	100
Range (in 1k meters)	8
Ammo Capacity	Infinite
Ammo Cost per Activation	0
Cooldown (seconds)	0
Max Sustain Time (Seconds)	Infinite
Angle of Fire (degrees)	Directly forward only

The true strength of the Shard ship is that it can channel its beam weapon through other ships such as the Reflector.
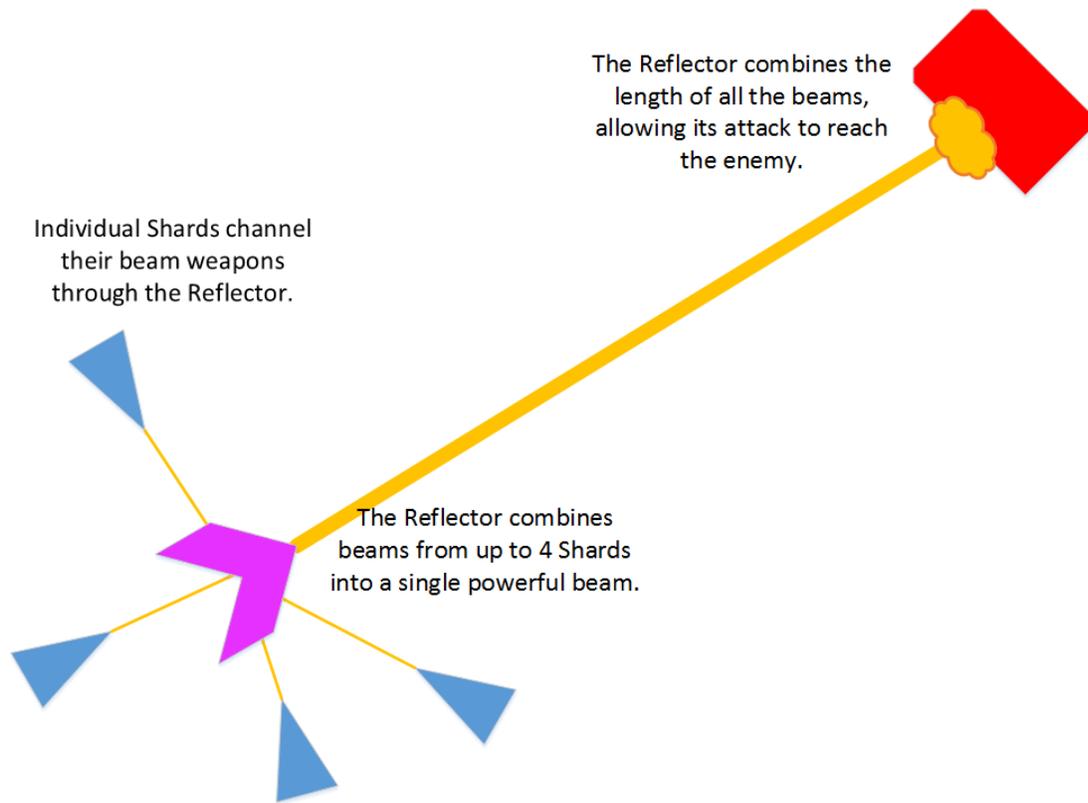
REFLECTOR

| Prysim Concordiat – Reflector	
Description	Channels beams from other Prysim ships into a powerful long-range beam. Upgraded from basic Shard ship.
Hitpoints	2000
Size	Medium
Movement Speed (1k meters/second)	6
Rotation Speed (degrees/second)	180
Weapons	Damage Reflector Array

The Prysim Reflector cannot attack on its own. Instead, it channels beams that other Prysim ships aim at it, combining their range and damage into a single beam.

There are more advanced Prysim ships that operate on similar principles, but the basic Reflector ship is limited to creating a damaging beam. It is also limited to a maximum of 4 beams that it can channel.

The Reflector combines the length of all the beams, allowing its attack to reach the enemy.

Individual Shards channel their beam weapons through the Reflector.

The Reflector combines beams from up to 4 Shards into a single powerful beam.

The Reflector can combine beams to create an extremely long-ranged beam. On a small planet, the beam's range is potentially further than the curvature of the planet allows. Enemy ships might technically be in the beam's range, but line-of-sight can be blocked by the planet surface. This is especially problematic if the enemy does not have a LoS limitation, such as a Missile Frigate.

Reflector does not have line-of-sight to shoot its target.
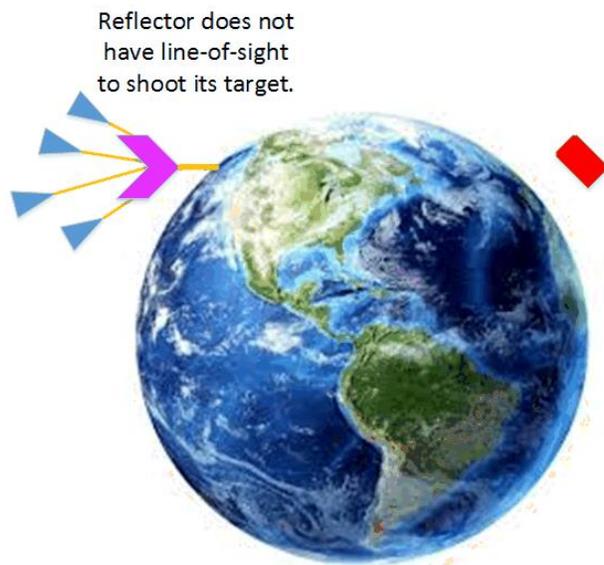
Weapon - Damage Reflector Array	
Description	Combines the damage and range of up to 4 other beams. Cannot fire on its own.
Attack Ability	Fires on enemies in range.
Damage Per Second	Combines DPS from constituent beams.
Range (in 1k meters)	Combines range from constituent beams.
Ammo Capacity	Infinite
Ammo Cost per Activation	0
Cooldown (seconds)	0
Max Sustain Time (Seconds)	Infinite
Angle of Fire (degrees)	Directly forward only

REFLECTOR AI

The Reflector needs the support of Shard ships in order to be able to attack. The Reflector AI commandeers support from nearby Shard ships without requiring a player to manually micro-manage each ship.

An ruleset that determines whether a nearby Shard ship is eligible to be commandeered by a Reflector:

> ➢ A Shard has to be within 20k meters to be eligible.
> ➢ If a Shard's attack target is the same as the Reflector's target, then it is eligible. This is the case whether the ships are attacking a target that simply entered their weapons range, or if they were given an explicit attack target by their player.
> ➢ If a Shard has a command to follow the Reflector, then it is eligible.
> ➢ If a Shard is idle without a current command, then it is eligible.
> ➢ If the Shard is in the middle of executing any other explicit command from its controlling player, then it is not eligible.

Each Reflector keeps track of its eligible Shards, but it doesn't tell them to channel their beams until the Reflector's attack conditions have been met:

> ➢ If a Reflector is given an explicit attack target, then it moves towards that target. It also commandeers the eligible Shard ships with the 4 longest-ranged beam weapons to follow.
> ➢ If an enemy unit is within the combined range of the 4 eligible Shards, then the Reflector stops moving and commandeers those Shards to channel their beams through it.

Once commandeered Shards begin channeling their beam weapons through a Reflector, its Damage Beam Array is capable of firing. At this point, the Reflector can use the same AI system as other types of ships to determine how it attacks.

GENERAL AI BEHAVIOR

Units have AIs which automatically react in specific circumstances. This is the case even with units controlled by a human player.

AUTO-ATTACK ENEMIES IN RANGE

Units will automatically attack enemy units that enter their active weapons range. If the weapon requires the unit to point towards the enemy, then it will automatically change its facing to track its target.

This behavior also applies to special attack abilities that can be toggled to auto-cast, such as the Missile Frigate's "Missile Barrage" ability. Units automatically attack enemies in range of their auto-cast attack abilities.

Except for special cases such as Shards commandeered by Reflectors, units do not move towards enemies in order to Auto-Attack them.

AUTO-ASSIST FRIENDLIES IN RANGE

Similar to the auto-attack behavior, units with assist abilities will automatically assist friendly units in range. This includes the auto-casting rules for special assist powers such as the Supply Freighter's "Repair" and "Reload" abilities.

Units may move towards a friendly unit in order to Auto-Assist them.