

# Orbital Real-Time Strategy Game

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## OVERVIEW

The Orbital Real-Time Strategy (ORTS) game is a sci-fi spaceship RTS game.

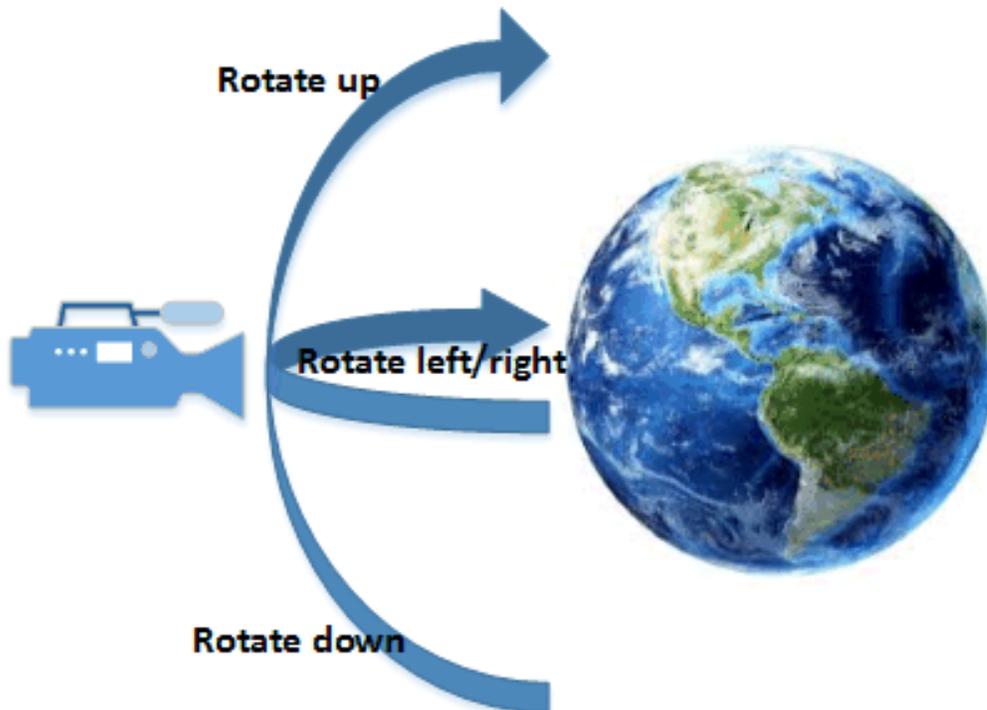
Like other games in the RTS genre, players build units and control them to attack their opponents. But ORTS has features make it distinct from other RTS games:

- Gameplay takes place in orbit.
- There are multiple planets/moons/suns/stations to orbit. Ships use faster-than-light travel to go from one orbit to another.

## ORBITAL CAMERA

Gameplay takes place in planetary orbits. The camera is focused on the planet, and controls to make it pan (up, down, left, right) make the camera orbit around the planet. In effect, the camera gives a top-down perspective of the spherical surface of the planet.

This orbital scheme allows gameplay to exist in a 3D space, but uses much simpler 2D style controls.



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## Camera Controls

It is standard practice for RTS games to support multiple control schemes, and ORTS can potentially support each one listed in this section. The gameplay prototype should initially use the Drag Control Scheme.

<b>Drag Control Scheme</b> - Similar to mobile touch-screen games & some 3D space games	
Pitch Camera Up/Down	Hold right mouse button, drag Down to pitch camera Up, drag Up to pitch camera Down.
Rotate Camera Right/Left	Hold right mouse button, drag Right to rotate camera Left, drag Left to rotate camera Right.
Move Camera In/Out	Scroll mouse wheel up to move camera closer to planet, scroll mouse wheel down to move camera further from planet.

<b>Traditional RTS Mouse Scheme</b> - Mouse controls similar to traditional RTS games	
Pitch Camera Up/Down	Pitch camera up when mouse cursor is at the top border of the screen. Pitch camera down when mouse cursor is at the bottom border of the screen.
Rotate Camera Right/Left	Pitch camera left when mouse cursor is at the left border of the screen. Pitch camera right when mouse cursor is at right border of the screen.
Move Camera In/Out	Scroll mouse wheel up to move camera closer to planet, scroll mouse wheel down to move camera further from planet.

<b>Traditional RTS Keyboard Scheme</b> - Keyboard controls similar to traditional RTS games	
Pitch Camera Up/Down	Up keyboard arrow to pitch up, down keyboard arrow to pitch down.
Rotate Camera Right/Left	Right keyboard arrow to rotate right, left keyboard arrow to rotate left.
Move Camera In/Out	Page Up keyboard key to move in, Page Down keyboard key to zoom out.

## SPACESHIP ORBITAL MECHANICS

Ships in ORTS generally move in orbit around planets. When given a movement or attack command, they automatically arc around the curvature of the planet to reach their targets.

Ships also automatically prefer to move at a specific height above the planet surface, depending on the ship's type. But when given a target, they automatically use the 3D space to move up or down towards their target.

- Larger ships tend to orbit at a greater altitude.
- Planetary surface buildings require some ships with short-range weapons to drop in height.
- Space stations and defense satellites are at higher altitudes, requiring ships to gain height to attack.
- "Hyperspeed" faster-than-light travel requires ships to gain altitude before they can travel to another planet.

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## MULTIPLE PLANETS

A game of ORTS consists of battles over multiple planets. Each player starts with a home planet, and sends ships to attack opponents' planets.

The game screen shows one planet at a time. The Planet Selector bar shows icons for each planet in the current game:

- Left-clicking on an icon switches the screen to view to that planet.
- With a ship selected, right-clicking on a planet icon tells the ship to faster-than-light travel there.
- A planet icon is gray if the player controls no units there, and therefore cannot see what's there.
- A planet icon flashes red when there are enemy units at a planet where the player also controls units.



<b>Multi-Planet Commands</b>	
Switch Planet View	Left-Click on a planet in the Planet Selection UI to change the camera view to that planet.
FTL Travel	Right-Click on a planet in the Planet Selection UI to tell selected units to travel there.

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## UNIT COMMAND CONTROLS

Like other RTS games, many ORTS units have special abilities. These abilities appear on the Command Panel UI at the bottom of the screen.

<b>General RTS Command Panel Controls</b>	
Special Ability	Left-click on an ability in the selected unit(s) Command Panel to activate it. If the ability requires a target, left-click on a unit to set it as the target.
Auto-Cast	Right-click on an ability in the selected unit(s) Command Panel to toggle its auto-cast.
Hotkeys	Tooltips for each ability show the hotkey keyboard command to activate the ability.
Multi-Select Units	When multiple units of different types are selected, the abilities for all units appear in the Command Panel.

ORTS uses the same methods of giving unit commands as most other RTS games.

<b>General RTS Unit Controls</b>	
Unit Selection	Left-click on a unit to select it.
Multi-Unit Selection	Drag the left mouse button to create a rectangle on the screen. All controllable units in the rectangle are selected.
Multi-Unit Selection of same Unit	Double left-click on a unit to select all units of the same type at the current planet.
Move Command	Right-click to give selected units a command to move there. When clicking in the 3D space around a planet, the movement target is the unit's desired altitude at the click position.
Follow Command	Right-click on a non-hostile unit to tell selected units to follow it.
Attack Command	Right-click a hostile unit to tell selected until to attack it.

<b>General Hotkey Commands</b>	
Unit Groups	Ctrl 0-9 saves the currently selected units into a group. Pressing 0-9 selects all the units in those groups.
Planet Selection	Planets are numbered by their order in the Planet Selection panel. Alt 1-9 change the camera view to a planet.
Space	Goto the last notification event, e.g. new combat initiated, new unit built, etc. This changes the camera to the planet that the event occurred at, and moves the camera to frame the units at the event.
Hotkeys	Other general hotkeys for selecting particular unit/building types. TBD

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## FASTER-THAN-LIGHT TRAVEL

No combat occurs with ships that are travelling between planets. They only fight when they arrive in orbit around a planet.

Different playable race/factions have different technologies for FTL travel. Each FTL type is intended to help give each race/faction its own distinct flavor and strategies.

## HYPERSPEED

**Factions used by:** Solarian Union

A ship equipped with a hyper-drive first needs to gain altitude to reach the edge of a planet's gravity well. It then moves toward its destination planet at hyperspeed. Traversing between planets typically takes 15-45 seconds, depending on ship type. During this time, it is in orbit around neither the origin planet nor the destination planet – the ship is in transit and cannot be interacted with. Once the ship reaches its destination, the hyper-drive requires a 15-45 second cooldown before it's usable again.

## WORMHOLE

**Factions used by:** Quotl, Prysium Concordiat

A ship with a wormhole drive can temporarily open a wormhole between two planets. The process of opening a wormhole takes 15-45 seconds. This requires all the ship's power; it cannot move or attack. Once the wormhole is opened, it collapses within a few seconds, though all nearby ships can use it while it's open.

## GATEWAY

**Factions used by:** Progenitor Hegemony

Gateways are massive orbital structures that serve as portals to other planets. If both the origin planet and destination planet have Gateways, then a ship can instantaneously travel between them. If the destination planet does not have one, then the origin Gateway can still create an unstable wormhole leading there. This process takes up to a minute, and gives away that a wormhole is in the process of forming for any enemies at the destination. Unstable wormholes only last for a few seconds, and are one-way trips. For ships to return, another Gateway must be built at the new system.

Gateways are also fragile and easily destroyed, while expensive to replace. Due to the physics of connecting permanent wormholes within a single gravity well, only one Gateway can operate at a planet at one time.