

# The game world & engine

## Intro

As I understand it, the way the X Rebirth engine handles things that are going on near to and far from the player has evolved since X Trilogy days. To try to explain it, this guide summarises both.

## The past - X:Trilogy

In the Trilogy, the game world is comprised of multiple interconnected 'sectors' which are typically located in different solar systems - notable exceptions being Earth's solar system and the Albion system, which each possess multiple sectors. Trilogy sectors are joined together by a network of gates that can be flown through or jumped to (although broken gates cannot be jumped to). Whichever sector the Trilogy player is in is rendered and other sectors are not, thus a distinction is made between In-Sector (IS) and Out-Of-Sector (OOS).

IS calculations/game mechanics are what the player's ship always experiences. OOS, things are simplified to save on computations since there are many sectors. Whilst simplified, OOS game mechanics aim to approximate IS conditions and outcomes.

## The present - X:Rebirth

The Rebirth game world is comprised of multiple 'zones' that are travelled between via highways or free flight, and they are sub-units of sectors. Sectors are travelled between via jump drives (to Jump Beacons) or super highways, and there are multiple sectors per system. Zones are relatively close together within a sector, and sectors are rather far apart within a System; different systems are connected by gates. Travel-wise, the lore is that after X3:AP, all gates shut down. 30 years have since passed and jump drives have evolved to jump between Jump Beacons /within/ individual Systems. At the start of Rebirth, the gates begin to activate and reconnect systems but with jump drives having changed, ships still need to be flown to and through the gates.

Scale-wise, a Rebirth Zone is similar to a Trilogy Sector. Rebirth zones are typically a bit smaller and have fewer stations than Trilogy sectors; however Rebirth stations are more akin to Trilogy station complexes since they often have multiple production lines.

Getting back to the Rebirth engine, simplified mechanics are employed on distant things but the details are a little more nuanced. Due to the focus shifting from sectors to zones, the old IS/OOS terminology doesn't quite fit, and although IZ/OOZ is a useful distinction in Rebirth it isn't quite comparable to that old terminology in terms of the game engine. This is because the engine makes use of "Attention Levels" when deciding how to model what is going on.

*During a related discussion, w.evans found the attention levels for us:*

"unknown"  
"ingalaxy"  
"incluster"  
"insector"  
"visible"  
"inzone"  
"nearby"

Xenon\_Slayer has explained that whether something is rendered or not doesn't come into it: rather that is more about whether something *could* be seen by the player. So when things are close to the player within the same sector, within the player's zone or just outside, something would typically be governed by "high attention" mechanics. We can stretch that somewhat via setting Guidance to be hundreds of km: If we are in a location where there are no highways between us and the distant object it will be the Guidance target, and we can use exterior view on it to see its rendered surroundings. So in the end, Rebirth IS/OOS is quite like Trilogy IS/OOS since when Rebirth objects are OOS or further, they will definitely be governed by "low attention" mechanics....it's just that some IS stuff will be too.