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2019年3月7日星期四

The Oil Rig Update

A new oil rig monument, heavy scientists, ocean changes and more.

[The Oil Rig](https://rust.facepunch.com/blog/oilrig-update#theoilrig)

Maurino Berry

A new monument has made its way to the Rust landscape: The Oil Rig.

it monument can be found off shore a bit farther than the cargo ship patrol path and will definitely require a team to conquer.

As mentioned in the last Dev Blog, we didn't want to just add another static environment with loot crates and wanted to do something a little more special for this one. Because of this and due to some limitations and problems with the existing AI system I was forced to rewrite the Humanoid AI from scratch. It's not perfect and you'll probably notice a few strange behavioral issues, but in general you should find the scientists on the Oil Rig much more responsive and intelligent and even exhibiting some new behaviors.Over the next little while I will iron out the issues and continue to improve on our AI system. Eventually this new system will replace the Scientists at other monuments, and the existing and laughable Animal AI.

Since 2013, we've never really had good AI in the game, partly because of how time consuming it was and also because the main focus of the game was interacting with other players and we kept pushing that instead. I'm sick and tired of seeing YouTube videos of animals walking through walls, staring at water and not fighting back, or Scientists walking backwards. This is the first step at remediation.

All that aside, We worked to make this monument feel more like a set piece with gameplay that differs from the run of the mill loot-every-box-while-crouching gameplay you find at the other monuments. When you reach the top of the Oil Rig there is a locked crate you can open which will initiate an event with the Heavy Scientists.

Moving forward, I hope to expand upon this concept of monument events and expand it to others.

石油钻井平台

一个新的资源点——石油钻井平台

这个资源点可以在稍远于货船巡航路线的地方找到，无疑，需要一个团队才能打下这个资源点。

正如上一个blog所说的，我们不仅仅是想要增加一个带可收集箱子的资源点，我们想做一点特殊的东西。正是因为这个以及一些关于现有AI系统的局限性与问题，所以咱被迫重做

了AI系统。这并不完美，所以你可能会发现有一些奇怪的行为方面的问题。一般来说，你在石油钻井上找到的小蓝人都比原本的更加灵敏，更有智慧，甚至还会有一些新的行为。在接下来的一段时间里我会解决这些问题并且继续提升我们的AI系统。最终我们将用这个新的AI系统来替代原本出现在其他资源点的AI以及现在让人发笑的动物AI。

自2013年以来，我们从未真正在游戏内拥有过很棒的AI,一部分是因为这很耗时，但是主要因为我们一直在推行的内容——玩家间的互动。咱厌倦了在油管上看到动物穿墙、看着水一动不动是王八（的视频，或者小蓝人倒走的视频，所以这是我们用来补救的第一步。

此外，我们也让这个资源点更像是长久的固定游戏设施，而不像原本在其他资源点的搜箱子玩法。当你登顶了石油钻井，会有一个能打开的密码箱（超级空投），但是这会使你和重装小蓝人打起来。

[Faster Staging Builds](https://rust.facepunch.com/blog/oilrig-update#fasterstagingbuilds)

André Straubmeier

We were having some issues with long build times that really slowed down iterating and testing on the staging branch and could cause long delays when last minute fixes before the update were required. The old build process also prevented us from canceling builds as it could corrupt Unity's library folder due to the way we were preprocessing our prefabs. The new build process is more than twice as fast and can be canceled at any point, making our daily development cycle much more pleasant.

[Vulkan & Metal](https://rust.facepunch.com/blog/oilrig-update#vulkanmetal)

André Straubmeier

Linux and Mac were using a rather old version of OpenGL that didn't support many of the optimizations we were using on Windows and would regularly break shaders. In order to make future development easier for us and give the two people playing on those platforms a slightly better experience we decided to move Linux to Vulkan and Mac to Metal. This means that if you're on Linux you should install the absolute latest graphics drivers you can get your hands on and ensure that you are no longer adding the "-force-opengl" startup parameter since that will break the game. You can also give Vulkan a try on Windows with the "-force-vulkan" startup parameter, but on most graphics drivers there are still some issues so we generally recommend staying on DirectX for now.

Linux和Mac系统在rust上用的还是一个十分远古的OpenGL版本，而这并不能支持我们用在Windows系统上的各类优化，而且这个OpenGL会时常使着色器运行错误。为了使我们未来的开发更加简单以及使在这两个平台上的玩家体验更加良好，我们决定在Linux系统上使用Vulkan,在Mac上使用Metal。这意味着如果你在用Linux,你应该去安装最新的图形驱动程序，并且确认你没有添加 "-force-opengl" 启动参数，这会让你的游戏崩掉。当你使用Windows系统，你也可以通过使用 "-force-vulkan" 启动参数来启用Vulkan，但是在多数图形驱动器使用Vulkan会造成一些BUG,所以我们建议现在最好还是继续用DirectX。

[Ordered Entity Networking](https://rust.facepunch.com/blog/oilrig-update#orderedentitynetworking)

André Straubmeier

Last month's iterative entity networking introduced the negative side effect that sometimes entities would stream in very delayed. To fix this entities are now ordered by distance when they are networked, so the closest entities will stream in first.

有序化实体网络

上个月的迭代实体网络更新带来了负面影响，有时候实体（entity）的数据流入会有很高的延迟。为了解决这个问题，我们让实体网络内的实体将会根据距离进行有序化，因此现在会首先加载近处的实体。

[Asset Warmup Optimizations](https://rust.facepunch.com/blog/oilrig-update#assetwarmupoptimizations)

André Straubmeier

As a side effect of the build improvements I've been working on this month I managed to significantly improve the asset loading performance. This means the game now loads 10% faster on an SSD and we expect even more improvement on an HDD.

资源加载优化

这是一个架构改建的副产品，我设法显著提高了资源加载的性能。这意味着现在固态硬盘加载游戏快10%，并且我想在机械硬盘上能更有长进。

[Giant Excavator Monument](https://rust.facepunch.com/blog/oilrig-update#giantexcavatormonument)

Vincent Mayeur

As work on the Oilrigs monuments drew to a close I started to flesh out the next big thing. The Giant Excavator is a monument that will find its place in the desert. More information will be made available as we progress on it. Here's some early development screenshots while you wait

大……大挖掘机!（未添加）

随着石油钻井制作的结尾，我开始去具体化下一个大胆的想法。这个巨型挖掘机是一个资源点，我们可以在沙漠找到他♂。随着我们的进展我们会给你们更多的资料。这里是一些早期开发版的截图：

[Ocean Upgrade](https://rust.facepunch.com/blog/oilrig-update#oceanupgrade)

Diogo Teixeira

This patch we're introducing the biggest change to our water system in a long while. Our ocean has been roughly flat, aside from short waves that didn't really affect physics. From here on, however, ocean waves will affect the behaviour of any floating body.

Larger waves are stronger and higher when further away from the islands, so you can attempt to avoid them by choosing a path closer to the shore. If you do decide to adventure into the unknown, you may want to choose a bigger, more stable vessel. You'll note how interaction with water now generates disturbance foam, including crest foam at the peak of the deep sea waves. For now only small boats generate disturbance foam, but we'll extend this capability to any bodies interacting with water, as well as improve the level of interaction to include displacement and simulation.

Water junk piles in deep sea are no longer flat and static, they are moving with the waves as you attempt to loot whatever's up for grabs.

Additionally, we fixed a ton of issues related to flickering near the shore, especially with TSSAA enabled.

这个更新是长久以来我们对水面系统的最大改进。除了一些没有任何物理效应的短浪以外，咱的海几乎就是平的。然而现在开始，海浪将会影响到所有漂浮的物体。

远离大陆时，浪将会更大、更高，所以你应该选择一个更靠近海岸的路线来避开这些大浪。如果你决定莽入未知区域，你可能需要一个更大，更稳的载具。你将会注意到和水之间产生的交互能产生浪花，包括深海大浪的浪花。现在只有小木船会产生这些浪花，但是我们将会把这一点扩展到所有能和水交互的物体上，并提高这些交互的真实性，比如排水量（？）和拟真度。

深海的水上桶堆将不在那么固定，他们会随着海浪波动。

此外，我们修复了许多许多岸边水面闪烁的问题，特别是在开了TSSAA的情况下。

[World Reflections Return](https://rust.facepunch.com/blog/oilrig-update#worldreflectionsreturn)

Diogo Teixeira

This feature was originally meant to improve lighting on interiors by capturing the reflection around the player in realtime. A few patches ago, however, we had to disable it due to random crashes on several platforms. We're happy to announce that, thanks to our latest Unity version upgrade, the feature is now back and safe to use. The difference can be quite dramatic in some cases.

Setting it to 0 will make the probe reflect only sky, 1 will reflect sky and terrain and 2 will reflect sky, terrain and world/buildings. Please ensure that you have a decent machine to run at maximum level.

Along with bringing back this feature we also enabled a few optimizations that were also causing crashes before; e.g. decal instancing. More are expected to return in future patches.

世界反射光回归（~~RTX ON~~）

这个功能最初是想要用于实时根据玩家位置捕捉附近的反射效果来提高室内光线。但是，在几次更新中，我们遇到了一些随机的崩溃。现在，我们很高兴的宣布，多亏了最新的Unity的更新，这个功能现在能稳定使用了。这会产生显著的差别。

将它设置在0会只反射天空光，1则会反射天空、地面的光，2则将反射天空、大地、世界、建筑的几乎所有的光线。确保你有一台足够强的电脑来使用最高画质。

除了使这个功能回归，我们同时也启用了一些之前会导致崩溃的优化。比如添加贴图的实体化（？）。更多的优化预计会在未来的更新中出现。

[Light Culling](https://rust.facepunch.com/blog/oilrig-update#lightculling)

Diogo Teixeira

Both the Cargo Ship and the new Oil Rigs are extremely alive compared to some of our monuments. Essentially, they contain a lot of lights that eventually became a problem for rendering performance.

We ended up working out a new system that combined our dynamic occlusion system, culling volumes and distance culling in order to handle a massive number of lights. This way we could take the most out of the hardware without having to compromise so much on aesthetics.

This new system should help us make richer, more vivid environments that contribute to making gameplay more realistic and immersive.

光源裁剪

货轮、石油钻井这两个新的遗迹会比原先的那些遗迹更为色彩丰富。本质上，这需要许多的光源点来做到这一点，因此这最终成了影响渲染效率的一个问题。

所以我们设计出了一个全新的，与我们原先动态遮罩剔除程序相结合的系统。这个系统为了处理大量的光源剔去了他们的体积和距离。这样能够让硬件发挥最大效用而不必在美学上做出很多退让。

这个新的系统会让我们能够做出更鲜明、丰富的环境，使游戏内容更加真实，让人如身临其境。

Change List 3

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(新增) Linux uses Vulkan graphics API (-force-vulkan to use Vulkan on Windows)

Linux系统 将使用 Vulkan 图片算法API（启动项添加"-force-vulkan"以在windows系统内使用Vulkan)

(新增)  Mac uses Metal graphics API

MAC系统 使用Metal 图片算法API

(新增) Deep sea waves with crest foam affecting floating physics

海浪产生的浪花将影响到任何漂浮在海面上的物体

(新增)  Water interaction disturbance foam

浪花将会相互干扰

(新增)  Restored world reflections option

恢复世界光反射选项（OPTIONS-GRAPHICS-WORLD REFLECTIONS）

(修复) Fixed muzzle flash positions

修复枪炎位置问题

 Fixed client side corpses sometimes clipping into things

(修复) 修复客户端上尸体卡进物体中的问题

 Fixed foam showing up near player

(修复) 修复玩家附近出现浪花的问题

 Fixed flickering on shore, including cases related to TSSAA

(修复) 修复海岸附近闪烁的问题，尤其包括开启TSSAA抗锯齿的情况。

 Fixed overbright caustics and specular occlusion on shore

(修复) 修复一些光线相关的问题。

 Fixed some occlusion culling frame delays on players, NPCs, ragdolls and impostors

(修复) 修复一些遮挡剔除的延迟相关的问题。

 Fixed light beams not hiding when lights are distance culled

(修复) 修复灯光穿墙的问题。

 LOD, batching and foliage grids now support twice the terrain size (custom maps & oil rigs)

物件支持地图尺寸倍数化

 Asset loading is now much faster (total loading time 10% faster on SSD, potentially much more on HDD)

资源文件加载更快 （固态快10%，机械会快得多）

 Entities are now ordered by distance from the player when they are networked

根据距离有序化实体网络加载

 Game log is now always written to output\_log.txt in install folder

游戏的log文件将写入安装文件夹的output\_log.txt中

 Shore water transition quality

岸边水体质量会有过渡

 Higher-quality high-frequency ocean waves

海浪质量、频率提升。

 Performance on light-heavy scenes using culling

在所有环境下都会执行剔除程序。

 Water junkpile foliage animation now wave-based instead of foliage/wind-based

水上桶堆将随着海浪而波动

 Added instancing to deferred mesh decals

添加延迟网格贴图的实体化（Unity引擎相关不熟 如有错误请指正）

Saved 115 MB of system and video memory by reducing some textures

通过减少部分贴图省出115MB的空间