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**PLANES!**

THE EVOLUTION OF  
**IL-2: CLIFFS OF DOVER**  
REAL-LIFE **RAAF  
HERCULES** SIM  
**RISE OF FLIGHT**



**TANKS!**

THE FREE-TO-PLAY  
MIGHT OF **WORLD  
OF TANKS**  
**STEEL BEASTS**

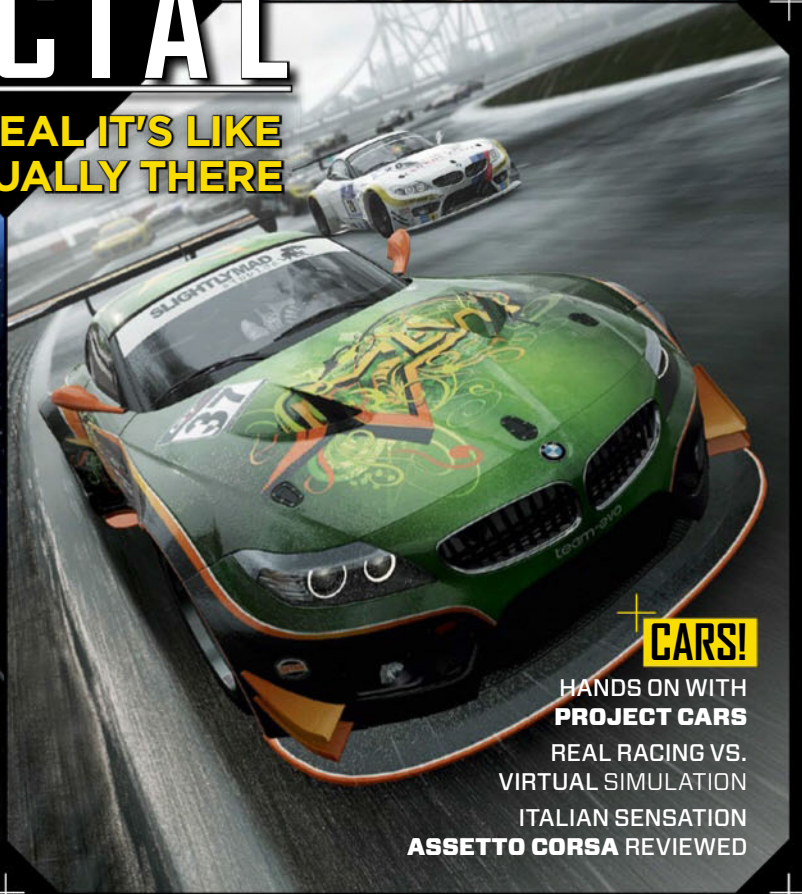
# THE SIMULATOR SPECIAL

**GAMES SO REAL IT'S LIKE  
YOU'RE ACTUALLY THERE**



**SPACESHIPS!**

**ELITE DANGEROUS**  
REVIEWED  
CHRIS ROBERTS TALKS  
**STAR CITIZEN**



**CARS!**

HANDS ON WITH  
**PROJECT CARS**  
REAL RACING VS.  
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ITALIAN SENSATION  
**ASSETTO CORSA** REVIEWED





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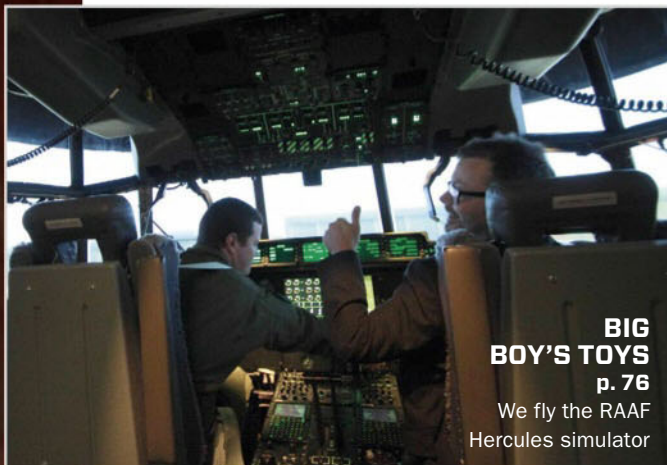
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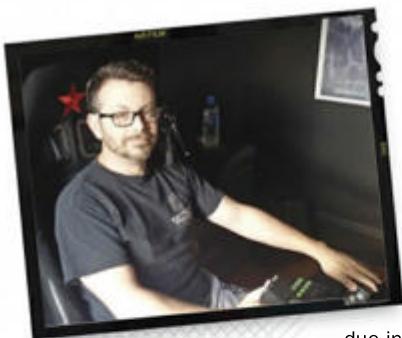
Projecting glory



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Italian perfection



# SHOOTING FOR THE STARS

**G**ood afternoon ladies and gentlemen, I'm Flight Lieutenant Bennett Ring, and I'll be your captain for this issue. We're expecting a smooth flight through some of the biggest simulation releases due in the near future, while also taking a scenic jaunt to appreciate the incredible work of a team of devoted IL2 lovers. Training for today's issue took place at RAAF base Richmond, where I spent some quality time getting up close and personal with the \$25 million C-130J simulator, with further assistance provided by Nick Percat, V8 Supercar driver and avid iRacer. Rounding out the issue are reviews of 2014's biggest sims – and it's been a bumper year – and you might like to do a spot of inflight shopping once you see our coverage of the latest wheels and flight sticks on the market.

Seriously though, it's my honour and absolute privilege to be at the helm of this very special Simulator issue of PC PowerPlay. My first PC gaming experience was Microsoft's Flight Simulator running on my stepdad's IBM XT, way back in 1980-something or other, and it inspired in me a love of flight that continues to this day. I also got my first big break in game writing due to my love of driving sims, as I became the Virtual Stig on the Aussie edition of PC Gamer. I still remember reviewing the Viper Racing simulator in 1998, and being blown away by the use of deformable car damage for the first time. It's been a rough ride for simulator fans over recent years, with the big budgets of the past slashed and burned, but 2014 seems to be a renaissance year for the genre. I can't recall the last time so many exciting new releases landed at once, and 2015 looks set to deliver even more simmy goodness. Whether it's the highly anticipated SuperHornet add-on for DCS World, or the imminent release of Project Cars, or the continued evolution of IL2: Battle of Stalingrad, simmers are going to be spoilt for choice. Throw in the Oculus Rift release, a device that seems custom made for simulation fans, and our beloved subgenre of gaming is healthier than ever. So sit back, relax, and enjoy the flight – I hope to see you in the virtual skies, or doing virtual laps, in the near future.

Over and Out.

**Bennett "GunSlinger" Ring**  
(Will be your wingman any time)

## QUOTES OF THE MONTH

"Seriously, I tried to lick my car"

"That's some fine hipstering right there"

"I think the word you're looking for is 'sexy'"

## PC PowerPlay

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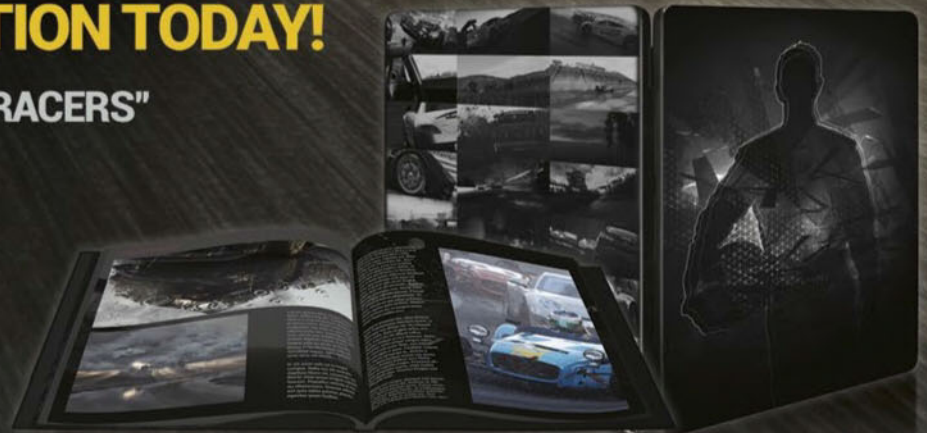
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SLIGHTLYMAD  
STUDIOS





# DANGEROUS WATERS

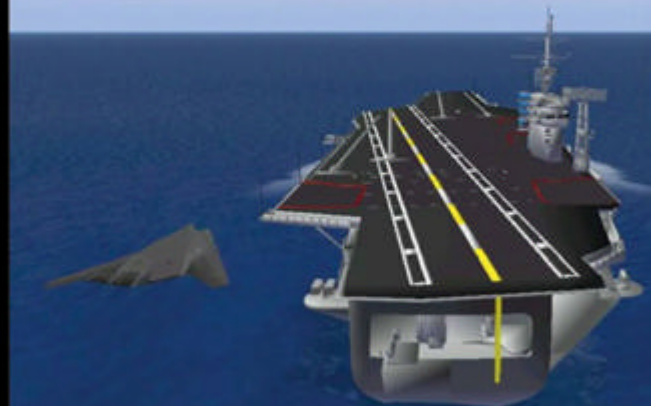
**M**ost truly great simulators focus on a single thing, obsessing over detail for maximum realism. There are many simulators that cover multiple ideas or gameplay styles, but many of these feel watered down, as that obsessive eye can't practically be focussed on everything at once. These so called "survey sims", a term loaded with derogatory meaning are often viewed as the arcade games of the hardcore simulator world, but sometimes there comes a game of massive scope and equally massive amounts of detail. Dangerous Waters is one such game.

Something of a sequel (at least in spirit) to the insanely detailed and deep Sub Command, Dangerous Waters expands the scope of naval combat by not only including the submarines from Sub Command but also gave players the option to play with a Oliver Hazard Perry FFG-7 Destroyer, a PC3-Orion recon/anti-sub plane and an MH-60R anti-sub helicopter gunship. All of the military hardware is immaculately detailed, with realistically modelled interiors, control panels and a staggering array of equipment, including multiple varieties of torpedoes and sonobuoys (they're the things ships and choppers drop to scan for subs or tell-tale cavitation). Planning is required for any mission as using the wrong equipment can get you dead. An innovative multiplayer structure that let players either command different vehicles or work cooperatively to control a single sub or ship also elevated the game above the rest of the "survey sim" pack, making it a must-play for anyone keen on the idea of realistic naval combat.

DEVELOPER SONALYSTS COMBAT SIMULATIONS  
PUBLISHER STRATEGY FIRST  
YEAR RELEASED 2005  
METACRITIC SCORE 82



**AUTO GYRO** | The flight model in Dangerous Waters is basic by dedicated flight simulator standards, but actual flight isn't what the aircraft are really for. Basic aircraft control is more akin to the controls of the ships and subs than it is to true flight. Players can plot courses for the plane or chopper, give basic control over to the autopilot then man the far more important and interesting instrument stations of the vehicles, such as sonar readouts or torpedo launchers.





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# THE SIMULATOR SPECIAL

Break out the joysticks,  
wheels and pedals: this  
is the future of hardcore  
simulation

#### REVIEWS

- 12 Assetto Corsa
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# Assetto Corsa

## The Italian Connection

DEVELOPER KUNOS SIMULAZIONI  
 PUBLISHER KUNOS SIMULAZIONI  
 PRICE US\$39.99  
 AVAILABLE AT STEAM  
[www.assettocorsa.net](http://www.assettocorsa.net)

Whether it's their love of good food, fine wine or close family, Italian culture is renowned for being passionate. Developed by a tiny Italian studio named Kunos Simulazioni, Assetto Corsa is a love letter from Italians to the art of motorsport, alight with the fierce obsession many Italians feel for high-speed vehicles. There's a reason that the world's most recognised supercar manufacturer, Ferrari, calls Italy home, and that desire is celebrated in this wonderful simulator.

At the heart of any good driving sim is an accomplished physics model, the complex mixture of mathematics, science and art that attempts to replicate the way each car interacts with the road. It's here that Assetto Corsa absolutely shines, with every cars' tyres making sweet, sweet love to the tarmac in a subtle

yet wholly believable fashion. Every bump and ripple on the track is transmitted perfectly through the force feedback, but it's the way that the rubber flexes while cornering that is unrivalled. There's an understated give to the wheel while careening through corners that I haven't found in any other racer, perfectly communicating the exquisite

**“Assetto Corsa is a love letter from Italians to the art of motorsport”**

balance necessary to power each vehicle through a turn at just the right speed, maintaining the delicate dance between grip and acceleration.

Many of the cars in Assetto Corsa are surprisingly easy to drive fast, with none of the

crazy oversteer found in other racers, which makes sense given their voluminous amounts of grip. I've been lucky enough to drive Ferraris and Lamborghinis around private race tracks, and can honestly say that they really weren't that difficult to tame at moderately high speeds, which the game mirrors perfectly. However, driving the exquisite

steeds within at race-winning speeds is another matter entirely, as the perfect approach to each corner becomes progressively narrower as the speeds increase. It's here that the game's force feedback interplays with the squeal of the tyres as they try to

hang onto the track for dear life, communicating clearly how the car needs to be handled.

Obviously the handling differs depending on the car being driven, and it's also here that Assetto Corsa really outshines the competition. Thanks to the Italian connection, the developers have had intimate access to some of the sexiest supercar brands in the world, such as Ferrari and Pagani, along with other European manufacturers including BMW, KTR, Mercedes and McLaren. A highlight has to be the supercar that adorned the wall of every teenage boy in the 1980s, the fearsome F40. Its twin turbocharged V8 engine has some of the most horrific turbo lag I've ever encountered, and learning how to extract the most out of this handful of a vehicle is one of the most enjoyable virtual driving experiences I've







encountered. In contrast, the Pagani Zonda R and McLaren MP4-12C GT3 are both race-bred supercars which stick to the track like flies to honey, provided you remember just how much power resides under your right foot. For the ultimate in high downforce traction, you can't go past the blissful Formula Abarth race cars, open wheelers that plough through corners like a heated axe through butter. They all feel utterly individual, with each car having a distinct personality that will take weeks to learn. It's a huge contrast from the likes of Project Cars, which feels like each vehicle is based on the same mathematical basis with a few numbers tweaked. While the range of vehicles isn't massive, with around 15 in total, they're unique enough that it doesn't feel like there aren't enough.

Sadly the same can't be said of the number of tracks, which currently resides at around ten. Each arrives with multiple routes, but it'd be nice to have a

## THE BEST VR DRIVING GAME AROUND

Combine Assetto Corsa with the Oculus Rift Developer Kit 2 and the result is one of the best VR demos available. Each car's intricate cockpit encloses the player perfectly, and the ability to scan for nearby cars makes overtaking and blocking easier than ever. Unfortunately the menu system is horrible, a common complaint with Rift games. There's also the issue of resolution, with distant brake-markers difficult to see until they approach medium range. Regardless of these issues, playing Assetto Corsa in VR mode is one of the most immersive driving experiences available.

few more to hoon around. Each has been built using the same laser scanning technique made famous by iRacing, and they can look incredible when the game's dynamic lighting casts rays through the trackside trees. However, at other times the tracks seem relatively sparse, lacking in crowds, marshals and other objects that can imbue a course with a sense of life. Despite the relatively low trackside detail, the game's hardware requirements are pretty steep – I had to drop back the reflection settings to medium on

my dual GTX 780 Ti system to keep the frame rate smooth.

A career mode is included, but due to the lack of tracks it can get awfully samey rather quickly. The AI is also rather rudimentary, with races often looking more like high-speed conga lines than packs of competitive drivers trying to overtake each other. Fleshing out the singleplayer content are several dozen challenge races, which involve drag races, drifting competitions and straight up race weekends. Even more content will come thanks to the fantastic modding

support, which is some of the finest I've seen in years. Just a few months after launch there are already several community tracks and cars ready to be downloaded. There are also hundreds of other mods available, including tyre monitors, setup calculators and anything else a virtual driver could need. Throw in regular content updates and Assetto Corsa will continue to grow into an ever larger experience. Besides, there's always the online mode to keep you busy, which can accommodate up to 18 or more racers depending on the server's bandwidth and hardware.

With arguably the best physics model available on the PC, Assetto Corsa backs up its exquisite handling with a healthy roster of sexy supercars and excellent presentation values. While the singleplayer content is currently a little limited, the inclusion of modding support will ensure that this racer is one that you'll be firing up for many years to come. **BENNETT RING**

### WHY SHOULD I CARE

- You care more about how a racer handles than how it looks.
- Your teenage bedroom was covered in posters of Ferraris.
- You want to support a game that supports modding.

### OR TRY THIS



**PROJECT CARS**  
WMD • 2015  
 Absolute stunner with wads of content  
 Handling is still a bit iffy



**iRACING**  
IRACING MOTORSPORT SIMULATIONS • 2008  
 The best online racing, bar none  
 Starting to show its age



**NETKAR-PRO**  
KUNOS SIMULAZIONI • 2006  
 Very similar physics  
 Hardly any content

**VERDICT** Dripping with passion for motor racing, Assetto Corsa is a racing sim that can only get better thanks to regular updates.

# 8





### TRACK TIME

1. This handy frame rate counter app displays vital frame statistics.
2. Meanwhile, this app allows for the application of different post process filters on the fly
3. The mighty prancing horse, which appears in several of the game's Ferraris.
4. Mousing to the left of the screen reveals the huge range of included apps that come with the game.
5. The track map is a little too subtle for our liking.

Damage modelling is included, but it's relatively rudimentary, with pristine panels swapping out for damaged ones at the time of contact.

Performance really dips at the starting grid, where the detailed reflections on each car can send frame rates plummeting by up to 50%.



I don't care what anybody says, the Lotus Evija is a beautiful car, and I don't need to be a hairdresser to own one.

### BIG BOY'S TOYS



1. Let's fire up the quick practice for some hot laps. First, we choose our ride, in this instance the insanely overpowered Ferrari F40.



2. We love the ability to set each car's traction control and ABS to the factory defaults, which is a first for racing games.



3. It's time to take this behemoth onto the track. Not shown, the brown undies resulting from our first run-in with the twin turbos.



# IL2: Battle of Stalingrad

Better red than dead

DEVELOPER 1C GAME STUDIOS  
 PUBLISHER 1C GAME STUDIOS  
 PRICE US\$49.99 Standard Edition; US\$99.99 Premium Edition  
 AVAILABLE AT STEAM  
<http://il2sturmovik.com>

If you purchased the last game in the IL2 series, *Cliffs of Dover*, and would rather go down in a burning BF-109 than ever support such a buggy franchise again, I'm here to relieve your woes. The latest game in the biggest combat flight sim franchise of all time is an entirely different critter, scaling back the insane ambitions of CoD to deliver a much more focused, tailored experience. Key to this is the involvement of 777 studios, makers of the brilliant *Rise of Flight*, who merged with key members of the original IL2 team to form 1C Game Studios.

Like the original IL2, *Battle of Stalingrad* foregoes the famous *Battle of Britain* or *D-Day* invasions, instead placing the pilot into some of Russia's most popular fighters. You'll fly over the snowy plains of Stalingrad, fighting off those dirty Nazis as they engage in one of the most brutal battles of the war. *Stalingrad* has been accurately modelled, right down to the grain elevator that Red Orchestra 2 players know and love. It's definitely a change of pace, though the amorphous white landscape isn't quite as exciting as low level flights over the *Cliffs of Dover*, and it can make navigating by sight as easy as finding your way out of a maze in the middle of the night without a torch.

Rather than model every single knob, trimming wheel and lever in each of the eight aircrafts' cockpits (ten if you pony up for the Premium Ed.) as *Cliffs of Dover* attempted,

the developers have simplified many of the systems. Starting up each aircraft is generally as easy as opening the radiators, adjusting the fuel mix and hitting the start button – the game then automatically steps through the real world start up procedure. It's a bit of a shame compared to the incredibly detailed *Dover* aircraft, but considering how buggy that game turned out to be it's an understandable compromise. What hasn't been sacrificed at the altar of accessibility is the handling of each aircraft, with their characteristics accurately modelled on real world flight reports. The devs even used Soviet studies of captured Nazi

game, such as the ponderous Yak-1. Strangely absent is the Junkers JU-52, a stalwart of the *Stalingrad* campaign that the Germans relied upon heavily for transporting weapons and goods. It's due to arrive in a patch in the near future, but will initially be AI-controlled only.

While a rudimentary mission creation tool is included, most singleplayer players will probably sink their teeth into the semi-dynamic campaign first, which requires an active Internet connection to play. This spits out randomly generated missions split across five different periods associated with the *Battle of Stalingrad*, and the player can choose to fly for either side,

the campaign can be a pain to progress in, which leads to the next major problem with the game.

Considering this is otherwise quite a serious sim, the developers have controversially locked away aircraft equipment and modifications behind an XP system. Players having to grind through the singleplayer campaign to unlock the extra goodies used by the real world pilots. These unlocks carry over to the online mode of the game, which can leave beginners scarily under-equipped compared to their veteran foes. It's hard enough being a noobie taking off into the unwelcome skies at the best of times; throw in bad guys with armoured cockpits and extra powerful canons and novices will barely make it off the end of the runway. Given the outcry around this design decision, I think the devs will probably backflip sometime in the future.

While the offline mode is limited to low numbers of aircraft, the online mode most definitely is not. 48 player servers have just been unleashed on the community, and the performance seems to be top notch. These epic sky battles run beautifully on my gaming rig, and that's saying something considering just how beautiful this game is. Each aircraft is modelled right down to the rivet, and advanced lighting effects make the snowy environments look especially stunning at dusk and dawn. Given 777 Studio's past reputation, I've got high hopes for the future of IL2: *Battle of Stalingrad*. **BENNETT RING** 🇬🇧

“You'll fly over the snowy plains of Stalingrad, fighting off those dirty Nazis”

fighters, and the AI-controlled aircraft are all bound to these real world performance metrics. The result is that flying and dogfighting in these aircraft remains a rather complex task, even if you don't need to memorise forty seven different keystrokes to do so.

The game currently has an even mix of fighters, bombers and ground attack aircraft. As expected, the mighty IL2 is a lumbering tank of the air, encased in thick armour and designed to get down low to deal out the hurt. In stark contrast is the easy-to-fly BF-109 F-4, which is more than a match for most of the Russian fighters included in the

Russian or German. While I love the idea of each mission being totally unique, the reality is that the dynamic mission creator is confined to creating relatively simple missions with extremely small numbers of aircraft. It's rare to see more than a dozen other aircraft in the air during a mission, a far sight from the massed formations flyers have come to expect from WWII sims. There's much debate on the game's forums about whether this is historically accurate, but there's no denying that it makes each airborne jaunt less impressive than I've come to expect. Throw in some buggy wingman AI and

## WHY SHOULD I CARE

- You're sick of the *Battle of Britain*
- You want a modern WWII simulator with all of the eye candies
- You just want to fly, not learn how to tune an ancient engine
- You'll never tire of shooting down those damn Nazis

## OR TRY THIS



**IL2: STURMOVIK**  
 MADDOX GAMES • 2001  
 Modding has polished up this golden oldie  
 It's still rather long in the tooth



**IL2: CLIFFS OF DOVER**  
 1C: MADDOX GAMES • 2011  
 Thanks to Team Fusion, this is the ultimate WWII sim  
 Very steep learning curve



**RISE OF FLIGHT**  
 777 STUDIOS • 2009  
 The pace is beginner friendly  
 You'll need to spend plenty to unlock all the aircraft

**VERDICT** The lack of content and generous helping of bugs can be easily forgiven thanks to the developer's high reputation.

# 7





Cockpit lights off  
Instruments lights off

218°  
0 m/s  
460 km/h  
0401 m

### FLYBOY

1. Cockpit interiors are incredibly detailed, but most of the levers and buttons aren't clickable.
2. Get used to the snow, you'll be seeing a lot of it.
3. Annoying icons often appear on screen, indicating certain actions with your aircraft. Only some of them can be disabled.
4. The info bar is removed in expert mode, which also removes the compass pointing to your next heading. Good luck navigating in this Winter Wonderland.
5. The gunsights are beautifully modelled, focused to infinity just like the real deal.

The most controversial feature of the game – weapon unlocks. What on Earth were they thinking?

Flying at dusk and dawn shows off the game's exquisite lighting effects.



23mm VYa-23 gun



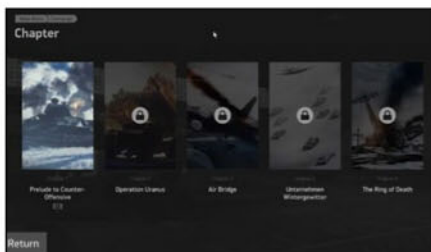
NEW MODIFICATION



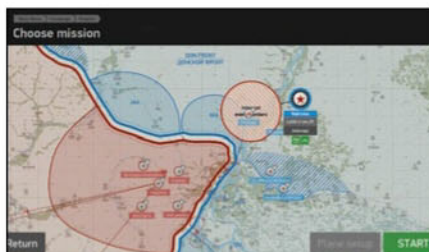
Using a head tracker makes appreciating the cockpit detail so much simpler.



### THE FLIGHT STUFF



1. Heading into the campaign mode, players will first have to pass the "Prelude to Counter-Offensive" stage.



2. The dynamic campaign map – from here players can choose from a variety of randomly created missions.



3. Note the exhaust flames – their colour can be used to determine if the mixture is set correctly.



# F1 2014

Codies drives this beloved franchise into the ground.

DEVELOPER CODEMASTERS BIRMINGHAM  
 PUBLISHER CODEMASTERS  
 PRICE \$49.99  
 AVAILABLE AT STEAM, RETAIL  
[www.formula1-game.com](http://www.formula1-game.com)

When Codemasters released the first reboot of the F1 series back in 2010, simmers felt blessed to finally have an F1 game built on current technology. It somehow managed to straddle the razor thin line between accessible and hardcore, and debuted as one of the most beautiful representations of the world's premiere motorsport. We've had three more games since then, and each has been less ambitious than its predecessor. To put it bluntly, Codies has milked the franchise dry, and this year's entry is sadly the worst of the lot.

It's not just because the game engine appears to be identical to last year, as are the majority of the tracks. If it wasn't for the change in car shapes and livery, you'd be hard pressed to pick the difference between F1 2013 and F1 2014, visually at least. The new car sound effects are one of the few additions to the game, but any F1 fan will tell you this year's cars sounded pretty darn ordinary, so even this isn't much of a bonus.

Where it really falls down though is the tweaked handling model. We're not entirely sure why, but Codies seems to have gone for incredibly accessible car handling this time around. Perhaps it's because control-pad users complained about the last game, but this year's vehicles handle like Scalextric cars, basically glued to the track. If you do manage to get the bank end squirrely, it's almost



Still screenshots look a whole lot better than this tired old engine in action.

## “Sequels are supposed to add to their predecessor, but F1 2014 does the opposite”

impossible to spin the car, as recovery is stupidly easy. I was pulling off moves that should have seen my car embedded in the wall, corner after corner, yet I was able to recover every single time. Without the finesse required by earlier games in the series, the driving soon becomes monotonous, and even the addition of two new tracks can't help to spice things up.

Making matters worse, Codies has gutted the Classic Mode found in last year's games, which

allowed longtime F1 fans to relive some of the glory moments of the past. In its place is, well, nothing. Sequels are supposed to add to their predecessor, but F1 2014 does the opposite, removing this large swathe of content while simultaneously pissing off more serious driving fans.

I've heard that Codies was working on another F1 game in the background, designed for the PS4 and Xbone, at the same time that F1 2014 was made. If that's

the case, F1 2014's shoddy state is a sad indictment on the company's thirst for revenue rather than a desire to nurture the series and look after its fans. This is a game that has obviously been made with the least amount of effort, and has tarnished an otherwise respected franchise. Perhaps we should return the favour when the "next-gen" version of the series comes out? **BENNETT RING** 🇬🇧

### WHY SHOULD I CARE

- You absolutely, positively must play with the 2014 cars
- You don't mind a banal, boring physics model
- You really, really like the Red Bull Ring

### OR TRY THIS



**F1 2013**  
 CODEMASTERS • 2013

- Superior in every way, from the handling to the Classic mode
- Doesn't feature the 2014 cars



**iRACING'S MCLAREN F1**  
 IC: MADDOX GAMES • 2011

- Possibly the most authentic F1 sim
- Will take years of practice to be able to play in this high-talent league



**RFACOR 2**  
 IMAGE SPACE INC • 2012

- There are some decent Formula 1 mods available
- Very finicky to setup

**VERDICT** Codemasters should be ashamed for this brazen cash-in, made with the least possible effort.

# 4



# DCS: Mig-21 Bis

This DCS module is only for the most dedicated of virtual combat pilots.

DEVELOPER EATHERNECK SIMULATIONS  
PUBLISHER THE FIGHTER COLLECTION, EAGLE DYNAMICS  
PRICE \$44.99  
AVAILABLE AT STEAM  
[www.leatherneck-sim.com/dcs-mig-21/](http://www.leatherneck-sim.com/dcs-mig-21/)

Welcome to your pale blue office in the sky. See all those switches and buttons? Nearly every one works. Gulp.

Today's jet fighter pilots have it easy. That's the conclusion I came to after learning the ropes in the latest add-on for the Digital Combat Simulator World platform, the Mig-21 Bis. Forget glass cockpits, automated targeting systems and forgiving flight control; this bad boy seems designed to send you plummeting into Terra Firma at every opportunity.

Considering this aircraft is made by a team of novice developers, the attention to detail is staggering. Nearly every switch, dial and lever in the cockpit of the Mig-21 Bis works, and there are lots of them. It's one of the benefits of building an older aircraft, as all of the technology is no longer classified, allowing the devs to perfectly recreate it. Thank god for the detailed tutorial missions which show wannabe pilots the basics of operating the aircraft. The community has also created several brilliant YouTube tutorials that flesh out the in-game tutes, while the 200 page manual is excellent background reading material.

You'll need to use all of these resources to figure out this jet engine with stubby delta wings, as simply starting the aircraft will take hours of practice. Once you have managed to get the jet fuel burning at the back end of the plane, it's time to take to the skies. This graceful bird is able to fling itself around majestically with a flick of the joystick, turning and twisting like a rocket-fuelled



“ Nearly every switch, dial and lever in the cockpit of the Mig-21 Bis works, and there are lots of them. ”

ballerina... who am I kidding? This thing handles like a friggin' brick. Even getting its overweight, underpowered fuselage into the air takes the concentration of a monk, and don't even think about getting into a sustained knife fight. This thing bleeds airspeed in high-G turns like a freshly shot duck.

The Mig-21 Bis debuted in the early 70s, and it's an interesting history lesson in just how rubbish older radars were. Whether or not you'll lock an incoming target seems to be a 30/70 mix of

technique and mysticism, and in over a dozen hours of flying I've still only managed to lock up a handful of bogeys. While this might sound frustrating, it makes those rare moments when everything comes together incredibly satisfying, one of the key reasons simmers play these games.

The DCS World engine might be showing its age in terms of environments, but it's still wonderful at showing off high-detailed aircraft models. The Mig-21 Bis is easily up there with

the best of them, with extremely high-resolution texture work that barely blurs even when the camera is zoomed right in. Unfortunately the game is limited to the same terrain we've been flying over for nearly a decade, and it's getting rather tiring. (How's that new graphics engine coming along, guys?)

As one of the most beautifully modelled add-ons for the DCS World platform, Mig-21 Bis is a no brainer for fans of older jet aircraft. It might seem rather expensive until the dollar per hour cost is calculated, with hundreds of hours of flying necessary to simply master the aircraft, let alone turn it into a flying death dealer. **BENNETT RING** 🇬🇧

## WHY SHOULD I CARE

- You've always wanted to fly the Mig-21 Bis Fishbed
- You think analogue trumps digital any day of the week
- You also think fly by wire is for pussies
- You want to shove a missile up an F4 Phantom's jet exhaust
- You love learning the ins and outs of weapon platforms

## OR TRY THIS



**DCS A-10C WARTHOG**  
EAGLE DYNAMICS • 2011

- The original and still one of the best
- Heavy on the tank busting



**DCS: SU-27**  
EAGLE DYNAMICS • 2014

- Much simpler to fly and fight with
- Lacks detail



**DCS: F-86F SABRE**  
EAGLE DYNAMICS • 2014

- Rad plane
- No radar, relatively simple avionics

**VERDICT** Perfect for those who want to learn every switch, system and feature of one of the world's most famous fighters

# 9



# iRacing

World of Racecraft.

DEVELOPER iRACING.COM  
 PUBLISHER iRACING.COM  
 PRICE Subscription  
 AVAILABLE AT WWW.IRACING.COM  
 www.iracing.com

There's something about beating a fellow sim racer that makes an online win infinitely sweeter than beating a few lines of AI code. iRacing's unique online racing system means it has been the online racer of choice since first releasing back in 2008. It's basically an MMO driving simulator, where players are assigned a license based on how few accidents they have, combined with their race results over a season. Every few hours the service hosts license-based races which are filled by some of the service's 25,000+ subscribers, and the racing on offer is the best around. As an MMO it has evolved massively since it left pit lane six years ago, but has it changed enough to compete with the latest sims?

What hasn't changed is the game's meticulous modelling of real world tracks. iRacing prides itself on the fact that every track is laser scanned, resulting in a virtual recreation accurate down to one millimeter. Combine this with the game's excellent force feedback modelling, and iRacers feel every bump, camber and curb of the real tracks. This fidelity comes at a cost though, with new tracks priced at US\$15 each. Considering that tracks like Bathurst and Philip Island can easily deliver tens of hours of entertainment, it's not that expensive, but the investment required to buy enough tracks to take part in a full season can be rather pricey. Drivers also need



This shot of the mighty V8 Supercar doing laps on Philip Island illustrates the game's rather basic lighting and graphics model.

## “ Aussies will appreciate the Ford V8, and the imminent release of the Holden V8 in 2015. ”

to buy their chosen car, with the likes of the Ford V8 Supercar going for US\$11.95. These combined costs, along with a monthly sub, makes iRacing the most expensive driving simulator around, but this cost also means that most drivers tend to stick to one car for each season, resulting in a level of racecraft simply not found elsewhere.

While the tracks are meticulously detailed, the graphics engine displaying them hasn't changed much since the game's launch. New high res track textures as well as the addition of a new shadow system has given the sim a lick of paint,

but it's looking decidedly dated compared to the likes of Project Cars. The sound system is also in need of love, with the promised upgrade to the Fmod sound system delayed for over a year.

Where the sim has changed the most is the new tire model, which iRacing claims is the most realistic tire simulation ever made for the PC. After spending several months getting used to the new handling, I must admit that the feedback between the wheel and the track is hard to beat, yet iRacing's vehicles still have a tendency to oversteer, making it harder to find the fine line between race-pace

and crash speed. Other recent additions include a VOIP-based spotter system, so friends can spot for you, as well as the new team-racing feature, perfect for lengthy endurance racers. Finally, Aussies will appreciate the Ford V8 Supercar, and the impending release of the Holden V8 in 2015 will likely make iRacing the go-to sim for V8 Supercars fans.

iRacing's superlative online mode is still unrivalled, making it the only sim for those who want to race other humans without worrying about a league. However, the core engine is in need of a facelift, yet iRacing has failed to deliver on a promised DX11 overhaul time and time again. If it doesn't happen soon, iRacing's continuing struggle to maintain subscriber numbers could be doomed. **BENNETT RING** 🇦🇺

### WHY SHOULD I CARE

- You want the most realistic, competitive racing available
- You don't mind spending \$100+ to buy a single car and enough tracks for a season
- You've got pals who want to do team endurance racers

### OR TRY THIS



**LIVE FOR SPEED**  
THREE GUYS • 2003

- Has a healthy online racing community
- Is even uglier than iRacing



**rFactor 2**  
IMAGE SPACE INC • 2012

- There are several serious leagues running in Australia
- Getting it to run is a pita.



**RACEROOM**  
SIMBIN • 2012

- Free to play means it's easy to sample
- Tends to be a little less serious than other sims

**VERDICT** The online racing is even better thanks to the new tire model, but the dated graphics are in dire need of a coat of DX11 polish.

# 8



# Rise of Flight

It's amazing what five more years of development can do.

DEVELOPER NEOQB, 777 STUDIOS  
PUBLISHER 777 STUDIOS, AEROSOFT  
PRICE \$49.99  
AVAILABLE AT STEAM, RETAIL  
[riseofflight.com](http://riseofflight.com)

Thanks to continual graphics upgrades, Rise of Flight is easily one of the best looking flight sims on the market, despite being released five years ago.

When Rise of Flight originally launched in 2009, it shared many of the issues that currently plague IL2: Battle of Stalingrad, which isn't surprising given that the developers are one and the same. Buggy flight models and AI, limited aircraft, a non-existent career mode and poor performance had many virtual pilots ruing the day they ever sat down in this title's primitive World War 1 cockpits. But as any simmer knows, today's simulators aren't static beasts: instead these simulators evolve and grow over time, with regular content drops bundled as expansion packs. As a result, Rise of Flight 2014 is a vastly different critter to the wonky bird that took its fledgling flight five years ago.

Where the original launched with just a handful of aircraft for a relatively high price, the existing version is now free to play with a couple of planes, with an additional 30 or so available for purchase. Prices range from \$7 to around \$13 per aircraft, depending on the complexity of the model. The Iron Cross Edition bundles eight planes together for a mere \$15, while the Ultra upgrade includes every single add-on aircraft for just \$55. That's incredible value considering each aircraft will take at least five or six hours to master. There's also a brand new theatre available for \$19, focusing on the naval bombardment in the English Channel, and it's a stunner.



## “ Rise of Flight 2014 is a vastly different critter to the wonky bird that took flight five years ago. ”

If you've ever wanted to try controlling the ponderous flying boats of World War 1, and these things make Brontosaurus seem nimble, the Channel map is a must-have.

One of the major complaints singleplayers had with the original game was the lack of a decent campaign, but this has since been well and truly resolved. The new dynamic campaign creates random missions based on the type of sortie you'd like to fly; highlights include aerial recon flights, front line patrols and heavy bomber missions. It's not perfect, with the occasional mission being

a tad boring due to low aircraft numbers, but it spits out captivating flights more often than not. The presentation is also stunning, using newspaper clippings and watercolour paintings to illustrate your progress.

I'm not sure whether it's because PCs are now faster or the game has been optimized, but the performance woes of the past are exactly that – of the past. Even with everything cranked to maximum detail, this breathtaking simulator runs more smoothly than the silk parachutes these WWI pilots never received. It's a good thing

too, as the online mode now supports up to 40 players split into two teams, going head to head in missions designed by the revamped mission builder. This now allows for randomized events and detailed mission objectives, leading to what are effectively online campaigns.

With zero barrier to entry, you've simply got no reason not to give the Free to Play version a go. Be warned though, as Rise of Flight has grown into the definitive World War I simulator, making it all too easy to start splurging on Fokker Triplanes and Sopwith Camels. **BENNETT RING**

### WHY SHOULD I CARE

- You don't need no stinkin' missiles to shoot down other planes
- You want to appreciate the seat of the pants flying required by these old war birds
- You want to try to fly a boat with a wing and four primitive engines strapped to it

### OR TRY THIS



#### WINGS OVER FLANDERS FIELD

OLD BROWN DOG • 2013  
Possibly even better campaign mode  
Requires MSCFS3 to install



#### ACES HIGH

HI TECH CREATIONS • 2000  
Online only makes for more challenging flights  
Positively archaic modelling



#### ILYA MUROMETS

IC GAME STUDIO • 2014  
A special version of Rise of Flight focusing on this Russian behemoth  
Is currently in open Beta

**VERDICT** No other sim captures the feeling of flight quite like RoF, and it's also the best representation of the deadly aerial duels of WW1.

# 9



# Elite Dangerous

It's a big world out there.

DEVELOPER FRONTIER DEVELOPMENTS  
 PUBLISHER FRONTIER DEVELOPMENTS  
 PRICE US\$59.99  
 AVAILABLE AT [HTTPS://STORE.ELITEDANGEROUS.COM](https://store.elitedangerous.com)  
[www.elitedangerous.co](http://www.elitedangerous.co)

I'm rather confident that Elite: Dangerous (E: D) is set in the largest virtual universe ever created. As of the official launch, the entire Milky Way has been modelled in the game. Yes, all of it. I didn't realise just how big the Milky Way is until I fired up the in-game star map; it turns out there are over 400 billion star systems modelled in the game. Each of these is a unique solar system, comprised of one or more stars, planets, moons, asteroid belts, space stations and other assorted planetary bits. I'll say it again, just because it's so incredible – Four. Hundred. Billion. Insane eh?

Obviously these aren't all hand-crafted, as it would take a billion underpaid 3D modellers working on a billion workstations a year to pump out this much content. Procedural generation has been done instead, but the tools are all based on Newtonian physics and our modern scientific understanding of how galaxies formed. Our own Solar System has been hand-rolled though, along with the basis of 160,000 commonly recognised constellations that you can see in our night sky. Regardless of whether a system is tailor-made or not, they're all stunning environments thanks to a healthy variety of planet and star types. The first time I encountered a Binary star system, with its two giant orbs of burning plasma entangled in



“ it turns out there are over 400 billion star systems modelled in the game ”

an eternal lover's dance, was breathtaking. As you'd expect, every object in each star system has a scientifically accurate orbit, which is displayed on the HUD. Apparently the game also includes Black Holes, supernovae and other cosmic rarities, but I haven't stumbled into one of these during my lengthy play time.

Given that each star system is accurately modelled in terms of distance, and star systems are several light years apart from each other, travelling this expanse could have been a daunting affair. E: D's solution is as unique as it is clever, breaking the game down into three “modes” of play, each represented by a different instanced environment. The first is a close ranged instance,

where distances are measured in metres and kilometres, where players do the important stuff like combat, docking and mining. When flying in this mode, you'll be zipping around at several hundred kilometres per hour, and you're in an instanced part of space with other players and objects. It's here that your spacecraft's amazing manoeuvrability comes into play. As well as the usual directions an aircraft flies, each ship can also strafe vertically and horizontally. Control via a joystick/throttle combination feels fluid and fast, but mouse and keyboard controls are more than serviceable. Mastering flying with flight assist on is pretty simple, but flick this to off and you can pull off outrageous moves. Got a bogey on your six who you can't shake?

Light the booster engine, hit top speed, disable flight assist off and then rotate 180 degrees to shoot at the bad guy while still travelling in the opposite direction. Cool.

The next mode of travel is the solar range instance, with speeds measured in millions of meters per second, and distances in light seconds, used to travel between planets and stars within a given solar system. You do so by using the engine's Supercruise mode, and it's as easy as locking onto your destination before hitting the Frameshift drive button. It takes a few seconds to warm up, and won't work if you're caught in the gravity well of a large mass. When it does kick in, a brief animation seamlessly pops you into an instanced version of the star system, allowing you to flit between planets in a matter of minutes rather than months. Watching a cluster of glowing dots in the distance slowly grow to become a star and its children is a breathtaking view. Exiting Supercruise is quite challenging, as you need to start decelerating at just the right moment. Get it wrong and you can spend several minutes looping around your destination, speeding up and slowing down until you find the sweet spot that allows you to drop back into the close range instance next to your target. Other players are still visible in Supercruise mode, but because of the high speed they look like small shooting stars rather than



**TRADERS** | The simplest way to start scratching up space pennies is to take on the role of a Trader. These interstellar truckers buy commodities from one location and sell them at higher prices elsewhere. The starting spaceship, the Sidewinder Mk. 1, has enough space to make between 2k and 15k in credits per run, depending on how far you're willing to travel. Dedicated haulers will want to splash out on the Freighters with larger cargo holds. Keeping track of which places want to buy and sell various goods requires mastery of the detailed navigation system, while the community has built a trading tool called Elite Advisor that promises to make it even easier.



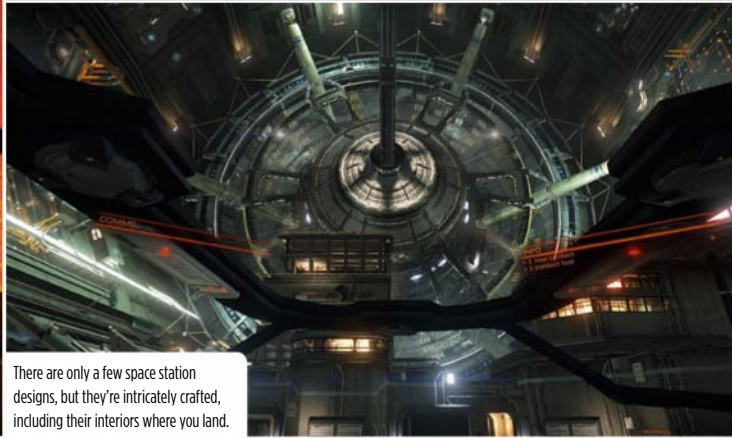


### STAR BLAZERS

1. Your power source can only deliver a finite amount of juice, which you'll need to juggle between Systems (shields), weapons and the engine.
2. The 3D scanner takes some getting used to, as it has to represent many different types of contacts in a three dimensional space.
3. You'll need to fly inside some stations to land, threading the needle by passing through this slim docking port.
4. As I'm close to a large body of mass, I'm caught in its gravity well, indicated by the "Mass Locked" warning. No Hyperspace for me!
5. The comms section of the HUD is easy to ignore, but carries lots of important info from NPS due to their text-only communications.

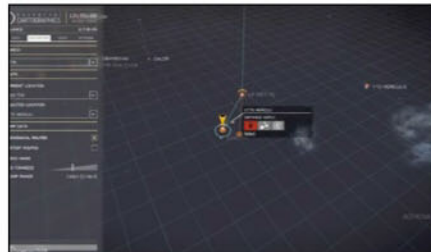
Punch it Chewie!

Did you remember to slip, slop, slap?



There are only a few space station designs, but they're intricately crafted, including their interiors where you land.

### SPACE RACE



1. Bringing up the Bulletin Board allows you to peruse any missions. Here we've been tasked with killing two pirates in five hours.

2. Once we've accepted the mission, it's time to plot our course in the Navigation computer.

3. Before heading into the deep black, it's probably wise to check that our Sidewinder has enough firepower to take on these space hoons.





Quick! Fire the Wave Motion Cannon then drift helplessly towards the sun!

The mothership of Warlord Xur and the vanguard of the Ko-Dan armada.

Here we see the majestic mating dance of the Canard Wing Fast Intercept Fighter.



## BOUNTY HUNTERS AND PIRATES |

If you're the kind of space Mercenary that fires first, the life of a Bounty Hunter or Pirate is for you. Each spacecraft in the universe has a legal status attached to it, and if they're wanted, they're open game. If they're not packed full of crusty criminals, you can still attack them, but you'll end up as a wanted Pirate. Combat pilots usually congregate near conflict zones or busy trade routes, where they can find plenty of random bounties, and noobs, to collect. The game also dishes out plenty of combat missions with rich rewards, and some of the tougher contracts offer over 100k in credits. Try these in your starting ship and you'll end up as space junk in no time.

**EXPLORERS |** Want to boldly go where no man has gone before? Perhaps you should try your hand at exploring, where you're rewarded for mapping unknown star systems. Simply fly to the system, approach each undiscovered cosmic body, and Bob's your uncle. You'll need to fly at least 20 light years from the place you've explored to make any money though, and it tends to pay pretty poorly. If another player has already explored a system it'll still show up as unexplored to you, so you don't need to travel the breadth of the Milky Way to find unexplored areas.





the detailed spacecraft models seen in the close range mode. You can't shoot them, but if you've got the right equipment you can pull them out of Supercruise mode, allowing you to then engage in combat.

Apparently it's possible to use Supercruise mode to travel between star systems, but it would take weeks. The preferred method of interstellar travel is Hyperspace, the third mode of travel where distance is measured in light years. Your ship's engine causes space to fold, so travelling six or seven light years only takes around 15 seconds. There are no other players when in this mode – it's a solo instance.

These three modes of the gameplay merge almost seamlessly, though there can be a brief pause as a system loads when you leave Hyperspace. Travelling within star systems is simple, but navigating the vast distances between systems using Hyperspace can be a very confusing affair. Your ship can only jump a certain distance based on its engines, power source, mass and amount of cargo in the hold. I got stuck on one mission when I jumped to the very edge of my ship's limit to grab some cargo. The added mass of the cargo meant my maximum jump distance dropped, and I couldn't return to the mission drop-off point without jettisoning my precious cargo. Thankfully the Navigation map is an incredibly powerful tool, which should make situations like this the exception to the rule provided you learn how to use it.

Equally as powerful as the navigation system is the intuitive Heads Up Display (HUD). It's best used with a head tracking unit like the TrackIR (or the Oculus Rift, which is natively supported), as some weapons can be aimed simply by looking at the target. When combined

**MINERS** | If you're under the age of 12, then... sorry, wrong minors. Miners do exactly what it says on the tin, equipping their spacecraft with drilling lasers and stuffing a refinery in the hold. Mining requires a bit of exploration, as you'll need to find the best asteroid belts to get the good stuff like Palladium or Silver. Unlike Eve Online, mining is a manual task in E:D, with the player frying chunks off each asteroid, before flying over them to scoop them into the cargo hold. It can take a while to fill the larger holds of bigger ships but if you're in the right place at the right time it's possible to make a small fortune rather quickly. Which makes you a ripe, juicy target for pirates...



with a H.O.T.A.S. joystick, it's possible to trigger every action imaginable without taking your hands off the controls, as everything is neatly arranged and easy to find. If only the missions were the same.

You can see the four major professions found in the box-outs on these pages, but the game also serves up ad-hoc missions, which are collected at space stations, as well as from

had to look for "Unknown Signal Sources" on my scanner to find pirates, but nobody bothered to tell me that. Even after reading about the signal sources on the official forums, I still couldn't find a second pirate before the mission timer expired. This lack of information pervades most of E: D – it's the Dark Souls 2 of space simulators. A handful of tutorials introduce players to the absolute basics, but misses

to find things to do. It feels like there's a bare minimum amount of content to keep players busy for the first few dozen hours before repetition sets in; there's only so many times mining another potato-looking asteroid is enjoyable. There's the skeleton of a political system in place, with star systems and stations allied to one of several factions, and this apparently ties into story-based missions. Yet in over thirty hours of play time I don't think I encountered any of this content; whether I was looking in the wrong places or it just wasn't obvious to me is hard to tell.

Despite these qualms, the foundation is here for an incredible space simulator. The core technology and design is pure genius, and it's a joy to explore for the first few days. Now that the team has overcome the seemingly impossible challenge of building a virtual Milky Way, they can focus on crafting the content that will give players something to do. Based on what they've delivered already over such a short period of time, as opposed to a certain other developer who only knows how to deliver adverts, I've got total faith that this is the start of something amazing. With plans for more spaceships that can be walked around on, as well as planetary landings, the initial release of Elite: Dangerous is much like the Big Bang, with a wonderful universe slowly coming into form over time.

BENNETT RING

“travelling six or seven light years only takes around 15 seconds”

NPCs. These range from simple cargo ferrying runs, to killing several pirates in a given area, to stealing goods off other players. The problem with many of these missions is how vague their instructions are. For example, one mission tasked me with killing two pirates in a nearby system. After making the jump, I couldn't find a single pirate for over an hour. It turns out that I

so much more. Thankfully the simming community seems to enjoy writing about their games as much as they do playing them, and there's a voluminous 200 page community-created manual floating around the Internet that fills in many of the gaps.

Sadly the other problem is to do with gaps of a different kind – gaps in content. With such a huge play area, it's often hard

## IN SPACE EVERYBODY CAN HEAR YOU SCREAM

Much to the dismay of many original backers, E:D went online only just a few weeks before its initial release. While it's still possible to play in singleplayer mode, you still need to be online, as the Galaxy's trade, missions and news are all updated via the central server. When playing online, don't expect to take part in battles with hundreds of other players – rumour suggest the player cap per instance is 32 humans, plus AI. Grouping with friends is a breeze, but currently most of the systems aren't built with co-op in mind, such as completing missions. VOIP is included, though we couldn't figure out how to hail strangers, but we'll keep practicing our Klingon battle cries until we do.

### WHY SHOULD I CARE

- You want the most ambitious space simulator of all time.
- You're sick of paying hundreds for spaceship models that don't have a universe to fly in.
- You're happy to support a game that might not be perfect now, but looks set to grow into something truly special.

### OR TRY THIS



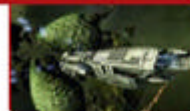
**SCAM CITIZEN**  
RSI • 2047

- Ooh, look at the pretty pre-rendered AVI! Take my \$500!
- Uncontrolled feature creep.



**KERBAL SPACE PROGRAM**  
SQUAD • BETA NOW

- A space simulator where you get to build the spacecraft.
- More for engineers than pilots.



**X-REBIRTH**  
EGOSOFT • 2014

- A smaller more focussed universe.
- Has more bugs than the release of Scam Citizen will include.

**VERDICT** Despite lacking variety in activities at the moment, it has laid the foundation for a very special space sim.

**8**



# RIDICULOUS

## PART 1

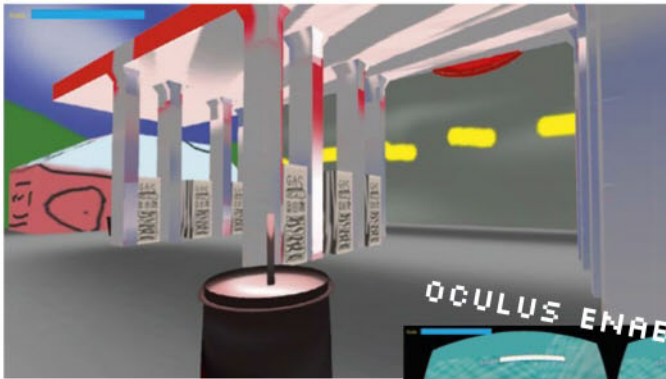
While flight, military and driving sims dominate the market, there is another branch of simulation that is either so strange or so absurdly specific that it sometimes beggars belief.



### ROBOT VACUUM SIMULATOR

**DEVELOPER:** Stolidus Simulation

There has been more than one iteration of Robot Vacuum Simulator. That in itself is probably one of the signs that modern culture is entirely bankrupt. Part of the collective PCPP mindset wants to believe that Robot Vacuum Simulator is a meta indictment on the gamification of modern day life, but when you consider that the whole point of robot vacuums is that they do their thing with little or no input from the owner, the whole idea of having to take control of what is meant to be autonomous may instead be an insightful commentary on people having to take responsibility of their own actions.



### SODA DRINKER PRO

**DEVELOPER:** Will Brierly

The disparity between the so called professional reviews of Soda Drinker Pro and the reader reviews on Metacritic show just how out of touch the press really is. What's the matter Gamer.nl? Didn't big soda deliver you a fat bag of cash so you thought you'd have your revenge by giving what is objectively one of the most innovative games ever (it is the world's first FPS – First Person Soda – simulator) a score of three out of 10? Name one other game in which you can walk around different environments drinking soda through a straw? That said, we would probably deduct points ourselves due to the fact that Soda Drinker Pro clearly espouses American cultural superiority through the continuous use of the word soda rather than using something more multicultural like soft drink. It's also Oculus Rift compatible, so there's that too.



### ROCK SIMULATOR 2014

**DEVELOPER:** Ryan Schultz

When the project was put on the crowdfunding site, IndieGoGo, Rock Simulator 2014 smashed its goal, raising over 200% of the original asking price. Such is the draw of finally being able to control a realistically modelled rock. This free to play game does exactly what it says on the tin. You are a rock and do you do the kind of things that rocks are want to do, namely bugged all. The camera can be rotated to get different perspectives on the rock and different environments in which a rock might be found are included in the basic package. Although the gameplay may seem positively archaic, Rock Simulator remains a thoroughly modern game thanks to the inclusion of a dubstep soundtrack.





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# IL-2 STURMOVIK

At a time when PC gaming was thoroughly dominated by WW2 shooters, IL-2 Sturmovik was like a breath of fresh, frigid Russian air. It not only took the fight to the skies, but shifted the action from the overdone Western and Pacific Theatres, in favour of the grim dogfighting of the Eastern Front – in fact, the game's name comes from the Ilyushin IL-2 ground-attack fighter. This aircraft was designed from the ground up for tank-busting, and was the most produced aircraft design in the world. Heavily armed and armoured, the plane was a beast.

IL-2 had a wide selection of 31 flyable planes at launch, which expanded out to 79 with a range of expansions and add-ons. Even more impressive is that the game has been supported by its developer for well over a decade, with the game still being patched and updated as recently as 2012. Certainly, the game still has a thriving fanbase, thanks to its great campaign and multiplayer modes that can handle up to 100 players.

The series has a whole lot of confusing history. There were a lot of sequels based on the same engine, but a new game engine was introduced for 2011's Cliffs of Dover. The current IL-2 Sturmovik: 1946 edition has the original game, and all patches and expansions, making it the version to get hold of.

DEVELOPER 1C:MADDOX GAMES  
PUBLISHER UBISOFT  
YEAR RELEASED 2001  
METACRITIC SCORE 91



**THE ILYUSHIN IL-2** The original IL-2 took to the air for the first time in 1939, two years before the Germans invaded Russia in Operation Barbarossa.

Designed as a ground-attack aircraft, the IL-2 was not only equipped with very effective 23mm cannon and rockets, but was also heavily armoured, to protect the craft's vitals from return fire from ground targets. At the Battle of Kursk, largely celebrated as the greatest tank battle of all time, IL-2 attack aircraft destroyed dozens of German fighting vehicles.





TOP TEN  
SIMULATORS

#9







# PROJECT CARS

**BENNETT RING** gets behind the wheel of the world's first crowdfunded racing sim.

DEVELOPER SLIGHTLY MAD STUDIOS  
 PUBLISHER SLIGHTLY MAD STUDIOS  
 DUE 20 MARCH, 2015  
[www.projectcarsgame.com](http://www.projectcarsgame.com)

There's simply no denying that PC racing simulators are an entirely different breed to the so-called sims found on consoles. While Gran Turismo and Forza claim to offer perfect virtual representations of the vehicles found within, their reliance upon control pads makes their physics models only slightly more realistic than Mario Kart. There's also the fact that the PC's brute force allows for much higher resolution visuals slathered in antialiasing, which makes all the difference when trying to spot a far-off corner or braking point. Throw in beefier internet connections, and our 24-player races make the 8-car races on console look positively primitive. Yet there's one area where the consoles have enjoyed a substantial lead over PC sims – the sheer volume of content found in the most popular racing franchises. With budgets that PC developers would kill for, console creators are able to license hundreds of cars and dozens of tracks. In contrast, most

PC simulators only feature a handful of cars and tracks. Until now, that is. Project Cars is the first PC simulator to deliver a garage that the Top Gear team would be proud

of, ready to be raced over more circuits than we've ever seen in a PC racer.

## MAD MONEY

Before we delve into the deep pool of content that Project Cars delivers, we should probably touch on the interesting development history of the game. Developer Slightly Mad Studios launched the project with a private crowdfunding drive in 2011, and it rapidly raised over US\$3 million, making it one of the most successful crowdfunded games of all time. Key to this success was a promise that backers would receive a return on their investment if the game made a profit, with the amount returned based on the initial investment. If the game sold one million copies at full price, those who chipped in ten pounds would receive forty five pounds in return. Those who ponied up the most expensive package of 25 thousand pounds could look forward to receiving a whopping 110 thousand pounds in return. Every backer also received access to regular builds of the game, as well as access to the developers to deliver feedback via the official forums, with higher priced packages getting more frequent code drops and closer access. However, the UK's Financial Services Authority soon placed the project under investigation, as it had







So real you can almost smell the exhaust fumes

## FEES RETURNED TO TEAM MEMBERS

The original investment return chart is no longer publicly listed on the game's crowdfunding site.

DEVELOPER RECEIVES...

€7,500,000

TEAM MEMBERS EARN...

€17,500,000

PROJECTED PROFIT	"JUNIOR" POSITION	"TEAM MEMBER" POSITION	"FULL MEMBER" POSITION	"SENIOR" POSITION	"MANAGER" POSITION	"SENIOR MANAGER" POSITION
ZERO						
€8,25m (Equivalent to 250k traditional retail sales across four platforms)	€11,25	€27,50	€55	€112,50	€1125	€27,500
€25m (Equivalent to 1m traditional retail sales across four platforms)	€45	€110	€220	€450	€4500	€110,000

BASED ON 1 YEAR DEVELOPMENT COSTING €3.75M AND 150 TEAM MEMBERS PER TOOL PACK



evolved from a simple crowdfunded game into an investment scheme. These schemes are subject to strict legal conditions in the UK, such as banning their promotion to the general public without proper authorisation and limits on who can invest, a term Project Cars was clearly in breach of.

At the beginning of the investigation, Slightly Mad stopped accepting new backers for the project, and it's been closed ever since. This has led to a lot of forum flame from users who have seen the game's stunning screenshots and are angry that they can't get access to the closed beta. The second effect of the investigation was that Slightly Mad offered full refunds to anybody who wanted one, with no time limit on claiming their receipt. What wasn't clear though was the change in the investment return. While the official game Wiki claims that backers will still receive a share of profits generated within the first three years of the launch, the website that hosted the Project Cars crowdfunding effort, WMDportal.com, now states that Project Cars is not an investment scheme, and finding information on the return on investment is next to impossible. Making matters even muddier are the game's continual delays. The original ship date of 2012 on PC, PS3, and Xbox 360 was eventually delayed to 2013, with the 360 and PS3 versions scrapped in favour of PS4 and Xbox One ports. This was then delayed until November 21, 2014... which was again delayed at the last minute until March, 2015.

We wouldn't blame you if you were somewhat sceptical about Project Cars given its legal woes and three year delay, but we've been privy to something that most others aren't – we've been in the beta since it was an alpha. Judging by the current state of the beta, the game should indeed be finally ready to roll out of the garage in early 2015, no small feat considering the gargantuan scope of the title.

At the time of writing, the beta of Project Cars had over 60 different cars just waiting to be thrashed into submission. Starting at the low end are the zippy 125cc and 250cc karts, nimble critters that champions like Schumacher and Hamilton cut their teeth on, and they're the perfect choice for newcomers to learn the fundamentals of cornering, braking and racecraft. The next step up are the Track Day cars, road-worthy rides that can handle the 9 to 5 commute, while being able to stretch their racing wings on weekends. Our favourite has to be the BAC Mono, a single seater with a top speed of 270km/h that handles like an F-16 fighter jet on steroids, although the three variants of the Ariel Atom are also hard to pass up.

### SUPERCAR SHOWDOWN

No racer would be complete without a supercar or two, and Project Cars ups the ante with almost a dozen different models. Pagani, RUF, McLaren, Aston Martin and BMW are all represented, though the lack of Ferrari is a bit of a shame. When you tire of taking

## OCULUS OF-COURSE-ULUS

Joining the ranks of Oculus Rift-ready racers, Project Cars promises full Rift integration come the consumer release of the Rift. The existing implementation of Rift is support is relatively rudimentary, and you're going to need a supercomputer packing quad-GPUs to render its eye-watering delights at 75fps in stereo. PS4 owners can also look forward to full Project Morpheus support if and when Sony's headset ever arrives, but we'd expect a large graphical downgrade to facilitate the smooth performance required for low-latency VR.







Hmm, what to drive ...  
The Pagani Zonda? ...



... or the Mitsubishi?



## NOT REINVENTING THE WHEEL

One of the most painful procedures simmers have to go through is the controller configuration game, which can take hours to nail down depending on just how obscure your chosen controller is. So when we saw the pre-baked configs for over 30 different wheel and pedal sets just waiting to be auto-detected, we breathed a happy sigh of relief... until we noticed that the included Fanatec Wheel Base config didn't work with our Fanatec Wheel Base. Fingers crossed that this is just one of the many bugs needing to be squashed before the game comes out. Support includes every major wheel from Thrustmaster, Fanatec, Logitech, SimRaceway and Microsoft.



these million dollar rides for a spin, it's time to strap yourself into the cockpit of the real racing cars, with the likes of the BMW Z4 GT and McLaren MP4-12C GT3 waiting to teach you the definition of speed. Throw in a bunch of classic cars such as the Lotus 49 and Ford Mustang, along with a handful of open wheelers, and Project Cars smashes the benchmark for most vehicles in a racing sim.

Making the huge number of cars even more impressive is the absolutely staggering detail of each car model. From the fully realised interiors, with modelling so intricate that individual stitches in the leather seats can be seen, to the accurately rendered exteriors built using CAD models, the car porn in Project

“ Project Cars smashes the benchmark for most vehicles in a racing sim. ”



Cars is far and above any previous racer. Full support for the Oculus Rift will be included at launch, allowing virtual racers to truly appreciate the stunning car interiors. A built-in photo mode allows drivers to pause the game at any moment to frame the perfect shot, and the resulting screenshots are arguably the closest to photorealism we've seen in a game, regardless of genre.

## TRACK PACK

All of these cars aren't much good without anywhere to race them, and once again Project Cars totally over-delivers in the content department. Where games like Assetto Corsa ship with around a dozen tracks, Project Cars currently has over 25 in the beta. These are all individual tracks, not simply different configurations of a handful of base circuits. With each track offering multiple race routes, the number of circuits in total easily surpasses 50. While many of these are European tracks, such as Brands Hatch, Zolder and Silverstone, Aussies haven't been forgotten. Our world







famous mountain course, Bathurst, has been included in all of its hill-climbing glory, and Project Cars' rendition of Australia's favourite track is on par with iRacing's recent, laser-scanned rendition. Unlike iRacing, Project Cars uses a mixture of laser-scanned and hand-crafted tracks, and after driving most of them we honestly can't tell which is which. While purists might bemoan the lack of laser scanning across the board, the decision to include un-scanned tracks means Project Cars has the benefit of being able to include tracks that haven't yet been treated to a laser show. Chief amongst these is the Green Hell, more commonly known as the mighty Nürburgring. From what we can tell, this has been split into three sections, suggesting that the game can't handle recreating such a lengthy track while maintaining the environmental fidelity found within. It's not surprising, as the circuits and trackside scenery are just as impressive as the car modelling, with particular attention paid to objects that bring life to each track. Gone are the empty, lifeless grand stands of other racers, replaced by massive 3D crowds that take photos, wave flags and cheer as you drive by. Race marshals are dotted at regular intervals around each track, ready to whip out a yellow flag when things go awry. And it wouldn't be a racer without helicopters hovering over certain parts of the track.

Slightly Mad Studios, the developer of Project Cars, has always had a reputation for pushing the graphical boundaries in racing



games, with the NFS: Shift series standing out as being particularly sexy. Project Cars is built on the same Madness engine used by the Shift games, but it's been overhauled from the ground up. This is one of the few PC games that really makes the most of DirectX 11's advanced techniques, leveraging today's cutting-edge GPUs. Gamers with older DX10 graphics cards will still be able to play the game, as a DX9 mode is also included, but they'll miss out on some of the eye candy.

#### ALL THE EYE CANDY

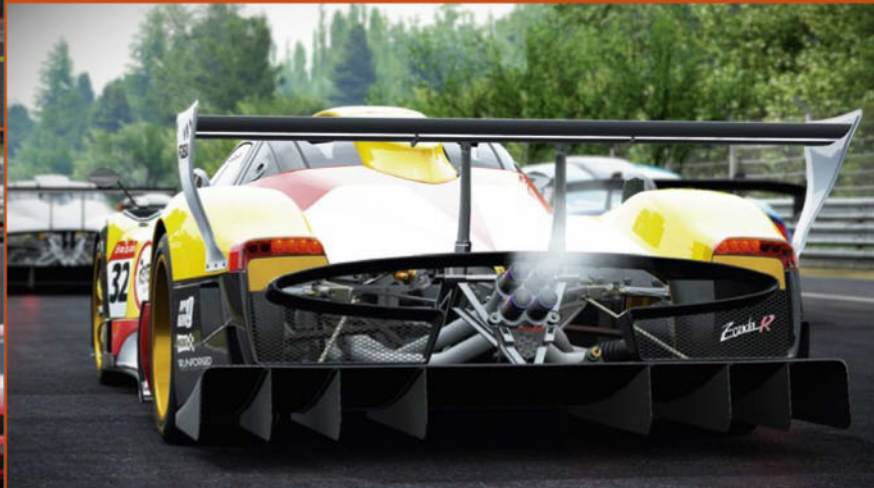
Heading into the graphics options reveals a laundry list of options, quite possibly the most we've ever seen in a PC game. In fact, there are so many options that they're spread over two screens, and they cover such things as Environment Map Quality, Global Specular Irradiance, Crepuscular Rays and Post Processing filter type just a few of the more advanced options. With everything cranked to the maximum values, we were very impressed to see the game running at around 60 frames per seconds, albeit only



once we'd activated SLI on our dual GTX 780 Ti system; frame rates halved when running on a single GTX 780 Ti. The game looked absolutely stunning in action, though we did notice some aliasing issues, despite the game's support for downsampling and FXAA. We found that running FXAA on High, combined with a downsampling ratio that doubled the native resolution of 1920 x 1080 internally, cleaned up most of the jaggies while keeping the frame rate at 60. Unfortunately rain effects had a large impact on performance, with the reflective track, huge water plumes and accurate water beading on the car panels sapping up to 50% of the frame rates. Despite this, we think Project Cars will set a new benchmark for visual fidelity come release time, provided you've got the horsepower to run it.

An area that isn't so impressive is the car handling. Currently the game has very confusing wheel setup options, especially in regards to force feedback tuning. Where most racers have a simple slider for feedback strength and dampening, Project Cars' force



lol that car  
done a farts

feedback options has around 15 different sliders, all of which are cryptically labelled. We're hoping this is just a debug feature and it's removed in time for the final release, otherwise most racers will be put off by the need to spend hours tweaking the settings to match their particular wheel. We found that the initial settings were very lacklustre, with the wheel exhibiting very little feedback when snapping back from oversteer, hitting curbs and rumble strips, and basically delivering very little information we could actually use. Thankfully a fellow backer supplied his custom force feedback options to us in an easy to install file, and the difference was night and day. Suddenly we could feel the tires starting to lose grip when cornering too quickly, while riding curbs delivered a sharp yank in the right direction.

The force feedback is a result of the game's SETA tire model, which combines three different simulations – the tire carcass, the tire tread and contact patch, and a heat transfer simulation. Where older sims use table-based physics with unchanging values, the SETA model is similar to iRacing's New Tire Model, which uses dynamic simulations

instead of pre-baked numbers. According to Slightly Mad, the SETA model accounts for rubber deformation, rubber adhesion at various temperatures, rubber tack, and the shape of the grip cut into each tire. It also replicates flatspotting, an issue that occurs when the driver slides on the tires, leading to a flat spot on each tire, as well as hydroplaning, where the wheel glides on the surface of water. We're not anal enough to notice when a virtual tire is flatspotting (*We're not? – Ed*), but we feel the handling still needs some work to be in the same league as Assetto Corsa and iRacing. Having said that, handling has been the number one issue for the final months of development, and it seems to get better with each build. With four more months of development between the time we wrote this article and the latest release date, we're hopeful that the game's hardcore simulation ambitions will be realised with more believable handling.

#### PROJECT TIMESINK

Thanks to the wealth of content, the game's singleplayer mode will take months to complete. The career mode is generously

stuffed with different leagues, and repetition across different leagues is minimal due to the high number of tracks. We were especially impressed by the game's AI drivers, which raced in tight packs like real humans, rather than the robotic conga lines of Assetto Corsa. AI drivers are also prone to making the occasional error, which is the perfect opportunity to show off the game's excellent damage modelling, yet another area in which the game excels.

With just a few months to release, to say we're excited about Project Cars finally arriving is like saying we wouldn't mind taking the new LeFerrari for a spin around Laguna Seca. Despite several years of delays, our regular health checks of the beta have seen our anticipation evolve from "this looks ok" to "this is going to be the best racer to ever land on the PC", with the proviso that the handling model gets as much last-minute attention as the graphics department. We'll have a full blown review in PC PowerPlay very soon, but until then we recommend getting your cockpit and wheel set aside for a week of racing come the March release date. **PC**

#### MINIMUM SPEC

**CPU:** 2.66 GHz Intel Core 2 Quad Q8400, 3.0 GHz AMD Phenom II X4 940  
**GRAPHICS:** nVidia GTX 260, ATI Radeon HD 5770  
**MEMORY:** 4Gb RAM, 1Gb VRAM

#### RECOMMENDED SPEC

**CPU:** 3.5 GHz Intel Core i7 3700, 4.0 GHz AMD FX-8350  
**GRAPHICS:** nVidia GT600 series, AMD Radeon HD7000 series  
**MEMORY:** 8Gb RAM, 2Gb VRAM



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# DCS: BLACK SHARK

The Digital Combat Simulator family of games are just about the last word in high-end, military flight sims. Comprising craft as eclectic as the WWII classic P51-D Mustang, all the way up to the lumbering but powerful A-10 Warthog, this is not an easy series to pick up.

One of the more challenging, and thus more rewarding of the entire series though is DCS: KA-50 Black Shark. It's a painstaking simulation of what it's like to pilot the Russian attack chopper, even down to the heli's auto-pilot system, which allows a single person to act as both pilot and gunner. With laser-range finding, a video target system, and a helmet-mounted targeting system as well, this is a game that really benefits from something like Track IR, especially with the game's ultra-detailed – and working – cockpit simulation.

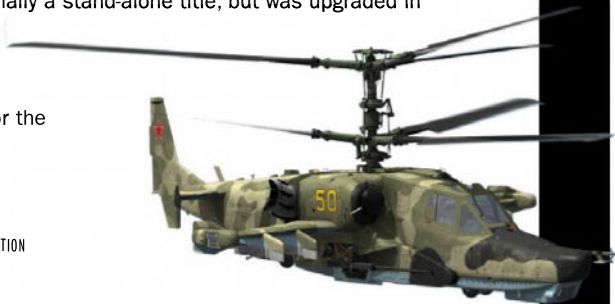
“There is a less intense ‘game’ mode, but that seems beside the point.”

As we said, the game is intense. If the 400 page pilot's manual doesn't intimidate you (and that's on top of a 200 page guide to the game's interface), the game's intensely challenging flight simulation, where even take off seems a dicey procedure, certainly will. There is a less intense ‘game’ mode, but that seems beside the point. If you want something easier to fly, play some Battlefield!

The game was originally a stand-alone title, but was upgraded in 2011 to be a part of the entire DCS World range of games.

Definitely not one for the faint-hearted.

DEVELOPER EAGLE DYNAMICS  
PUBLISHER THE FIGHTER COLLECTION  
YEAR RELEASED 2008  
METACRITIC SCORE 82



**OVERSHARE** One of the KA-50's other neat tricks is a battlefield data-link system, which lets pilots share targeting and other information. This too is simulated in Black Shark, so that in multiplayer games, Black Shark pilots can share information with each other.





TOP TEN  
SIMULATORS

#8







# WORLD OF WARSHIPS

When it comes to on-water operations **BENNETT RING** doesn't keep silent.

DEVELOPER WARGAMING  
PUBLISHER WARGAMING  
DUE 2015  
[wargaming.net](http://wargaming.net)



To say that World of Tanks has been merely successful is like saying World of Warplanes hasn't quite hit its mark. Wargaming's authentic armoured combat simulator is one of the world's most popular free to play titles, while its airborne cousin continues to languish in rough air, with few pilots willing to master its troublesome control scheme. So far then it's a hit and a miss for Wargaming, but its next release looks set to fit in the former camp. We checked out a recent build of its naval combat simulator, World of Warships, and think armchair captains are going to be in for a treat.

## AWAY ALL BOATS

When the game launches, the sea-bound combat within will focus on the naval battles of World War II. Mirroring the Pacific conflict, the demo we saw involved ships from both Japan and America, an obvious choice given their renowned role in the war. The game is currently limited to 15 versus 15, a far cry from the hundreds of ships involved in the real sea battles, but a smart choice to increase the game's accessibility. Each battle is also time limited to just 15 minutes, once again with the intended goal of making it a more approachable experience. Few players would be willing to take part in the days of

preparation followed by an hour or two of destruction that was the pacing of the real naval battles.

This is possibly the biggest difference between the game and the real world; players will simply start on opposite sides of each map, most of which are a gargantuan 50km by 50km in size (that's an insane 2500 square kilometres to battle in). While this means the cat and mouse games that foreshadowed the real naval battles are basically absent, positioning at the start of the battle will still be crucial, as players can't see all the way to the other side of the map despite having a visual range of 24 kilometres. Having the correct positioning is nine tenths of winning in naval battles, so figuring out how to deploy your side's mix of ships will play a pivotal role in determining how the next 15 minutes play out. It would take real ships up to an hour to travel the length of these maps, so their ingame versions have been sped up to unrealistic speeds, but it's not noticeable when playing. While most of the playing area is the clear blue sea, several of the seven maps being prototyped featured extensive island chains, allowing smaller vehicles to sneak up on enemy fleets undetected.

One of the most important units in the opening minutes will be the mighty Aircraft





Mahalo motherfu...  
\*BOOM\*



Get the guns online or  
we're gonna ram this thing

Carriers. These gigantic floating navy bases are absolutely useless in close range combat, but they're packing a potent ace up their sleeve, in the form of aircraft. Depending on the size of the Carrier – and its expense, no doubt – each floating airstrip can carry between 10 and 60 aircraft, split into the four types seen in the war. Recon fighters will need to be launched just as the round begins; when they spot the enemy fleet, your entire team will see their position on their in-game map.

#### IN HARM'S WAY

Don't expect these recons to last long on their own though, as aircraft carriers can also fling fighters into the air, and deploying a good fighter screen at the start of each round will send enemy surveillance aircraft to a watery grave. When and if the enemy fleet is spotted, aircraft carrier captains have two more weapons at their disposal in the form of torpedo and dive bombers. The former can attack from further away, enhancing their chances of surviving the sheet of explosive AA hanging before enemy ships, but their slow torpedoes are easy to avoid. On the flip side, dive bombers must make it through AA screens intact, but if they do so have a much better chance of punching through the enemy deck with a near vertical bombing run. Knowing exactly which fighter to use and when will be key to the success of aircraft carrier captains, but luckily the interface makes their job as easy as it can be. Each

squadron of aircraft can be assigned a series of waypoints, including the direction they should attack enemy ships from, allowing the player to sit back and keep an eye on all of his units. Positioning the aircraft carrier won't be anywhere near as important as the other classes of ships – keep it hidden, keep it

“Recon fighters will need to be launched just as the round begins”

home will probably be the mantra of Carrier captains.

While the Aircraft Carrier role plays out like an RTS, the three other classes of ships in the game couldn't be more different. The heavyweights are the Battleships, tipping the scales at over 70,000 tons, and brimming with gigantic artillery pieces ready to fling high explosive shells at ranges of 15km or more. Clad in thick steel armour, they can take as good a pounding as they can give, but are susceptible to torpedoes. As a result, Battleship captains should keep their hugely expensive creations at long to medium range from the enemy, able to fire accurately on







Just scramble the jets, Admiral!



They ain't gonna sink this battleship. No way!



target while not getting exposed to the nimbler ships that constantly try to approach.

These sprightly ships are known as Destroyers, and they're the glass cannons of the game. They've got the speed to make rapid flanking attacks, churning through the water at over 40 knots, provided their position hasn't been given away by those pesky recons. Bristling with dozens of torpedoes, players can choose to launch 15 of these tubes of destruction simultaneously, in one of two patterns. A wide spread ensures at least one or two exploding fish reach their target, while those who can accurately predict enemy positions will favour a tight spread, with all torpedoes launched in the same direction. Unfortunately Destroyers don't have any armour at all, making them incredibly vulnerable to the fourth and final class of ship, the Cruiser.

Broken into two categories, Cruisers offer a balance between the armour and firepower of a Battleship, but with some of the speed and manoeuvrability of a Destroyer. Heavy cruisers

favour weapons over weight, while light cruiser focus on performance instead of firepower. Both use cannons to deliver most of their punch, but are supplemented with a small salvo of torpedoes if the situation requires it.

With each team's 15 players able to use whichever ship class they desire, ensuring your team has just the right mix is going to be crucial to the game's success. Unfortunately World of Tanks currently has players choosing their vehicles before joining the game, and it's likely that this will remain in place for World of Warships. Hopefully the matchmaking will put the right mix of player classes into each game, but it's likely to be a problem in the early days of the sim.

“ there's also the option of setting a series of waypoints for the ship ”

#### IN WHICH WE SERVE

We went hands on with the game's Battleship class to see how it controls, and have to admit that the 15 minutes we had wasn't enough to master such a unique method of play. Ship direction and speed is controlled with the usual WASD keys, though there's also the option of setting a series of waypoints for the ship to automatically follow if you prefer. The mouse was used to control the series of turrets found on the ship, which are all grouped into one targeting reticule. Due to the way these turrets can be obstructed by the ship's command tower and other infrastructure, it's crucial to get the ship facing enemy players at a 90 degree angle. Doing so is much harder than it sounds, especially as the distances close between two players. We weren't familiar with the HUD's symbology, which is rather more complicated than the simple crosshair of World of Tanks, so often couldn't figure out why only certain guns were firing. Hitting a moving target at long range proved to be very challenging, as it







should be. Things got easier as we got closer to our targets, but this in turn led to our ship coursing through a hail of incoming shells.

Many attribute the US Navy's amazing emergency training with giving it the edge in WWII naval battles, but this seems to have been watered down in the game. Ships were originally modelled to reflect damage accurately, but players wouldn't understand why a single hit to their armoury would see an expensive Battleship scuttled in one blow, so it's since been simplified. Repairing the damage is as simple as activating a consumable, similar to the system used in World of Tanks. We urge the developers to reconsider this facet though, given the depth detailed damage management could add to the game.

World of Tanks is no slouch in the visual department, and its sea-borne cousin looks to build upon its already impressive foundation. DirectX 11 support will be in from the get-go, leading to stunning shaders that accurately capture the look of ocean seas breaking upon the bow of the boats. A surprising amount of work has been poured into the skies of the environments as well, with dynamic clouds that affect the entire scene's lighting courtesy of atmospheric scattering, and each casts a giant shadow on the world below. Watching ships pump out volumetric clouds of cover smoke that realistically drifts and dissipates is worth the price of a new GPU alone, while the lack of environmental detail (heck, it's mainly a big blue sea) means the ship modellers



have been able to go to town on their intricate recreations of famous warships.

#### MEN OF THE FIGHTING LADY

Key members of the team have travelled extensively, visiting the few remaining WWII warships around the globe, such as the USS Salem, New Jersey and Massachusetts. They took thousands of photographs to capture every last detail, which were combined with any and all available reference materials, gathered by researchers whose sole job is to source such information. Once the model is complete, naval experts check the render to ensure it matches with the real world ship, and only then is it ready to be imported into the game. The entire

process can take up to six months, a massive increase on the complexity of the tanks and aircraft found in Wargaming's other titles.

Given the slightly different flavour of combat found in World of Warships, we doubt it'll be quite as popular as World of Tanks. It's simply a less immediate experience, and focuses on a type of combat that isn't as admired as the iconic tank battles. Yet we still think Wargaming has a hit on its hands, as there's a sizeable community of boat-lovers currently starved for anything to play. With Wargaming's trademark attention to detail and ability to deliver a fun yet authentic experience, World of Warships looks set to be the best way to have fun with a life jacket on. **PC**



# EURO TRUCK SIMULATOR 2

**F**ar more than just a game about driving trucks, Euro Truck Simulator 2 is a fully featured trucking business sim, taking players from being contract drivers working for companies making short haul deliveries to owning their own fleet of trucks and employing a small army of AI drivers to manage the busy delivery schedule.

When Euro Truck Simulator 2 was first released the gaming world went kind of nuts for it. For all the world it seemed as though the PC master race had developed a simultaneous shared sense of irony and had embraced the game as a joke. That was definitely not the case any anyone who has spent any amount of time with ETS2 can tell you why.

It's an immensely deep and serious game. You may be hauling a truck load of peas from one side of the continent to the other, but that delivery has to be received on time, the fuel budget has to be allowed for, the trucks have to be maintained and the books have to be balanced as well so you can take care of any maintenance needed, staff salaries or loan repayments. Driving a truck on long haul trips may make up the bulk of the action, but in many ways this backbone is only a distraction from the logistical challenge of actually running a successful trucking company. The deeper into the game you get the more complex the logistics become. The more complex the logistics become the more absorbing the game become. The cycle of life continues.

DEVELOPER SCS SOFTWARE  
PUBLISHER SCS SOFTWARE  
YEAR RELEASED 2013  
METACRITIC SCORE 79



“The deeper into the game you get the more complex the logistics become.”

**OUTBACK TRUCKERS** For those of you interested in simming your trucks closer to home, a group of Australian modders are currently working on adding an Australian map to the game. As the devs say, we have a landmass of 7,617,930 square kilometres and has three times the road per capita when compared to continental Europe. Combine that with the fact that we have extensive agricultural, mining and logging interests that rely on long distance trucking and you have the recipe for a hell of a mod.





TOP TEN  
SIMULATORS

#7





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# RIDICULOUS SIMS

## PART 2



General:	Flushes:	pos	Bowls:	pos	Seats:	pos	Roll costs:	pos
Hand dryer	✓ Bowl Sweeper	24	Ceramics	33	Buttman	36	Paper	1
Soap dispenser	✓ Turdinator	37	Metal	20	Cheek Appeal	28	Cotton	5
Condoms	✓ Tidal Wave	22	Marble	18	Happy Buttock	21	Velvet	20
Sensor flush	✓ Torrent	13	Gold	27	Fecal Throne	15	Silk	50
Fix everything	Apocalypse	25	Emerald	19	Privy Master	23	Mink	70

### TOILET TYCOON

DEVELOPER: Anvil-Soft

Early in 2013, Toilet Tycoon became the highest selling “casual” game on Amazon.com for a few weeks, despite the fact that the game was originally released to little fanfare and less acclaim in 2006 and looks like something developed a decade earlier. It’s easy to see why – all people secretly harbour a desire to run a successful public toilet empire by buying up bathroom facilities, upgrading toilet components and hiring unscrupulous types to vomit in rival toilet tycoons porcelain busses. So ingrained in the population is this dream of running a toilet empire that the developers didn’t even bother to include a tutorial or any real instructions. Such a thing would be pointless.



### VISCERA CLEANUP DETAIL

DEVELOPER: RuneStorm

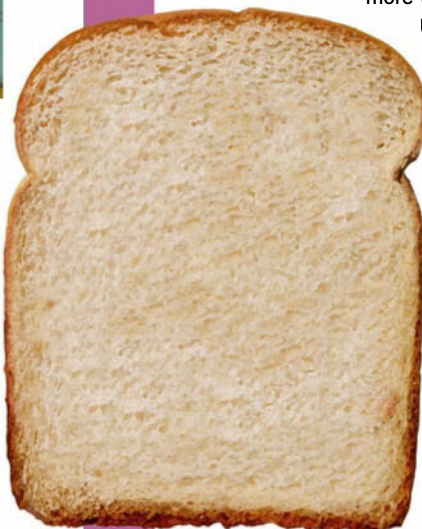
We’re kind of cheating here by including Viscera Cleanup Detail in a list of ridiculous sims. It’s actually pretty damn great and the premise is actually one of the more logical of all of these sims. Every space station in which a terrifying battle of survival against aliens has taken place is left in a horrible state. There’s mess everywhere – blood, body parts, dead aliens, and fluids you don’t mention in polite conversation stain the once pristine surfaces. Who cleans up that mess to get the place in shape for the inevitable sequel? The space janitors of the Viscera Cleanup Detail, that’s who. The brave men and women who aren’t afraid to mop up unmentionables and throw dismembered bodies into incinerators.

### I AM BREAD

DEVELOPER: Bossa Studios

The developer that brought you the harrowing drama and action of Surgeon Simulator now brings you the tragic plight of a piece of bread who wants nothing more than to be your breakfast.

Using realistic bread physics and a scientifically derived deliciousness equation, I Am Bread realistically tracks the movement of a slice of animate bread across a filthy kitchen as it tries to insert itself into a toaster to end its life in some sort of Buddhist self-immolation protest against the war on carbs, all the while trying to avoid mould, kitty litter and other things that people regularly keep in the places they prepare food.







BILLION-14

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# FALCON 4

**F**or almost any flight sim fan of a certain age, Falcon 4 holds a special place in their heart. This was a rich and compelling flight sim that paired an incredible amount of flight detail with one of the best campaign simulations in modern military gaming.

Rather than simply have the player operate their craft in a more or less linear narrative, Falcon 4's campaigns were dynamic, reacting to the achievements not only of the player, but also to the larger conflict around them. In this case, it was a rejoined Korean War, with North invading South and the US standing in to help their allies. Mission briefings involved not only careful planning of routes and weapons loadouts, but could also involve moving ground troops. And none of it was pre-designed – it was all generated on the fly.

Once again, this was a game that required quite the investment. The manual came in at 580 pages, enough to make you think you were nearly qualified for the real thing. Thankfully it was also backed up with one of the best training sims ever produced, one that was often compared to the real simulators real pilots used.

It's also had well over a decade of support, from both passionate fans and Atari. If you want to see the rather insane history of the game's development (which looks like the storyboard for a Christopher Nolan film), follow this link: <http://upload.wikimedia.org/wikipedia/commons/a/ac/Falcon-4-history.svg>

DEVELOPER MICROPROSE  
PUBLISHER MICROPROSE  
YEAR RELEASED 1998  
METACRITIC SCORE 85

“The manual came in at 580 pages, enough to make you think you could fly.”



**EPICTAKE OFF FAIL** Ah, I fondly remember my first foray into the skies in Falcon 4. The checking of toggles, going over mission plans with my wingman/the-guy-who-convincd-me-Falcon-4-was-easy, and then the nervous energy as we rolled down the runway.

And off the runway.

And exploded.

And my friend never asked me to play again.





TOP TEN  
SIMULATORS

#6





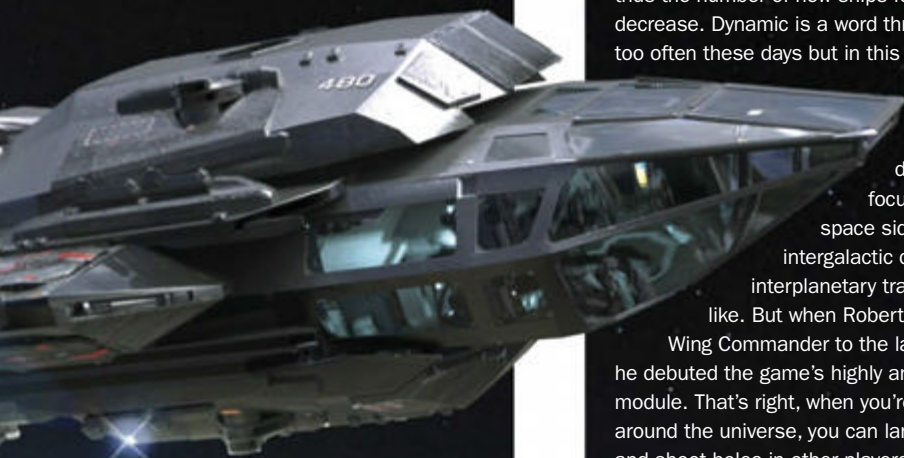
# STAR CITIZEN

THERE'S A LOT OF SPACE IN THE UNIVERSE





**PETER ZALUZYNY**  
has seen  
Interstellar twice, so  
he knows a thing or  
two about space.



A few years ago Chris Roberts of Wing Commander fame took his idea for a third-person open world space simulator called Star Citizen and pitched it to the internet. His goal? Raise between two and four million through crowd funding to make a prototype that could entice investors. It didn't take long for Roberts to secure the cash but then people gave him more, and more, and a whole lot more. At last count, Star Citizen had amassed a healthy \$65 million, an amount that's set to grow as fans continue to buy upgrades for their ship in the small portions of the game that are available.

Think of it as a do anything space sim, a universe where you can be a marine, a pirate, a trader or even a lone wolf willing to take on any job in the universe. All actions, such as taking out a steel supply ship, have consequences. Without steel, factories lack supplies and thus the number of new ships for sale will decrease. Dynamic is a word thrown around far too often these days but in this case, it feels appropriate.

So far most of the details have focused on the space side of things, intergalactic dogfights, interplanetary trading and the like. But when Roberts brought

Wing Commander to the last PAX Aus, he debuted the game's highly anticipated FPS module. That's right, when you're not zipping around the universe, you can land on planets and shoot holes in other players and NPCs – because apparently epic space battles just weren't enough.

**PCPP: So tell us about the new FPS module.**

**CHRIS ROBERTS:** We're showing a scenario basically, a group of marines are going in to try and take out a bunch of outlaws that have taken over a deserted space station, so we open up with our gunship landing, four people are playing the marines and four people are playing the outlaws. Think of it as a tactical Counter Strike. The FPS module that the backers are getting will come next year, there's still a lot more polish to happen.

**And how does this module fit into the greater context of the game?**

You're always in FPS to a certain extent, when you're flying your ship you're basically always in first person but you're operating a vehicle,

it just happens to be a big vehicle that's big enough to walk around in when it flies. That's something special that we're doing which you don't normally get in other games. The FPS is part of the DNA of the game but explicit combat aspects of the FPS, if you're on a ship and someone wants to take over, they breach, blow up the airlock and come in, that's where you get into a fire fight. And you can have the same down on planets, we're going to make most of them [planets] a safe haven from most other players so there won't be a lot of PVP, but that doesn't mean there won't be PVE, so like you've got to go down to this shady area of the town and get this black market deal done, then you go down this alleyway and two NPC muggers jump out to try and mug you, but you pull out your sidearm and shoot them Han Solo style. That's the kind of stuff that you'll see a lot of in FPS when you're down on the planet.

**So in Star Citizen Han shot first?**

Absolutely! That was much cooler.

**Say you're in a dogfight in space, can that same battle continue on a planet?**

We're not going to transition flights in space down to planets, but you can go down to a planet to repair your ship or whatever. We're not really going to let you fly down into the atmosphere and continue to dogfight because we're not setup to do that at the moment. When we transition between orbit and out in space, we do it inside your ship so things change around you, so there isn't a loading screen.

**Are we talking traditional weapons or sci-fi six shooters?**

A combination. We have ballistic and energy weaponry, like pistols and assault rifles, and also laser assault rifles, electric shot guns and various grenades. It's pretty cool.

**People play FPS games differently, some like stealth, others go in all guns blazing. How does your FPS module accommodate different styles of play?**

Well you shouldn't go in all guns blazing in our design, because it's not a respawn design. Because of the way the game works there isn't really going to be respawn, if you get killed you're basically going to wake up in hospital on the last friendly

DEVELOPER CLOUD IMPERIUM  
PUBLISHER COLOUD IMPERIUM  
DUE 2016  
[robertsspaceindustries.com](http://robertsspaceindustries.com)



planet that you visited. If you do that too much you'll actually lose your character and it'll be passed onto the next of kin. It's definitely much more tactical, part of it is resource management and part is managing the resources of your team. In our FPS combat there's no shot in the head, respawn and come back but you can get shot in the leg or get badly wounded and you'll go down, then your buddy can come drag you to safety and patch you up. So our version of a resource is getting the guy that got shot up, taking him to safety and being able to patch him up before the other player comes along, shoots him in the head and kills him permanently. You can do an execution shot on someone that's down top.

**Are there any other ways that your FPS module differs from other shooters?**

We don't cheat first person, the character, the animation and the model is the same in first and third person. A lot of FPS games put arms by the camera and they're sort of floating but when you move and run in Star Citizen the camera is where you're eyes are, so all of the actions you see someone else doing are also the same actions they're doing in first person. You can look down, look at your weapon and look around, and the third person is very animation driven so it's going to allow us to have a lot more organic and natural looking motion for what's happening.

**Right now the preview can only accommodate 4v4. How many players do you plan to have in the final release?**

We're aiming to have between 50 and 100 people in an instance in space, but we don't know if we'll be able to do 50 - 100 in FPS. We imagine that on the lower end you probably could though, you can in Battlefield so why couldn't you do it in what we're doing.

**You mentioned that there's the option to join different factions, so how do you go about guiding players towards a particular group in the open world?**

We don't really. It's too early to say because the game isn't out in its full version where you can be in the big sandbox persistent universe, but our design sensibility isn't to dictate what the players should be. We just provide the roles and let them gravitate towards what they want to do, and I can definitely say from the community and people that have backed the game, you get onto the forums and see what people are excited about it's a whole



“ The philosophy with what we're doing is letting the player do what they want. ”

different range. I'm always surprised I think everyone wants to be a bad arse bounty hunter or pirate, but no, loads of people just want to be a miner, some people just want to be a trucker. So the philosophy with what we're doing is letting the player do what they want to and just providing different things.

**How have players responded to that approach?**

Once we finished the crowd funding we ran a poll that asked "what do you want to do in the universe?" We had all these options, like pirate, trader, mercenary, bounty hunter, explorer, and I was expecting to see a lot more of the combat oriented stuff like pirate or bounty hunter to be much higher up on the list. But basically everyone wanted to explore, 67% of the respondents picked explorer as their number one thing they wanted to do. Not that I didn't expect people not to explore, but I was shocked that exploring was a big thing for them. So that made us go and look at what we

were doing for exploration... we were doing some stuff but we decided to amp it and provide more things for people to do that want to explore. Originally we were saying "explorers can find a jump point and find a new system," we definitely have that mechanic in but we needed more things for them to do and more fidelity for them to do it.

**It all sounds very organic, was that the goal?**

Totally, the idea is to have this big dynamic universe that everyone adventures around in, we can't put everyone next to each other in the same area because you just don't have the rendering power or networking bandwidth, but we run everyone in the same universe then dynamically put them together in instances if it looks like they would've crossed paths - are they friends are they enemies, we match make them into a instance where they see each other.

**There's also talk of mod support in Star Citizen. How are you going to keep that kind of content controlled in a dynamic universe?**

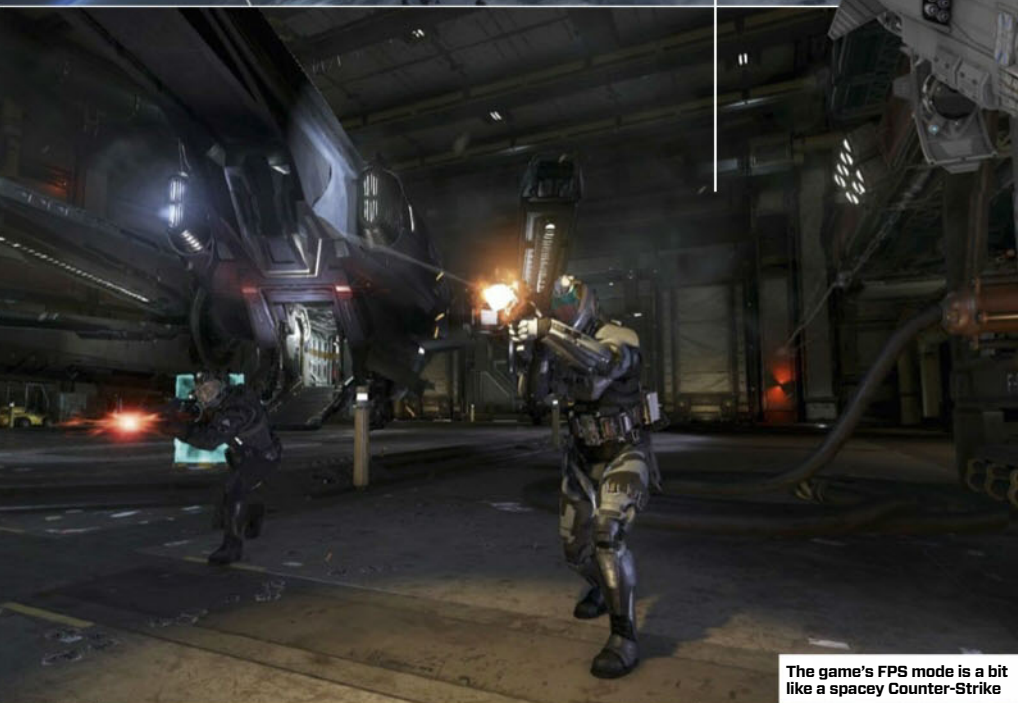
On the modding side people will be able to have their own server in a more limited fashion, it won't be able to do what our big one does because it's not just one server it's multiple servers, it's not a setup anyone can do at home. But they'll be able to run their own local server like they could back in the old days of Freelancer with maybe 100 or 200 people as a part of it, and they can setup the world how they want. Outside of that if user generated content gets in the main game, we haven't figured it out yet but we'll have a system to curate and approve or disapprove stuff. We did "The Next Great Starship" earlier this year which was a competition that was, think of it as X Factor but for starship design. Teams came up with a concept, they modelled it, put it into the engine and the community voted over rounds for who was going to win. The winner made this Redeemer gunship which is going in the FPS demo and people will be able to get it to put in their hangar.

I think that's what we'll do in the future, so one of the ideas for user generated content is an [in game] government that says "here's a spec, I need a fighter and here's the stats, come back with designs and the winning design gets the contract."





Asteroids: deadly but abundant with resources



The game's FPS mode is a bit like a spacey Counter-Strike

**Star Citizen has a crazy high level of polygons. Will you need a super PC to run it?**

Well as time goes on PCs get more powerful and don't cost as much, so by the time we release v1.0 it probably won't be as demanding. But right now in our early stages it's pretty demanding because we haven't done a lot of optimisation. We have a lot of high poly models and we don't have LODs for some of them, so you can't play it on an integrated chip PC or anything [laughs], but it doesn't run that badly because we're built on top of CryEngine which already has a lot of optimisation.

**Any idea of minimum specs yet?**

We use high end machines in development so right now we're either on a hexacore or a quadcore, 780s, 980s, AMD 290s and 290Xs, high end video cards, CPUs, 32 to 64GB of memory and 1TB SSDs for the development drive and OS drive. [But] I'm not really focusing on that because who knows what the minimum specs are going to be in 2016.

**And lastly on the topic of crowdfunding, we know why you took that path and the benefits that come with it, but have you encountered any detriments?**

We're a much more public game and we share all the stuff that we're doing. You have a lot of backers and everyone has their own opinions, and when you've got this many people there will be some people that are negative on stuff, and some will be positive on stuff, so you have to deal with the noise of that, which is okay. But for me there're much fewer negatives than dealing with a publisher so I'm quite happy with it, even though you do spend a lot of energy keeping everyone engaged and making sure the backers know what's happening, as they should because they're the ones providing the money to help make the game. You've got to get used to it, but if you're used to the old way of doing games it can feel a bit overwhelming sometimes.

**Can you envision a publisher backed version of Star Citizen?**

Maybe, but I think if I was doing a publisher game I'd probably be doing another Wing Commander because that's the safe thing that a publisher would want. **PC**



# MICROSOFT TRAIN SIMULATOR

**T**rain fanciers are a singular lot, but even if you don't spend your weekends standing by the tracks noting down train numbers to try and complete your collection there is still a lot to like about Microsoft Train Simulator. The developer took a very clever approach to making their train simulator hardcore enough to keep real train enthusiasts happy whilst also making it appealing to other sectors of the gaming world by dividing the game almost equally between the majesty and power of the huge machines as well as the incredible complexity of the actual rail network. Classic trains and famous, romanticised routes make up part of the game – you can take passengers along the Arlberg railway in the Orient Express or the Settle to Carlisle line on the Flying Scotsman – or you can sink your teeth into the more challenging option of keeping to a tight timetable, dealing with different track conditions or delivering goods to schedule (or a combination of all three).

The 17 trains in the basic package are immaculately detailed, with cockpit views and detailed control systems that will definitely appeal to the hardcore, but other features should prove to be just as appealing to the less train passionate. One game mode tests rail switching in such a manner it turns the game into a thoroughly challenging puzzle as players must switch tracks to hook up carriages in the right order. Modders even turned this mode into a whole game by itself.

DEVELOPER KUJU ENTERTAINMENT  
PUBLISHER MICROSOFT GAME STUDIOS  
YEAR RELEASED 2001  
METACRITIC SCORE 84



“The 17 trains in the basic package are immaculately detailed...”

**TRAINING DAY** While the original package only featured around 600 miles (965km) and 17 trains (nine of which were drivable), fans of trains have created a huge amount of content in the form of add-ons, including numerous Amtrak routes and train in the US, the steam tracks in the Blue Mountains, and even a huge amount of the ridiculously convoluted Sydney rail system, complete with the old rattlers that used to dominate the lines.





TOP TEN  
SIMULATORS

#5





# FREE TO SIM

**BENNETT RING** breaks down the best free-to-play options for the cash-strapped simmer.

Until recently, the three words “Free to Play” were deemed to be a plague on PC gaming. Any title that fell under this banner was designed for our aged parents to play, with deceptive micro-transactions waiting to empty any credit card foolish enough to be captured by games in this genre. My how times have changed. Considering how serious simulator fans take their beloved hobby, nobody could have predicted the merging of this genre with the Free to Play model. Even fewer could have foreseen just how successful this marriage would be. What follows are four of the most popular Free to Play sims on the market, though we should point out that serious grognards might refer to these as sim-lite products. Regardless, with an entry price of exactly zero dollars, there’s no reason to not give the following sims a go.

## WORLD OF TANKS

**DEVELOPER:** Wargaming

■ If there is one title that can be credited with changing the way PC gamers thought about Free to Play, it has to be World of Tanks. It’s easily the most successful Free to Play war game around, with the company reporting revenues of over 217 million Euros in 2012. This staggering amount of cash has allowed the Wargaming family to expand, purchasing the Australian supplier of its game engine technology, BigWorld. With 100 or so developers now working out of Sydney, along with offices around the globe, Wargaming has become a force to be reckoned with. While World of Warships might be getting all the attention from simming fans, the core game that made Wargaming such a success has also benefited from the huge increase in development resources at its parent company.

The game now includes a whopping 290





different armoured vehicles, with a focus on WWII era machinery and the following decade or two. These have all been pulled from the defence forces of the Soviet Union, Britain, China, Japan, France, the US and Germany. Name an iconic tank and we guarantee it'll be in the game, from the mobile M4 Sherman of the US army, to the mass-produced T34 of the Russian front, to the ponderous Tiger that defined tank evolution in the Great War.

This huge inventory of vehicles is now split across five different classes. Light tanks are great for scouting enemy positions on the flank of the map, but can be taken out easily with a direct hit. Heavy tanks are slow-moving armoured snails, armed with stupidly heavy weapons but vulnerable to being out-turned in close combat. Medium tanks are a happy balance between the two, offering a compromise between punch and performance.

Players who prefer to snipe

will find the Tank Destroyers most desirable, as their heavy weaponry is mounted on rather agile frames, perfect for setting up in a lone sniping spot. Finally there are the self-propelled guns, which rain down heavy artillery from the sky, peppering large areas with annoying damage and operating like a support class.

At the time of writing, there are 33 different maps available in the game, all of which are free of charge. Getting to know each map is just as important as understanding the vehicles players face off against, as they've been designed to encourage certain types of play. Like DOTA, these maps have obvious "lanes" that players can use to travel through the map, and knowing when and how to take care of each is fundamental to avoiding death in a fiery tomb of armour plate.

With the purchase of BigWorld, Wargaming has been able to devote even more time to the game engine that powers WoT, and

the result is a spectacular sim that makes the most of today's PCs. A major update in 2014 saw the introduction of detailed physics thanks to the implementation of Havok. The environment now accurately crumbles whenever one of these behemoths smashes through walls, while their treads perfectly match the shape of the terrain they're crossing. The overall polygon count for each tank has increased from 9,000 in the first version of the game, up to 100,000 in the existing game, resulting in the finest tank models ever seen in a game.

Unfortunately World of Warplanes hasn't been met with the same success as WoT, and we're still not overly fond of its unique handling model. Thankfully we're much more hopeful for the success of World of Warships, but until its release in 2015 we'll be quite happy playing WoT, a game which has gone from good to great thanks to the millions of Euros pumped into its development.

“The game now includes a whopping 290 different armoured vehicles...”







## RACEROOM RACING EXPERIENCE

**DEVELOPER:** Sector3 Studios

■ If the name Sector3 Studios doesn't mean anything to you, you'll probably know the name used by this studio prior to 2014 – SimBin. This famous Swedish developer has been building racing games for over a decade, with its GTR and RACE series both receiving high acclaim from the driving community, but after going bankrupt had to relaunch itself as Sector3 this year. Despite releasing many successful full-priced racers, Sector3 decided to step out of its comfort zone in 2012, releasing the Free to Play racer, RaceRoom Racing Experience.

The initial release was as threadbare as it was incomplete. Just a couple of cars and tracks were rolled out, with another couple of cars on offer. While the visual side of the sim was undeniably attractive, the game felt like an uncomfortable attempt to make simulators more accessible. While a deep driving model was available, it was buried deep in the options, with the default handling set to easy mode. The main track was an imaginary creation, with giant yellow arrows on each corner, looking more like a Wipeout track than anything that belonged in a simulator. Handling felt unresponsive and artificial, and the overall experience left much to be desired.

Thankfully much has changed in the two years since release. Every facet of the game has been improved, resulting in arguably the best Free to Play racer on the PC. The number of cars and tracks on offer has increased

exponentially, and it's now possible to buy the 2014 DTM Experience pack for just US\$30. As the name suggests, this bundle is a virtual representation of the DTM racing series, which is the European equivalent of our V8 Supercars. Instead of Fords, Nissans and Holdens, DTM uses cars from Audi, BMW, and Mercedes. The \$30 bundle gets drivers all 23 cars in their current livery, along with the nine tracks used in the season. Several other bundles are also available, with the 2013 GT pack a spiritual successor to SimBin's GTR series, but you can also buy content in a piecemeal approach, a car here, a track there. We'd highly recommend buying into one of the major content packs though, as it makes the game's popular multiplayer mode easier to find games in.

The new content isn't the only improvement made – the handling has also been overhauled. The DTM cars feel

“Visually it's a knock-out, but the one area where it really excels is the sound.”

like racing thoroughbreds, with oodles of grip that is transmitted accurately through the sublime force feedback. Visually it's a knock-out too, but the one area where this racer really excels is the sound. Put simply, there's

nothing else that sounds quite like the rowdy, raucous interior of a race car like RaceRoom. If you've ever sat in a racing vehicle, you'll understand how it sounds like an engine room from hell, and it's perfectly replicated here.

If you tried RaceRoom at launch and weren't impressed, the recent release of the DTM pack is reason enough to return to see how this racer has evolved. And if it's your first time around the RaceRoom track, the free beginner's pack will have you reaching for your back pocket in no time.







## WAR THUNDER

**DEVELOPER:** Gaijin Entertainment

■ With the massive success of World of Tanks (WoT), everybody expected the premiere Free to Play flight sim to launch from the same Wargaming hangar that had given rise to the tankers' online game of choice. Instead a small company by the name of Gaijin Entertainment knocked all of the competition out of the sky with the brilliant War Thunder, a game we've covered in the past at PC PowerPlay. While its previous flight sim, Wings of Prey, hinted at what this company could do, it took the release of War Thunder to reveal the company's talent for bringing masses of new players to the flight sim genre.

A year since we first covered this sprawling Free to Play flyer, little has changed in the airborne part of the game. It's still split into three main modes: arcade battle, realistic battle and simulation battle. As the names suggest, the difficulty of the sim increases based on the mode selected, and it's a shame to see that the simulation battle mode is still relatively quiet compared to the insanely popular arcade battle. A glut of new aircraft have been added, many of the jet variety, which sadly has made the game even harder to get into for newcomers who don't want to spend a cent. Flying your free

biplane into battle against players equipped with supersonic jet fighters is an exercise in frustration, though the game's matchmaking often helps to avoid these situations.

Where the game has changed most is the new tank mode. It's similar to WoT in that it arrives with a similarly incomprehensible upgrade garage that requires a PhD to navigate, especially if players forego the fee involved to buy gold. The combat itself is very different though, favouring an up-close-and-personal feel to the proceedings. WoT often feels like players are shuffling small models of their favourite tanks around the maps, but the zoomed in camera of War Thunder gives the armoured vehicles within a much weightier, more primeval feel. Use of the first person camera mode is much more prolific, as it's harder to aim these vehicles from the third person.

The same graphics engine that makes the airborne battles look so incredible has been put to good use in the ground battle, with the large levels chock full of vegetation and natural features. Buildings don't feature anywhere near as much as WoT though, with players instead having to use the contours of the landscape to provide cover. As a result, battles tend to play out at larger ranges than WoT, as the chances of pulling around a corner of a building to discover a handful of

enemy vehicles is much lower. On the harder modes, gunnery is also more difficult in War Thunder, as the player needs to accurately estimate the fall of rounds, as well as the time to target, with no magical HUD marker displaying where their shells will land. This makes getting a hit even more satisfying, which is further rewarded by a slick 3D animation shown in a small window. This illustrates where the shell hit the enemy vehicle, then shows its trajectory through the tank, displaying exactly which systems have been damaged. It's akin to the skeleton/guts mode of the Sniper series, and WoT would do well to borrow this feature.

Certain maps allow both pilots and tankers, a feature we've yet to see in WoT, and the impending release of warships will finally deliver the combined air, land and sea online battles that PC simmers have been dreaming about since the early Falcon days. Like WoT, War Thunder does seem to favour those who spend small amounts of money or copious amounts of time, but the massive number of players means the matchmaking usually puts players of similar skill together. With modes available for the entire gamut of players, from novices in the arcade battles to hardcore simmers in the simulation mode, this is a Free to Play game that actually does deliver something for everyone. **PC**





# RI-DICU-SIMS

## PART 3



### BUNGEE JUMPING SIMULATOR '09

DEVELOPER: Anvil-Soft

Go to YouTube and watch some gameplay footage of Bungee Jumping Simulator 2009 and you might notice something interesting. Each time the jumper reaches the end of the Bungee is seems to catapult the jumper straight into a wall, cliff face or other hard surface, leaving the screen free of any actual human character immediately after the jump. Has Softonic actually developed a surreptitious snuff simulator in which you force people to jump off bridges, buildings, cranes and hot air balloons on dodgy bungees rigged to kill the jumper, or is it indicative of the early emergence of true artificial AI, as evidenced by the jumpers willingly killing themselves rather than continue to exist in what could be the most pointless action "sport" sim of all time?



### WOODCUTTER SIMULATOR

DEVELOPER: UIG Entertainment

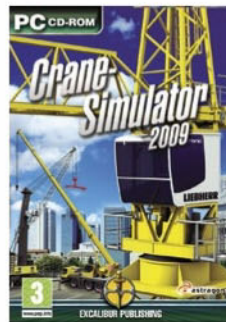
Despite the fact that the majority of English speaking people seem to be able to quote at least a part of Monty Python's Lumberjack Song, few people outside of Wolverine, Dexter and Liberal Party environmental ministers fantasise about leaving the rat race behind to take out their frustrations on the bastards of the forest, trees. This is a game made for those people. Use your chainsaw to cut down an arbitrary number of trees by standing in the correct but undisclosed position and hitting space. Cut down enough trees with a chainsaw and you can buy heavy machinery capable of doing the exact same thing. For maximum impact imagine all the trees are in Tasmanian heritage woodland and that every tree that falls is some form of international environmental condemnation.



### CRANE SIMULATOR(S)

DEVELOPER: Various

Throughout 2014 there has been a crane operating close to the PCPP offices. We can see it clearly from our window. We watched it being set up in the first place by some remarkably brave (at least by our standards) and agile (again by our standards) men scampering along the boom arm, making sure the counterweights were properly seated, the guy lines were tensioned and other crane related things were done correctly. We watched it shift massive loads to the building site with a precision that belies its massive size. It has been a constant source of entertainment. In the real world watching a gargantuan machine move objects that weigh multiple tonnes is interesting. Clicking on things on a screen to do the same thing is not. Despite this fact there are multiple different developers working on different crane simulators. Go figure.







# AOC G2460PG Full HD LED monitor

## A SMOOTH COMPETITIVE EDGE

For years, V-Sync has been the go-to software solution for smooth gameplay, but gamers are forced to play with a laggy, stuttering image. Even with V-Sync disabled, fast on-screen movement regularly results in distracting visual tearing.

G-Sync is the ultimate hardware-based solution to screen tearing, providing unprecedented gameplay smoothness with none of the V-Sync drawbacks for NVIDIA-powered GPUs. The AOC G2460PG Full HD LED monitor is purpose-built for gamers, with G-Sync at the heart of a definitive gaming experience that boasts zero screen tearing and fluid gameplay.

Armed with a compatible NVIDIA GPU, the G-Sync GPU driver and an

AOC G2460PG monitor, players can literally watch their competitive edge level-up thanks to a speedy 1ms response time and a versatile 144Hz refresh rate. Whether you're stealing pole position in Project CARS, conquering worlds in StarCraft II, or obliterating foes in Battlefield 4, the AOC G2460PG is on hand to take your gaming experience to the next level.

NVIDIA's Ultra Low Motion Blur technology, which is included in the AOC G2460PG, also seamlessly provides an

additional decrease in motion blurring alongside minimised ghosting for even the fastest of on-screen objects.

Better still, the AOC G2460PG also ships with the latest 3D Vision 2 support, an ergonomic stand for a full range of landscape and portrait orientation options, and intuitive energy-saving functions for a minimal impact on your energy bill.

If you're serious about gaming, you need to seriously consider purchasing an AOC G2460PG Full HD LED monitor.





# STEEL BEASTS

**Y**ou know something is pretty damn realistic when it is transformed into a military training tool, and that's exactly the case with Steel Beasts, a squad level mobile armour simulator that combined elements of hardcore simming, wargaming and action to great effect. The game focusses mainly on the M1A1 Abrams and Leopard 2A4 – American and German main battle tanks respectively – and models each to a huge degree of precision. Thanks to the level of realism when it comes to control, especially of the turret and gunning, Steel Beasts is not an easy game to jump into. There are multiple control configurations, with mouse and keyboard, a joystick or a combination thereof, but even the most seasoned tank simmer will have to take the time to go to the gunnery range to learn the intricacies of aiming, firing on the run, firing from elevation and the like.

Before actually taking control of the tanks, a lengthy and deep planning phase in which the player, as the tank mission commander, chooses routes, sets up waypoints, and most importantly, issues contingency orders to the AI tank crews under your command. This last aspect is the most important and engrossing, as it's neither practical nor optimal to expect the player to continuously hop between different tanks in any battle. So strong were these planning elements that the Dutch army considered using the retail game as part of their tank training program. How's that for a thumbs up?

“Thanks to the level of realism, Steel Beasts is not easy game to jump into.”



DEVELOPER ESIM GAMES  
PUBLISHER SHRAPNEL GAMES  
YEAR RELEASED 2000  
METACRITIC SCORE 86

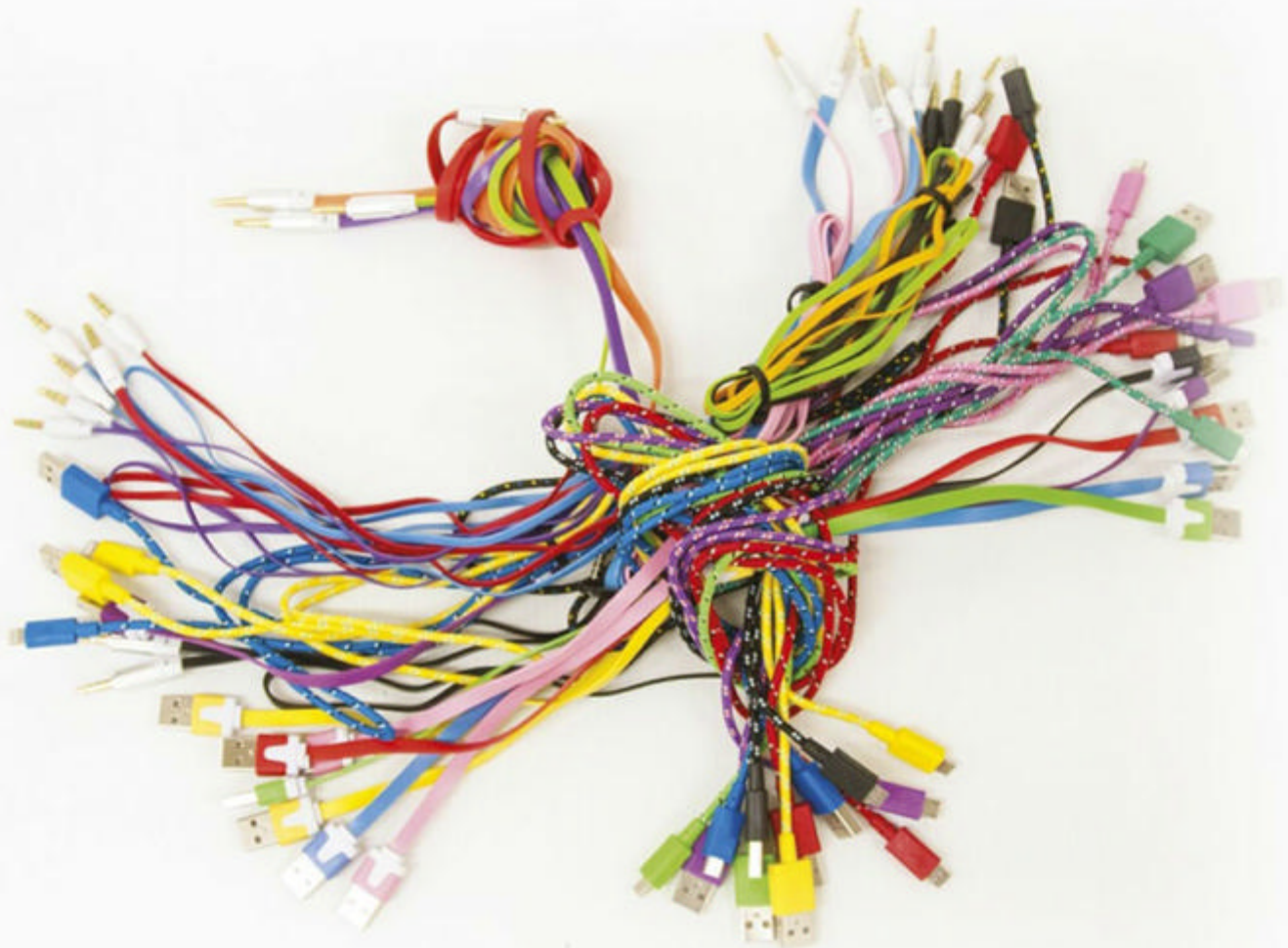
**TANK PRO** The original version of Steel Beasts is no longer available, but there is a new version of the game called Steel Beasts Professional PE (Personal Edition). This version is a cut down version of the Professional Edition of the game, a version only available to the military for training purposes. Steel Beasts PE has a pretty hefty price tag with the game, license, dongle (required for play) and manual setting you back about \$150 USD but if you're in to tank sims, there is nothing else that can compare.







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# BEING THERE

**BEN MANSILL** is somewhere far, far away, in a world of wonder, doing things he's only ever done on a flat 2D screen. This time, though, it's real.





**M**y journey into VR started with the Forte VFX-1, which arrived in the Hyper office for review in 1995. Everything stopped when it arrived. "Down tools, boys, the future has arrived." But it was heartbreakingly shitful. The teensy 320x200 screen hung in space like you were sitting in the back row of a cinema, the lag was treacle-slow and it was heavy and uncomfortable. VR dropped me from a great height that day, but if you'd told me it would be 20 years before it was done right I'd have fainted on the spot.

But here we are. Or rather, there I am.

Inside the game world, grinning like a chump because I just tried to lick the paint on my sim racing car. Yes, I really did.

There are a few buzzwords you'll hear a lot when people discuss games and Oculus. Like 'scale' – the all-

important sizing of what you see so it all looks rightly proportioned. And, 'presence'. That powerful term describes those magic little moments when your brain completely surrenders to the illusion, and you're there. Properly, there.

Presence is why you will buy an Oculus Rift. And you will. You can't not. Once you've experienced the realisation that Oculus Rift is the VR dream come true, without a skerrick of disappointment, you will re-prioritise every spending plan you had and make a Rift the next thing you buy. Not hyperbole, but truth. You will.

### THE BIG DAY

It has arrived, you have unboxed. You have called in sick, put the phone on silent and cancelled that day's heart surgery. Another year on the waiting list. No fuss. You have performed all the cable dickery, perhaps buying an adaptor in advance if your card needs one. The drivers are installed. You are VR-ready.

Sizing the straps, it still feels odd on the face. The edge tickles my nose. Later I learn to tell my brain that I'm wearing a helmet (space, racing, combat, whatever), and from then on, good old brain just accepts that and it's no longer something to think about, in fact, it adds to the experience.

You have calibrated your IPD within the Oculus app. That's 'interpupillary distance'. Another new buzzword! It's the distance between your pupils, and Oculus accounts for that so the focus is sharp and chromatic aberration (rainbow patterns) is minimised or eliminated.

### I'M GOING IN!

Showtime. All your forum reading has prepared you, and that's told you that cockpit games are the go. Whether sitting in a race car, a space ship, a mech or a fighter plane, it feels right and natural to be moving through your environment at high velocity, with the reassurance of seeing canopy struts in front of you, and panels and things as you look down, and around. Any kind of FPS game that works properly is also amazing, but it feels very weird to be 'walking' when you're sitting still.

And into the cockpit of my spaceship in Elite: Dangerous, I am. This is the poster child of the Oculus scene at the moment, and it's the perfect place to start. Scale is perfect, and if you're using HOTAS controllers it's even better because you'll look down and see your hands on the throttle and stick, with your view exactly right as you look down and see not just your hands, but your chest and legs, all exactly where they should be. It's nuts. It takes about three seconds for the brain to accept that you're there in space, in a groovy spaceship, doing the do amongst the stars and planets, each of which you can stop and gawk at forever, feeling like a very little man floating next to a huge star.

Next, Assetto Corsa. The final RC version added native Oculus support and it's

exquisite. Again, scale is perfect and the many beautiful cockpits are unbelievable. Here are things that you will do:

- Just sit there dribbling. I spent an hour just loading up all the different cars. Not driving anywhere, just getting a mega buzz from being there. In the car. As the loading screen transitions to the car, it's like being teleported into a Ferrari.
- Drive better. There's an altogether different experience that comes from feeling like you're handling a real car on a real track. You feel the car, you drive it like you would a real car. Your lines are better, you know when to squeeze on the gas on through a turn. You're not only faster, but the enjoyment is altogether on a different plane.
- Drive slowly just taking it in. Open wheelers are crazy cool. Hit something and think the front wing might be damaged but not sure? Stick your head out the side and have a look! Lost another car in the mirrors and think he's making a move? Look around. There he is! Or just truck around slowly with your head out the side watching the suspension travel over ripple strips.
- Stop, and get out. This is the coolest thing to do in a Rift. Get up from your desk or 'pit, step to the side and just stand there staring at your car. More than anything, this drives home the presence so beautifully. Kneel down and look at the brake callipers, look at the tire wear. Stand up, and look around at the grassy hills. Watch the other cars go

**“I just tried to lick the paint on my sim racing car. Yes, I really did.”**

by, then get back in, start her up and drive away. It's a gaming epiphany.

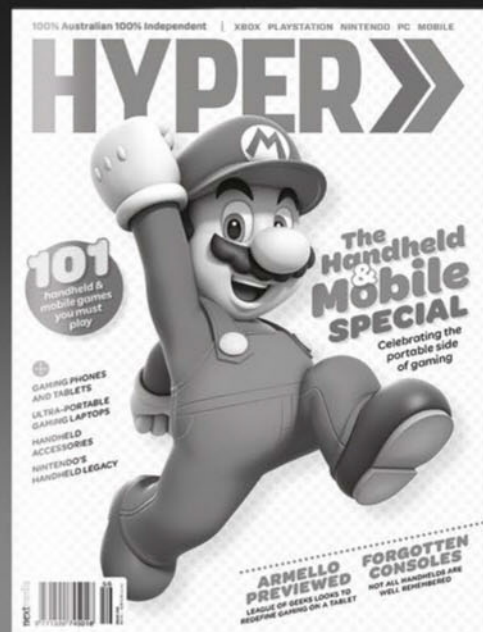
Because I was kneeling, ogling my car, with the Rift blocking the 'real' world view

I started to feel unbalanced. Instinctively I reached out to support myself on the car's sidepod. When I was in the Elite spaceship cockpit a green light started flashing on the panel. I reached out to press it. When I was in the car looking sideways the cockpit side area was in my face, just a centimetre away. So I tried to lick it. As you do.

And you realise a moment later, chastise yourself in the nicest way for being a duffer, then giggle and smile for a long time because you've just had a moment when there is only one reality, there is no outside world, you are not sitting in a chair with plastic on your face. You are there. Really, there. 🇩🇪



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# A DIAMOND IN THE ROUGH

**BENNETT RING** investigates how a band of merry modders turned a mothballed **IL2: Cliffs of Dover** into the Queen of the Skies.





**T**he release of IL2: Cliffs of Dover (IL2: CloD) in 2011 spelt the end of an era for flight simulator development. The last big-budget simulator from a major publisher to ever be released, this sequel to the wildly popular IL2 franchise was rushed to market in an entirely unfinished state. What had promised to be the definitive Battle of Britain experience ended up being one of the most disappointing and broken releases PC pilots had ever seen. Abandoned by its developers after a year of patches introduced more problems than they solved, it was soon adopted by a group of hobbyist developers known as Team Fusion. Over the course of the last few years these talented coders have turned this utter failure of a release into the finest WWII combat flight simulator of all time. Here's how.

#### **IL2 HITS TURBULENCE**

Developed by 1C: Maddox Games, IL2: CloD was a classic example of a developer biting off more than it could chew. With industry legend Oleg Maddox heading up the development team, the goal was to deliver a next-generation flight sim that pushed the boundaries for PC simulators. The biggest change over its IL2 predecessors were the introduction of fully modelled aircraft cockpits, where nearly every switch could be activated by mouse, replicating the systems of the real aircraft. With around ten aircraft included in the base game, this was a mammoth

amount of work alone; consider that DCS World's add-on aircraft only model a single aircraft at a time to this level of detail, and it's no surprise that most of the aircraft systems in IL2: CloD launched in a buggy or incomplete state. A brand new graphics engine promised to render the huge bomber and fighter battles of the Battle of Britain at unrivalled levels of detail. In reality, the game suffered massive performance issues, horrific aliasing problems, and a level of detail bug meant that distant aircraft would occasionally turn invisible at the most inopportune time. A revamped damage modelling system attempted to render the havoc caused by machine gun and canon shells on airframes; the actual implementation saw aircraft exploding when they shouldn't, and half of the damage features switched off in the base code. Finally, a new physics engine promised to capture the flight dynamics of these infamous warbirds better than ever before, but at launch were plagued with massive differences between real world figures and in-game performance.

To put it bluntly, the release was an utter shambles. Given the community's huge expectations for IL2: CloD, the release saw the flight sim community questioning whether its beloved genre could survive such a blow. After all, if Oleg Maddox, the grandfather of combat flight sims on the PC, couldn't capitalise on the power offered by modern PCs, who could? The result of this release on the industry was as brutal as it was sudden.



Major publishers abandoned the genre, leaving more agile teams like 777 Studios to fill the void with more focused, less ambitious titles that would take several years to grow into a comparable scope. But this wasn't the end of the line for IL2: Cliffs of Dover.

### THE REAL WORK BEGINS

The revival of IL2: CloD began with a group of IL2 fans frequenting the popular Air Tactical Assault Group forums, or ATAG for short (<http://theairtacticalassaultgroup.com/forum>). Chatting amongst themselves, they realised that despite the game's many, many shortcomings, the framework for a truly groundbreaking simulator was waiting to be saved. With the game's developer publicly announcing that it had abandoned any future support, these fans realised that nobody else was coming to deliver the Battle of Britain simulator they'd been craving for so many years. After a quick poll on the ATAG forums, the name Team Fusion was selected to represent this assorted collection of hobbyist developers.

The team grew to be comprised of 40 individuals, with a core group of ten extremely active developers, backed up by another 30 who help out where possible. Thanks to the wonders of the Internet, the team is truly a global coalition of volunteers, spread across multiple time zones, all offering their expertise for free. Their skillsets vary, with some members focusing on specific tasks, while others offer more general knowledge.

Unlike a normal game developer, Team Fusion didn't have access to any of the tools that studios would usually have to work on a game. Instead they had to build everything from scratch, a mammoth task that has taken the better part of two years. According to the team's PR officer, Mysticpuma, the team didn't get any assistance from the original developer. "We have never approached any of the former developers and they haven't approached us either." Despite the game shipping in an extremely unfinished state, Mysticpuma praised the code base left by the original developers. "It's important to add that the work that they (1C Maddox) did during the original development was truly phenomenal and so has made understanding the systems they left in place, much easier."

As a result of the team's ingenuity, it now has access to a suite of tools that unlock the potential of the base game's code. Map makers, audio-tools and script creators now allow the team to tweak and enhance any area of the game, though the complexity of the



### DOING THE INSTALLATION DANCE

If you take one thing out of this article, it's that you owe it to yourself to grab a copy of IL2: Cliffs of Dover, and then install the Team Fusion mods. The base game is currently available on [www.amazon.com](http://www.amazon.com) for just US\$9.99, much cheaper than the US\$49.99 that Steam is charging. Once it's been installed, head to <http://teamfusion.theairtacticalassaultgroup.com/> to grab the five consecutive patches currently available (there's also a large 3.2GB file which includes all five mod installers as one download). After installing IL2: CloD, run each mod installer in admin mode, making sure you start the game after installing each mod. Windows 8/8.1 users won't even be able to start IL2: CloD until the first TF patch is installed. After installing the first patch, head into the game. You should see the mod version in the bottom right of IL2's menu screen - check that it's showing the patch you just installed, then shut the game down and install the next patch, then start the game again, rinse and repeat. Note that the Mod 4.0 patch can trigger a false virus alert, which can make unzipping the installer tricky - simply disable your virus scanner before doing so. The entire process takes around five minutes, and is well worth it for the rich reward at the end.





software means changing one element can have an unforeseen impact on other areas of the code. Mysticpuma explains, "One day our guys will have a breakthrough and we'll look at the results and be blown away. Two-hours later we'll get a message. 'Well I know it looks great, but now x,y,z no longer work, so we fixed 'x' and the original now is back to square one!'"

### TEAM FUSION 3.0 IS RELEASED

The first version of the mod, v3.0, focused on bringing the game's buggy flight models in line with real world reports, and hit the 'Net in March of 2013, only a few months after work began. The team scoured historical reports, books, forums and any other knowledge source available to find flight characteristic figures that stood up to scrutiny. A laundry list of bug fixes were also included, from small details like correcting compass markings to fixing broken fuel systems in the BF110. Bugs that had formerly made the game

unplayable – such as aircraft always icing up when entering any form of cloud – were squashed. One of the most dramatic changes helped resolve a major problem with the launch version of the game – spotting aircraft at range. The team took a twofold approach to the issue. First they fixed a bug that caused the LOD model of aircraft to become invisible at certain ranges. The second fix can only be regarded as a stroke of genius. Real war pilots often spotted distant fighters by the reflection of sunlight off canopy glass, and the mod introduced this effect. It's only noticeable at the right angles and uses a very subtle, shimmering effect, but makes a huge difference to spotting enemies, not to mention the realism of the game. It soon became clear

“Well I know it looks great, but now x,y,z no longer work”

that Version 3.0 fixed many of the glaring issues of the game, an incredible achievement considering the team was working off reverse engineered code, with no access to the official Software Development Kit.

A smaller patch was soon released to fix the inevitable bugs found in the first major release, before the team put its nose to the grindstone to develop version 4.0 of Team Fusion. Released in October 2013, a huge number of the changes were further fixes to less obvious bugs, as well as hundreds of refinements to the flight models. One of the most noticeable improvements was a significant boost in performance. The base game was renowned for humbling even the mightiest of gaming PCs, but v4.0 allowed many users to increase their graphics settings dramatically, while maintaining the smooth frame rates crucial for dog fighting. This version of the mod was also the first that saw Team Fusion expanding on the content found in the base game. Players could take control of certain ground vehicles and anti-aircraft artillery, though the interface to do so remained relatively rudimentary. Another new feature allowed pilots to place a photo of their better half in the cockpit of their favourite ride, a habit many WWII fighter jocks introduced.

The stunningly detailed English Channel environment found in the original was updated to include Winter and Autumn renditions, with the base Summer version also given a lick

of paint to better match real colour photography from the war.

While the first two patches focused on features that fixed the base game,

it was sorely lacking in singleplayer content. The original campaign mode remained basically unplayable due to the buggy AI, but this was set to change with the most recent mod release, v4.312, which landed in March 2014. As well as introducing a raft of AI improvements, this version of the mod also included a new Dynamic Campaign mode. The player chooses one of two maps, either a small or large representation of the Channel, then picks the starting year, side, airbase and aircraft. It also allows the user to choose exactly how many aircraft should populate each mission, perfect for tailoring the missions to slower PCs.

Work on the game's AI continues, as its still one of the roughest areas of the code.

**FLIGHT SCHOOL** | Almost as impressive as the work done by Team Fusion is the supporting effort of the wider IL2: CloD community. Due to the intricate modelling of the systems found in each aircraft, flying the WWII warbirds in the game can be a daunting affair, but a huge range of tutorials, manuals and YouTube videos help beginners take to the skies in no time. From starting the Spitfire's powerful Rolls Royce Merlin engine, to using the complex Lotfe bomb sight found on the HE-111, a wealth of material awaits eager novices. Most of these can be accessed via the Flight School forum on the ATAG forums, at <http://theairtacticalassaultgroup.com/forum/forumdisplay.php?f=128>. It's a must-visit place for those new to this challenging simulator, and volunteers even offer tutorial flights for those who ask for help.





Mysticpuma explains that, “our guys have found around 90% of the information required to change the AI and Radio Commands as it currently stands. Obviously that’s 10% shy of having a perfect amount but it’s not a simple case of ‘We’ll just make the AI do this when you press a button’. Sadly, it’s not like that.”

The game’s antialiasing option was also finally fixed, allowing 2X AA where none had existed before, though jaggies remain an issue to this day (a simple fix is to use NVIDIA’s DSR, or downsampling on ATI cards, to run the game at higher resolution than your display allows, which has cleared up jaggies entirely for us). The sound system of the game was also given a massive overhaul, with everything from machine gun fire to the flyby Doppler effect of passing aircraft improved.

#### AS GOOD AS IT GETS

At the time of writing, IL2: CloD is an entirely different game to the one that first disappointed fans in 2011. Four years of modding has delivered what is easily the most comprehensive WWII combat flight simulator ever to land on the PC, improving even on the original game’s vision. There simply isn’t another simulator around that models so many aircraft to such depth, whether it be the intricate flight models or the replication of the systems used to operate each aircraft. These beautiful warbirds inhabit the most eye-wateringly pleasing environment ever made for a simulator, with professional efforts like IL2: Battle of Stalingrad failing to match its graphical prowess. While issues with the AI mean singleplayer can still be a frustrating affair, work continues to improve this facet of the game. Meanwhile new scripting tools have allowed avid fans to host online campaigns, with over 100 humans flying and fighting in replicas of famous Battle of Britain missions.

Version 5 of Team Fusion is just around the corner, and it promises to deliver the biggest dollop of new content yet. Central to this is a brand new theatre of operations, and everything that this entails. While Mysticpuma wouldn’t be drawn on which theatre it is, he did give us a few clues about the new environment. “Currently we are working on a completely new theatre of operations and this is a big advance in the work Team Fusion are preparing. This is only possible due to some incredible work by our guys behind the scenes who have created the map tool, the textures, new objects, aircraft (variants and flyable), shipping and a new soundbank to make these features come alive audibly.”



## “Version 5 of Team Fusion is just around the corner”

The next version of the mod will also add brand-new aircraft to the simulator, a first for Team Fusion. While the exact aircraft to be included hasn’t been confirmed yet, the team is currently well into developing flyable versions of the Wellington Bomber, the Italian CR.42 and also the Gloster Gladiator, not to mention a new variant

of the nimble BF-109. Naval combat appears to be a focus for the new theatre as well, with the introduction of new shipping models and behaviour.

#### DOWNLOAD IT NOW, OK?

Mysticpuma went to great lengths to explain that Team Fusion’s efforts are a combined push, and not just one or two key people, and they do it for the love of it. In his own words, “Team Fusion are made up of members of the Flight Sim community. Just ordinary guys with extraordinary talents. We do this for fun and as a hobby and for the benefit of the WW2 flight sim community. We don’t ask for and never have had any reward, other than the adulation of those who appreciate the challenging task we have undertaken.” We at PC PowerPlay would like to salute the mighty members of Team Fusion for taking the time to deliver this premiere WWII flight sim, all absolutely free of charge. With a bright future ahead of it, it seems that Team Fusion is destined to fly ever higher on its wings of glory. 🇬🇧

**TEAM FUSION WANTS YOU!** | Team Fusion is constantly on the hunt for more members who can contribute to this extraordinary project. If you’ve got any experience in 3D modelling, skinning, texture art, coding or sound recording, they’d love to chat to you about getting you into the team. 3D artists in particular are in high demand. Head over to this link to volunteer your time - the community will be forever grateful:

<http://theairtacticalassaultgroup.com/forum/forumdisplay.php?f=91>



# PC PowerPlay

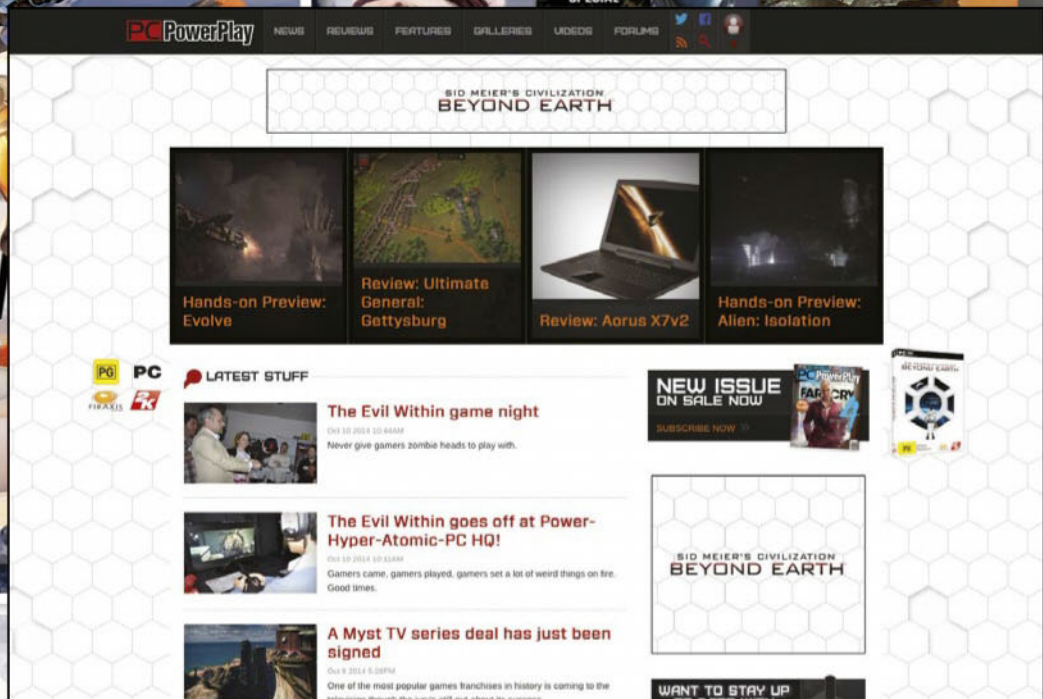
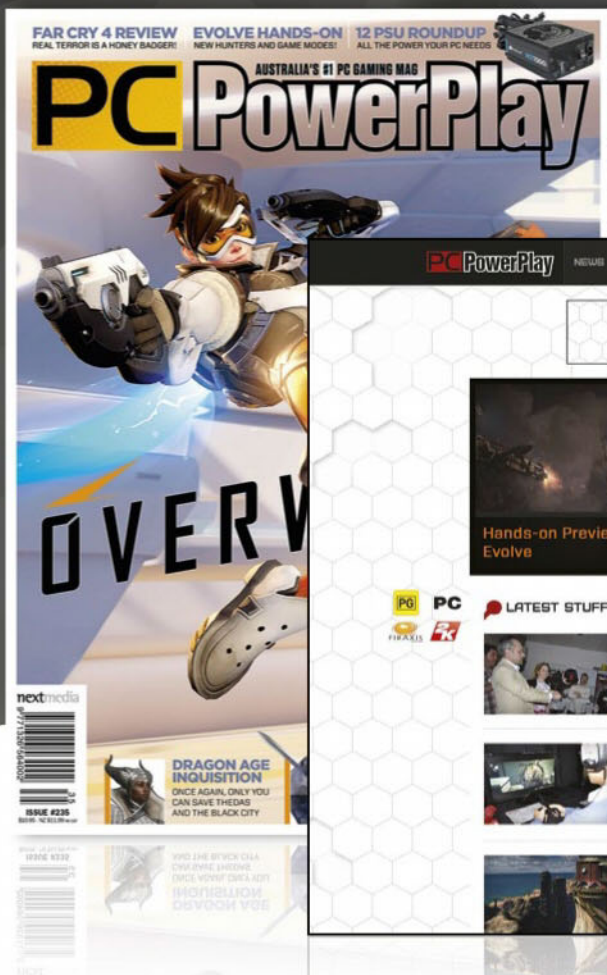
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## HEAD TO

# WWW.PCPOWERPLAY.COM.AU



We've recently relaunched and refreshed our website, so point your browser our way, read some stories, and sign up for the forums to hang out with like minded gamers.



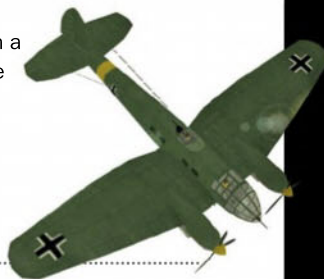
# SECRET WEAPONS OVER NORMANDY

There is an unashamed arcade sheen to *Secret Weapons Over Normandy*. It's a game that revels in the mechanics of dogfighting over the minutia of flight but doesn't suffer in the least for that approach. It may not be as hardcore as something like *Combat Flight Simulator* or *Falcon 4.0* when it comes to the actual physics, but the combination of available aircraft, the mission structure and the quality of the enemy AI still makes for a supremely satisfying air combat experience. Through 15 story based missions following the main character, James Chase, the player has the chance to fly a number of experimental real world craft that either didn't fly in combat or flew in such limited numbers that they had little impact on the war.

Being able to jump into the cockpits of these legendary aircraft, like the canard design, rear engine XP-55 Ascender or the disk shaped Vought XF5U "Flying Flapjack", is a real joy. Of course, the more common WWII planes also featured heavily, with the likes of the P-40F Warhawk, Spitfire, Hawker Hurricane, AM6 Zero, and more filling out the impressively large and well-rounded roster that featured everything from small fighters to massive long range bombers. The game also featured an unlockable X-Wing and TIE Fighter for those people who always wondered who would win a battle, a futuristic starship with lasers or a biplane with a machinegun. *(The latter, right? – Ed)*

DEVELOPER TOTALLY GAMES  
PUBLISHER LUCASARTS  
YEAR RELEASED 2003  
METACRITIC SCORE 72

“Being able to jump into the cockpits of these legendary aircraft is a real joy.”



**SECRET OPTIONS** *Secret Weapons Over Normandy* gives players the option to choose between an arcade style and simulator flight model, but no matter which you choose the arcade nature of the game still shines through thanks to a few features designed to make dogfighting more easily approachable, such as the ability to lock on to targets to match speed or to slow or speed up time so as to complete lengthy bombing runs faster or use it as an ersatz bullet-time mechanic to help pull off tricky shots.





TOP TEN  
SIMULATORS

#3







# BIG BOYS' TOYS

The RAAF's C-130J Simulator







many of the controls available over an iPad. This simplicity is why the training course to learn to use the simulator lasts just half a day, much lower than we expected. While the supporting hardware that drives the simulator is impressive, it's nothing compared to the squat metallic room sitting on hydraulic legs that is the cockpit itself.

### LET'S SEE HOW THIS BIRD FLIES

The simulator is housed in a huge open space enclosed in a large building, necessary thanks to its large dimensions. Measuring six metres long, six metres wide and another 6.6 metres tall, it looks like a large white box standing on six tall hydraulic rams. When not in use, a drawbridge folds down, connecting the simulator to a nearby walkway, but this retracts when it is in flight. Perched atop the simulator are the five expensive LCOS projectors.

Walking into the simulator is like walking into a movie set. The stark white exterior is replaced by a 100% accurate representation of the C-130J used by the RAAF. In fact, it's been modelled on one of the RAAF's existing C-130J airframes, right down to the way the wiring used to heat the window loops around the canopy glass. As the C-130J only requires a pilot and co-pilot to fly, it's limited to two trainees at a time, but two more seats are mounted at the rear for instructors and observers.

Sliding into the driver's chair for the first time, we were amazed at the amount of glass displays in the cockpit. Forget the analogue displays of the past, this baby

is well and truly a 21st century bird. While the central and overhead panel are covered in hundreds of switches, Billy explained that many of them are now automated, which is why only two people are required to fly the C-130J, compared to the four of the previous models. One thing that hasn't changed though are the harnesses used to strap pilots in; we found it harder to figure out how to do this up than actually landing the C-130J simulator!

Once we were strapped in place, Billy set the simulator to see us on the end of Richmond runway. He handled the nose wheel steering and auto-throttles; our job was to use the rudder and control column to keep it on the centreline, and then rotate when take-off velocity was reached. The first thing we noticed was the motion of the unit: as we accelerated down the runway, we were pressed

back into our chairs. An outside observer would see the entire ten tonne platform rotate backwards to simulate the G-force, with a range of motion of up to 20 degrees across the pitch, roll and yaw axis, but from inside it appeared as if we were straight and level. With no exterior frame of reference, it's impossible to notice the motion platform "faking" certain G-forces – it just feels right.

With the aircraft heading towards Sydney Harbour, we were able to test some of the more extreme flight regimes that wouldn't normally be safe. From 60 degree banking turns to stalling due to slow speed at high angles of attack, we were treated to behaviour that is identical to the real aircraft, right down to the exact pressure required on the control column and rudder pedals. According to Billy, "As far as what the simulator can't do compared to the real aircraft, from an accreditation point of view there is nothing it can't do compared to the aircraft. Nothing at all".

### RISK MANAGEMENT

The simulator offers training that is extremely difficult to replicate in the real world – being targeted by external threats. Whether it's a shoulder launched SA-7 SAM, or the bullet-spitting ZSU-57-2, the simulator models these threats to a high degree of accuracy. "Without actually blowing up an aircraft by having a

missile hit it, we're dead certain as far as the missile system capabilities – when it can detect you, how it can detect you, when it's going to launch, what signatures

that gives off, we're 100% certain on that stuff." With a tap of his iPad, Billy was able to replicate an SA-7 launch and the resulting impact on the aircraft. Sadly the Radar Warning Receiver and other countermeasures were disabled for our time in the sim, so we didn't get a chance to see what tools real Hercules pilots have to avoid such pesky threats.

As well as these kinds of threats, the simulator is perfect for recreating emergency situations that are simply too dangerous to do in the real aircraft. Engine failures are commonly practiced, from single engine problems to full-blown four engine flame outs. Billy explains, "...we can do things in the simulator that are a lot more risky, that pilots need to see and train for, that would be unacceptable to put them through in the aircraft over populated areas."

1. "One sec, let me look up "noob journo broke our simulator" on Google..."
2. We're pretty sure Bennett is qualified to fly one of these now.
3. He's single, ladies!
4. Just takin' her for a run down the shops.
5. Not pictured: blaring klaxons and sirens indicating imminent death.
6. "Do you like gladiator movies, Billy?"



1.



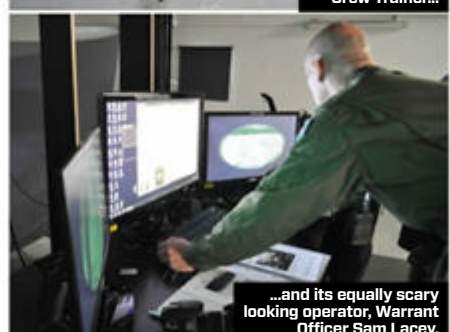
2.



Flight Lieutenant  
Clinton "Billy"  
Baldock



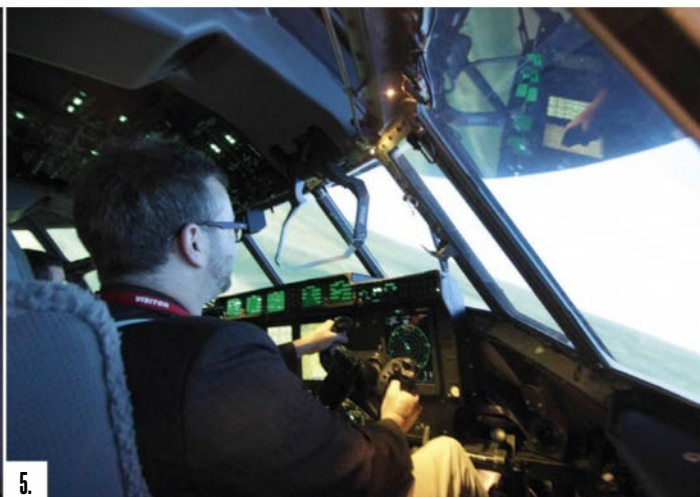
The scary looking  
Tactical Airlift  
Crew Trainer...



...and its equally scary  
looking operator, Warrant  
Officer Sam Lacey.

“As we accelerated down the runway, we were pressed back into our chairs.”





While our simulation time was spent in the skies over Richmond and Queenstown, real pilots get to practice landing at new airbases thanks to the simulator's ability to be upgraded. If the RAAF is going to be doing extensive work out of a new, makeshift airbase, CAE can have a virtual version of the airfield imported into the sim within two weeks, even shorter if less detail is required. Satellite imagery is used along with any data available about the airfield to build a representation that is accurate down to half a metre – not quite the millimetre precision of PC racing sims, but enough to give new pilots the knowledge they need to be familiar with new airbases.

By the end of our half hour in the sim, we were simply in love with this high-end training tool. Not only did it give us an appreciation for commercial simulators, it also surprised us with how easy and nimble the C-130J is to fly. Two PC PowerPlay staffers managed to land the sim without any damage, helped no end by the lovely real world HUD projecting our landing point onto the landscape below. While the external visuals aren't a patch on the latest PC sims, the feeling of flight is unrivalled thanks to the advanced flight physics and accurate motion platform. There's also nothing quite like sitting in a perfect recreation of the cockpit to boost immersion, though it'll be interesting to see how VR influences future PC sims in this regard. Speaking of which, once we'd done the cockpit sim, it was time to check out the TACT, or Tactical Airlift Crew

Trainer, simulator. This is one of the RAAF's newest simulators, and uses Virtual Reality technology to recreate the conditions C-130J Loadmasters experience while on the job.

#### SIMMING GOES VIRTUAL

We were shown through one of the RAAF's newest simulators by Warrant Officer Sam Lacey, a real life loadmaster in charge of deploying this new simulator. It's definitely an odd looking beast, comprised of a large plastic replica of a small portion of the C-130J's loading bay, surrounded on each side by a dome projection screen. The plastic replica doesn't have any of the detail normally found inside the loading bay, as the system uses twin Head Mounted Displays to deliver this instead. Each HMD connects to a standard loadmaster's helmet using the NVG mount, and we were immediately impressed by the resolution of the display. They're much clearer than the Oculus Rift DK2, but on the flipside had a much narrower field of view. While this makes the VR experience a little odd for daylight missions, it's perfect for night vision goggle training, as these have an even narrower field of view.

A large commercial tracking device allows either trainee to walk the length of the replica while remaining accurately tracked, and we found it kept our position nicely, though there was a small amount of latency when turning our head. Due to the lack of haptic devices (ie the hardware that loadmasters use to

run their end of the aircraft) TACT is primarily a procedural simulator, replicating certain training scenarios that are costly to replicate. This seems to currently focus on Search and Rescue training, as well as threat-spotting, both of which involves the Loadmaster sitting at an observation window. The sole haptic device is a replica of the countermeasures trigger used by Loadmasters to manually deploy flares, and we fired off a few virtual rounds when the software flew us through a rather hostile version of Kandahar.

#### THE RAAF GOES ONLINE

Currently both simulators are run in isolation, but the plan is to integrate the two so that an entire aircrew can train together. Loadmasters will be able to help with reversing of aircraft from the TACT simulator as pilots man the C-130J simulator. Even more exciting is the proposed networking of the RAAF's simulators, both internally and externally. This will allow Super Hornet trainees to provide air cover for Hercules pilots, while Eurocopter Tiger chopper pilots clear a corridor ahead, all taking part in a detailed virtual representation of battlefield conditions. The RAAF also plans to network its simulators with other nations, allowing virtual exercises at a fraction of the cost of the real deal. In this area at least, it seems that the big simulators are following the lead of PC sims, which have allowed virtual pilots to fly and fight alongside each other for over a decade, no matter where they're based in the world. **PC**





# iRACING VERSUS V8 SUPERCARS

Ever wondered how a top-of-the-line racing sim compares to the real deal? **BENNETT RING** goes to Philip Island to find out...





**W**e were recently invited to do a few laps of Philip Island's famous racetrack with the Holden V8 Supercars team, courtesy of Dell. When we weren't being squished into the racing seats at high G-forces, we caught up with team driver Nick Percat, former Bathurst 1000 champion and avid iRacing fan. Nick is just one of several V8 Supercars drivers who use iRacing as both a training tool and a way to blow off steam, so we grilled him on just how it compares to the real deal.

**PCPP: Can you tell us about your simulator at home?**

**Nick:** It's a Simworx simulator with three screens, a special shifter identical to what we have in the car, a Fanatec steering wheel and a Simworx pedal box. This is actually a hydraulic pedal system. I got this as part of a sponsorship deal in 2010.

**Which simulator do you mainly use it on?**

iRacing. So before the Philips Island race this last weekend, I'd jump on iRacing a couple of hours each night, just to get familiar with it.

**Do you think it really helps when you get to the track?**

Yeah, it definitely helps. It's so realistic. I do it more for getting myself ready for the track. It's not the speed, it's not the way the car handles, it's about being able to visualise what the track looks like. Knowing all the little bumps and things like that. Obviously it's not 100% identical, because a real track is always changing, but it's good to get it into your head, and start thinking about it early.

**Can you use the iRacing version to figure out braking points? Are they close to where the real braking points are?**

They're very similar because they always have racecar drivers testing the car modelling, so the braking points are really similar. But since Philip Island got resurfaced they've changed in real life. I always set my iRacing car up so that it feels like the proper V8 Supercar, and not like the simulated car. Because of this, compared to the faster iRacing drivers I'm normally a second, a second and a half off the best guys. But I do this so it feels realistic. iRacing have asked me to send them my setup, and they thought it was terrible and slow!

**So the real cars handle worse than the iRacing version? That's surprising, as the iRacing versions steer like a boat.**

The simulator cars oversteer like crazy, there is so much front turn.

**When you race other guys in the sim, does that help with your real racecraft?**

It probably would, but my computer is too slow to run the online sessions with other racers! I have to stick with the private practice mode.

**What doesn't iRacing replicate?**

Obviously there's the g-forces, there's also the heat. There's also the real consequences if something goes wrong or I make a poor decision. But it's awesome for being able to drive on the track, feel what it's kind of like, the simulator uses noise instead of g-forces, and you kind of get to know how the car feels in parts of the track using this. It does help with reflexes, as you're using different sense compared to your whole body in the car.

**Do most V8 Supercar drivers use simulators, be it consumer ones like iRacing, or professional simulators?**



No, it's mostly the younger guys. I have a six-speed sequential go-kart that I also use to hone my skills. We do whatever we can to get in the seat. The simulator has to be good for that, for our hand-eye coordination, the feel, the braking. I can practice my brake pressure due to the hydraulic sim pedals, as well as heel-toe practice, so you're not losing brake pressure while doing so. You can do all that in the simulator, as it also supports MoTec telemetry. I can overlay data from the race weekend over my simulator data if I want to. I've often sent files to the boys at iRacing so they can see where they differ. Like on Bathurst, the simulator was making up to a second and a half on the straight over the real version.

**Do you think you have an advantage over drivers who don't use the sim?**

Not necessarily, as it doesn't have all the Australian tracks. Because the developers don't get to drive the real car, it's hard to explain how it should really handle. It might help in the first few laps of a session, but for most of the V8 drivers, they're already so quick that it doesn't help. To be at their level, a little bit of iRacing isn't going to make the difference. 🇺🇸



## PHILIP ISLAND – REAL VS IRACING | We've driven hundreds of laps of iRacing's Philip

Island course, renowned for being one of the fastest tracks in Australia, so leapt at the chance to try it for real. Due to silly Occ Health and Safety laws, not to mention several million dollars worth of insurance, we didn't get to do the actual driving, but we were able to make several observations about where the sim falls short. For starters, the real car is incredibly loud, even with our helmet on. The sound of the transmission is particularly harsh on the ear drums, whereas the sim has a much louder engine. There's also the small matter of G-forces – iRacing doesn't have any. After being thrown around the car like a baby on a rollercoaster, we had a newfound appreciation for the physical endurance required to spend a couple of hours behind the wheel of the real deal. But as far as knowing the track, we could anticipate every corner, curb and hill perfectly, with the real version matching the virtual perfectly. It might not be quite as visceral as the real deal (for the first time in game writing, the use of the word visceral is totally warranted) but at least iRacing gives everyday gamers a chance to experience part of what drivers like Nick Percat do every day.



## SIMPLY THE BEST

Being a PC gamer isn't exactly the cheapest form of gamer around, but simulator lovers have it worse. Our beloved hobby incurs even more of a blow to the wallet, as the humble mouse and keyboard just aren't up to the task of replicating vehicle controls. It's a two-edged sword though: while our German-made steering wheels and 100% accurate recreations of fighter jet controls might cost a pretty packet, they boost the immersion no-end. Using a mouse to aim a machine gun might be a passable semblance for the real thing, but when you're hooning around Monza using a racing-grade wheel connected to hydraulic pedals, the experience is infinitely closer to reality. It's part of what makes simming so much fun.

On the following pages I've taken a look at some of the newest simming hardware on the market, as well as an old favourite, the TrackIR 5. But there's one item I haven't included, which I highly recommend serious simmers consider. A sturdy cockpit can boost immersion even more than the gadgets we have to use, as you'll adopt a similar seated position to real pilots and racers. These simpits also have the added benefit of providing your gear with a rock-solid place to call home, so there's no chance of your pedals slipping away on the last lap of a three hour race, or of your joystick sliding out from under you during particularly heavy moves. I've been a proud owner of the Obutto frame for over a year, and can highly recommend it, though Aussie distributor Pagnian Imports also sells a reputable 'pit. But after trying out the RAAF's C-130J sim, I'm sorely tempted to check out a motion-platform based pit in the near future, which start off at \$4k for a simple model. Like I said, us simmers have chosen a rather expensive hobby...

TECH

PROJECTOR

# Epson EH-TW9200W

Total immersion

PRICE \$3,999  
[www.epson.com.au](http://www.epson.com.au)



Walk into any commercial simulator and you'll notice that they don't use piddly 30 inch monitors to replicate the outside world. Nope, when it comes to fully immersing trainee pilots, drivers or tankers, there's only one display technology that can pump out an image big enough to fill the user's field of view – projectors. I've been a huge proponent of using projectors for PC gaming for years, partly because I use mine so extensively when simming. Epson is easily the market leaders in projector sales in Australia, so I was keen to see if its latest consumer model had the chops to replace my beloved Panasonic AE-8000 as my gaming projector of choice.

Like all Epson projectors, the TW9200W is based on LCD technology. This is a huge plus for gamers, as our hyper-developed visual systems are prone to spotting the "Rainbow" effect on projectors that use competing DLP technology. The native resolution of 1920 x 1080 is par for the course at this price range, and it's also capable of displaying a 3D image. Unfortunately it's limited to 24Hz, or 24 frames per second, when running at HD resolutions, a limitation of the HDMI 1.4 input this projector is endowed with. It's possible to run at 1280 x 720 at 60 frames per second though, which doesn't look half bad if the host PC has the grunt to enable downsampling or high levels of antialiasing. The projector uses stereoscopic technology to display 3D, so there's a drop in brightness caused by the LCD shutter glasses, but I found the 3D image to be fantastic. There was minimal ghosting, aka crosstalk, an issue where objects in the

scene have strange shadows around them. The high brightness of the unit, at 2400 Lumens, means it's got the oomph to punch out bright images during the 3D mode, an area where other projectors struggle. Two sets of 3D glasses are included, and they're very comfortable over extended periods of time.

Most gamers will use this projector in 2D mode and, provided the theatre environment is nice and dark, will be blown away by the huge improvement in contrast delivered by the TW9200W. Contrast performance is one of the key specifications of front projectors, as it dictates the amount of detail that the outputted image displays. Projectors also have issues with displaying black, due to the white screens they're projected onto. I'm happy to report that the TW9200W excels in

“A night mission in IL2: Cliffs of Dover revealed rich detail in even the darkest of scenes.”

both areas. Epson claims a dynamic contrast ratio of 600,000:1, thanks to the dynamic iris employed within. This adjusts on the fly to match the overall darkness of the outputted scene.

Earlier versions of this dynamic iris would often lead to the image becoming noticeably darker as a shadowy scene was displayed, caused as the iris adjusts itself. This effect is almost totally absent on the TW9200W, as the iris adjusts itself so quickly. The result is the best contrast performance in a projector of this price.

Firing up a night mission in IL2: Cliffs of Dover revealed rich detail in even the darkest of scenes, while the inky blackness of deep space in Elite: Dangerous was beautifully replicated in the projected image. It's hard





to understate the difference in detail the improved contrast makes, but there's also another new technology in the TW9200H that helps deliver a sharper overall image. Known as Super Resolution, it automatically adds sharpening filters to areas of the screen that appear blurry, leading to an overall more detailed image.

Colour accuracy is also top-notch, with the included THX mode easily the best of the bunch. Those who want to spend a few hours calibrating the projector will appreciate Epson's huge range of options, and I was able to get it looking perfect after a short play with the projector's colour temperature slider. The use of three LCD panels inside the projector can lead to an issue where they no longer perfectly align over time, but Epson has included a panel alignment setting that resolves this. Considering most other projectors need to be serviced to fix this issue, this setting alone will save annoyance in the long run.

If there's one issue with projectors – other than their need for a darkened gaming environment – it's that they can have higher latency than competing display technologies. Thankfully this Epson seems to be the snappiest projector produced by the company yet, provided the image processing option is set to "Fast".

While this does slightly downgrade the overall image, it removes any noticeable latency; I've read online tests pegging it at around 35ms, an excellent result for a projector.

Many prospective owners might be put off by the need to darken their projector's environment, but the short throw lens means it'll pump out a huge image in even the smallest space. A small spare bedroom, or gaming den, is the perfect size for this projector, and the inclusion of lens shift means it can be mounted off-centre. Don't worry about expensive cabling either; this unit includes a wireless HDMI link, so there's no need to drag a cable between the projector and your PC.

This projector's stunning contrast and black level performance sets it apart from earlier generations, and the difference is immediately obvious when firing up the TW9200W for the first time. With the best 2D and 3D image in the biz at this price range, it's knocked off my Panasonic AE-8000 as my projector of choice, which is why I'm purchasing the TW9200W for my simming den. Throw a cockpit in front of this thing and you'll have a simming experience that rivals the million dollar experiences used by professional simulators. **BENNETT RING** 🇬🇧



- Best in class contrast and black levels
- Very detailed image
- Low latency
- Not exactly cheap
- Laggy when certain image filters are applied

**VERDICT** Epson's TW9200W is the new benchmark in projection at the \$4,000 price range, and is a must for any serious simulator fan.





HEAD TRACKING CONTROLLER

# Natural Point TrackIR 5

Check 6! Check 6!

PRICE \$169

www.naturalpoint.com



When it comes to flying and fighting in the virtual skies, PC simulators have one major disadvantage compared to the real deal – scanning the view outside the cockpit is a clumsy, ungainly affair when managed with a hat on a joystick. Even spotting a bogey is hard, let alone keeping track of it in a high-g knife fight at altitude. There is a solution to this problem, and it's a damn good one – NaturalPoint's TrackIR 5 head tracking system. It's been on the market for several years, but there's still nothing out there like it... unless you don't mind building your own.

The way the TrackIR works couldn't be simpler. A small infra-red camera about the size of a webcam sits in front of the player, usually mounted on top of their screen. The player wears a special hat with IR reflective material, or the add-on TrackClip Pro, which clips to most standard headsets. The software then detects when the player rotates their head, and moves the in-game head accordingly. Obviously players need to keep looking forward to see the game, so the movement between the player's head and their virtual isn't one to one. Instead, the player can adjust the movement so that they only need to move their head a few centimetres to

one side for their in-game avatar to do a full 180 degree turn.

As well as measuring the player's direction of view, the TrackIR 5 can also measure the position of the player's head. This means it's possible to lean to one side, perfect for popping your virtual head out the side of a P-51's cockpit while taxiing this tail-dragger. The player can also move their head forwards to zoom the camera view, allowing them to check the fine detail on an instrument panel.

The difference the use of the TrackIR 5 makes to simulators is hard to exaggerate. Combat flyers in particular will find it of most use, as it allows easy tracking of outside targets. It's also handy in driving simulators though, as the player can check their mirrors with a quick turn of the head. Even ARMA III supports it, allowing the player to look in a direction different to the way they're travelling. Not only does it improve the player's situational awareness, it's simply damn cool, increasing immersion exponentially.

If there's one issue with the TrackIR 5, it's the price. At \$169 just for the tracker, with another \$55 for the flimsy TrackClip Pro (I've broken two of them already), this is a relatively expensive bit of kit. The price is even harder to

justify if you're handy with a soldering iron, as the freeware FreeTrack delivers similar functionality, but the user will also need a webcam which they'll have to modify slightly. Total cost of the FreeTrack solution is around \$70 at most, though it's not quite as easy to use or setup as the TrackIR 5.

This head tracking device might be a few years old, but the fact that nobody else has come up with a better product shows how well this thing works. Until VR becomes an affordable and usable option at home, TrackIR is the closest sim fans can get to being inside the game, and is a valuable tool for situational awareness. **BENNETT RING** 🇬🇧

- Easy to configure
- Huge boost in immersion and situational awareness

- Rather pricey
- There are free options
- Gets confused by bright sunlight

**VERDICT** If you're serious about your sims, then you seriously need to consider the TrackIR 5.

# 8



RACING WHEEL

# Thrustmaster T300 Racing Wheel

Thrustmaster's biggest competition is itself.

PRICE \$485  
[www.thrustmaster.com](http://www.thrustmaster.com)

Not everybody has a thousand bucks to blow on a simming wheel imported from Germany, which is where mid-range product like the T300 Ferrari GTE come into the picture. It's still not exactly cheap by any stretch of the imagination, but it's a long way off the price of Fanatec gear.

Included in the box is the main wheel base, a detachable mock Ferrari wheel, and a set of pedals. Let's get the nasty stuff out of the way first – the pedals are absolutely horrible. There's no way to stop them sliding all over the floor, and they only include an accelerator and brake pedal. The brake operates identically to the accelerator, lacking the hydraulic components used in other pedal sets to replicate the sensation of braking.

Thankfully the wheel itself is a much better product. It's actually targeted at PS4 and PS3 owners, with a small slider on the front of the wheel determining which mode to run it in. PC users can flick it to PS3 mode to operate under Windows, which is then detected by the Thrustmaster software. The rim itself is a replica of that found in the Ferrari 458, albeit at 7/10 of the real size. It can rotate to a maximum of 1080 degrees, further than the 900 degrees offered by more expensive products, and is detachable. The release mechanism is questionable though, as there are several pins inside the wheel that could easily bend if its attached in the wrong direction. Thankfully attaching it should be a one-off duty, as there don't appear to be any replacement wheels.

Heading into iRacing to test the force feedback, I was immediately

impressed by the responsiveness and accuracy of the wheel. Thrustmaster claims it uses Hall sensors, similar to those found in the Fanatec Wheel Base v2, which explains why it's so accurate. The force feedback reminded me a lot of the Logitech G27 – it's relatively detailed, but there is definitely some cogging felt as the wheel is turned. It's also nowhere near as powerful as the likes of Fanatec, but it's half the price, so we can't ask too much from it.

Overall I was moderately impressed by this wheel, but I would highly recommend replacing the pedals. If we take those out of the picture and add a better set, racers are still looking at spending around \$650 for the combined set. And for that amount of dosh, the Thrustmaster T500 RS is a much better buy.

BENNETT RING 



- Decent force feedback
- Very accurate steering
- Includes pedals

- Pedals are woeful
- Definite notching felt

**VERDICT** At this price the T300 goes head to head with Thrustmaster's own T500 product, which is superior in every way.

**7**



WHEEL BASE

# Fanatec ClubSport Wheel Base v2

Germengineering does it again.

PRICE \$785

[www.fanatec.com/au-en/](http://www.fanatec.com/au-en/)



If you want to get your racing gloves on the newest version of Fanatec's immensely popular ClubSport Wheel Base, you're going to need to be invited. It's testimony to the fact that demand will far outstrip supply when it eventually goes on sale in March 2015, and to be invited racers must be an existing customer of Fanatec. I've been the proud owner of the original version of the ClubSport Wheel Base for a couple of years now, and was very keen to see how v2 improved on what seems to be a near-flawless product. So when Aussie importer Endor offered to send me the only v2 available in Australia, I leapt at the chance.

Opening the huge box reveals a base that looks very much like the original. As with the first version, there's no steering wheel included for the purchase price, with buyers having to fork out extra for one of the many different rims sold by Fanatec. The good news is the backwards compatibility with all of Fanatec's existing rims, despite the quick release mechanism being slightly upgraded. A new rubber ring on the release mechanism gives each rim

a sturdier connection than the v1, though my original base doesn't allow the rim to wobble at all. The new base is one of the heaviest simming peripherals I've seen, thanks to the heavy-duty metal used throughout its construction. A Perspex window on the top shows off the innards of the new wheel, while a 20 degree mounting bracket comes pre-installed on the base. As with the original, there are ports for the USB connection, power and extra peripherals tucked under the bottom of the unit, so owners will need to connect these before screwing it down in place. A large power brick is also included, and it's significantly larger than the original, hinting at the extra forces at play in the new base.

While the base looks very similar to the original, Fanatec claims nearly every component has been improved. The original optical sensor has been removed, replaced by twin magnetic hall sensors, which Fanatec claims offers twice the resolution of the

optical sensor. The cogging system used to deliver the force feedback effects has also been revamped, and it's supposed to be totally unnoticeable compared to the slight notching of v1.

Fanatec products have had a questionable reputation for reliability in the past, so a renewed focus on making the v2 indestructible was a smart move for the company. The new brushless motor is apparently much easier to cool, but despite this the cooling system has also been overhauled, doubling the number of fans to two. Despite this the wheel remained whisper quiet during operation.

To test this wheel, I fired up my favourite simulator for testing force feedback, iRacing. The level of detail in its laser-scanned tracks is unrivalled, with bumps and cracks as small as one millimetre represented





“ My first impressions of the wheel were that this thing would be great in a gymnasium. ”

in the game. The lively force feedback system transmits every one of these details through the steering wheel, along with the usual rumble strips, cornering force and the snapping back of the wheel after spinning.

My first impressions of the wheel were that this thing would be great in a gymnasium. The force feedback is much more powerful than the original, backing up Fanatec's claims that the force feedback motor has 75% more grunt than the first version's motor. Within a couple of laps of Brands Hatch my arms were literally aching, the force feedback was so powerful. It was a little too much to be honest, so bumping it down to around 60% force was necessary to recreate the accurate feel I was used to. It's nice to know that the wheel has this much power in reserve, but most sims won't need anywhere near as much. This extra power will come in handy for those who want to mount heavier rims to the system, but with the BMW M3 GT2 rim I used for testing it was a little too much.

The second thing I noticed was how sharp and responsive the force feedback felt. It wasn't a massive

difference compared to v1, but there was definitely a slightly snappier feel to force feedback effects, almost as if they were being transmitted more quickly than version 1. As for the lack of notching with the new cogs, I don't think it's that much of an issue in the original wheel, but know those who do. They'll be pleased to note that Fanatec's claims of totally smooth rotation is true. I couldn't feel it at all, no matter how hard I tried.

Console owners will appreciate the impending release of Xbox One and Playstation 4 compatibility. Apparently the wheel base will work with either console, on the proviso the owner buys a special wheel rim designed for each console. There's no word yet on the price of these special rims, nor their release date.

If you're lucky enough to be invited to buy the new wheel, you'll be able to snap it up for a mere \$688. The rest of us will have to fork out \$785, which is rather expensive by anybody's standards. If you already own the original, I'm not sure the improvements are worth spending this much dosh, as the v1 is still a damn fine wheel. Unlike my ClubSport

pedals, I've had no problems with the reliability of my original Wheel Base, so the new emphasis on better build quality is meaningless to me. However, if you're in the market for your first premium wheel and don't mind paying around a grand for the combined package of the base plus a rim, there's simply no competition. Its combination of incredible accuracy and powerful yet precise force feedback will truly change the way you drive, and surely that's worth spending a little extra for? **BENNETT RING** 🇬🇧

- Accurate
- Powerful force feedback
- Built like a brick outhouse
- Very expensive
- Doesn't come with a wheel rim

**VERDICT** Fanatec has improved on the original in every way, but it's not quite the revolutionary overhaul many are expecting.





# MICROSOFT FLIGHT SIMULATOR '04

The 9.0 release of Microsoft's venerable non-combat flight sim was part game, part celebration of flight. Released in 2003, Flight Sim 2004 – aka, Flight Sim 9, and yes, that is confusing – came out during the centenary celebrations of Orville and Wilbur Wright's famous first flight. In fact, that very same construction of wood, canvas, and cord can be flown in Flight Sim 2004, along with other famous aircraft, like the iconic Douglas DC-3. Though, be warned, the Wright Flyer is not an endurance craft – like the real thing it can only manage a flight of around 40 or so meters.

As well as a wide selection of aircraft and airports to fly around, take off from, and inevitably crash into, FS2004 went nuts with weather simulation, even going so far as to allow real time tracking of local conditions for inclusion in your forays into the air. So, if it's raining and blustery at Sydney Airport in real life, it's doing the same thing in-game. The game's cockpits also featured working controls, which went a long way toward upping the immersion factor. It was also the first game of the series to feature fully 3D clouds, and to a greater height than ever before, though it did need a patch to get a lot of bridges put in the right place.

No one's perfect, I guess.

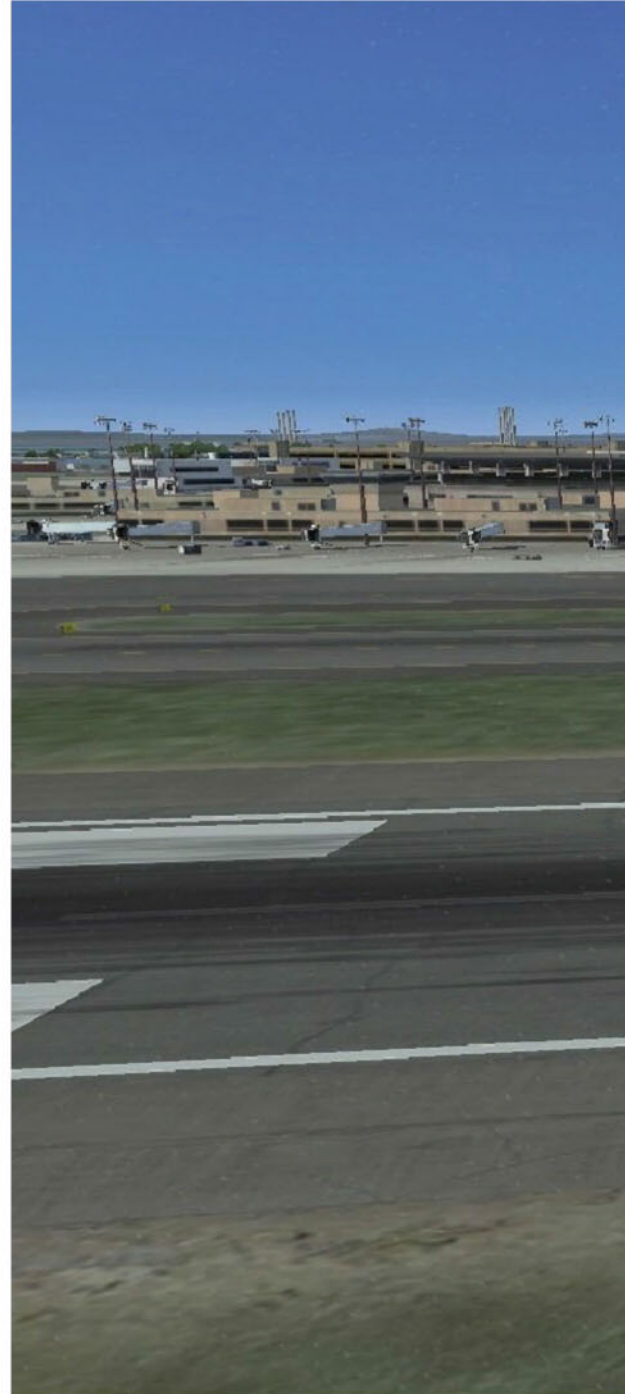
DEVELOPER MICROSOFT  
PUBLISHER MICROSOFT  
YEAR RELEASED 2003  
METACRITIC SCORE 88

“FS2004 went nuts with weather tracking of local conditions to add to the game.”



**PROCESSING POWER** At CES not long after the game launched, Intel was using FS 2004 to show off the power of its Skull Trail platform. This chipset combined the power of two CPUs on a single workstation-grade board, and the reps were very proud of how it was could render the actual weather from Vegas, as it was happening outside.

And it STILL chugged the system like you wouldn't believe.





TOP TEN  
SIMULATORS

#2





SHIFTER

# Fanatec ClubSport Shifter SQ

Change Gears

PRICE \$229.95

[www.fanatec.com](http://www.fanatec.com)

If you ever needed proof that simmers are a different breed of gamer, the ClubSport Shifter SQ is it. What other kind of gamer would blow \$230 on a device that simply changes gears? Absolutely no other kind of gamer, that's who. Considering you'll need to spend another \$60 or so to buy the mounting kit and USB adaptor, unless you're a virtual driver you'll probably think purchasers of this shifter are batshit crazy.

Let them think that, says I, because this is a beautiful piece of hardware. It's built out of heavy machined metal, and weighs several kilograms. If you're running a Fanatec steering wheel, it plugs straight into the wheel base, but non-Fanatec users will need to buy the additional USB adaptor kit for \$23. Four mounting holes on the base make it easy to mount permanently provided you don't mind drilling a few holes in your gaming surface, but there's a mounting kit available for another \$44. It'd be nice to see this included, as with Thrustmaster's competing shifter kit.

Two shifting knobs are included, but the gear shaft is the standard size used by real cars. This means you can install that eight-ball or red back spider knob you spotted at your local car parts dealer. Not that you need to, as the two included are top notch.

Where this thing really excels is the ability to switch between sequential and gated shifter mode without having to remove the face plate, a problem that makes the Thrustmaster shifter a pain to use. All you need to do is move the slider on the base from gated to sequential, and you're good to go. In gated shifter mode, it's an 8-speed gearbox. Finding reverse requires the stick to be pushed down, stopping the accidental shifting into reverse, blowing your gearbox in the process. Ditto with 7th gear, which also needs the shaft to be pushed down, making it a bit hard to find without practice.

A hex bolt on the left side of the unit adjusts torsion, and thank god it's included. When I first unboxed the shifter, it required the force of a small tank to move the stick into gear. However, after loosening the torsion



bolt, I was able to find the perfect sweet spot of force, mimicking the racecars I've driven in real life.

There's no denying that this is a lot of money to spend for a shifter, especially as you'll probably need to spend extra for the accessories. However, if money is no obstacle, the ability to shift from sequential to gated with just the push of a slider is a godsend, as is the ability to adjust the tension of the gears. If you're looking for the best shifter on the PC at this price range, look no further. **BENNETT RING** 🇨🇦

- Easy to change modes
- Adjustable torsion
- Feels solid

- Very pricey
- No accessories
- 7th hard to find

**VERDICT** Whether in sequential or gated mode, this is the best shifter in this price range for the PC.

# 9



## WHEEL HUB

# Fanatec Universal Hub

DIY steering wheel

PRICE \$329.95  
[www.fanatec.com/au-en](http://www.fanatec.com/au-en)

Fanatec has a bumper crop of rims available for its ClubSport Wheel Base, but what if you want to bring your own real-world rim to your simpit? That's exactly what the Universal Hub is designed for, allowing the use of rims from the likes of MOMO, SPARCO and OMP to function with the quick release latch of the Wheel Base. There's no denying it's a handy product, but it seems that Fanatec has gone too far with the pricing on what is a relatively simple bit of kit.

Opening the box reveals a bunch of components that look more like a Meccano kit than anything designed for sim drivers. The main hunk of metal is the quick release mount, with a metal face plate festooned in mounting holes, which is what makes it so widely compatible with real rims. Left and right shifter paddles bring gear shifting to your custom kit, while four extra arms each include three buttons. One final arm includes a rotating dial, perfect for dialling in your car's brake bias mid-race. All of these features are built on modular pieces of metal, so you don't need to make use of them all if you don't need to. A basic LED readout sits atop the quick release plate, which can be mounted flush with the mount or sitting upright.

Putting it together looks tricky but is actually a total breeze. Thanks to the modular design, I had no problems mounting it to the blank racing rim that Fanatec also sent me. If there's one concern, it's the rather flimsy plugs used to attach the electrical wire from each button arm to the main hub. They don't look like they'll withstand repeated disconnections, but if you're careful and pull from the plug rather than the wire attached to it, should be fine. Needle nosed pliers will help no end here, and there's no tension on the wires when the plugs are in place, so they won't fail over time.

As with most of Fanatec's products, the overall build quality is excellent, with everything machined from heavy duty metal, covered in a slick black anodised finish. The kit is compatible with both the PS3 and PC, but it's



a shame support for the latest generation of consoles isn't offered.

What's hard to understand is the price. Considering Fanatec's fully kitted out race wheels retail for around \$440, charging a whopping \$330 just for the buttons and electronics seems a little bit excessive. Add one of Fanatec's blank rims to the kit and you're looking at a whopping \$800 or so just for the wheel, and that doesn't include the base. I understand that simmers are prepared to spend a bit more to indulge in their hobby, but this does seem like a dollar too far.

If you don't mind spending so much to bring your own wheel rim to the Fanatec system, the clever design, rugged build quality and plenty of buttons makes this a great kit. But considering you can buy a fully fleshed out wheel for just \$100 more, we think Fanatec needs to reconsider the price. **BENNETT RING** 🇬🇧

- Built well
- Lots of buttons and features
- Works with most real rims

- So expensive
- Fiddly electronic plugs
- Doesn't include rim

**VERDICT** There's no denying this is a quality piece of simming kit, but the price is taking the mickey.

# 7



JOYSTICK

# Saitek X55 Rhino H.O.T.A.S. system

Dangerously good for Elite.

PRICE \$240

www.saitek.com

With the release of Elite: Dangerous, simmers are scouring the interwebs for the best controller for this detailed space sim. Mouse and keyboard controls might be functional, but they don't gel with our expectations for the controls used to manoeuvre a futuristic spacecraft – I'm pretty sure the kid in The Last Starfighter didn't use a mouse to dominate the bad guys. The game is built to be played with a H.O.T.A.S. system, which stands for Hands on Throttle and Stick. Basically this means every major control for the sim can be found on the joystick and throttle, and Saitek's X55 system looks like a perfect fit.

Opening the box reveals a separate throttle controller that plugs in independently of the joystick. There aren't any rudder pedals included at this price, instead using a rotating joystick to deliver rudder functionality. The joystick can be disconnected from its base, allowing the insertion of one of three different springs, each providing slightly more tension than the last. Both are mounted on absolutely huge bases, which could make centrally mounting the joystick on a simpit a bit of a hassle. Despite their size, the all-plastic construction means they're surprisingly light, and with no way to clip them to your gaming desk, you'll need some double sided tape to

ensure they don't slip and slide during those high-g dogfights.

As you can see from the screenshots, both are absolutely festooned in hat switches, buttons and rocker switches. Starting with the joystick there are three different hat switches, along with six buttons. Reaching some of these will require hands larger than mine, but it's a common issue I have with H.O.T.A.S. kits, the small price I pay for having dainty lady hands. Heading over to the throttle sees another three hat switches, along with a mouse-stick,

perfect for mapping to Elite's directional thrusters. Another four rotating switches will serve perfectly as trimming or radiator controls in flight sims, while the seven rocker switches help make this piece of kit look more expensive than it really is. A three

way mode selector on the base allows every button and slider to have three actions assigned to it: Elite players might use mode 1 for basic navigation, mode 2 for combat, and mode 3 for mining. Have fun programming that.

Like the joystick, the throttle's resistance can also be adjusted courtesy of a large knob on the side of the throttle base. However, even at its lightest setting I found the throttles required an extreme amount of force to move, causing the base to lift off my desk. This might ease up



## SAITEK COMBAT RUDDER PEDALS

If you're really serious about building a flying cockpit, a set of rudder pedals is an absolute must. Twisting the joystick to yaw your vehicle works ok, but it's definitely not as accurate as using a dedicated set of pedals. There's also the immersion factor to take into account; using your entire body to control your fighter or spacecraft feels so much cooler than just your arms. We tried to source some of Saitek's Combat Rudder Pedals to review, but a shortage at one of the suppliers meant they didn't make it in time. We've heard great things about them however, as we should considering they cost a rather hefty \$209 just for the pedals.



over time, as the interior components loosen up due to use, but players will find dialling in a precise amount of throttle tricky in the meantime.

Both the throttle and joystick are covered in that lovely rubberised paint, and they're extremely comfortable to hold. I especially like the hand rest built into the bottom of the joystick, saving my puny nerd biceps from having to hold my arm up for hours of a time, an issue I've encountered with other sticks. Moving the joystick feels relatively smooth, but making tiny adjustments isn't easy. The joystick feels "stuck" in the central position, requiring a bit more force to get it moving – once it's moving the force required drops off, making it rather tricky to make very small movements. There's also a video on the front page of Saitek showing that the lubrication in the joystick base needs topping up over time, but it's simply a case of adding a bit of petroleum jelly to the large ball at the base of the stick.

Heading into the Saitek software reveals one of the better programming interfaces I've seen. The user first selects which device they'd like to program, which is then represented with an on-screen virtual version. Activating any of the buttons or axis causes the software to highlight that control's programming field, making it very easy to figure out exactly which button is being programmed. I especially love the detailed calibration options for each axis, which will make setting up custom curves incredibly easy. It's a long way ahead of the Logitech software

I'm accustomed to using, and also illustrates the pinpoint accuracy of the Hall-effect sensors used within the X55.

If there's one feature that's missing, it's force feedback, but it seems that this immersion booster has gone the way of the Dodo. That's reason enough for me to never retire my beloved



G940 system, as the extra information provided by the shaking stick allows me to know exactly when my aircraft is on the edge of losing control,

something feedback-free controllers like the X55 lack. If Saitek reads this review, I implore them

**“A kickass little system for the price, offering a huge number of features.”**

to bring out a force feedback version of the X55 – it'd sell like hotcakes. Even in its current form it's a kickass little system for the price, offering a huge number of controls and features that simmers will put to good use, though the joystick's tendency to stick in the central position can make fine control a challenge. **BENNETT RING** 🇨🇦

- So many controls
- Very accurate axis reporting
- Good value

- No rudder pedals
- Heavy throttle
- Slightly sticky joystick

**VERDICT** Despite a couple of minor issues, the X55 delivers a well-rounded package for simmers, with more than enough controls for even the most complex simulators.

**8**



# Building the perfect Simulator PC.

**B**uilding a gaming PC is a relatively simple task these days. Pour plenty of cash into the GPU budget, maybe throw in an SSD or two, plunk in a mid-range CPU and you're good to go. The GPU is the focus due to the fact that most PC games now leverage this piece of hardware more heavily than any other component, but the same can't be said of simulators. These pieces of software have to deal with huge, open environments filled with complex AI entities, yet they don't tend to use as many of the fancy shader features as other genres. As a result, a simming PC has a different focus for its components compared to a gaming PC, as you'll see in our Simulator PC guide. Note that we've only listed the main components that affect simulator performance – you can choose your own case, PSU and peripherals.



**CPU:**  
**Intel i7-4790K with Alphacool NexXxoS Cool Answer 360 DDC/XT kit**

PRICE \$379 for CPU; \$299 for water cooling kit

■ The most important component in a simulator PC is easily the CPU. This shoulders most of the burden of the complex calculations that are necessary to build a



living, breathing world for the player to explore. As a result, the CPU is asked to do more draw calls than other game genres, which are the building blocks of the 3D environment (though the new Assassin's Creed also pummels CPUs in this regard). Sims also tend to have much meatier AI routines compared to other games, with more AI instances running simultaneously, and this too is handled by the CPU. Finally, the advanced physics modelling used to replicate the way a car feels on the track, or the way a jet bounces through turbulent air, is also passed off to the CPU. While games like Project Cars are finally going to be using GPU horsepower to crunch the physics numbers courtesy of PhysX, the vast majority of sims still task the CPU with this duty.

As a result, simmers need the fastest CPU possible, which is why we've gone with the i7-4790K. To really get the most out of this chip, we've paired it with a custom water cooling solution, as these are the best way to obtain a high overclock. Building your own water loop might cost a bit more than an off-the-shelf unit, but they're much more capable of removing the added heat that overclocking brings to a CPU. With a bit of luck, speeds of 4.6GHz to 4.8GHz should be possible with this chip and cooler combination, which is more than enough oomph to handle most simulators.





**MOTHERBOARD:**

## Gigabyte GA-Z97X-SOC

PRICE \$180

■ We'd normally suggest a gaming-focused motherboard for a gaming PC, but as we're chasing the fastest possible CPU frequency, we've selected an overclocking board for our simming beast instead. Gigabyte's GA-Z97X-SOC is a fantastic overclocker at a very reasonable price, ensuring you'll hit the top speed possible with the i7-4790K. It's also got a healthy number of USB ports, with eight onboard ports, plus the option for another six through internal USB headers, which simmers will fill in no time thanks to their love of peripherals. Thanks to Windows 8.1's annoying habit of reassigning controller IDs everytime they're reconnected, we highly recommend leaving all of your joysticks, pedals and wheels plugged in, otherwise you'll need to remap your controls every time you start your sim of choice, which is about as fun as programming a scientific calculator.



**MEMORY:**

## G.Skill Ripjaws X F3-2400C twin 4GB kit x 2

PRICE \$220

■ Another area of the PC that sims like to pummel is the memory subsystem, another by-product of their love of open spaces. Simmers will recognise the stuttering that sometimes happens when first entering the virtual world, or when entering a new area, as the hard drive streams textures for the environment into the RAM. This is why we've gone with two high-speed kits from G.Skill. Firstly, 16GB is more than enough memory for even the most demanding simulators. More importantly, it runs at 2400MHz, which should lessen the stuttering and hitching experienced when the simulator needs to load new assets into the game.



**HARD DRIVE:**

## Samsung 850 Pro 256GB

PRICE \$205

■ All of the information stored in the system's memory has to be served off the hard drive, which is why an SSD is a must-have for a simulator rig. While other gaming genres tend to only load assets off the hard drive at the start of a level, simulators often stream data continuously from the hard drive to the memory, once again due to the large virtual worlds they have to construct. We recommend Samsung's killer SSD, the 850 Pro, which is as reliable as it is speedy.



**GPU:**

## Gainward GeForce GTX 970 Phantom

PRICE \$429

■ It's possible to go for an even cheaper GPU in older sims, as they're bottlenecked entirely by the CPU, but there's good reason to go for a performance card like the GTX 970. Newer sims such as Assetto Corsa and Project Cars leverage the DirectX 11 features found on this graphics card, and it's also got the muscle necessary to enable downsampling. This brute-force approach to image quality removes any jaggies in the environment even if the game has poor support for anti-aliasing, and NVIDIA's products now make this easier than ever thanks to the DSR (Dynamic Super Resolution) option found in their control panel. Note that we've gone for the cheapest GTX 970 around, as there's no need for the higher performance offered by more expensive, overclocked variants. If you need to save some dollars, feel free to drop this component back to a GTX 760, as most sims older than a year or so will run beautifully with such a card, provided the CPU is up to the job.



# COMBAT FLIGHT SIMULATOR 2: WWII PACIFIC THEATRE

**F**or its time, CFS2 featured some ground-breaking graphics and model-work, complete with one of the first real physics-based flight models. Planes could be designed from original blueprints, rather than an assembled list of flight tolerances.

Combined with a great setting - the Pacific Theatre saw some of the most epic and ongoing dogfights of the war, and the most thorough use of aircraft carriers - and a detailed damage model, CFS2 really did have it all, including a campaign where you can play as either an American airman, or a Japanese pilot.

There wasn't a huge selection of aircraft, and no bombers or torpedo-bombers, but what was there was a lot of fun to fly, with every plane feeling remarkably different. And the planes were some of the most iconic, including the Corsair and infamous Japanese Zero, all meticulously detailed, complete with working flaps and folding wings, detailed battle damage, and more. The setting itself also offered up some amazingly varied missions.

DEVELOPER MICROSOFT  
PUBLISHER MICROSOFT  
YEAR RELEASED 2000  
METACRITIC SCORE N/A

“There wasn't a huge selection of aircraft, but what was there was a lot of fun to fly.”



**ALMOST BUT NOT QUITE** Many of the game's campaigns didn't feature actual historical engagements, but rather missions that suggested the real thing. You could fly in some standalone missions that were historical, but these were less than satisfying. You could also challenge the records of famous air aces, but these ended up cutting short the minute you beat a person's count.

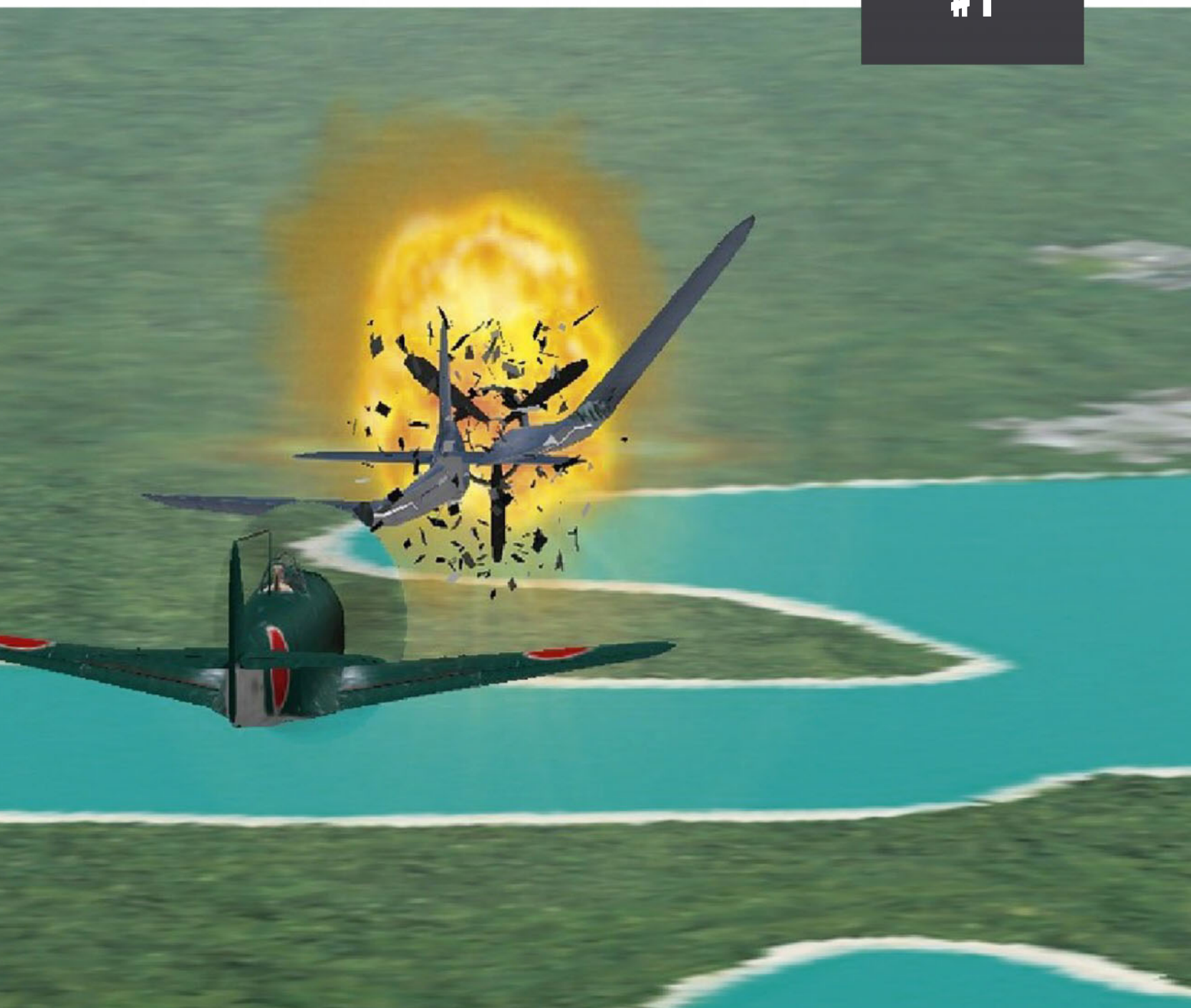
Not all that satisfying.





TOP TEN  
SIMULATORS

#1





NEXT MONTH

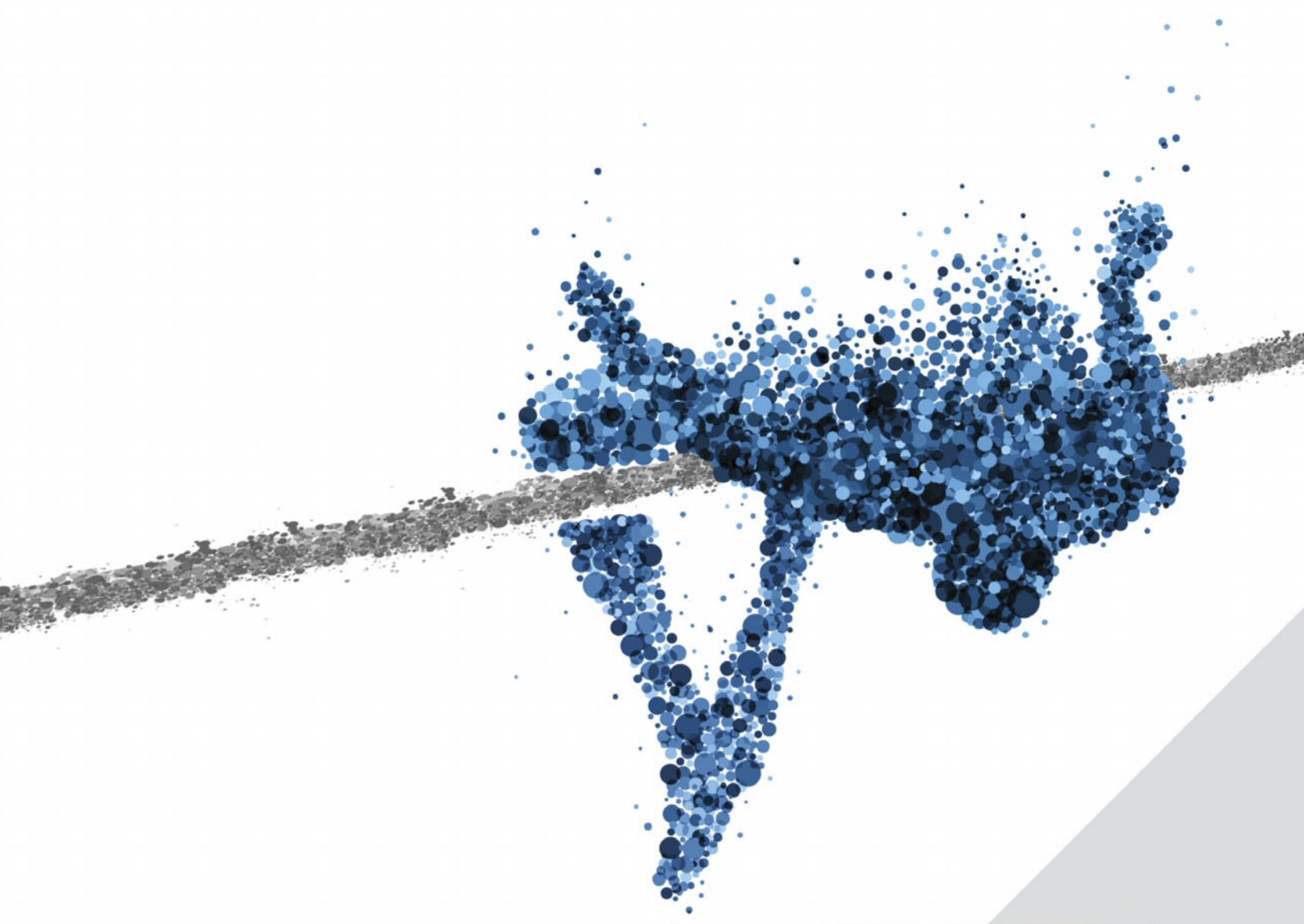
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