Flight Simulator hands-on: Microsoft looks different 20,000 feet in the air

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- This opening gallery includes screen captures provided by Microsoft. Based on our extensive hands-on time, we believe they're wholly reflective of real in-game performance.
- Volumetric cloud rendering, plus a detailed, algorithmically generated city below: that's the good *MSFS* stuff.
  Microsoft / Asobo
- No, it's not the "coffee shops" in Amsterdam having this effect. That's a double rainbow, as rendered by *MSFS*'s particle-lighting system.
  Microsoft / Asobo
- The way lighting bounces off of cockpits depending on the time of day is a treat to see when you're on a long-haul flight.
  Microsoft / Asobo
- Turn settings up to "ultra" for insane cockpit detail.
  Microsoft / Asobo
- Party up with friends to take off from the same runway.
  Microsoft / Asobo
- This looming storm over Baltimore benefits from a dense rain-modeling system.
  Microsoft / Asobo

- Asobo confirmed to Ars Technica that the game's reflection system will sometimes work in a "ray marching" capacity, which offers a much lower-fidelity version of ray tracing by retranslating voxels. Otherwise, the game uses a mix of screen-space reflections and cube maps to show reflections on more distant bodies of water.
  Microsoft / Asobo
- Piloting an Xcub over a blanket of fog.
  Microsoft / Asobo
- More volumetric clouds, more impressive rain systems.
  Microsoft / Asobo
- Just another day in Cambodia, flying a plane over the foresty outskirts of Angkor Wat.
  Microsoft / Asobo
- Water effects can sometimes look glitchy when your rate of movement forces a reinterpretation of a given series of waves. But when you fly over a larger body of water, the effect remains more consistent, and the mix of textures and 3D effects are some of the best we've seen in large-body water rendering yet.
  Microsoft / Asobo
- Florida storm.
  Microsoft / Asobo
- The snow isn't just for show; its mix of low temperature and high precipitation will require serious reactions from trained pilots.
  Microsoft / Asobo

Pilots, we thank you for choosing Ars Technica for your travel needs. *Microsoft Flight Simulator*'s closed beta is about to take off as a prelude to its retail launch in three weeks, so we're here to talk about a few things, preflight style. Consider this your incredibly long safety manual.

First, the developers at France's Asobo Studio, who have been building this new game since 2016, have a *ton* of news about

the game. We'll start by summing up upcoming features and third-party marketplace partners, along with the devs' perspective about what they've done since the game entered a closed alpha phase in February.

Second, we've been testing *MSFS*'s closed alpha for months, albeit with a ridiculous series of visual watermarks that has stopped us from leaking footage of every beautiful flight across the globe. That alpha build was quite similar to what I tested in August 2019, however, which meant I didn't have much to report until a fuller update that landed roughly two weeks ago.

This technically isn't a "review," since the content will see further refinements, fixes, and polishing passes ahead of its August 18 launch for Windows 10 PCs. Indeed, the launch is only the beginning. *MSFS* has been repeatedly described as a "ten-year" project, the kind whose content will grow and mature every step of the way. When pressed about the retail launch date, *MSFS* head Jorg Neumann said the following: "It's not a one-and-done product. It's a journey. But it's definitely a complete product."

Which is to say: In terms of content, structure, and graphics, the version of *MSFS* that's about to enter closed beta (and dominate your favorite flight-obsessed YouTube channels for the coming weeks) is pretty much what you can expect to go on sale in a few weeks, which gives us plenty to talk about in this feature-length hands-on.

And yet: Microsoft and Asobo have clearly left the development plan wide open, so the game today will likely vary quite a bit from what we might see in six months and beyond.

With all of that said: Buckle up, relax, and settle in.

Steam! TrackIR! And one more…

- A refresher on SKUs and prices: Standard for $59.99. Deluxe for $89.99. Premium for $119.99. The standard SKU comes as part of a paid Xbox Game Pass PC subscription, and those subscribers can pay to upgrade to the pricier versions as an a la carte purchase.
- The planes that come with each SKU. Compared to other popular flight simulator purchase options, each of these bundles is lower than most others.
  Microsoft / Asobo
- The pre-authored airports that come with each SKU.
  Microsoft / Asobo

If you're new to the 2020 version of *MSFS*, you can catch up on my September 2019 feature about the game. Short version: *MSFS* lets you realistically fly across our entire planet, complete with every known airport as a destination for takeoffs and landings, as supercharged by a constant connection to roughly 2 petabytes (2,000,000 GB) of Bing map data served on Azure Cloud Services. In a pinch, you can play the game offline and still enjoy a blurry-but-complete Earth in a pinch—or pre-download preferred flying destinations before going offline.

The version launching in August will land exclusively on Windows PCs, and while Microsoft has previously announced its intent to bring *MSFS* to Xbox consoles at a later date, that "later date" still hasn't been firmed up. Neither has any decision about exactly which Xbox consoles will work with the game.

Despite that lack of news, we've gotten some intriguing clarifications about PC ecosystem support that fans have been clamoring for:

Yes, *MSFS* will launch on Steam—and it won't face a delay. You

can pre-order every version of *MSFS* on Steam right now, and that version will unlock the same day as its Windows Store version (August 18).

Yes, if you pay for Xbox Game Pass, you will be able to buy an upgrade to the Deluxe or Premium versions of *MSFS*, since you'll already have access to the game's base version (which otherwise retails for $60).

Yes, *MSFS* will support TrackIR's motion-sensing system, and the TrackIR beta implementation went into the game's test version a few days before this article went live. (Previous statements suggested that TrackIR implementation would take longer, so we're happy to see it land in time for the closed beta period.)

VR in *MSFS* isn't virtual anymore

Finally, this feature deserves a drum roll… yes, *MSFS* will support virtual reality headsets. What's more, the VR toggle will be entirely free, with no additional purchase required.

We're surprised to see VR support announced ahead of other possible features, particularly Xbox console support, given that *MSFS*'s non-VR version is already so demanding on CPUs and GPUs. (Which I'll get to in a bit.) For now, Asobo has put the game's VR version into a somewhat nebulous "fall 2020" release window, and the news does come with one catch: at launch, this mode will only work with the upcoming HP Reverb G2 system.

When pressed, Neumann and the rest of the *MSFS* team declined to specify exactly what about their VR implementation might require a limit to a single PC-VR system, especially since every headset on the market relies on OpenVR calls for axis orientation. (Indeed, this is exactly why non-Oculus headsets can be tricked into loading Oculus-exclusive software.) The Reverb G2 also happens to borrow the engineering and design of the Valve Index's lens array. Thus, we're hopeful that the

game’s VR mode removes these device-limiting flags and supports other headsets shortly after its launch.

The team also wasn’t ready to clarify how hand-tracked controllers might work within the game’s VR version. “It’s an iterative process,” Asobo CCO David Dedeine said. “We’re trying to find something universal, that will work no matter what device you’re using. We have interesting prototypes using advanced controls, I will say. There are exciting things happening. I am already amazed at what the team has made, in order to improve interactions with the cockpit in VR. It’s different than interacting with a mouse. What we’ve already experienced is brilliant and will inform the current version of the game.”

If you’ve seen the game’s footage thus far, you may wonder how its detailed visuals and massive vistas will translate to the demands of VR—as in, two high-resolution displays (one for each eye) running at a 90Hz refresh rate. Asobo insists that the VR mode should target something close to the game’s “medium” graphics preset, which, in my experience, is quite high-res: sufficiently fluffy clouds, relatively dense landscapes. The team says this graphical fidelity boils down to things like efficient CPU rendering (“the way you compute the right eye, then move much of that to the left eye”) and expertise with the low-powered Hololens headset. “Hololens is a mobility device, and [our projects for that] forced us to ultimate optimization,” Dedeine said. “So our team is plug-and-play on this subject.”

Listing image by Microsoft / Asobo

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