OrthoStreamXP user guide

Version 1.1.0

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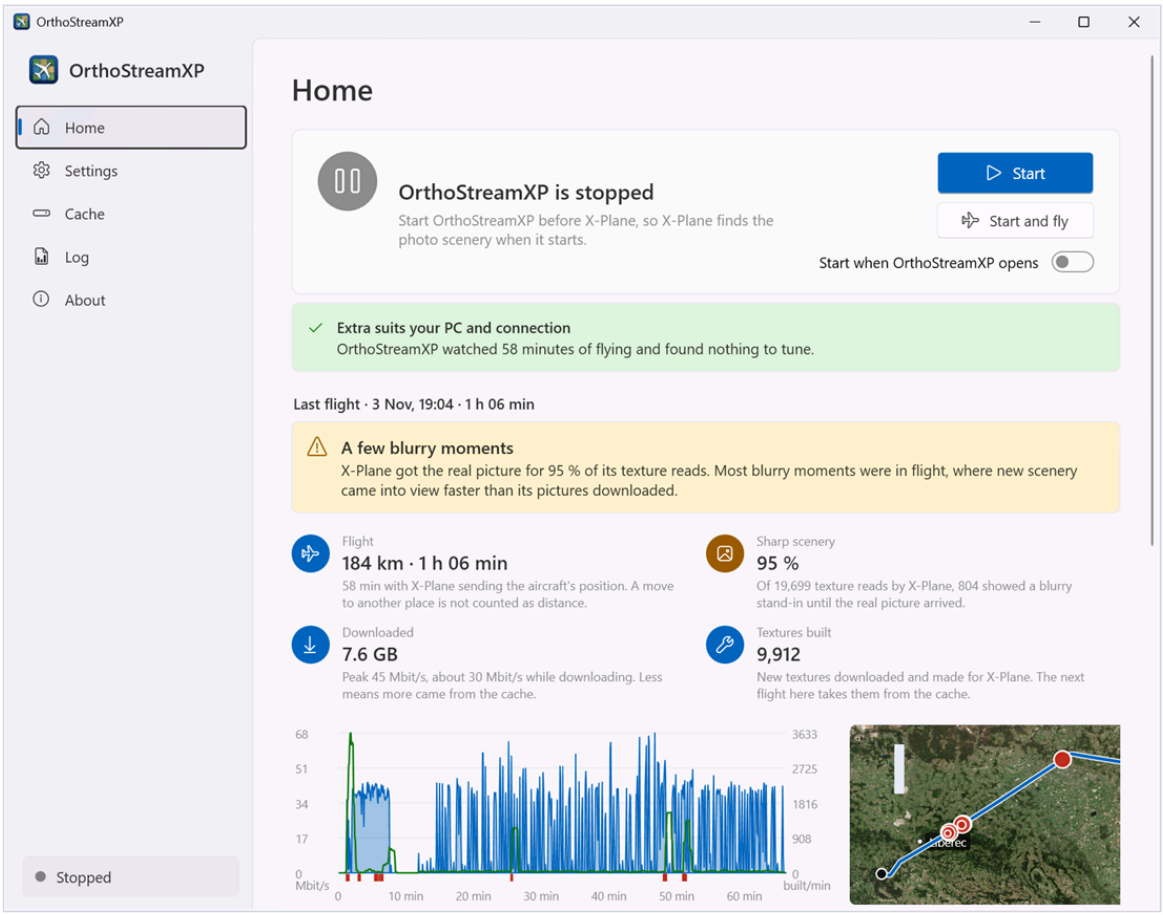
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OrthoStreamXP adds real-world aerial photos to your X-Plane 12 scenery while you fly. It downloads the pictures for the area around your aircraft, turns them into X-Plane textures, and keeps them on your disk for your next flight.



The OrthoStreamXP window after a flight

The short version

1. Install WinFsp, then OrthoStreamXP, then restart your computer.
2. Open OrthoStreamXP and finish the setup: X-Plane folder, scenery packages (download a region there, or choose the folder of your own), cache folder, quality.
3. Every time you fly, click **Start and fly** in OrthoStreamXP. It starts the scenery first and then X-Plane.
4. Load a flight. A new area takes a few minutes the first time; after that it comes from the cache.

> **Remember:** start OrthoStreamXP **before** X-Plane. X-Plane looks for scenery only when it starts.

Installation

What you need

- **Windows 10 or 11 (64-bit).**
- **X-Plane 12.**
- **Scenery packages** for the regions you fly: the terrain (the mesh) that OrthoStreamXP adds the photos to. Two ways to get them:

    1. **Download a region in OrthoStreamXP**, during the setup or later on the **Packages** page (Europe, North America…). Nothing to prepare beforehand; see Packages.

    2. **Use your own.** Packages made by Ortho4XP, OrthoStudio XP, AutoOrtho or XPME work. Each package is a folder that contains an `Earth nav data` folder. Put all of them in **one parent folder**, for example:

        ```
        D:\OrthoPackages\
            Europe\
                Earth nav data\
                terrain\
                ...
            Asia\
                Earth nav data\
                ...
        ```

        In this example you have to specify the "OrthoPackages" folder as a Scenery packages folder in the application. Keep in mind the "OrthoPackages" here is just for example it can be whatever folder you have. Don't put your scenery packages to the "X-Plane 12/Custom Scenery" - it has to be out of it somewhere on you PC

- **WinFsp**, a free Windows driver that OrthoStreamXP uses to show the scenery to X-Plane.
- **An internet connection** for areas you have not flown yet.
- **Disk space for the cache.** Each new 1° × 1° area you fly can take up to about 2 GB at Balanced, 8 GB at Sharp and 30 GB at Ultra or Extra. 25 GB is a reasonable minimum; a fast SSD is best.
- **A graphics card** with enough memory for the quality you choose (see Settings › Quality).

1. Install WinFsp

Download the latest WinFsp installer from winfsp.dev/rel and run it with the default options.

If you skip this step, the first setup shows a **Get WinFsp** button. Install WinFsp, restart your computer, then open OrthoStreamXP again.

2. Install OrthoStreamXP

1. Download `OrthoStreamXP-Setup.msi` from the Releases page.
2. Run it. The installer also installs the .NET 10 desktop runtime if your PC does not have it yet.

Windows SmartScreen warning

The installer is not code-signed yet, so Windows may say it does not recognise the publisher. If you downloaded the file from the official Releases page, click **More info**, then **Run anyway**.

3. Restart your computer

Restart Windows after installing WinFsp and OrthoStreamXP. WinFsp's driver is ready only after a restart: until then OrthoStreamXP can fail to start the scenery, even though WinFsp shows as installed.

4. Open OrthoStreamXP

Start OrthoStreamXP from the Start menu. The first time, it opens the first setup.

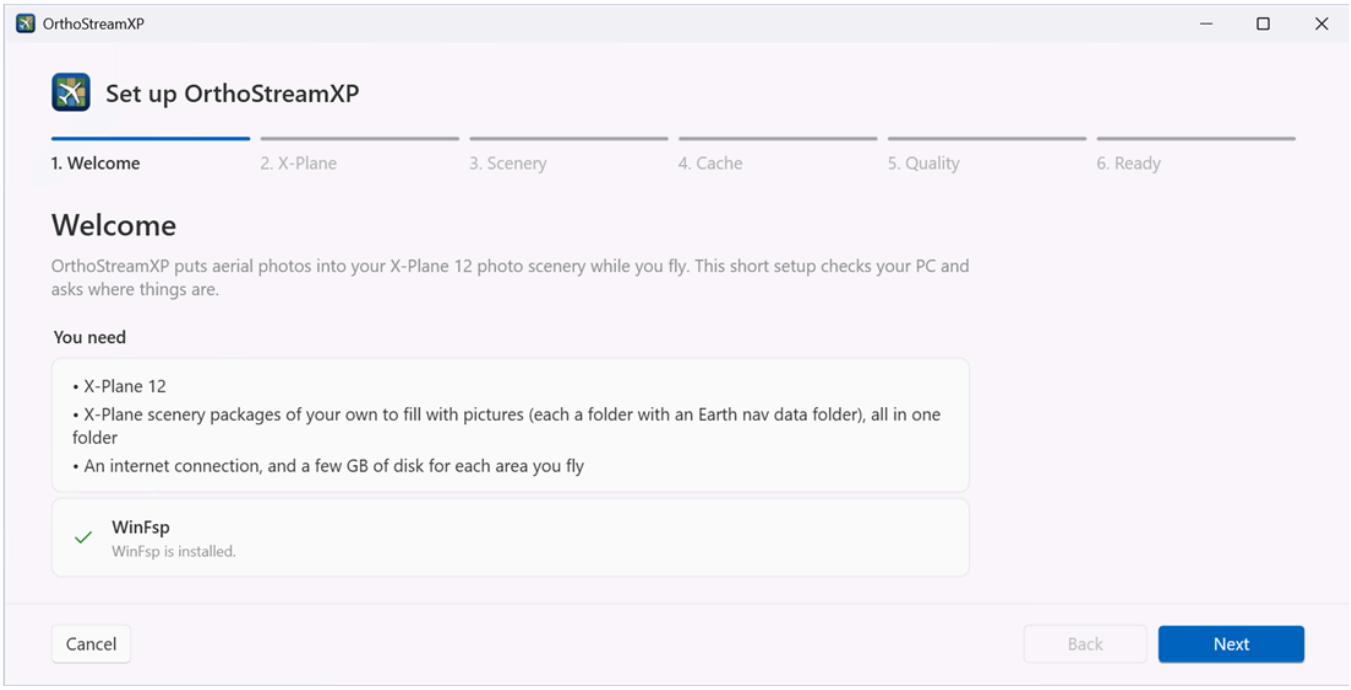
Next: First setup

First setup

The setup opens the first time you start OrthoStreamXP. It has six steps and takes a minute or two. Use **Next** and **Back** to move between the steps; nothing is saved until you click **Finish**.

You can run it again later from **Settings › Run the setup again**. A second run starts from your current settings, and **Cancel** leaves them unchanged.

1. Welcome

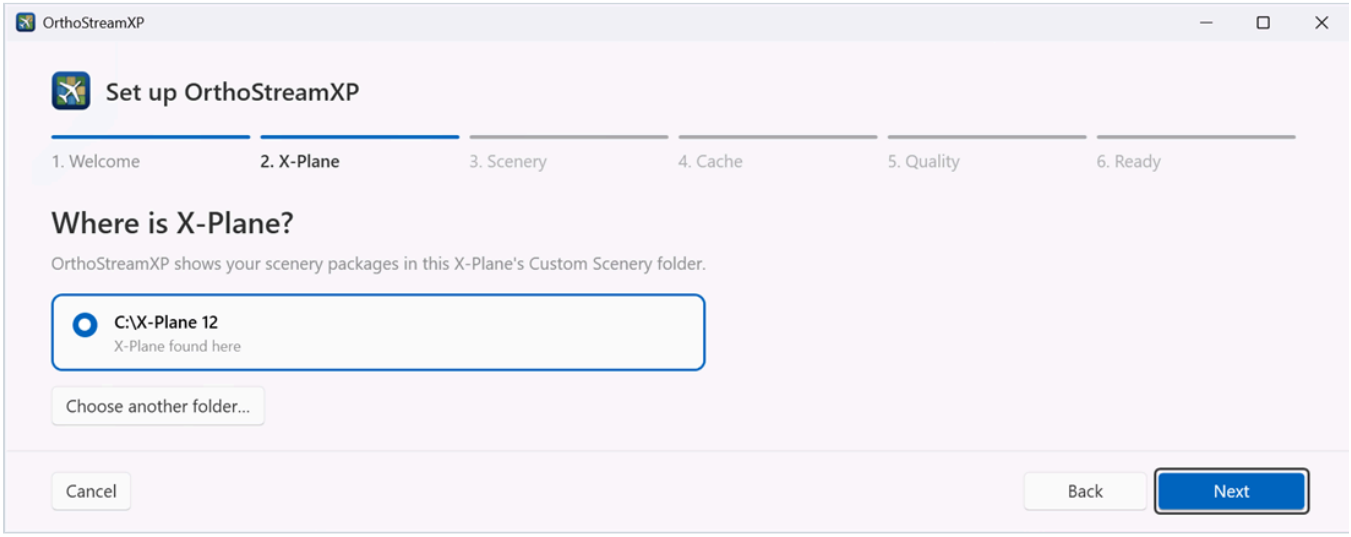


Setup step 1: Welcome

This step lists what you need and checks for WinFsp.

- A green tick with **WinFsp is installed** means you can continue.
- If WinFsp is missing, click **Get WinFsp** and install it. Then restart your computer and open OrthoStreamXP again: WinFsp works only after a restart.

2. X-Plane



Setup step 2: X-Plane

OrthoStreamXP looks for X-Plane 12 on your PC and offers every installation it finds. Pick the one you fly with.

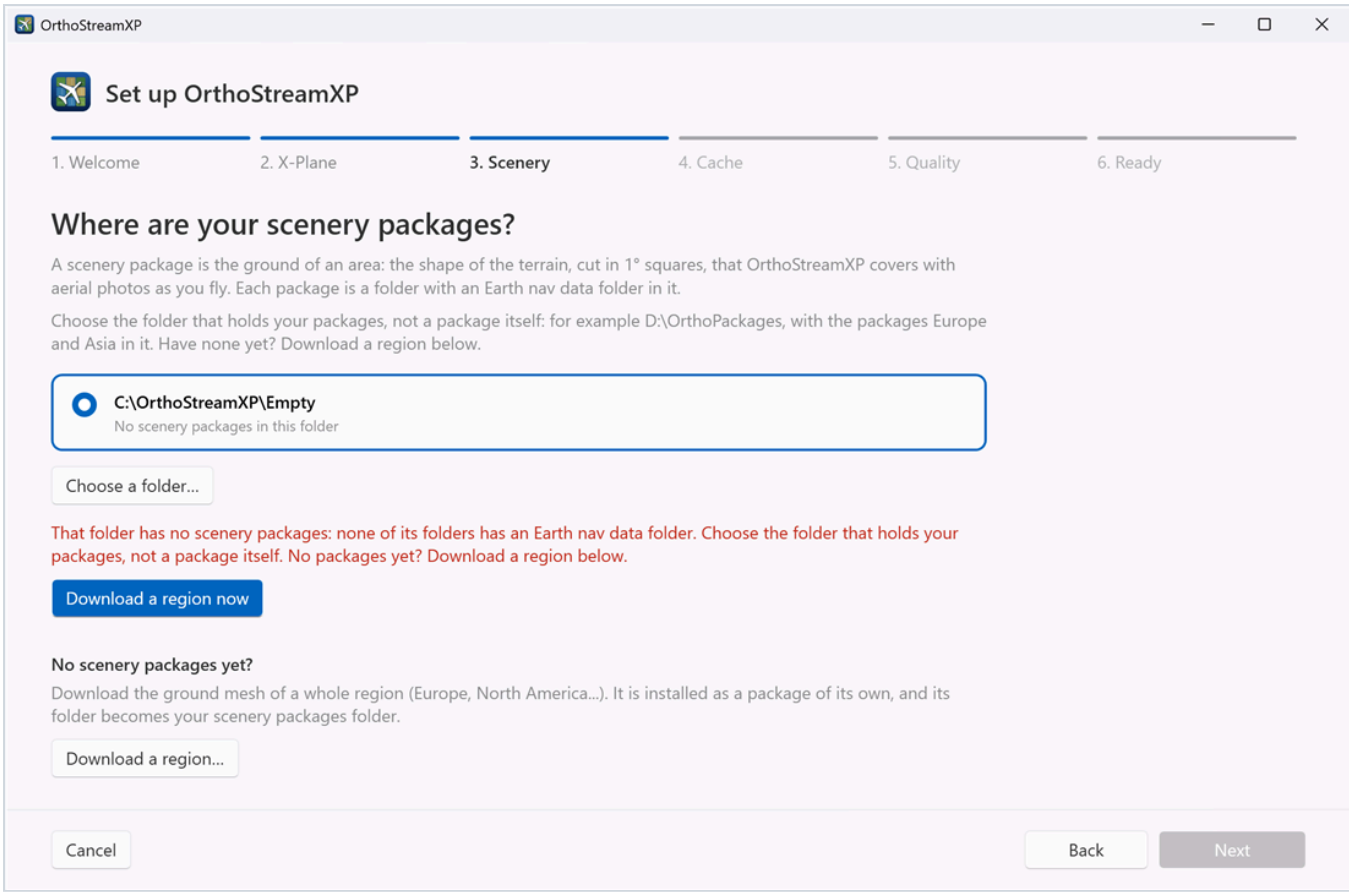
If yours is not listed, click **Choose another folder...** and choose the folder that contains `X-Plane.exe`. That folder must also have a `Custom Scenery` folder.

3. Scenery

OrthoStreamXP adds the photos to **scenery packages**: the ground of an area, the shape of the terrain cut in 1° squares. There are two ways to get them.

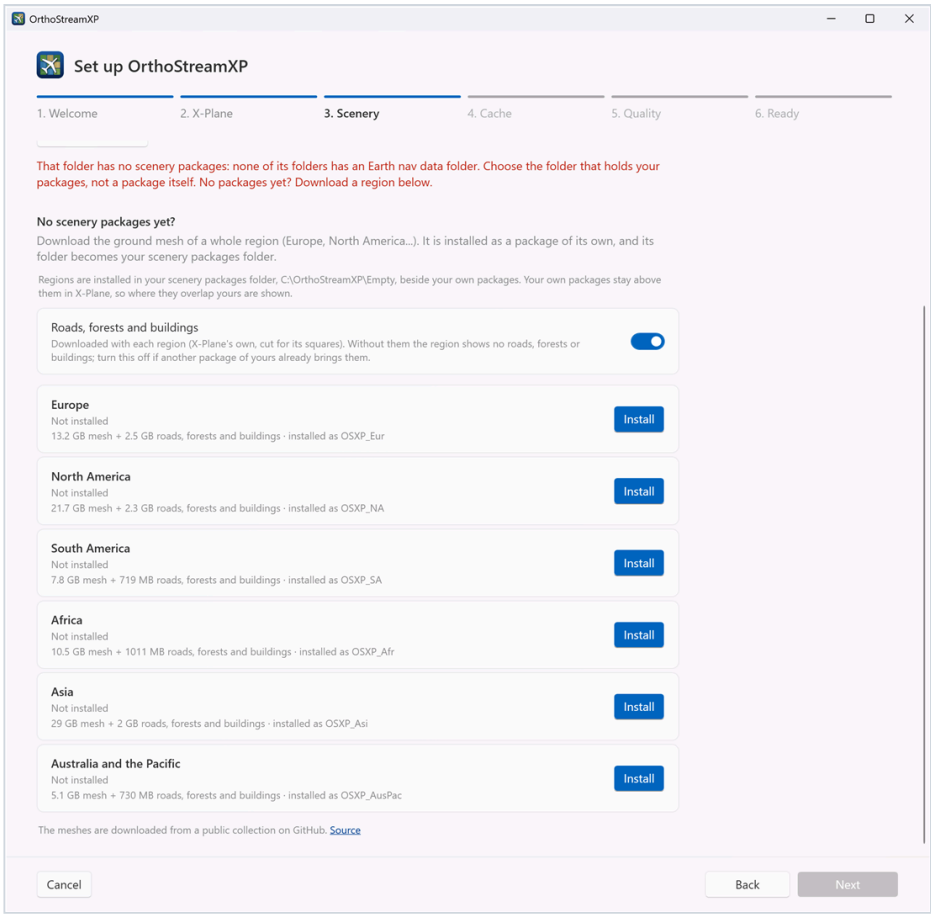
Option 1: download a region in OrthoStreamXP

The simplest way, if you have no scenery packages yet. Under **No scenery packages yet?**, click **Download a region...**. If you already chose a folder without packages, the hint turns red and **Download a region now** opens the same list.



Setup step 3: a folder without scenery packages

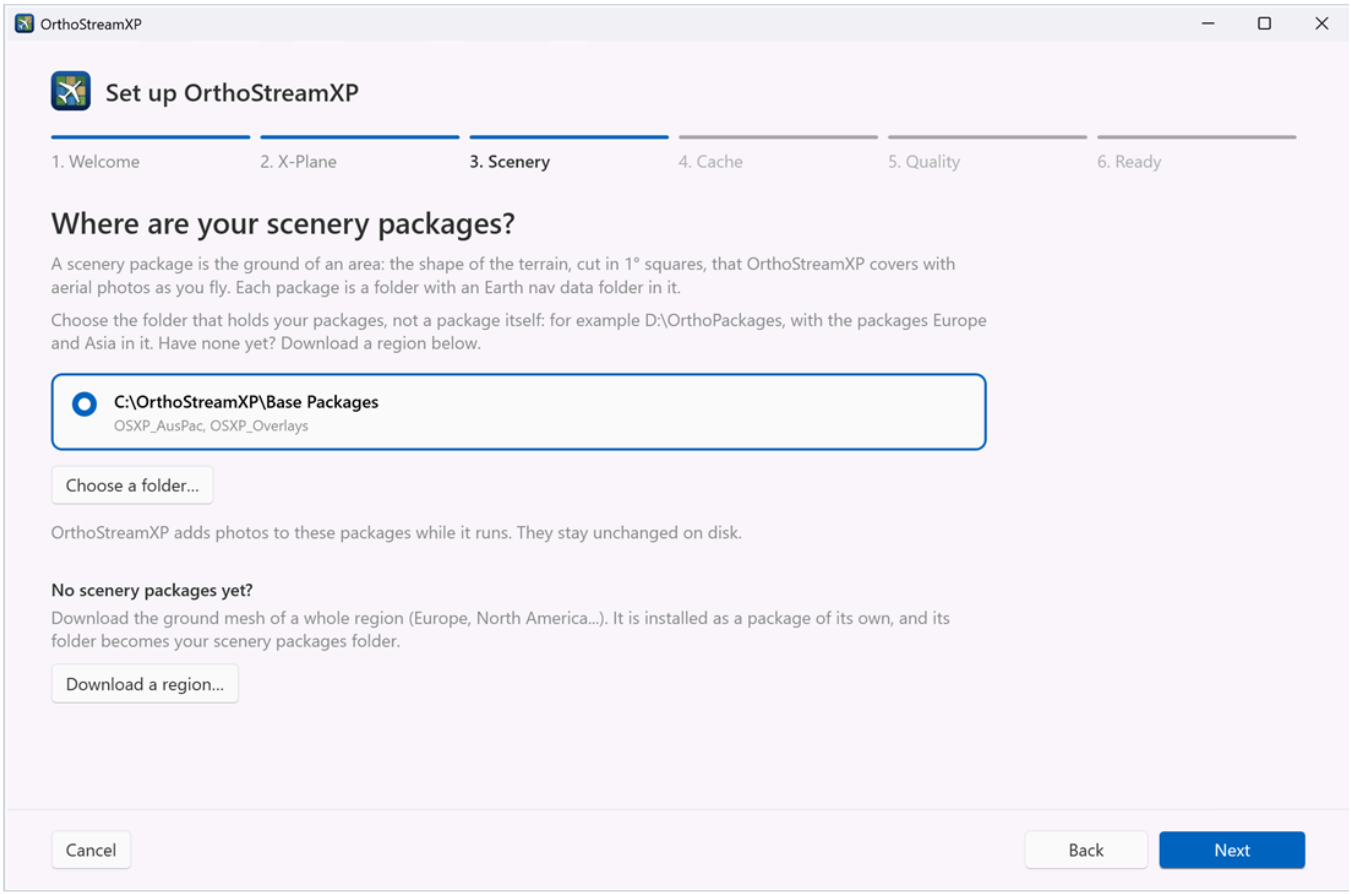
The list of regions opens: click **Install** next to the region you fly in. The progress shows under it, and you can stop and resume the download. When it finishes, the region's folder is chosen as your scenery packages folder and **Next** becomes available.



Setup step 3: the regions to download

See Packages for the sizes, the roads, forests and buildings, and how to update or delete a region later. You can download more regions at any time on the **Packages** page.

Option 2: use your own scenery packages



Setup step 3: Scenery packages

Click **Choose a folder...** and pick the **parent folder** (in the example below it's "OrthoPackages") that holds your scenery packages, not one of the packages (not "Europe" or "Asia"). Below the folder, OrthoStreamXP lists the packages it found.

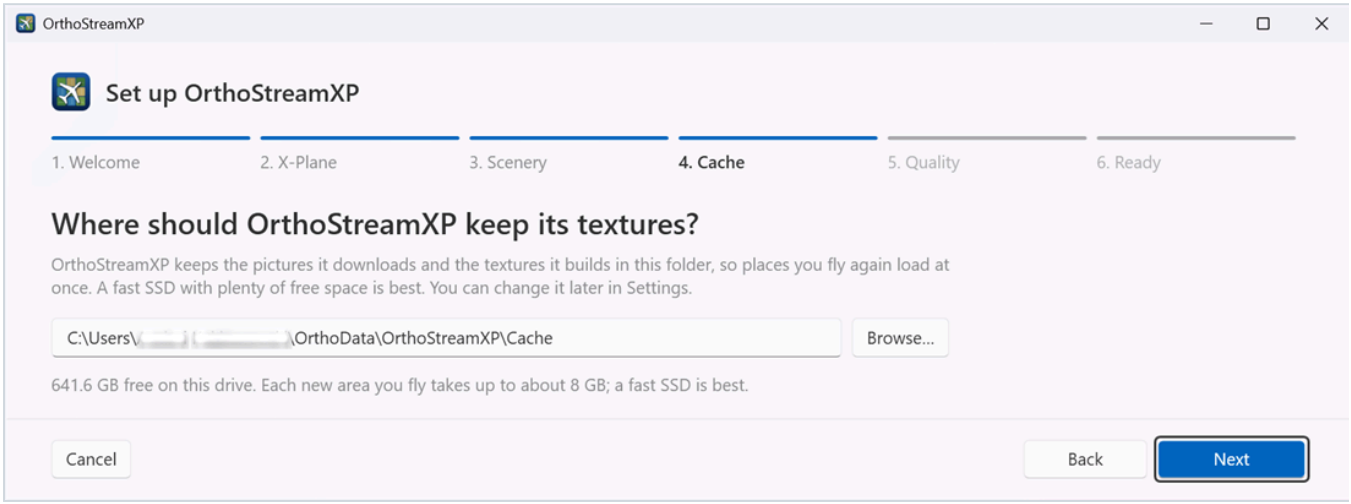
In this example you have to specify the "OrthoPackages" folder as a Scenery packages folder in the application. Keep in mind the "OrthoPackages" here is just for example it can be whatever folder you have. Don't put your scenery packages to the "X-Plane 12/Custom Scenery" - it has to be out of it somewhere on you PC

```
D:\OrthoPackages\
    Europe\
        Earth nav data\
        terrain\
        ...
    Asia\
        Earth nav data\
        ...
```

- Keep packages from different tools (Ortho4XP, OrthoStudio XP...) in separate folders, and keep them apart from regions downloaded in OrthoStreamXP: see Packages › One folder per source.
- Your packages stay unchanged on disk. While OrthoStreamXP runs, they appear in X-Plane's `Custom Scenery` folder with the photos added. When it stops, they disappear from there again.

- If the hint turns red, *That folder has no scenery packages*, you probably picked one package instead of the folder that holds them: check that each package has an `Earth nav data` folder inside it.
- If X-Plane's `Custom Scenery` already contains a folder with the same name as one of your packages, you get a warning. Usually another streaming tool still shows that package there; close that tool before you start OrthoStreamXP and check your scenery_packs.ini file.

4. Cache

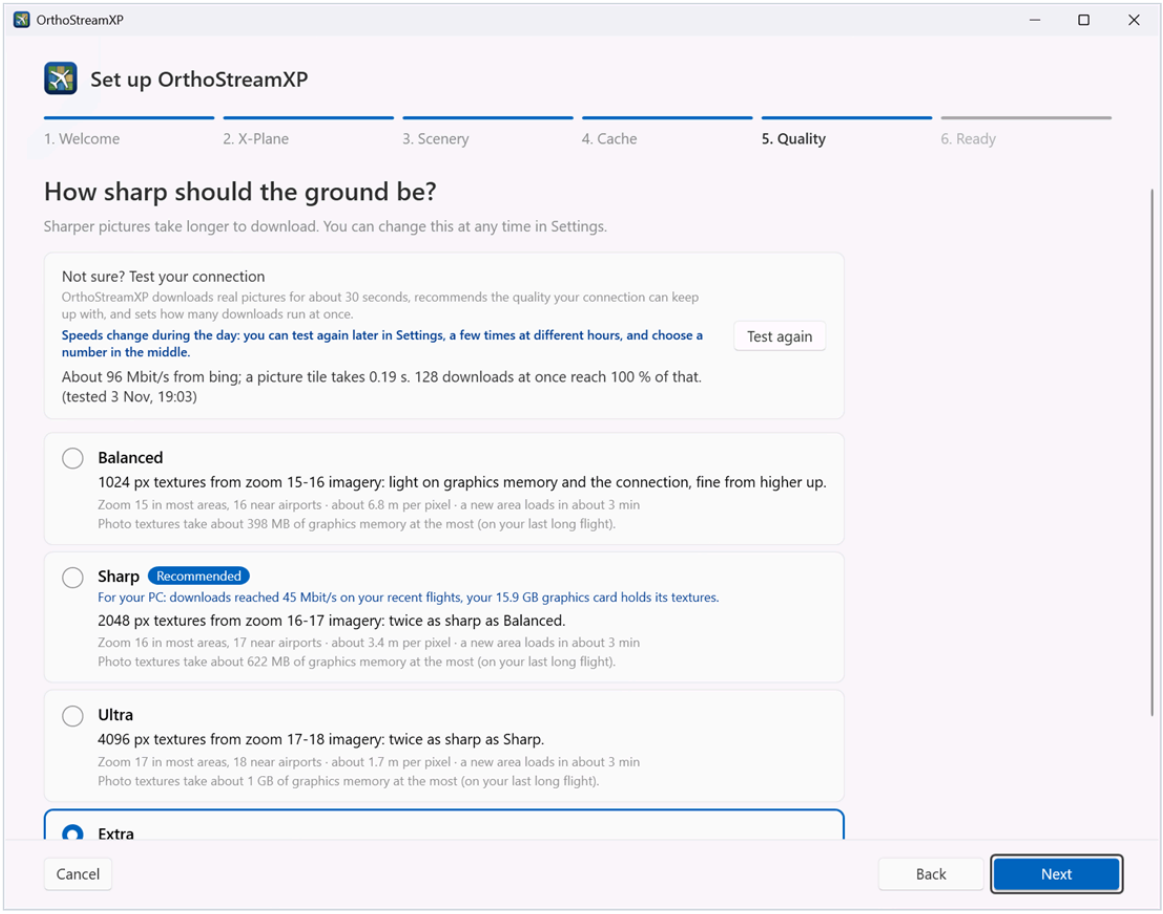


Setup step 4: Cache folder

This is where OrthoStreamXP keeps the pictures it downloads and the textures it builds, so areas you fly again load at once.

- Click **Browse...** or type a full path, such as `D:\OrthoStreamXP\Cache`.
- Choose a folder on a fast SSD with plenty of free space. The page shows how much space is free on that drive. Each new 1° × 1° area takes up to about 2 GB at Balanced, 8 GB at Sharp and 30 GB at Ultra or Extra.
- You can change the folder or set a size limit later on the Cache page.

5. Quality



Setup step 5: Quality

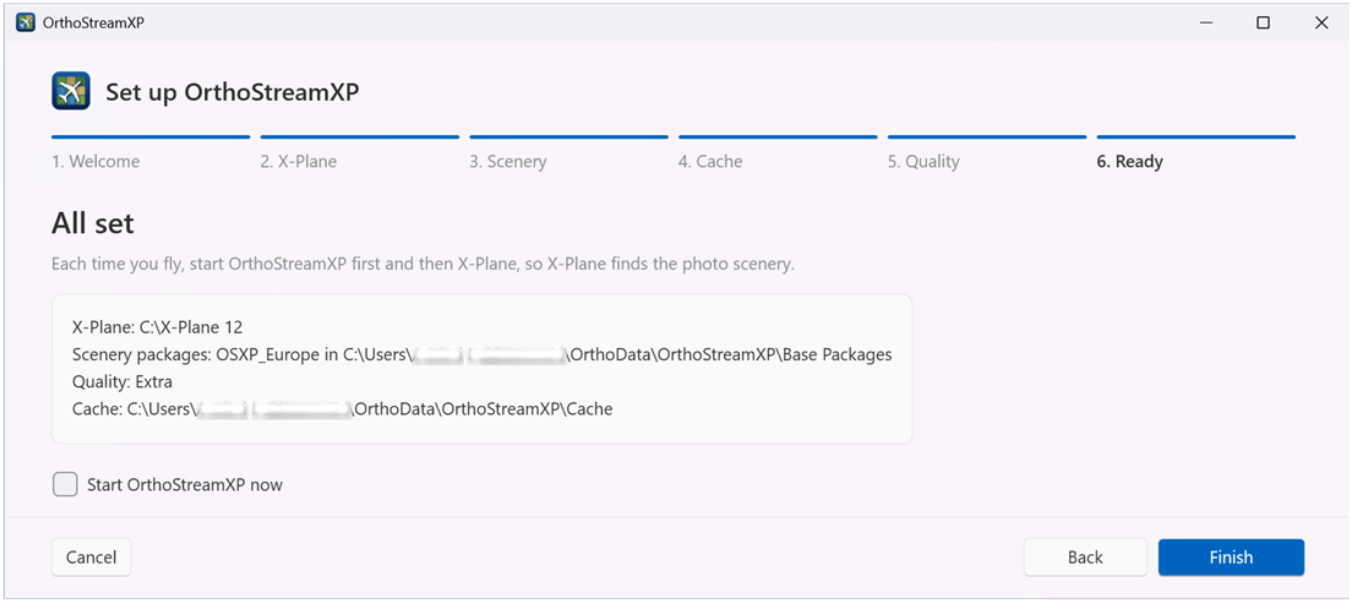
Pick how sharp the ground should be: **Balanced**, **Sharp**, **Ultra** or **Extra**. Each card shows the texture size, the imagery zoom level, the metres per pixel, and roughly how long a new area takes to load. See Settings › Quality for a comparison.

Not sure? Click **Test my connection** (it says **Test again** if you have tested before). OrthoStreamXP downloads real pictures for about 30 seconds, then:

- marks the quality your connection can keep up with as **Recommended**, and selects it for you;
- sets how many downloads run at once.

Internet speed changes during the day, so you can repeat the test later in Settings › Pictures and download.

6. Ready



Setup step 6: Ready

This step summarises your choices: the X-Plane folder, the scenery packages, the quality and the cache folder. Tick **Start OrthoStreamXP now** if you want to fly straight away, then click **Finish**.

Next: Flying

Flying

The start order

X-Plane looks for scenery only when it starts, so **OrthoStreamXP must be running before X-Plane starts**.

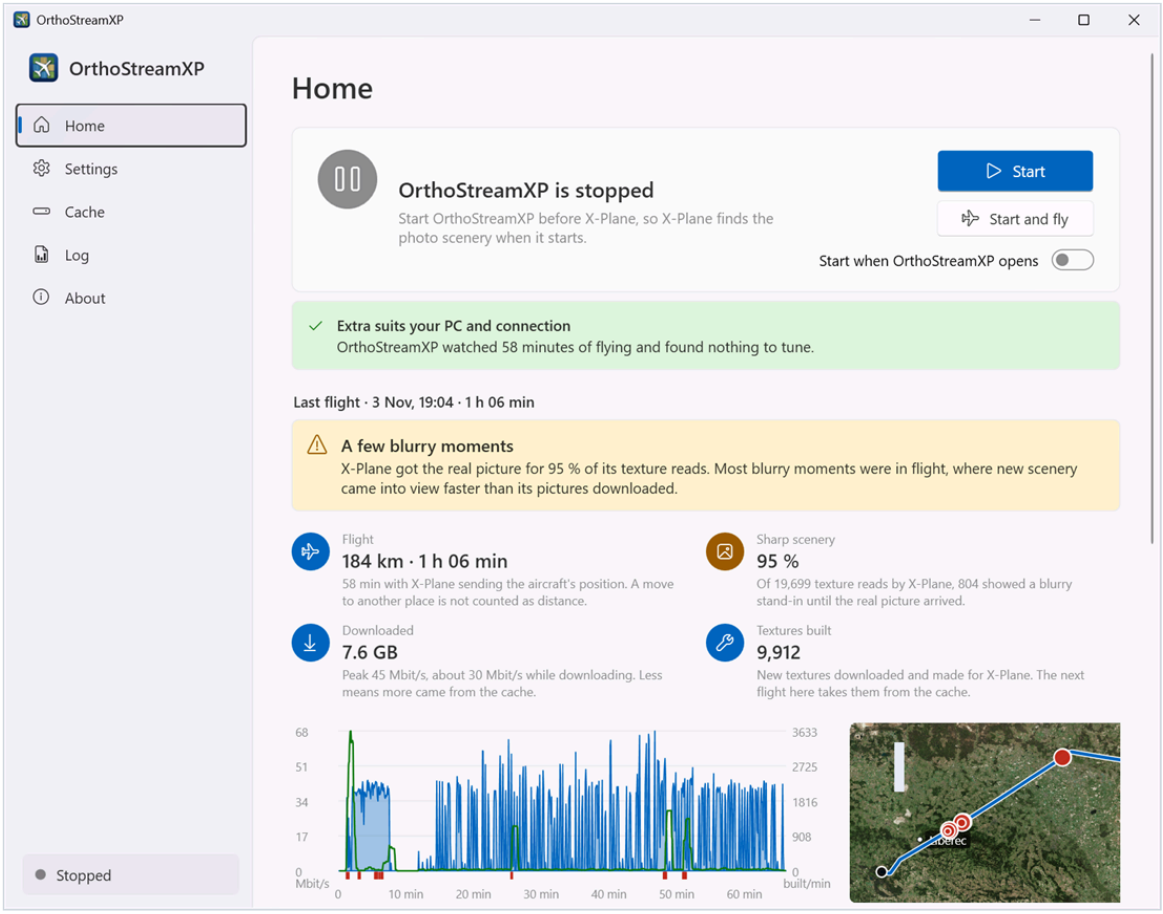
The Home page has two ways to start:

Button	What it does
Start and fly	Starts OrthoStreamXP, waits until the scenery is ready, then starts X-Plane for you. This is the easiest option. While OrthoStreamXP runs, the button reads **Start X-Plane**.
Start	Starts only OrthoStreamXP. Start X-Plane yourself afterwards.

Turn on **Start when OrthoStreamXP opens** if you want the scenery to start every time you open the app.

If X-Plane was already running when you started OrthoStreamXP, Home shows **Restart X-Plane**. Quit X-Plane and start it again to see the photos.

The Home page



The Home page

Before your first start, Home shows **How it works**: start OrthoStreamXP, start X-Plane, fly.

From top to bottom:

- **Status card.** Shows whether OrthoStreamXP is stopped, starting, ready (*Photo scenery is ready*) or in use (*Flying with photo scenery*). The **Start** button becomes **Stop** while it runs. The dot at the bottom of the sidebar shows the same state on every page.
- **Notices.** Tuning suggestions, updates and problems appear here, each with a button for the next step.
- **Last flight.** A report on your most recent flight, shown while OrthoStreamXP is stopped (see below).
- **Session figures** (*This session* while it runs, *Last session* after it stops): how many textures X-Plane got, how many of its reads got the real picture, how many textures are being built now, and the download speed or the number of picture tiles downloaded.
- **X-Plane.** *Waiting for X-Plane* until X-Plane sends the aircraft position, then *Connected* with the aircraft's position and speed. *Paused or in the menu* means X-Plane has stopped sending it for now. There is nothing to set up in X-Plane: OrthoStreamXP finds it on the same PC by itself.
- **Quality.** Your current preset, with a **Change quality** link.
- **Scenery packages.** The packages shown in X-Plane while OrthoStreamXP runs.

During the flight

- **Load your flight as usual.** OrthoStreamXP builds the textures X-Plane asks for, and follows your aircraft to build the scenery ahead of it.

- **A new area takes a few minutes the first time.** Until its pictures arrive, X-Plane briefly shows a blurrier version of the ground. The next time you fly there, the area comes straight from the cache.
- **Sharper presets take longer.** The quality cards in Settings show roughly how long a new area takes to load.
- **Stopping.** When you finish flying, quit X-Plane first, then click **Stop** in OrthoStreamXP. OrthoStreamXP finishes the textures it is building and removes the photo scenery from X-Plane. If you close the window while OrthoStreamXP runs, it asks first, because X-Plane would lose the photo scenery.

After the flight: the flight report

When OrthoStreamXP stops, Home shows a report of the flight. It starts with a verdict:

- **Smooth flight:** the scenery was sharp, or nearly so.
- **A few blurry moments** or **Often blurry**, with when they happened. Blurry moments at the start come from X-Plane loading the area and clear as soon as the pictures arrive. Blurry moments in flight mean new scenery came into view faster than its pictures downloaded; if that happens often in one place, a lower quality or the tuning suggestions may help.

Then the figures:

- **Flight:** distance and duration. Only the time X-Plane sent the aircraft's position counts, and moving the aircraft to another place is not counted as distance.
- **Sharp scenery:** the share of X-Plane's texture reads that got the real picture straight away. Lower values mean more blurry moments.
- **Downloaded:** data downloaded and the peak speed. Less data means more came from the cache.
- **Textures built:** new textures made for X-Plane during this flight.
- **A chart** of download speed and textures built over time, with blurry moments marked in red.
- **A map** of your route, with the places where the scenery was blurry.

Tuning suggestions

After a flight of **10 minutes or more**, OrthoStreamXP checks how the scenery kept up on your PC and connection.

- If your preset suits your setup, Home says so, for example *Extra suits your PC and connection*.
- If changes would help, Home shows **Tuning for from your last flight**. It lists each suggested change and why it would help. Click **Apply** to accept the changes or **No, thanks** to ignore them. Nothing changes without your OK.
- After a shorter flight, Home shows *Fly a little longer for tuning*.

You can undo the tuning at any time in Settings › Tuning.

Next: Settings

Settings

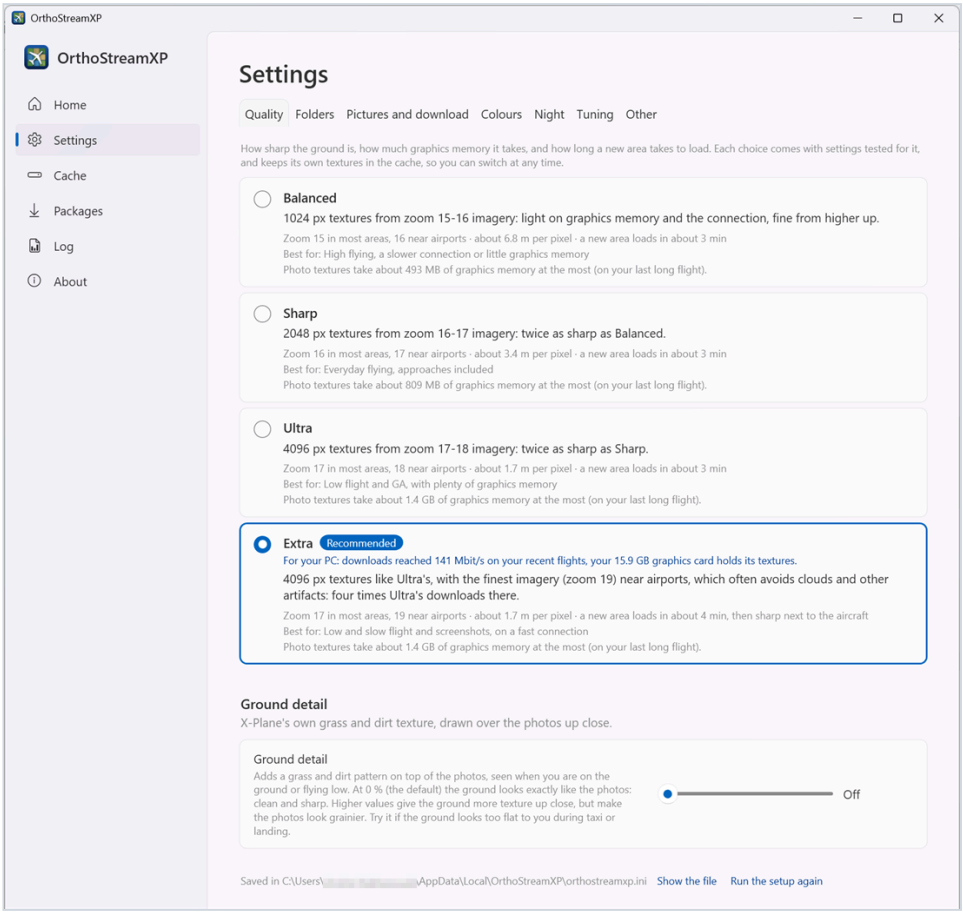
The Settings page has seven tabs. Changes are saved straight away, and a short **Saved** note confirms each one.

Settings can be changed only while OrthoStreamXP is stopped. While the scenery is streaming, the page shows the settings in use but you cannot edit them: a banner says *Streaming is running. Stop it to change settings.* Click **Stop streaming** in the banner to stop it. Changes apply from the next start.

At the bottom of every tab:

- **Show the file** shows the settings file (`%LOCALAPPDATA%\OrthoStreamXP\orthostreamxp.ini`) in Explorer.
- **Run the setup again** reopens the first setup.

Quality



Settings: Quality

Choose how sharp the ground is. Each preset comes with settings tested for it and keeps its own textures in the cache, so you can switch at any time without losing anything.

Preset	Textures	Imagery zoom	Resolution	Best for
Balanced	1024 px	15, 16 near airports	~6.8 m per pixel	High flying, a slower connection or little graphics memory
Sharp	2048 px	16, 17 near airports	~3.4 m per pixel	Everyday flying, approaches included
Ultra	4096 px	17, 18 near airports	~1.7 m per pixel	Low flight and GA, with plenty of graphics memory
Extra	4096 px	17, 19 near airports	~1.7 m per pixel	Low and slow flight and screenshots, on a fast connection

Extra is Ultra with the finest imagery (zoom 19) near airports, which often avoids clouds and other artefacts. Elsewhere it is the same as Ultra. Near airports it downloads four times as much as Ultra, and a new area takes a little longer to load: about 4 minutes, then sharp next to the aircraft.

Each card shows the imagery zoom, the metres per pixel, roughly how long a new area takes to load, and how much graphics memory the photo textures take. Until you have flown, that memory figure comes from a test flight; after your first long flight, it is measured on your PC.

- The **Recommended** badge marks the preset that suits your connection and graphics card, with the reason below it.
- If a preset's photo textures plus X-Plane's own needs (about 5 GB) would be more than your graphics card has, its card shows a warning. X-Plane may then stutter or lower its texture detail; a smaller preset is safer.

Ground detail

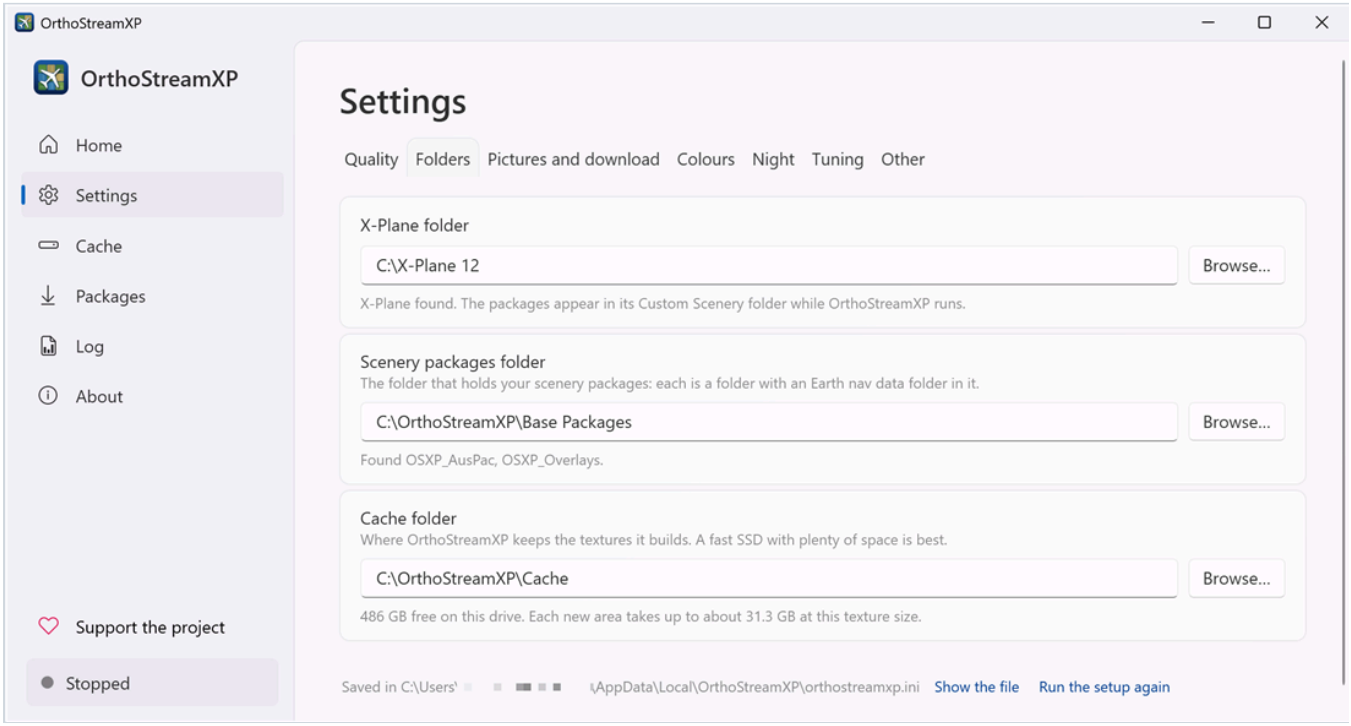
Up close, X-Plane can sprinkle its own procedural grass, shrubs and dirt over the ground. This helps X-Plane's blurry default textures, but on sharp aerial photos it looks like noise: dark speckles and pale stony patches that the real imagery does not have. The photo scenery packages ask for it in every photo tile, so you see it with any scenery packages.

The **Ground detail** slider sets how strong this effect is:

- **Off** (0 %, the default): the photos are shown as they are.
- **10–90 %**: a lighter version of X-Plane's effect, for some extra texture when you are low.
- **100 %**: X-Plane's full effect, as the packages define it.

Your scenery packages are not changed: OrthoStreamXP adjusts the terrain files as X-Plane reads them. The in-between strengths are made from X-Plane's own decal files, so they need the **X-Plane folder** to be set. Like every setting, a change applies from the next start.

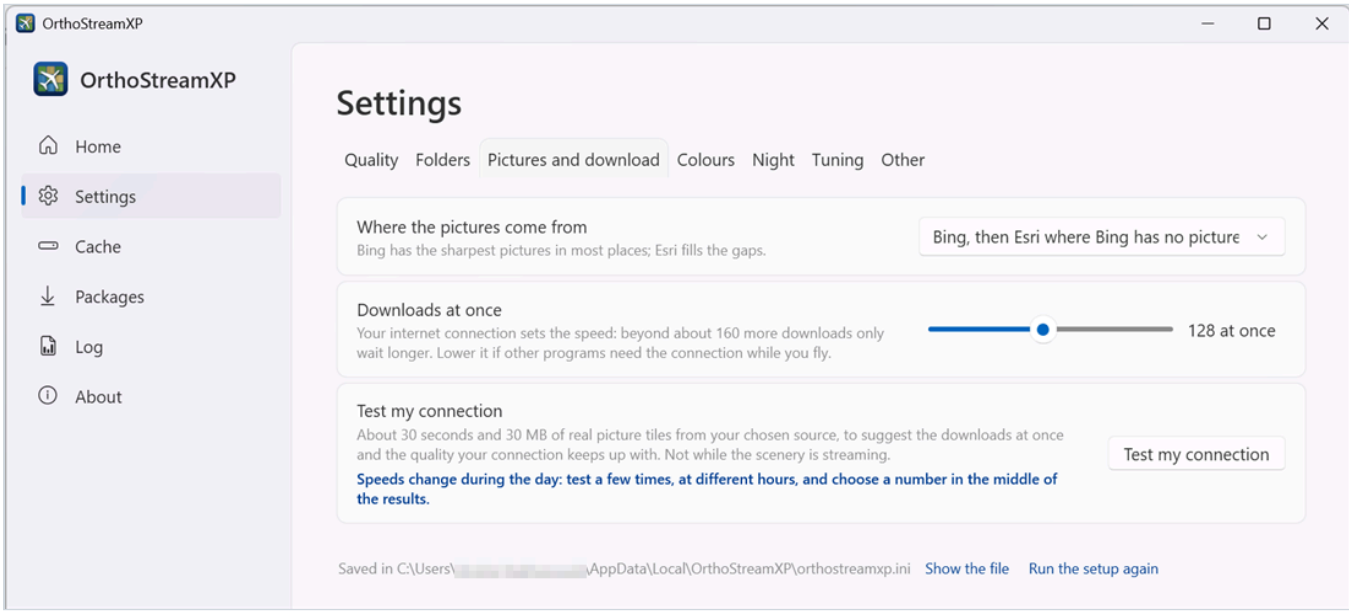
Folders



Settings: Folders

- **X-Plane folder:** the X-Plane installation where the packages appear (in its `Custom Scenery` folder).
- **Scenery packages folder:** the parent folder of your packages. The line below it lists the packages found. Keep the packages of each source (regions downloaded in OrthoStreamXP, Ortho4XP, OrthoStudio XP…) in a folder of their own, and choose here the one you fly with: see Packages › One folder per source.
- **Cache folder:** where the textures are kept. The line below it shows the free space and how much a new area takes at the current texture size.

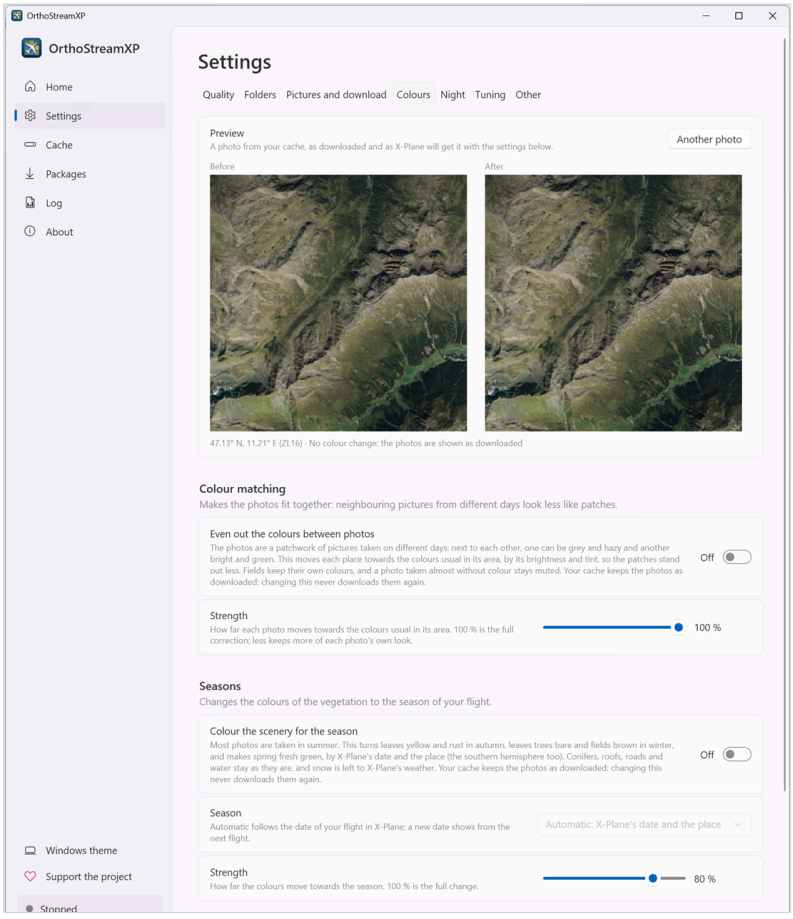
Pictures and download



Settings: Pictures and download

- **Where the pictures come from:** the imagery source.
  - *Bing, then Esri where Bing has no picture* (recommended): the sharpest pictures in most places.
  - *Bing only*.
  - *Geoportal in Poland (national orthophoto), Bing and Esri elsewhere*.
- **Downloads at once:** how many pictures download in parallel, from 16 to 256. Your internet connection sets the real speed; beyond about 160, more downloads only wait longer. Lower this if other programs need the connection while you fly.
- **Test my connection:** about 30 seconds and 30 MB of real picture tiles from your chosen source. It suggests a value for *Downloads at once* and the quality your connection can keep up with. When its suggestion differs from your setting, a **Use N at once** button applies it. The test cannot run while the scenery is streaming. Speeds change during the day, so test a few times at different hours and choose a number in the middle of the results.

Colours



Settings: Colours

Preview

The top of the tab shows a photo from your cache twice: **Before** (as downloaded) and **After** (as X-Plane will get it with the settings below). It updates as you change them, and **Another photo** picks a different one. The preview needs a cache folder with at least one flown area in it. It works while the scenery is streaming too.

Colour matching

Aerial photos are a patchwork of pictures taken on different days, so one patch can look grey and hazy next to a bright green one.

- **Even out the colours between photos** moves each place towards the colours usual in its area, so the patches stand out less. Fields keep their own colours.
- **Strength** sets how far the colours move: 100 % is the full correction, and less keeps more of each photo's own look.

Seasons

Most aerial photos are taken in summer.

- **Colour the scenery for the season** changes the vegetation to match X-Plane's date and your location (southern hemisphere included):
  - **Spring:** fresh green.
  - **Autumn:** leaves turn yellow and rust.
  - **Winter:** deciduous trees look bare and fields turn brown.

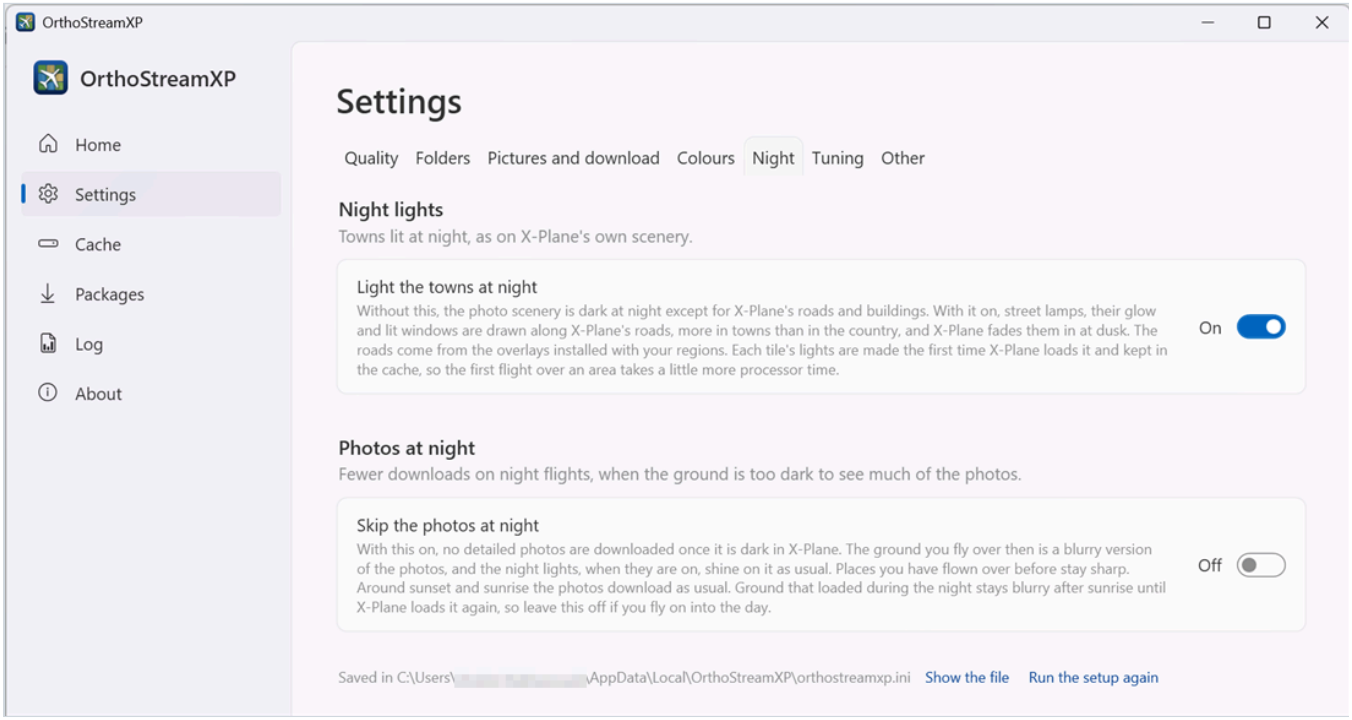
  Conifers, roofs, roads and water keep their colours, and snow is left to X-Plane's weather.
- **Season:** *Automatic* follows X-Plane's date and the place; a new date takes effect from the next flight. You can also force one season everywhere: *Early spring*, *Spring*, *Summer* (the pictures as they are), *Early autumn*, *Autumn*, *Late autumn* or *Winter, without snow*.
- **Strength:** how far the colours move towards the season. 100 % is the full change.

Exposure

Exposure darkens photos that look too bright next to X-Plane's own scenery, like a camera's exposure. 100 % shows them as downloaded; 50 % is one stop darker.

All the colour options only change how the photos look. The cache keeps the photos as downloaded, so changing them never downloads anything again.

Night



Settings: Night

How the photo scenery looks after dark. Both switches are **Off** by default and work independently: you can have the lights without skipping the photos, skip the photos without the lights, or both.

Night lights

X-Plane's own scenery glows at night where there are towns. Photo scenery replaces that ground, so without night lights a town on the photos is dark except for X-Plane's 3D roads, cars and buildings.

Turn on **Light the towns at night** to give every photo tile its own lights:

- street lamps along X-Plane's roads: a lamp every 28–45 m depending on the road, mostly warm sodium orange with some white LEDs, a few of them out;
- a soft glow around the lamps and the bigger streets;
- lit windows along town streets.

How many lamps are lit and how bright the windows are depends on how built up the place is: a town centre is fully lit, a village keeps all its lamps, and in the open country only a few lamps along the roads shine. Between the lights the photo stays dark; X-Plane fades the lights in at dusk by itself.

The roads come from the overlay package installed with your regions (**OrthoStream_Overlays**), or from another overlay package in X-Plane's Custom Scenery. Where no overlay package covers an area, its photo tiles stay dark at night.

X-Plane loads the lights with the scenery, by day too, so they are there when night falls during a flight. The lights get the same detail as the photos under them at every distance, up to about 3 m per pixel beside the aircraft. Each tile's lights are made the first time X-Plane loads that tile, and again with more detail as you come closer; only the detail X-Plane reads is kept in the cache with the area's photos, compressed (about 50 KB per tile; a 20-minute flight around Zurich kept 160 MB), so the first flight over a new area uses a little

more processor time and later flights none. Your scenery packages are not changed. **Off** is the default; a change applies from the next start.

Photos at night

At night the ground is dark and you see little of the photos, so downloading them in full detail mostly costs bandwidth and processor time. Turn on **Skip the photos at night** to save that on night flights:

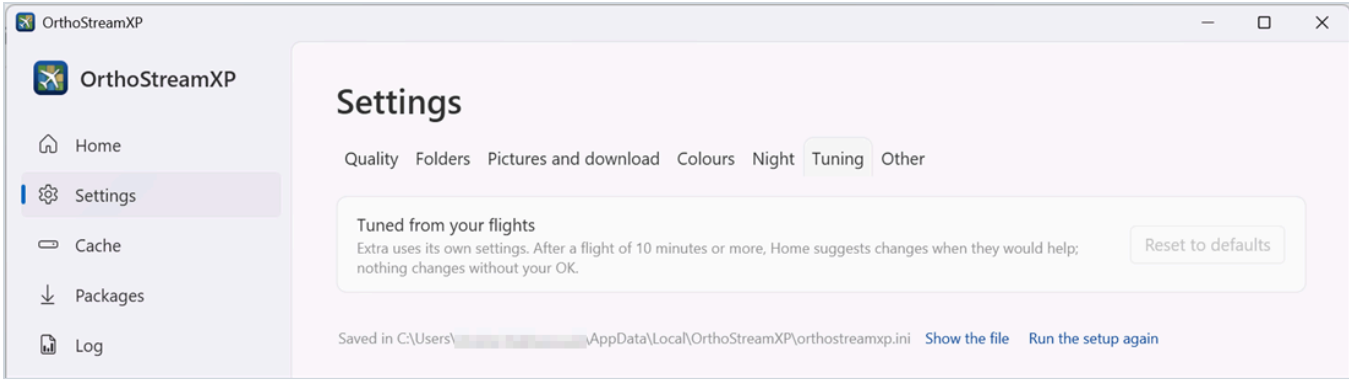
- **While it is dark in X-Plane** (the sun more than 9° below the horizon), OrthoStreamXP downloads no detailed photos. The ground you fly over is a blurry version of the photos, made from the small overview pictures it already keeps for far-away scenery.
- **The night lights still work.** With **Light the towns at night** on, the street lamps and windows shine on the blurry ground as usual, as sharp as ever.
- **Places you have flown over before stay sharp**: photos already in the cache are shown as they are.
- **Around sunset and sunrise** the photos download as usual, while there is still light to see them by: from sunset until well after the sky starts to darken, and again from early dawn.

OrthoStreamXP reads the time of day from X-Plane. When a flight starts, X-Plane first loads the area around the aircraft, and only then, once the flight is running, says what time it is. So the area where a flight starts still gets its photos, even at night, and the saving starts from there: everything X-Plane loads as you fly on.

If you fly on into the day, ground that loaded during the night stays blurry after sunrise until X-Plane loads it again, which happens as you fly on into new areas. Leave this off for flights that end in daylight. Like every setting, a change applies from the next start.

How dark it must be is set in the settings file (**Show the file**), not on the page: `skip-photos-sun-below = 9` is the sun's height below the horizon in degrees, from 0 to 18. A higher number keeps the photos longer at dusk and brings them back sooner at dawn; a lower one skips more of the twilight.

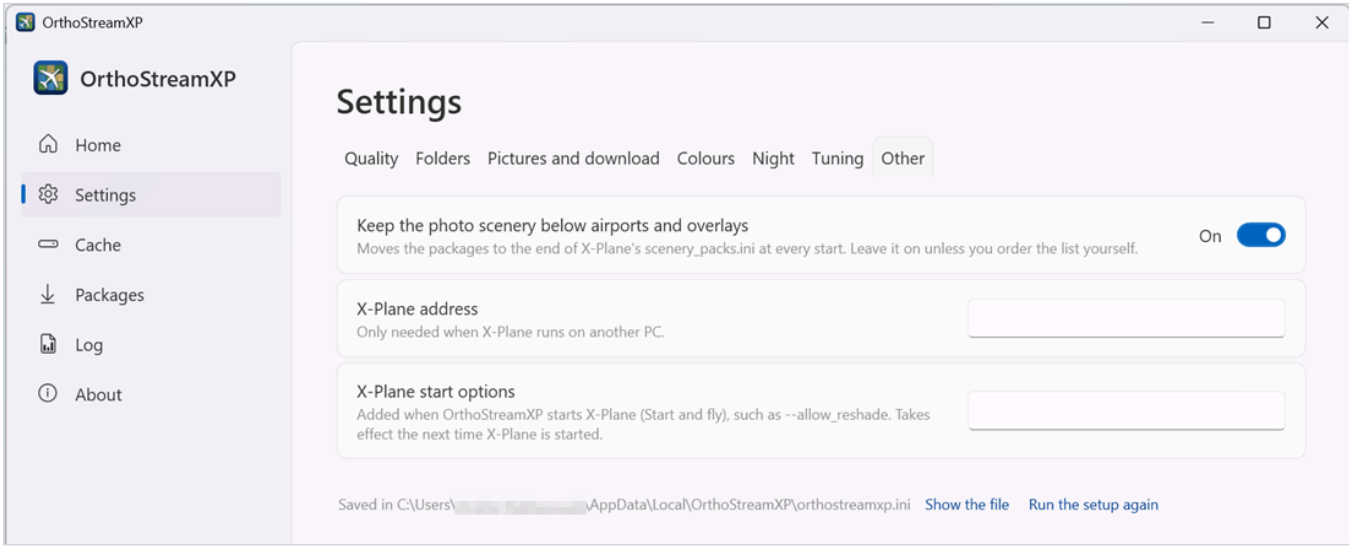
Tuning



Settings: Tuning

After flights of 10 minutes or more, Home may suggest settings for your preset (see Flying › Tuning suggestions). The tab lists each setting the tuning changed, with the preset's own value beside it. **Reset to defaults** puts every setting back to the preset's tested values and forgets what was tuned; it asks first. The folders, the picture source and *Downloads at once* stay as they are.

Other



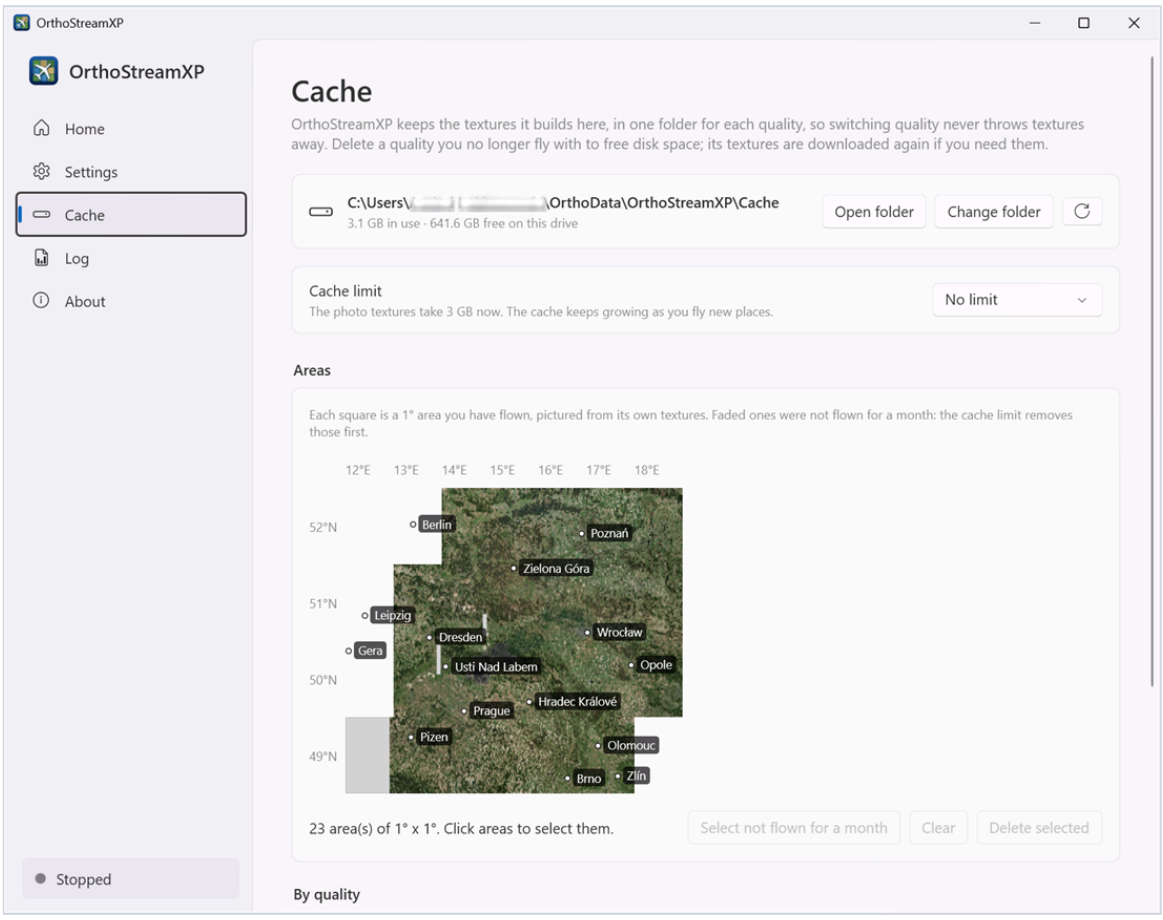
Settings: Other

- **Keep the photo scenery below airports and overlays:** at every start, moves the packages to the end of X-Plane's `scenery_packs.ini`, so airports and overlays draw on top of the photos. Leave it on unless you order that list yourself.
- **X-Plane address:** needed only when X-Plane runs on another PC.
- **X-Plane start options:** command-line options added when **Start and fly** starts X-Plane, for example `--allow_reshade`. They take effect the next time X-Plane starts.

Next: Cache

Cache

The cache holds the pictures OrthoStreamXP downloads and the textures it builds. Areas you have flown before load from the cache at once, without the internet. Anything you delete is downloaded again the next time you fly there.



The Cache page

Folder and limit

- The top card shows the cache folder, how much it uses and the free space on that drive.
  - **Open folder** opens the cache folder in Explorer.
  - **Change folder** chooses another cache folder.
  - The round arrow refreshes the figures.
- **Cache limit** caps the space the textures may take: *No limit*, 25 GB, 50 GB, 100 GB, 200 GB, 500 GB or 1 TB. When the cache grows past the limit, OrthoStreamXP deletes the areas you flew longest ago first.

Areas

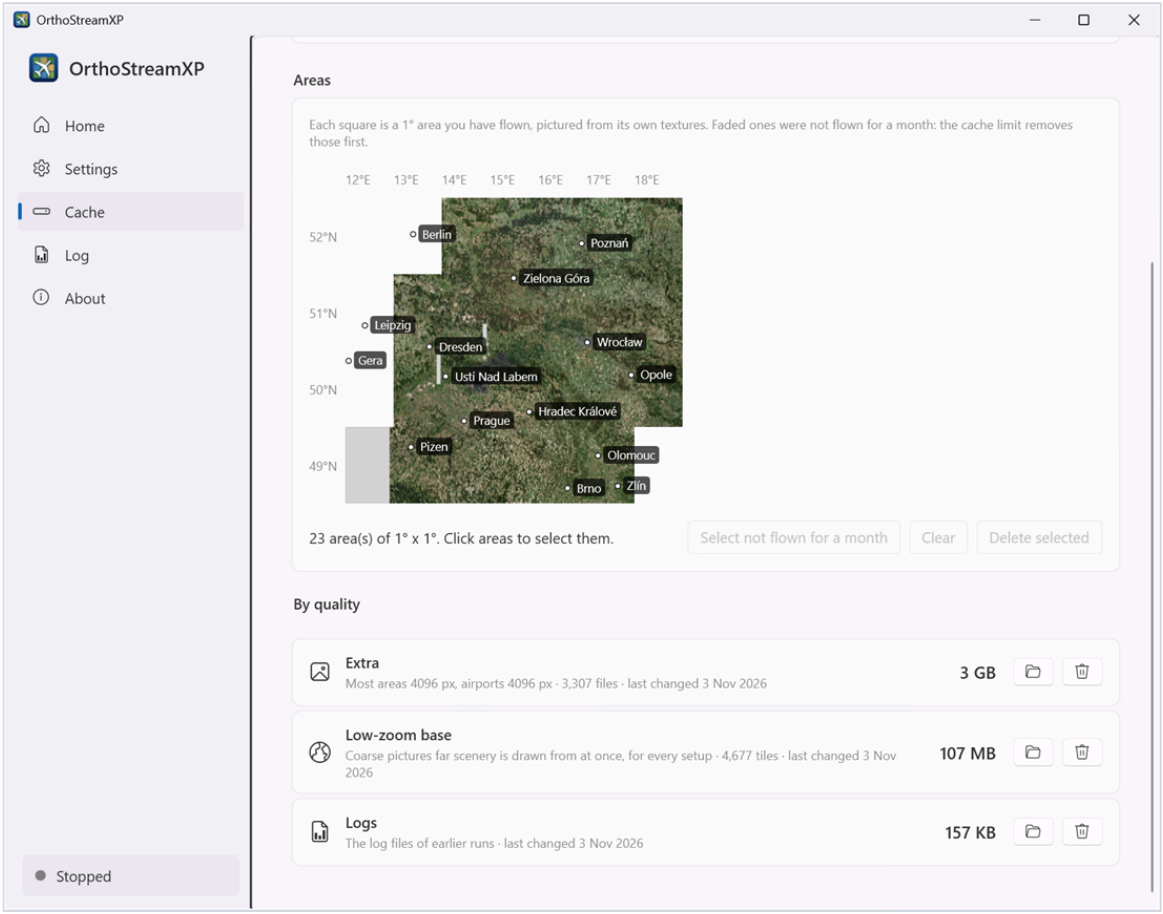
The map shows each 1° × 1° area you have flown, pictured from its own textures. Faded squares were not flown for a month; the cache limit removes those first.

To free space by hand:

1. Click the areas you want to remove, or click **Select not flown for a month**.
2. Click **Delete selected**. OrthoStreamXP shows how much space the selected areas take and asks you to confirm. The textures are deleted in every quality. **Clear** empties the selection.

Areas can be deleted only while OrthoStreamXP is stopped, because X-Plane may be reading them.

By quality



Cache by quality

Each quality preset keeps its textures in its own folder, so switching presets never throws textures away. This list shows how much each one takes:

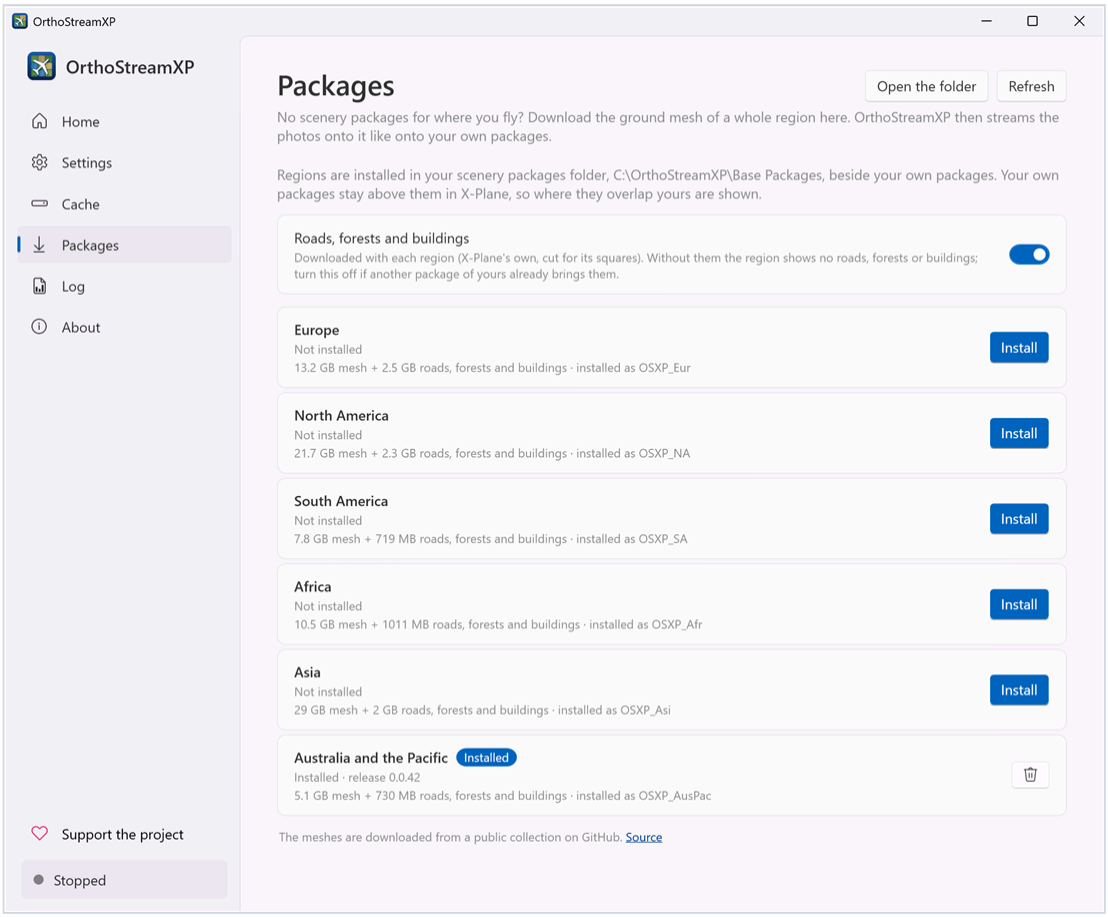
- **One row per preset you have flown with** (for example *Extra*), with its texture sizes and number of files. The preset you use now is marked **In use**. Delete a preset you no longer use to free its space.
- **Low-zoom base:** coarse pictures that distant scenery is drawn from. All presets share it. If you delete it, distant scenery is a plain colour at the start of a flight until these pictures are downloaded again.
- **Logs:** the log files of earlier runs.
- A folder left by an older version of OrthoStreamXP, from before each preset had its own folder, is listed too. OrthoStreamXP no longer uses it, so you can delete it.

Each row has a folder button that opens it in Explorer and a bin button that deletes it after you confirm.

Next: Troubleshooting

Packages

OrthoStreamXP streams photos onto scenery packages: the ground's shape (the mesh) for each area. The quickest way to get them is to download the mesh of a whole region, on the **Packages** page or in the **Scenery packages** step of the setup. You can also use packages of your own; keep them in a folder of their own (see One folder per source).



The Packages page, with Australia and the Pacific installed

The meshes are downloaded from a public collection on GitHub. Six regions are offered:

Region	Package	Download (with roads, forests and buildings)
Europe	`OrthoStream_Eur`	about 16 GB
North America	`OrthoStream_NA`	about 25 GB
South America	`OrthoStream_SA`	about 9 GB
Africa	`OrthoStream_Afr`	about 12 GB
Asia	`OrthoStream_Asi`	about 33 GB
Australia and the Pacific	`OrthoStream_AusPac`	about 6 GB

The page shows the exact sizes of the current release.

Where they go

Each region is installed as a package of its own in the **scenery packages folder** chosen in Settings › Folders. If you download one during the setup and have not chosen a folder yet, it goes to `OrthoStreamXP\Base Packages` in your user folder, and that folder becomes your scenery packages folder.

Leave about 1.7 times the download size free on the drive: the files take more room once they are unpacked.

One folder per source

Keep the downloaded regions in a folder of their own, and the packages of each other tool (Ortho4XP, OrthoStudio XP, XPME, AutoOrtho) in theirs. For example:

```
D:\Scenery\OrthoStream\    <- the regions downloaded in OrthoStreamXP
D:\Scenery\Ortho4XP\       <- your Ortho4XP tiles
D:\Scenery\OrthoStudio\    <- your OrthoStudio XP packages
```

Why:

- **No doubled scenery.** A downloaded region covers a whole continent. Packages from two sources for the same area bring two meshes, and often two sets of roads, forests and buildings, which can show twice.
- **Each tool keeps its own folder.** Ortho4XP, OrthoStudio XP and the others update and delete their packages in their folders. Mixed with packages from elsewhere, it is easy to delete or overwrite the wrong one, and hard to tell which tool a package (and a problem with it) comes from.
- **Easy to switch.** To fly with another source, choose its folder in Settings › Folders, with the scenery stopped. Your packages stay as they are, and each keeps its textures in the cache.

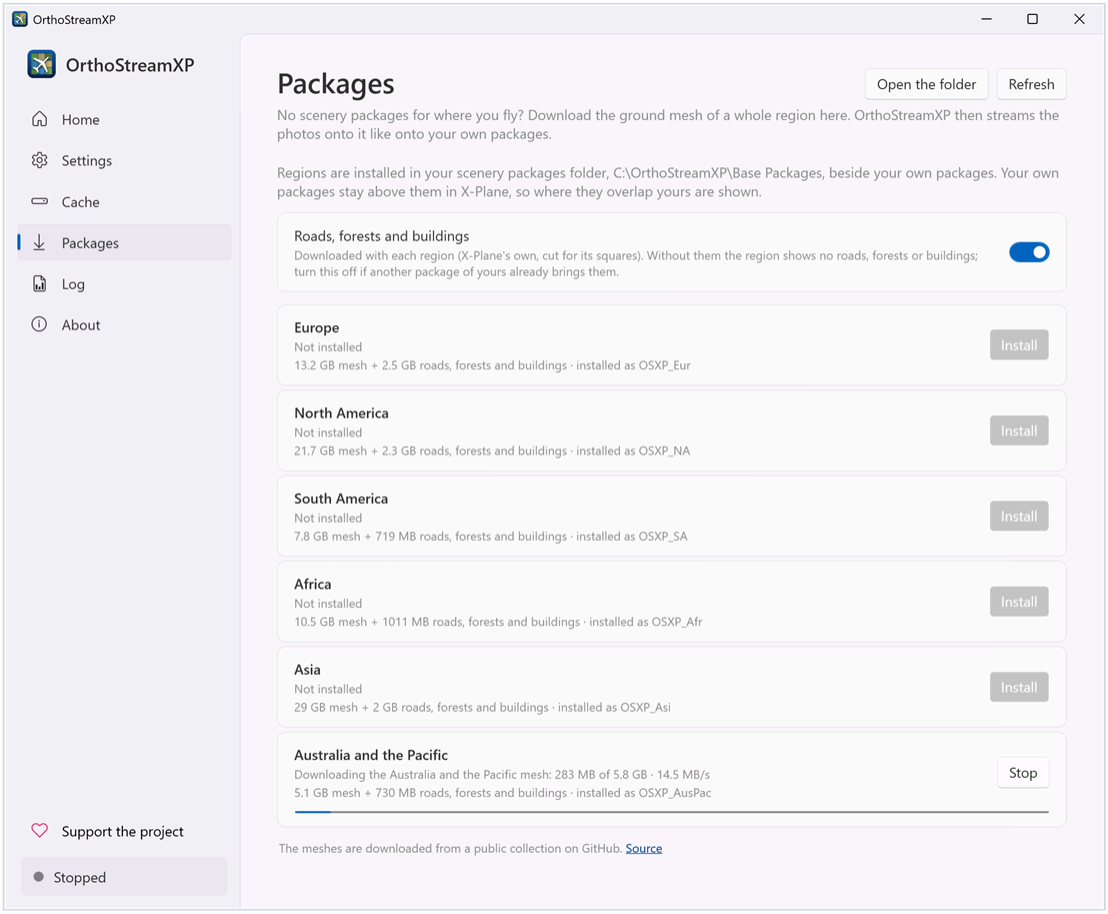
OrthoStreamXP uses one scenery packages folder at a time, so you fly with one source at a time.

The **Packages** page installs into the folder chosen at that moment, shown at the top of the page. Before you download a region, check that it is your folder for downloaded regions, not your own packages' folder. Don't have one yet? Choose a new, empty folder in Settings › Folders, then install. Home warns that no scenery packages were found until the first region is in it.

Roads, forests and buildings

A square of a downloaded mesh no longer shows X-Plane's own roads, forests and buildings. **Roads, forests and buildings** downloads them with each region, into one shared package, `OrthoStream_Overlays`. Turn it off if another package of yours already brings them. The choice applies to the next region you install or update.

Downloading, stopping and resuming



A region downloading

- **Install** starts the download. While one region downloads, the others wait: one install runs at a time. The progress and speed show under the region.
- **Stop** stops it. What was downloaded is kept: **Resume** continues from there, even after OrthoStreamXP was closed.
- A region is used from OrthoStreamXP's next start, and never half-installed: it appears in your packages folder only when all of it is there.
- When a newer release comes out, the region says **Update available**. Updating downloads it again in full.
- **Delete** removes the region and its roads, forests and buildings. Another region's stay.

You can install a new region while OrthoStreamXP runs. Updating or deleting a region needs OrthoStreamXP stopped, because X-Plane has its files open while it runs.

Troubleshooting

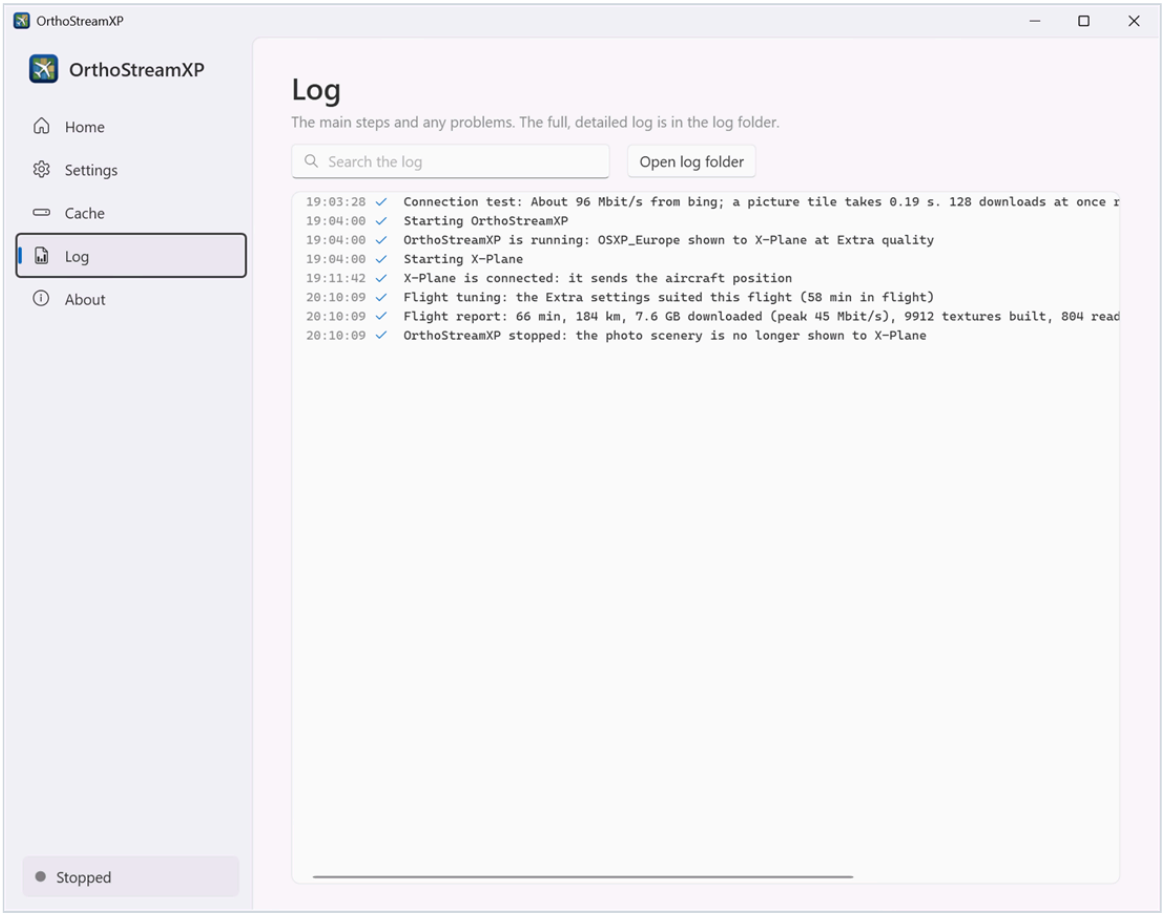
When something goes wrong, Home shows a notice that says what happened, usually with a button for the fix.

Common problems

Notice or symptom	What to do
No photos in X-Plane	Make sure OrthoStreamXP was running **before** X-Plane started. If Home says **Restart X-Plane**, quit X-Plane and start it again.
WinFsp is needed / WinFsp could not show the scenery	Click **Get WinFsp**, install (or repair) WinFsp, restart your computer, then click **Start** again. If you installed WinFsp or OrthoStreamXP and have not restarted Windows since, restart it first.
A scenery folder is in the way	X-Plane's `Custom Scenery` folder already has a folder with the same name as one of your packages. Usually another streaming tool still shows it there: close that tool before you start OrthoStreamXP and check your scenery_packs.ini file and click **Start** again. If it is a real folder, move or rename it. **Open Custom Scenery** opens the folder.
Your scenery packages were not found	The packages folder is missing or empty. Click **Open settings** and choose the parent folder that holds your packages
X-Plane was not found	The X-Plane folder has no `Custom Scenery` folder. Choose the folder X-Plane is installed in.
A folder cannot be written	Choose a cache folder you can write to, for example one in your user folder.
A setting needs attention	A value in the settings file is not valid. The notice names it; click **Open settings** to fix it.
Setup is not finished	Click **Run setup**.
X-Plane could not be started	**Start and fly** could not start X-Plane. The photo scenery is ready: start X-Plane yourself.
Restart OrthoStreamXP to use your new settings	The settings file changed while OrthoStreamXP was running. Click **Restart now** to use the new values.
Downloads are failing	Check your internet connection. OrthoStreamXP keeps trying; **Open log** shows the details.
Blurry ground for a while	A new area takes a few minutes the first time. If it happens often, try a lower preset or apply the tuning suggestions after your flight (see Flying).
Patchy colours between photos	Turn on **Even out the colours between photos** in Settings › Colours.
Photos look too bright next to X-Plane's own scenery	Lower **Exposure** in Settings › Colours.

Notice or symptom	What to do
Noisy, speckled ground up close	X-Plane's grass and dirt detail is drawn over the photos. Set **Ground detail** to **Off** (or lower it) in Settings › Quality.

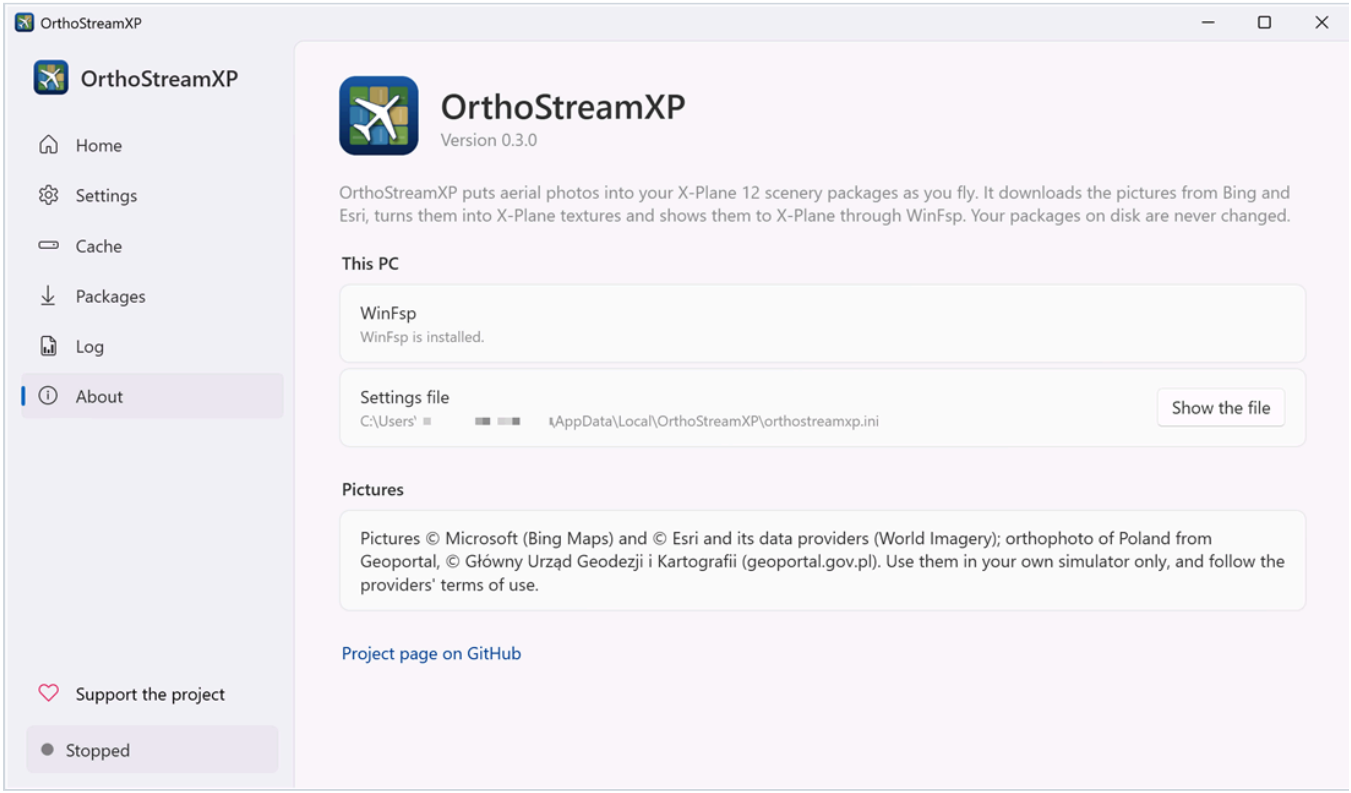
The Log page



The Log page

The Log page lists the main steps and any problems of this session. Type in **Search the log** to filter the list. **Open log folder** opens the full, detailed logs in `%LOCALAPPDATA%\OrthoStreamXP\logs`.

The About page



The About page

The About page shows your version, whether WinFsp is installed (with a **Get WinFsp** button if it is not), where the settings file is, the imagery credits, and a link to the project page on GitHub.

Updates

OrthoStreamXP checks for updates when it opens and from time to time while it runs, and downloads a new version in the background. When the update is ready, Home shows **OrthoStreamXP x.y.z is ready to install**. If the scenery is streaming, finish your flight and stop it first; then click **Update and restart**. Your settings, cache and flight history stay.

Uninstalling

Use **Windows Settings › Apps**. OrthoStreamXP asks whether to delete your settings and downloaded scenery as well. If you answer **No**, they stay for a later install.

Reporting a bug

Open an issue on the project's GitHub page and include:

- **What happened:** what you saw, and what you expected instead.
- **Steps to reproduce:** what you did before the problem appeared, for example the area you were flying over and your quality preset.
- **Your system:** OrthoStreamXP version (on the About page), Windows version and graphics card.
- **The session log:** the log file of that session, from `%LOCALAPPDATA%\OrthoStreamXP\logs`.

Next: Questions and answers

Questions and answers

Answers to the questions people ask most often about OrthoStreamXP.

What it is

What does OrthoStreamXP do?

It streams aerial photos onto your X-Plane 12 scenery while you fly. It downloads the pictures for the area around your aircraft from Bing, Esri or Geoportal (Poland), turns them into X-Plane textures, and keeps them in a cache for your next flight.

It is free and open source, and it goes up to imagery zoom level 19 (the **Extra** preset, near airports).

Does it make the terrain (the mesh) too?

No, OrthoStreamXP does not make the mesh: it provides the photos. The mesh, the water masks and the coastlines come from scenery packages. Download a whole region's mesh in OrthoStreamXP itself (see Packages), or use packages you already have, made by Ortho4XP, OrthoStudio XP, AutoOrtho or XPME. See Installation › What you need.

Why can't it use the mesh from X-Plane's default scenery?

Each scenery file (`.dsf`) says exactly which photo texture goes on which part of the ground. X-Plane's default scenery uses generic land textures, not photos, so there is nothing for OrthoStreamXP to put the photos on. Packages made by Ortho4XP and the tools based on it have that layout, so OrthoStreamXP can fill in their photos.

What is the difference from AutoOrtho or XPME?

All three put photos on scenery packages, so the base packages are the same. OrthoStreamXP was written to avoid the problems of the others:

- **Speed.** A new area loads in a few minutes (each preset card shows an estimate), and areas you have flown before load from the cache at once.
- **Quality for free.** There is no paid tier. Textures go up to 4096 px and the imagery up to zoom 19, with no limit on the zoom level or the picture size.
- **Settings tuned for you. Test my connection** chooses the quality and the number of downloads, and after each flight OrthoStreamXP suggests changes from what it measured (see Flying).

I already have ZL17/ZL18 photo scenery on disk. What do I gain?

If you already have photo scenery for every region you fly and you are happy with it, not much. Your setup works and there is no reason to replace it.

OrthoStreamXP suits a different way of flying:

- **No waiting before a flight.** You do not build or download a region first: the photos arrive as you fly.
- **Flying somewhere new** without planning your coverage in advance.

- **Keeping only what you use.** The cache fills only with the areas you fly over, not whole regions built ahead of time. You can set a size limit on the Cache page.

How does it handle the transition from water to land?

It does not change it. The water, the coastlines and the sea and inland water come from your scenery packages, with the settings they were built with. OrthoStreamXP only supplies the photos. If you are happy with the water in your Ortho4XP or OrthoStudio XP packages, it looks the same with OrthoStreamXP.

Does it work with SimHeaven (X-World)?

Yes. Install SimHeaven the way its instructions say, and OrthoStreamXP as this guide describes. OrthoStreamXP puts its packages at the end of `scenery_packs.ini`, below SimHeaven, airports and other overlays, so they stay on top of the photos.

Is there a Mac or Linux version?

No, OrthoStreamXP runs on Windows 10 and 11 only. There are no plans for a Mac version at the moment; that may change if enough people ask for it.

Setup

Which folder do I choose as the scenery packages folder?

The **parent folder** whose subfolders are your packages. Each package is a folder with an `Earth nav data` folder directly inside it. For example:

```
D:\OrthoPackages\          <- choose this one
    Europe\
        Earth nav data\
        terrain\
        ...
    Asia\
        Earth nav data\
        ...
```

Do not choose a package itself (`Europe`) or a folder further down (`Earth nav data`). Below the folder, OrthoStreamXP lists the packages it found; if it finds none, the hint turns red.

For XPME, this is usually XPME's top folder. For AutoOrtho, it is usually the `scenery` folder in AutoOrtho's folder (for example `z_autoortho\scenery`), after you move it out of `Custom Scenery` (see the next question). Check where the `Earth nav data` folders are: the folder you choose is the one two levels above them.

Have packages from more than one tool? Keep each tool's packages, and the regions downloaded in OrthoStreamXP, in a folder of their own, and choose the one you fly with. See Packages › One folder per source.

Can my packages stay in X-Plane's Custom Scenery folder?

No. Move them anywhere else on your PC, for example `D:\OrthoPackages`. OrthoStreamXP shows them in `Custom Scenery` itself while it runs; if they were already there, X-Plane would see each package twice and OrthoStreamXP refuses to start.

I used AutoOrtho before: how do I switch?

1. Close AutoOrtho.
2. Move your AutoOrtho scenery packages out of `X-Plane 12\Custom Scenery` to any folder on your PC.
3. Open `X-Plane 12\Custom Scenery\scenery_packs.ini` and remove the lines for the AutoOrtho packages.
4. Open OrthoStreamXP **without** starting the scenery. In **Settings › Folders**, set the **Scenery packages folder** to the new place.
5. Click **Start and fly** (or **Start**, then start X-Plane).

What happens when I click Start?

1. Your packages appear in `X-Plane 12\Custom Scenery`, with the photos added. The packages on disk stay unchanged.
2. OrthoStreamXP adds them to the end of `scenery_packs.ini`, so airports and overlays stay above them. The previous file is kept as `scenery_packs.ini.bak`.

When you stop OrthoStreamXP, the packages disappear from `Custom Scenery` again.

It downloaded a few pictures and then nothing, and the ground looks like X-Plane's own scenery.

Usually X-Plane is not reading the packages from OrthoStreamXP:

- The packages are still in `Custom Scenery`, or another tool (such as AutoOrtho) is still running. Follow the steps in *I used AutoOrtho before* above.
- X-Plane was started before OrthoStreamXP. Quit X-Plane, click **Start** in OrthoStreamXP, then start X-Plane again.
- The packages do not cover the area you fly. OrthoStreamXP can only add photos where you have packages.

See also Troubleshooting.

OrthoStreamXP says it cannot start.

Check the notice on Home: it names the problem and usually has a button for the fix. The most common causes are a wrong scenery packages folder (see above), WinFsp installed without restarting Windows, and a folder in `Custom Scenery` with the same name as one of your packages. See Troubleshooting › Common problems.