

AlAquaScr (AI Aquarium Screensaver) User Guide

Applicable version: AlAquaScr V1.9 (Windows screensaver, .scr, a virtual aquarium rendered in real time with OpenGL)

The screensaver view is identical to the view when you run the program directly (exe).

1. Product Introduction

AlAquaScr is a Windows screensaver that uses OpenGL to render a virtual aquarium in real time: fish, seahorses, jellyfish, shrimp, snails and other creatures swim naturally in the tank, accompanied by rising bubbles, caustic light spots and multiple background scenes. Once installed as a screensaver, it plays automatically when the system is idle; it can also be launched manually for interactive viewing.

The "**AI**" here refers to the **intelligent behavior of the fish (Artificial Intelligence of fish)**: the fish do not simply swim around at random; instead, their behavior is simulated in real time with a **swarm-intelligence algorithm** that mimics a real fish school. Each fish senses the position and distance of its neighbors and the environment every frame, and makes its own decisions about where to swim, how fast, and how to form up. The main aspects are:

- **Formation schooling**: each fish senses the position and orientation of nearby companions, and automatically follows the three classic swarm rules — cohesion, alignment, and separation: it moves toward the group center, aligns its heading with its neighbors, and keeps a distance from close neighbors to avoid collisions. This produces natural synchronized swimming, circular milling, and other formations rather than chaotic independent wandering.
- **Foraging (chasing food)**: when food is dropped, fish **lock onto the food target** and swim straight to it to compete for the meal.
- **Fleeing and stress response (startle)**: when disturbed (e.g., by the "Touch Fish" tool, or by sensing a threat), fish **lock onto the threat direction and accelerate away**, triggering the whole school to scatter (schooling defense) — just like a real school of fish spooked by danger.
- **Boundary and collision avoidance**: the fish sense the tank boundaries automatically, slowing down and turning near the walls to avoid passing through them; they also avoid each other so they never overlap.
- **Interactive response**: the fish react in real time to the interactive tools "Feed / Touch / Ripple / Zoom" (swimming over to feed, scattering when startled, being pushed by ripples, changing size, etc.). See Chapter 8 for the interactive features.



▲ Main view example (Stone Arch Cave aquascape): the schooling fish, a hovering seahorse, drifting jellyfish, light shafts and rising bubbles are all rendered in real time.

2. System Requirements

- **Operating system:** Windows (32-bit and 64-bit both supported; the program itself is 32-bit and runs under WOW64 on 64-bit systems).
 - **Display:** a graphics card that supports OpenGL.
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3. Installation and Activation

AlAquaScr is a **dual-purpose program**: it can be opened directly as a **normal application** for viewing, and it can also be registered as a **Windows screensaver** that plays automatically when the system is idle. Both identities share the same view, require no installer, and **do not require you to copy files into the system directory manually**.

Internally the program is 32-bit and runs on both 32-bit and 64-bit Windows (under WOW64 on 64-bit systems).

3.1 Set AlAquaScr as the Screensaver (either of two ways)

Method A — one-click setup on first launch (recommended) The first time you open AlAquaScr in normal mode (i.e., without any command-line arguments), the program pops up a prompt:

"Would you like to make AlAquaScr (Al Aquarium Screensaver) your Windows screen saver?"

Click **Yes** to complete the setup automatically; click **No** to skip it this time (you can still use Method B later). This prompt appears only once; your choice is remembered and you will not be asked again on the next launch.

Method B — from the Control Center Open the AlAquaScr Control Center (see Chapter 4 / Chapter 5) and click the "**Set as Screensaver**" button in the panel to register it as the system screensaver at any time — even if you previously chose No.

Both methods automatically copy the program to the user directory (%LOCALAPPDATA%\AIAquaScr\) and write the system screensaver registry entry in the background; **you never need to touch system folders manually.**

3.2 After it is set as the screensaver

- The system launches AIAquaScr automatically when the computer is idle, according to the **wait time** in "Screen saver settings".
- You can still adjust the wait time, preview, or switch to another / disable the screensaver in Windows' own "Settings → Personalization → Lock screen → Screen saver settings" — AIAquaScr appears in that dropdown list.

3.3 Use it only as a normal application

If you do not intend to use it as a screensaver, you can simply ignore the setup above: just open the program to enjoy it as an interactive aquarium (see Chapter 8 for the interactive features). It will not interfere with your system screensaver configuration.

4. Launch Methods and Exiting

The program has four launch methods (command-line arguments):

Method	Command	Description
Screensaver	AIAquaScr .scr /s	Full-screen screensaver; moving the mouse or pressing any key exits
Preview	AIAquaScr .scr /p	Small preview window inside the screensaver selector
Control Center	AIAquaScr .scr /c	Open the Control Center (unified settings panel)
Direct run	no argument	Renders as an exe, identical to the screensaver view, and interactive tools are available

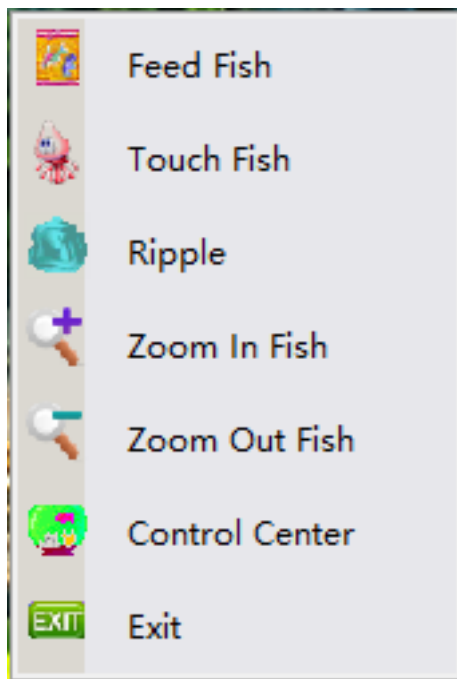
- **Screensaver mode (/s)** is passive viewing: any mouse or keyboard input ends the screensaver and returns to the desktop.
- **To exit normal mode (exe / no argument):** press the ESC key in the aquarium view to quit the program; the **Exit** item in the right-click menu also exits.
- After being installed as a screensaver, the system launches AIAquaScr automatically when idle, according to the configured wait time.

5. Control Center

The **Control Center** is AIAquaScr's unified settings panel; all adjustable options live here.

5.1 Open the Control Center (normal mode / exe direct run)

Right-click on the aquarium view to bring up the following menu:



The menu has 7 items:

Menu item	Hotkey	Description
Feed Fish	F2	Feed: drop food at the click point
Touch Fish	F3	Touch: disturb the creatures
Ripple	F4	Ripple: create a water ripple at the click point
Zoom In Fish	F5	Zoom in: make the clicked creature larger
Zoom Out Fish	F6	Zoom out: make the clicked creature smaller
Control Center	—	Open the Control Center (settings panel)
Exit	—	Exit the program

Select "**Control Center**" to open it; you can also click the **Control Center** button on the toolbar, or run `AIAquaScr .scr /c`.

5.2 How to reach the Control Center from screensaver mode

While the screensaver is playing full-screen, **any keyboard or mouse action exits the screensaver immediately** (this is normal screensaver behavior), so you cannot open the Control Center directly from a running screensaver. To get from "screensaver" to the Control Center, use any of these:

- **Windows screen saver settings:** open "Settings → Personalization → Lock screen → Screen saver settings", select **AIAquaScr** in the "Screen saver" dropdown, then click the "**Settings**" button — the system launches it in settings mode, which opens the Control Center;
- **Exit then enter:** nudge the mouse to exit the running screensaver, then open it in normal mode as described in 5.1;
- **Set it inside the Control Center:** click the "**Set as Screensaver**" button in the Control Center to complete registration (see 3.1 Method B).

5.3 Control Center overview

The Control Center uses a **left navigation buttons + right live preview** layout: the right side always shows a live preview of the aquarium ("Live preview of your aquarium") that refreshes instantly as you change settings; the 8 buttons on the left switch between different settings pages:



Navigation button	Purpose	Details
Overview	Overview: display toggles for each creature type and overall view options	(current page)
Fish Settings	Fish settings: fish species and counts	see 5.4
Other Creatures	Other creatures: salamander, axolotl, snail, seahorse, shrimp, jellyfish	see 5.5
Aquarium Settings	Aquarium settings: background, lighting, bubbles, volume, etc.	see 5.6
Custom Background	Custom background: use your own image as the background	see 5.7
Custom Music	Custom music: manage the background music list	see 5.8
Set as Screensaver	One-click register AIAquaScr as the system screensaver	see 5.9
About	About: version and copyright info	see 5.10

5.4 Fish Settings

Click **Fish Settings** on the left to open the **"Add/Delete Fish"** dialog:



- **Fish grid:** each cell is one fish species (multiple pages, flip with Prev / Next); the number at the **top-left of a cell is the current count** of that species; click a cell to select that species.
- **Bottom buttons:**
 - **Add (A)** — add one of the selected fish;
 - **Delete (D)** — delete one of the selected fish;
 - **Random (R)** — randomly generate a group of fish;
 - **Clear (C)** — remove all fish;
 - **Prev (P) / Next (N)** — flip pages to see more species.
- **Total / Max at bottom-right:** current total fish count and the limit (max 50); once the limit is reached you cannot add more.
- The letter in parentheses is the keyboard shortcut (e.g., press A after selecting to add).

5.5 Other Creatures

Click **Other Creatures** on the left to open the "**Other Creatures Settings**" dialog:



- **Creature icons:** 6 types in total — salamander, axolotl (six-horned dinosaur), snail, seahorse, shrimp (mantis shrimp), jellyfish; the number at the **top-left of an icon is the current count** of that type; click an icon to select it.
- **Bottom buttons:** **Add** to add / **Random (R)** to randomize / **Clear (C)** to clear / **Delete (D)** to delete.
- **Total / Max at bottom-right:** total count of other creatures and the limit (max 4).
- To make a type not appear: just set its count to zero.

5.6 Aquarium Settings

Click **Aquarium Settings** on the left to open the "**Settings**" dialog, which has **two parts (top and bottom)**:



Top part — Aquarium Background Images (built-in aquascapes) 10 high-resolution aquascape thumbnails in different styles; **click any one to switch immediately:**

- Stone Arch Cave Aquascape
- Karst Stone Forest Aquascape
- Zen Aquascape
- Hobbit Underwater Cabin
- Ancient Roman Underwater Palace
- Reef Aquascape
- Natural Style Aquascape
- Doomsday Shipwreck Style
- Jungle Moss Tank
- Cyberpunk Underwater City

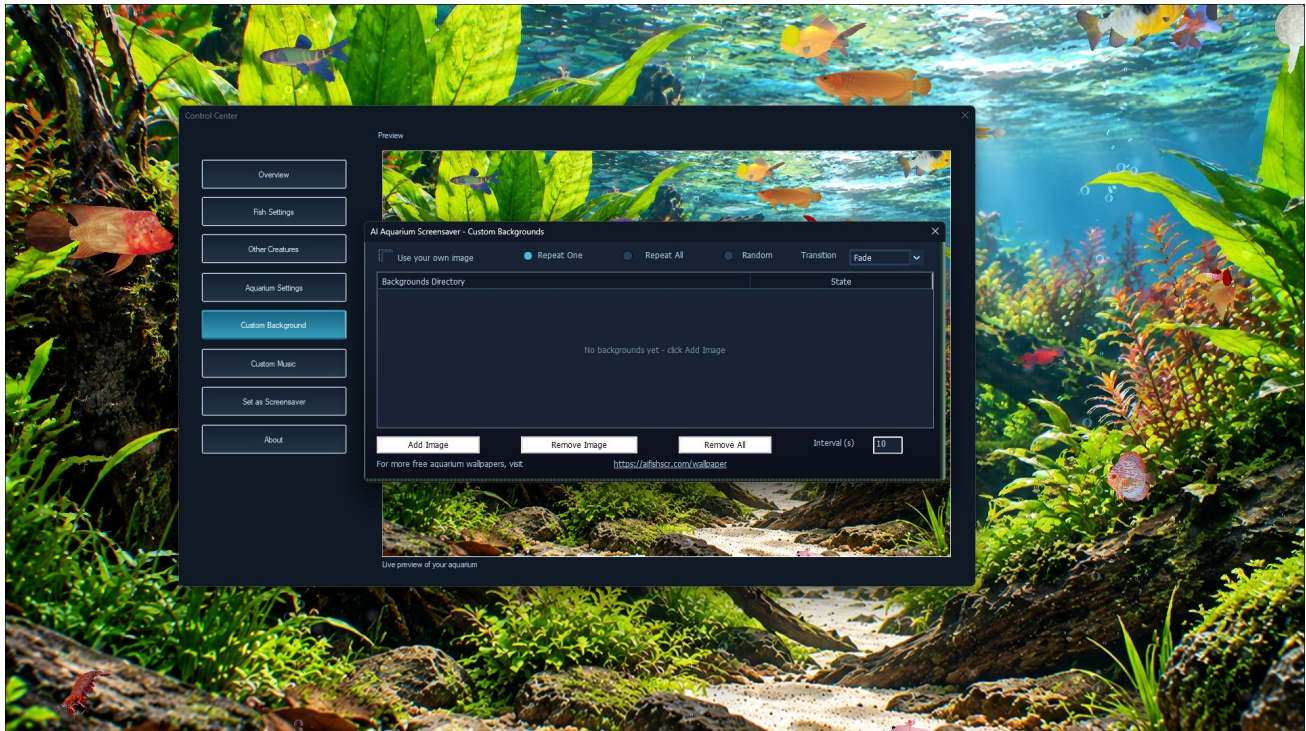
Bottom part — parameter area (left to right)

Group	Control	Description
Background Image Selection	Prev / Next	previous / next aquascape
	Image Number	enter the aquascape number directly (1–10)
	Repeat One / Repeat All / Random	loop a single image / cycle through all in order / random cycle
	Interval (s)	cycle interval in seconds
	Transition	transition style (default Fade)
Light Color	Fx Color	light-color on/off and color picker
	Auto Gradually Color / Rainbow	auto color gradient / rainbow cycle
	Lock Light Colors	lock the current light colors
	White Noise	noise perturbation for the light effect

Group	Control	Description
Light Intensity	slider	intensity of the light (light shafts / caustics)
Bubble count	slider	number of rising bubbles
Volume	slider	volume (water sound / background music)
Screen Stretch Adjust	Width / Height sliders	fine-tune horizontal / vertical stretch

5.7 Custom Background

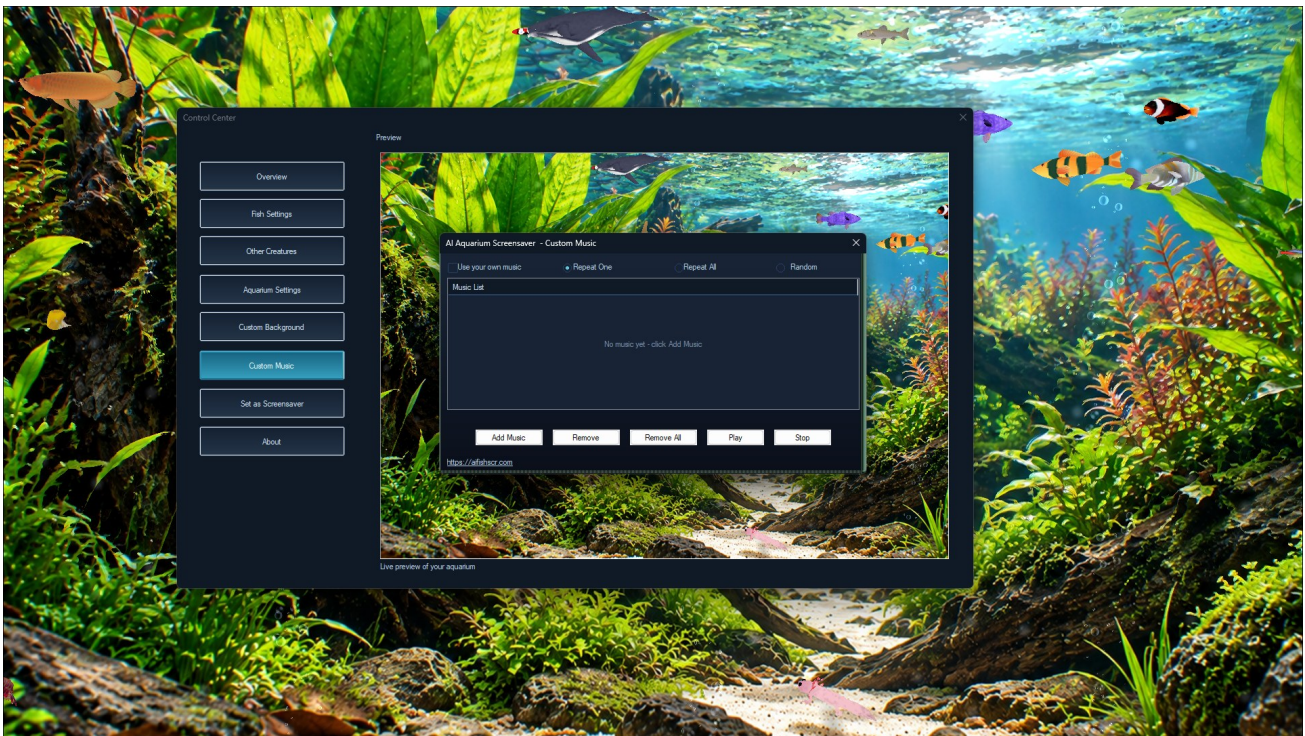
Click **Custom Background** on the left to open the "**Custom Backgrounds**" dialog:



- **Use your own image:** when checked, enables a custom image background (replacing the built-in aquascape).
- **Repeat One / Repeat All / Random:** cycling mode when multiple images are used; **Transition** selects the switch transition (Fade).
- **Image list** (Backgrounds Directory / State columns): added images and their state; when none are added it shows "No backgrounds yet - click Add Image".
- **Bottom buttons:** **Add Image** to add a local image / **Remove Image** to remove the selected image / **Remove All** to clear / **Interval (s)** cycle interval in seconds.
- Once you add your own image, the screensaver and preview will use it as the background, with the fish and light effects still rendered on top.

5.8 Custom Music

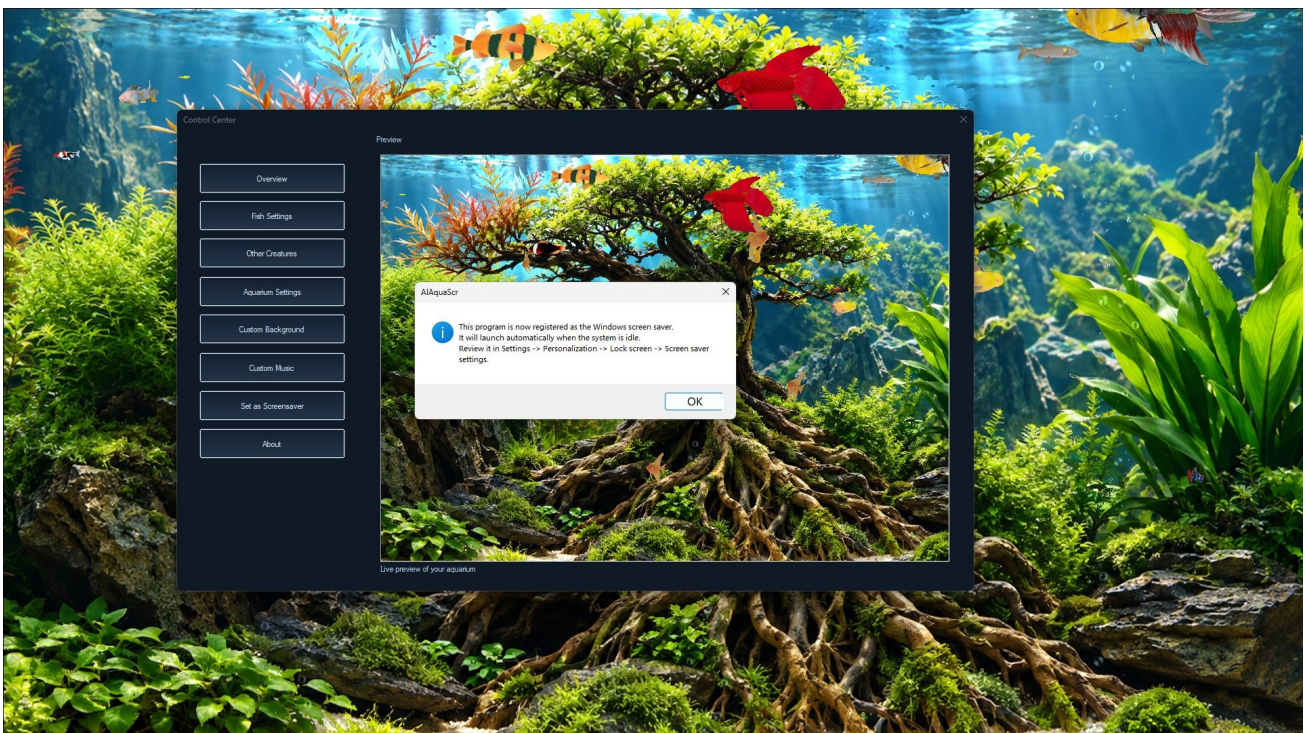
Click **Custom Music** on the left to open the "**Custom Music**" dialog:



- **Use your own music:** when checked, enables custom music (replacing the built-in looping water sound).
- **Repeat One / Repeat All / Random:** list cycling mode.
- **Music List:** music file list; when none are added it shows "No music yet - click Add Music".
- **Bottom buttons:** **Add Music** to add music files / **Remove** to remove the selected / **Remove All** to clear / **Play** to play / **Stop** to stop.

5.9 Set as Screensaver

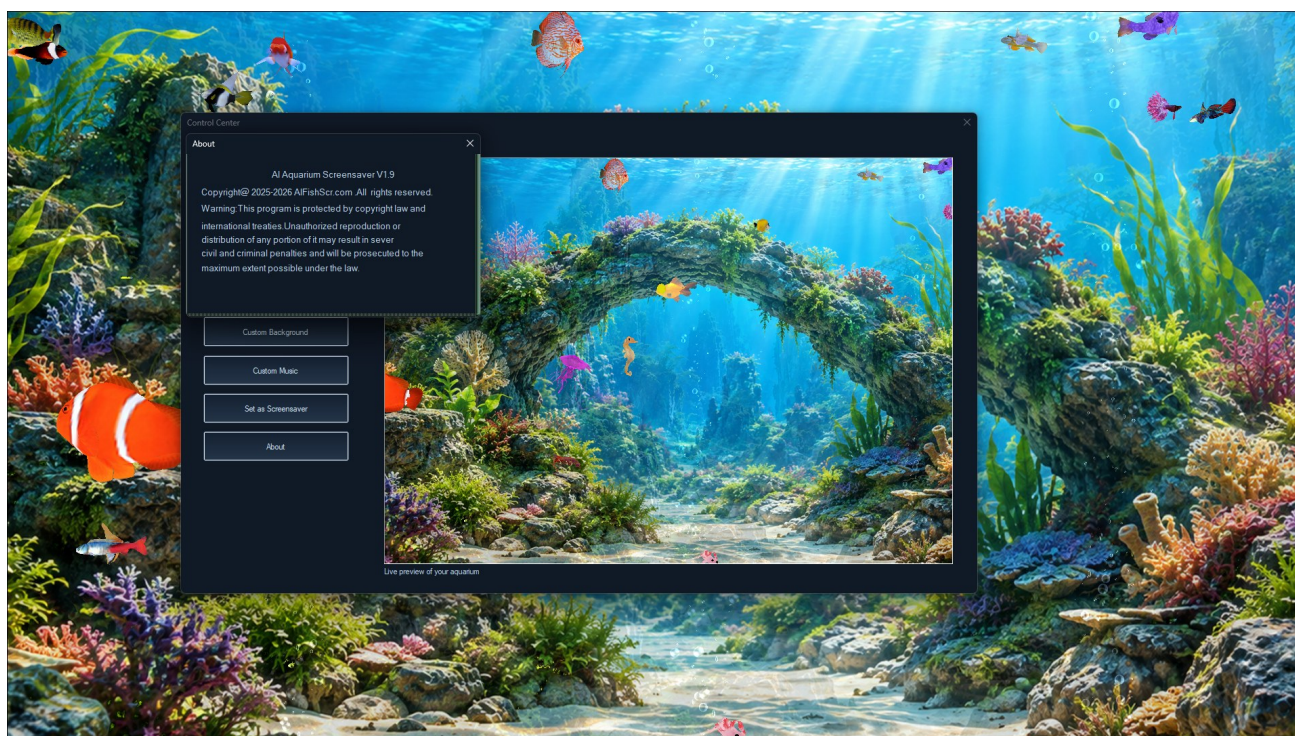
Click **Set as Screensaver** on the left to register AIAquaScr as the Windows system screensaver with one click:



- After clicking, the program completes the screensaver registration automatically (copying the program file and writing the system screensaver entry), then pops up a prompt:
- "This program is now registered as the Windows screen saver. It will launch automatically when the system is idle. Review or change it in Settings -> Personalization -> Lock screen -> Screen saver settings."
- Click **OK** to close the prompt; no need to restart the program.
- Once registered, the system will launch AIAquaScr automatically when the computer is idle according to the wait time in "Screen saver settings" (see 3.1 / 3.2).

5.10 About

Click **About** on the left to open the "**About**" dialog, which shows the product version and copyright info:



AI Aquarium Screensaver V1.9
Copyright© 2025-2026 AIFishScr.com. All rights reserved.

5.11 Saving the configuration

All settings are **saved automatically**: every time you adjust and close a dialog, the configuration is written immediately and **your last settings are used automatically on the next launch** — no manual export or backup is needed. The screensaver and the settings panel read the same configuration, so they stay consistent.

6. Scenes and Visual Effects

- **Multiple built-in aquascapes**: 10 high-resolution aquascapes in different styles, switchable with one click by clicking a thumbnail in the Control Center's "**Aquarium Settings**" page (see 5.6 for the numbered list).
- **Aquascape cycling**: can be set to auto-cycle by interval (Repeat All / Random + Interval), with the default transition being Fade.

- **Lighting system:** the color of the light shafts / caustics can be a fixed color, an auto gradient, or a rainbow cycle, with adjustable intensity (see 5.6 Light Color / Light Intensity).
- **Rising bubbles:** multiple columns of bubbles continuously rising from the bottom, with an adjustable count.
- **Multiple monitors:** in extended mode, each monitor renders its own assigned creatures and background, so a secondary monitor also has a view.
- **High-DPI adaptation:** the program has DPI awareness built in, so the interface and view scale adaptively at 100% / 125% / 150% scaling.

7. Creature Guide

The following 7 types of creatures may appear in the view (whether they appear is determined by the settings; fish are adjusted in 5.4, the other six types in 5.5):

- **Fish** — built in with **175+ different series of ornamental fish**, covering common favorites such as **clownfish, angelfish, blue tang, guppy, betta (Siamese fighting fish), koi, and tench**; schools of fish swim together, chase food to feed, and scatter collectively when startled (schooling defense). Fish species are shown in pages, with a total fish limit of 50 (see 5.4; use Add / Random / Clear in Fish Settings to adjust).
- **Salamander** — swims along near the bottom.
- **Axolotl (six-horned dinosaur)** — swims spread out horizontally, never sinking into the sand.
- **Snail** — crawls on the tank wall / sand on its own, with varying speed and position.
- **Seahorse** — grips water plants / rocks and hovers, swaying gently.
- **Mantis shrimp** — active at the bottom layer, darts quickly when startled.
- **Jellyfish** — magenta three-layer coloring (deep wine-red core → bright pink body → violet edge / tentacles), with a vortex ring, swimming naturally in the tank.

8. Interactive Features (exe / preview mode)

When the program runs in **exe (no argument)** or **preview** mode, you can press a **function key**, or pick a tool from the **right-click menu** (see the 5.1 menu screenshot), then **click the target in the view**:

Tool (right-click menu item)	Hotkey	Effect
Feed Fish	F2	Drop food at the click point, attracting fish to feed
Touch Fish	F3	Disturb creatures so they swim away startled or dart off (e.g., mantis shrimp darts when startled)
Ripple	F4	Create a ripple spreading from the click point
Zoom In Fish	F5	Click a creature to make it larger (one step per click)
Zoom Out Fish	F6	Click a creature to make it smaller
Hide Cursor	F7	Hide the mouse pointer (hide only — there is no un-hide function; F7 is keyboard-only; it does not appear in the right-click menu)

About zoom in / zoom out:

- Each click changes the size by one step.
- When a creature reaches its maximum or minimum size, a **red "limit reached" ring** appears around it and further clicks have no effect.
- Different creatures have different per-click amounts and limits (e.g., the seahorse has a larger max, the jellyfish a smaller max) — this is by design.

Tip: in pure screensaver (/s) mode, any mouse / keyboard input exits the screensaver immediately, so please experience the interactive features in **exe / preview** mode.

9. Frequently Asked Questions (FAQ)

- **Q: How do I set it as the screensaver?** Two simple methods, either of which registers AIAquaScr as the Windows system screensaver (both copy the program file and write the system screensaver entry in the background, so you never need to touch system folders manually):
 - **Method A — on first run:** the first time AIAquaScr launches, a prompt appears "Would you like to make AIAquaScr (AI Aquarium Screensaver) your Windows screen saver?", **click Yes** to complete the setup automatically (this prompt appears only once and your choice is remembered);
 - **Method B — from the Control Center:** run AIAquaScr (normal mode exe, or AIAquaScr .scr /c), open the Control Center, click the **"Set as Screensaver"** button on the left, then a success prompt appears — click **OK** (see 3.1 and 5.9).
- After setup, the system launches the screensaver automatically when the computer has been idle for the wait time; you can adjust the wait time, preview, or switch to another screensaver in Windows' "Settings → Personalization → Lock screen → Screen saver settings".
- **Q: What is the difference between normal mode and screensaver mode?** Both render the same aquarium view, but their purpose and usage differ:

Item	Normal mode (exe / no argument)	Screensaver mode (/s or triggered by system idle)
Purpose	Active viewing + settings	Passive viewing (auto-play when system idle)
Launch	Double-click the exe or run with no argument	After setup, auto-launches when idle to the wait time, or run AIAquaScr .scr /s manually
Exit	Press ESC , or the Exit item in the right-click menu	moving the mouse or any key exits and returns to the desktop
Interactive tools	Supports all interactive features: feed / touch / ripple / zoom / right-click to open the Control Center (see Chapter 8)	any input during the running screensaver exits it immediately , so you cannot interact or open the Control Center while it runs
Open Control Center	right-click → Control Center, or AIAquaScr .scr /c	not while running; use the "Settings" button in Windows' "Screen saver settings", or exit then enter in normal mode (see 5.2)

In short: **use normal mode if you want to interact (feed, touch, change settings); screensaver mode just "plays for you while the PC is idle" and closes on any movement.**

- **Q: I changed settings but the screensaver looks unchanged?** Settings are saved automatically (effective as soon as you close the dialog, see 5.11); the screensaver and settings read the same configuration, so just re-trigger the screensaver to see the effect.
- **Q: Nothing happens when I click the view, or it exits immediately?** In screensaver (/s) mode any input exits it; please use exe / preview mode for interaction.
- **Q: Why is the view laggy / stuttering?** Common causes and fixes:
 - **Graphics driver / OpenGL not ready:** AIAquaScr relies on the GPU's OpenGL hardware acceleration to render the aquarium in real time. If the system has **no graphics driver installed**, or the driver is too old / corrupted and **does not support OpenGL**, rendering falls back to software rendering (it may even fail to start), showing obvious lag and frame drops. → Go to your GPU vendor's site (NVIDIA / AMD / Intel) and download and install the **latest graphics driver**; after installing, confirm the display adapter is working in "Display settings → Advanced display settings".
 - **Lag on a secondary monitor in extended multi-monitor mode:** if you place AIAquaScr on a secondary monitor under **extended mode** and only that monitor lags, the usual reason is — in extended mode **every monitor has the GPU render a complete scene independently** (fish, aquascape, light effects, caustics, bubbles are all redrawn); the higher the secondary monitor's resolution and the larger its view, the more the GPU's per-frame fill and draw load multiplies, so the secondary monitor (especially one with a higher resolution than the primary, or output through integrated graphics / an adapter / a USB dock with limited bandwidth) is most prone to frame drops. → You can mitigate it like this:
 - **Lower the secondary monitor's resolution:** in Windows "Settings → System → Display" select the secondary monitor and reduce the resolution one step (e.g., 4K → 1080p); the rendered pixel count drops sharply and the lag usually improves noticeably;
 - **Lower the secondary monitor's scaling / refresh rate:** set scaling to 100% or reduce the refresh rate to also reduce the load;
 - **Reduce the global rendering load:** in the Control Center **Aquarium Settings** (see 5.6) lower **Bubble count** and **Light Intensity** appropriately to cut the per-frame draw amount;
 - **Ensure the secondary monitor is driven by a capable GPU:** avoid routing it through a USB dock / weak adapter / integrated graphics; connect it to the discrete GPU's video port instead.
- **Q: Why is the schooling (social) behavior of the fish not obvious?** Because **social behavior only happens between fish of the same species**. In AIAquaScr the fish's swarm intelligence (cohesion, alignment, separation, circular milling, etc., see Chapter 1) is behavior between same-species peers — each fish only senses and follows companions **of its own species**; different species do not school together or swim in sync. Therefore:
 - **Cause:** the prerequisite for social (schooling) behavior is "there is at least 1 same-species fish nearby". If every species in the tank has only 1 fish, or you keep many different species mixed, each fish lacks same-species neighbors and naturally shows no formation or synchronized swimming (the code explicitly requires "at least 1 same-species fish" for schooling to start; the more of the same species, the more obvious the formation).
 - **How to view it:** in the Control Center **Fish Settings** (see 5.4), **click Add repeatedly for the same species** (e.g., keep 5–10 of one species) so they gather, and you will clearly see them swimming in sync, circular milling, or — after feeding — the same species swimming over together to compete for food, and scattering together when "touched" (schooling defense). You can also reduce the counts of other species so one species becomes the dominant school, making the social behavior more prominent.

- **Q: What behaviors do the fish and other creatures have (individual and group behaviors)?**
The creature behaviors in AIAquaScr fall into two categories: individual behavior and group behavior:

I. Fish (the XingWei behavior system in Angel.cpp; each fish switches in real time between multiple behaviors every frame)

- **Individual behavior (shown by a single fish):** **cruising / wandering** (XIANGUANG, the default slow exploratory swim); **chasing food / feeding** (ZUIZHUOB, JINSHI — lock onto food after spotting it and swim over to feed); **circling** (HUANRAO — circling around coral / aquascape); **spinning, swaying, caressing** (ZHUANQUAN, YAOBAI, AIFU — individual small motions); **avoidance** (DUOBIZA, DUOBIYU — avoiding walls and collisions with peers); **startle fleeing** (TAOYI — accelerate away when "touched" or disturbed); **leaving** (LIKAI).
- **Group behavior (only between same-species peers, see the previous question):** **schooling** (JIQUN — cohesion + alignment + separation, forming a synchronized school); **alignment** (DUIQI — matching the average heading of nearby peers); **circular milling** (when startled, gather into a ring and circle together — group defense).

II. Other creatures (seahorse, shrimp, snail, axolotl, salamander, etc.; mostly individual behavior, generally no schooling-type group behavior)

- **Seahorse:** hovering drift (HOVER) → search / slow swim (SEARCH / SLOW_SWIM) → curl its tail onto water plants or coral (APPROACH → TAIL_REACH → TAIL_CURL → ATTACH) → rest while attached (REST); when startled it first freezes (FREEZE) then darts away (STARTLE).
- **Snail:** crawls slowly on the tank wall and aquascape, grazing; a sessile lifestyle.
- **Shrimp:** crawls among the bottom and aquascape, waves its antennae to forage, and makes brief swims.
- **Axolotl / salamander:** alternates between bottom-crawling and occasional swimming, with slow and graceful movements.

In short: **fish have both rich individual behavior and same-species group behavior; the other creatures are mainly individual behaviors of their own, with no schooling-type group cooperation.**

- **Q: The view is misaligned at different resolutions or scaling?** The program already has DPI adaptation, so normally no adjustment is needed; if something is off, check the system scaling setting and re-set the screensaver, or fine-tune with Screen Stretch Adjust in Aquarium Settings (see 5.6).
- **Q: I want a certain creature type not to appear?** In the Control Center's "**Overview**" or "**Other Creatures**" page (see 5.5), set that type's count to zero and save.

10. Copyright and License

For version and copyright information, open the Control Center's "**About**" dialog (see 5.10).