Sonic 3 A.I.R. - Angel Island Revisited

GAME MANUAL

Welcome to the Game Manual of Sonic 3 A.I.R.!

What you can find here:
- Installation instructions
- Help on common issues
- Details on the game options
- ...and more, see the table of contents below!

In case you don't want to read it all, **the important things are written in bold**.

For modders:
There is a separate document in the "docs" folder going into details on how to make mods.

CONTENTS

INSTALLATION

Prerequisites

⊞ Windows
- You need **Windows 7 or higher** to play, as well as a graphics card and driver with OpenGL support.
- A dedicated Nvidia / AMD graphics card or a not too old Intel graphics card (HD 3000 or above) or later is recommended.
- Before starting for the first time, make sure to have the **Visual C++ x86 Redistributable 2019**. installed. Without it, the game will just show a cryptic error on startup.
  Download the redistributable from Microsoft if needed:
  https://aka.ms/vs/16/release/vc_redist.x86.exe

macOS
- You need **macOS 10.9 or later** to play. Any Mac made since 2009, along with a few some older ones should be able to run the game.

Installation of Sonic 3 A.I.R.

⊞ Windows
- To install, simply **unpack the downloaded ZIP file** to a place on your hard disk, e.g. into a folder on your desktop or in your user files. Easy as that.
- Just make sure you really unpacked it, and don't start the game directly from inside the ZIP file. This will only lead to an error message box like "SDL2.dll could not be found" or "Script execution completely stopped because call stack was emptied".

macOS
- Installation of the game is simple: Just **mount the downloaded DMG file** and copy Sonic 3 AIR to your Applications directory. Easy as that.

Updating Sonic 3 A.I.R.

To update to a new version, all you need is to install it alongside your existing Sonic 3 A.I.R. installation. Your saved data won't get lost this way, as it's stored elsewhere anyway – see Saved Data Folder below.
Only exception to this is if you opted for a portable installation that includes the saved data, as described in the "Option for a portable installation" box below.

To be on the safe side, here's the recommended steps for updating:
1. Install the new version of Sonic 3 A.I.R. as described above, but use a **different target location** (e.g. a different folder name) than your existing game installation.
2. **Start the new version** once, to make sure your settings and save games are still present.
3. If everything looks good so far, it's safe to delete the old game installation now.
4. Have fun with the update!

Sonic 3 & Knuckles Steam ROM

Sonic 3 A.I.R. takes all of its data from a single source: The combined ROM of the original *Sonic 3* and *Sonic & Knuckles* SEGA Genesis / Mega Drive games that SEGA ships as part of the **Steam version of Sonic 3 & Knuckles***.

If you own it and have it installed on your hard disk drive, Sonic 3 A.I.R. should automatically find and use the ROM without any manual configuration.

In case this does not work by itself, the game opens a file selection dialog. In there, just navigate to your Steam installation and select the ROM file from there.
The most common location of the file is:
- ➢ C:\Program Files\Steam\steamapps\common\Sega Classics\ uncompressed ROMs\Sonic_Knuckles_wSonic3.bin
- ➢ ~Library/Application Support/Steam/SteamApps/common/Sega Classics/ uncompressed ROMs/Sonic_Knuckles_wSonic3.bin

Start Sonic 3 A.I.R.

Windows
- To start the game, just double-click the Sonic3AIR.exe.
- You will likely get a **Windows Smart Screen message** like this on first start, warning that Sonic 3 A.I.R. is an unrecognized app.
  This can be safely ignored and easily skipped by clicking "More Info", then "Run anyway".
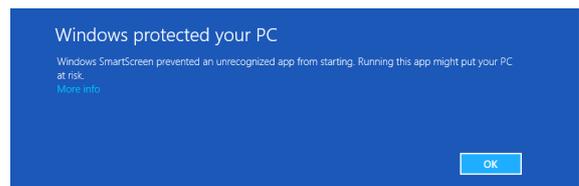
macOS
- To start the game, just double-click the "Sonic 3 AIR" app.

If you encounter problems afterwards, like graphics issues or the game crashing, have a look at the Troubleshooting section in this manual.

Saved data folder

Sonic 3 A.I.R. saves all your settings, saves, mods etc. in a **separate folder**. This way, it's safe to completely delete the game installation and replace with another one when an update comes out.

To get to the saved data folder:

Windows
- Open the Windows Explorer, copy the following into the address line and press Enter:
  %appdata%\Sonic3AIR
- Alternatively, do a right-click into the running game and select the option "Open saved data folder" there.

macOS
- Open the Finder, and hold the Option key while opening the "Go" menu.
Then select "Library" and navigate to /Application Support/sonic3air/Sonic3AIR/
- Alternatively, do a right-click into the running game and select the option "Open mods folder…" there. Your save data is one folder up from the mods folder.

Option for a portable installation:

If you prefer to use a saved data folder right inside the game installation, simply create a folder "savedata" in there, i.e. right next to "Sonic3AIR.exe". If this exists, it will serve as the location where the game stores your data.

If you prefer to use a saved data folder right inside the game installation, download the development version of Sonic 3 A.I.R. for mod creators. This version of the game looks for data files in the same folder as the game app.

CONTROLS

Keyboard

In menus:
- Up, Down, Left, Right = Selection change
- Enter = Accept selected option, or start the game

In game:
- **Up, Down, Left, Right = Movement**
  (including crouching, rolling, etc. - you probably know the classic Sonic game controls)
- **Q, A, S, D = Jump** and usage of character ability (shield power, flying, or gliding)
- **W = Super Transformation** and Super Cancel
- **W = Fast forwarding** of certain cutscenes
- **W = Restart** in Time Attack mode
- **Enter = Pause game**

General:
- Escape or Alt + Enter = Toggle fullscreen
- Alt + F4 = Quit the game completely
- Numpad Plus and Minus = Change audio volume
- Alt + F and Alt + G = Change the pixel filter
- Alt + B = Change the background blur effect
- F3 = Rescan for gamepads
- F4 = Switch player controls

XBox Controller

In menus:
- Up, Down, Left, Right = Selection change
- Start/Menu = Start the game

In game:
- **Up, Down, Left, Right = Movement**
- **A, B, X = Jump** and usage of character ability
- **Y = Super Transformation** and Super Cancel
- **Y = Restart** in Time Attack mode
- **Start/Menu = Pause game**

Other Gamepads / Custom Keyboard bindings

Other gamepads may work as well, even if they are not compatible to the XBox Controller.
But expect some weird button bindings in this case.

To manually edit the button bindings:
- Start Sonic 3 A.I.R. once, attach the game controller, and close the game again.
- The "settings_input.json" file in the Saved Data now includes an entry somewhere for your controller.

- Feel free to make changes there. Note that the buttons here are enumerated the same way as in Windows' system panel's Gamecontroller details window, but starting with "Button0" representing button 1, etc.

To change keyboard bindings:
- That works the same way as for game controller button bindings, i.e. there's keyboard entries in "settings_input.json".
- Look for "Keyboard1" for keyboard bindings for player 1, and "Keyboard2" for player 2.

SPECIAL CHARACTER MOVES

There are some moves in Sonic 3 A.I.R. that are not part of original Sonic 3 & Knuckles.
Note that some of these can be disabled or configured in the options menu.

Tails Assist

- You need to play with Tails as an AI-controlled second character.
- Jump and when both you and Tails are in mid-air, press **Up + Jump** to make Tails fly. You can then hang on to him and let him carry you around.
- While being carried, control the flight with the **Up, Down, Left, Right** buttons.
- When pressing no button at all, Tails will try to hover in place until he gets tired.
- Tails Assist styles:
  - Sonic 3: Jump off with a **Jump** button, gain height with **Up**.
  - Sonic Mania: Jump off with **Down + Jump**, gain height with **Jump** or **Up**.

Easier Flight Controls

- When playing as Tails, just hold the **Up** button to gain height during flight. There is no need to repeatedly press the Jump button (though that still works as well).

Flight Cancel

- When playing as Tails, you can cancel his flight at any time by pressing **Down + Jump.**
- This will curl Tails into a ball again. Use this move to attack enemies from above!

GAME OPTIONS

In the game's Options menu, you can find various settings to customize the game to your liking.

Display

General
- **Renderer:** The Hardware Renderer is the recommended option, as it's usually faster and allows for higher quality of certain effects like background blur. However, if you encounter large graphics errors in the game, try the Software Renderer instead.
- **Upscaling:** Use either as much as possible of your window / screen with Aspect Fit, or select Integer Scale if you prefer all pixels to be the same size (which can be nice for the Sharp filter).
- **Screen filter:** Want your game to be crisp like the original? Or smoothed using a filter? Note that xBRZ can be pretty performance consuming, depending on your graphics card.
- **Scanlines:** Adds vertical black stripes to resemble a good old CRT TV.
- **Background Blur:** This effect blurs the game's backgrounds so the foreground stands out better. Leave it off for the original game feeling, or set it to up to 100% if you like the effect.

Window Mode
- **Current Screen:** Choose between a resizable window, a borderless fullscreen window (recommended), or the old-fashioned exclusive fullscreen at your desktop resolution.
- **Startup Screen:** Same as above, but here you can set which window mode the game will start in.

Audio

Volume
- **Overall Volume:** Base volume for all audio output.
- **Music Volume:** Relative volume for music playback.
- **Sound Volume:** Relative volume for all sound effects.

Soundtrack
- **Soundtrack Type:** The remastered soundtrack uses higher quality samples, but is still very close to the original (here emulated) music.
- **Sound Test:** Check out the game's music!

Music Selection
- Select Sonic 3 or Sonic & Knuckles version of different themes.
  In some cases, there are additional options to choose from, like the Sonic 2 Super Theme. Or the "Pick by Zone" option, which selects the Sonic 3 version of a music track in the Sonic 3 zones and the Sonic & Knuckles version in the S&K zones (starting in Mushroom Hill Zone).

Visuals

Visual Enhancements
- **Character Rotation:** Use a smooth 360° rotation for characters (and few other objects), or stick to the original 8-way rotation.
- **Time Display:** The extended time display shows hundredths of seconds as well (as Sonic CD and Mania), the original display is only minutes and seconds.
- **Speed Shoes Effect:** Enable or disable the ghost effect when speed shoes are active.
- **Sonic Fast Run Animation:** For really high speeds, enable an additional run animation resembling Sonic CD's Super Peel-Out animation. Affects only Sonic.
- **Flicker Effects:** Certain flickering palette effects get more or less reduced by this option, including Hyper Sonic sprites, emerald flickering, Carnival Night lights, Slot Machine bonus stage animations, and some others.

Camera
- **Outrun Camera:** Allows you to get ahead of the camera when you're going really fast. This effect is known from Sonic 2 and Sonic Mania, but not part of original Sonic 3 & Knuckles.
  [Always disabled in Time Attack]
- **Extended Camera:** Moves the camera a bit ahead when moving fast, similar to the camera in Sonic CD.
  [Always disabled in Time Attack]

Objects
- **Monitor Style:** Either the Sonic 3 / Sonic & Knuckles monitors or the even more classic Sonic 1 / Sonic 2 monitors.
  [Always S3&K monitors in Time Attack]

Color Changes
- **IceCap Startup Time:** The Morning Dawn palette starts IceCap zone just at sunrise instead of during daytime. Carnival Night was at night after all. ;)

Special Stages
- **Blue Spheres Style:** Go with the smoothed modernized look of the Blue Spheres stages, or keep a more close to the original look. Both update the screen at full 60 FPS.
- **Ring Counter:** Let the ring counter display count up like in the original game, or down to always know how many rings remain for a perfect run.

Gameplay

Levels
- **Level Layout:** Choose between the original level layouts used in Sonic 3 (without Sonic & Knuckles), those from Sonic 3 & Knuckles, or the A.I.R. level layouts with some smaller changes compared to Sonic 3 & Knuckles.
  [Time Attack always uses A.I.R. layouts]

Difficulty Changes
- **Angel Island Bombing:** Want a more engaging version of the bombing sequence just before the Angel Island Zone Act 2 boss fight? Or keep the original, and hold right to win?
- **Big Arms Boss Fight:** Optionally reintroduces the final boss fight of Launch Base Zone Act 2 for Sonic & Tails as well, which was part of only Sonic 3, but not Sonic 3 & Knuckles.
- **Sandopolis Ghosts:** If those ghosts realy annoy you, switch them off to make Sandopolis Zone Act 2 easier.

Time Attack
- **Max. Recorded Ghosts:** In Time Attack, you can race against your own best times, visualized as "ghosts". Choose the upper limit for how many of your best runs will be shown at the same time.

Controls

Unlocked by Secrets
- First complete some achievements, then you will get the respective options here. Note that after unlocking, these are still disabled by default, so you have to enable them here.
  [These are always disabled in Time Attack, except for that secret unlockable category]

Abilities
- **Sonic Insta-Shield:** Optionally disable Sonic's Insta-Shield attack.
  [Always enabled in Time Attack]
- **Tails Assist:** When playing with Tails as second character, you can make him carry you around. With Sonic 3 Style, pressing a Jump button will let you jump off; use the Up button to go higher. With Sonic Mania Style, you need to press Down + Jump to jump off instead.
- **Tails Flight Cancel:** Press Down + Jump to roll into a ball again while flying around.
  [Always enabled in Time Attack]
- **Bubble Shield Bounce:** Stay with Sonic 3's original bubble shield behavior or select the more bouncy version from Sonic Mania.
  [Always Sonic 3 style in Time Attack]

Super & Hyper Forms
- **Tails Super Forms:** Use a Super & Hyper form for Tails like with the other characters, or stick with the original Super Tails that requires all 14 emeralds.
- **Super Cancel:** Allows for the W key / Y button to cancel a Super or Hyper form again and go back to normal.

Tweaks

Unlocked by Secrets
- First complete some achievements, then you will get the respective options here. Note that after unlocking, these are still disabled by default, so you have to enable them here.

Accessibility
- **Infinite Lives:** In case you are new to Sonic 3 or Sonic games in general, try enabling so you don't have to care about lives any more.
- **Infinite Time:** No need to hurry, this game is not about speed. Or is it?

Game Variety
- **Shields:** If you like the classic shield, enable it here. It's either classic shield only, elemental shields only (as in Sonic 3 originally), or a mix of all like in Sonic Mania. And then there's the additional option of upgradable shields: At first, all shield monitors will give you the basic classic shield, afterwards monitors turn into elemental shields.
- **Randomized Monitors:** If you're bored of the monitor / item box contents in the usual game, you can mix them up here. Choose between randomization of only the shield monitors or all monitors.
  [Time Attack always uses normal monitors]

Special Stages
- **Special Stage Layouts:** Use the original layouts or a random pick of the Blue Sphere mini-game's generated stages (you know, the game when you lock-on Sonic 1 to the Sonic & Knuckles cartridge). But be warned, the generated ones can be *hard*.
- **On Fail:** When you miss a Chaos Emerald in a Special Stage, do want to get another chance at the next Giant Ring? Or rather advance to the next special stage like in original Sonic 3 & Knuckles?

Region
- **Region Code:** Switch between the Western and Japanese versions of the game. Most notable difference is the in-game name of Miles "Tails" Prower.

TROUBLESHOOTING

Graphics

On some computers, the main menu looks fine, but the in-game graphics are messed up with black bars and missing sprites, like in the screenshot on the right.
In that case, try out the **OpenGL *Software* Renderer**. You can find the respective setting in the Options menu under Display.

Note that the Software Renderer lacks a few features and should only be used if the default Hardware Renderer does not work correctly.

Crash on Startup

If the game crashes immediately after start, before even showing the disclaimer screen:

Windows

Try switching to the "fail-safe" mode. This will disable certain graphics features and automatically switch to a very basic software renderer that does not have any OpenGL dependency.
- Open Windows Explorer and copy this into the address line:
  %appdata%\Sonic3AIR
- After pressing Enter, this takes you to the folder where the game stores settings and other data
- Open the file "settings.json" or just "settings" with a text editor (use Notepad if there's nothing better installed)
- Search for the following part:
  "FailSafeMode" : false,
- Change the word false to true, then save the file and start the game

macOS

Please check the log file in ~/Library/Application Support/sonic3air/Sonic3AIR/. Failsafe mode should not be needed on the macOS version as all Macs should support hardware rendering.

MODS

This game supports different kinds of mods, including replacement of the music tracks, character sprites, and even most of game functionality.
Mods are in general compatible with of Sonic 3 A.I.R. for both **Windows and macOS**.

Find all the information about making your own mods in the modding PDF inside the "doc" folder.

Where to get Mods?

There's no official place where to get Sonic 3 A.I.R. mods.
Instead, a quick search using your favorite internet search engine should find something interesting. Try searching for "sonic 3 air mods download" or similar.
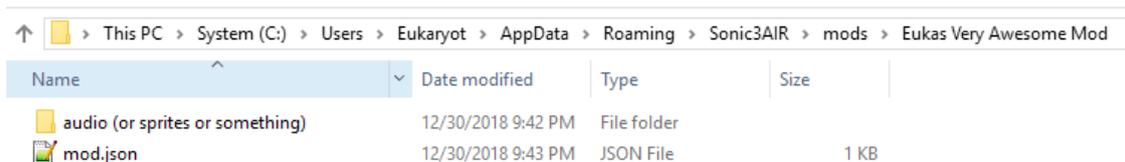
Installation of Mods

If you're only interested in **installing a mod**, here's how.
Let's say you already downloaded a mod. If it follows the recommended mod structure, it is a ZIP file containing a folder with the mod's name and all of the mod's content inside that folder.
The following instructions tell you where to extract that ZIP file to.

Windows
- Open the "mods" folder.
  - A) From inside Sonic 3 A.I.R.:
    - Right-click into the Sonic 3 A.I.R. window while the game is running.
    - Select "Open mods folder" there.
  - B) Alternatively (if the above does not work):
    - Open Windows Explorer and copy this into the address line:
      %appdata%\Sonic3AIR
    - After pressing Enter, this takes you to the folder where the game stores settings and other data.
    - Open the "mods" folder in there.
- If the mod follows the recommended mod structure, you need to extract it into the "mods" folder.
- And if it doesn't… well, just make sure that you see a structure like this:

↑ > This PC > System (C:) > Users > Eukaryot > AppData > Roaming > Sonic3AIR > mods > Eukas Very Awesome Mod

Name	Date modified	Type	Size
audio (or sprites or something)	12/30/2018 9:42 PM	File folder	
mod.json	12/30/2018 9:43 PM	JSON File	1 KB

There might be more subfolders and files in there, but the "mod.json" is the central file.
It tells the game that this is indeed a valid mod.

macOS
- From the "Sonic 3 A.I.R." menu, select "Open mods folder…".
- The mods folder should open automatically.
- If the mod follows the recommended mod structure, it's a ZIP file that you only need to extract into the "mods" folder.
- And if it doesn't… see the Windows section above for how a mod should look like.

To quickly test if a new mod was installed correctly and found by the game, go to the "Mods" menu to see whether the mod appears there.
Note that this requires a restart of Sonic 3 A.I.R., if you install a new mod while it's still running.

ABOUT THIS FAN GAME

As the in-game disclaimer will tell you as well:

Sonic 3 A.I.R. is not affiliated with SEGA® or Sonic Team®. They are the original developers of the Sonic 3 and Sonic & Knuckles games, which Sonic 3 A.I.R. is heavily building upon, and are holding all copyrights to these games. This includes most of the content in Sonic 3 A.I.R.

Sonic 3 A.I.R. is developed as a fan game that regards itself as a modification of the original game. There is no intent to infringe SEGA®s copyrights and trademarks.
Also no financial interests are involved in making this game. It is freeware and may not be sold.

CREDITS AND THANKS

Sonic 3 A.I.R. was developed by **Eukaryot**.
Remastered music created by **DJ Spindash**.
Ported to macOS by **Sappharad**.

Using content from **Sonic 3 & Knuckles** by **Sonic Team®**.
Plus the original *Sonic 2 Super Sonic Theme* and *Boss Music from Sonic 1 & 2* by **Masato Nakamura**.

Additional credits go to:
  •   **Hyllian** for creating the xBRZ pixel filter
  •   **MarkeyJester**, **Linncaki** and **Flamewing** for the documented S&K sound driver disassembly

Special thanks to:
  •   **Fred Bronze / Neo** for sharing lots of interesting technical insights in his [Sonic 3 Unlocked] blog
  •   **MainMemory** for investigating on the details of Sonic Mania's [Drop Dash]
  •   **ValleyBell** for his research and software on Genesis / Mega Drive music
  •   All contributors to the great community-made documentations at [sonicretro.org] which helped a lot getting the code porting started (especially the [RAM Editing docs])
  •   **Saxman** and his [ProSonic] project – a huge inspiration in the early days of Sonic 3 A.I.R.
  •   **Jermaphobe** and **Thorn** for their invaluable feedback and throrough testing
  •   And everyone else supporting this project on Twitter and other media by giving feedback and reporting bugs!