

TILEZ: Players Handbook

A Creative Logic Sandbox

Version 1.0 — Official Technical Manual

Introduction

Welcome to TILEZ! TILEZ is a 2D creative sandbox where every element is a programmable tile. By connecting tiles through power, signals, and movement, you can build circuits, machines, puzzles, games, factories, pixel art, and fully interactive worlds.

The core idea is simple yet powerful: a unified system of cause and effect that scales from simple redstone-style contraptions to complex nested logic and multiplayer experiences. Everything you see and interact with is built from the same flexible tile system.

This handbook combines essential gameplay information to help you start building quickly and master advanced features.

1. Getting Started & Controls

1.1 Basic Tools

Basic Tools (remap any key in Settings – F7)

Key	Tool	Description
F1	Paint	Place the selected tile (live ghost preview).
F2	Erase	Remove tiles.
F3	Select / Copy	Click a tile or drag to select a group.
F4	Paste	Place clipboard content (supports rotation).
F5	Move Mode	Manually drag tiles. Box-select tiles first (F3) and drag any of them to move the whole group together, rotation included.
F6	Inspector	Edit tile properties (or double-click a tile).
F7	Settings	Options and key remapping.
F8	Library	Browse saved tiles, textures, modules, and worlds.
F9	Multiplayer	Host or join sessions.
F10	Play / Edit	Toggle between building and live simulation.
F11	Save Selection	Save your selection to the Library.
F12	Clear World	Reset the grid (with confirmation).

1.2 Shortcuts

- **Ctrl+S:** Quick-save to Library
- **Ctrl+Z / Ctrl+Y:** Undo / Redo

1.3 Camera Controls

- **Arrow Keys:** Pan
- **Middle-Mouse Drag:** Free pan
- **Scroll Wheel:** Smooth zoom (anchored to cursor)
- **Ctrl + Arrow Keys:** Rotate camera view
- **Home Button:** Snap the camera back to its default starting position and zoom.
- **Camera View dropdown (Settings – F7):** Switch between three view styles — flat 2D (default), an angled perspective view, and an angled orthographic (isometric-style) view.

Camera Border & Zoom Limits: In the Settings panel (F7), you can set a Border Width and Border Height (in tiles) to clamp how far the camera is allowed to pan, keeping players confined to a defined playable

area. You can also set Min Zoom and Max Zoom limits (in tiles-across). In multiplayer, only the host can edit these — they sync automatically to every player. In solo play, they apply to your own camera directly.

Tip: Press F10 to enter Play Mode for a clean player view with a simplified HUD.

Live Power: Toggle "Test Power" to run the simulation while staying in EDIT MODE — tiles are fully live and interactive without hiding your editor tools or switching to the simplified Play HUD. Handy for testing a machine while you're still mid-build.

Dungeon Master Mode (Host, Multiplayer only): A host-exclusive toggle that lets the host keep full edit access — tools, inspector, library, and all — while every other player stays locked in the simplified Play HUD. A red border appears around the screen for anyone editing live while play mode is active, as a reminder that the world is currently "live." Great for running a guided experience, adjusting a puzzle on the fly, or acting as a game master while everyone else plays.

2. Tile Properties (The Inspector – F6)

Double Click on any tile in EDIT MODE to open its inspector. Every tile is a tiny programmable machine. Open the Inspector to customize:

2.1 Appearance

- On/Off colors, transparency, glow, textures, and border styles.
- **Shaders:** assign a custom shader (including the built-in TILEZ/Dissolve and TILEZ/Materialize effects) to a tile's On/Off state, recolorable via the same On/Off shader color fields used elsewhere in the Inspector.

2.2 Logic Flags

- **Conductive:** Passes power to adjacent tiles.
- **Generator:** Makes the tile a source of power. Generator tiles can also be combined with Button Modes to create interactive power sources.
- **Locked:** Prevents movement or pushing/pulling.
- **Decor:** Purely visual (no simulation cost, renders beneath logic tiles). Decor tiles also support per-player Visibility (see Hidden Zones in Section 8) to hide them from specific players in

multiplayer.

- **In / Out:** Marks ports for Modules.
- **Stackable:** Allows the tile to be buried under another Stackable tile of the same size (see Stacking Tiles in Section 7).

2.3 Memory

Store a number or text. Display it on the tile, perform math, or use it in signal conditions.

2.4 Size

Set height & width - Multi-cell tiles rotate as a group (including irregular shapes). Resizing checks for collisions — a tile can't grow into space already occupied by another tile.

2.5 Tags

Assign names (comma-separated for multiple groups) for wireless targeting.

2.6 Hotkeys

Bind a keyboard key to directly activate the tile in Play Mode.

2.7 Descriptions

Add speech bubbles that appear Never / Always / On / Off / Hover.

2.8 Delay

Set Delay (ms) on tiles that support delayed power behavior. A delay of 0 passes power immediately; a positive delay makes the tile wait before forwarding power.

2.9 Audio & Particles

Trigger sounds and particle effects on On/Off state changes.

3. Button Modes

These control how tiles respond to clicks, hovering, and power. The exact behavior of some modes depends on whether the tile is also a Generator:

Mode	Behavior
None	Standard tile behavior — no button behavior is added.
Toggle	Press once to switch the tile's state, press again to switch it back. On non-Generator tiles this changes conductive state; on Generator tiles it changes the generator's latched state.
Springback	Active while pressed, then returns to its previous state when released. On Generator tiles the generator is latched while held; on non-Generator tiles the conductive state is temporarily changed.
Latch	Uses a persistent latched state and stays active until a Reset Latch signal turns the latch off.
Repeater	Automatically toggles a Generator's latched state at a regular interval while the game is running. It requires Generator to be enabled.
OnHover	Works like Springback, but activates when the cursor enters the tile and releases when the cursor leaves.
Relay	Directly controls conductive behavior from a matching Simple Signal, making it useful for signal-controlled gates and filters.

Repeater Timing: The Delay (ms) value is the time between each ON/OFF toggle, not the length of a complete ON → OFF → ON cycle. The minimum supported interval is 50 ms; when no delay is set, the default is 500 ms.

4. Power & Signals

Tiles communicate in three ways:

4.1 Adjacency (Wires)

Power flows between adjacent Conductive tiles (up/down/left/right).

A tile with Delay (ms) = 0 forwards power immediately. A positive Delay makes that tile wait before it forwards power onward, allowing you to create timing and sequencing effects in circuits.

4.2 Simple Signals (Wireless)

A powered tile broadcasts to all tiles sharing a matching Tag. Relays only conduct when they receive a matching signal — perfect for AND/OR gates and filters.

4.3 Advanced Signals (Programmable Actions)

When a tile actually changes power state, it can trigger one or more actions. Advanced Signals are edge-triggered: a signal fires when the tile changes from OFF → ON or ON → OFF, not continuously just because the tile remains powered.

Each signal has:

- **Trigger:** OnPowerOn or OnPowerOff
- **Target:** By Tag, By Tag + Offset, Self, Self + Offset, or Activator
- **Conditions (optional):** Add up to 8 conditions per signal (e.g., Memory = 5, Tile Exists at offset, etc.). Conditions are checked in the order they are listed, using each condition's AND/OR connection to the next condition. They are evaluated left-to-right rather than using normal mathematical-style precedence.

Available Actions (20 total)

- Modify Properties
- Copy Attributes
- Increment / Decrement Memory
- Set Memory Random
- Button Turn On / Off / Switch
- Reset Latch
- Move Tile
- Duplicate Tile
- Create Tile (from Library)
- Delete Tile
- Rotate Left / Right
- Shuffle Stack (randomizes the order of a buried tile stack — great for card decks and loot tables)

- Camera Control
- Change Background
- Set Player Camera / Movement controls

Signals support per-signal cooldowns and safe limits to prevent performance issues.

For the full list of properties you can check or modify with a signal, and what kind of value each one expects, see the Property Glossary at the end of this handbook.

5. Movement & Kinetics

Tiles can push, pull, and interact physically:

- **Pushers:** Push tiles in a direction when powered (set reach and distance).
- **Pullers:** Pull tiles toward the source.
- **Grabbers:** Stick neighboring tiles together so they move as a group.

Locked tiles are immune to movement.

Movements are atomic — entire connected chains move together or not at all.

Manual dragging (Move Mode, F5) works the same way in Edit Mode: dragging a single tile grabs just that tile (plus anything grabbed to it). To move several tiles together, box-select them first with the Select tool (F3), then drag any one of the selected tiles — the whole group moves as a unit, rotation included. Play Mode only allows moving one tile at a time by default.

Multiplayer Play Mode permissions (host-controlled, Settings – F7): the host can optionally allow players to use Move Mode in Play Mode, allow Group Move in Play Mode (moving a boxed-selected group instead of just one tile at a time), and allow Player Camera control in Play Mode. These sync to every player as soon as the host changes them.

6. Modules (Custom Logic Chips)

Pack complex machines into a single reusable tile:

1. Build your logic on the grid.
2. Mark key tiles as Input and Output ports.
3. Save the machine to the Library.
4. Place the saved Module anywhere — it runs invisibly.

Modules support deep nesting (modules inside modules) and use a streamlined internal logic system designed for reusable circuits and port-based communication. The full-world Advanced Signal system and Repeater timing are not part of the Module's internal logic graph.

Output Ports fire Simple Signals that can be customized in the Inspector Panel of the Module Tile.

Per-Instance Port Routing: Double-click a placed Module tile to open its Output Port Routing panel, which lists every input and output port defined in that module. Each output port's target Tag and Simple Signal Port Number can be overridden per-instance — so you can drop the same saved module in multiple places and have each copy wire its outputs to different tags without editing or re-saving the module itself.

7. Tools & Features

7.1 Texture Capture

Activate the tool, drag-select any region, and instantly create a reusable PNG texture. New textures appear immediately in the Inspector.

7.2 Library

Save and reuse tile groups, modules, textures, and entire worlds. Supports previews and quick placement.

7.3 Selection & Clipboard

Drag-select, copy, rotate, and paste groups. Save selections for repeated use. Buried stacks (see below) are fully supported — copying, pasting, and rotating a stacked tile brings every layer underneath it along for the ride.

7.4 Undo / Redo & Saving

Full undo/redo history. Quick-save (Ctrl+S) and atomic world saves. Every layer of a buried stack is included in undo/redo and world saves, so nothing is lost by burying a tile.

7.5 Decor Layer

Place purely visual tiles that sit beneath logic tiles with zero simulation cost.

7.6 Tutorial System

Follow STEP-by-STEP instructions with visuals to build things and create your own tutorials.

7.7 Stacking Tiles

Any tile flagged as Stackable in the Inspector can be buried underneath another Stackable tile of the same footprint size, letting you build tall without using extra floor space. Both tiles must be Stackable, and their footprints must match exactly.

How it works:

- Toggle Stackable on in a tile's Inspector panel.
- Move (or place) a same-size Stackable tile onto another Stackable tile to bury it — the tile that was already there drops one layer down in the stack and becomes inactive, while the new tile becomes the active top layer.
- Only the TOP tile of a stack is simulated and interactive — it conducts power, responds to signals, and can be clicked, just like a normal tile.
- Every layer below the top is treated like a Decor tile: fully visible (rendered as a dimmed underlay so you can still tell what's buried, with dimming increasing the deeper the layer), but not simulated and not interactable.
- Moving the top tile off a stack reveals the layer underneath, which becomes active again — this is what happens with a normal drag (Move Mode, no prior selection) or any push/pull/grab movement.
- To take the whole stack with you instead, box-select the stacked tile first (F3), then drag it in Move Mode (F5) — every buried layer travels along to the new spot rather than being left uncovered.
- Stacks work seamlessly with Copy/Paste, Undo/Redo, world saves, and multiplayer — every buried layer travels with the stack wherever it goes.
- Use the Shuffle Stack signal action to randomly reorder every layer in a buried stack at once — perfect for shuffling a deck of cards or a hidden loot pool.

Great for:

- Card decks
- Basements and hidden wiring under a visible floor
- Layered decorative builds
- "Buried" puzzle mechanics
- Saving space in tight builds

7.8 Settings & Maintenance (F7)

Beyond key remapping, the Settings panel also lets you pick a background color, toggle windowed mode, choose your Camera View style, set the Camera Border and Zoom Limits, and manage the Play Mode permissions described in Section 5. It also has quick "manage" buttons that open your Textures, Sounds, Saves, and Tutorials folders directly in your file explorer.

If something looks visually out of sync, a "Fix Glitch" button is available to reload your texture/sound/tutorial libraries from disk and resync the world without needing to restart.

8. Multiplayer

Play and build together in real time:

- Host a session (F9) to generate a Join Code (no port forwarding needed).
- Shared simulation: actions affect everyone.
- Visible color-coded player cursors.
- Independent cameras and hotkeys per player.
- Camera Control signals can target specific players.
- Dungeon Master Mode (see Section 1) lets the host keep editing live while everyone else plays.
- The host can control whether players are allowed to use Move Mode, Group Move, and independent cameras while in Play Mode (see Section 5).

Hidden Zones (Fog of War)

Any Decor tile can be given a Visibility list of specific players in the Inspector (F6). If a Visibility list is set, that decor tile is only rendered for the listed players and stays hidden from everyone else — handy for secret rooms, per-player clues, or asymmetric multiplayer experiences. Leave the Visibility list empty for a decor tile to remain visible to everyone as normal.

Everything (power, signals, movement, modules, stacking) works seamlessly in multiplayer.

Tips for Success

- Start small: Build basic circuits with wires and buttons before adding signals and modules.
- Use Decor tiles liberally for visuals.
- Tags + Relays are your best friends for clean logic.

- Save often to the Library — modular design makes big projects manageable.
- Experiment in Play Mode (F10) to test machines without editor clutter.
- Use the in-game Guides/Rulebook (accessible via UI) for quick reference.
- New to TILEZ? Open the Challenges panel for a set of guided, step-by-step tutorial builds.

TILEZ is designed to give you enormous freedom to experiment, build, test, and invent. The systems are flexible enough to support everything from simple circuits to complex interactive worlds.

Have fun building, breaking, and inventing!

Appendix: Property Glossary

The glossary below covers the main properties used by Signal Conditions and Modify Properties. Where a property can be checked, changed, or has special value rules, the entry explains the expected format. Not every property is available in every signal action.

A. Existence / Location

(no value needed — these are yes/no checks)

- Tile Exists / Tile Not Exists — is there a real, interactive tile at the target spot
- Decor Exists / Decor Not Exists — is there a decor tile at the target spot

B. Power / State

- Is Powered / Is Not Powered — no value needed
- Is Latched — true or false (read-only; reflects the tile's current latch state)
- Memory — any text, or a whole number if comparing with < or >
- Button Mode — None, Toggle, Springback, Relay, Latch, Repeater, or OnHover

C. Physical

- Width / Height — whole number (resize is collision-checked against neighboring tiles)
- Rotation — whole number, 0–3
- Transparency — decimal, 0–1
- Locked / Conductive / Generator / Decor — true or false

D. Description / Display

- Description — any text
- Description Mode — Never, Always, WhenPoweredOn, WhenPoweredOff, or OnHover
- Display Memory On Tile — true or false

E. Colors

(On Color, Off Color, Memory Color, Glow On/Off Color, Border On/Off Color, Shader On/Off Color)

Any color property — hex code without the # symbol, e.g. FF8800 .

F. Textures / Shaders / Glow / Border

- On/Off Texture Name, Shader On/Off Name — the resource name as text (includes the built-in TILEZ/Dissolve and TILEZ/Materialize shaders)
- Use Glow — true or false
- Glow Intensity — decimal, minimum 0
- Border Thickness — decimal, 0-1
- Padding On / Padding Off — whole number, 0-100

G. Audio / Particles

- Particle On/Off, Sound On/Off — the resource name as text

H. Tags / Routing

- Tags — one or more tag names, comma-separated
- Target Tag / Simple Signal Tag — a single tag name
- Simple Signal Port Number — whole number
- Delay (ms) — whole number, minimum 0
- Hotkey — a key name, e.g. Space, F1, LeftShift
- Visibility Players — one or more player slot numbers, comma-separated (Decor tiles only — see Hidden Zones in Section 8)

I. Module / Ports

- Is Module / Is Input / Is Output — true or false
- Module Path — file path as text

- Module Output Tags — one or more tag names, comma-separated (can also be set per-instance via the module's Output Port Routing panel — see Section 6)
- Port Number — whole number (PORT #s MUST START AT ZERO (0) and INCREASE BY +1)

J. Pusher / Puller / Grabber

- Is Pusher / Is Puller / Is Grabber — true or false
- Push/Pull/Grab Up, Down, Left, Right — true or false
- Push/Pull Range, Push/Pull Distance — whole number, minimum 1

Tip: for Button Mode and Description Mode, typing the name (like "Toggle") is the recommended way to set the value — some builds may also accept the underlying number, but the name is always the safe, readable choice.