

# ParticleScale Easy

A focused, non-destructive, hierarchy-aware particle scaling tool for production use.

ParticleScale Easy is a professional Unity Editor tool designed to efficiently scale Particle System modules across selected GameObjects and their entire hierarchy, without touching Transform components. It is built for precision workflows, large scene management, and non-destructive iteration.

This tool enables artists and developers to globally adjust particle effects while preserving scene structure and ensuring full Undo safety.

## Features

- **Recursive Scanning:** Automatically scans selected objects and all their children for ParticleSystem components
- **Multiple Selection Support:** Select multiple objects in Hierarchy to scale particle systems across all selected objects simultaneously
- **Hierarchy Order:** Particle systems are displayed in the same order as Unity Hierarchy for easy identification
- **Hierarchical Tree View:** Displays particle systems in a tree structure matching Unity Hierarchy, showing parent-child relationships
- **Selective Scaling:** Choose which particle systems to scale using checkboxes (supports "Select All"/"Deselect All" buttons)
- **Module Selection:** Choose which modules to scale (Size, Shape, Collision)
- **Real-time Scaling:** Changes are applied automatically as you adjust the scale factor slider
- **Play Loop Preview:** Preview particle effects with automatic looping (automatically skips if particle systems have looping enabled)
- **Auto Restore:** Automatically restores original values when scale factor is set to 1.0x
- **Restore Functionality:** Restore original values at any time
- **Undo/Redo Support:** Full Unity Undo/Redo (Ctrl+Z/Ctrl+Y) support for all operations with automatic scale factor synchronization

- **Smart Selection:** Inactive child GameObjects are displayed in gray and default to unselected state
- **Multiple Systems:** Supports multiple ParticleSystem components on the same GameObject
- **Quick Scale Increase/Decrease:** Quickly increase or decrease scale factor by 0.1x increments via menu items (customizable hotkeys available)

## Usage

1. **Select Object(s):** Select one or multiple GameObjects in the Hierarchy (can be parent objects with children). The tool will scan all selected objects and their children for ParticleSystem components
2. **Open Tool:**
  - From menu: Tools → ParticleScale Easy → Settings
3. **Review Particle Systems:** The tool automatically scans and displays all ParticleSystem components from all selected objects in a tree view matching Unity Hierarchy structure, ordered by Hierarchy position
4. **Select Systems:** Use checkboxes to select which particle systems to scale (or use "Select All"/"Deselect All" buttons)
5. **Choose Modules:** Toggle which modules to scale (Size, Shape, Collision)
6. **Set Scale Factor:**
  - Use the slider (0.1x to 5.0x) - changes are applied automatically in real-time
  - Or use quick buttons (0.3f, 0.6f, 1.0f, 1.3f, 1.6f, 2.0f, 3.0f, 4.0f, 5.0f)
  - Or use menu items: Tools → ParticleScale Easy → Scale Increase / Scale Decrease to adjust by 0.1x increments
  - Setting scale to 1.0x automatically restores original values
7. **Customize Hotkeys (Optional):** You can assign custom keyboard shortcuts to Scale Increase and Scale Decrease menu items:
  - Go to Edit → Shortcuts... (or Unity → Settings → Shortcuts on macOS)
  - Search for "ParticleScale Easy"
  - Assign your preferred hotkeys to "Scale Increase" and "Scale Decrease" menu

items

- These hotkeys work even when the tool window is not open

8. **Preview:** Enable "Play Loop?" to preview particle effects with automatic looping (only works for non-looping particle systems)
9. **Undo/Redo:** Use Unity's standard Undo/Redo (Ctrl+Z/Ctrl+Y) to revert or reapply changes

## Modules

### Size (Main Module)

- Scales `startSize` values (both Constant and TwoConstants modes)
- Supports `startSize3D` with separate scaling for X, Y, Z axes (both Constant and TwoConstants modes)

### Shape

- Scales `radius` for circular shapes
- Scales `scale` `Vector3` for all shape types
- Properly handles Box, Sphere, Cone, and other shape types
- Preserves `radiusThickness` value (stored for restore functionality)

### Collision

- Scales `radiusScale` for collision detection

## Notes

- The tool does NOT modify Transform components, only ParticleSystem module values
- All changes can be undone using Unity's standard Undo system (Ctrl+Z)
- Scale factor automatically synchronizes with actual particle system values after Undo/Redo operations

- Changes are applied in real-time as you adjust the scale factor slider
- Original values are stored when scanning (updated each time an object is selected), so Restore always returns to the initial state
- The tool supports multiple ParticleSystem components on the same GameObject
- Inactive GameObjects are displayed in gray color in the tree view
- Play Loop preview automatically skips particle systems that have looping enabled
- When selecting a new object or changing selection, the scale factor resets to 1.0x
- Multiple object selection is fully supported - select multiple objects in Hierarchy to scale particle systems across all of them at once
- Particle systems are displayed in Hierarchy order for consistent and predictable organization

## Compatibility

Unity 2020.3 LTS and above.