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# Wind

### NEEDS HYPERLINKS

Wind behavior is controlled by the animation properties on the model and the settings on the Fan object. The best workflow for tuning wind is to first run the Wind Wizard, then tune branch motion, and finish off with leaves and fronds.

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## Wind Wizard

The best way to start is to run the Wind Wizard [link](#). Pick the options that best match your model and press 'OK'. All of the model wind properties will be set to something reasonable, the fan settings will be set to the model type you picked, and wind will be enabled in the viewport.

**Note: If the model is too detailed to animate fluidly in the viewport, consider using 'Focus' to isolate a main branch and its descendants.**

This is a good time to get a feel for how the model behaves in different conditions. Use the Fan

settings or viewport overlay to set the wind speed both low and high so you have an idea how your model behaves at each of the extreme settings.

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## Tuning Branch Wind

Branch wind is broken down into five stages: “Shared” wind that affects the entire model and four levels of unique branch motion. Wind levels are assigned based on which Branch or Spine generators have wind enabled as you follow the generation editor hierarchy from the “Tree” generator. The first generator encountered with wind enabled is assigned level 1. The second, level 2, and so on.

**Note: To quickly see what parts of the model are at a particular level press 'Select' in the branch wind group on the Fan object.**

All of the branches will rotate with their parents, but only four levels will move uniquely. The Wind Wizard will take a guess but you can toggle wind on and off on each generator to get the best results for your model.

Once you're happy with the wind levels, use the Branch Wind groups on the Fan object to tune the branch behavior. The left hand side of the curves represent calm wind while the right side represents high wind.

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## Tuning Leaf Wind

The major decision that needs to be made regarding leaf wind is what group is each leaf generator in. There are two leaf wind groups. The first is typically reserved for the main leaves/needles on the model. The second is typically used for anything else that needs to be animated like fruit, pine cones, and flowers.

Each leaf generator has a leaf group property and the Wind Wizard will probably get these assignments correct. Check that they are correct and then use the Leaf Wind properties on the Fan object to tune the behavior.

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## Tuning Frond Wind

Fronds are governed by the branch they are attached to and the properties in the Frond Wind section on the Fan object. Edit the properties of the branch level associated with the frond and the Frond Wind properties to tune the behavior.

**Note: For wide flat fronds like elephant ears it is often a good idea to increase the 'Flexibility' property of the associated branch level.**

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# Response Scalars

The Fan has direction and strength response scalar properties. Use these to control how quickly the model responds to strength and direction changes. Big models like mature oak trees should have high numbers (~14). Small plants like elephant ears should have lower settings (~6). The goal when tuning these values is that the model should respond appropriately to gusts of wind. If your majestic shade tree is too twitchy during gusts, these properties are likely the culprit.

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## Best Practices

The following list outlines a few things to keep in mind when tuning wind animation.

- Know you're setting. If you only need calm wind, get that correct and move on.
  - If you need calm and stormy wind on the same model change wind strengths periodically to make sure you're edits aren't harming other strengths.
  - Turn off gusting when tuning.
  - Most things on trees move faster than you think. Keep frequencies high, especially for small movements.
  - Tune leaves to respond more quickly to strength increases than branches by making their frequency and movement curves rise more steeply.
  - Hide leaves while you're tuning branches.
  - Leaf motion will make the model much more chaotic. Don't worry if branches alone don't look "stormy".
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