

# DynamicSupervisor

*Herding cats with Elixir 1.6*



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...also blockchain!

## Old v. New

- Supervisor Module
  - `:simple_one_for_one` strategy
  - Single `child_spec` per Supervisor
  - Start children with `start_child/2`
  - Stop children with `terminate_child/2`
  - Deprecated in Elixir 1.6
- DynamicSupervisor Module
  - `:one_for_one` strategy (only)
  - Many `child_specs` per supervisor
  - Start children with `start_child/2`
  - Stop children with `terminate_child/2`
  - Introduced in Elixir 1.6 to replace `:simple_one_for_one`

# Supervised Child

```
defmodule Stack do
  use GenServer

  def start_link(initial_value) do
    GenServer.start_link(__MODULE__, List.wrap(initial_value))
  end

  def init(initial_value), do: {:ok, initial_value}

  def pop(stack_pid), do: GenServer.call(stack_pid, :pop)
  def push(stack_pid, value), do: GenServer.cast(stack_pid, {:push, value})

  def handle_call(:pop, _, stack) do
    {value, stack} = List.pop_at(stack, 0)
    {:reply, value, stack}
  end

  def handle_cast({:push, v}, stack), do: {:noreply, stack ++ [v]}
end
```

# StackSupervisor

```
defmodule StackSupervisor do
  use DynamicSupervisor

  def start_link(args) do
    DynamicSupervisor.start_link(__MODULE__, args, name: __MODULE__)
  end

  def init(_args), do: DynamicSupervisor.init(strategy: :one_for_one)

  def start_stack(initial_value) do
    DynamicSupervisor.start_child(__MODULE__, {Stack, initial_value})
  end

  def stop_stack(stack_pid) do
    DynamicSupervisor.terminate_child(__MODULE__, stack_pid)
  end
end
```

# Queries

```
def which_stacks(), do: DynamicSupervisor.which_children(__MODULE__)  
[  
  {:undefined, #PID<0.128.0>, :worker, [Stack]},  
  {:undefined, #PID<0.130.0>, :worker, [Stack]},  
  {:undefined, #PID<0.132.0>, :worker, [Stack]}  
]
```

```
def count_stacks(), do: DynamicSupervisor.count_children(__MODULE__)  
%{active: 3, specs: 3, supervisors: 0, workers: 3}
```