

## Latest Features in Stateflow 7.2

**R2008b**

# Simulink Functions in Stateflow

## Challenge

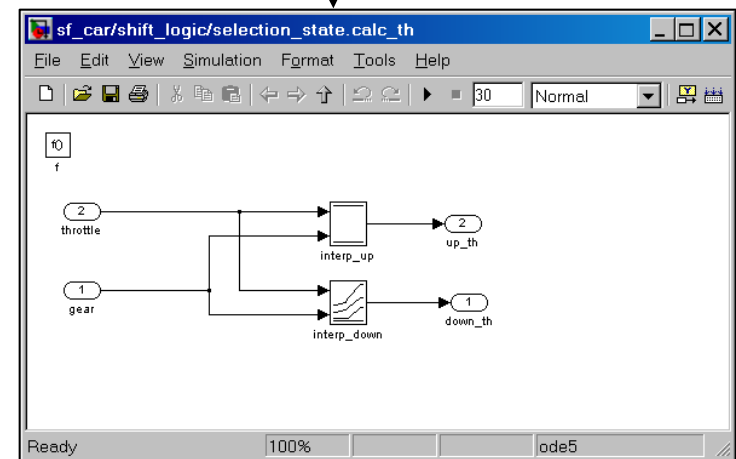
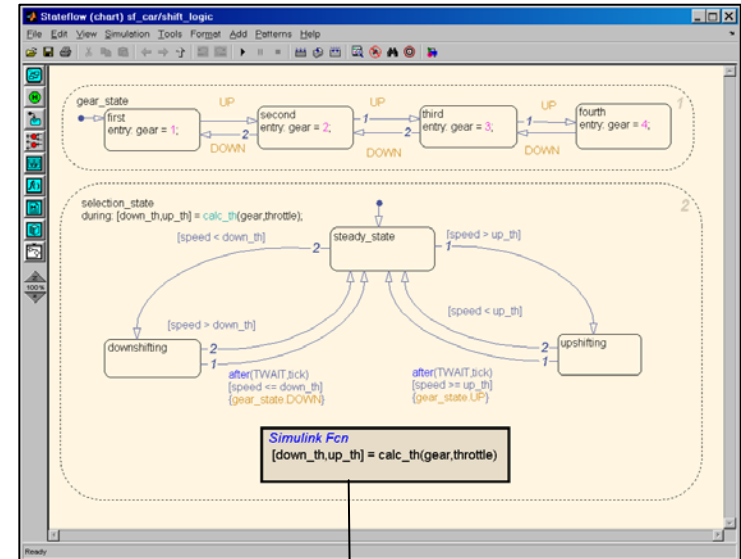
- Engineers need to directly control tasks, subsystems, and components using complex logic.
- Models with Stateflow charts calling Simulink functions were difficult to understand and contained significant modeling overhead.

## Solution

- Embed Simulink functions directly inside a Stateflow chart

## Benefit

- Readability and usability of interfacing Simulink functions with Stateflow are increased.
- Engineers can efficiently create:
  - Simulink algorithms inside of Stateflow charts
  - Schedulers where Stateflow charts execute various tasks or components modeled in Simulink
  - Stateflow charts that switch between different controllers implemented in Simulink



# Support for Enumerated Variable Data Type

## Challenge

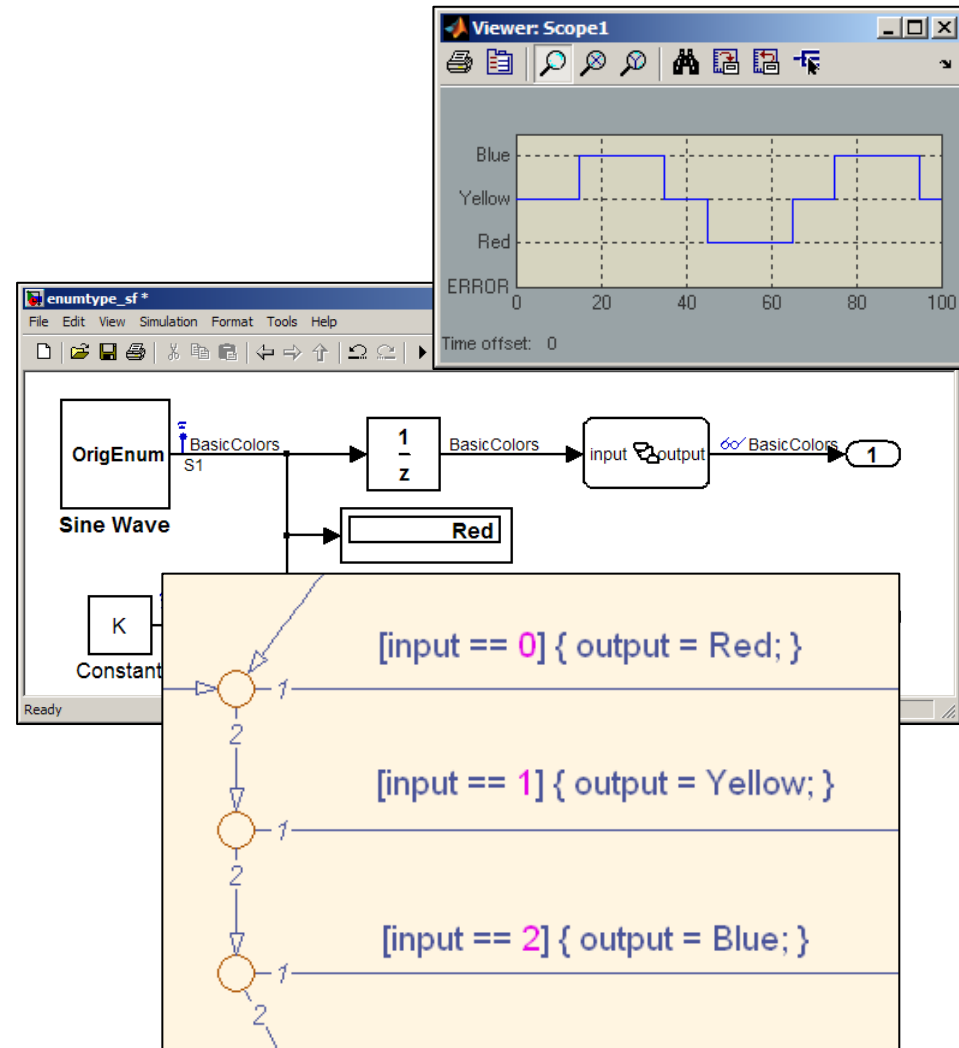
- Many logic applications require the use of enumerated lists (defined as data with a limited set of allowable values).
- Enumerated variables in Simulink and Stateflow were represented by Booleans, integers, or constants, which were difficult to read, not clearly defined, or both.

## Solution

- Support enumerated data types in Simulink and Stateflow
- Represent `enum` data types in generated C code

## Benefit

- Clear, readable logic using natural words (e.g., `output = Red` instead of `output = 1`)
- Improved robustness as only defined values are allowed (e.g., output can only be Red, Yellow, or Blue)



# Stateflow Pattern Wizard

## Challenge

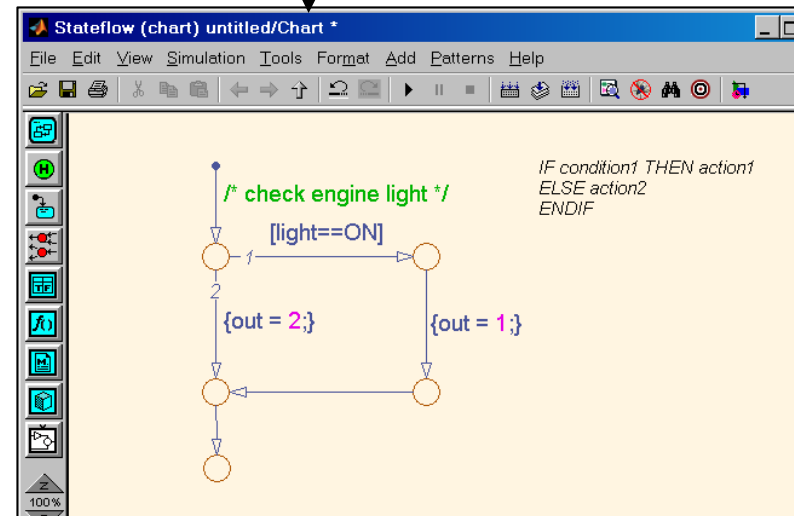
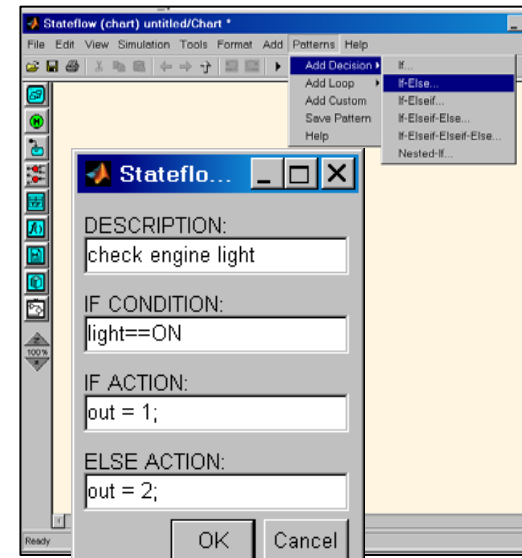
- Users had to manually create common flow-graph constructs.
- It was not obvious how to model these constructs.
- Unique implementations reduced the readability of logic.

## Solution

- Pattern Wizard for including standard flow-graph constructs (e.g., if-then-else, for-loop, and do-while) and custom patterns

## Benefit

- Create common flow-graph patterns quickly, easily, and in a standard format
- Create, save, and reuse your own custom patterns



# Stateflow Simulation Options on Configuration Parameters

## Challenge

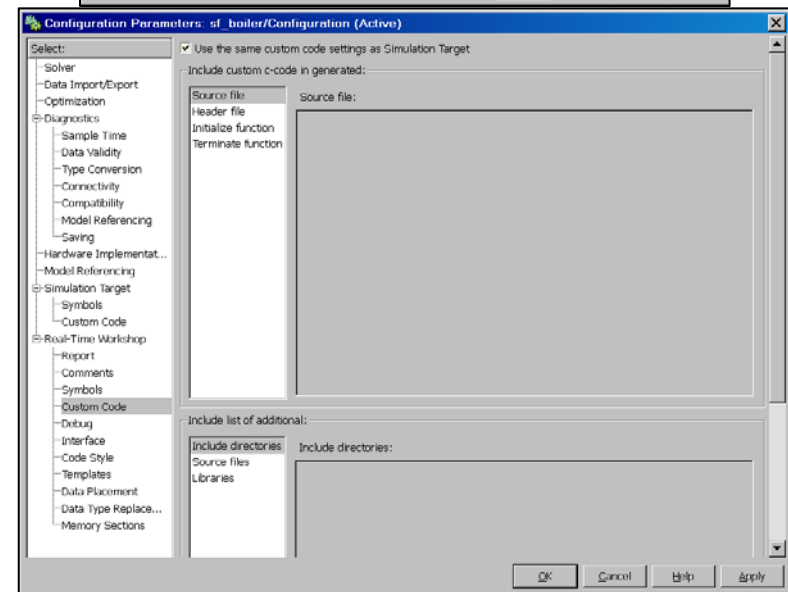
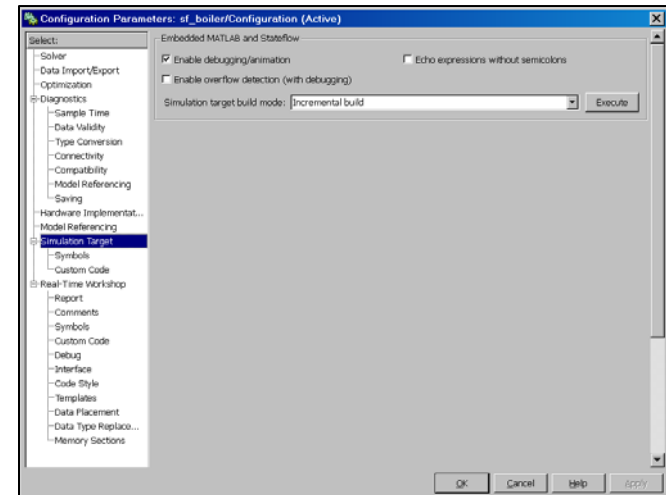
- Configuring simulation and code generation options for Simulink models that include Stateflow and Embedded MATLAB was difficult because there were multiple user interfaces with slightly different options for each domain.

## Solution

- Stateflow and Embedded MATLAB simulation and code generation options are now located within the Simulink Configuration Parameters dialog.

## Benefit

- Single place for specifying simulation options for Simulink, Stateflow, and Embedded MATLAB
- Simplified and consistent custom code options for Stateflow simulation and code generation



# Stateflow Alignment and Distribution Tools

## Challenge

- Formatting Stateflow charts was manual and time-consuming.

## Solution

- Provide selection-driven alignment, resizing, and distribution tools

## Benefit

- Users can efficiently create attractive, understandable state charts.

