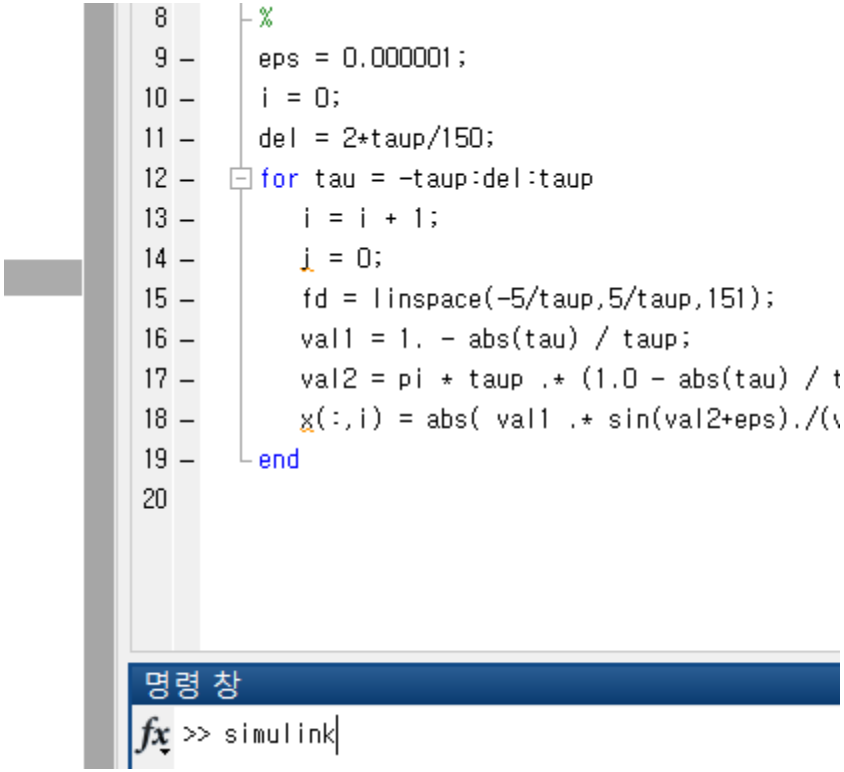
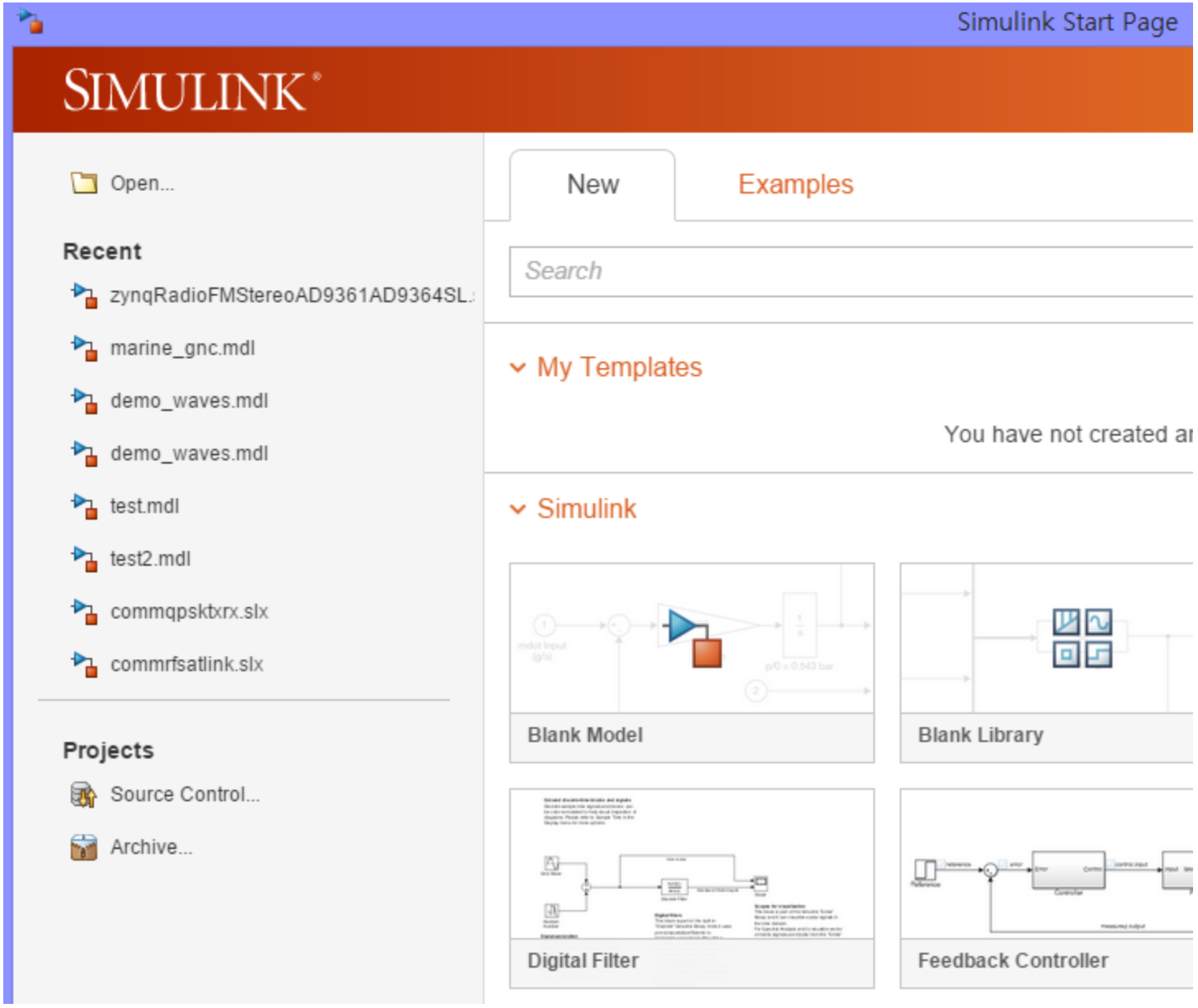
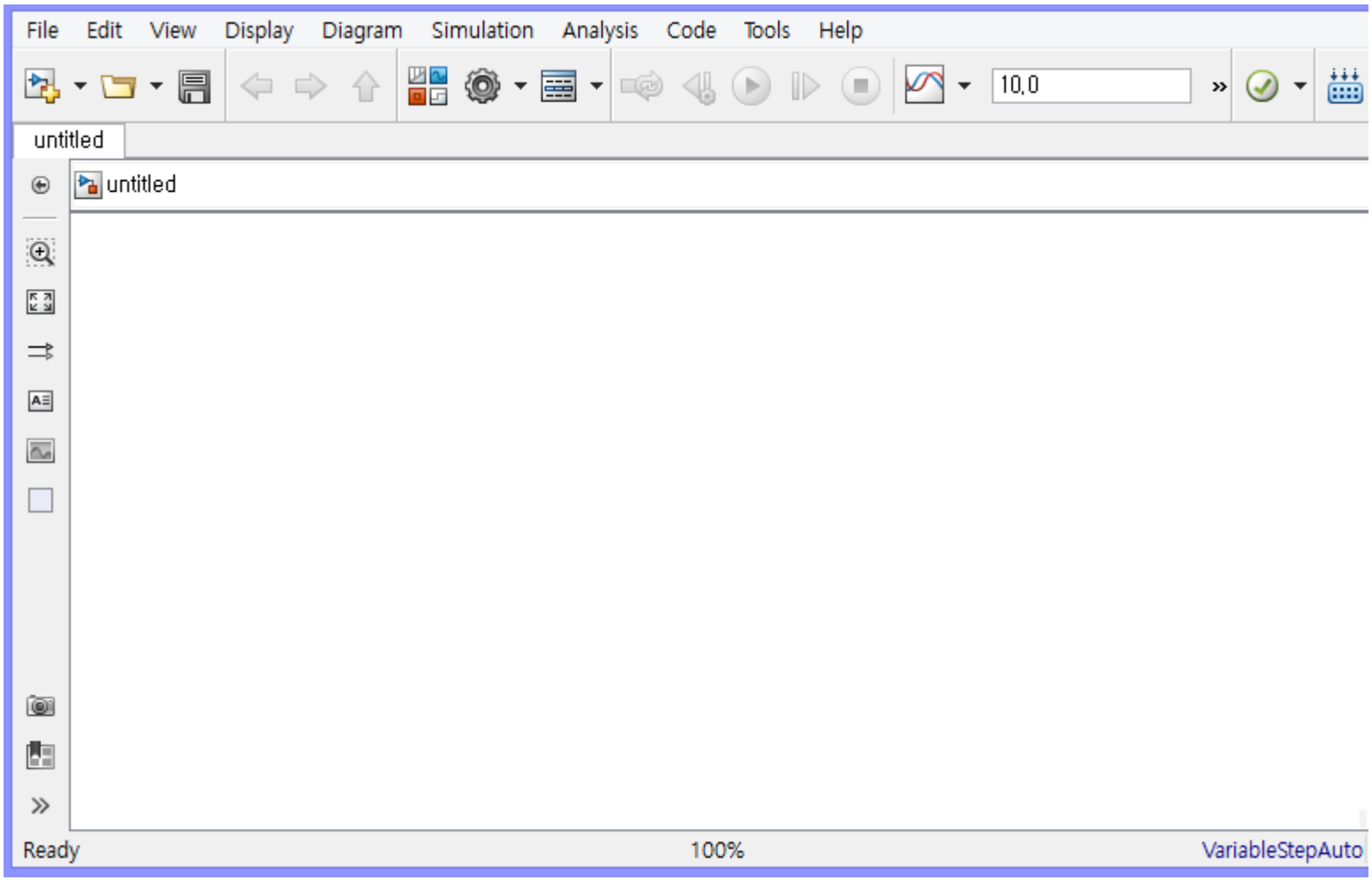
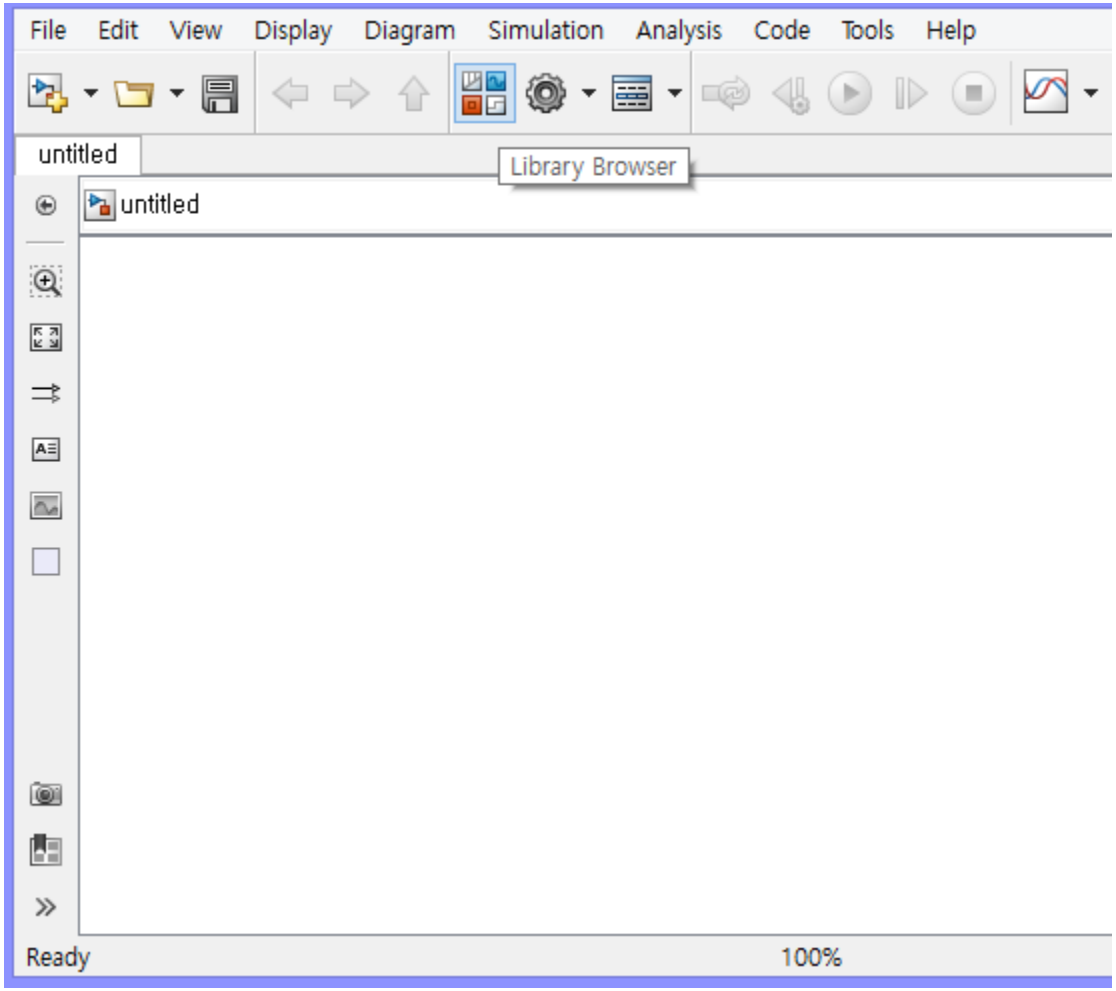
How to create Simulink Model

Innova Lee(이상훈)
gcccompil3r@gmail.com


8 %
9 eps = 0.000001;
10 i = 0;
11 del = 2*taup/150;
12 for tau = -taup:del:taup
13 i = i + 1;
14 j = 0;
15 fd = linspace(-5/taup,5/taup,151);
16 val1 = 1. - abs(tau) / taup;
17 val2 = pi * taup .* (1.0 - abs(tau) / t
18 x(:,i) = abs(val1 .* sin(val2+eps)./(
19 end
20
명령 창
>> simulink


Simulink Start Page
SIMULINK®
Open...
Recent
zynqRadioFMStereoAD9361AD9364SL...
marine_gnc.mdl
demo_waves.mdl
demo_waves.mdl
test.mdl
test2.mdl
commqpsktxrx.slx
commrfsatlink.slx
Projects
Source Control...
Archive...
New
Examples
Search
My Templates
You have not created ar
Simulink
Blank Model
Blank Library
Digital Filter
Feedback Controller


File
Edit
View
Display
Diagram
Simulation
Analysis
Code
Tools
Help
10,0
untitled
untitled
Ready
100%
VariableStepAuto


File
Edit
View
Display
Diagram
Simulation
Analysis
Code
Tools
Help
untitled
Library Browser
untitled
Ready
100%

Workspace

Aerospace Blockset/Flight Instruments

- Simulink
  - Commonly Used Blocks
  - Continuous
  - Dashboard
  - Discontinuities
  - Discrete
  - Logic and Bit Operations
  - Lookup Tables
  - Math Operations
  - Model Verification
  - Model-Wide Utilities
  - Ports & Subsystems
  - Signal Attributes
  - Signal Routing
  - Sinks
  - Sources
  - User-Defined Functions
  - Additional Math & Discrete
- Aerospace Blockset
  - Actuators
  - Aerodynamics
  - Animation
  - Environment
  - Equations of Motion
  - Flight Parameters
  - Flight Instruments
  - GNC
  - Mass Properties
  - Pilot Models
  - Propulsion
  - Utilities
- Audio System Toolbox
  - Dynamic Range Control
  - Effects
  - Filters
  - Sinks
  - Sources
- Communications System Toolbox
  - Channels
  - Comm Filters
  - Comm Sinks
  - Comm Sources
  - Equalizers
  - Error Detection and Correction

Airspeed Indicator

Altimeter

Artificial Horizon

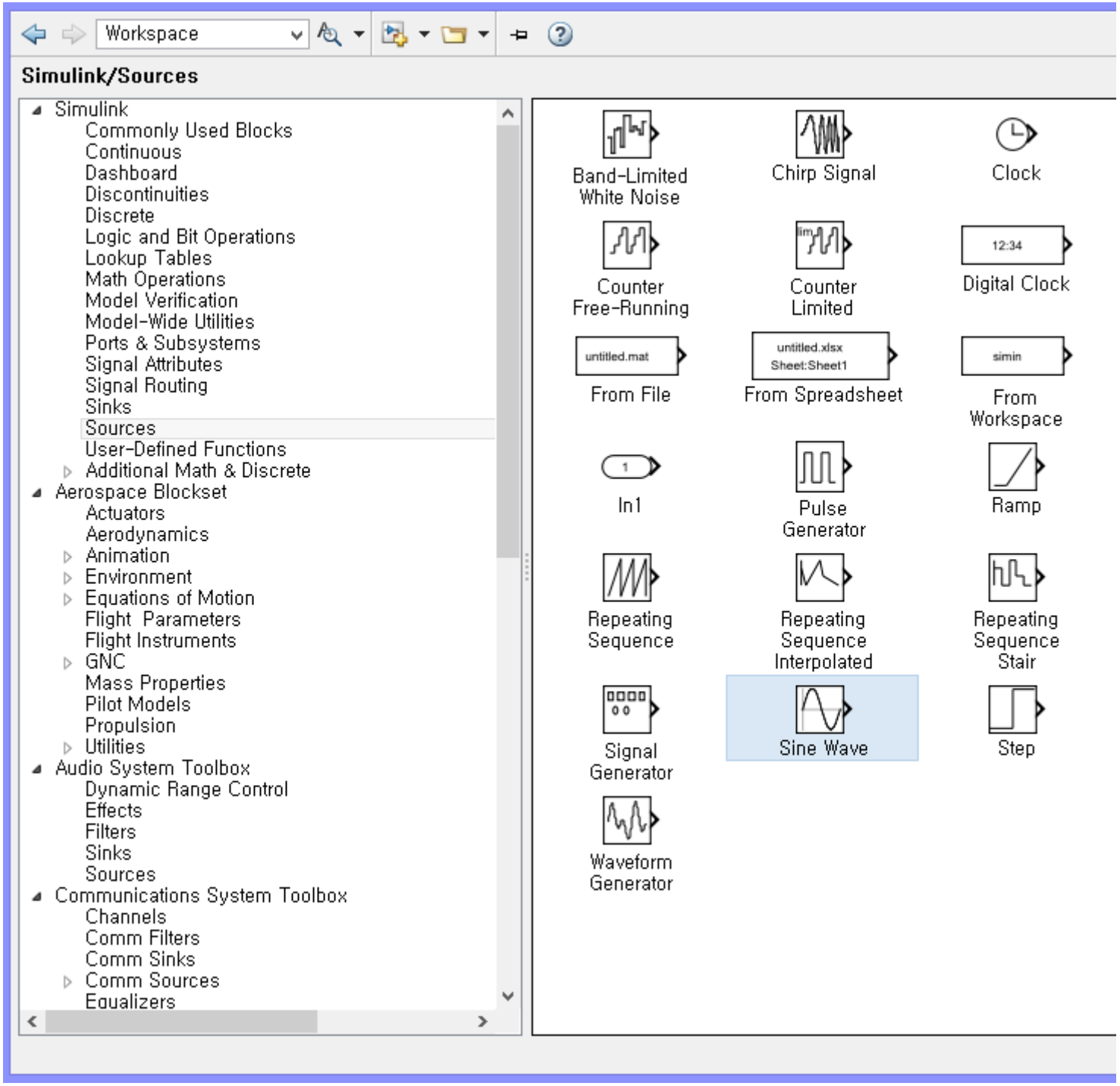
Climb Rate Indicator

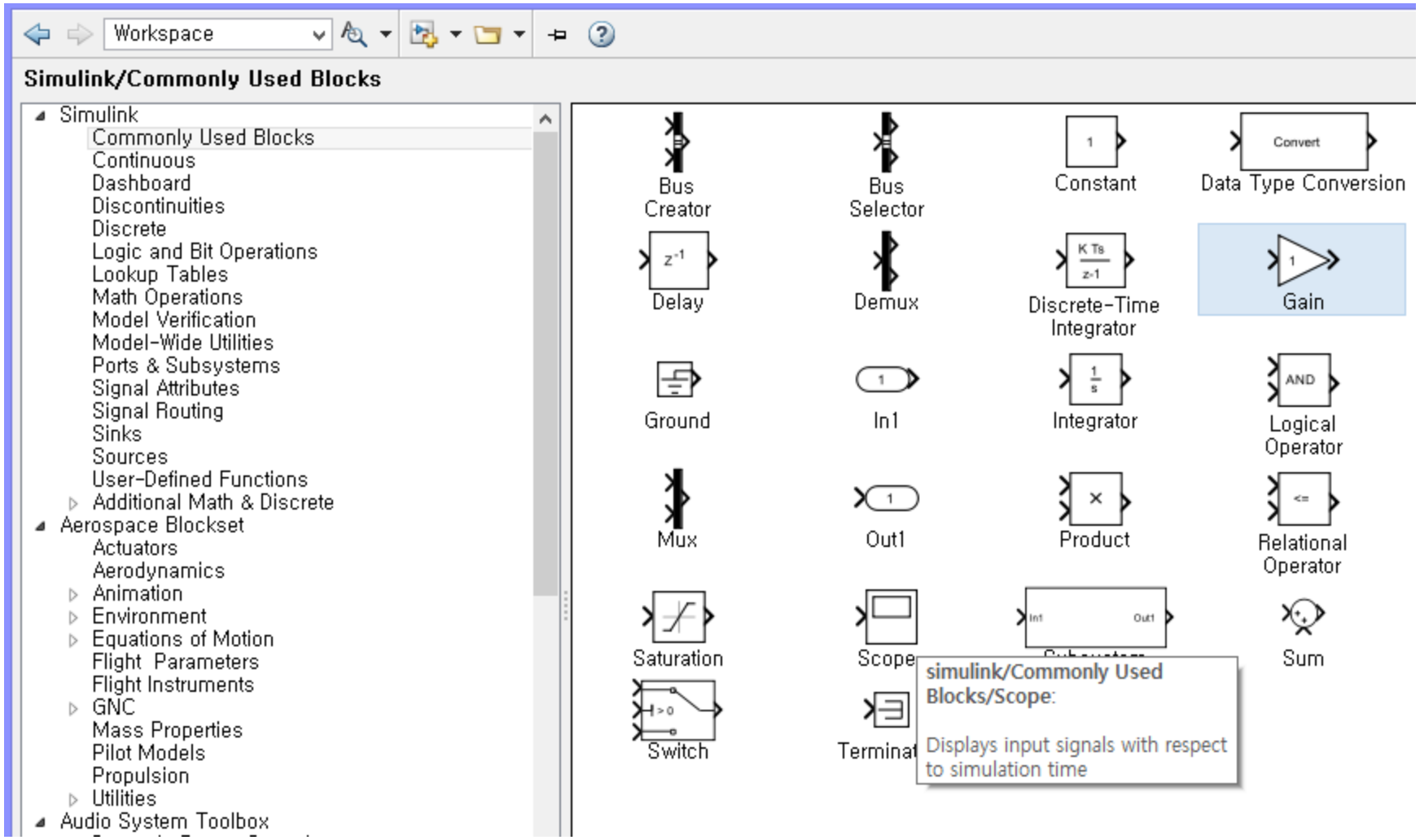
EGT Indicator

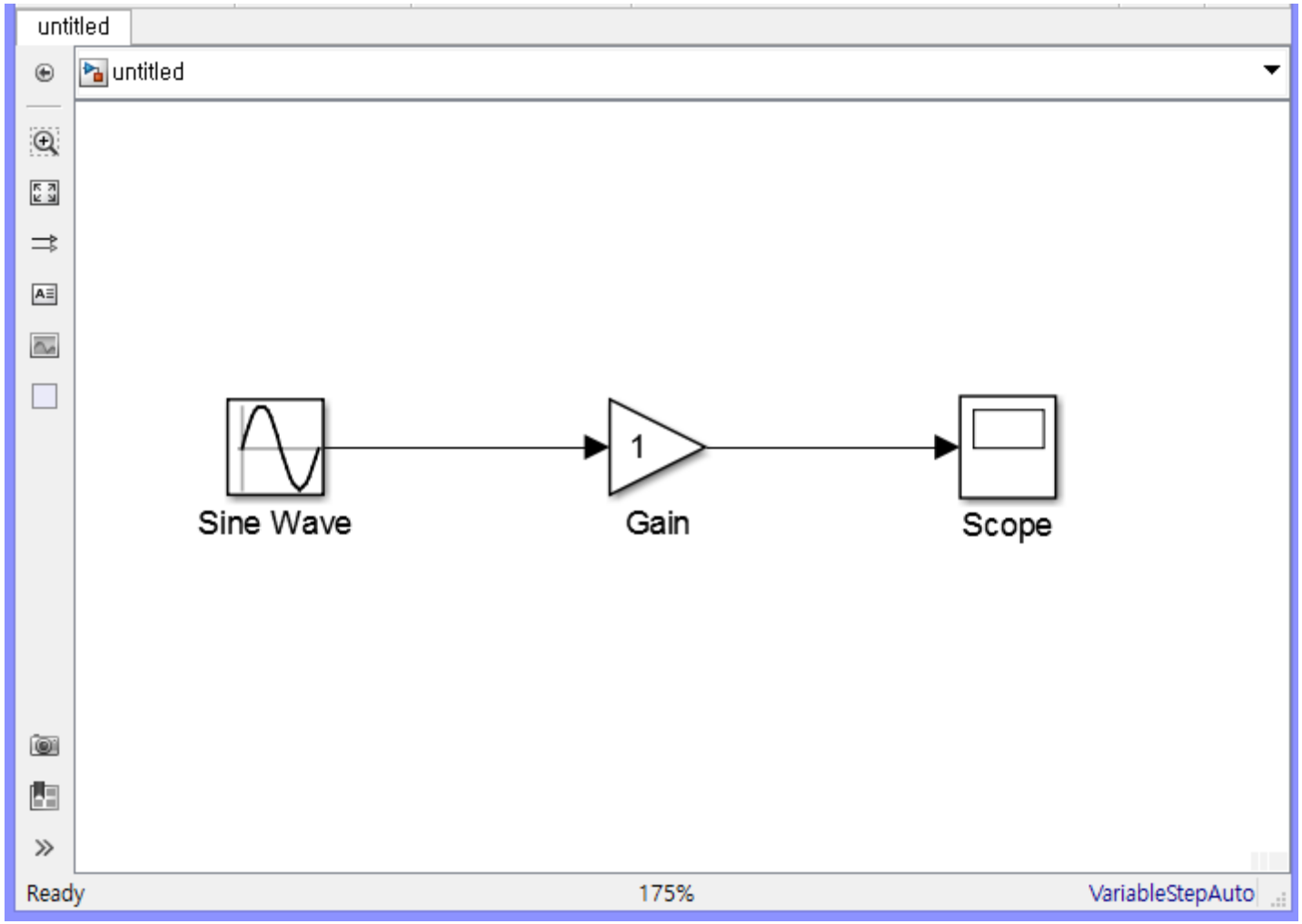
Heading Indicator

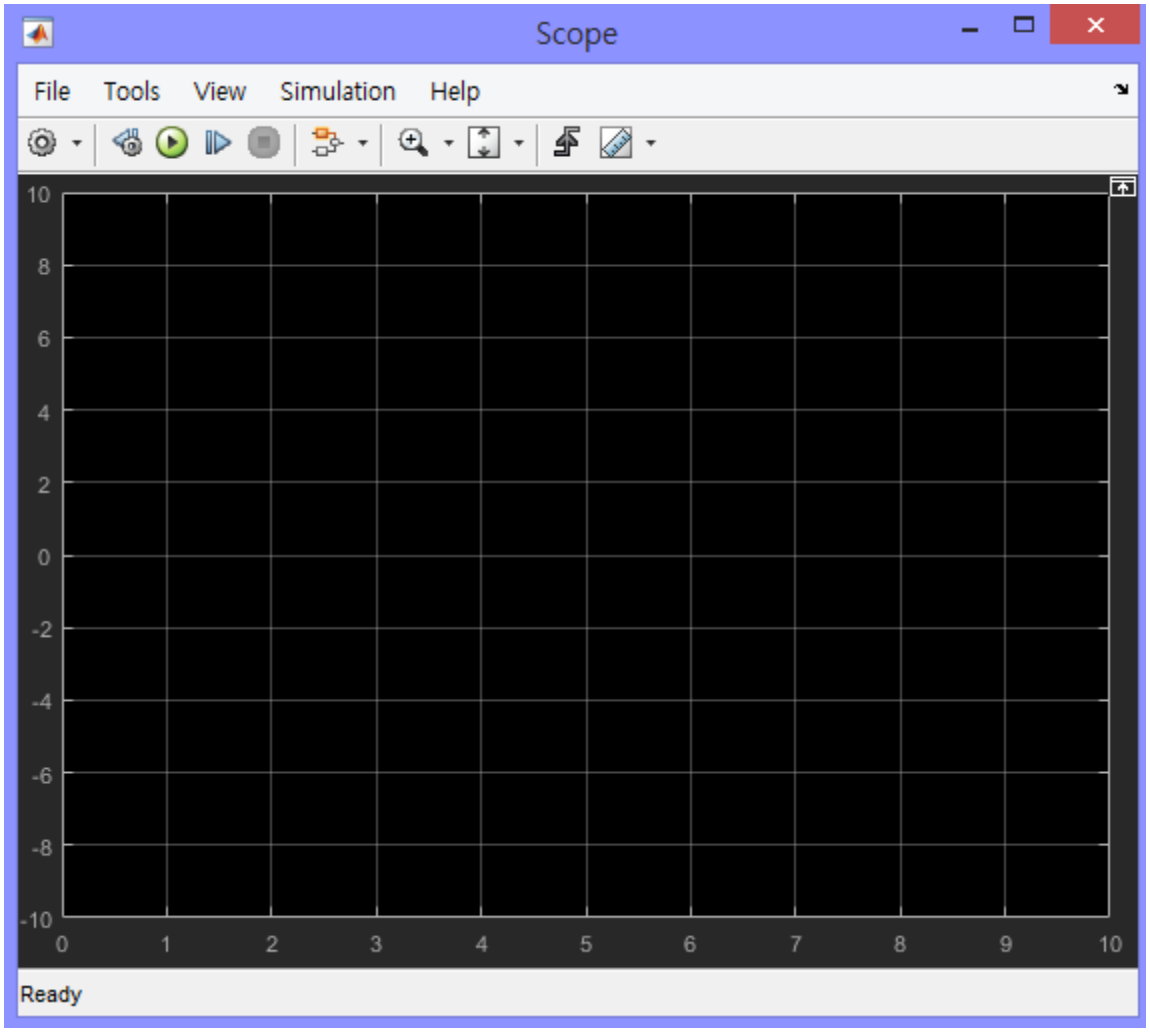
RPM Indicator

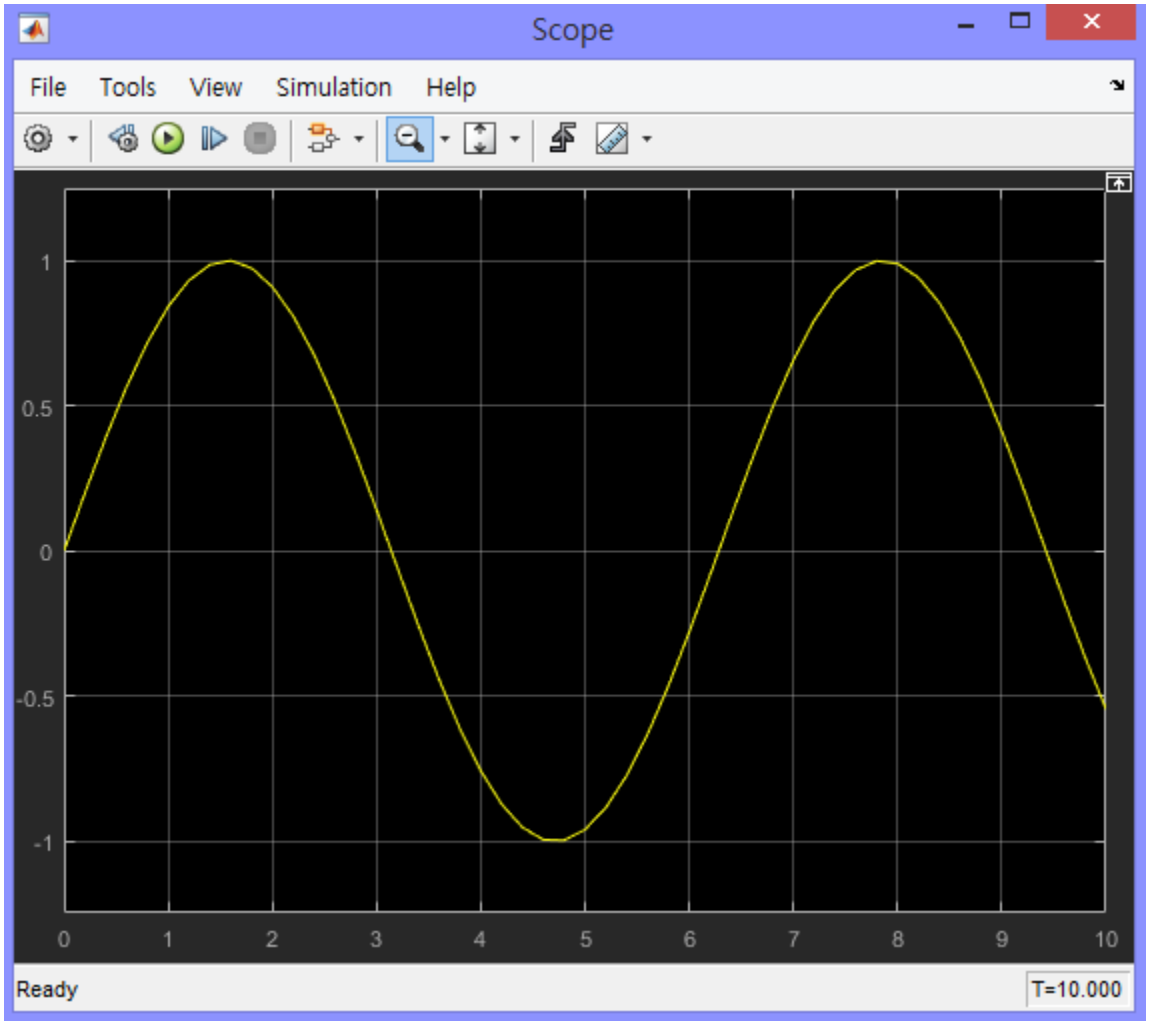
Turn Coordinator

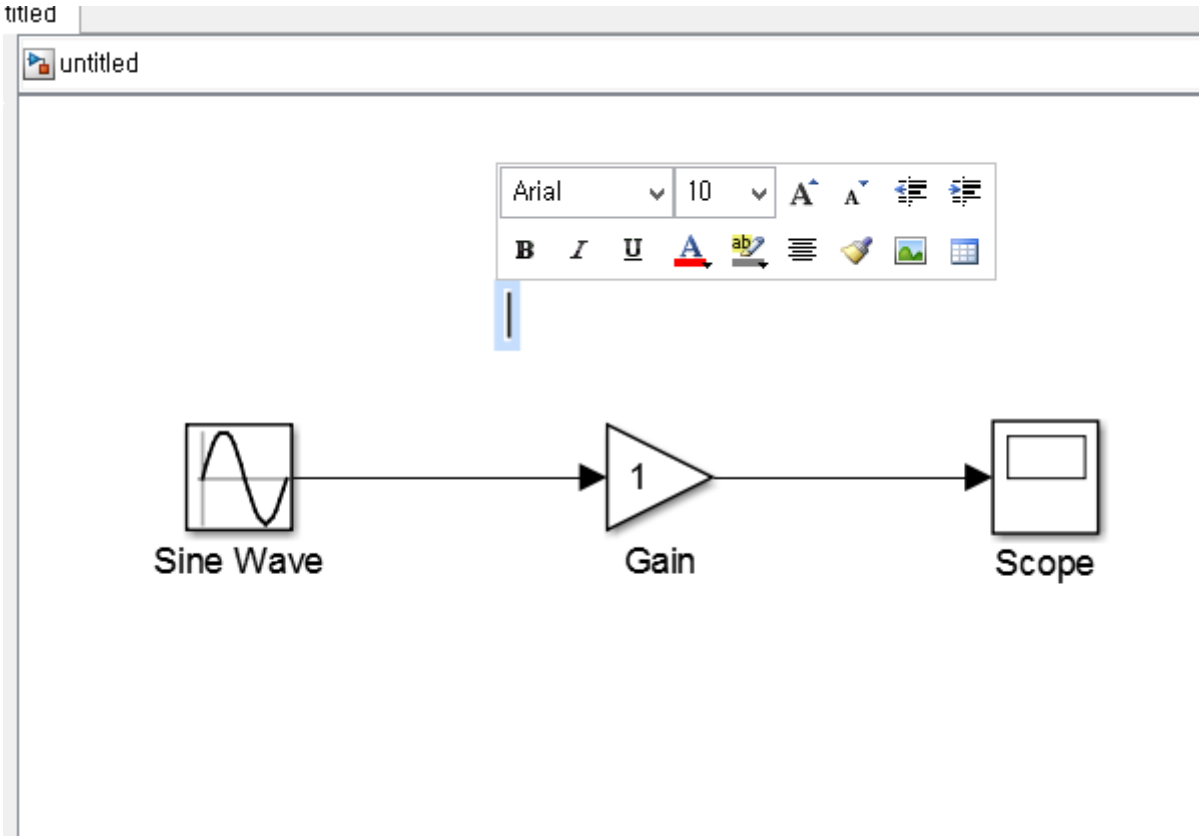

Workspace
Simulink/Sources
Simulink
Commonly Used Blocks
Continuous
Dashboard
Discontinuities
Discrete
Logic and Bit Operations
Lookup Tables
Math Operations
Model Verification
Model-Wide Utilities
Ports & Subsystems
Signal Attributes
Signal Routing
Sinks
Sources
User-Defined Functions
Additional Math & Discrete
Aerospace Blockset
Actuators
Aerodynamics
Animation
Environment
Equations of Motion
Flight Parameters
Flight Instruments
GNC
Mass Properties
Pilot Models
Propulsion
Utilities
Audio System Toolbox
Dynamic Range Control
Effects
Filters
Sinks
Sources
Communications System Toolbox
Channels
Comm Filters
Comm Sinks
Comm Sources
Equalizers
Band-Limited White Noise
Chirp Signal
Clock
Counter Free-Running
Counter Limited
12:34
Digital Clock
untitled.mat
From File
untitled.xlsx
Sheet:Sheet1
From Spreadsheet
simin
From Workspace
1
In1
Pulse Generator
Ramp
Repeating Sequence
Repeating Sequence Interpolated
Repeating Sequence Stair
Signal Generator
Sine Wave
Step
Waveform Generator

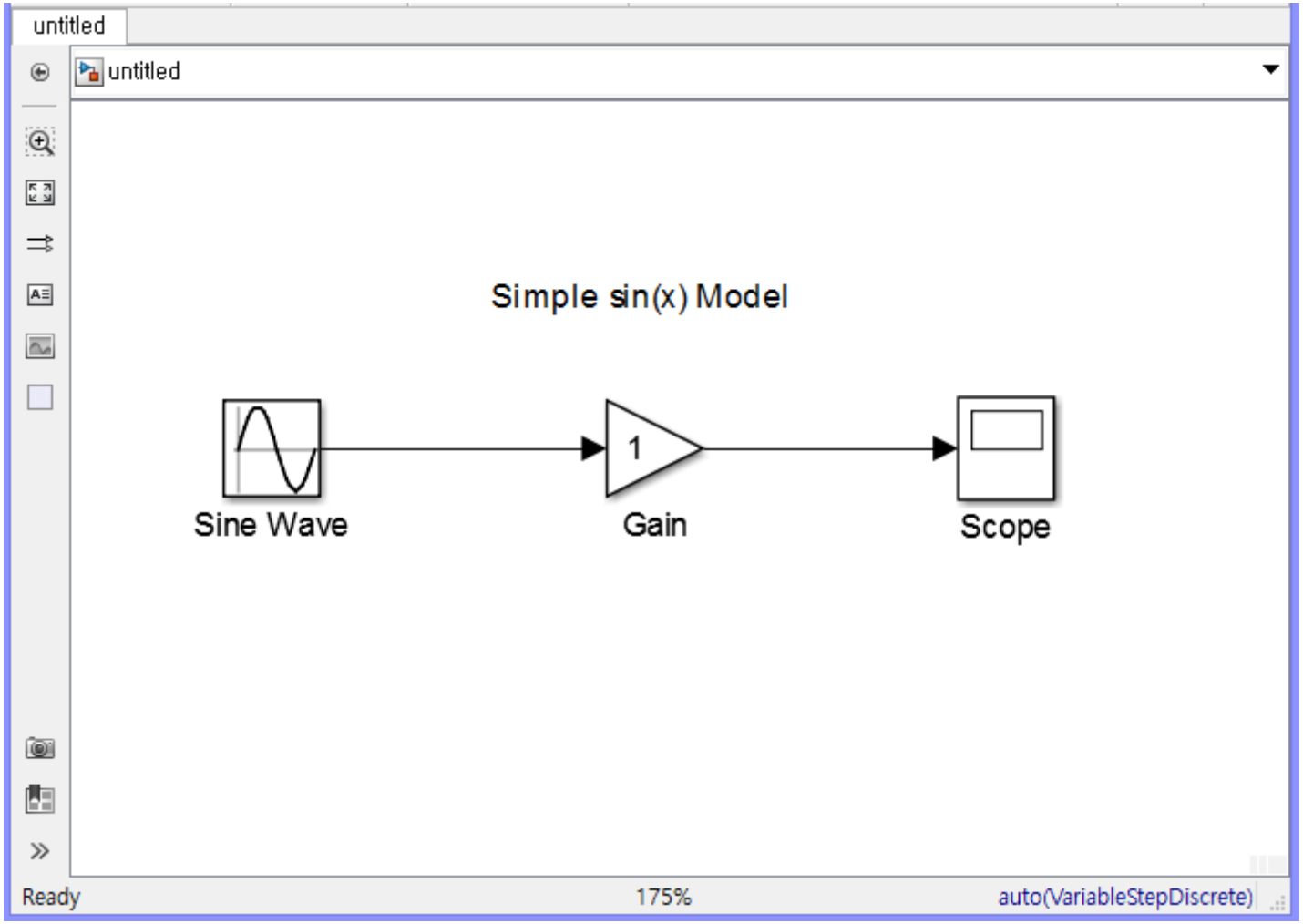

Workspace
Simulink/Commonly Used Blocks
Simulink
Commonly Used Blocks
Continuous
Dashboard
Discontinuities
Discrete
Logic and Bit Operations
Lookup Tables
Math Operations
Model Verification
Model-Wide Utilities
Ports & Subsystems
Signal Attributes
Signal Routing
Sinks
Sources
User-Defined Functions
Additional Math & Discrete
Aerospace Blockset
Actuators
Aerodynamics
Animation
Environment
Equations of Motion
Flight Parameters
Flight Instruments
GNC
Mass Properties
Pilot Models
Propulsion
Utilities
Audio System Toolbox
Bus Creator
Bus Selector
Constant
Data Type Conversion
Delay
Demux
Discrete-Time Integrator
Gain
Ground
In1
Integrator
Logical Operator
Mux
Out1
Product
Relational Operator
Saturation
Scope
Sum
Switch
Terminat
simulink/Commonly Used Blocks/Scope:
Displays input signals with respect to simulation time

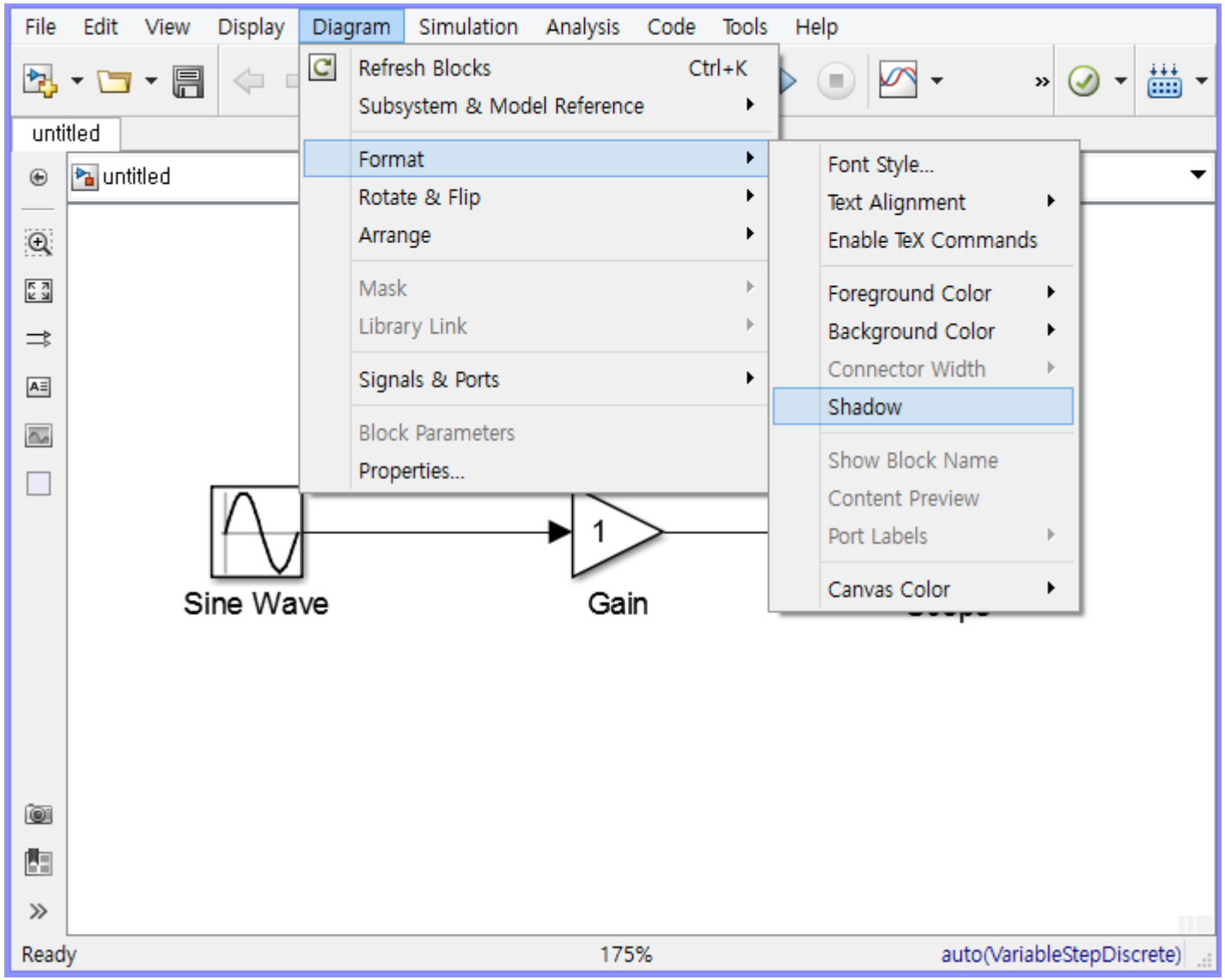

untitled
untitled
1
Sine Wave
Gain
Scope
Ready
175%
VariableStepAuto

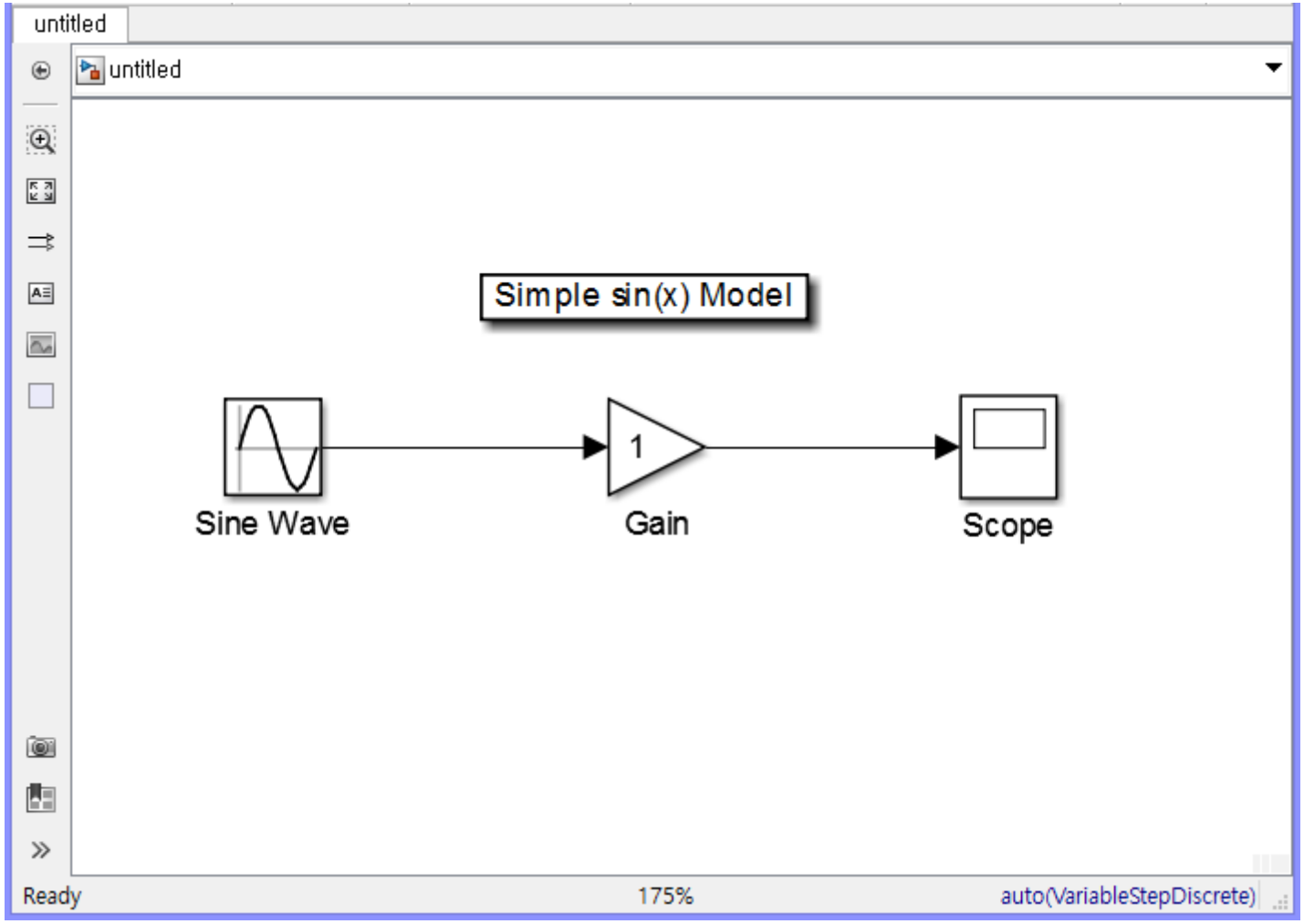

Scope
File
Tools
View
Simulation
Help
10
8
6
4
2
0
-2
-4
-6
-8
-10
0
1
2
3
4
5
6
7
8
9
10
Ready

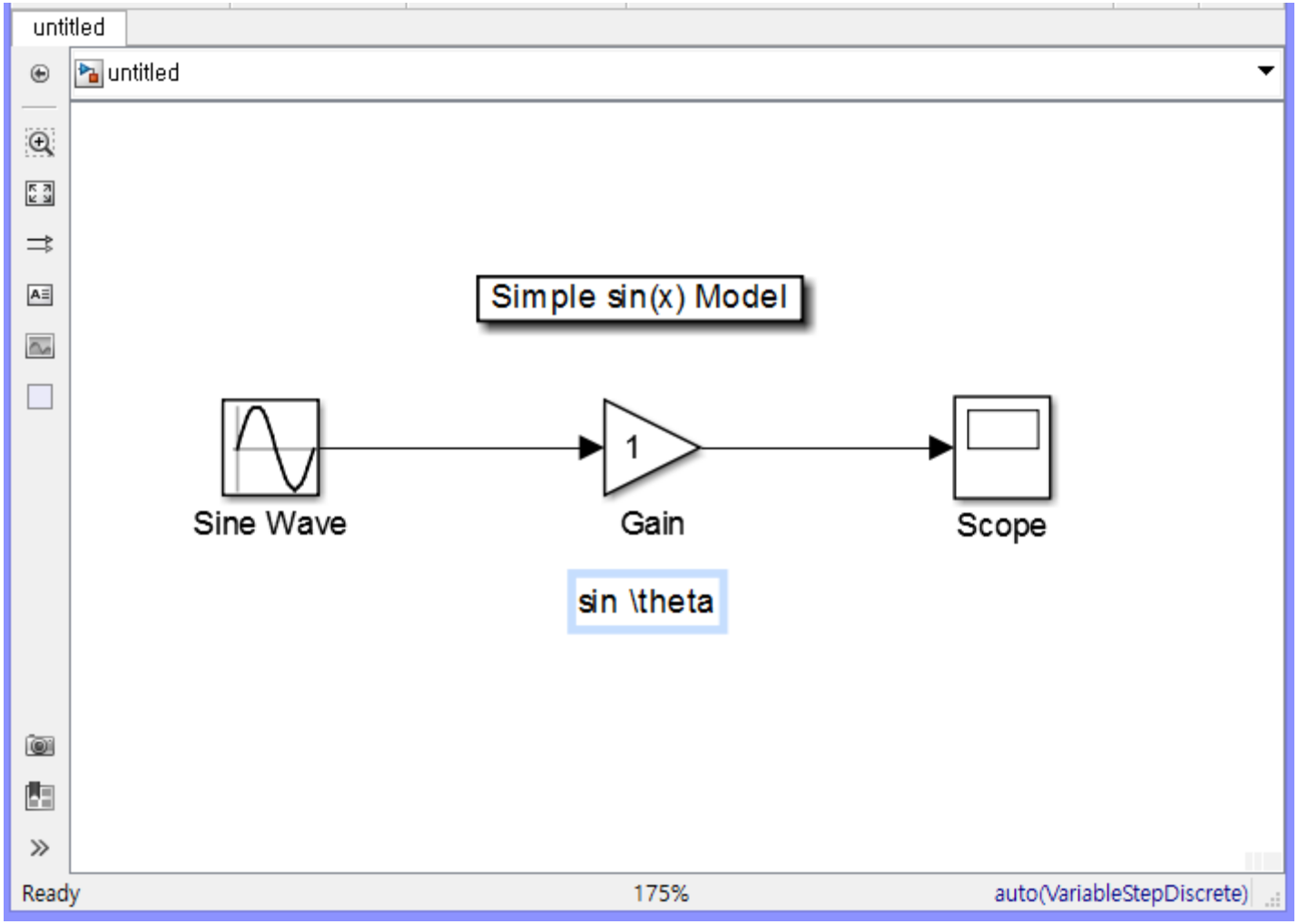

Scope
File
Tools
View
Simulation
Help
1
0.5
0
-0.5
-1
0
1
2
3
4
5
6
7
8
9
10
Ready
T=10.000

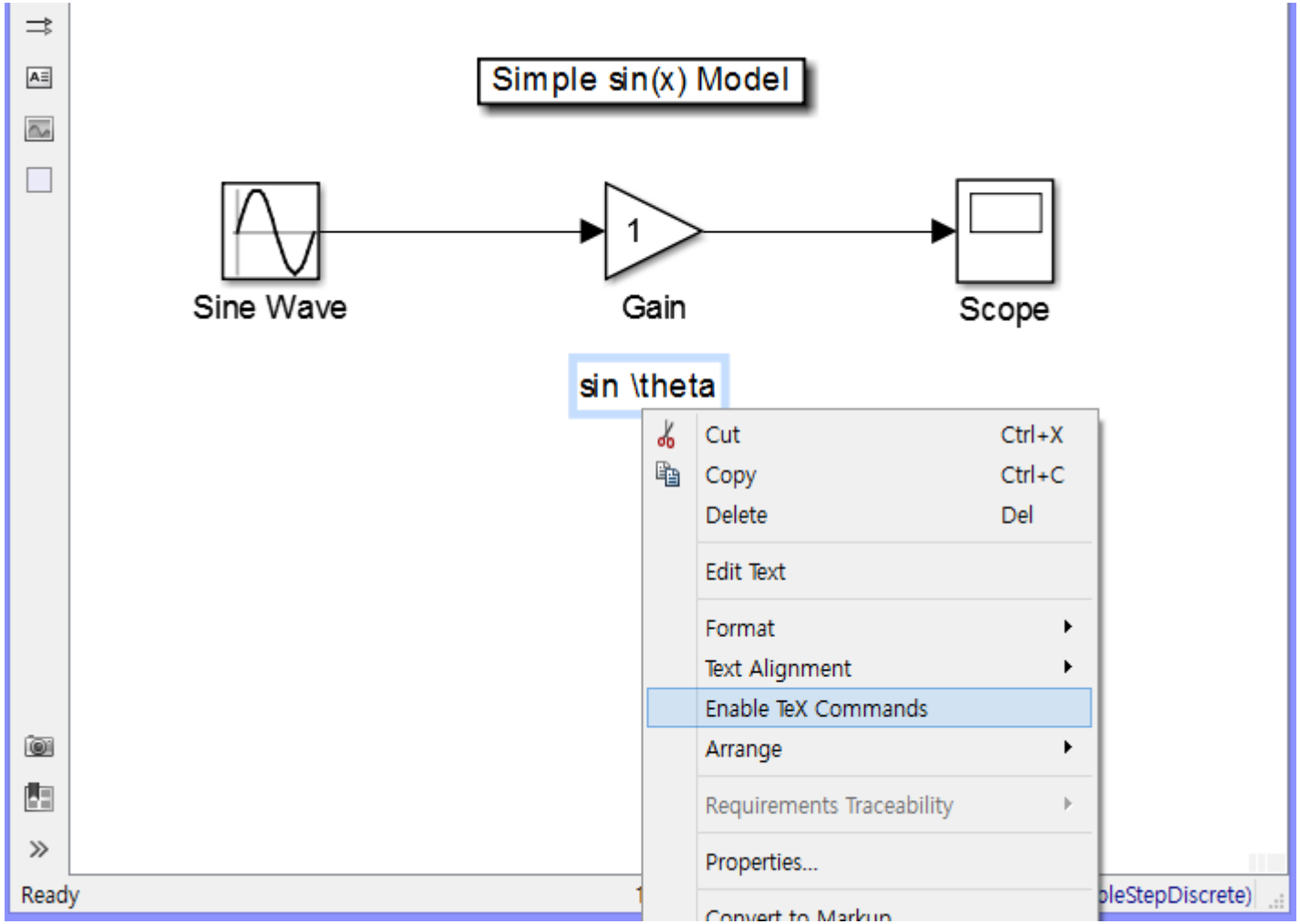

titled
untitled
Arial
10
1
Sine Wave
Gain
Scope

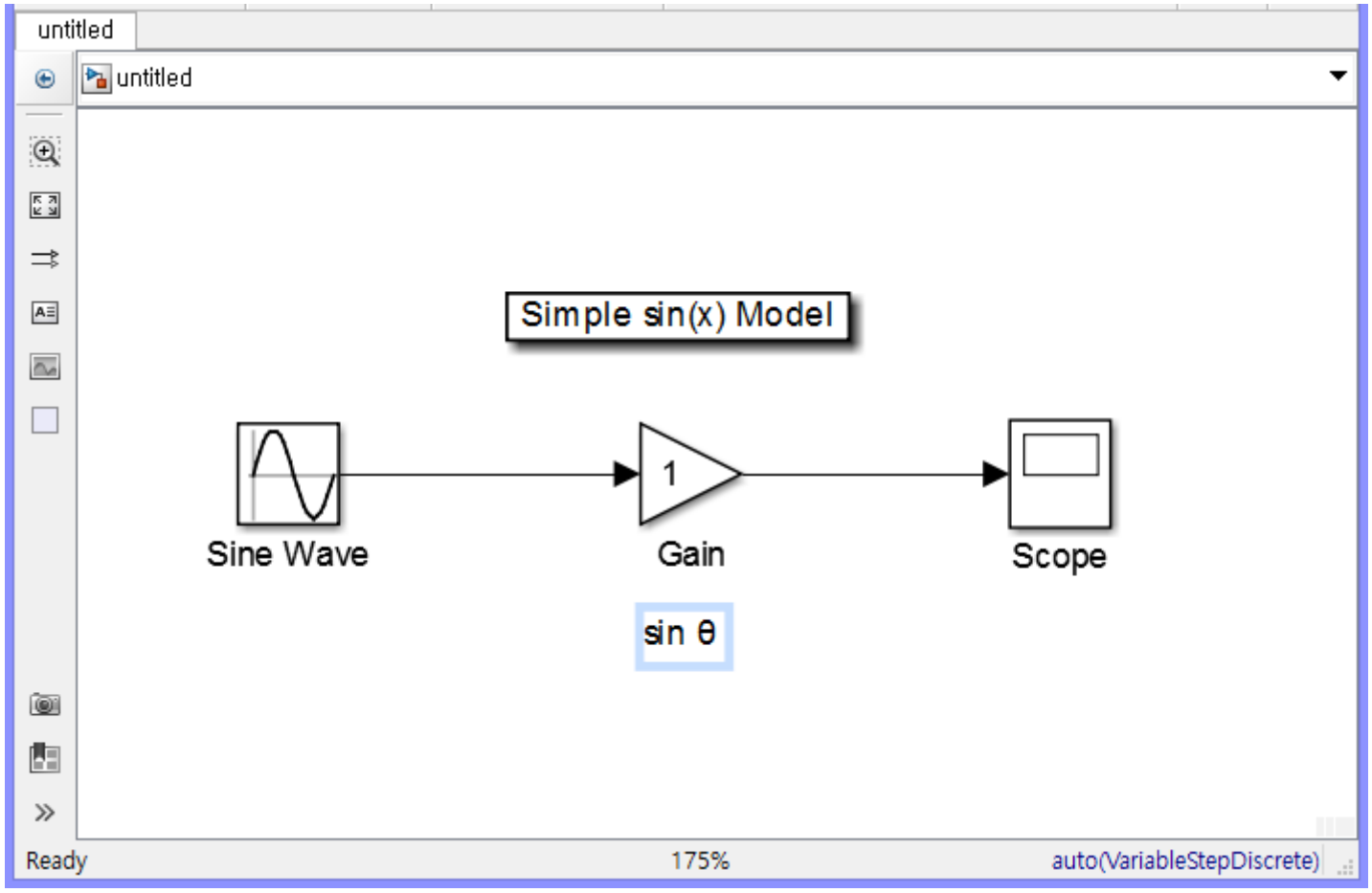

untitled
untitled
Simple sin(x) Model
1
Sine Wave
Gain
Scope
Ready
175%
auto(VariableStepDiscrete)

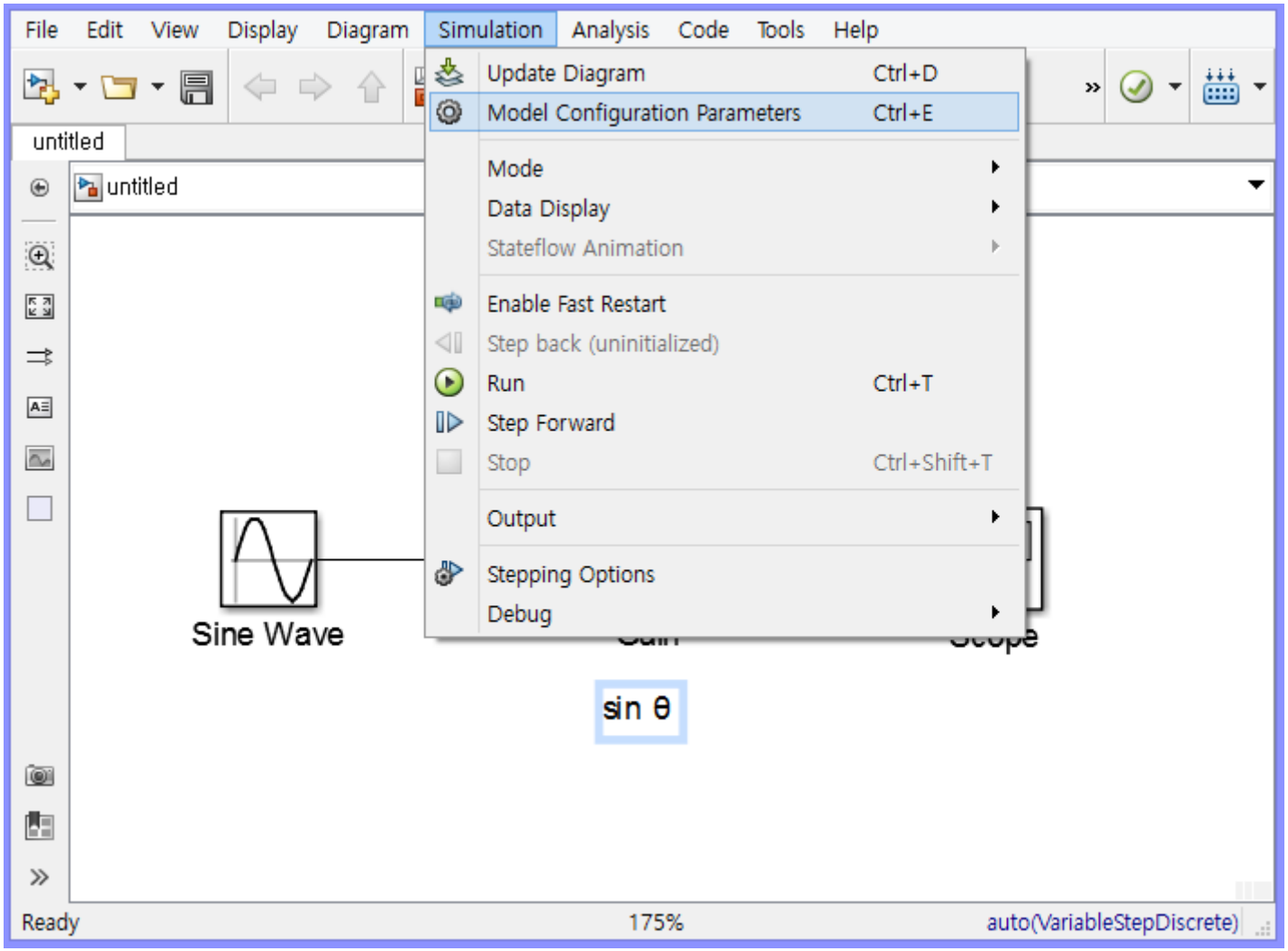

File
Edit
View
Display
Diagram
Simulation
Analysis
Code
Tools
Help
Refresh Blocks
Ctrl+K
Subsystem & Model Reference
Format
Rotate & Flip
Arrange
Mask
Library Link
Signals & Ports
Block Parameters
Properties...
Font Style...
Text Alignment
Enable TeX Commands
Foreground Color
Background Color
Connector Width
Shadow
Show Block Name
Content Preview
Port Labels
Canvas Color
untitled
Sine Wave
1
Gain
Ready
175%
auto(VariableStepDiscrete)

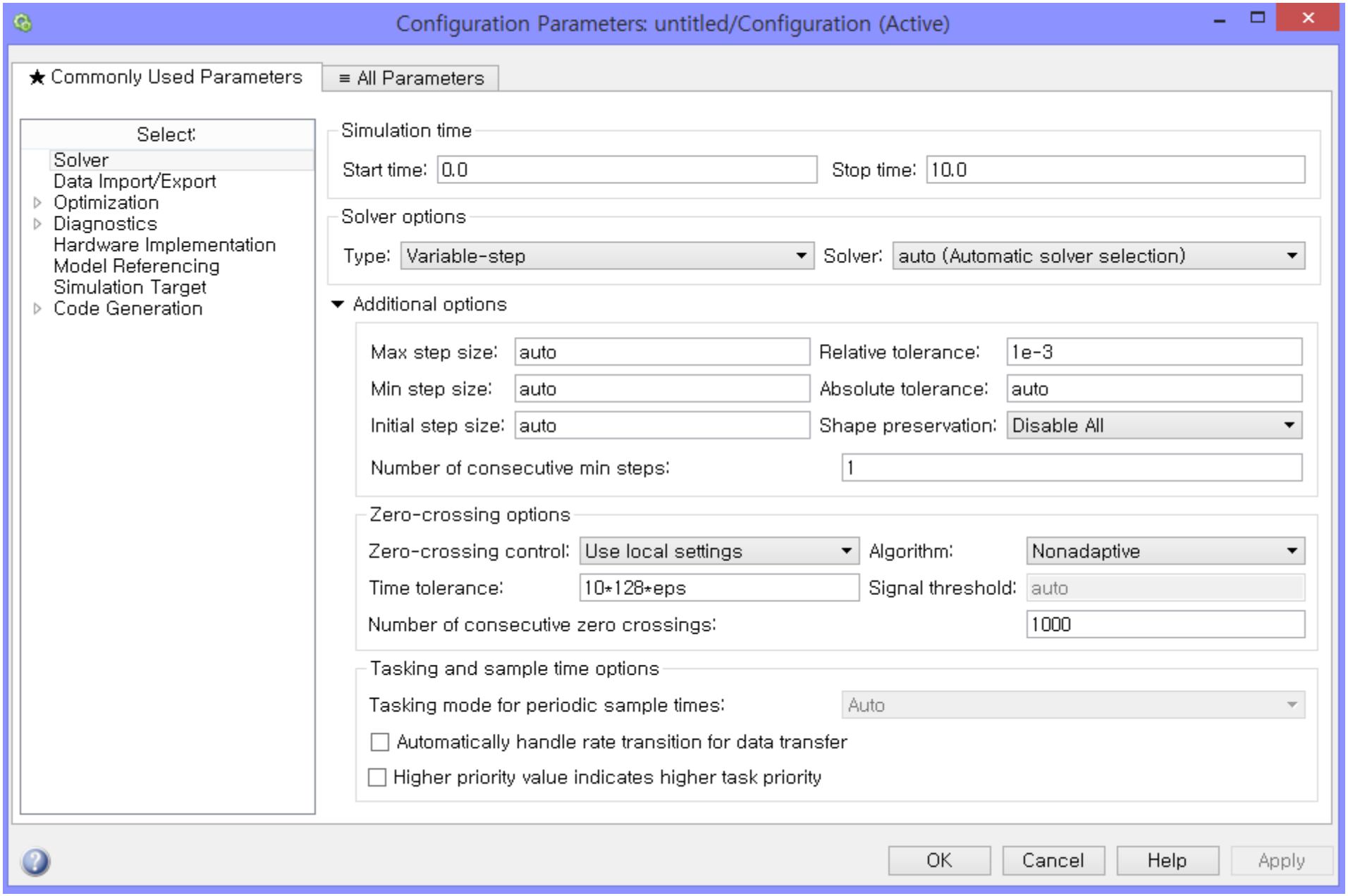

untitled
untitled
Simple sin(x) Model
1
Sine Wave
Gain
Scope
Ready
175%
auto(VariableStepDiscrete)

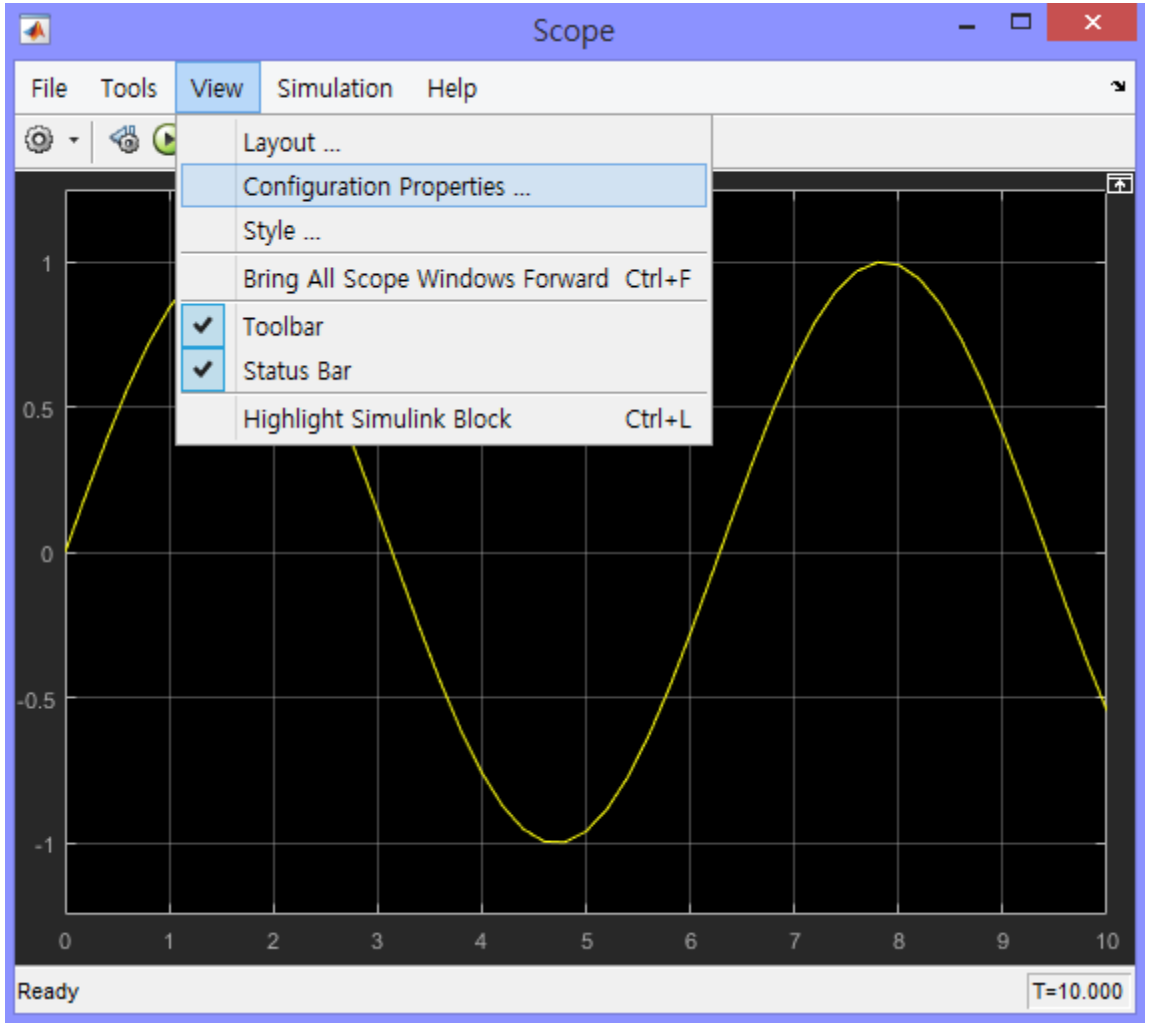

untitled
untitled
Simple sin(x) Model
1
Sine Wave
Gain
Scope
sin \theta
Ready
175%
auto(VariableStepDiscrete)

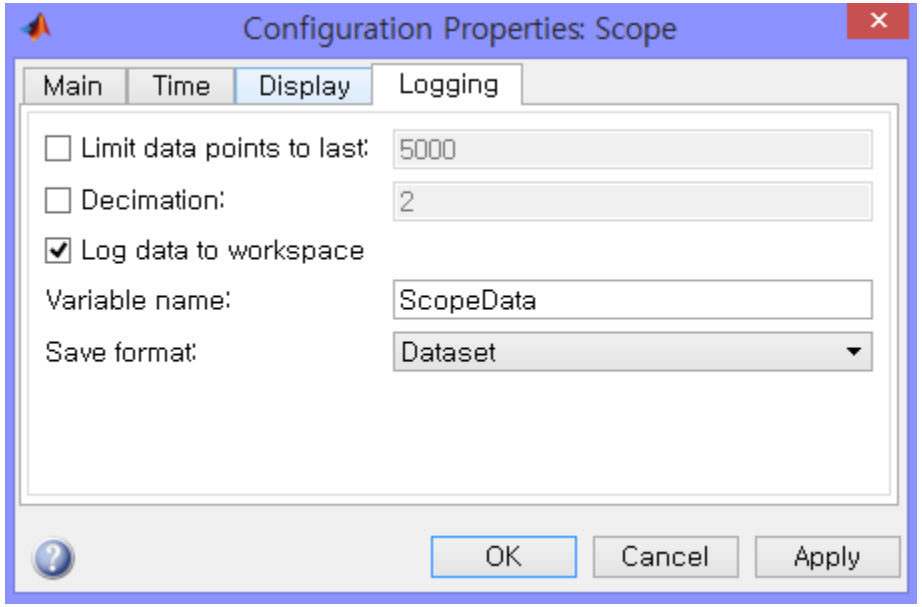

Simple sin(x) Model
1
Sine Wave
Gain
Scope
sin \theta
Cut Ctrl+X
Copy Ctrl+C
Delete Del
Edit Text
Format
Text Alignment
Enable TeX Commands
Arrange
Requirements Traceability
Properties...
Ready

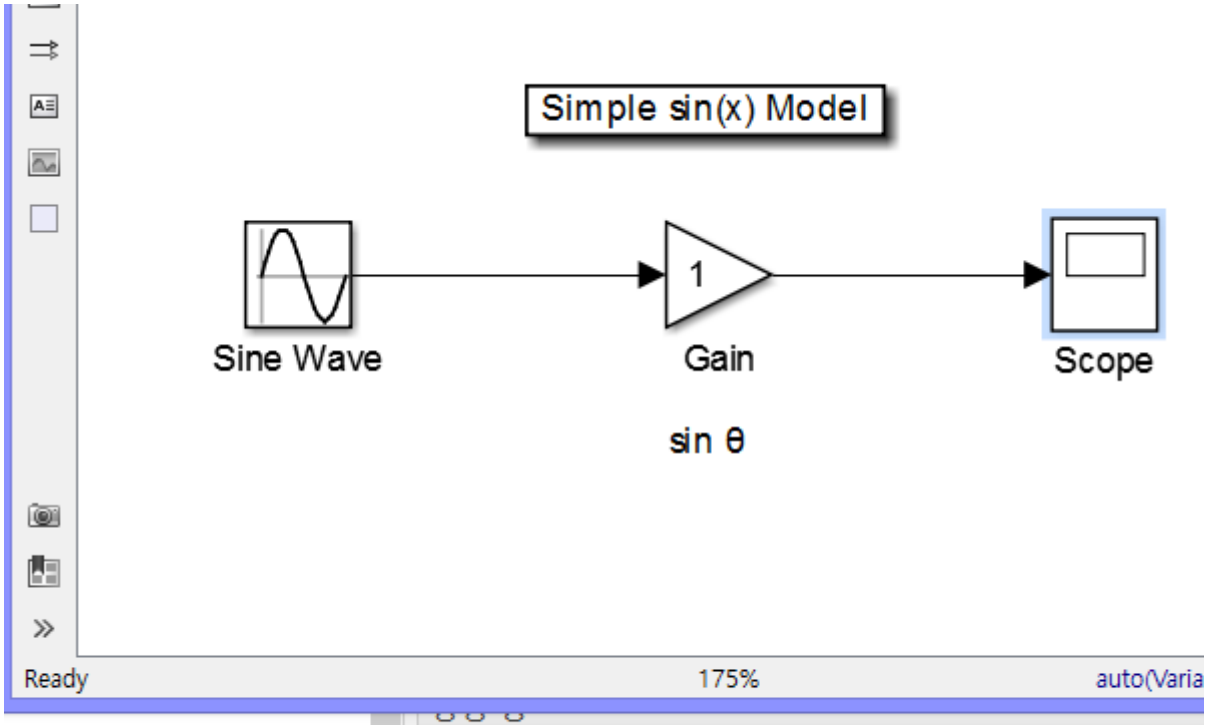

untitled
untitled
Simple sin(x) Model
1
Sine Wave
Gain
Scope
sin θ
Ready
175%
auto(VariableStepDiscrete)


File
Edit
View
Display
Diagram
Simulation
Analysis
Code
Tools
Help
Update Diagram Ctrl+D
Model Configuration Parameters Ctrl+E
Mode
Data Display
Stateflow Animation
Enable Fast Restart
Step back (uninitialized)
Run Ctrl+T
Step Forward
Stop Ctrl+Shift+T
Output
Stepping Options
Debug
untitled
Sine Wave
sin θ
Ready
175%
auto(VariableStepDiscrete)

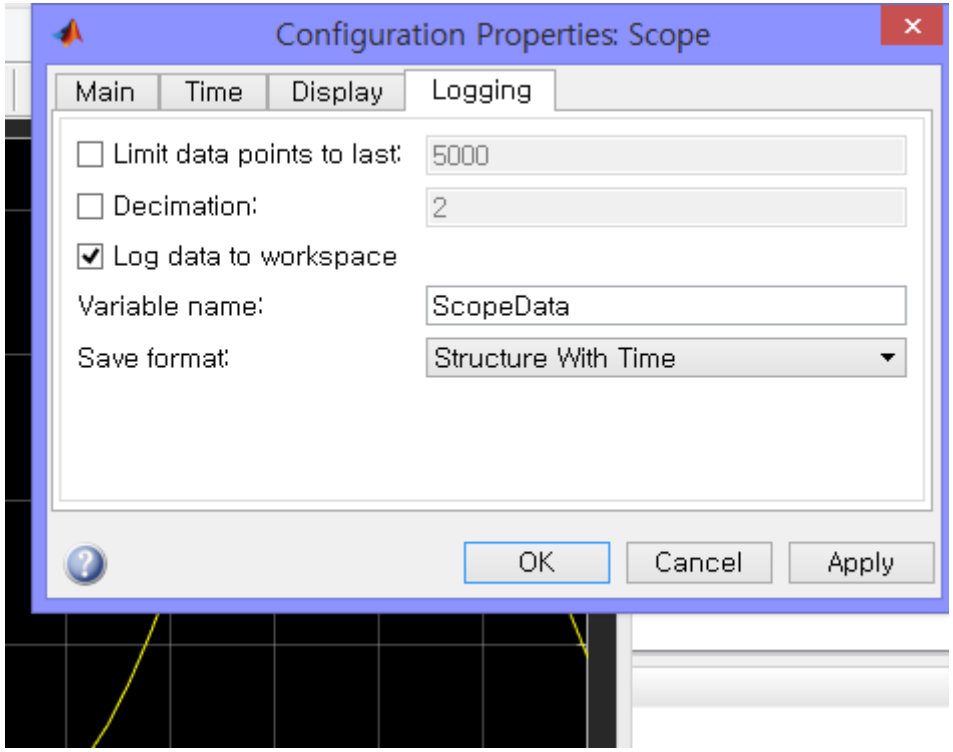

Configuration Parameters: untitled/Configuration (Active)
★ Commonly Used Parameters
≡ All Parameters
Select:
Solver
Data Import/Export
Optimization
Diagnostics
Hardware Implementation
Model Referencing
Simulation Target
Code Generation
Simulation time
Start time: 0.0
Stop time: 10.0
Solver options
Type: Variable-step
Solver: auto (Automatic solver selection)
Additional options
Max step size: auto
Relative tolerance: 1e-3
Min step size: auto
Absolute tolerance: auto
Initial step size: auto
Shape preservation: Disable All
Number of consecutive min steps: 1
Zero-crossing options
Zero-crossing control: Use local settings
Algorithm: Nonadaptive
Time tolerance: 10*128*eps
Signal threshold: auto
Number of consecutive zero crossings: 1000
Tasking and sample time options
Tasking mode for periodic sample times: Auto
Automatically handle rate transition for data transfer
Higher priority value indicates higher task priority
OK
Cancel
Help
Apply


Scope
File
Tools
View
Simulation
Help
Layout ...
Configuration Properties ...
Style ...
Bring All Scope Windows Forward Ctrl+F
Toolbar
Status Bar
Highlight Simulink Block Ctrl+L
1
0.5
0
-0.5
-1
0
1
2
3
4
5
6
7
8
9
10
Ready
T=10.000


Configuration Properties: Scope
Main
Time
Display
Logging
Limit data points to last:
5000
Decimation:
2
Log data to workspace
Variable name:
ScopeData
Save format:
Dataset
OK
Cancel
Apply

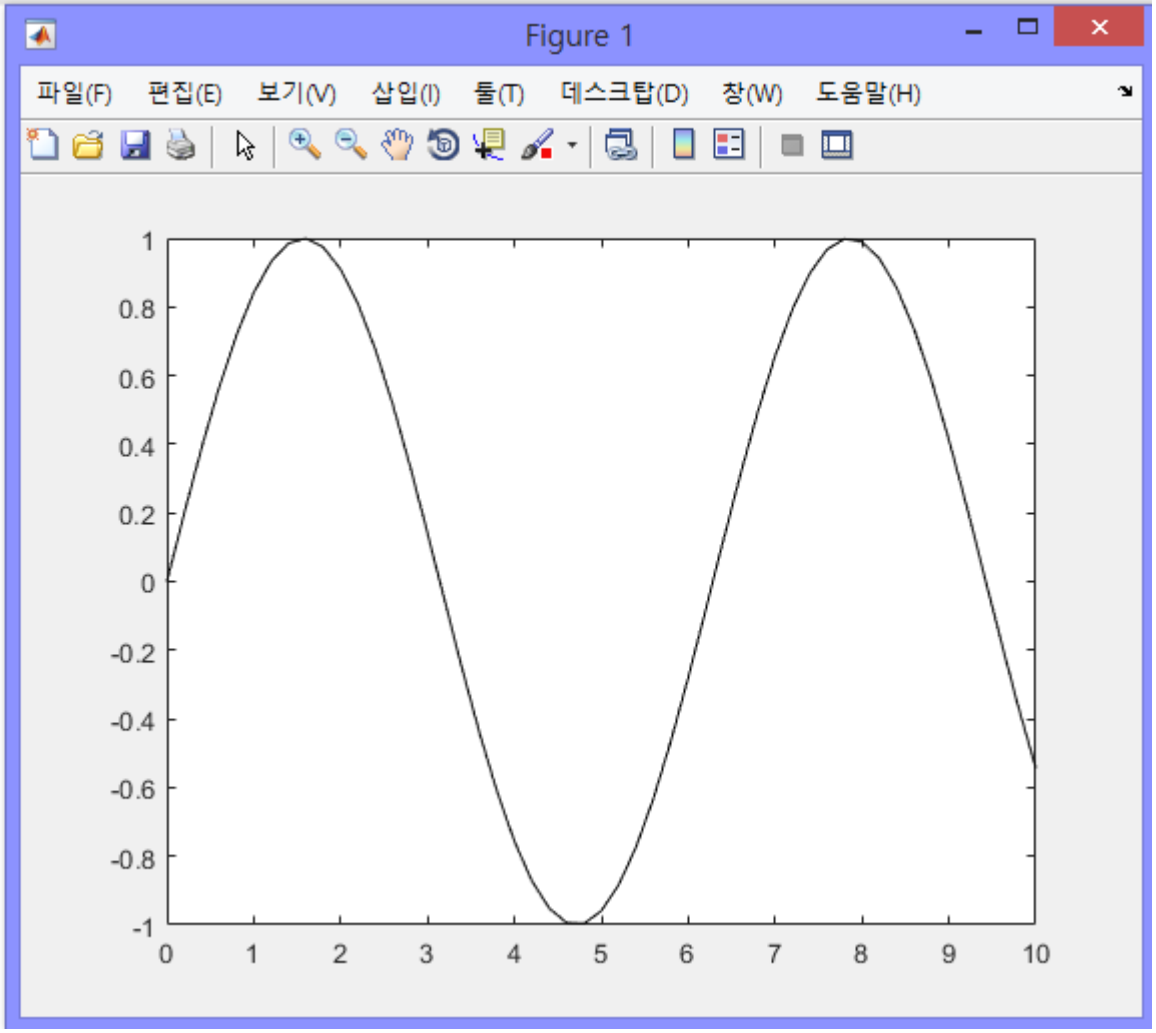


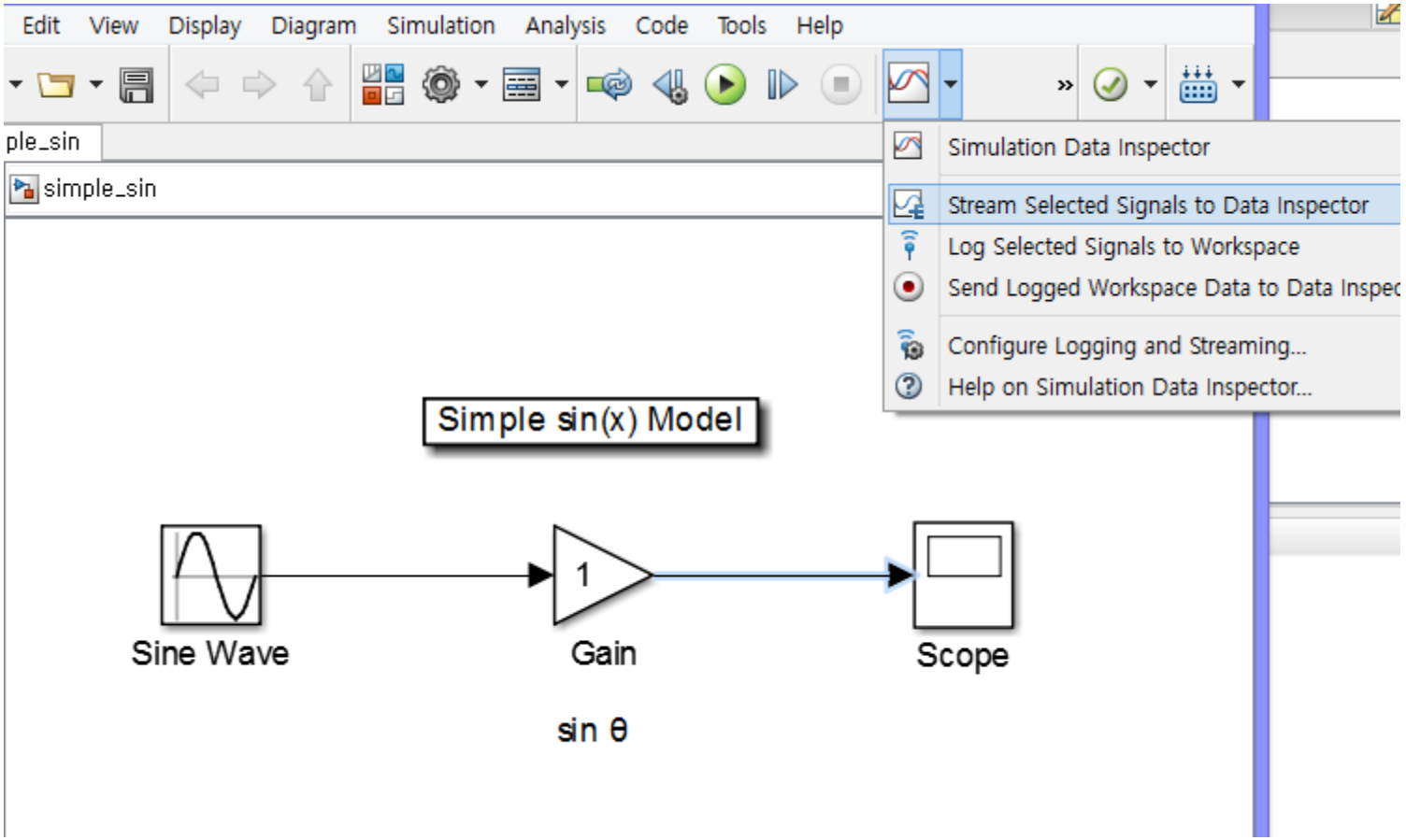

```
>> ScopeData
'ScopeData'은(는) 정의되지 않은 함수 또는 변수입니다.

fx >>
```

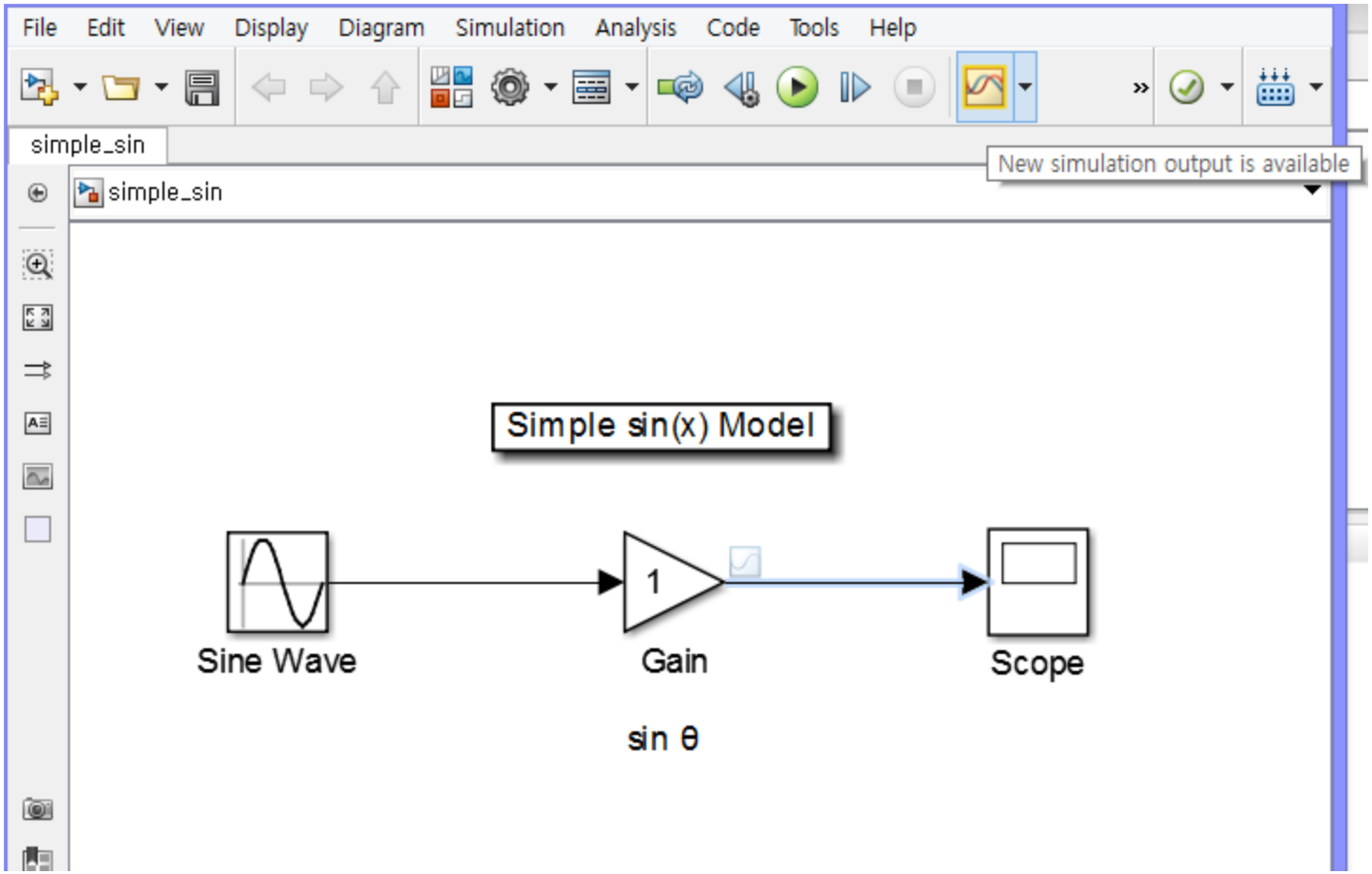

Configuration Properties: Scope
Main
Time
Display
Logging
Limit data points to last:
5000
Decimation:
2
Log data to workspace
Variable name:
ScopeData
Save format:
Structure With Time
OK
Cancel
Apply

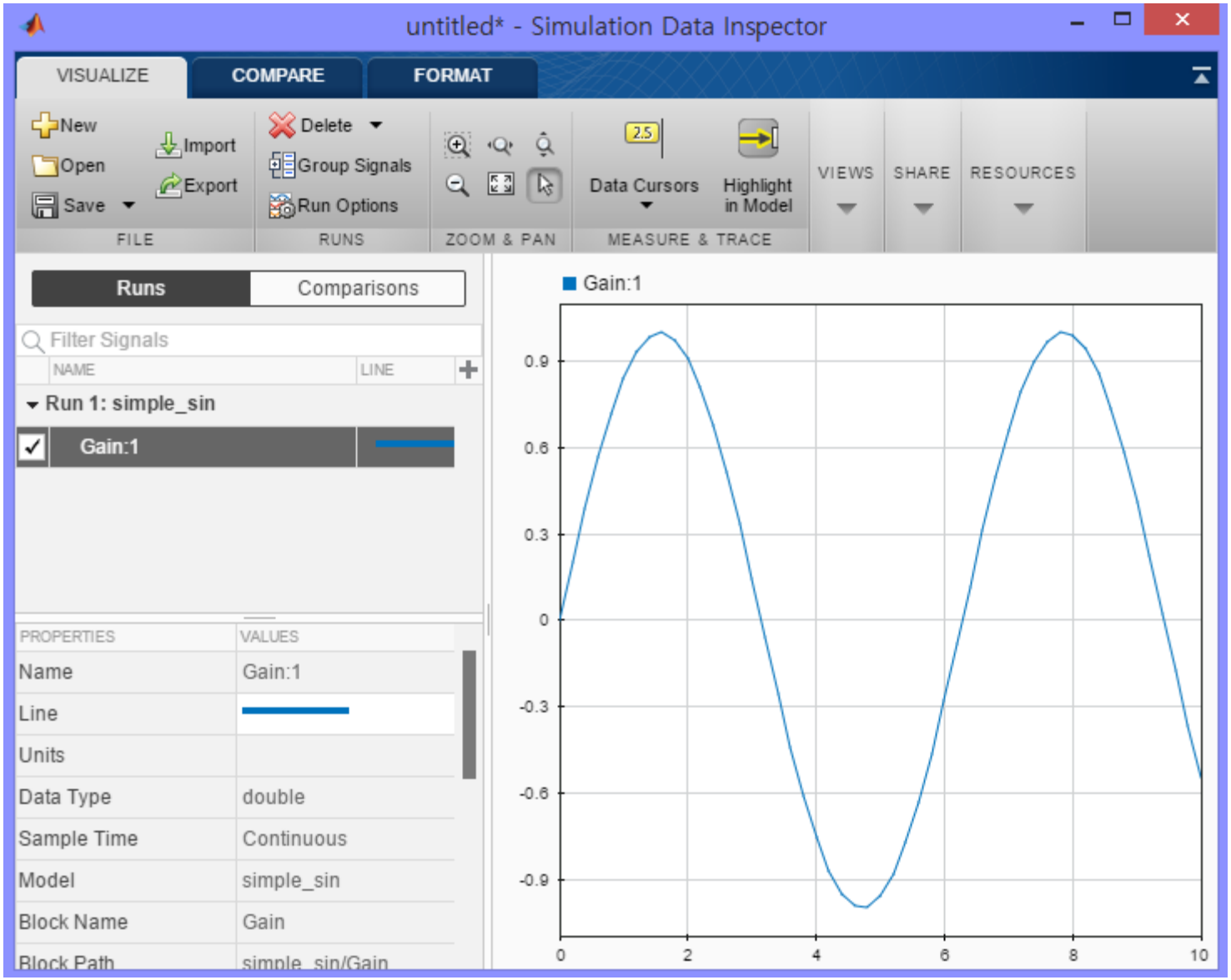
명령 창

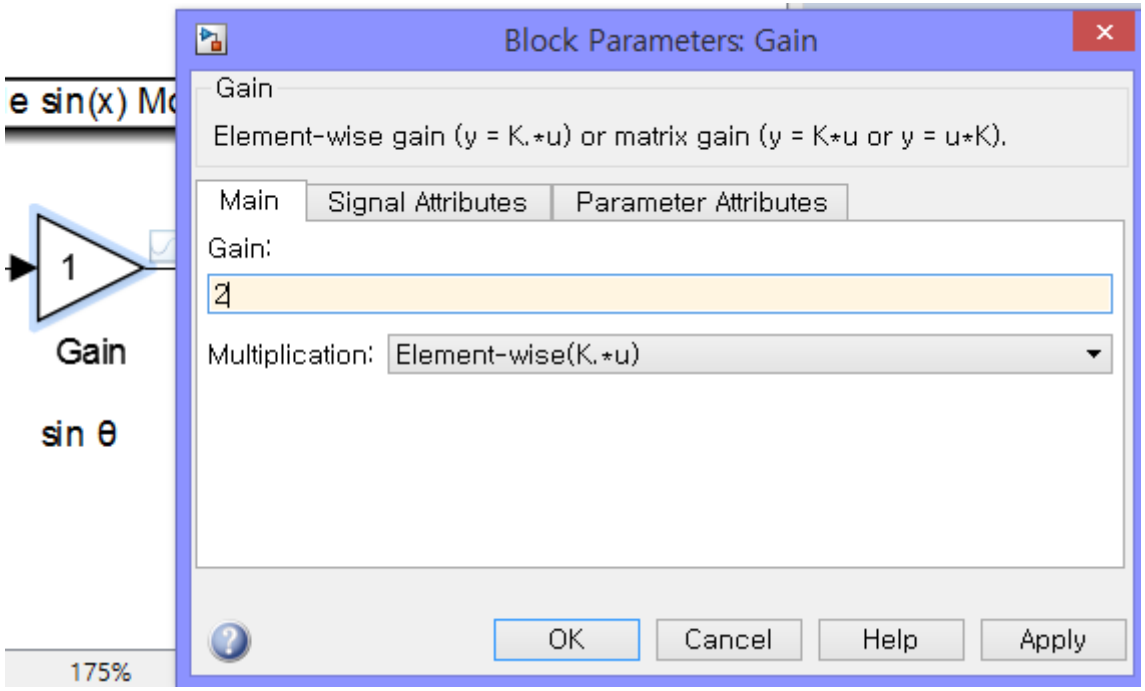
```
>> ScopeData

ScopeData =

         time: [51x1 double]
      signals: [1x1 struct]
    blockName: 'untitled/Scope'

>> x = ScopeData.time;
>> ScopeData.signals

ans =

        values: [51x1 double]
    dimensions: 1
         label: ''
         title: ''
     plotStyle: 0

>> y = ScopeData.signals.values;
>> plot(x, y, 'test')
다음 사용 중 오류가 발생함: plot
색/선 유형 인수에서 오류가 발생했습니다.

>> plot(x, y, 'k')
```

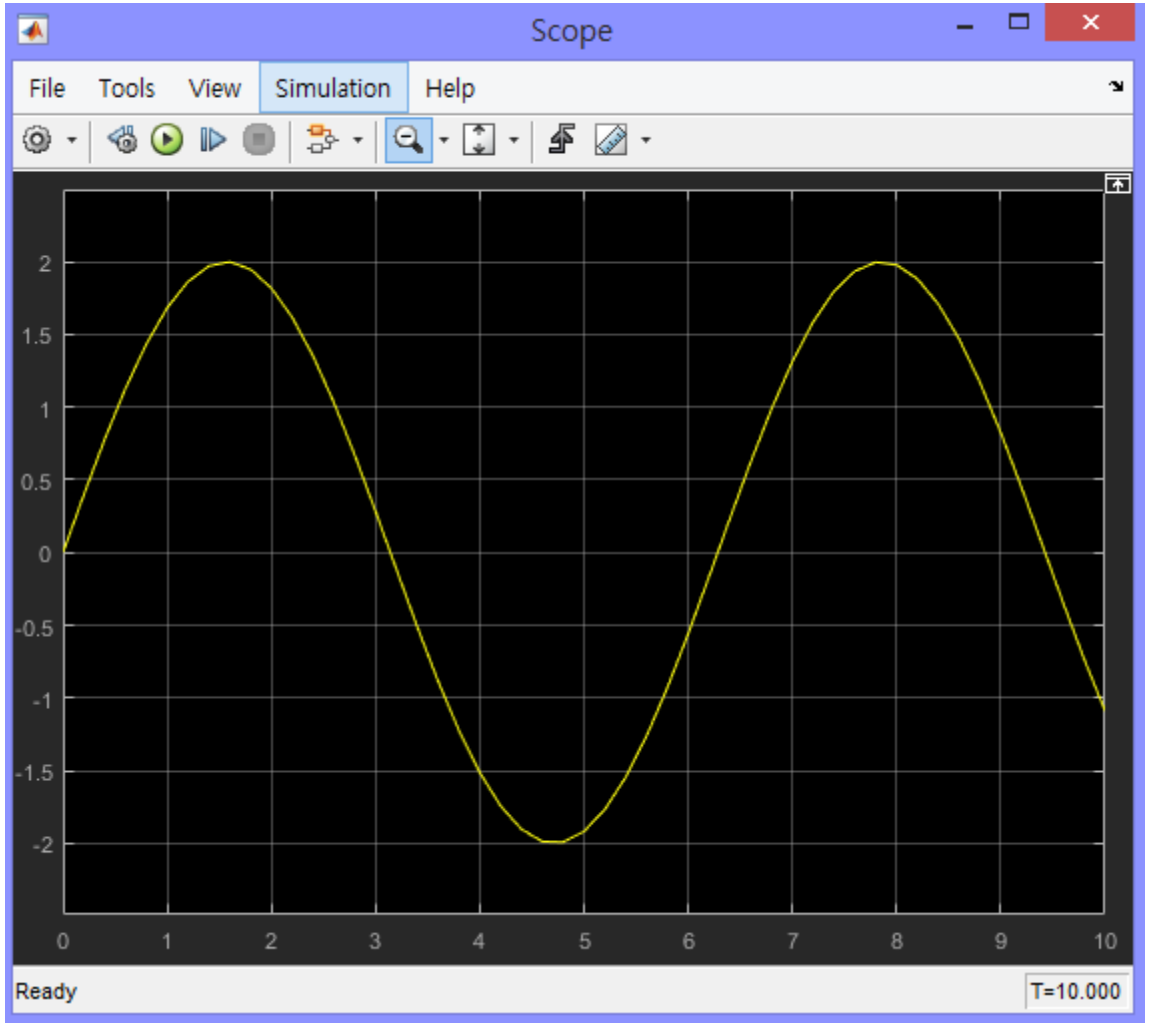



Edit
View
Display
Diagram
Simulation
Analysis
Code
Tools
Help
ple_sin
simple_sin
Simulation Data Inspector
Stream Selected Signals to Data Inspector
Log Selected Signals to Workspace
Send Logged Workspace Data to Data Inspec
Configure Logging and Streaming...
Help on Simulation Data Inspector...
Simple sin(x) Model
1
Sine Wave
Gain
Scope
sin θ


File Edit View Display Diagram Simulation Analysis Code Tools Help
simple_sin
New simulation output is available
simple_sin
Simple sin(x) Model
1
Sine Wave
Gain
Scope
sin θ


untitled* - Simulation Data Inspector
VISUALIZE
COMPARE
FORMAT
New
Open
Save
Import
Export
FILE
Delete
Group Signals
Run Options
RUNS
ZOOM & PAN
Data Cursors
Highlight in Model
MEASURE & TRACE
VIEWS
SHARE
RESOURCES
Runs
Comparisons
Filter Signals
NAME
LINE
Run 1: simple_sin
Gain:1
PROPERTIES
VALUES
Name
Gain:1
Line
Units
Data Type
double
Sample Time
Continuous
Model
simple_sin
Block Name
Gain
Block Path
simple_sin/Gain
Gain:1
0.9
0.6
0.3
0
-0.3
-0.6
-0.9
0
2
4
6
8
10


e sin(x) Mc
1
Gain
sin θ
175%
Block Parameters: Gain
Gain
Element-wise gain (y = K.*u) or matrix gain (y = K*u or y = u*K).
Main
Signal Attributes
Parameter Attributes
Gain:
2
Multiplication:
Element-wise(K.*u)
OK
Cancel
Help
Apply


Scope
File
Tools
View
Simulation
Help
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
0
1
2
3
4
5
6
7
8
9
10
Ready
T=10.000