

# Repast Symphony

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# A bit of history

- Repast was created at University of Chicago
- Based on Swarm
- It provides an integrated library for agent-based simulation.
- It is free and open source.

# A bit of history

- Repast was initially implemented in Java
- It has three core implementations:
  - RepastJ
  - Repast.Net
  - RepastPy
- Recently superseded by significant development named Repast Symphony.

# Repast Symphony

## Integrated plugins

- \*ORA and Pajek (network analysis plugin)
- SQL (query tool plugin)
- VisAD (scientific visualization package)
- Weka (data mining platform)
- MATLAB (computational mathematics environment)
- iReport (visual report designer)

# Repast Symphony

## flexible definition

- visualization of 2D and 3D environments
- networks modeling (JUNG)
- data from Microsoft Excel spreadsheets and UCINET DL file import
- support geographical spaces model (GIS)

# Repast Symphony

## Improvements

- GUI for developing models
- GUI for runtime development and control
- Data storage "freeze dryers"
- Integrated libraries for specialized mathematics
- Distributed computing with Terracotta
- Multiple modes of model results optimization
- Built-in tools for integrating external models
- A point-and-click model deployment system

# Simple Repast Model

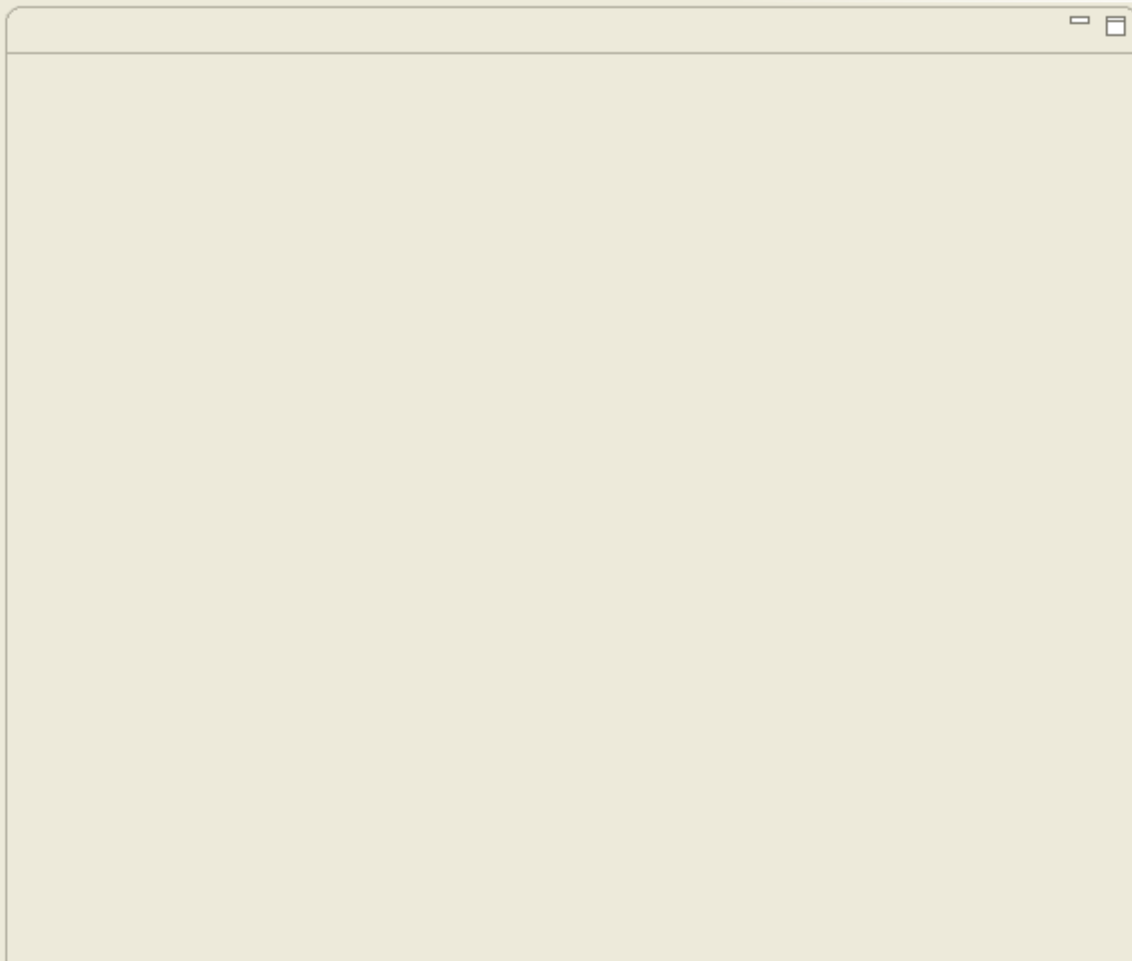
Creating a simple  
network infrastructure model



Go to the workbench

**Workbench**  
Go to the workbench





An outline is not available.

0 errors, 0 warnings, 0 infos

Description	Resource	Path	Location



Package Explorer Hierarchy

- New
  - Java Project
  - Project...
- Show In Alt+Shift+W
  - Package
  - Class
  - Interface
  - Enum
  - Annotation
  - Source Folder
  - Folder
  - File
  - Untitled Text File
  - JUnit Test Case
  - Other...
- Copy Ctrl+C
- Copy Qualified Name
- Paste Ctrl+V
- Delete Delete
- Build Path
- Import...
- Export...
- Refresh F5
- Properties Alt+Enter

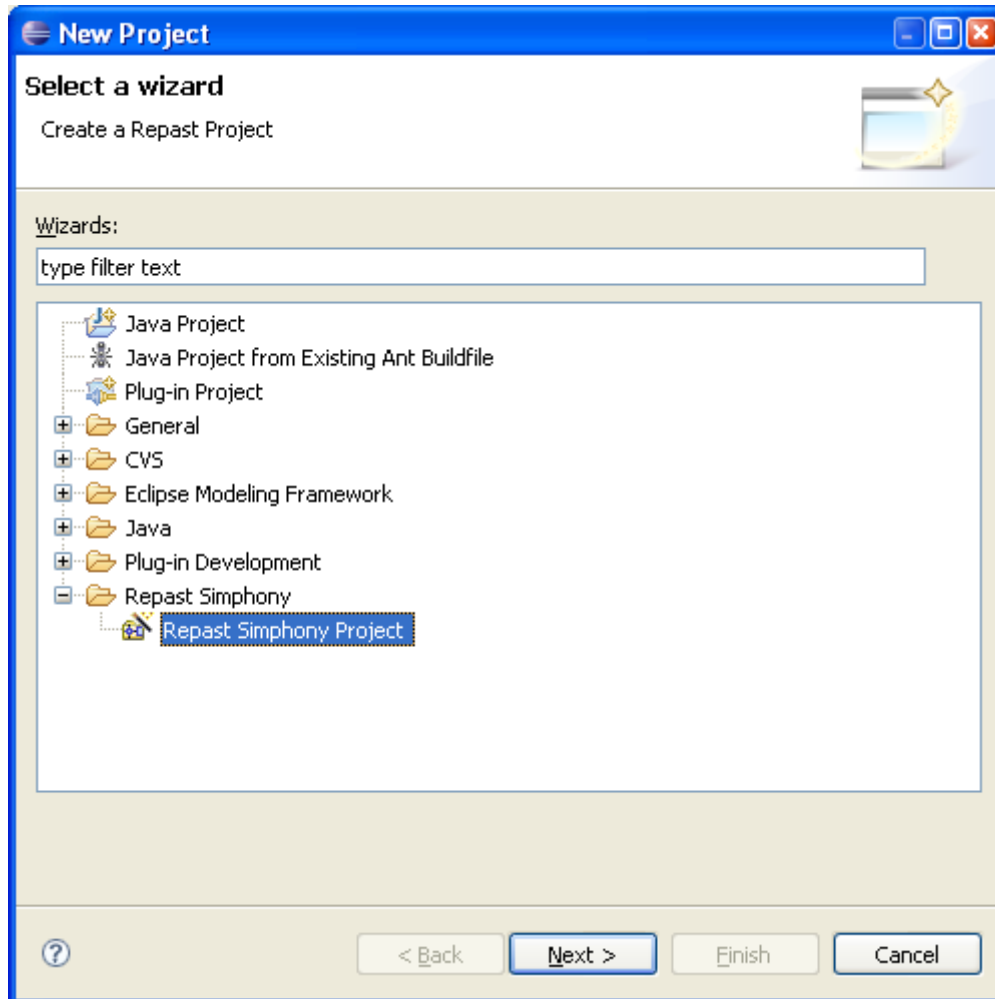
Outline Java

An outline is not available.

Problems @ Javadoc Declaration

0 errors, 0 warnings, 0 infos

Description	Resource	Path	Location



New

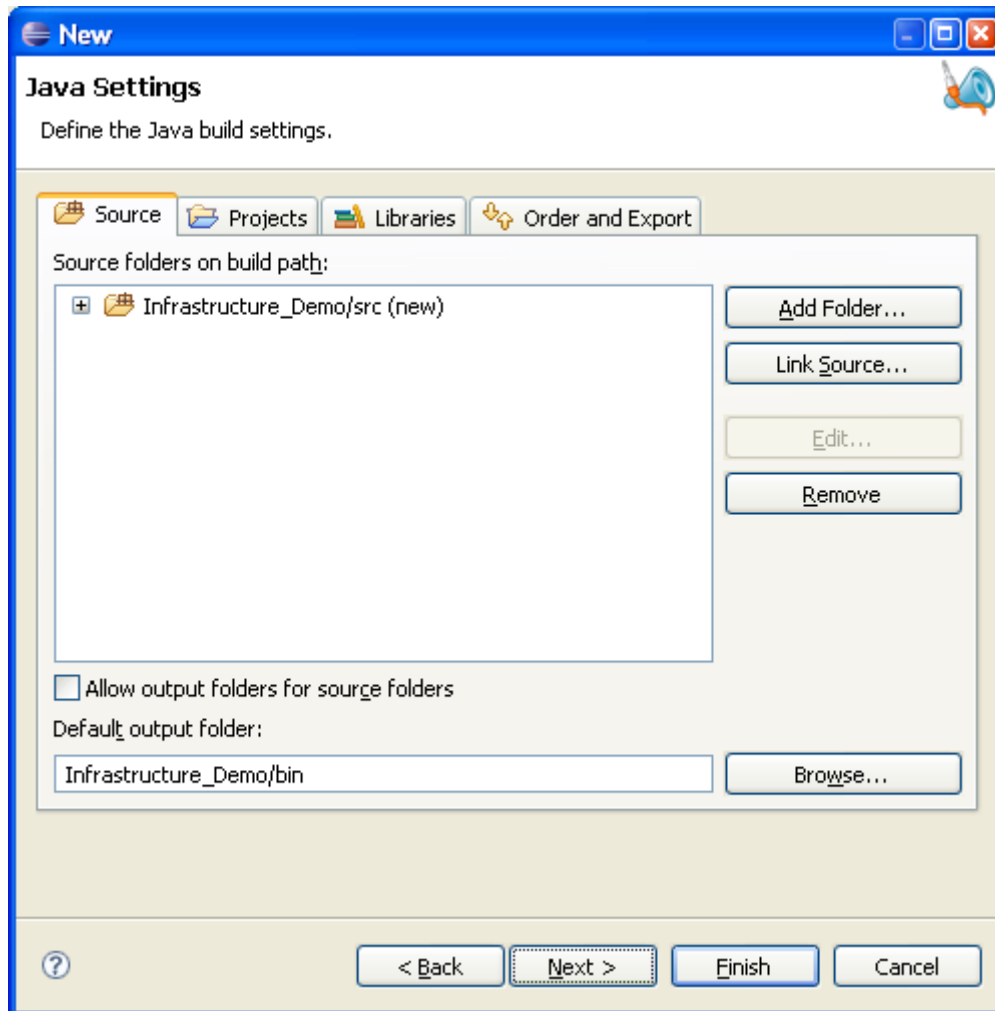
### Repast Symphony Project

Create a new Repast Symphony Project

Project name:

Use default location

Location:



New

### Create Score Model

Select a model object to create

Base Directory: ../Infrastructure\_Demo

Score File Name:

Package:

Model Name:

Implementation Mode:

XML Encoding:

File Edit Navigate Search Project Run ScoreAct Editor Window Help

Package Explor Hierarchy

Infrastructure\_Demo

model.score

platform:/resource/Infrastructure\_Demo/infrastructuredemo.rs/model.score

InfrastructureDemo

Outline

platform:/resource/Infrastruc

http://scoreabm.org/core\_lib

Problems @ Javadoc Declaration

0 errors, 0 warnings, 0 infos

Description	Resource	Path	Location



Package Explorer

Hierarchy

- Infrastructure\_Demo
  - src
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
  - license.txt
  - model\_description.txt

model.score

platform:/resource/Infrastructure\_Demo/infrastructuredemo.rs/model.score

- InfrastructureDemo

Problems @ Javadoc Declaration

0 errors, 0 warnings, 0 infos

Description	Resource	Path	Location



Package Explor Hierarchy

- Infrastructure\_Demo
  - src
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  - lib
  - misc
  - license.txt
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model.score

platform:/resource/Infrastructure\_Demo/infrastructuredemo.rs/model.score

InfrastructureDemo

- User Acti
- Attribute
- Styles

Create Member

- Agent
- Context
- Projection - Space
- Projection - Grid
- Projection - Network
- Projection - Geography
- Projection - Value Layer
- Functions

- Undo Ctrl+Z
- Redo Ctrl+Y
- Cut
- Copy
- Paste
- Delete
- Validate
- Control...
- Load Resource...
- Refresh
- Show Properties

Problems @ Javadoc Declaration

0 errors, 0 warnings, 0 infos

Description	Resource	Path	Location

Package Explorer

- Infrastructure\_Demo
  - src
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
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  - installer
  - integration
  - launchers
  - lib
  - misc
    - license.txt
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InfrastructureDemo

- InfrastructureDemoAgent
  - Attributes
  - Styles
- User Activities
  - Attributes
  - Styles

Context Menu

- Create Parent Member
- Undo New Agent Ctrl+Z
- Redo Ctrl+Y
- Cut
- Copy
- Paste
- Delete
- Validate
- Control...
- Load Resource...
- Refresh
- Show Properties

0 errors, 0 warnings, 0 infos

Description	Resource	Path	Location



Package Explor Hierarchy

- Infrastructure\_Demo
  - src
  - JRE System Library [eclipse]
  - Referenced Libraries
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  - data
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  - infrastructuredemo.rs
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  - integration
  - launchers
  - lib
  - misc
  - license.txt
  - model\_description.txt

\*model.score

platform:/resource/Infrastructure\_Demo/infrastructuredemo.rs/model.score

- InfrastructureDemo
  - GasNode
    - Attributes
    - Styles
  - User Activities
  - Attributes
  - Styles

Problems Javadoc Declaration Properties

Property	Value
IDs	
Description	
ID	gasNode
Label	GasNode
Plural Label	GasNodes
Implementation	
Base Path	
Class Name	GasNode
File Name for Compiled Code	../Infrastructure_Demo/bin/infrastructuredemo/GasNode.class
File Name for Source Code	../Infrastructure_Demo/src/infrastructuredemo/GasNode.*
Mode	LOAD
Package	



Package Explorer

- Infrastructure\_Demo
  - src
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
  - license.txt
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\*model.score

platform:/resource/Infrastructure\_Demo/infrastructuredemo.rs/model.score

InfrastructureDemo

- GasNode
  - Attributes
  - Styles
- User Activities
- Attributes
- Styles

Context Menu:

- Create Member
  - Agent
  - Context
  - Projection - Space
  - Projection - Grid
  - Projection - Network
  - Projection - Geography
  - Projection - Value Layer
  - Functions
- Undo Set (Ctrl+Z)
- Redo (Ctrl+Y)
- Cut
- Copy
- Paste
- Delete
- Validate
- Control...
- Load Resource...
- Refresh
- Show Properties

Problems | Javadoc | Declaration | Properties

Property	Value
IDs	
Description	
ID	infrastructureDemo
Label	InfrastructureDemo
Plural Label	InfrastructureDemos
Implementation	
Base Path	../Infrastructure_Demo
Class Name	
File Name for Compiled Code	
File Name for Source Code	
Mode	AUTO
Package	infrastructuredemo
Misc	



Package Explorer Hierarchy

- Infrastructure\_Demo
  - src
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
  - license.txt
  - model\_description.txt

\*model.score

platform:/resource/Infrastructure\_Demo/infrastructuredemo.rs/model.score

- InfrastructureDemo
  - GasNode
    - Attributes
    - Styles
  - GasNetwork
  - User Activities
  - Attributes
  - Styles

Problems Javadoc Declaration Properties

Property	Value
IDs	
Description	
ID	gasNetwork
Label	GasNetwork
Plural Label	GasNetworks
Misc	
Directed	true



- Infrastructure\_Demo
  - src
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
  - license.txt
  - model\_description.txt

\*model.score  
platform:/resource/Infrastructure\_Demo/infrastructuredemo.rs/model.score

InfrastructureDemo

- GasNode
  - Attr
  - Style
- GasNetwork
- User Act
- Attribute
- Styles

Context Menu:

- Create Member
  - Agent
  - Context
  - Projection - Space
  - Projection - Grid
  - Projection - Network
  - Projection - Geography
  - Projection - Value Layer
  - Functions
- Undo Set Ctrl+Z
- Redo Ctrl+Y
- Cut
- Copy
- Paste
- Delete
- Validate
- Control...
- Load Resource...
- Refresh
- Show Properties

Property	Value
Description	
ID	infrastructureDemo
Label	InfrastructureDemo
Plural Label	InfrastructureDemos
Implementation	
Base Path	../Infrastructure_Demo
Class Name	
File Name for Compiled Code	
File Name for Source Code	
Mode	AUTO
Package	infrastructuredemo
Misc	
Library	



Package Explorer Hierarchy

- Infrastructure\_Demo
  - src
  - JRE System Library [eclipse]
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  - data
  - docs
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  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
  - license.txt
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\*model.score



Problems Javadoc Declaration Properties

Property	Value
IDs	
Description	
ID	grid
Label	Grid
Plural Label	Grids
Misc	
Border Rule	STICKY
Multi Occupant	false
Values	
Dimensionality	2



Package Explor Hierarchy

- Infrastructure\_Demo
  - src
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  - Referenced Libraries
  - batch
  - data
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  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
  - license.txt
  - model\_description.txt

\*model.score



Problems Javadoc Declaration Properties

Property	Value
IDs	
Description	The horizontal extent of the space.
ID	width
Label	Width
Plural Label	Widths
Misc	
Accessors	
Default Value	20
SType	INTEGER
Values	
Gather Data	false
Units	





Package Explor Hierarchy

- Infrastructure\_Demo
  - src
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  - installer
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  - launchers
  - lib
  - misc
    - license.txt
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\*model.score

platform:/resource/Infrastructure\_Demo/infrastructuredemo.rs/model.score

- InfrastructureDemo
  - GasNode
    - Attributes
    - Styles
  - GasNetwork
  - Grid
    - Dimensions Array
    - Width
    - Height
  - User Activities
  - Attributes
  - Styles

Problems Javadoc Declaration Properties

Property	Value
IDs	
Description	The vertical extent of the space.
ID	height
Label	Height
Plural Label	Heights
Misc	
Accessors	
Default Value	30
SType	INTEGER
Values	
Gather Data	false
Units	





Package Explorer

- Infrastructure\_Demo
  - src
  - JRE System Library [eclipse]
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  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
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  - lib
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\*model.score

platform:/resource/Infrastructure\_Demo/infrastructuredemo.rs/model.score

- InfrastructureDemo
  - GasNode
    - Attributes
    - Styles
  - GasNetwork
  - Grid
    - Dimensions Array
    - Width
    - Height
  - User Activities
  - Attributes
  - Styles

Properties

Property	Value
IDs	
Description	The vertical extent of the space.
ID	height
Label	Height
Plural Label	Heights
Misc	
Accessors	
Default Value	30
SType	INTEGER
Values	
Gather Data	false
Units	



Package Explorer

- Infrastructure\_Demo
  - src
    - infrastructuredemo.rs
  - JRE System Library [ec...]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
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model.score

platform:/resource/Infrastructure\_Demo/infrastructuredemo.rs/model.score

- InfrastructureDemo
  - GasNode
  - Attributes

New

- Java Project
- Project...
- Package
- Class
- Interface
- Enum
- Annotation
- Source Folder
- Folder
- File
- Untitled Text File
- JUnit Test Case
- Other...

Open in New Window

Open Type Hierarchy F4

Show In Alt+Shift+W

Copy Ctrl+C

Copy Qualified Name

Paste Ctrl+V

Delete Delete

Build Path

Source Alt+Shift+S

Refactor Alt+Shift+T

Import...

Export...

Refresh F5

Assign Working Sets...

Run As

Debug As

Team

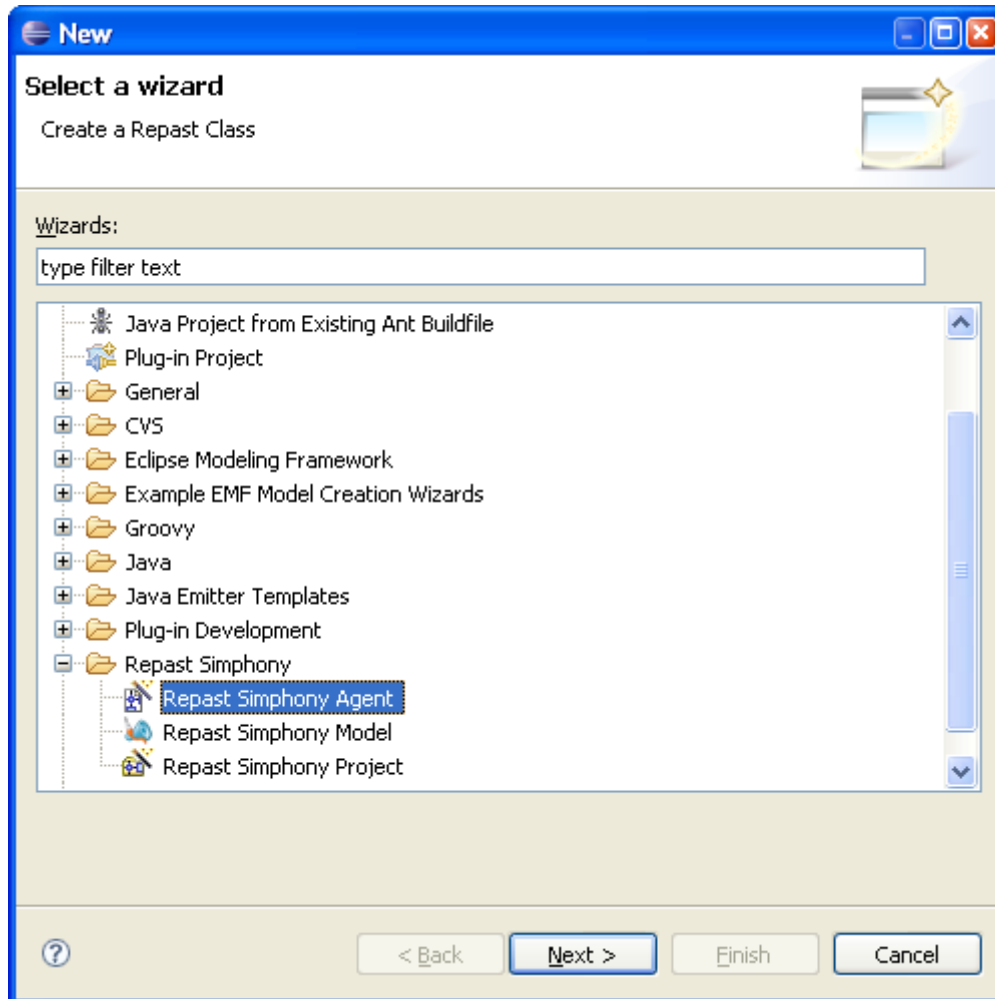
Compare With

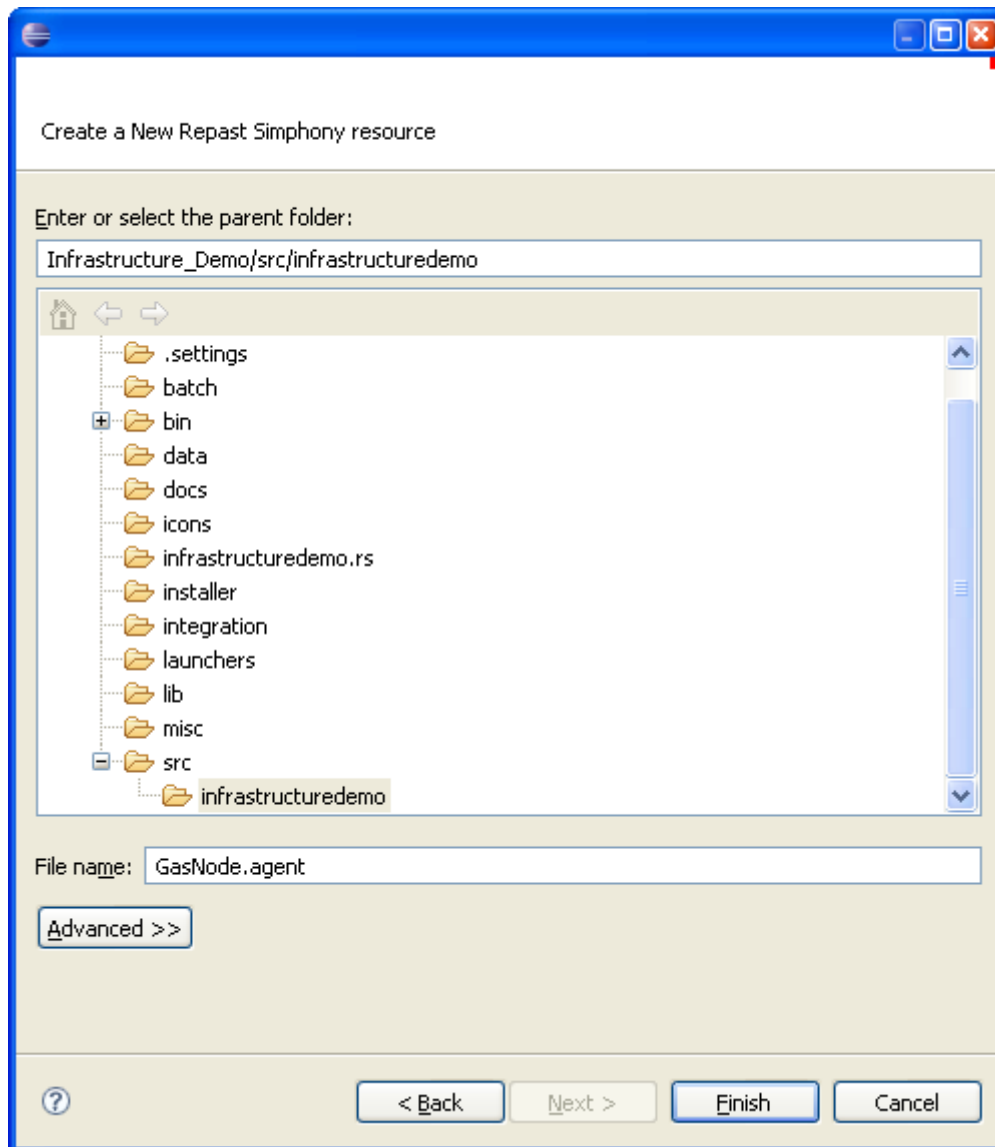
Restore from Local History...

Properties Alt+Enter

Declaration Properties

Declaration	Value
	false
	false
	<file contents not local>
	false
	<file contents not local>
name	infrastructuredemo
path	/Infrastructure_Demo/src/infrastructuredemo







Infrastructure\_Demo

- src
  - infrastructuredemo
    - GasNode.agent
    - GasNode.groovy
- JRE System Library [eclipse]
- Referenced Libraries
- batch
- data
- docs
- icons
- infrastructuredemo.rs
- installer
- integration
- launchers
- lib
- misc
  - license.txt
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- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End

Property	Value
Step 1: Type in a Comment that Describes this Agent	This is an agent.
Step 2: Note the Agent Type Name (Change the File Nam	GasNode
Step 3: Optionally Type in the Parent Class Name	
Step 4: Optionally Type in a Comma Separated List of Inte	
Step 5: Optionally Type in a Comma Separated List of Imp	
Step 6: Use the Palette on the Left to Fill in Agent Properl	

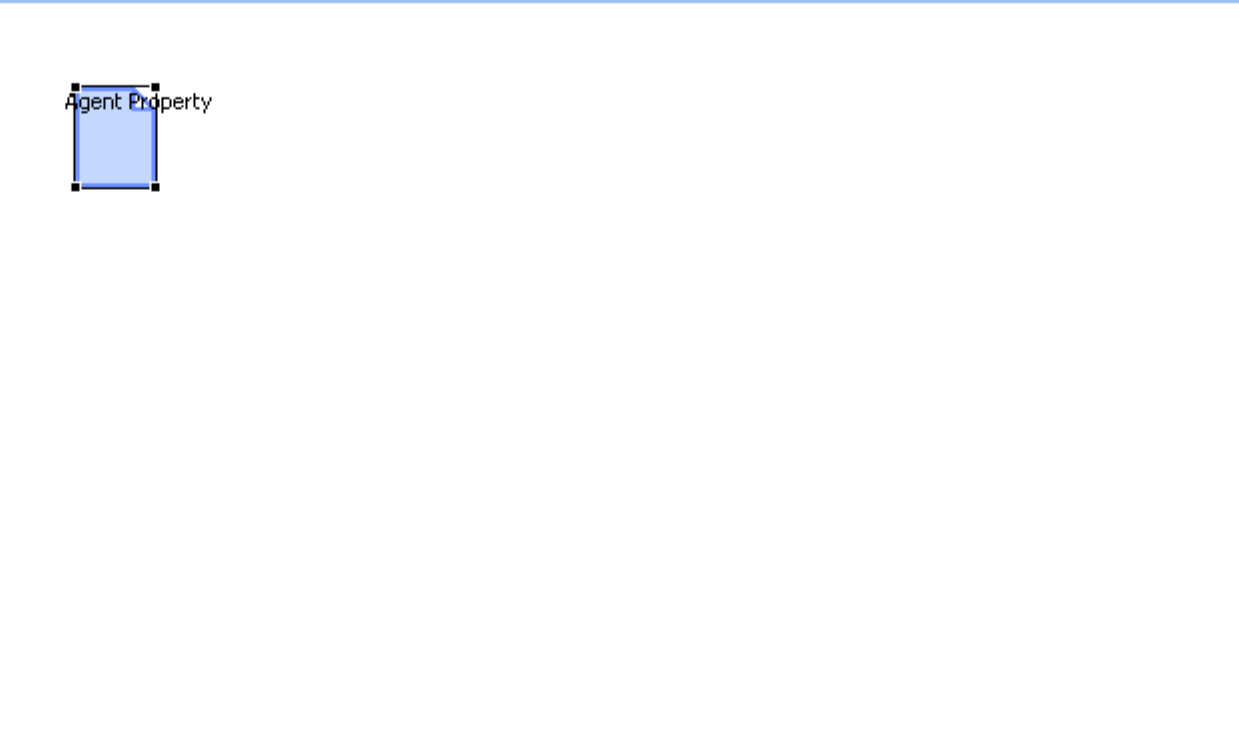


Package Explorer

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
    - JRE System Library [eclipse]
    - Referenced Libraries
    - batch
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    - docs
    - icons
    - infrastructuredemo.rs
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model.score \*GasNode.agent

- Select
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- Loop
- End



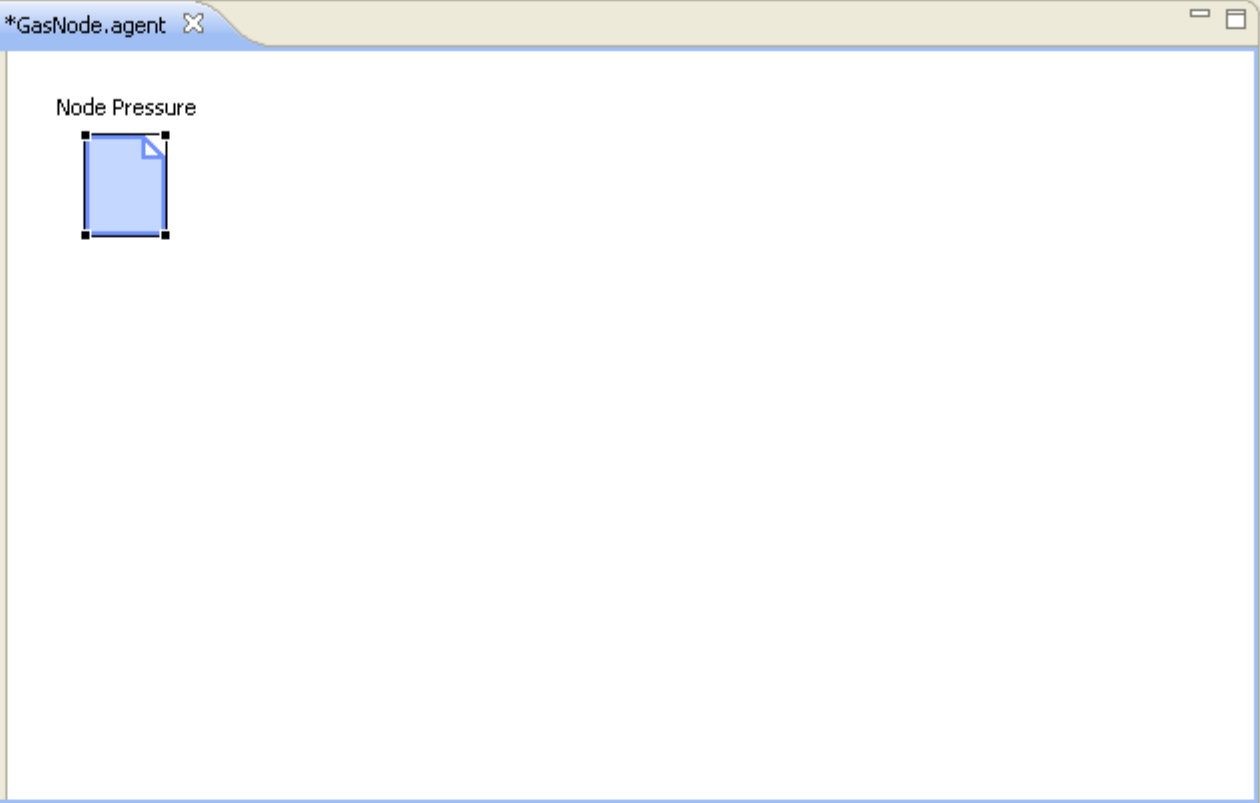
Property	Value
Step 1: Type in a Comment that Describes this Property	This is an agent property.
Step 2: Type in a Human-Readable Diagram Label for the	Agent Property
Step 3: Type in a Compilable Name for the Property	propertyName
Step 4: Optionally Select Who Can Access this Property	Everyone
Step 5: Optionally Choose a Type for this Property (e.g.,	def
Step 6: Optionally Type in a Default Value for this Propert	0

Package Explorer

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
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  - batch
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model.score \*GasNode.agent

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Problems Javadoc Declaration Properties

Property	Value
Step 1: Type in a Comment that Describes this Property	This is an agent property.
Step 2: Type in a Human-Readable Diagram Label for the Property	Node Pressure
Step 3: Type in a Compilable Name for the Property	propertyName
Step 4: Optionally Select Who Can Access this Property	Everyone
Step 5: Optionally Choose a Type for this Property (e.g., "def" for any)	double
Step 6: Optionally Type in a Default Value for this Property	300





Infrastructure\_Demo

- src
  - infrastructuredemo
    - GasNode.agent
    - GasNode.groovy
- JRE System Library [eclipse]
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- Select
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- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



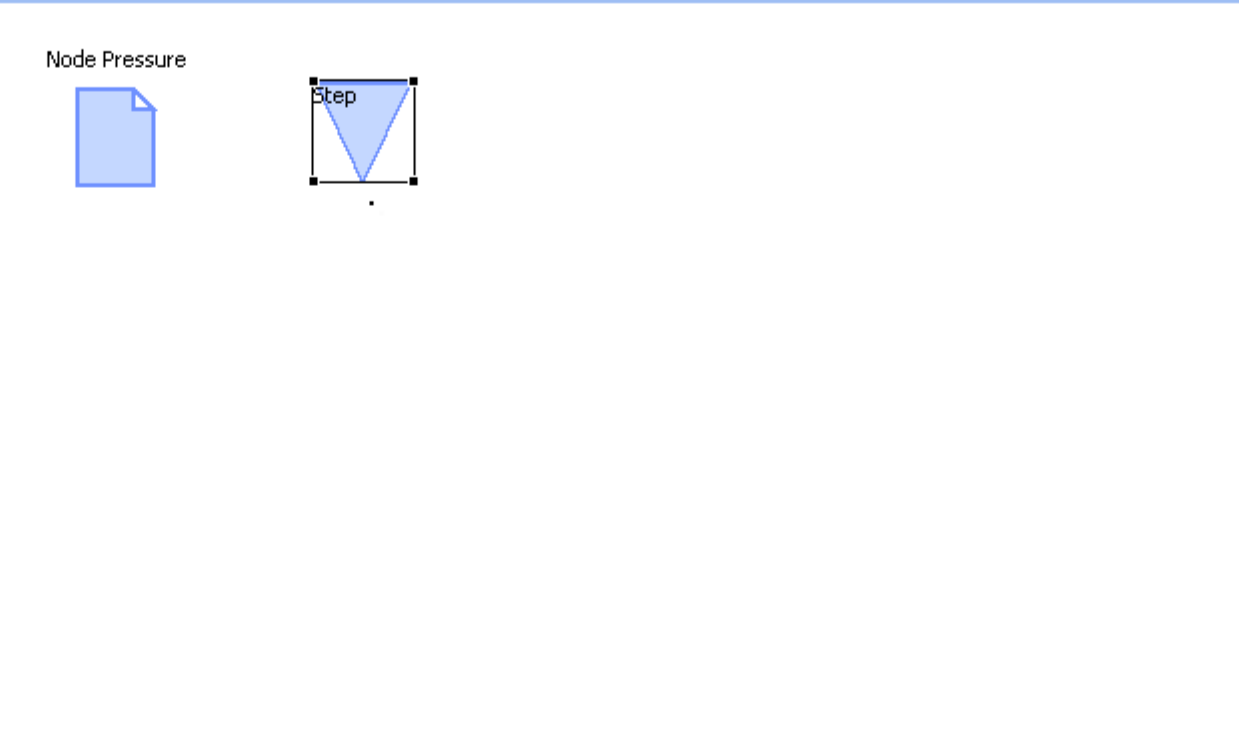
Property	Value
Step 1: Type in a Comment that Describes this Property	This is an agent property.
Step 2: Type in a Human-Readable Diagram Label for the Property	Node Pressure
Step 3: Type in a Compilable Name for the Property	pressure
Step 4: Optionally Select Who Can Access this Property	Everyone
Step 5: Optionally Choose a Type for this Property (e.g., "def" for any)	double
Step 6: Optionally Type in a Default Value for this Property	300

Package Explor Hierarchy

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
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model.score \*GasNode.agent

- Select
- Marquee
- Connection
- Steps
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- Behavior
- Task
- Decision
- Join
- Loop
- End



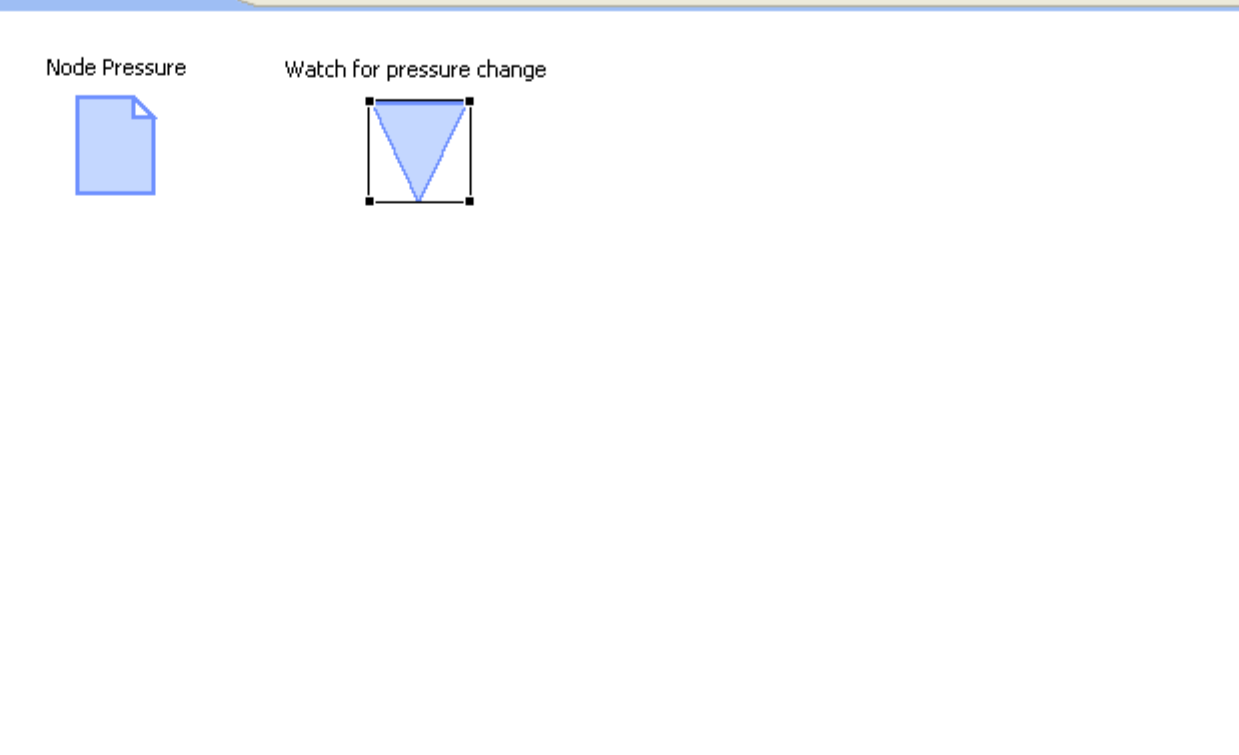
Property	Value
Step 1: Type in a Comment that Describes this Behavior	This is the step behavior.
Step 2: Type in a Human-Readable Diagram Label for the Property	Step
Step 3: Optionally Specify a Constant Execution Schedule for the Behavior	
Step 4: Optionally Specify Trigger Conditions for the Behavior	
Step 5: Optionally Select Who Can Access this Behavior	Everyone
Step 6: Optionally Select a Return Type for the Behavior	
Step 7: Type in a Compiled Name	step
Step 8: Optionally Type in a Comma Separated List of Parameters for the Behavior	
Step 9: Optionally Type in a Comma Separated List of Exceptions for the Behavior	

Package Explorer

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
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model.score \*GasNode.agent

- Select
- Marquee
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- Decision
- Join
- Loop
- End



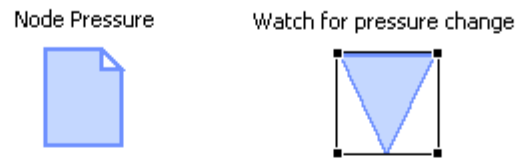
Property	Value
Step 1: Type in a Comment that Describes this Behavior	This is the step behavior.
Step 2: Type in a Human-Readable Diagram Label for the Property	Watch for pressure change
Step 3: Optionally Specify a Constant Execution Schedule for the Behavior	
Step 4: Optionally Specify Trigger Conditions for the Behavior	
Step 5: Optionally Select Who Can Access this Behavior	Everyone
Step 6: Optionally Select a Return Type for the Behavior	
Step 7: Type in a Compiled Name	step
Step 8: Optionally Type in a Comma Separated List of Parameters for the Behavior	
Step 9: Optionally Type in a Comma Separated List of Exceptions for the Behavior	

Package Explorer Hierarchy

- Infrastructure\_Demo
  - src
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model.score GasNode.agent

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Problems Javadoc Declaration Properties

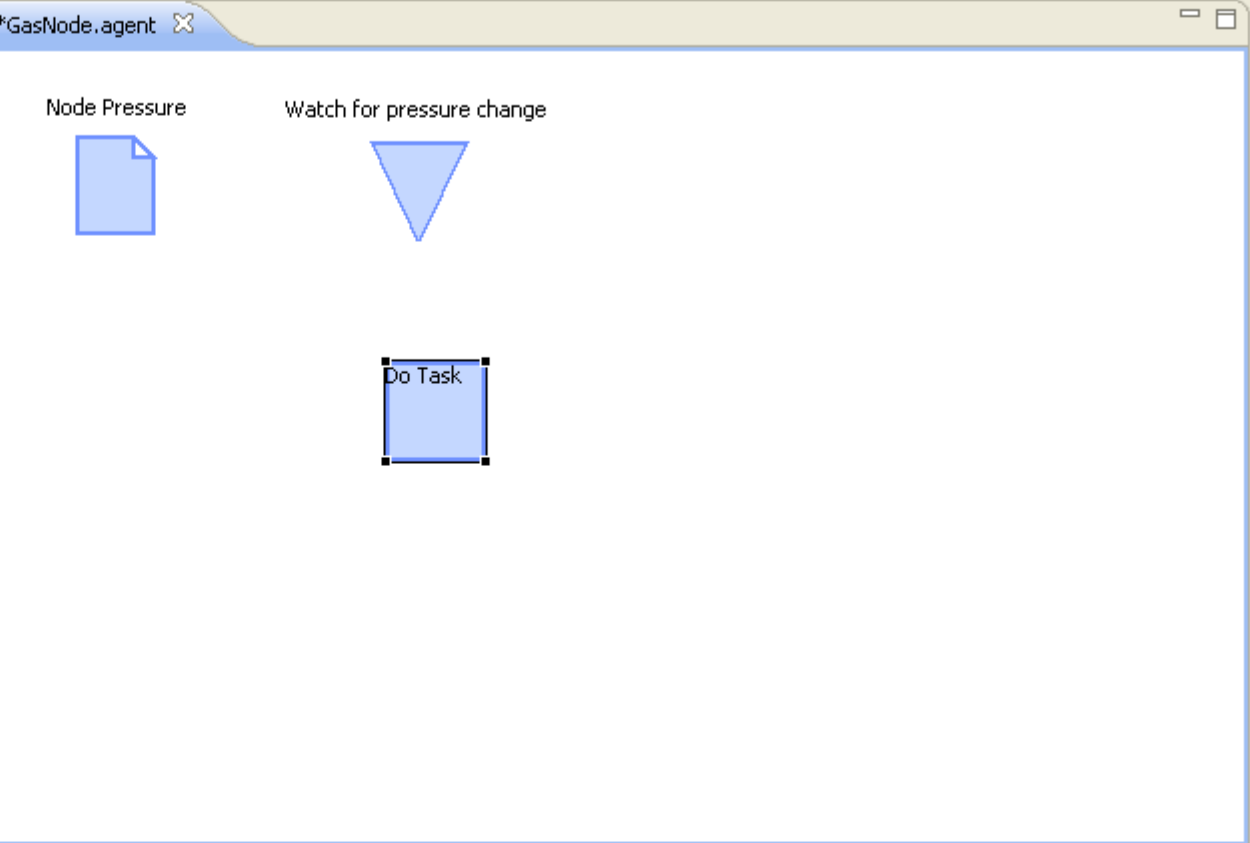
Property	Value
Step 1: Type in a Comment that Describes this Behavior	This is the step behavior.
Step 2: Type in a Human-Readable Diagram Label for the Property	Watch for pressure change
Step 3: Optionally Specify a Constant Execution Schedule for the Behavior	
Step 4: Optionally Specify Trigger Conditions for the Behavior	
Step 4a: Optionally Type in an Identifier for the Trigger Condition	
Step 4b: Optionally Type in a Query for the Trigger Condition	linked_from
Step 4c: Optionally Type in the Kind of Agents to Watch	infrastructuredemo.GasNode
Step 4d: Optionally Type in the Number of Agents to Watch (Long.MAX_VALUE Selects All Agents)	
Step 4e: Optionally Type in a Comma Separated List of Target Agent Fields to Watch	pressure
Step 4f: Optionally Type in a Trigger Condition to Trigger the Behavior	
Step 4g: Optionally Type in a Delay Type Before the Behavior Triggers	Later
Step 4h: Optionally Type in a Delay Time Before the Behavior Triggers	10
Step 4i: Optionally Type in a Trigger Activation Priority	
Step 5: Optionally Select Who Can Access this Behavior	Everyone
Step 6: Optionally Select a Return Type for the Behavior	
Step 7: Type in a Compiled Name	step
Step 8: Optionally Type in a Comma Separated List of Parameters for the Behavior	GasNode watchedNode
Step 9: Optionally Type in a Comma Separated List of Exceptions for the Behavior	

Package Explorer

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
  - JRE System Library [eclipse]
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model.score \*GasNode.agent

- Select
- Marquee
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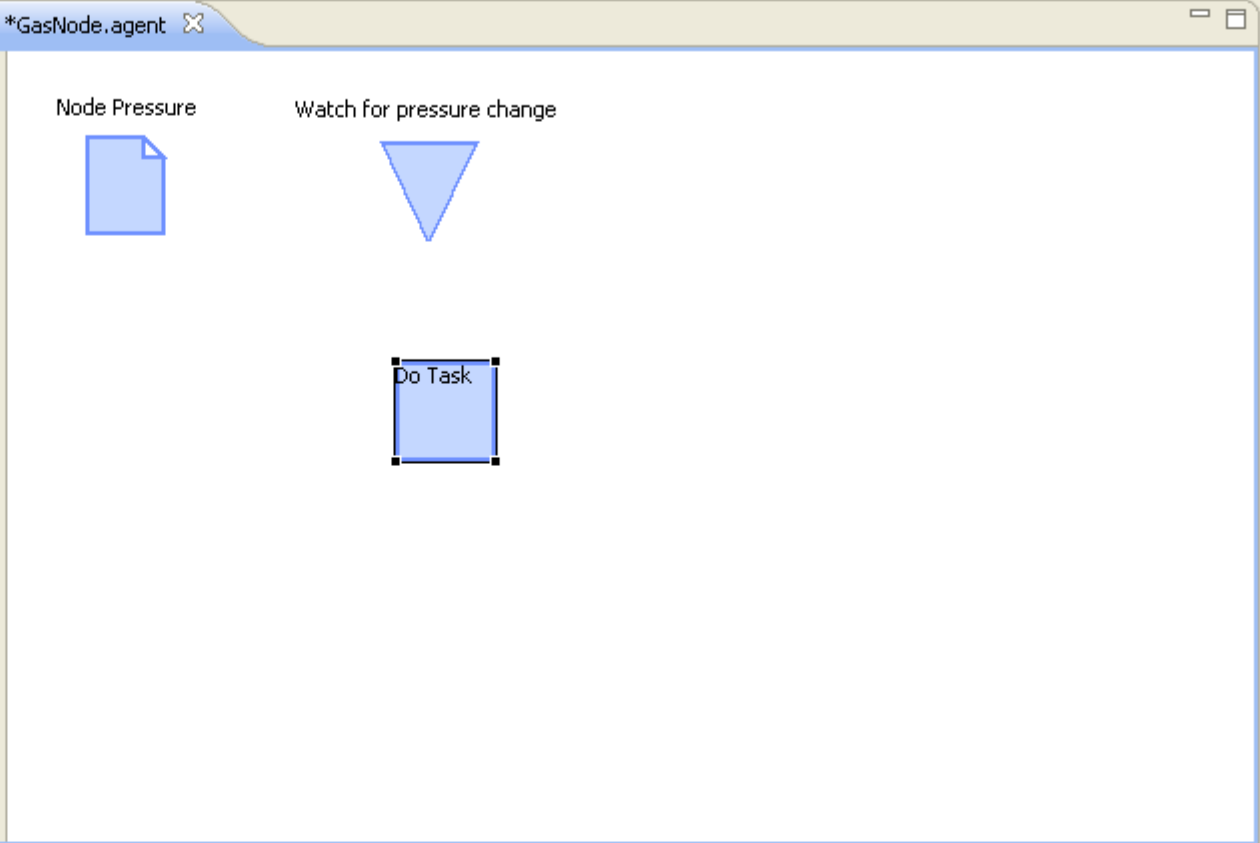
Property	Value
Step 1: Type in a Comment that Describes this Task	This is a task.
Step 2: Type in a Human-Readable Diagram Label for the Property	Do Task
Step 3: Optionally Choose an Type from the Task List	Context Operation: Find a Context [Context FindContext(String contextPath)]
Step 4: Optionally Note the Example Task	Context context = FindContext("root/sub1")
Step 5: Type in Task Part 1	
Step 6: Optionally Type in Task Part 2	
Step 7: Optionally Type in Task Part 3	
Step 8: Optionally Type in Task Part 4	
Step 9: Optionally Type in Task Part 5	

Package Explorer

- Infrastructure\_Demo
  - src
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      - GasNode.agent
      - GasNode.groovy
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
    - license.txt
    - model\_description.txt

model.score \*GasNode.agent

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End




Problems Javadoc Declaration Properties

Property	Value
Step 1: Type in a Comment that Describes this Task	This is a task.
Step 2: Type in a Human-Readable Diagram Label for the Property	Do Task
Step 3: Optionally Choose an Type from the Task List	Context Operation: Find a Context [Context FindContext(String contextPath)]
Step 4: Optionally Note the Example Task	Context context = FindContext("root/sub1")
Step 5: Type in Task Part 1	
Step 6: Optionally Type in Task Part 2	Edit Using Text Box Dialog...
Step 7: Optionally Type in Task Part 3	Edit Using Wizard Dialog...
Step 8: Optionally Type in Task Part 4	
Step 9: Optionally Type in Task Part 5	

Task

Please Select the Kind of Code to Create

- Variable Assignment
- Contexts and Agents
- Move an Agent in Space
- Statistics and Random Numbers
- Mathematics
- Queries
- Networks
- Schedule
- Projections
- Advanced Adaptation
- Miscellaneous
- Model Initializer



**Variable Assignment**

Please Select the Kind of Variable Assignment to Perform

Assign a Variable

Assign a Variable from a Watched Agent

Assign a Behavior Step Return Value from a Calculation

Assign a Behavior Step Return Value from a Watched Agent



Assign a Variable from a Watched Agent

Please Select the Variable Assignment Options

Variable Name:

Watched Agent Name:

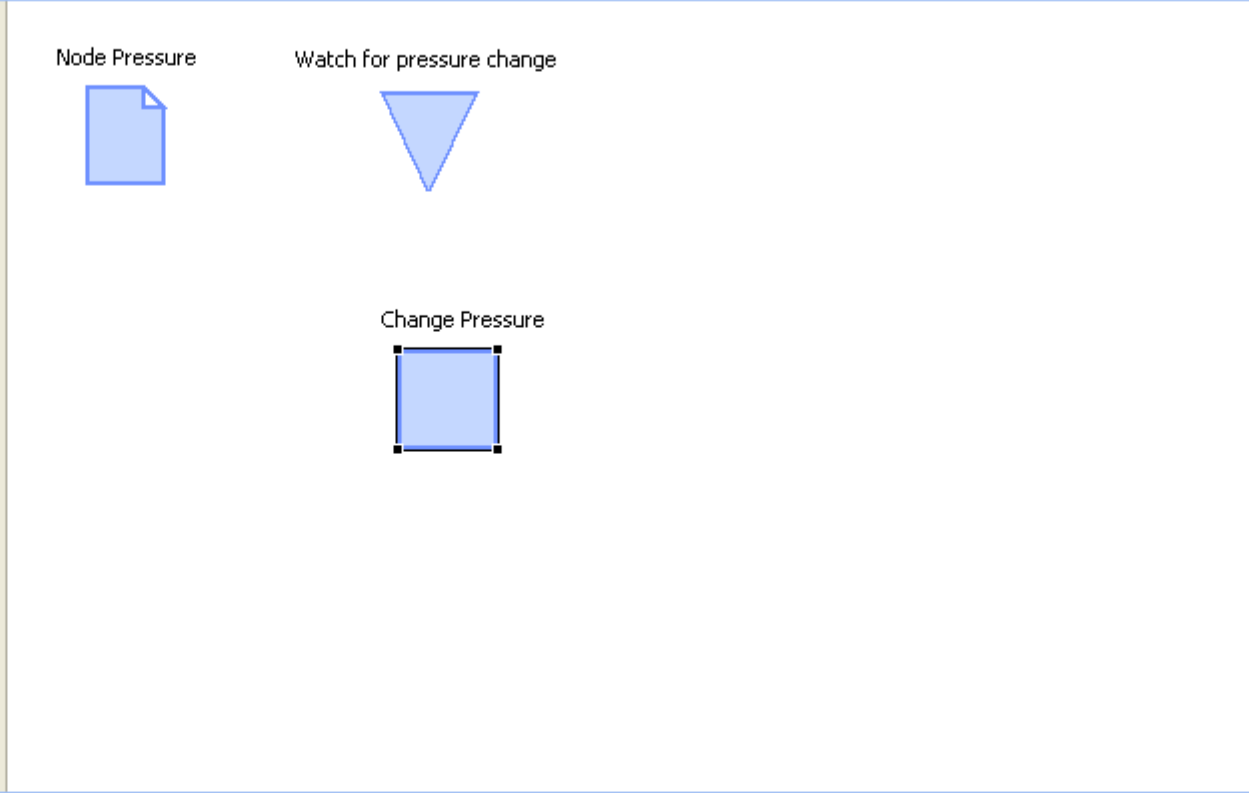
? < Back Next > Finish Cancel

Package Explorer Hierarchy

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
  - license.txt
  - model\_description.txt

model.score \*GasNode.agent

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Problems Javadoc Declaration Properties

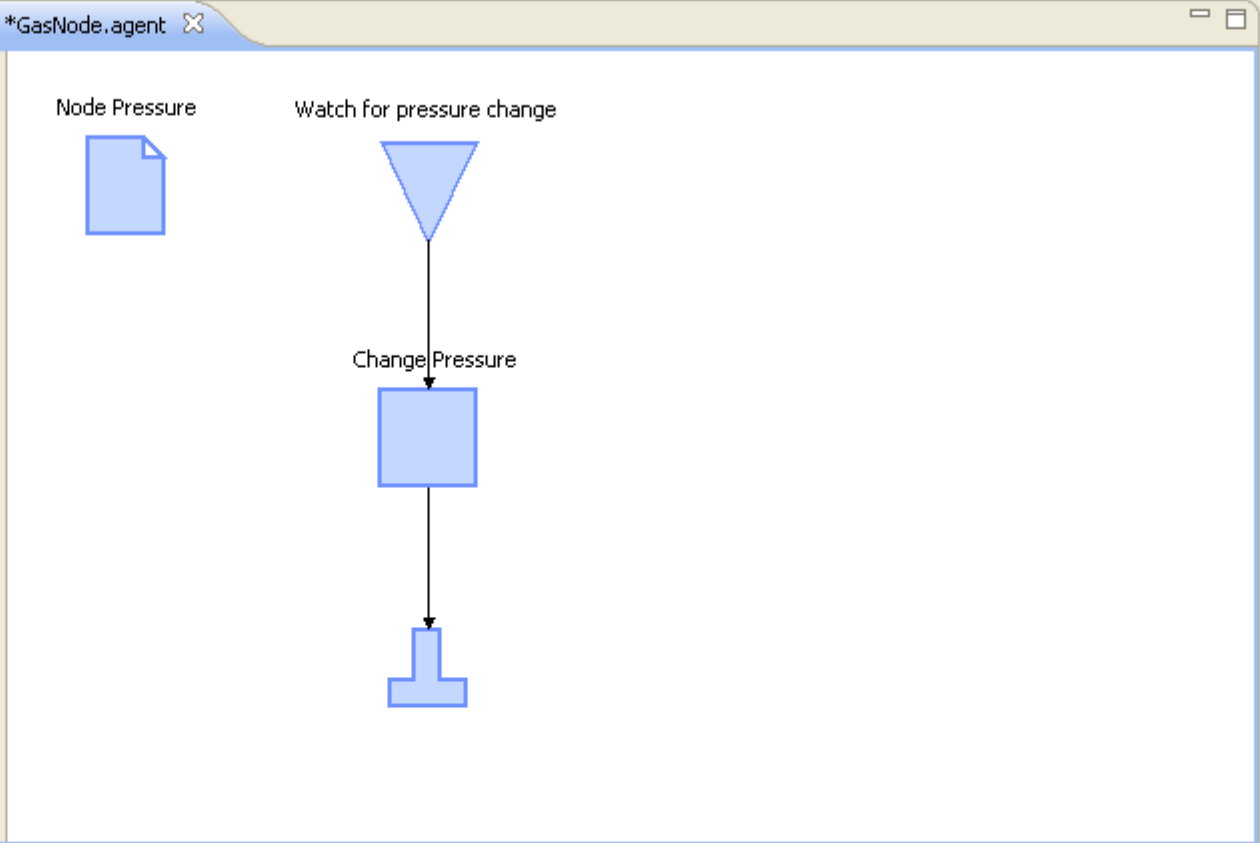
Property	Value
Step 1: Type in a Comment that Describes this Task	This is a task.
Step 2: Type in a Human-Readable Diagram Label for the Property	Change Pressure
Step 3: Optionally Choose an Type from the Task List	Context Operation: Find a Context [Context FindContext(String contextPath)]
Step 4: Optionally Note the Example Task	Context context = FindContext("root/sub1")
Step 5: Type in Task Part 1	pressure = watchedNode.pressure
Step 6: Optionally Type in Task Part 2	
Step 7: Optionally Type in Task Part 3	
Step 8: Optionally Type in Task Part 4	
Step 9: Optionally Type in Task Part 5	

Package Explorer

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
    - license.txt
    - model\_description.txt

model.score \*GasNode.agent

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Property	Value
Step 1: Type in a Comment that Describes this Agent	This is an agent.
Step 2: Note the Agent Type Name (Change the File Name to Change TI	GasNode
Step 3: Optionally Type in the Parent Class Name	
Step 4: Optionally Type in a Comma Separated List of Interfaces to Impl	
Step 5: Optionally Type in a Comma Separated List of Imports to Include	
Step 6: Use the Palette on the Left to Fill in Agent Properties and Behav	

# Simple Repast Model

Running the Simple Model



InfrastructureDemo - Repast Symphony

File Run Tools View Window

Tick Count: 0.0

Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
    - Data Loaders
      - Score Context Builder
    - Data Sets
    - Displays
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
    - Random Streams
    - User Specified Actions

Scenario Tree

Run Options

Parameters

InfrastructureDemo loaded

InfrastructureDemo - Repast Simphony

File Run Tools View Window



Tick Count: 0.0

Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
    - Data Loaders
      - Score Context Builder
    - Data Sets
    - Displays
    - Miscell
      - Add Display
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
    - Random Streams
    - User Specified Actions

Scenario Tree

Run Options

Parameters

Two empty rectangular input fields with a small circular icon on the right side.

**Display Configuration** [Close]

**Display Details**  
Please enter the name and type of the display as well the projections the display should visualize

**General**

Name: 2D Display

Type: 2D

**Projections and Value Layers**

	<input type="checkbox"/>	GasNetwork	<input type="checkbox"/>
	<input type="checkbox"/>	Grid	<input type="checkbox"/>

Previous Next Finish Cancel



**Display Configuration**

**Agent Style**  
Please provide a style for each agent type in the model and the order in which the layers will appear

Up Down

Layer Order

Foreground

GasNode

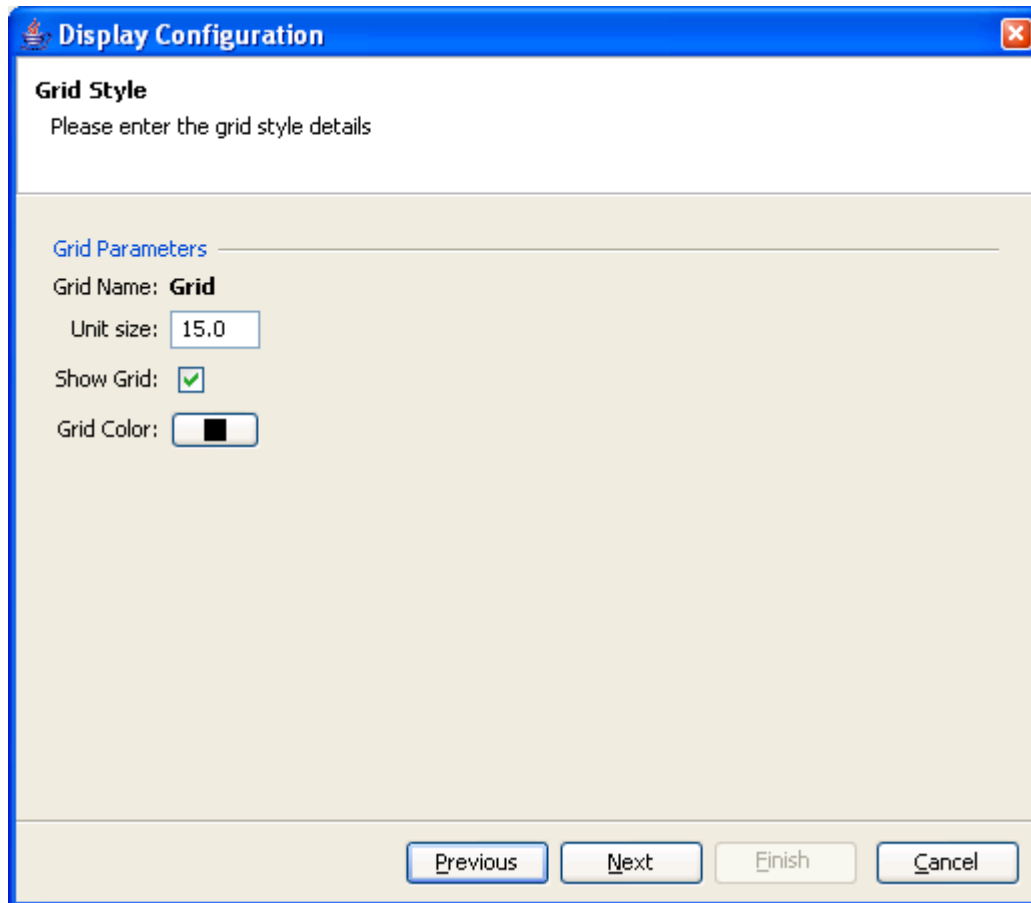
Agent Name: infrastructuredemo.GasNode

Style Class: repast.simphony.visualization.visualization2D.style.DefaultStyle2D

Edit Style

Background

Previous Next Finish Cancel

A dialog box titled "Display Configuration" with a blue border and a close button in the top right corner. The main area has a light beige background. It contains a section for "Grid Style" with a sub-section "Grid Parameters" separated by a horizontal line. The "Grid Name" is set to "Grid". The "Unit size" is a text box containing "15.0". The "Show Grid" checkbox is checked. The "Grid Color" is a color picker showing black.

### Display Configuration

**Grid Style**  
Please enter the grid style details

**Grid Parameters**

Grid Name: **Grid**

Unit size:

Show Grid:

Grid Color:

**Display Configuration** ✖

**Edge Style**  
Please provide an edge style for each network in the display

GasNetwork	Network Name: <input type="text" value="GasNetwork"/>
	Edge Style Class: <input style="border-bottom: 1px solid #ccc;" type="text" value="repast.simphony.visualization.visualization2D.style.DefaultEdgeStyle2D"/> <span style="float: right;">▼</span>
	<input type="button" value="Edit Style"/>

**Display Configuration** ✕

**Schedule Details**  
Please enter the update schedule start time, priority, frequency and interval for this display

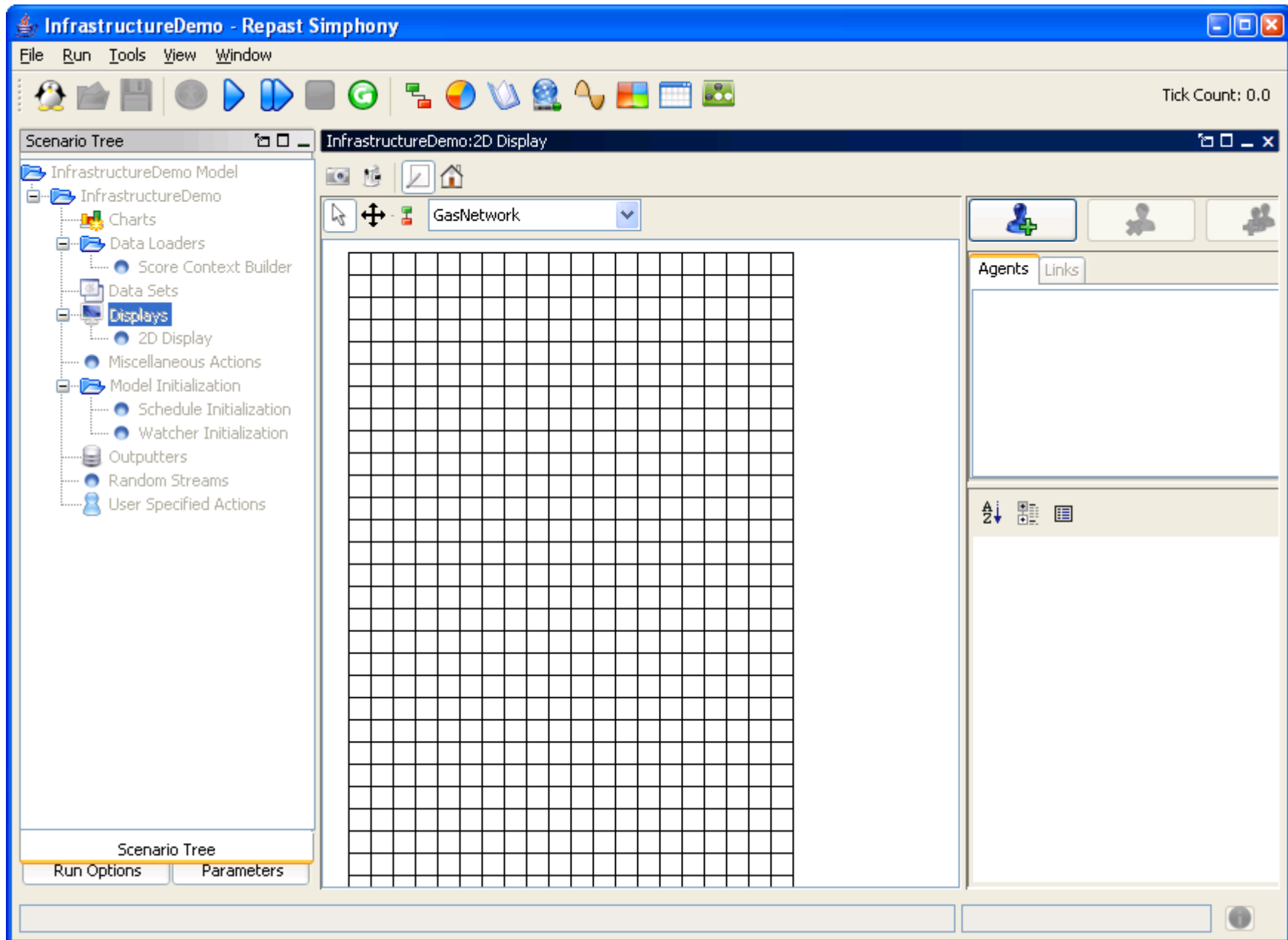
Schedule Parameters

Start Time

Priority  ▼

Frequency  ▼

Interval



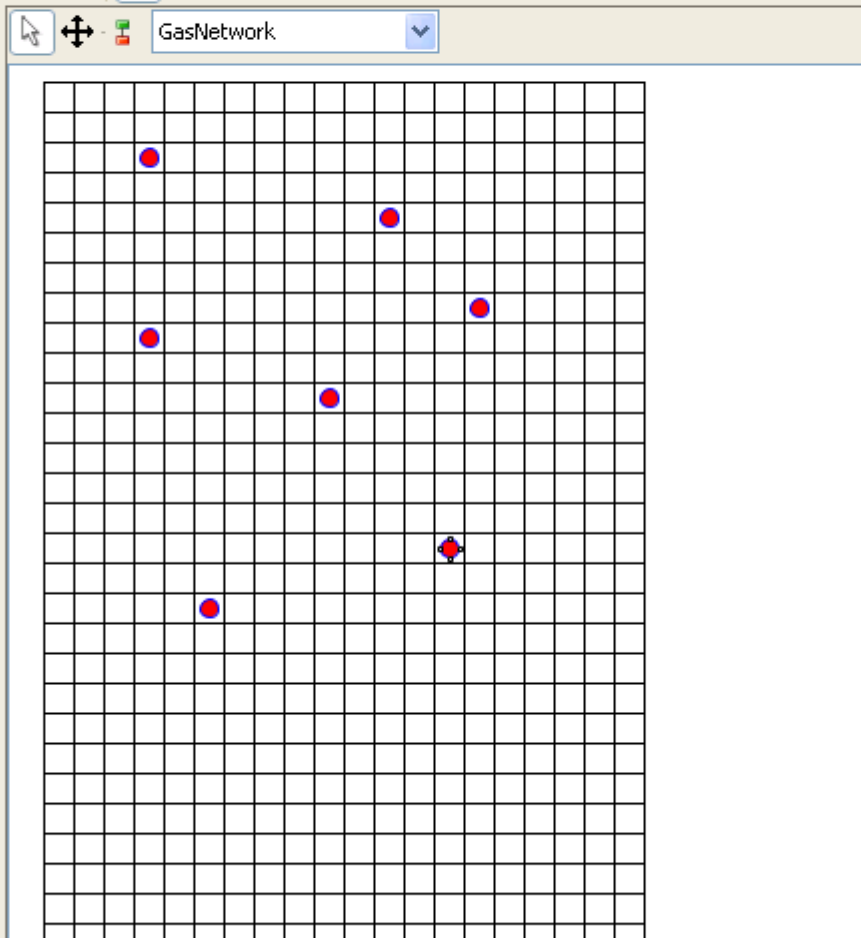
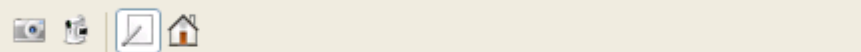


Tick Count: 0.0

Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
    - Data Loaders
    - Score Context Builder
    - Data Sets
    - Displays**
      - 2D Display
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
    - Random Streams
    - User Specified Actions

InfrastructureDemo:2D Display



Agents Links

- GasNode 1
- GasNode 2
- GasNode 3
- GasNode 4
- GasNode 5
- GasNode 6
- GasNode 7**



pressure	300
Grid Location	13, 14

Scenario Tree

Run Options

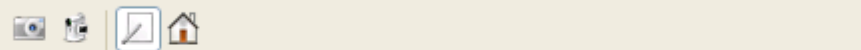
Parameters



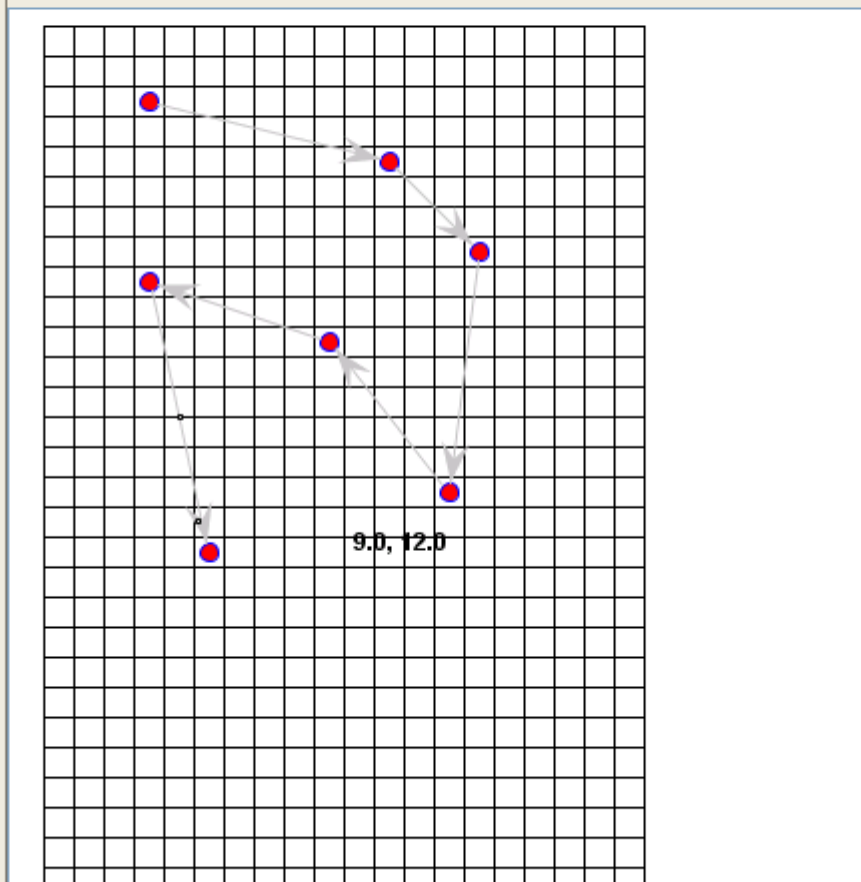
Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
    - Data Loaders
    - Score Context Builder
    - Data Sets
    - Displays
      - 2D Display
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
    - Random Streams
    - User Specified Actions

InfrastructureDemo:2D Display

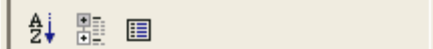


GasNetwork



Agents Links

- GasNode 1 -> GasNode 2
- GasNode 2 -> GasNode 5
- GasNode 5 -> GasNode 7
- GasNode 7 -> GasNode 4
- GasNode 4 -> GasNode 3
- GasNode 3 -> GasNode 6**



directed	<input checked="" type="checkbox"/>
source	GasNode 3
target	GasNode 6
weight	1

Scenario Tree

Run Options

Parameters

InfrastructureDemo - Repast Simphony

File Run Tools View Window

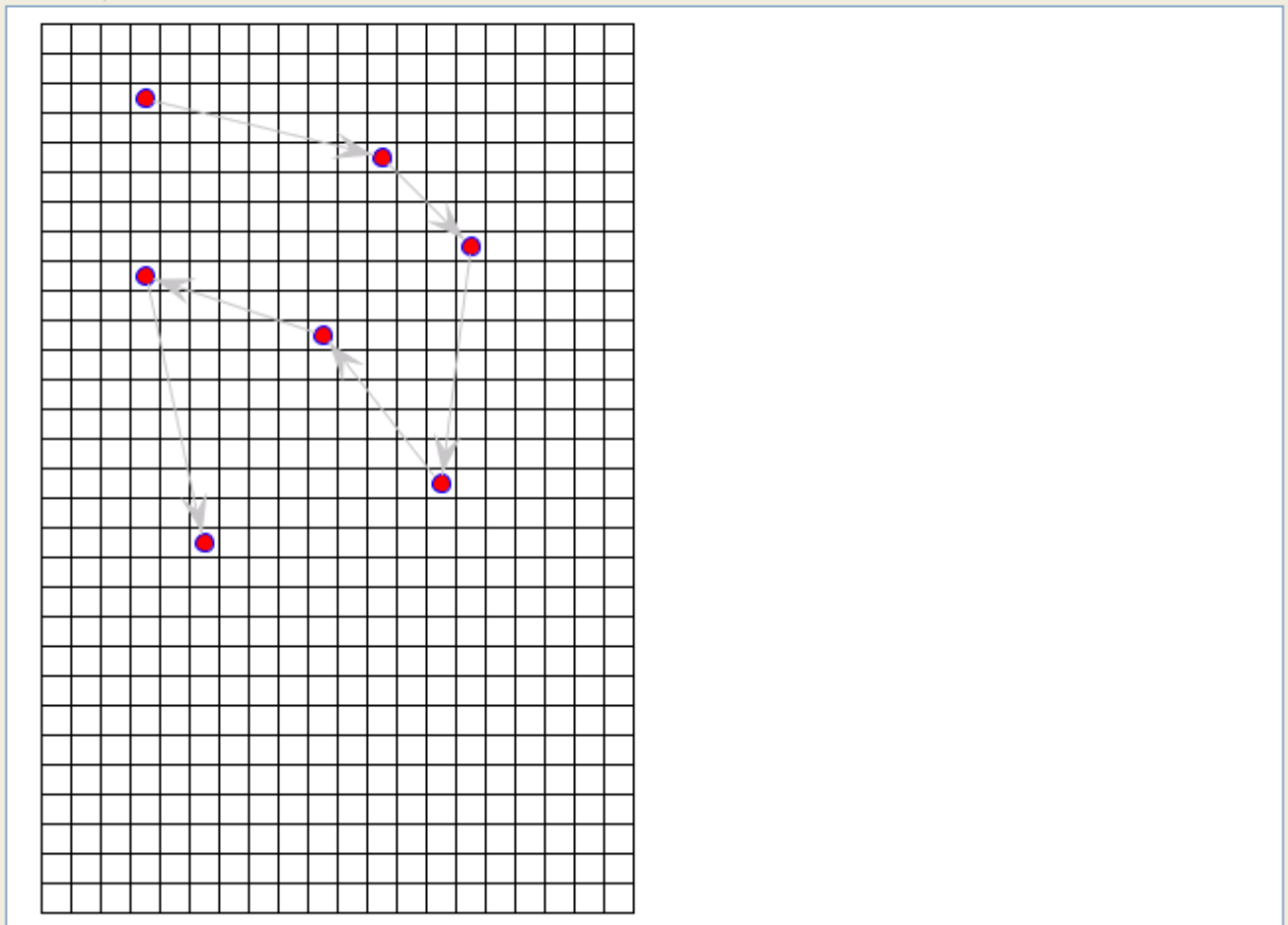


Tick Count: 0.0

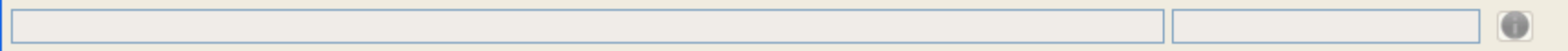
Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
    - Data Loaders
      - Score Context Builder
    - Data Sets
    - Displays
      - 2D Display
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
    - Random Streams
    - User Specified Actions

InfrastructureDemo:2D Display



Scenario Tree  
Run Options Parameters





InfrastructureDemo - Repast Simphony

File Run Tools View Window



Tick Count: 0.0

Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
    - Data Loaders
    - Score Context Builder
    - Data Sets
    - Displays**
      - 2D Display
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
    - Random Streams
    - User Specified Actions

Scenario Tree

Run Options

Parameters

GasNode 1

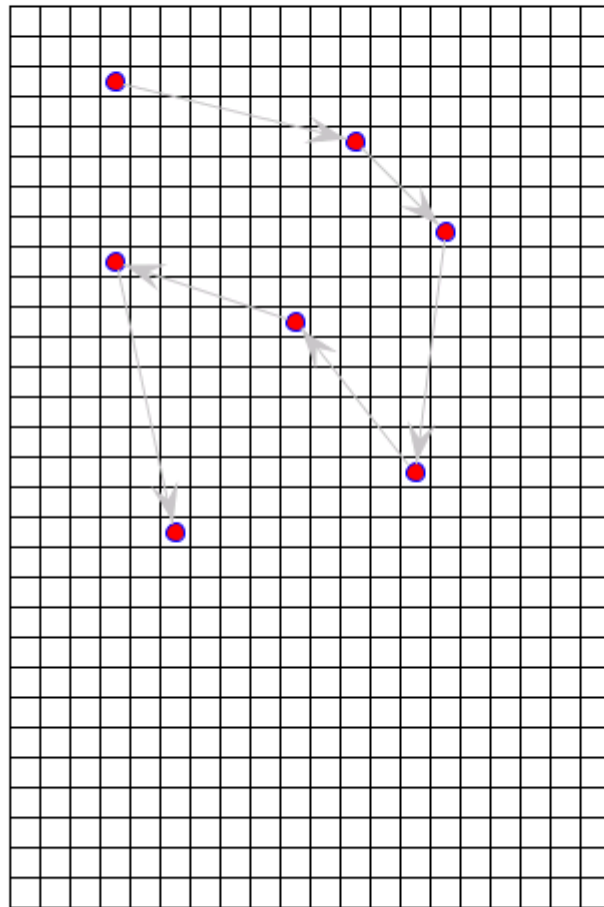
GasNode 1

Node pressure:

Locations

Grid: 3, 27

InfrastructureDemo:2D Display



InfrastructureDemo - Repast Simphony

File Run Tools View Window



Tick Count: 0.0

Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
    - Data Loaders
    - Score Context Builder
    - Data Sets
    - Displays**
      - 2D Display
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
    - Random Streams
    - User Specified Actions

Scenario Tree

Run Options

Parameters

GasNode 1

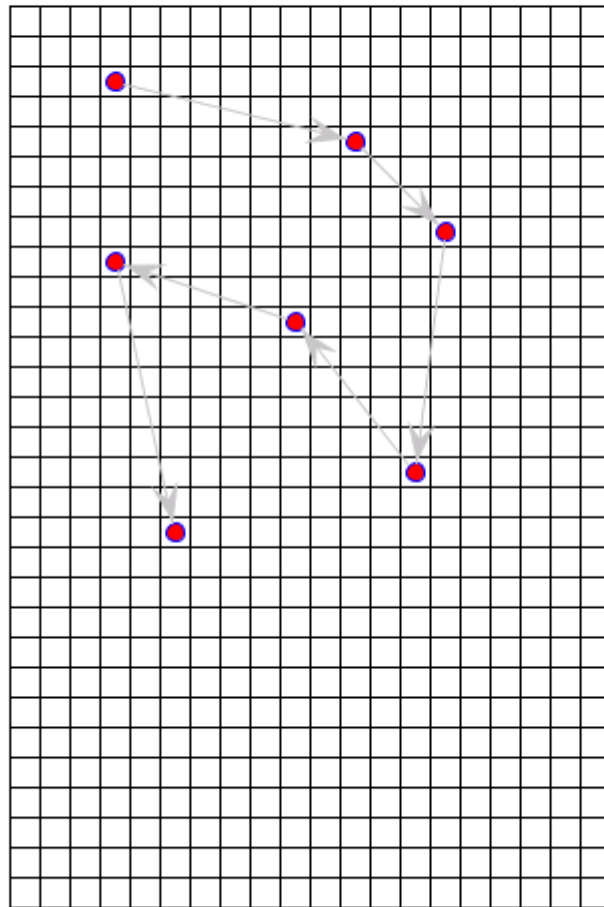
GasNode 1

Node pressure:

Locations

Grid: 3, 27

InfrastructureDemo:2D Display



# InfrastructureDemo - Repast Simphony

File Run Tools View Window



Tick Count: 13.0

### Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
    - Data Loaders
      - Score Context Builder
    - Data Sets
    - Displays
      - 2D Display
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
    - Random Streams
    - User Specified Actions

### Scenario Tree

Run Options

Parameters

### GasNode 2

GasNode 2

Node pressure:

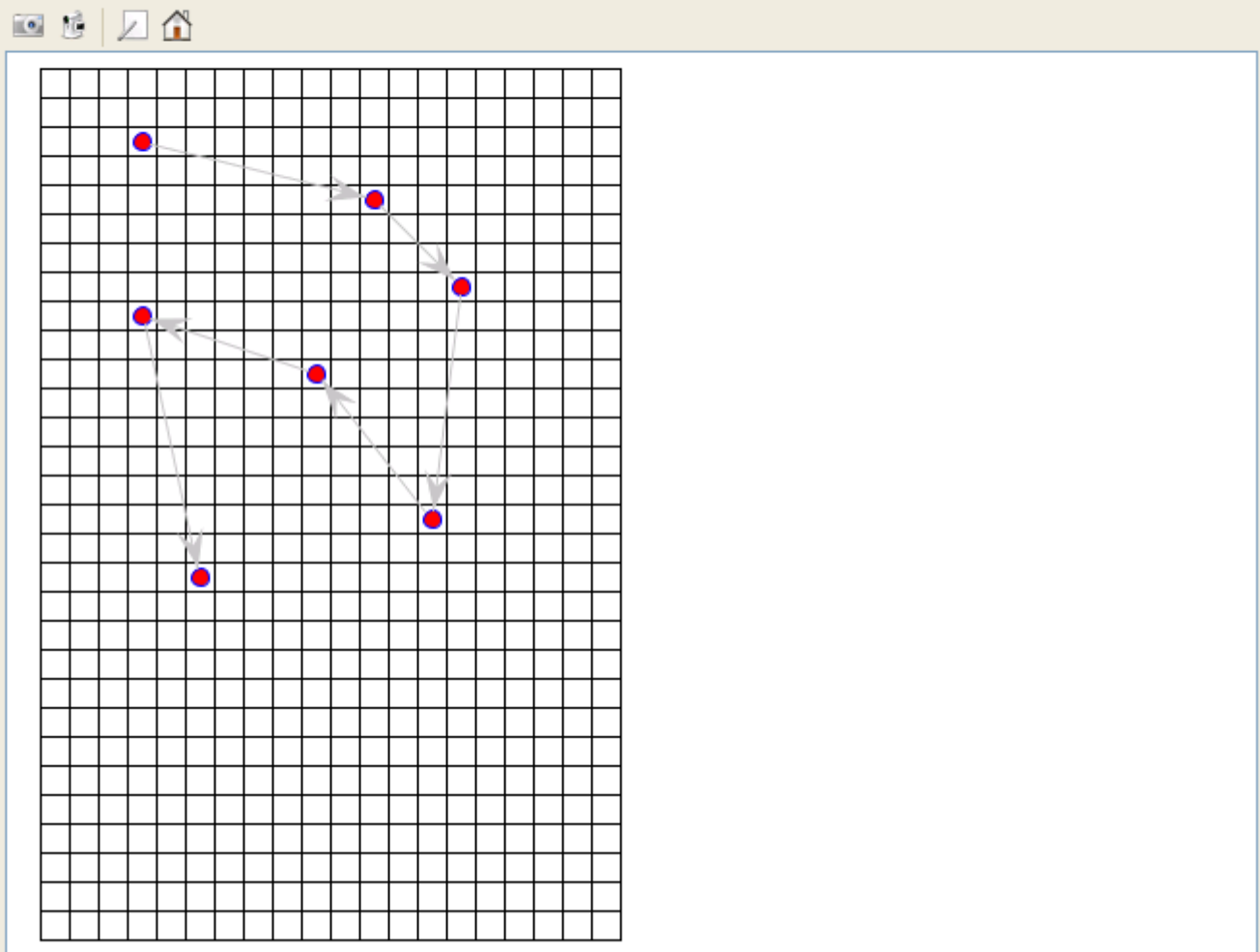
Locations

Grid: 11, 25

GasNode 1

GasNode 2

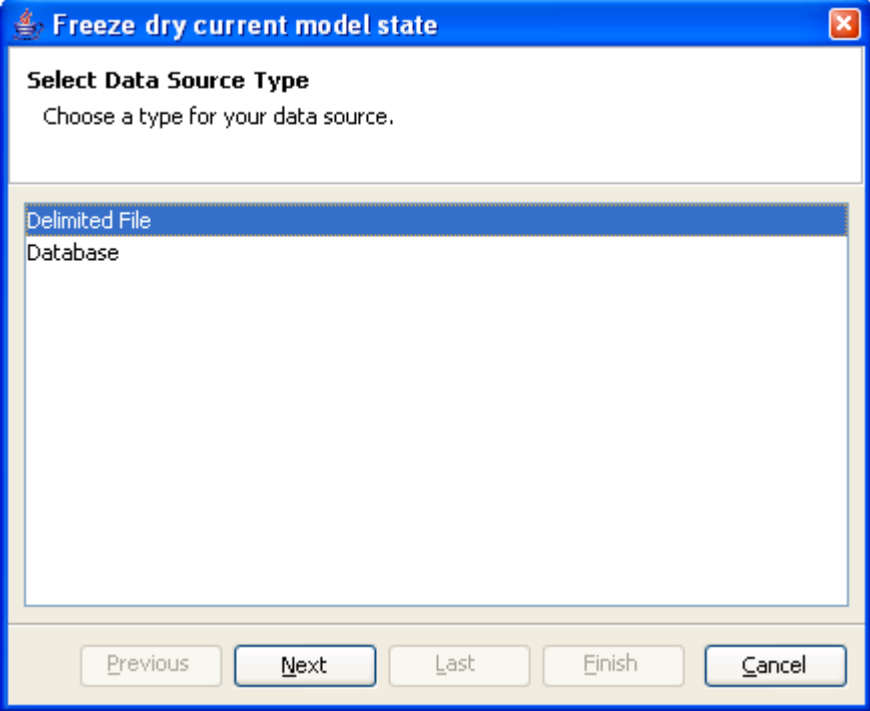
### InfrastructureDemo:2D Display

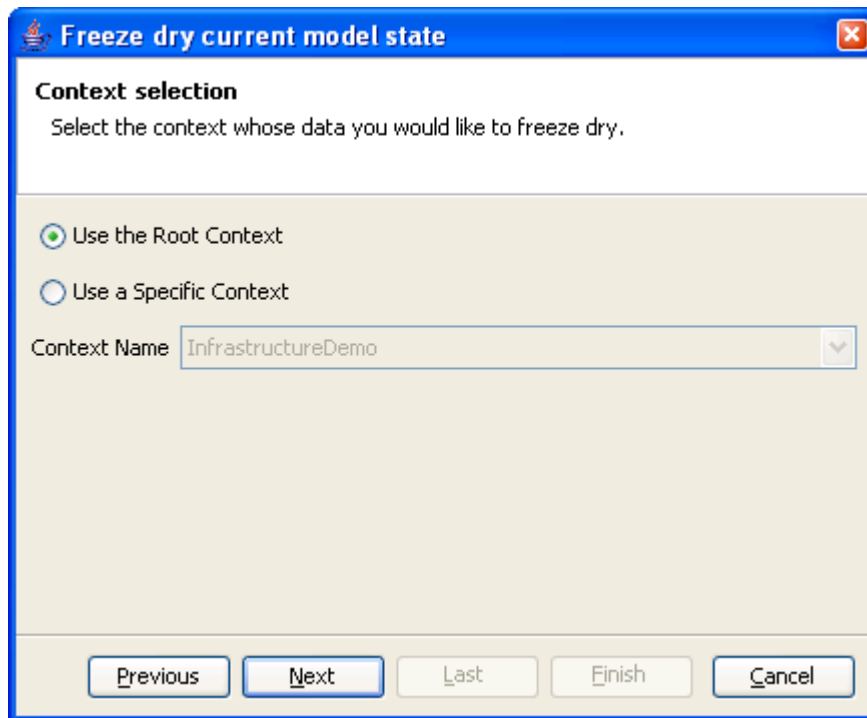


Paused

# Simple Repast Model

Freezedrying and Loading Data



A dialog box titled "Freeze dry current model state" with a blue border and a close button in the top right corner. The dialog contains a "Context selection" section with a light beige background. It includes two radio buttons: "Use the Root Context" (selected) and "Use a Specific Context". Below the radio buttons is a "Context Name" label and a text box containing "InfrastructureDemo". At the bottom, there are five buttons: "Previous", "Next", "Last", "Finish", and "Cancel".

**Freeze dry current model state**

**Context selection**  
Select the context whose data you would like to freeze dry.

Use the Root Context

Use a Specific Context

Context Name

**Freeze dry current model state**

**Delimited File Freezer**  
Select the location of the delimited files and their details.

Data Loader Details

Data File Directory

Data File Details

Comma (,)

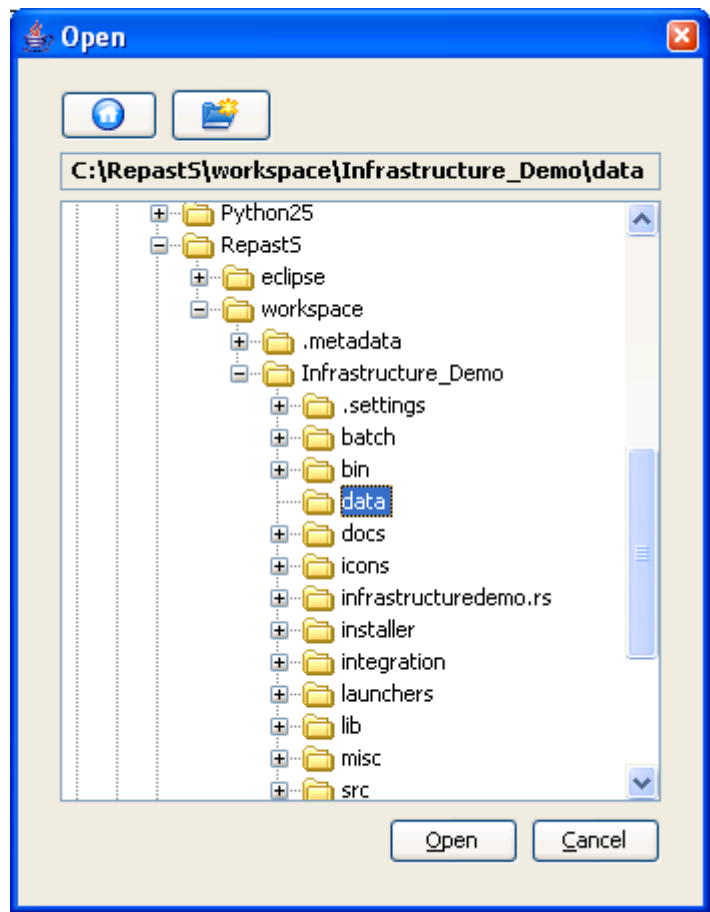
Tab

Other:

Colon (:)

Space

Semicolon (;)





InfrastructureDemo - Repast Symphony

File Run Tools View Window



Tick Count: 0.0

Scenario Tree

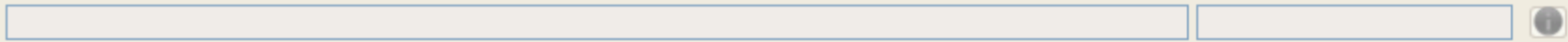
- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
      - Data Loaders
        - Score Context Bandwidth
    - Data Sets
    - Displays
      - 2D Display
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
    - Random Streams
    - User Specified Actions

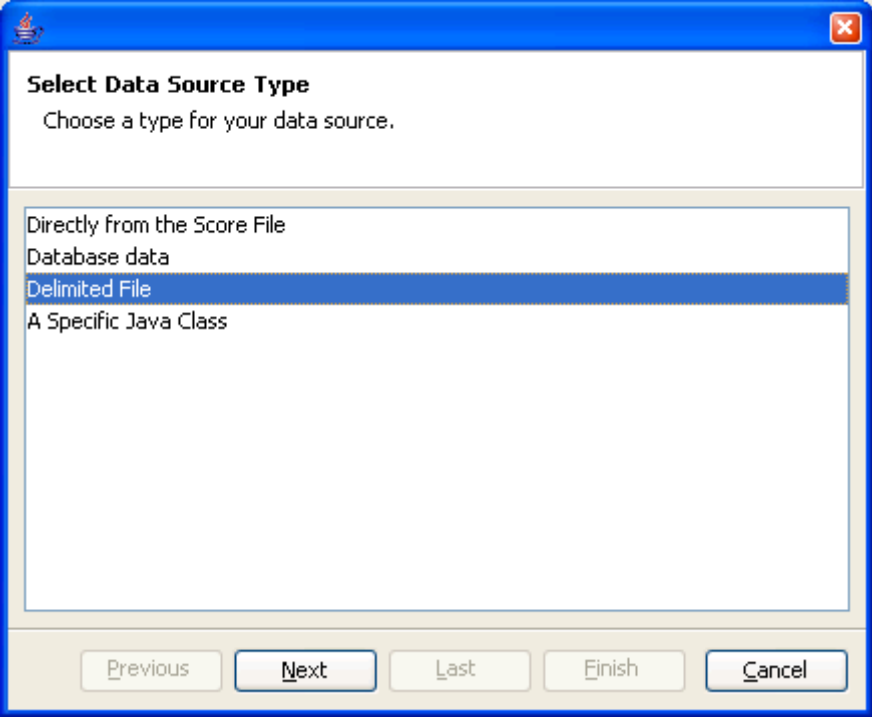
Set Data Loader

Scenario Tree

Run Options

Parameters





**Delimited Files Data Source**  
Select the location of the delimited files and their details.

Data Loader Details

Data File Directory:

Data File Details

Comma (,)

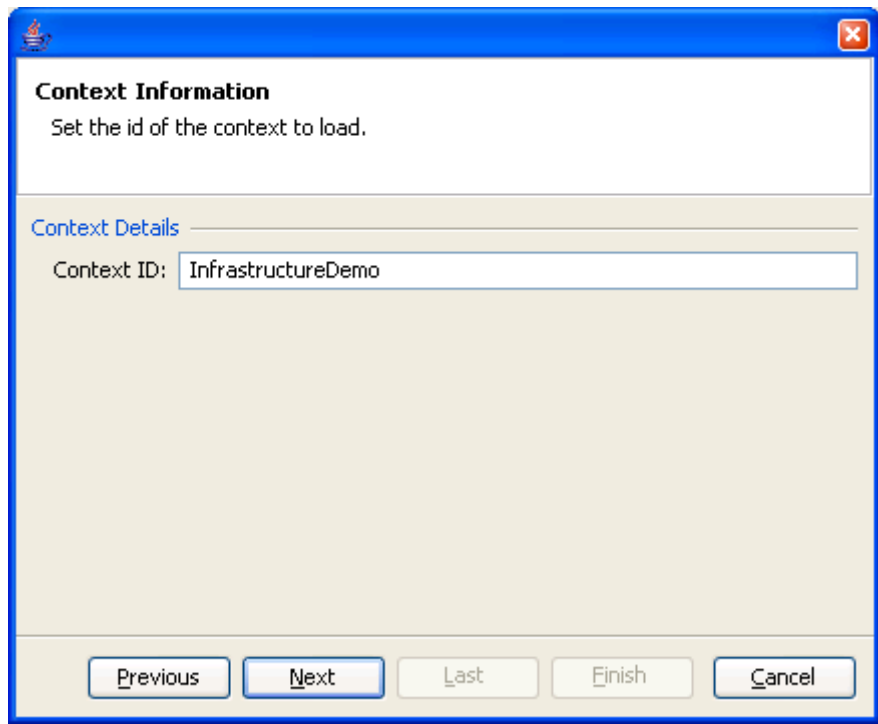
Tab

Other:

Colon (:)

Space

Semicolon (;)



**Context Information**  
Set the id of the context to load.

Context Details



Context ID:

Previous Next Last Finish Cancel

The image shows a standard Windows-style dialog box with a blue title bar. The main content area is divided into two sections: 'Context Information' and 'Context Details'. The 'Context Information' section contains a bold title and a single line of text. The 'Context Details' section contains a label 'Context ID:' followed by a text input field containing the value 'InfrastructureDemo'. At the bottom of the dialog, there is a row of five buttons: 'Previous', 'Next', 'Last', 'Finish', and 'Cancel'. The 'Next' button is highlighted with a blue border.

# Simple Repast Model

Customize Display Properties

 **Options Editor** 

**General**

- Agent Style
- Grid Style
- Edge Style
- Schedule ...

**Schedule Details**

Please enter the update schedule start time, priority, frequency and interval for this display

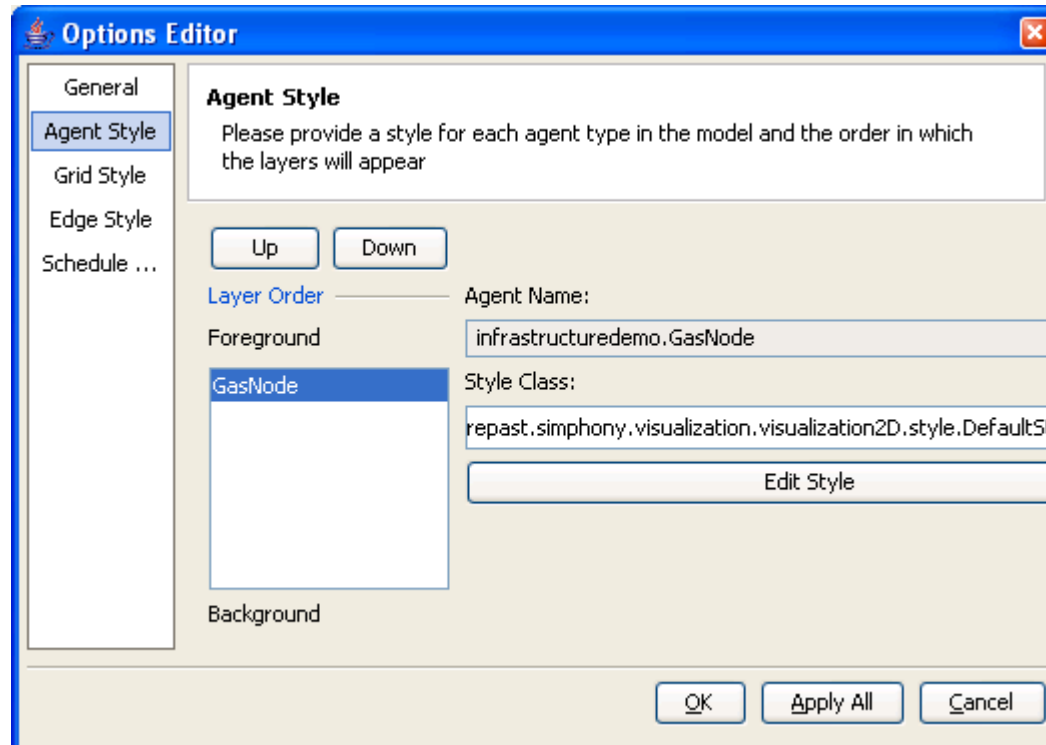
**General**

Name:

Type: **2D**

**Projections**

GasNetwork  
Grid



**2D Shape Editor**

**Icon Shape and Color**

circle

Select Icon File Clear Icon File

**Icon Preview**

Sample Label

**Icon Size**

Value	Minimum	Maximum	Scaling
getPressure	1.0	300.0	30.0

**Icon Label**

Value	Position	Offset
toString	bottom	5.0

**Icon Label Font**

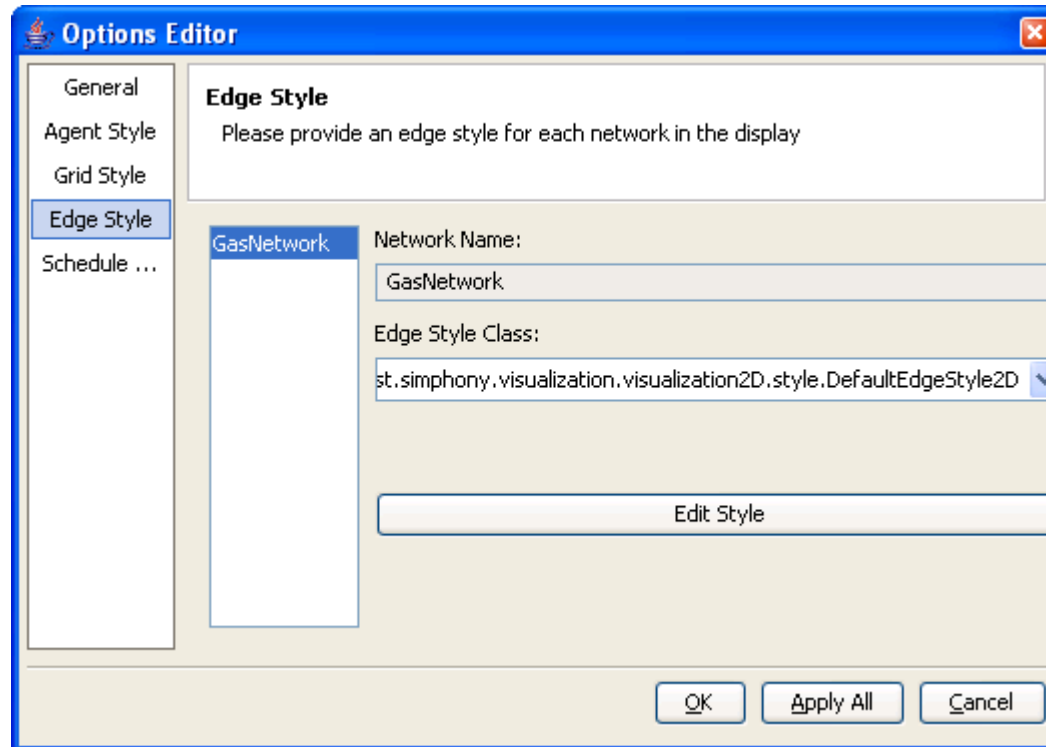
Font	Font Size	Font Style	Font Color
Arial	8	Plain	<input type="color" value="#000000"/>

**Variable Icon Color**

	Value	Minimum	Maximum	Scaling
Red	0.0	0.0	10.0	1.0
Green	0.0	0.0	10.0	1.0
Blue	1.0	0.0	10.0	1.0

OK Cancel





**2D Edge Style Editor**

Edge Style and Color

Edge Thickness

Value	Minimum	Maximum	Scaling
1.0	0.0	1.0	1.0

Variable Icon Color

	Value	Minimum	Maximum	Scaling
Red	0.0	0.0	10.0	1.0
Green	0.0	0.0	10.0	1.0
Blue	1.0	0.0	10.0	1.0

Icon Preview

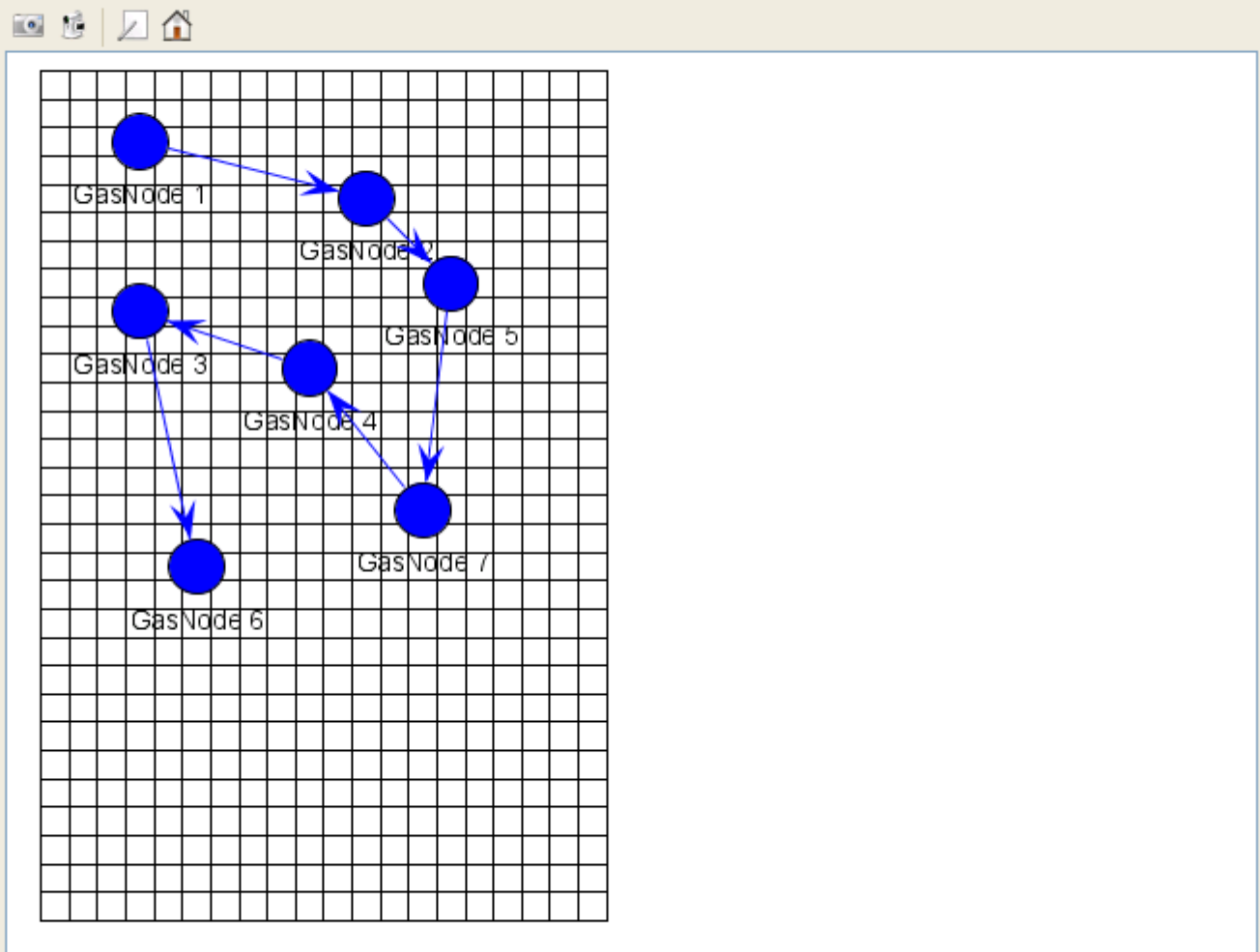
OK Cancel



Scenario Tree

InfrastructureDemo:2D Display

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
    - Data Loaders
      - Delimited File Data Loader
    - Data Sets
    - Displays
      - 2D Display
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
    - Random Streams
    - User Specified Actions



Scenario Tree

Run Options

Parameters



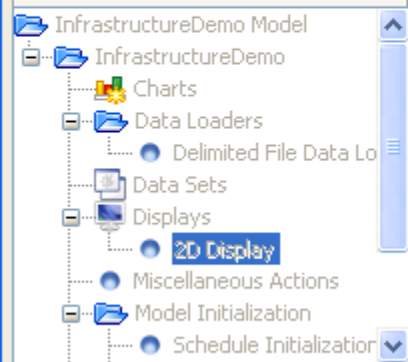
InfrastructureDemo - Repast Symphony

File Run Tools View Window



Tick Count: 0.0

Scenario Tree



Scenario Tree  
Run Options Parameters

GasNode 1

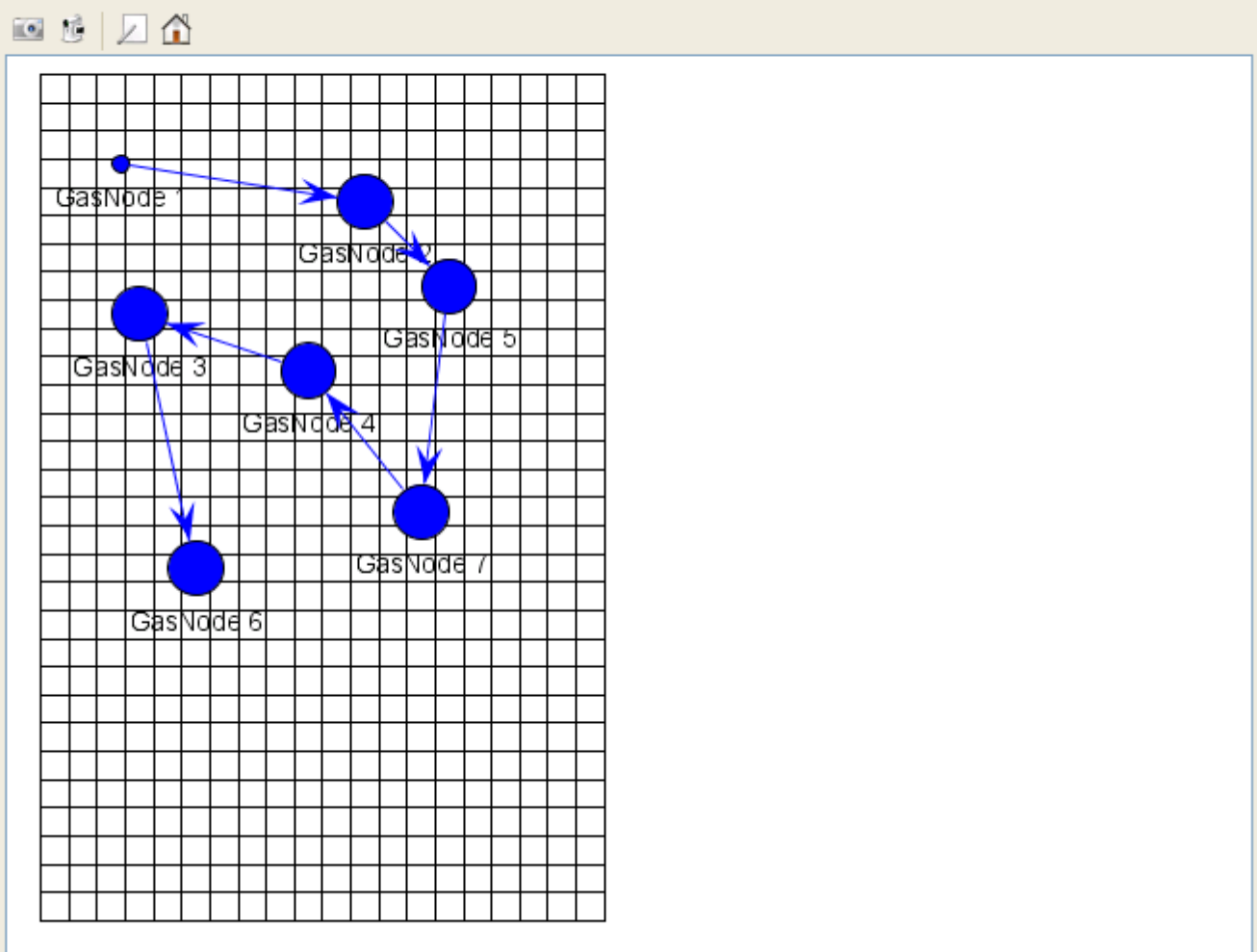
GasNode 1

Node pressure:

Locations

Grid: 3, 27

InfrastructureDemo:2D Display



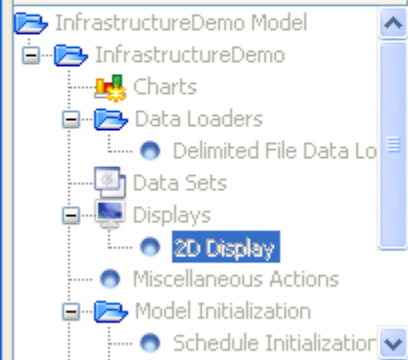
InfrastructureDemo - Repast Symphony

File Run Tools View Window



Tick Count: 39.0

Scenario Tree

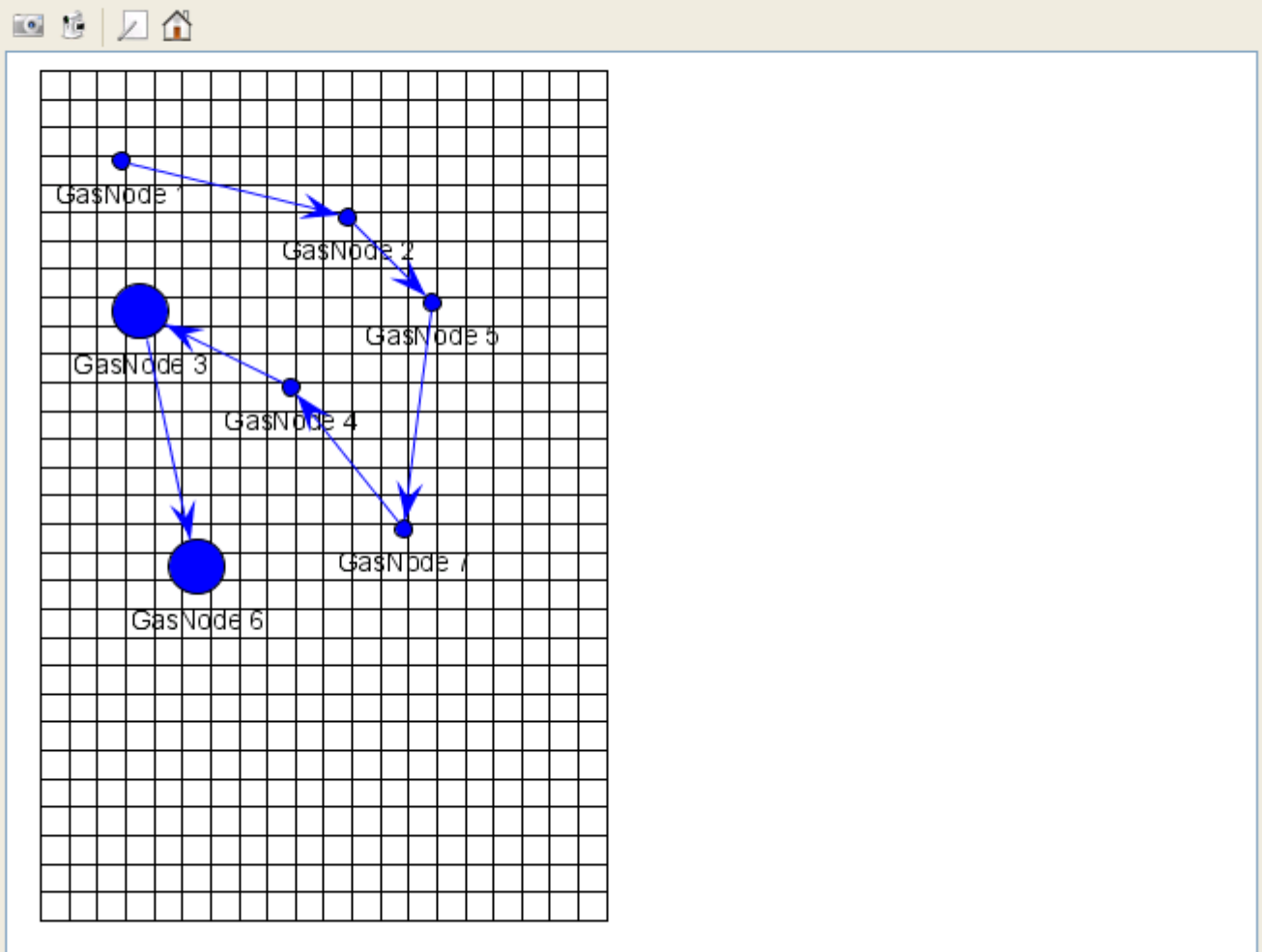


Scenario Tree  
Run Options Parameters

GasNode 1

GasNode 1  
Node pressure:   
Locations  
Grid: 3, 27

InfrastructureDemo:2D Display



Paused

# Simple Repast Model

Data Sets

InfrastructureDemo - Repast Symphony

File Run Tools View Window



Tick Count: 0.0

Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
    - Data Loaders
      - Delimited File Data Loader
    - Data Set
      - Add Data Set
    - Display
      - 2D Display
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
    - Random Streams
    - User Specified Actions

Scenario Tree Run Options Parameters

InfrastructureDemo loaded

**Data Set Editor** ✕

**General Settings**  
Enter general settings for the Data Set.

Name:

Data Set ID:

Agent Class:  ▼



**Data Set Editor**

**Agent Mappings**

Create data mappings that will generate data and map that data to a column name. These mappings may be aggregate over all the agents or apply only to a single agent.

Column Name	Source
-------------	--------

**Data Set Editor**

**Agent Mappings**

Create data mappings that will generate data and map that data to a column name. These mappings may be aggregate over all the agents or apply only to a single agent.

Column Name	Source
Tick	current tick: double

**Data Set Editor**

**Agent Mappings**

Create data mappings that will generate data and map that data to a column name. These mappings may be aggregate over all the agents or apply only to a single agent.

Column Name	Source
Tick	current tick: double
Tick	current tick: double

- current tick: double
- current run number: int
- getMetaClass(): MetaClass
- getPressure(): double
- toString(): String

Add Remove

Previous Next Finish Cancel

**Data Set Editor**

**Agent Mappings**

Create data mappings that will generate data and map that data to a column name. These mappings may be aggregate over all the agents or apply only to a single agent.

Column Name	Source
Tick	current tick: double
Pressure	getPressure(): double

Buttons: Add, Remove, Previous, Next, Finish, Cancel

**Data Set Editor**

**Agent Mappings**

Create data mappings that will generate data and map that data to a column name. These mappings may be aggregate over all the agents or apply only to a single agent.

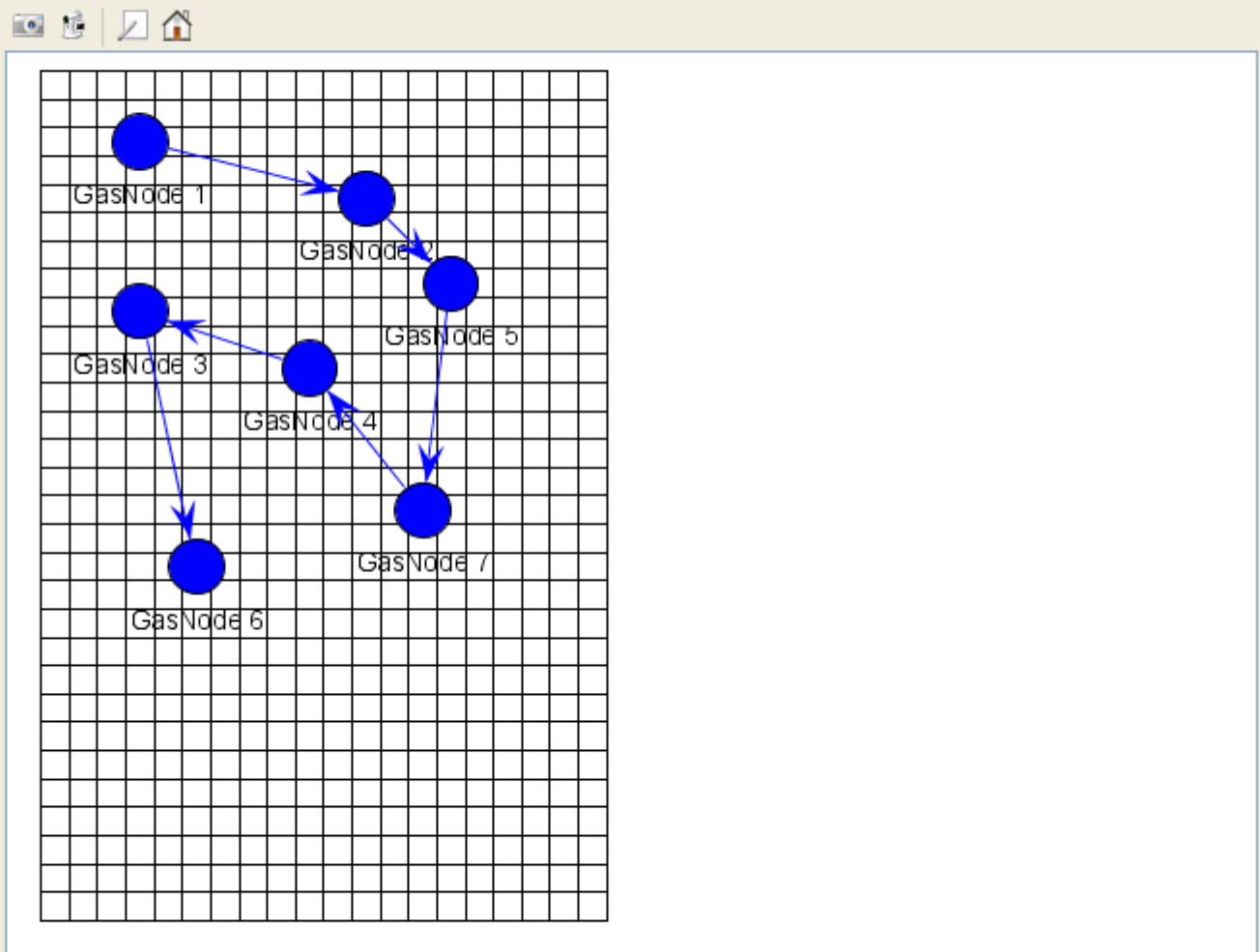
Column Name	Source
Tick	current tick: double
Pressure	getPressure(): double
Name	toString(): String



Scenario Tree

InfrastructureDemo:2D Display

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
    - Data Loaders
      - Delimited File Data Loader
    - Data Sets
    - Displays
      - 2D Display**
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
    - Random Streams
    - User Specified Actions



Scenario Tree

Run Options

Parameters



# Simple Repast Model

Charts

InfrastructureDemo - Repast Simphony

File Run Tools View Window



Tick Count: 0.0

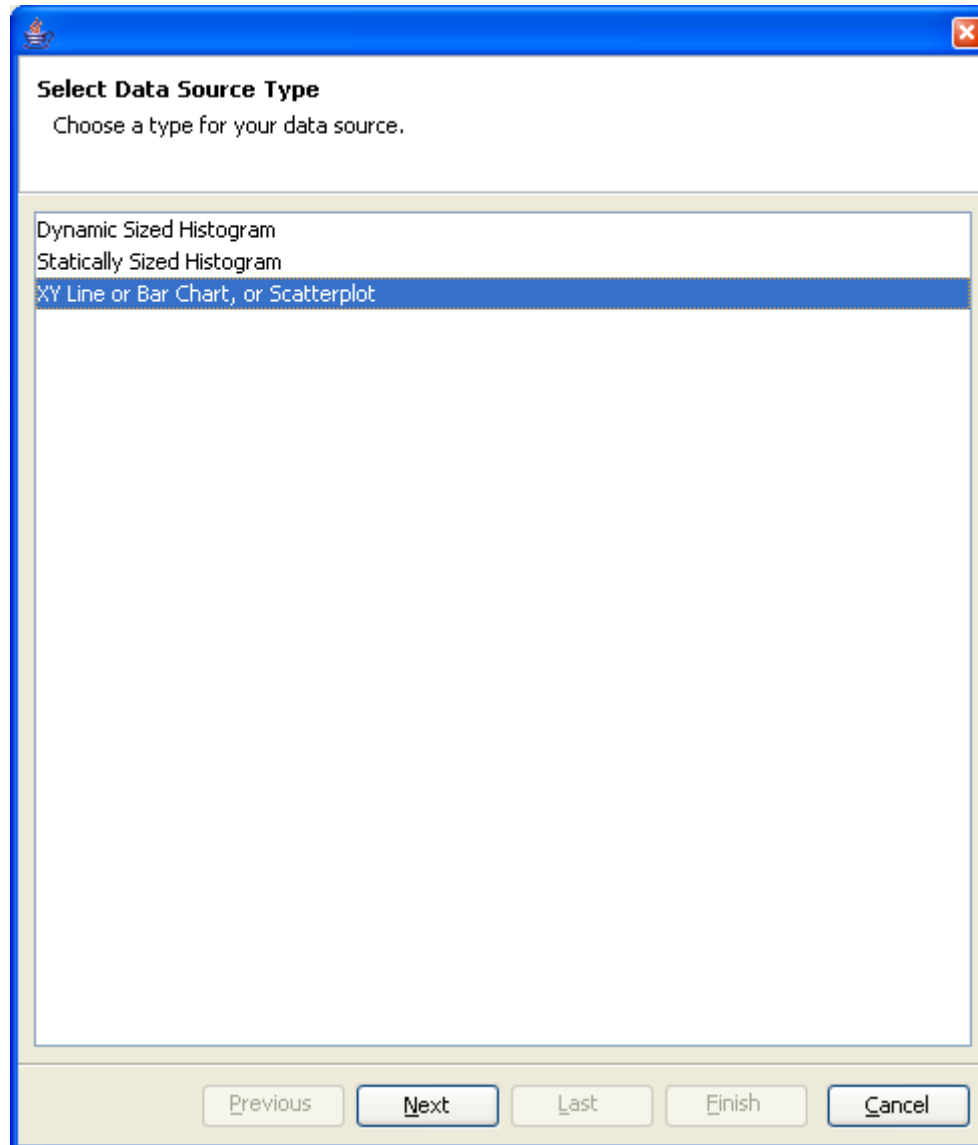
Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
      - Add Chart
    - Data Loader
      - Delimited File Data Loader
    - Data Sets
      - A Data Set
    - Displays
      - 2D Display
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
    - Random Streams
    - User Specified Actions

Scenario Tree Run Options Parameters

InfrastructureDemo loaded





**Select Data Source Type**  
Choose a type for your data source.

- Dynamic Sized Histogram
- Statically Sized Histogram
- XY Line or Bar Chart, or Scatterplot**

Previous Next Last Finish Cancel

This is a standard Windows-style dialog box with a blue title bar. The main area contains a list of three options. The third option, 'XY Line or Bar Chart, or Scatterplot', is currently selected and highlighted with a blue background. At the bottom, there are five buttons: 'Previous', 'Next', 'Last', 'Finish', and 'Cancel'. The 'Next' button is highlighted with a darker blue background, indicating it is the default action.

**Chart Data Mappings**  
Select the sources for the chart's data.

**Chart Data Properties**

Name: A Chart

Data Set: Data Set 1

X-Axis Column: Tick

**Series**

Series Name	Y-Axis Value
-------------	--------------

Add Remove

Previous Next Last Finish Cancel

**Chart Data Mappings**  
Select the sources for the chart's data.

**Chart Data Properties**

Name:

Data Set:

X-Axis Column:

**Series**

Series Name	Y-Axis Value
Name	Name

**Chart Data Mappings**  
Select the sources for the chart's data.

**Chart Data Properties**

Name: A Chart

Data Set: Data Set 1


X-Axis Column: Tick

**Series**

Series Name	Y-Axis Value
Name	Name
	Pressure
	Tick


Add Remove

Previous Next Last Finish Cancel

 **Visual Settings**

Select the settings for how you would like the chart displayed.

**Chart Style Properties**

Type of Chart: Line Chart 

**General Properties**

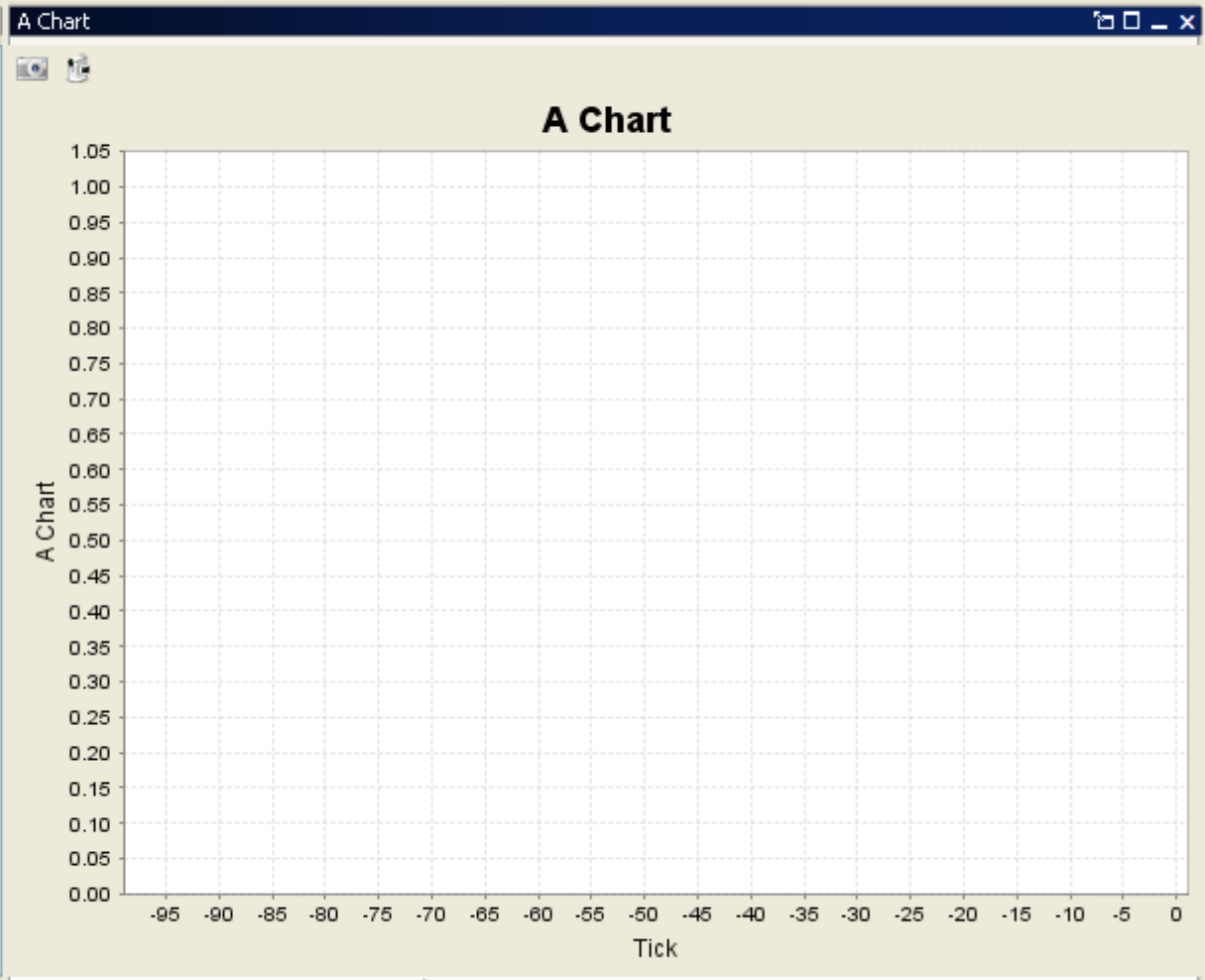
Visible X-Axis Range: 100.0

Show Legend:



Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
      - A Chart
    - Data Loaders
      - Delimited File Data Loader
    - Data Sets
      - A Data Set
    - Displays
      - 2D Display
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
    - Random Streams
    - User Specified Actions



Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
      - A Chart
    - Data Loaders
      - Delimited File Data Loader
    - Data Sets
      - A Data Set
    - Displays
      - 2D Display
      - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization

Scenario Tree Run Options Parameters

GasNode 1

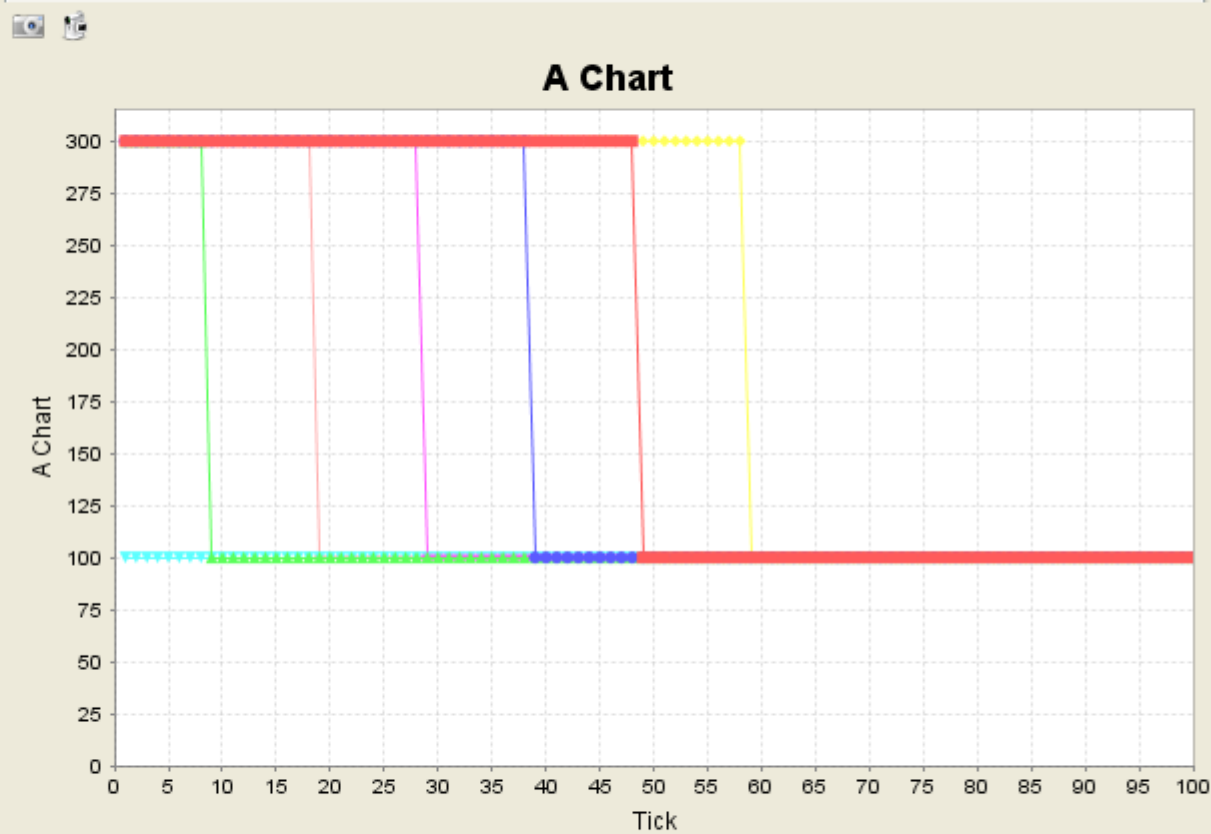
GasNode 1

Node pressure:

Locations

Grid: 3, 27

A Chart



Legend:

- GasNode 3 (red line)
- GasNode 4 (blue line)
- GasNode 2 (green line)
- GasNode 6 (yellow line)
- GasNode 7 (magenta line)
- GasNode 1 (cyan line)
- GasNode 5 (orange line)

InfrastructureDemo:2D Display A Chart

Running

# Simple Repast Model

File Outputters





Tick Count: 0.0

Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
      - A Chart
    - Data Loaders
      - Delimited File Data Loader
    - Data Sets
      - A Data Set
    - Displays
      - 2D Display
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
      - Add File Outputter
    - Random
    - User Specified Actions

**File Outputter Wizard**

**Data Info**  
Enter the file outputter's name, data source, and choose the columns to be output.

**Data Properties**

Name: File Outputter

Data Set Id: Data Set 1



**File Format Properties**

Delimiter: ,

**File Columns**

Pressure	<input type="checkbox"/>		<input type="checkbox"/>
Tick	<input type="checkbox"/>		<input type="checkbox"/>
Name	<input type="checkbox"/>		<input type="checkbox"/>

Previous Next Last Finish Cancel

 **File Outputter Wizard** 

**Data Info**  
Enter the file outputter's name, data source, and choose the columns to be output.

**Data Properties**

Name



Data Set Id

**File Format Properties**

Delimiter

**File Columns**

<input type="checkbox"/>	Pressure	<input type="checkbox"/>
<input type="checkbox"/>	Tick	<input type="checkbox"/>
<input type="checkbox"/>	Name	<input type="checkbox"/>

 **File Outputter Wizard** 

**File Properties**  
Enter the properties of the file, and the way the data should be formatted

Output File Properties

File Name

Write Header  Append To File

Insert Current Time in File Name

# Simple Repast Model

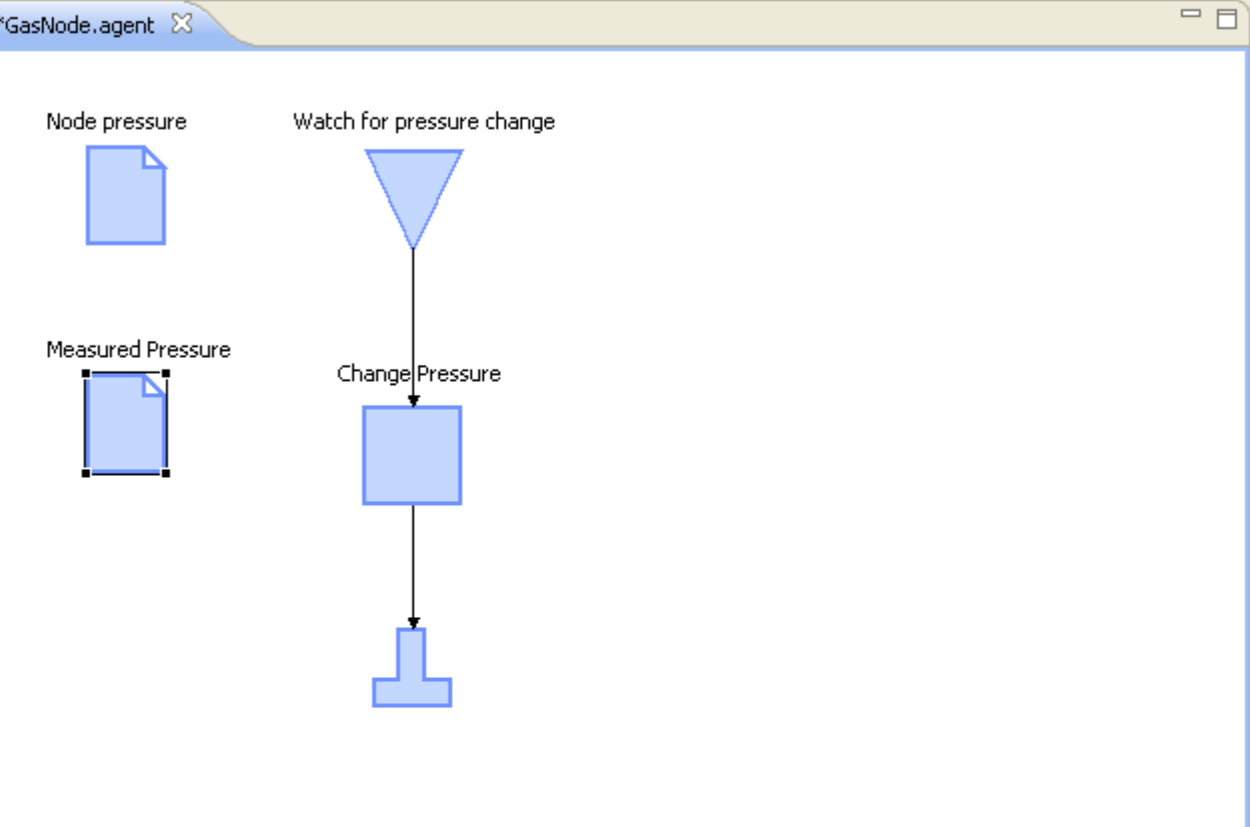
Constant Scheduled Behavior

Package Explor Hierarchy

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
    - license.txt
    - model\_description.txt
    - ModelOutput.2007.Nov.28.21\_05\_25
    - ModelOutput.2007.Nov.28.21\_11\_41
    - Repast.settings
    - velocity.log

model.score \*GasNode.agent

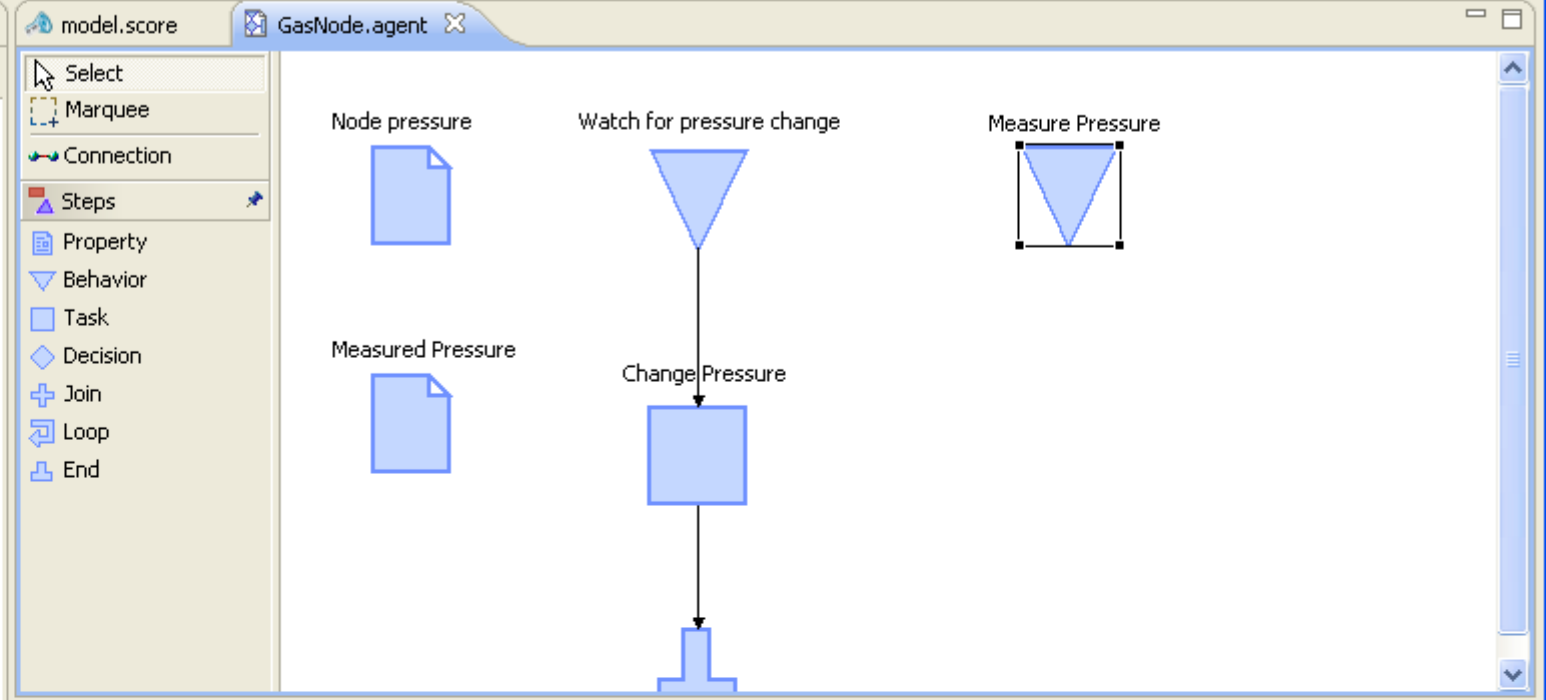
- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Property	Value
Step 1: Type in a Comment that Describes this Property	This is an agent property.
Step 2: Type in a Human-Readable Diagram Label for the Property	Measured Pressure
Step 3: Type in a Compilable Name for the Property	measuredPressure
Step 4: Optionally Select Who Can Access this Property	Everyone
Step 5: Optionally Choose a Type for this Property (e.g., "def" for any, "boolean," "int)	double
Step 6: Optionally Type in a Default Value for this Property	0

Package Explor Hierarchy

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
    - license.txt
    - model\_description.txt
    - ModelOutput.2007.Nov.28.21\_05\_25\_
    - ModelOutput.2007.Nov.28.21\_11\_41\_
    - ModelOutput.2007.Nov.28.21\_13\_26\_
    - ModelOutput.2007.Nov.28.21\_14\_13\_
    - ModelOutput.2007.Nov.28.21\_14\_37\_
    - Repast.settings
    - velocity.log



Problems @ Javadoc Declaration Properties Console

Property	Value
Step 1: Type in a Comment that Describes this Behavior	This is the step behavior.
Step 2: Type in a Human-Readable Diagram Label for the Property	Measure Pressure
Step 3: Optionally Specify a Constant Execution Schedule for the Behavior	
Step 3a: Optionally Type in a Constant Starting Time for the Behavior	1
Step 3b: Optionally Type the Number of Randomly Selected Agents that Will Perform the Behavior	
Step 3c: Optionally Type in a Constant Repeat Interval for the Behavior	1
Step 3d: Optionally Type in a Constant Execution Priority for the Behavior	
Step 3e: Optionally Type in a Constant Concurrent Execution Duration for the Behavior	
Step 3f: Optionally Choose Whether or Not to Shuffle Ties in the Scheduling Order for the Behavior	None
Step 4: Optionally Specify Trigger Conditions for the Behavior	
Step 5: Optionally Select Who Can Access this Behavior	Everyone
Step 6: Optionally Select a Return Type for the Behavior	
Step 7: Type in a Compiled Name	step
Step 8: Optionally Type in a Comma Separated List of Parameters for the Behavior	
Step 9: Optionally Type in a Comma Separated List of Exceptions for the Behavior	

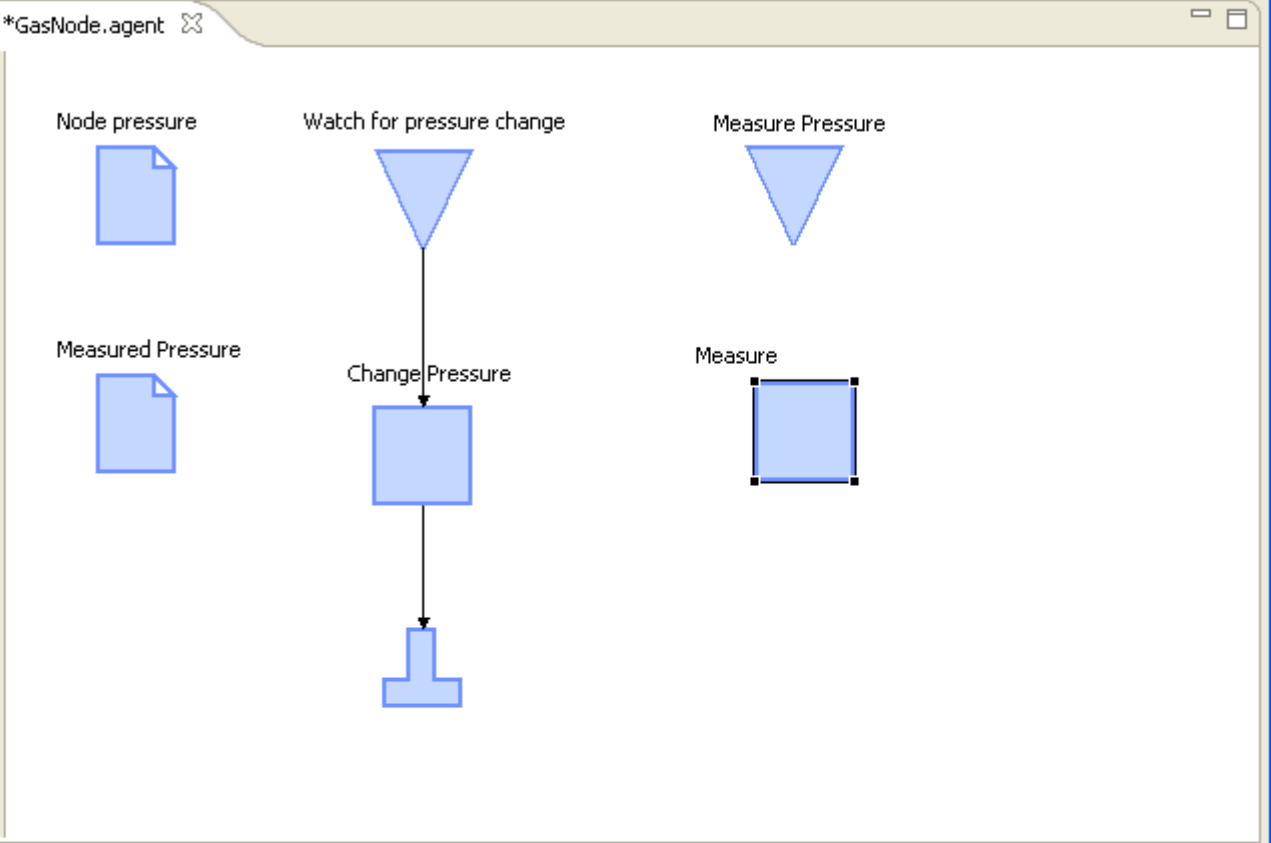


Package Explorer Hierarchy

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
    - JRE System Library [eclipse]
    - Referenced Libraries
    - batch
    - data
    - docs
    - icons
    - infrastructuredemo.rs
    - installer
    - integration
    - launchers
    - lib
    - misc
      - license.txt
      - model\_description.txt
      - ModelOutput.2007.Nov.28.21\_05\_25
      - ModelOutput.2007.Nov.28.21\_11\_41
      - ModelOutput.2007.Nov.28.21\_13\_26
      - ModelOutput.2007.Nov.28.21\_14\_13
      - ModelOutput.2007.Nov.28.21\_14\_37
      - Repast.settings
      - velocity.log

model.score \*GasNode.agent

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End

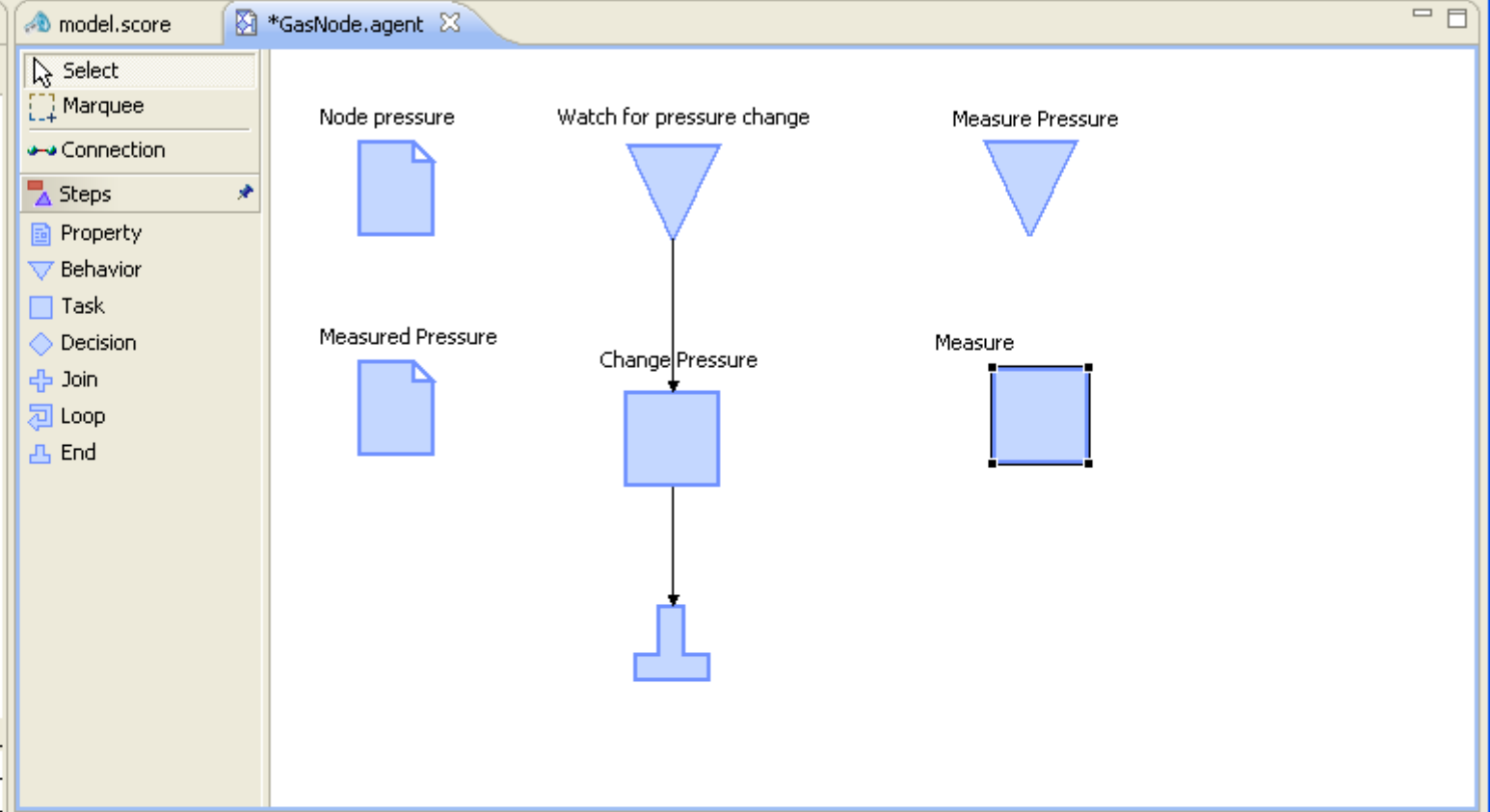


Property	Value
Step 1: Type in a Comment that Describes this Task	This is a task.
Step 2: Type in a Human-Readable Diagram Label for the Property	Measure
Step 3: Optionally Choose an Type from the Task List	Math Operation: Assign a Uniform Random Number Between 5.0 and 15.0
Step 4: Optionally Note the Example Task	x = RandomDraw(5.0, 10.0)
Step 5: Type in Task Part 1	x = RandomDraw(5.0, 10.0)
Step 6: Optionally Type in Task Part 2	
Step 7: Optionally Type in Task Part 3	
Step 8: Optionally Type in Task Part 4	
Step 9: Optionally Type in Task Part 5	



Package Explorer Hierarchy

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
    - JRE System Library [eclipse]
    - Referenced Libraries
    - batch
    - data
    - docs
    - icons
    - infrastructuredemo.rs
    - installer
    - integration
    - launchers
    - lib
    - misc
      - license.txt
      - model\_description.txt
      - ModelOutput.2007.Nov.28.21\_05\_25
      - ModelOutput.2007.Nov.28.21\_11\_41
      - ModelOutput.2007.Nov.28.21\_13\_26
      - ModelOutput.2007.Nov.28.21\_14\_13
      - ModelOutput.2007.Nov.28.21\_14\_37
      - Repast.settings
      - velocity.log



Problems Javadoc Declaration Properties Console

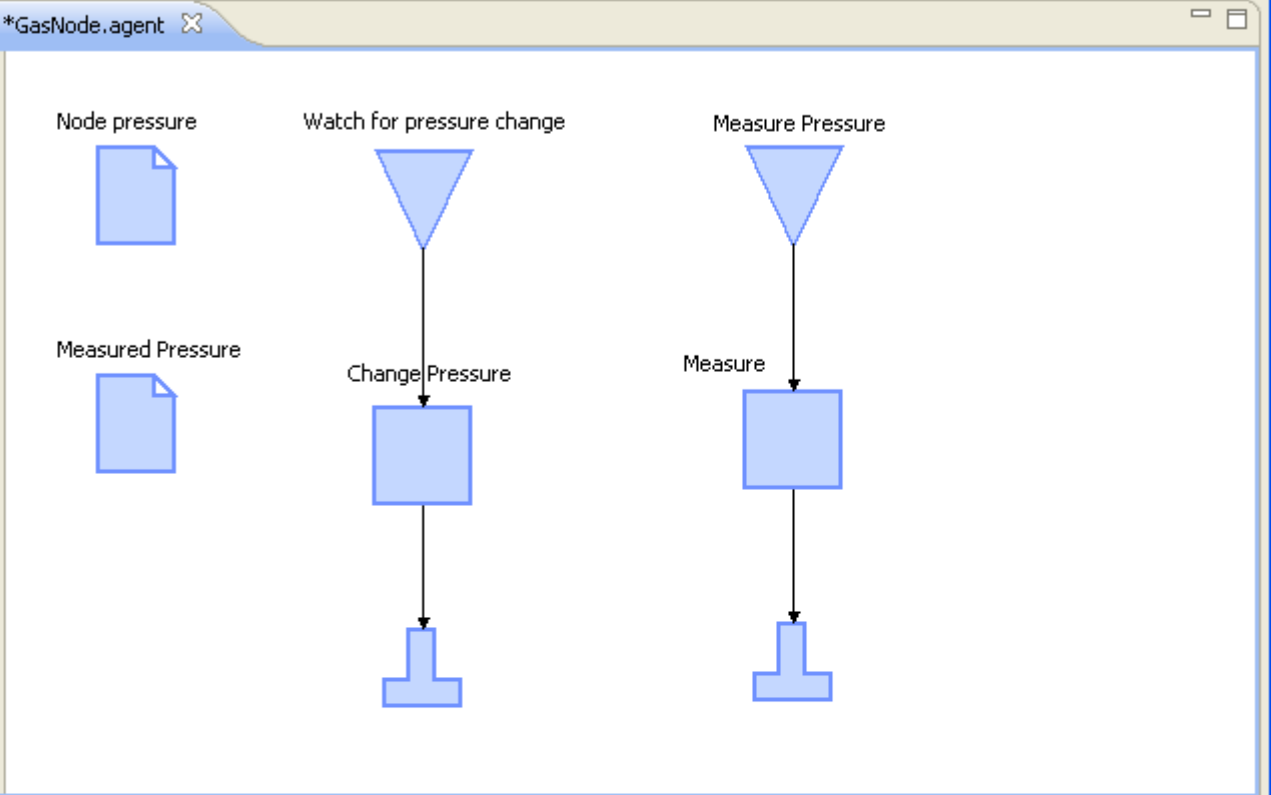
Property	Value
Step 1: Type in a Comment that Describes this Task	This is a task.
Step 2: Type in a Human-Readable Diagram Label for the Property	Measure
Step 3: Optionally Choose an Type from the Task List	Math Operation: Assign a Uniform Random Number Between 5.0 and 15.0
Step 4: Optionally Note the Example Task	<code>x = RandomDraw(5.0, 10.0)</code>
Step 5: Type in Task Part 1	<code>measuredPressure = pressure + RandomDraw(-20.0, 20.0)</code>
Step 6: Optionally Type in Task Part 2	
Step 7: Optionally Type in Task Part 3	
Step 8: Optionally Type in Task Part 4	
Step 9: Optionally Type in Task Part 5	

Package Explorer

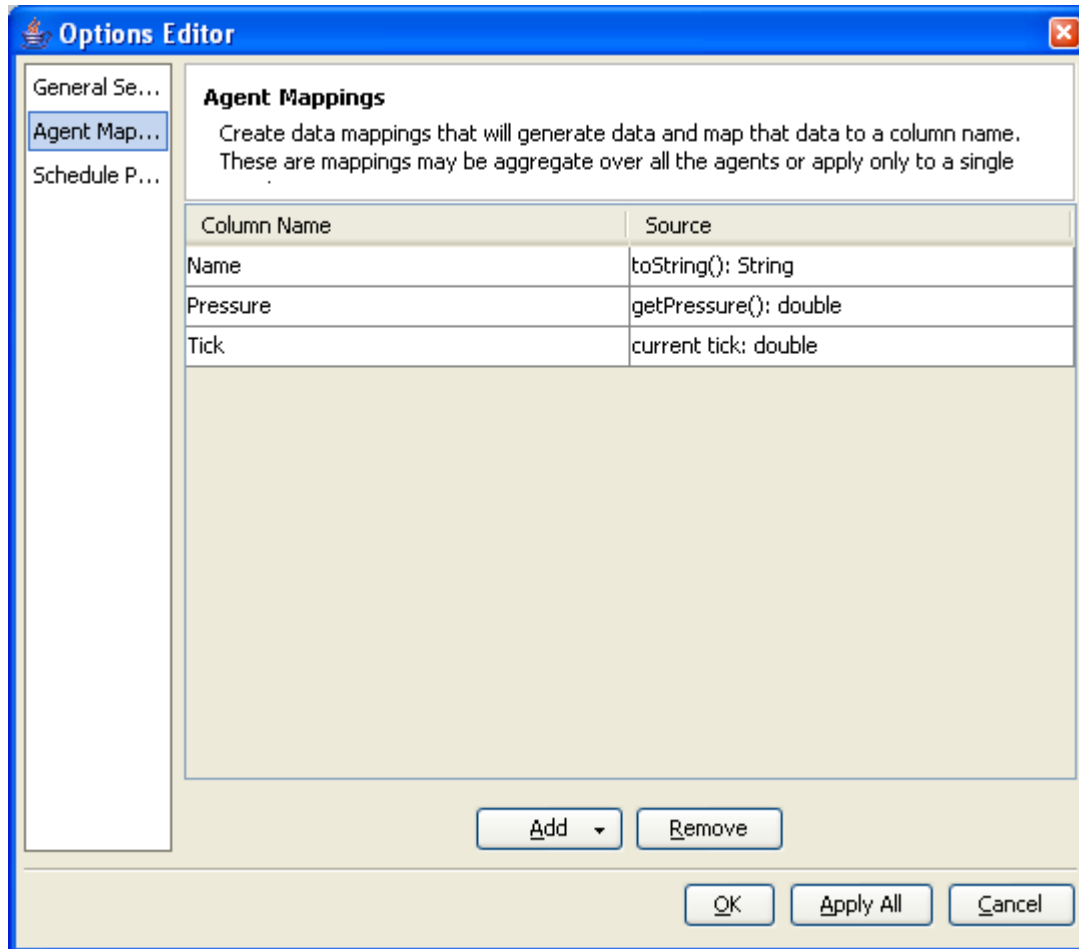
- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
    - JRE System Library [eclipse]
    - Referenced Libraries
    - batch
    - data
    - docs
    - icons
    - infrastructuredemo.rs
    - installer
    - integration
    - launchers
    - lib
    - misc
    - license.txt
    - model\_description.txt
    - ModelOutput.2007.Nov.28.21\_05\_25
    - ModelOutput.2007.Nov.28.21\_11\_41
    - ModelOutput.2007.Nov.28.21\_13\_26
    - ModelOutput.2007.Nov.28.21\_14\_13
    - ModelOutput.2007.Nov.28.21\_14\_37
    - Repast.settings
    - velocity.log

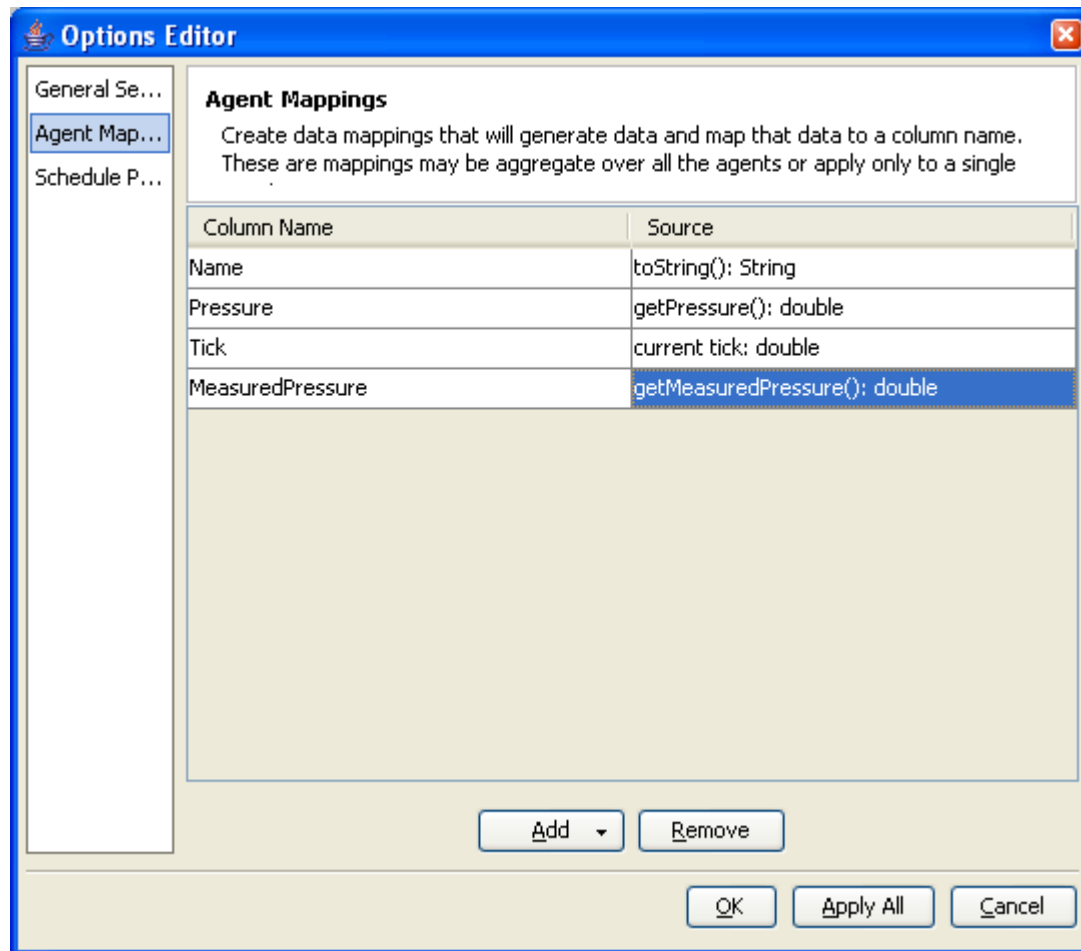
model.score \*GasNode.agent

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Property	Value
Step 1: Type in a Comment that Describes this Agent	This is an agent.
Step 2: Note the Agent Type Name (Change the File Name to Change Thi	GasNode
Step 3: Optionally Type in the Parent Class Name	
Step 4: Optionally Type in a Comma Separated List of Interfaces to Imple	
Step 5: Optionally Type in a Comma Separated List of Imports to Include	
Step 6: Use the Palette on the Left to Fill in Agent Properties and Behavior	





**A Chart** [Close]

**Chart Data Mappings**  
Select the sources for the chart's data.

**Chart Data Properties**

Name: A Chart

Data Set: Data Set 1

X-Axis Column: Tick

**Series**

Series Name	Y-Axis Value
Name	MeasuredPressure

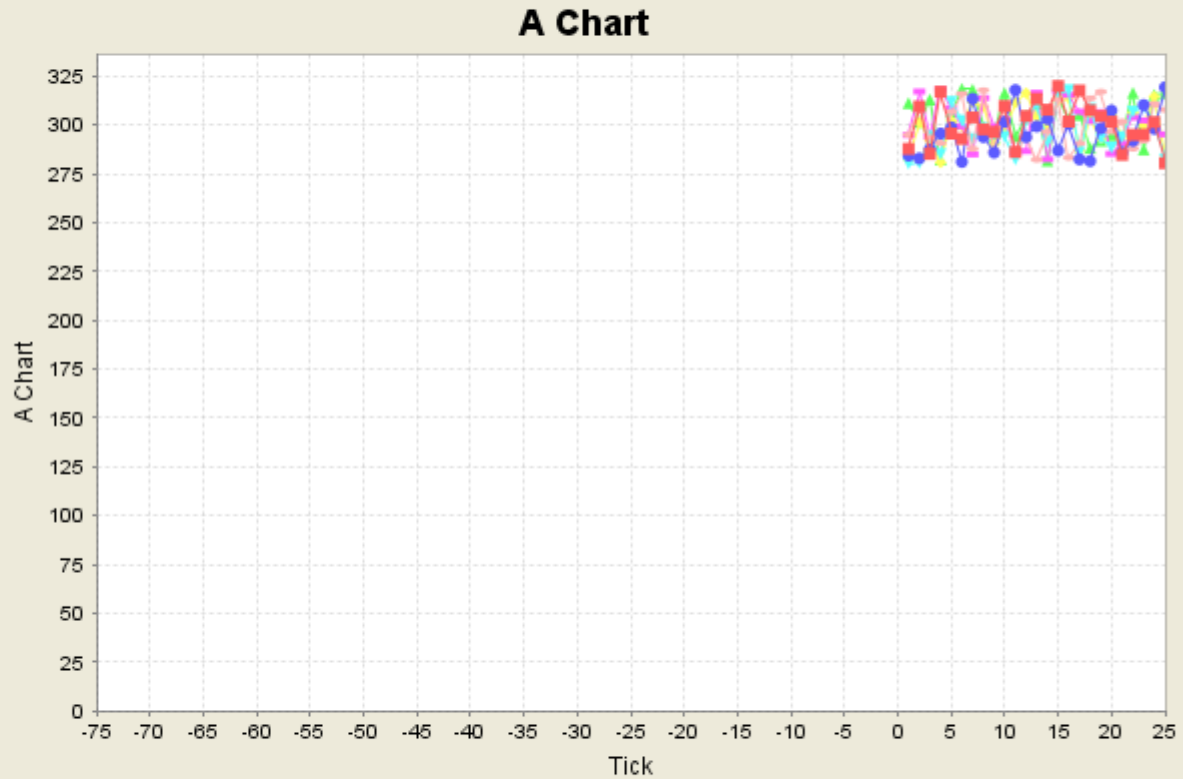
Add Remove

OK Apply All Cancel

Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
      - A Chart**
    - Data Loaders
      - Delimited File Data Loader
    - Data Sets
      - A Data Set
    - Displays
      - 2D Display
      - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
      - File Outputter
      - Random Streams
      - User Specified Actions

A Chart



- GasNode 5
- GasNode 2
- GasNode 6
- GasNode 3
- GasNode 1
- GasNode 4
- GasNode 7

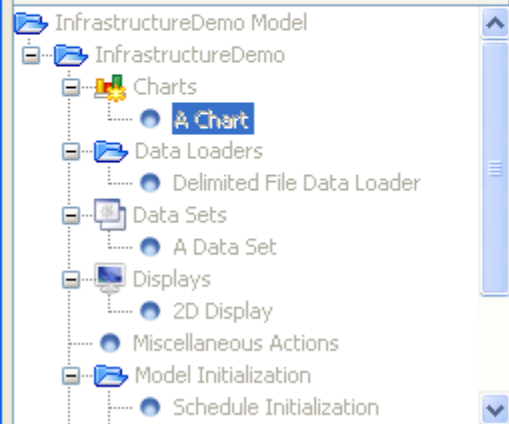
InfrastructureDemo - Repast Simphony

File Run Tools View Window



Tick Count: 25.0

Scenario Tree



Scenario Tree Run Options Parameters

GasNode 1

GasNode 1

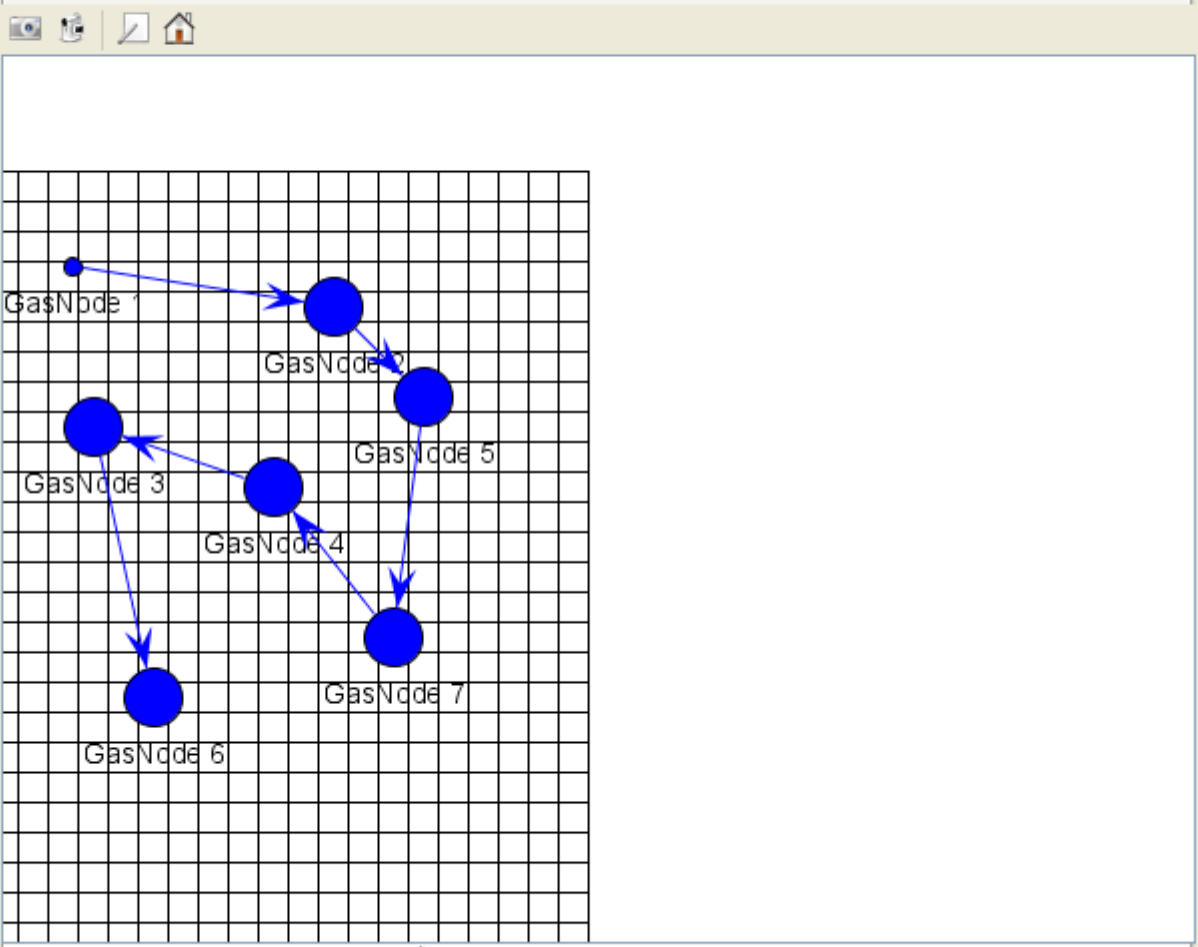
Measured Pressure:

Node pressure:

Locations

Grid: 3, 27

InfrastructureDemo:2D Display



A Chart InfrastructureDemo:2D Display

Paused

Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
      - A Chart**
    - Data Loaders
      - Delimited File Data Loader
    - Data Sets
      - A Data Set
    - Displays
      - 2D Display
      - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization

Scenario Tree Run Options Parameters

GasNode 1

GasNode 1

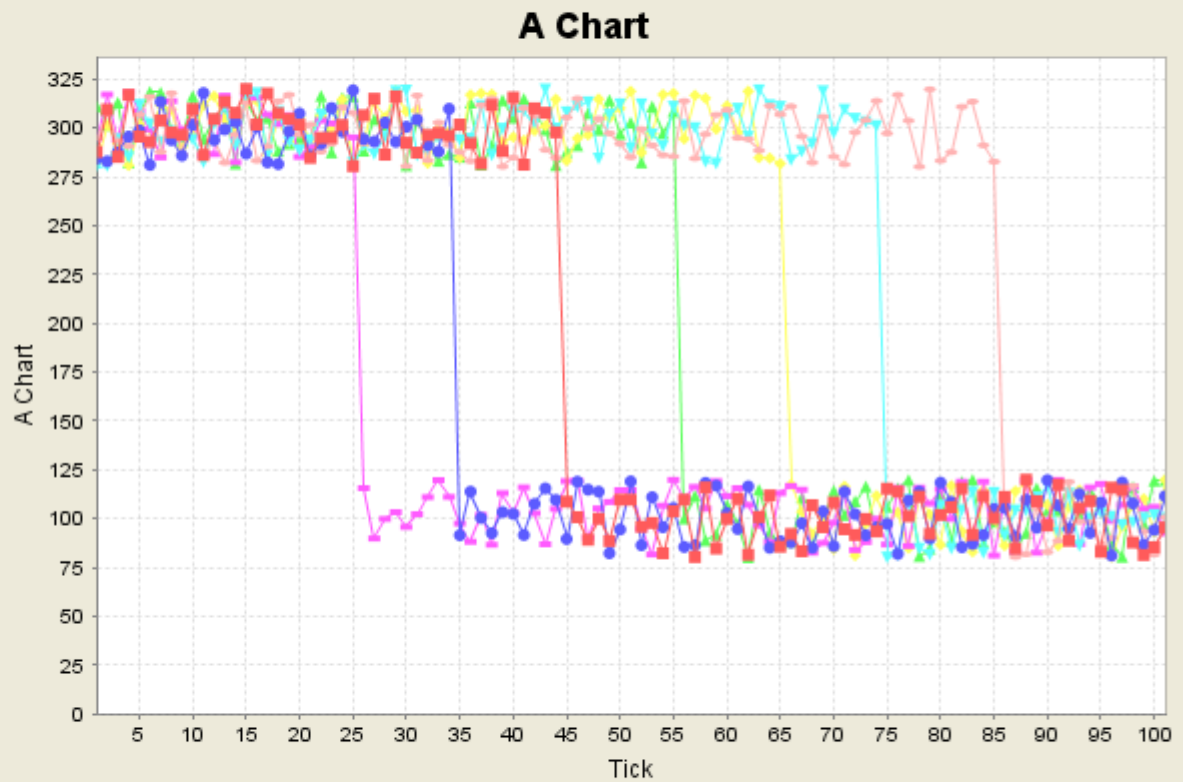
Measured Pressure:

Node pressure:

Locations

Grid: 3, 27

A Chart



■ GasNode 5 ● GasNode 2 ▲ GasNode 6 ◆ GasNode 3 ★ GasNode 1 ◆ GasNode 4  
▲ GasNode 7

A Chart InfrastructureDemo:2D Display

Paused



# Simple Repast Model

Decision Blocks

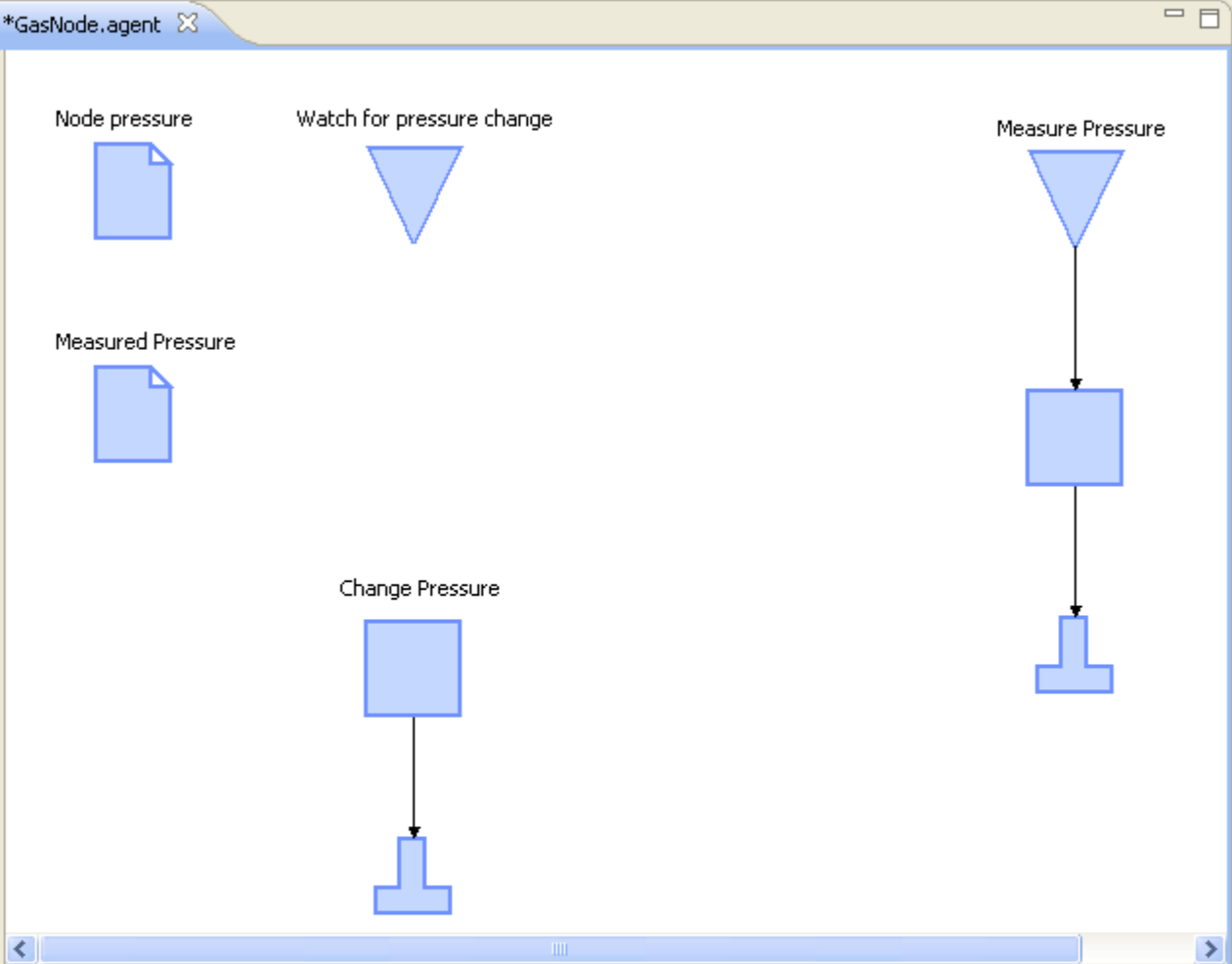


Package Explorer Hierarchy

- Infrastructure\_Demo
  - src
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
  - license.txt
  - model\_description.txt
  - Repast.settings
  - velocity.log

model.score \*GasNode.agent

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Problems Javadoc Declaration Properties Console

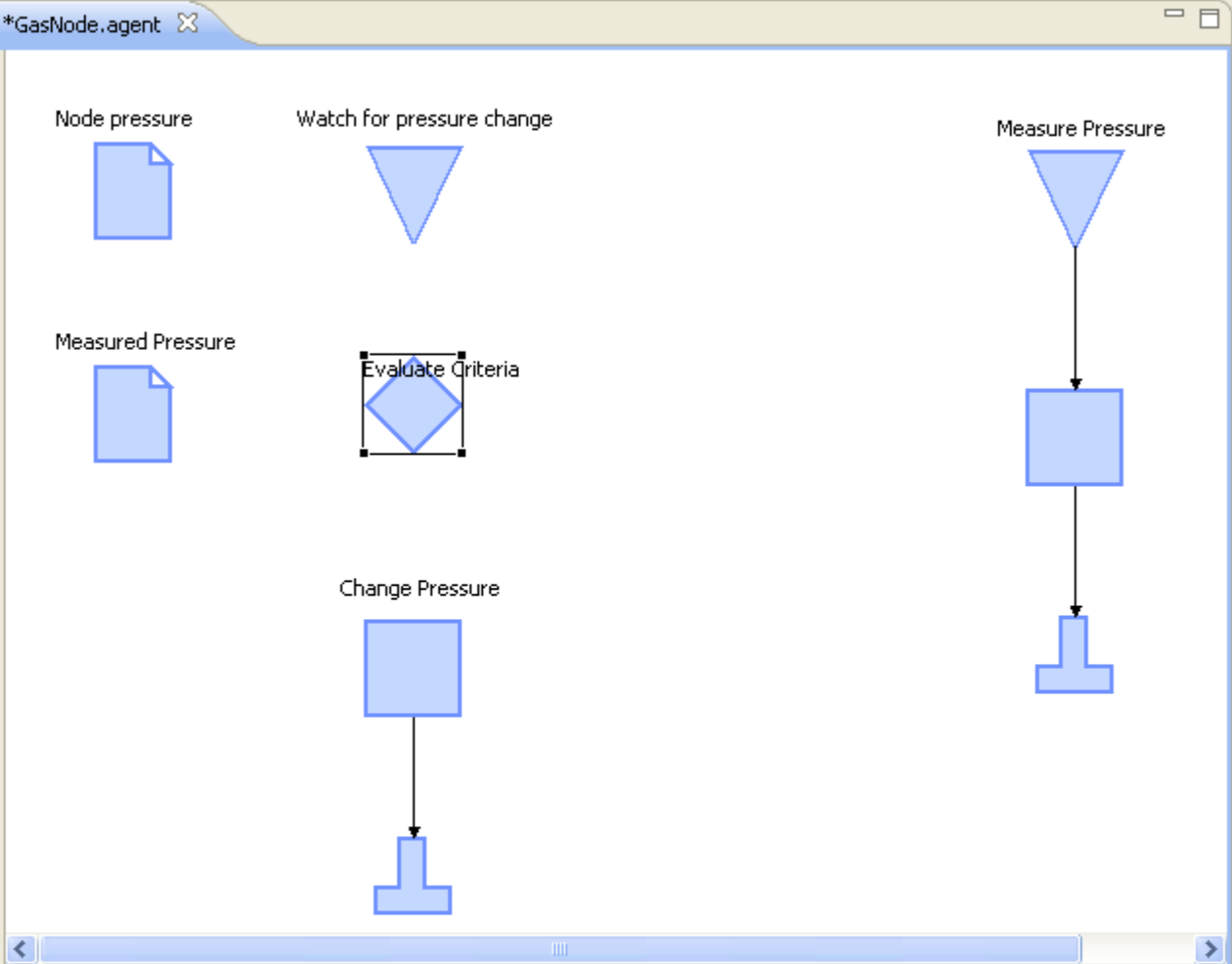
Property	Value
Step 1: Type in a Comment that Describes this Agent	This is an agent.
Step 2: Note the Agent Type Name (Change the File Name)	GasNode
Step 3: Optionally Type in the Parent Class Name	
Step 4: Optionally Type in a Comma Separated List of Inte	
Step 5: Optionally Type in a Comma Separated List of Imp	
Step 6: Use the Palette on the Left to Fill in Agent Propert	

Package Explorer

- Infrastructure\_Demo
  - src
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
  - license.txt
  - model\_description.txt
  - Repast.settings
  - velocity.log

model.score \*GasNode.agent

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



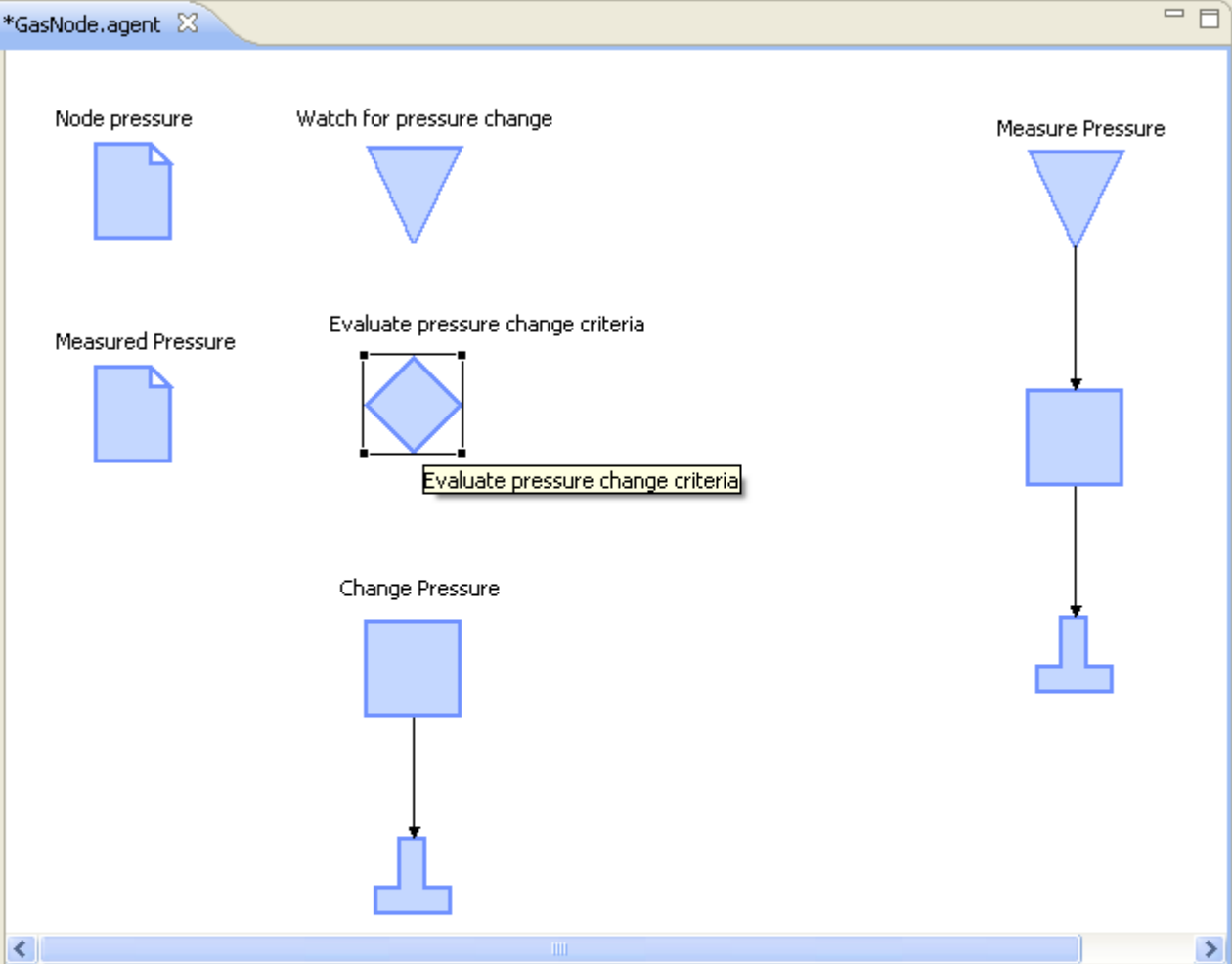
Property	Value
Step 1: Type in a Comment that Describes this Step	This is an agent decision.
Step 2: Type in a Human-Readable Diagram Label for the	Evaluate Criteria
Step 3: Optionally Choose an Example from the List (Note	voltage > 2.volts
Step 4: Type in the Evaluation Criteria	

Package Explorer

- Infrastructure\_Demo
  - src
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
  - license.txt
  - model\_description.txt
  - Repast.settings
  - velocity.log

model.score \*GasNode.agent

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End

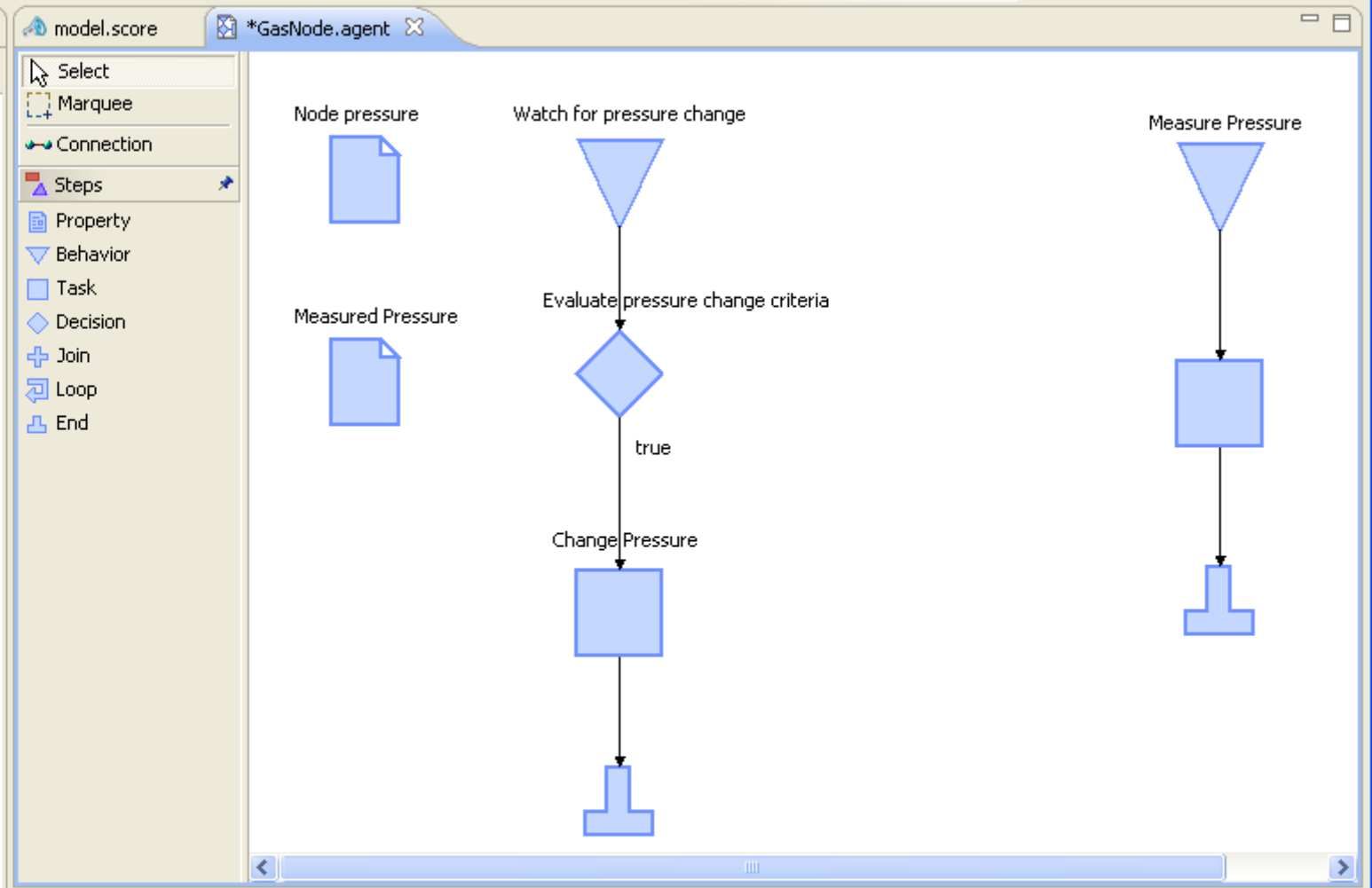


Problems Javadoc Declaration Properties Console

Property	Value
Step 1: Type in a Comment that Describes this Step	This is an agent decision.
Step 2: Type in a Human-Readable Diagram Label for the	Evaluate pressure change criteria
Step 3: Optionally Choose an Example from the List (Note	voltage > 2.volts
Step 4: Type in the Evaluation Criteria	watchedNode.pressure < 200

Package Explorer Hierarchy

- Infrastructure\_Demo
  - src
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
    - license.txt
    - model\_description.txt
    - Repast.settings
    - velocity.log



Problems Javadoc Declaration Properties Console

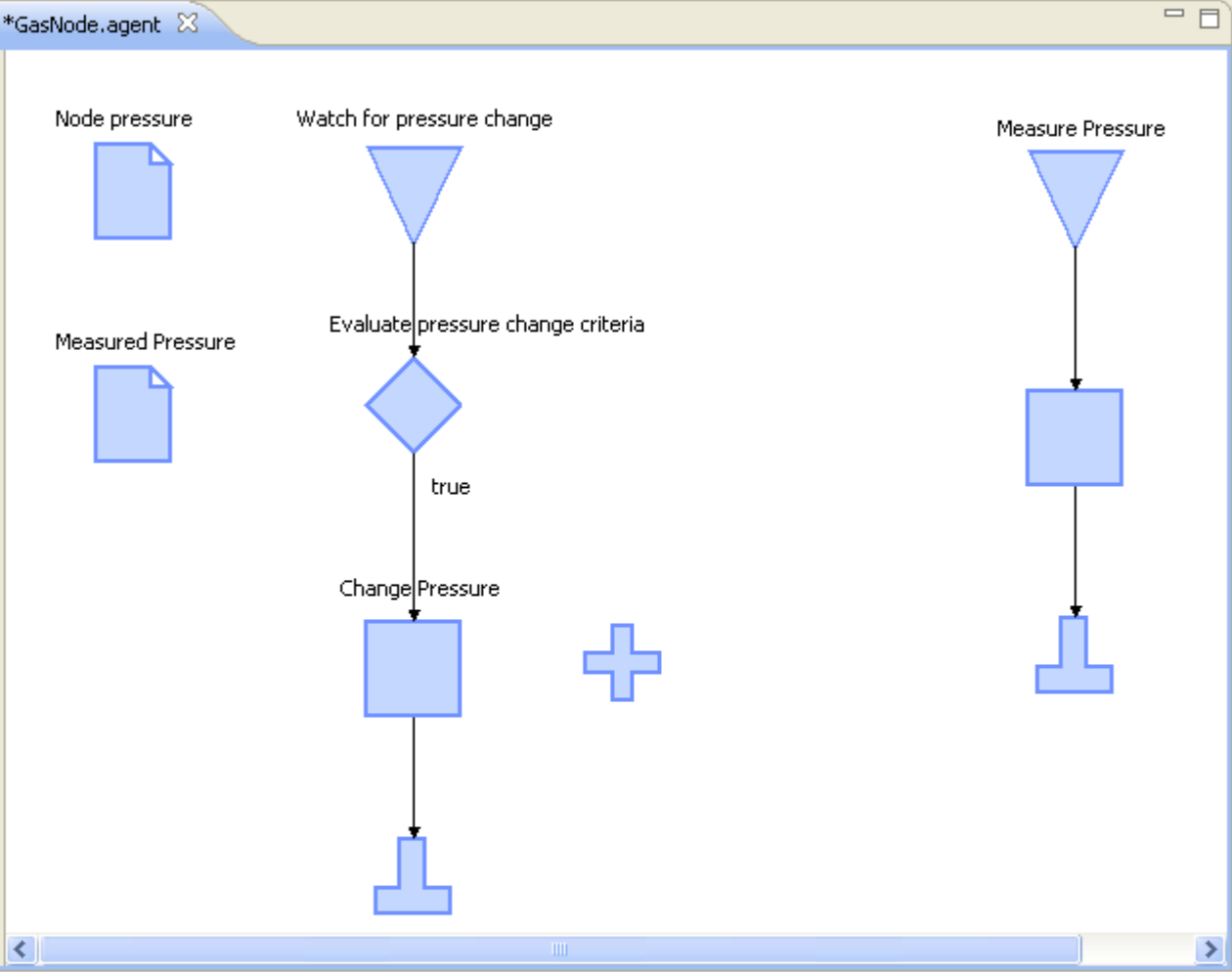
Property	Value
Step 1: Type in a Comment that Describes this Agent	This is an agent.
Step 2: Note the Agent Type Name (Change the File Name)	GasNode
Step 3: Optionally Type in the Parent Class Name	
Step 4: Optionally Type in a Comma Separated List of Imports	
Step 5: Optionally Type in a Comma Separated List of Imports	
Step 6: Use the Palette on the Left to Fill in Agent Properties	

Package Explorer

- Infrastructure\_Demo
  - src
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
  - license.txt
  - model\_description.txt
  - Repast.settings
  - velocity.log

model.score \*GasNode.agent

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



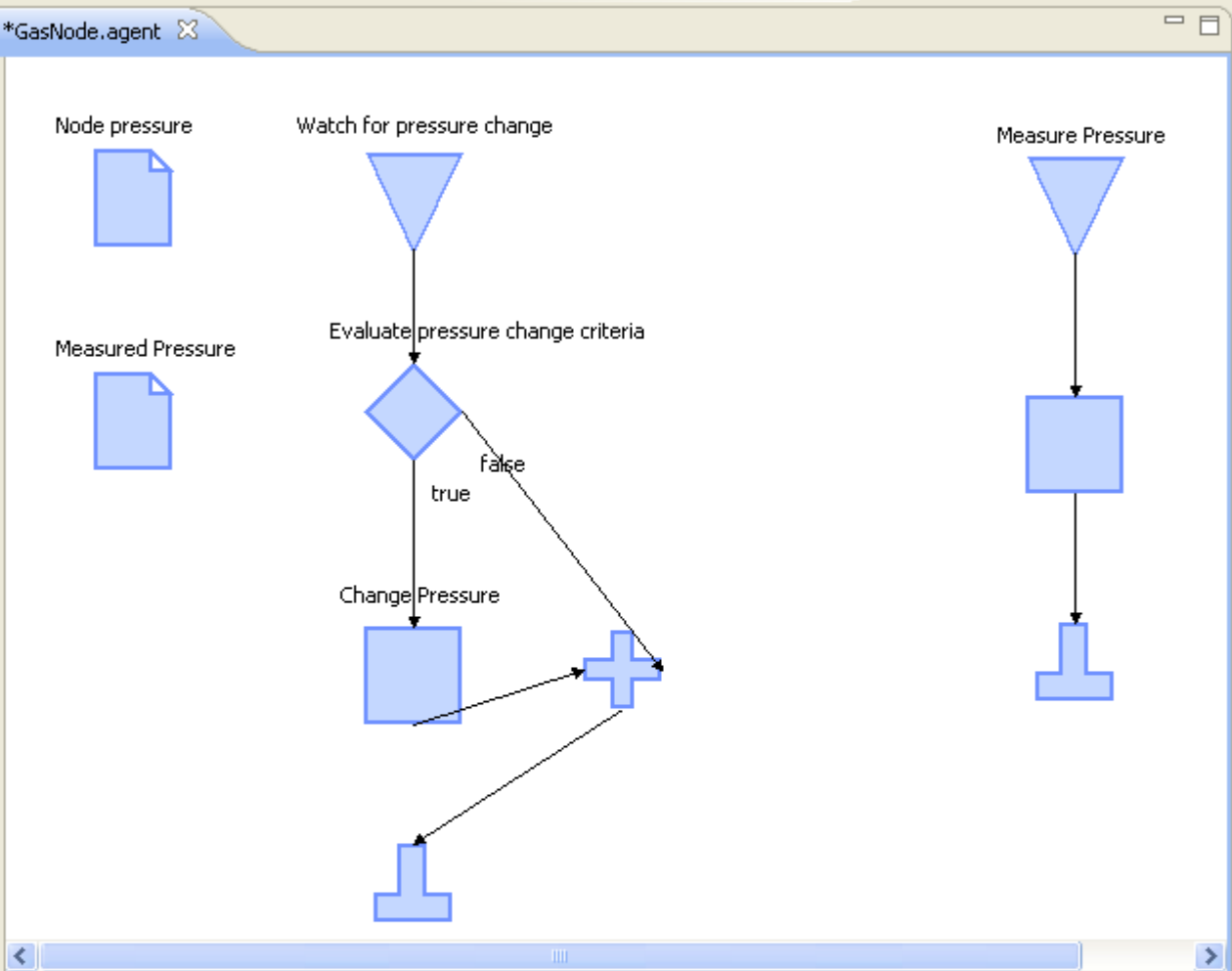
Property	Value
Step 1: Type in a Comment that Describes this Agent	This is an agent.
Step 2: Note the Agent Type Name (Change the File Name)	GasNode
Step 3: Optionally Type in the Parent Class Name	
Step 4: Optionally Type in a Comma Separated List of Inte	
Step 5: Optionally Type in a Comma Separated List of Imp	
Step 6: Use the Palette on the Left to Fill in Agent Propert	

Package Explorer

- Infrastructure\_Demo
  - src
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
  - license.txt
  - model\_description.txt
  - Repast.settings
  - velocity.log

model.score \*GasNode.agent

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Property	Value
Step 1: Type in a Comment that Describes this Agent	This is an agent.
Step 2: Note the Agent Type Name (Change the File Name)	GasNode
Step 3: Optionally Type in the Parent Class Name	
Step 4: Optionally Type in a Comma Separated List of Inte	
Step 5: Optionally Type in a Comma Separated List of Imp	
Step 6: Use the Palette on the Left to Fill in Agent Propert	

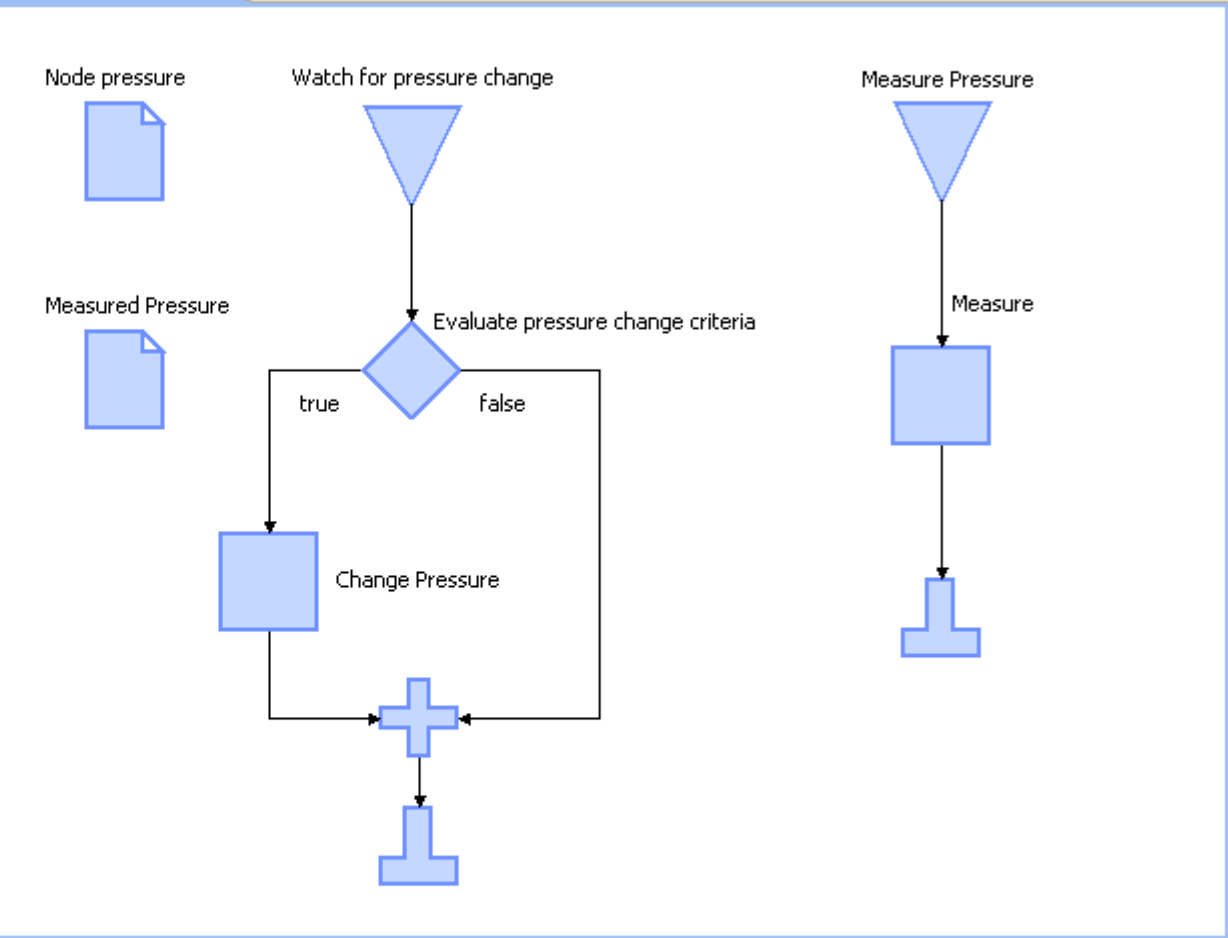


Package Explorer Hierarchy

- Infrastructure\_Demo
  - src
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
    - license.txt
    - model\_description.txt
    - Repast.settings
    - velocity.log

model.score \*GasNode.agent

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Property	Value
Step 1: Type in a Comment that Describes this Agent	This is an agent.
Step 2: Note the Agent Type Name (Change the File Name)	GasNode
Step 3: Optionally Type in the Parent Class Name	
Step 4: Optionally Type in a Comma Separated List of Inte	
Step 5: Optionally Type in a Comma Separated List of Imp	
Step 6: Use the Palette on the Left to Fill in Agent Propert	

Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
      - A Chart
    - Data Loaders
      - Delimited File Dat...
    - Data Sets
      - A Data Set
    - Displays
      - 2D Display
      - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization

Scenario Tree Run Options Parameters

GasNode 1

GasNode 1

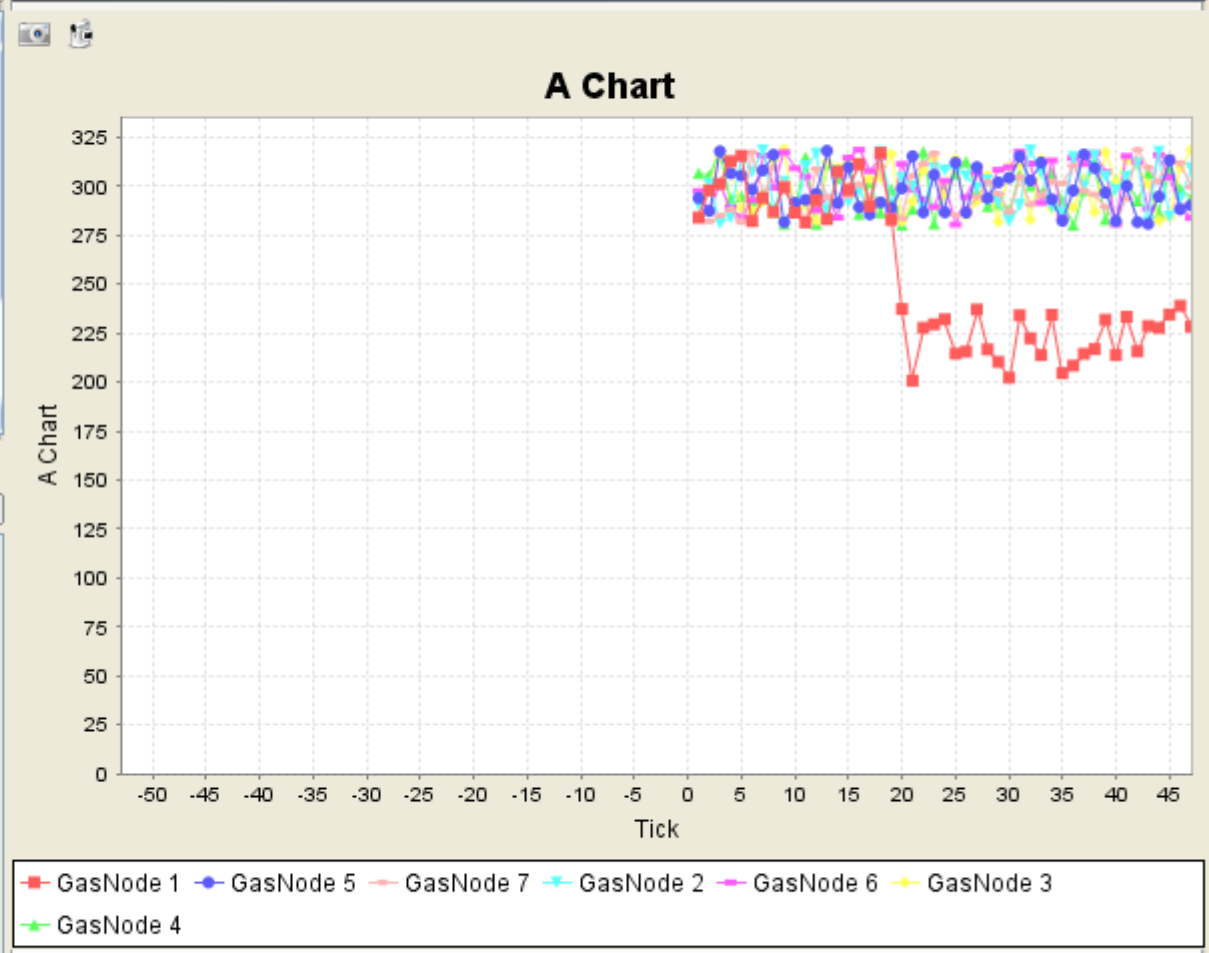
Measured Pressure:

Node pressure:

Locations

Grid: 3, 27

A Chart



A Chart InfrastructureDemo:2D Display

Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
      - A Chart
    - Data Loaders
      - Delimited File Dat...
    - Data Sets
      - A Data Set
    - Displays
      - 2D Display
      - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization

Scenario Tree Run Options Parameters

GasNode 1

GasNode 1

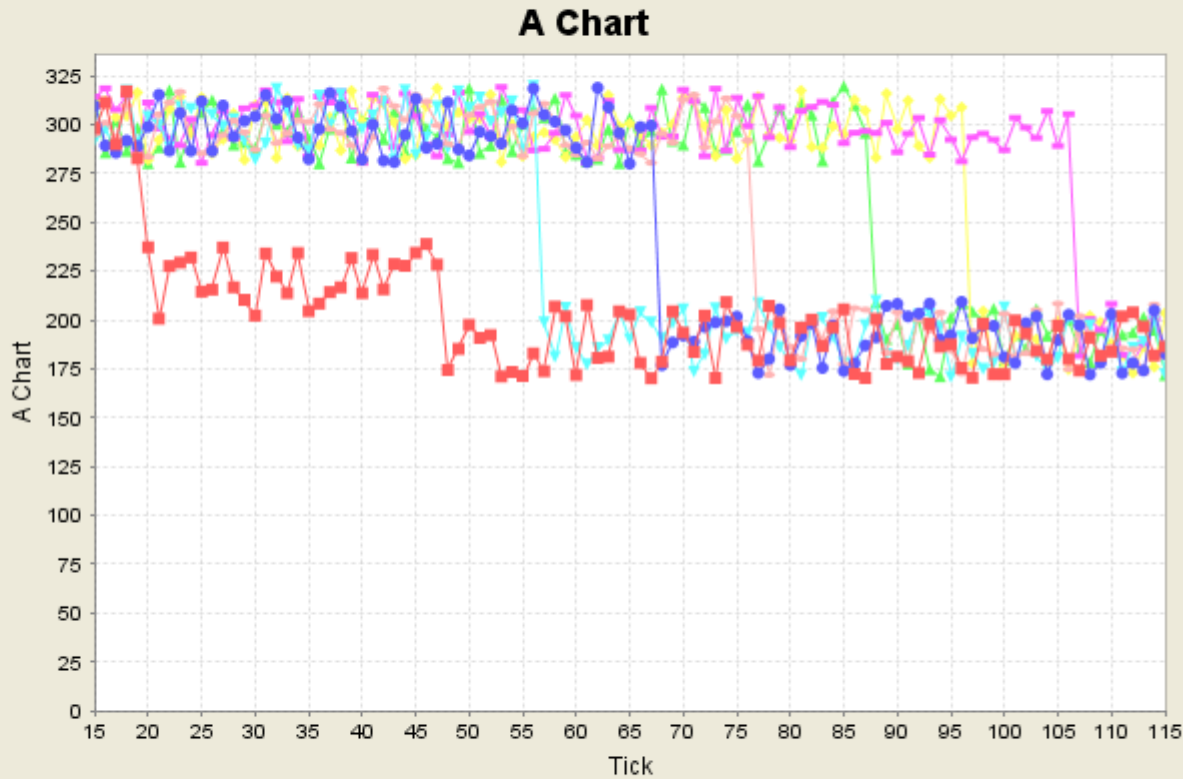
Measured Pressure:

Node pressure:

Locations

Grid: 3, 27

A Chart



■ GasNode 1 ● GasNode 5 ▲ GasNode 7 ◆ GasNode 2 ★ GasNode 6 + GasNode 3  
× GasNode 4

A Chart InfrastructureDemo:2D Display

Paused

# Simple Repast Model

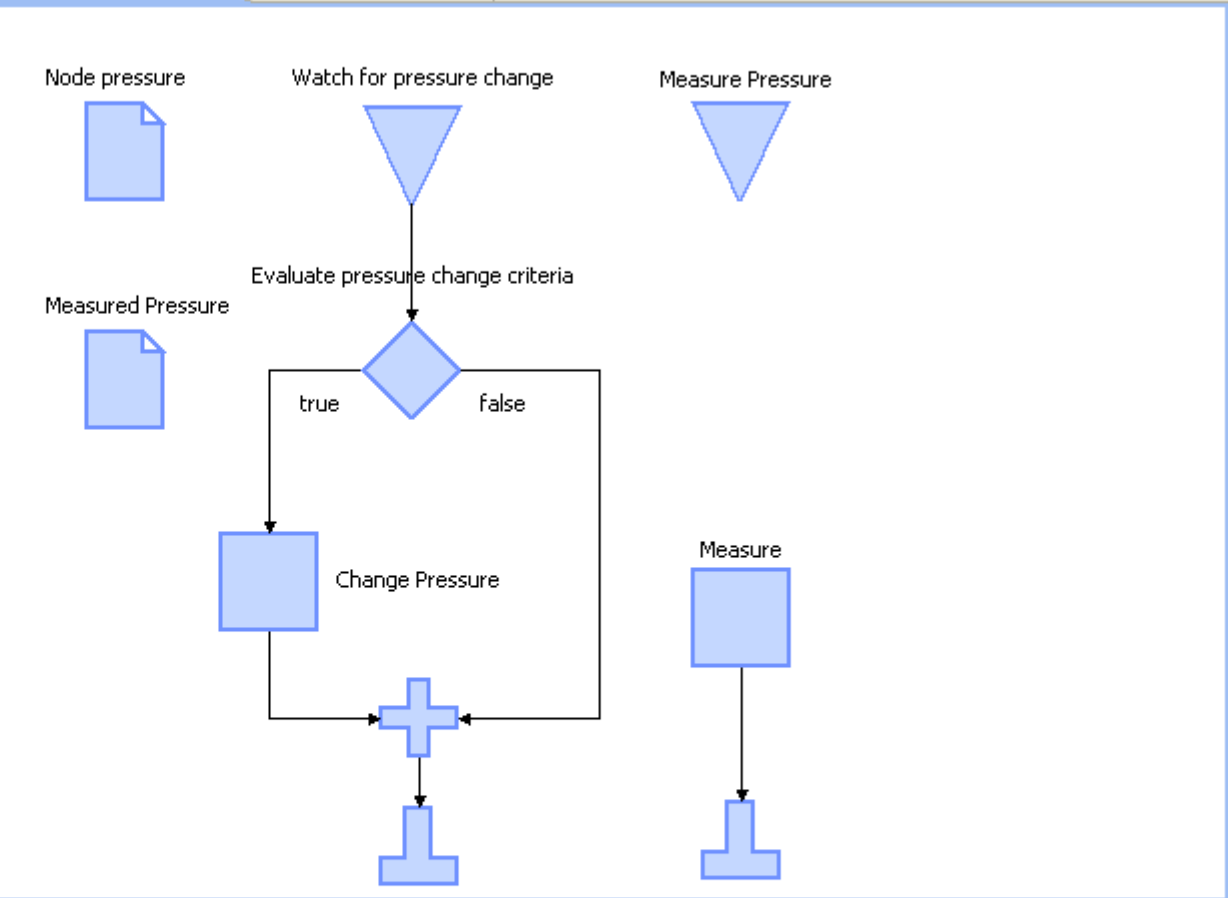
Loops

Package Explorer

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
    - license.txt
    - model\_description.txt
    - ModelOutput.2007.Nov.29.14.57\_33
    - ModelOutput.2007.Nov.29.14.58\_29
    - ModelOutput.2007.Nov.29.14.58\_37
    - ModelOutput.2007.Nov.29.15.20\_41
    - ModelOutput.2007.Nov.29.15.21\_45
    - ModelOutput.2007.Nov.29.15.23\_30
    - ModelOutput.2007.Nov.29.15.23\_55
    - ModelOutput.2007.Nov.29.15.24\_06
    - ModelOutput.2007.Nov.29.15.24\_41
    - ModelOutput.2007.Nov.29.15.25\_14
    - ModelOutput.2007.Nov.29.15.25\_32
    - ModelOutput.2007.Nov.29.15.25\_35
    - Repast.settings
    - velocity.log

model.score \*GasNode.agent GasNode.groovy

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Problems Javadoc Declaration Properties Console

Property	Value
Step 1: Type in a Comment that Describes this Agent	This is an agent.
Step 2: Note the Agent Type Name (Change the File Name to Change This Value)	GasNode
Step 3: Optionally Type in the Parent Class Name	
Step 4: Optionally Type in a Comma Separated List of Interfaces to Implement	
Step 5: Optionally Type in a Comma Separated List of Imports to Include	
Step 6: Use the Palette on the Left to Fill in Agent Properties and Behaviors...	

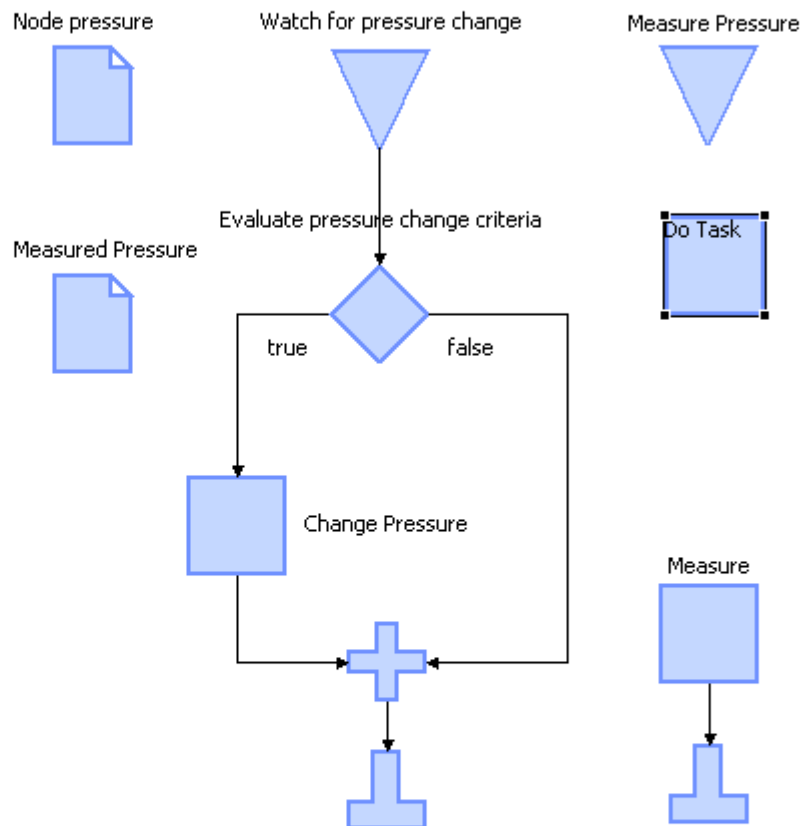


Package Explorer

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
    - license.txt
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    - ModelOutput.2007.Nov.29.14\_57\_33
    - ModelOutput.2007.Nov.29.14\_58\_29
    - ModelOutput.2007.Nov.29.14\_58\_37
    - ModelOutput.2007.Nov.29.15\_20\_41
    - ModelOutput.2007.Nov.29.15\_21\_45
    - ModelOutput.2007.Nov.29.15\_23\_30
    - ModelOutput.2007.Nov.29.15\_23\_55
    - ModelOutput.2007.Nov.29.15\_24\_06
    - ModelOutput.2007.Nov.29.15\_24\_41
    - ModelOutput.2007.Nov.29.15\_25\_14
    - ModelOutput.2007.Nov.29.15\_25\_32
    - ModelOutput.2007.Nov.29.15\_25\_35
    - Repast.settings
    - velocity.log

model.score \*GasNode.agent GasNode.groovy

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Problems Javadoc Declaration Properties Console

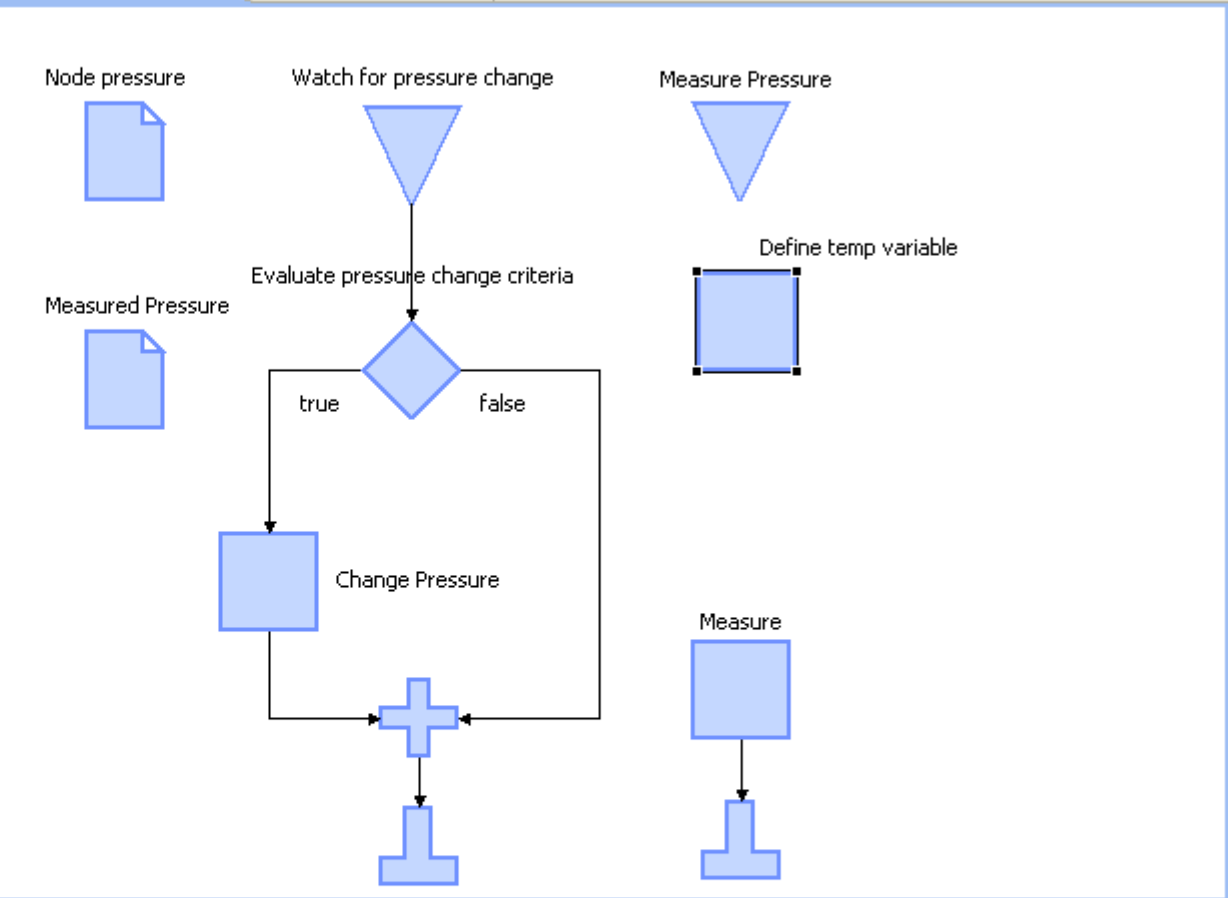
Property	Value
Step 1: Type in a Comment that Describes this Task	This is a task.
Step 2: Type in a Human-Readable Diagram Label for the Property	Do Task
Step 3: Optionally Choose an Type from the Task List	General Operation: Create a Variable
Step 4: Optionally Note the Example Task	[def   Type] varName
Step 5: Type in Task Part 1	[def   Type] varName
Step 6: Optionally Type in Task Part 2	
Step 7: Optionally Type in Task Part 3	

Package Explorer Hierarchy

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
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  - integration
  - launchers
  - lib
  - misc
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    - ModelOutput.2007.Nov.29.14\_57\_33
    - ModelOutput.2007.Nov.29.14\_58\_29
    - ModelOutput.2007.Nov.29.14\_58\_37
    - ModelOutput.2007.Nov.29.15\_20\_41
    - ModelOutput.2007.Nov.29.15\_21\_45
    - ModelOutput.2007.Nov.29.15\_23\_30
    - ModelOutput.2007.Nov.29.15\_23\_55
    - ModelOutput.2007.Nov.29.15\_24\_06
    - ModelOutput.2007.Nov.29.15\_24\_41
    - ModelOutput.2007.Nov.29.15\_25\_14
    - ModelOutput.2007.Nov.29.15\_25\_32
    - ModelOutput.2007.Nov.29.15\_25\_35
    - Repast.settings
    - velocity.log

model.score \*GasNode.agent GasNode.groovy

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Problems Javadoc Declaration Properties Console

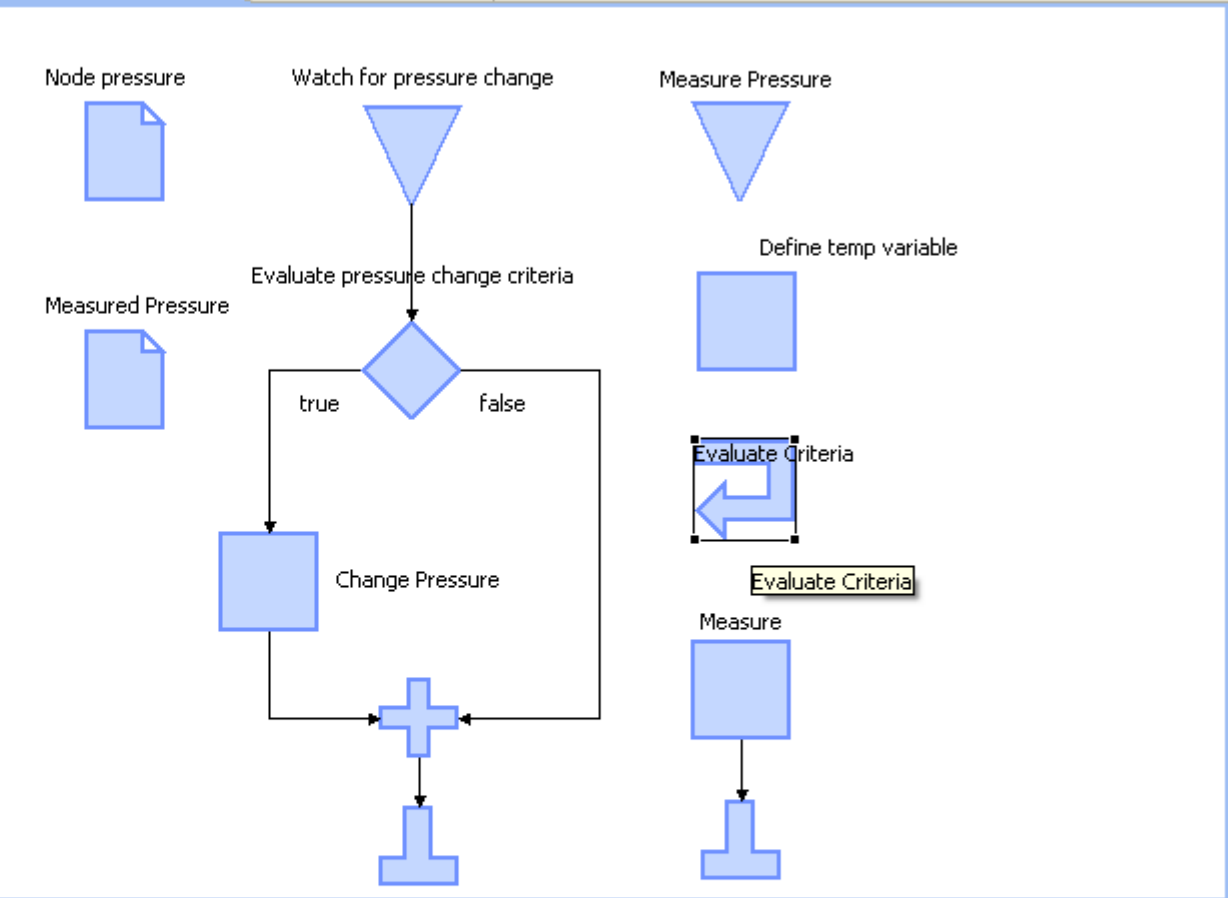
Property	Value
Step 1: Type in a Comment that Describes this Task	This is a task.
Step 2: Type in a Human-Readable Diagram Label for the Property	Define temp variable
Step 3: Optionally Choose an Type from the Task List	General Operation: Create a Variable
Step 4: Optionally Note the Example Task	[def   Type] varName
Step 5: Type in Task Part 1	double x = 0
Step 6: Optionally Type in Task Part 2	
Step 7: Optionally Type in Task Part 3	

Package Explorer

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
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    - ModelOutput.2007.Nov.29.14\_58\_29
    - ModelOutput.2007.Nov.29.14\_58\_37
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    - ModelOutput.2007.Nov.29.15\_23\_30
    - ModelOutput.2007.Nov.29.15\_23\_55
    - ModelOutput.2007.Nov.29.15\_24\_06
    - ModelOutput.2007.Nov.29.15\_24\_41
    - ModelOutput.2007.Nov.29.15\_25\_14
    - ModelOutput.2007.Nov.29.15\_25\_32
    - ModelOutput.2007.Nov.29.15\_25\_35
    - Repast.settings
    - velocity.log

model.score \*GasNode.agent GasNode.groovy

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Problems Javadoc Declaration Properties Console

Property	Value
Step 1: Type in a Comment that Describes this Step	This is a loop.
Step 2: Type in a Human-Readable Diagram Label for the Property	Evaluate Criteria
Step 3: Optionally Choose an Example from the List (Note the "!" is Negative)	i in 1..10
Step 4: Type in the Evaluation Criteria	

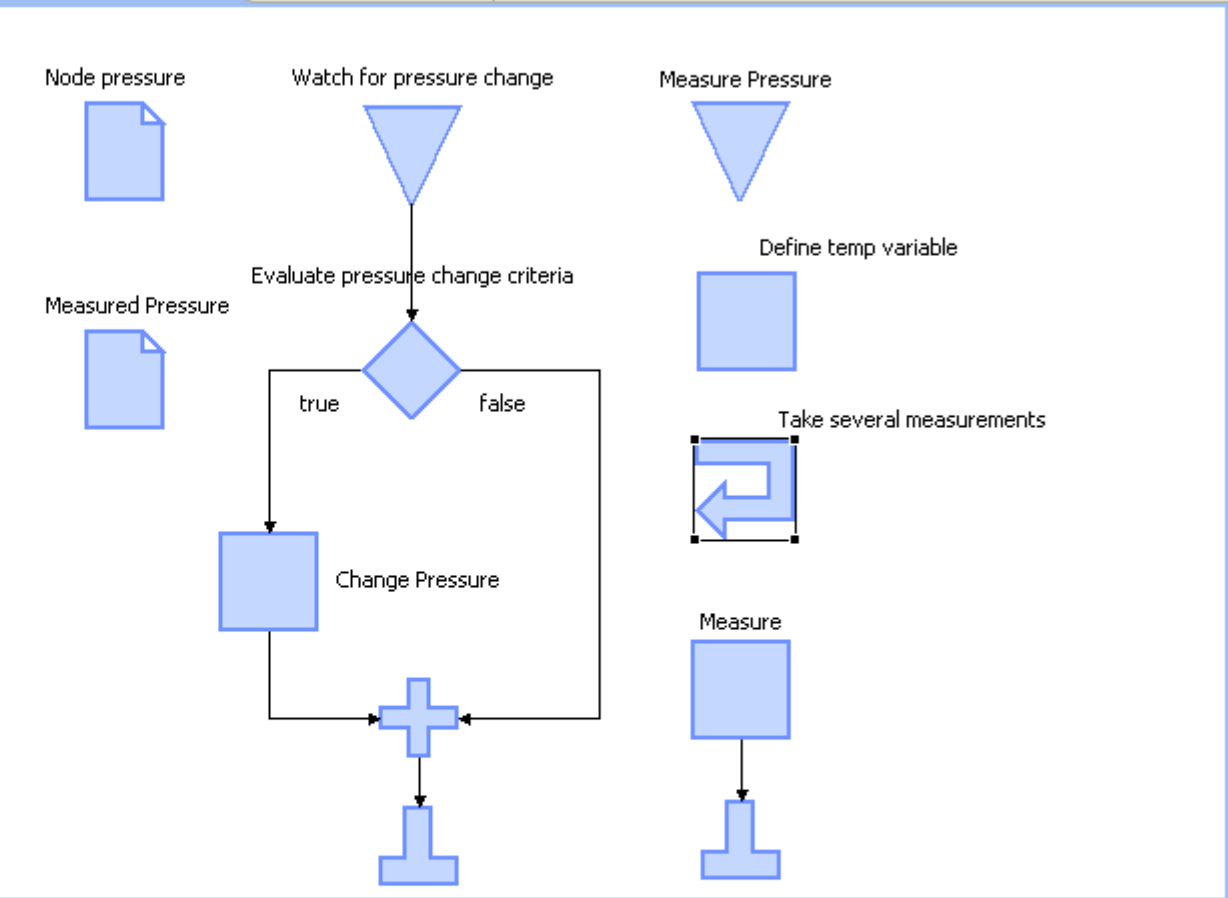


Package Explorer

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
    - license.txt
    - model\_description.txt
    - ModelOutput.2007.Nov.29.14\_57\_33
    - ModelOutput.2007.Nov.29.14\_58\_29
    - ModelOutput.2007.Nov.29.14\_58\_37
    - ModelOutput.2007.Nov.29.15\_20\_41
    - ModelOutput.2007.Nov.29.15\_21\_45
    - ModelOutput.2007.Nov.29.15\_23\_30
    - ModelOutput.2007.Nov.29.15\_23\_55
    - ModelOutput.2007.Nov.29.15\_24\_06
    - ModelOutput.2007.Nov.29.15\_24\_41
    - ModelOutput.2007.Nov.29.15\_25\_14
    - ModelOutput.2007.Nov.29.15\_25\_32
    - ModelOutput.2007.Nov.29.15\_25\_35
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model.score \*GasNode.agent GasNode.groovy

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Problems Javadoc Declaration Properties Console

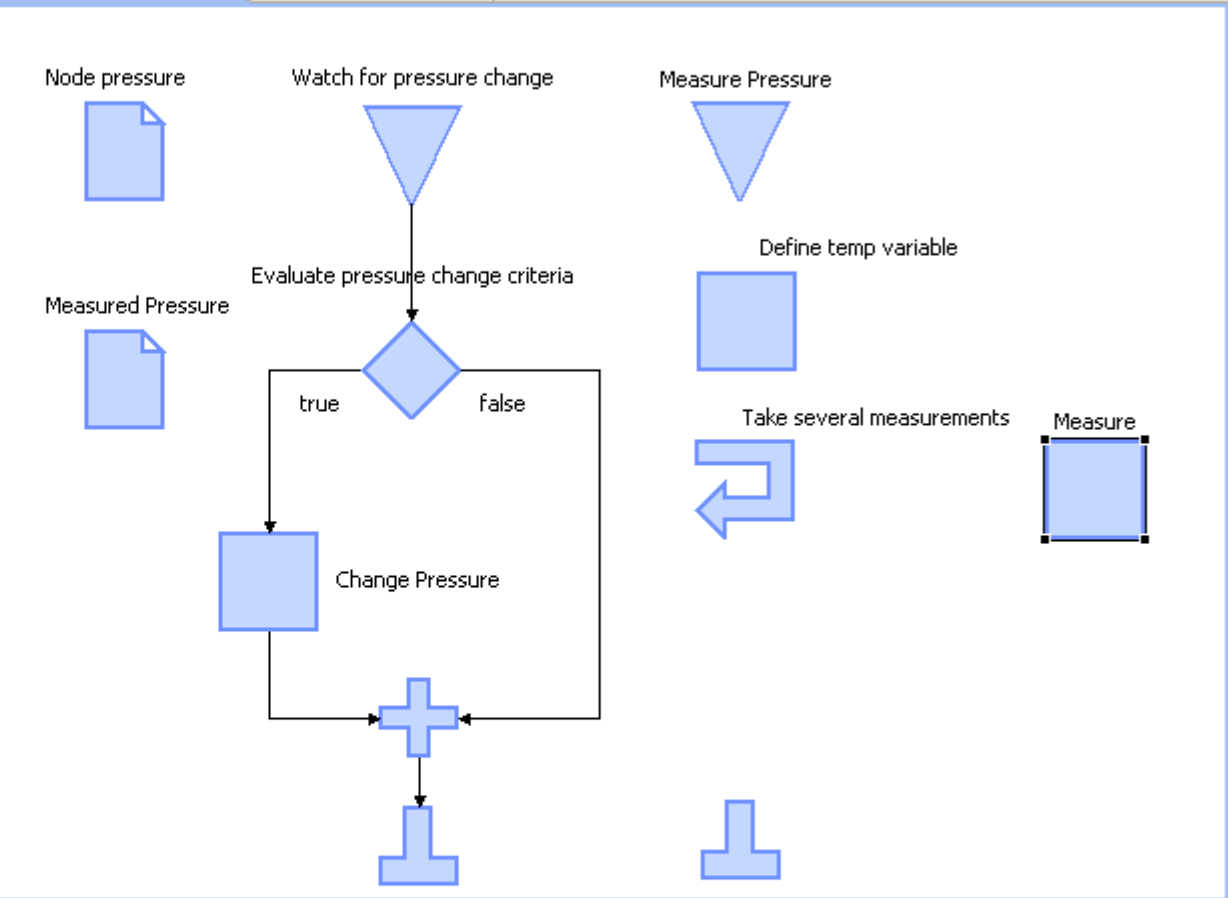
Property	Value
Step 1: Type in a Comment that Describes this Step	This is a loop.
Step 2: Type in a Human-Readable Diagram Label for the Property	Take several measurements
Step 3: Optionally Choose an Example from the List (Note the "!" is Negative)	i in 1..10
Step 4: Type in the Evaluation Criteria	i in 1..10

Package Explorer Hierarchy

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
  - JRE System Library [eclipse]
  - Referenced Libraries
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  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
    - license.txt
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    - ModelOutput.2007.Nov.29.14\_57\_33
    - ModelOutput.2007.Nov.29.14\_58\_29
    - ModelOutput.2007.Nov.29.14\_58\_37
    - ModelOutput.2007.Nov.29.15\_20\_41
    - ModelOutput.2007.Nov.29.15\_21\_45
    - ModelOutput.2007.Nov.29.15\_23\_30
    - ModelOutput.2007.Nov.29.15\_23\_55
    - ModelOutput.2007.Nov.29.15\_24\_06
    - ModelOutput.2007.Nov.29.15\_24\_41
    - ModelOutput.2007.Nov.29.15\_25\_14
    - ModelOutput.2007.Nov.29.15\_25\_32
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model.score \*GasNode.agent GasNode.groovy

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Problems Javadoc Declaration Properties Console

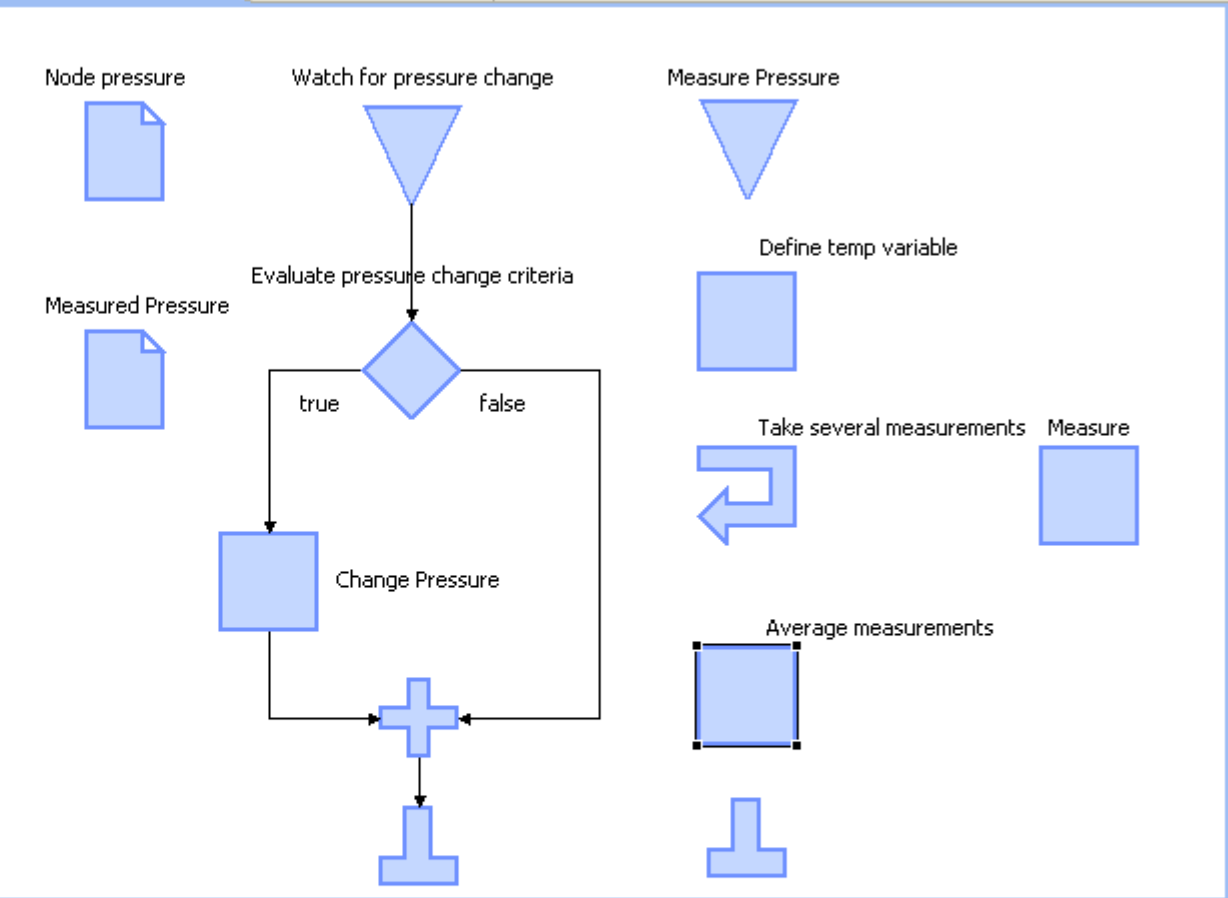
Property	Value
Step 1: Type in a Comment that Describes this Task	This is a task.
Step 2: Type in a Human-Readable Diagram Label for the Property	Measure
Step 3: Optionally Choose an Type from the Task List	Context Operation: Find a Context [Context FindContext(String contextf
Step 4: Optionally Note the Example Task	Context context = FindContext("root/sub1")
Step 5: Type in Task Part 1	x = x + pressure + RandomDraw(-20.0, 20.0)
Step 6: Optionally Type in Task Part 2	
Step 7: Optionally Type in Task Part 3	

Package Explorer Hierarchy

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
  - JRE System Library [eclipse]
  - Referenced Libraries
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  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
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    - ModelOutput.2007.Nov.29.15\_23\_55
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    - ModelOutput.2007.Nov.29.15\_25\_14
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model.score \*GasNode.agent GasNode.groovy

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Problems Javadoc Declaration Properties Console

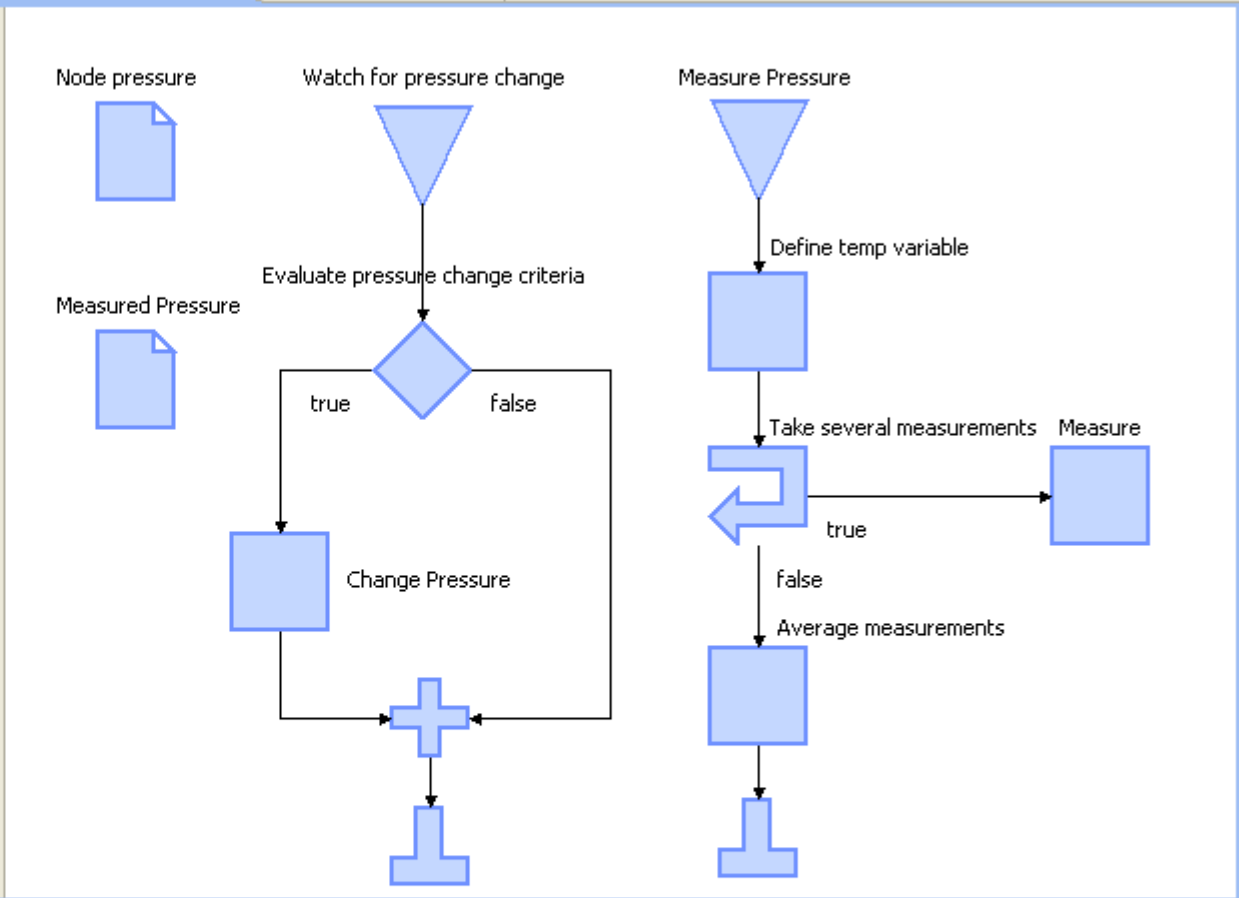
Property	Value
Step 1: Type in a Comment that Describes this Task	This is a task.
Step 2: Type in a Human-Readable Diagram Label for the Property	Average measurements
Step 3: Optionally Choose an Type from the Task List	Context Operation: Find a Context [Context FindContext(String contextf
Step 4: Optionally Note the Example Task	Context context = FindContext("root/sub1")
Step 5: Type in Task Part 1	measuredPressure = x / 10
Step 6: Optionally Type in Task Part 2	
Step 7: Optionally Type in Task Part 3	

Package Explorer

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
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    - model\_description.txt
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    - ModelOutput.2007.Nov.29.14\_58\_29
    - ModelOutput.2007.Nov.29.14\_58\_37
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    - ModelOutput.2007.Nov.29.15\_21\_45
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    - ModelOutput.2007.Nov.29.15\_23\_55
    - ModelOutput.2007.Nov.29.15\_24\_06
    - ModelOutput.2007.Nov.29.15\_24\_41
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    - ModelOutput.2007.Nov.29.15\_25\_32
    - ModelOutput.2007.Nov.29.15\_25\_35
    - Repast.settings
    - velocity.log

model.score \*GasNode.agent GasNode.groovy

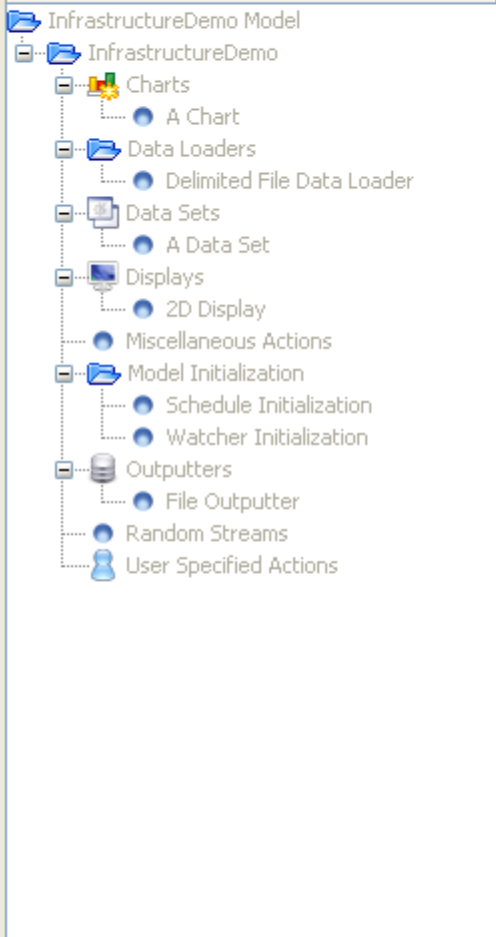
- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



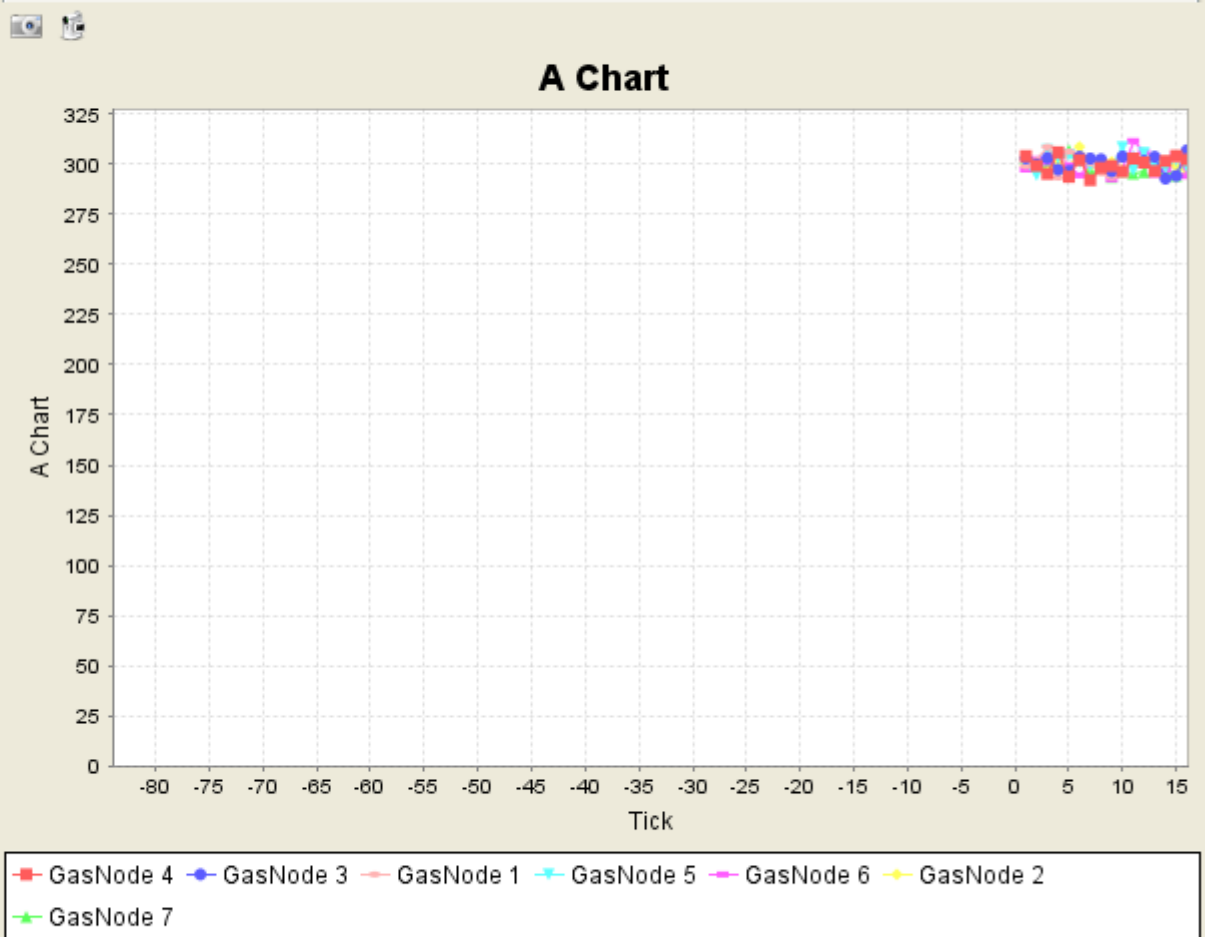
Problems Javadoc Declaration Properties Console

Property	Value
Step 1: Type in a Comment that Describes this Agent	This is an agent.
Step 2: Note the Agent Type Name (Change the File Name to Change Th	GasNode
Step 3: Optionally Type in the Parent Class Name	
Step 4: Optionally Type in a Comma Separated List of Interfaces to Imple	
Step 5: Optionally Type in a Comma Separated List of Imports to Include	
Step 6: Use the Palette on the Left to Fill in Agent Properties and Behavi	

Scenario Tree



A Chart



Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
      - A Chart
    - Data Loaders
      - Delimited File Data Loader
    - Data Sets
      - A Data Set
    - Displays
      - 2D Display
      - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization

Scenario Tree Run Options Parameters

GasNode 1

GasNode 1

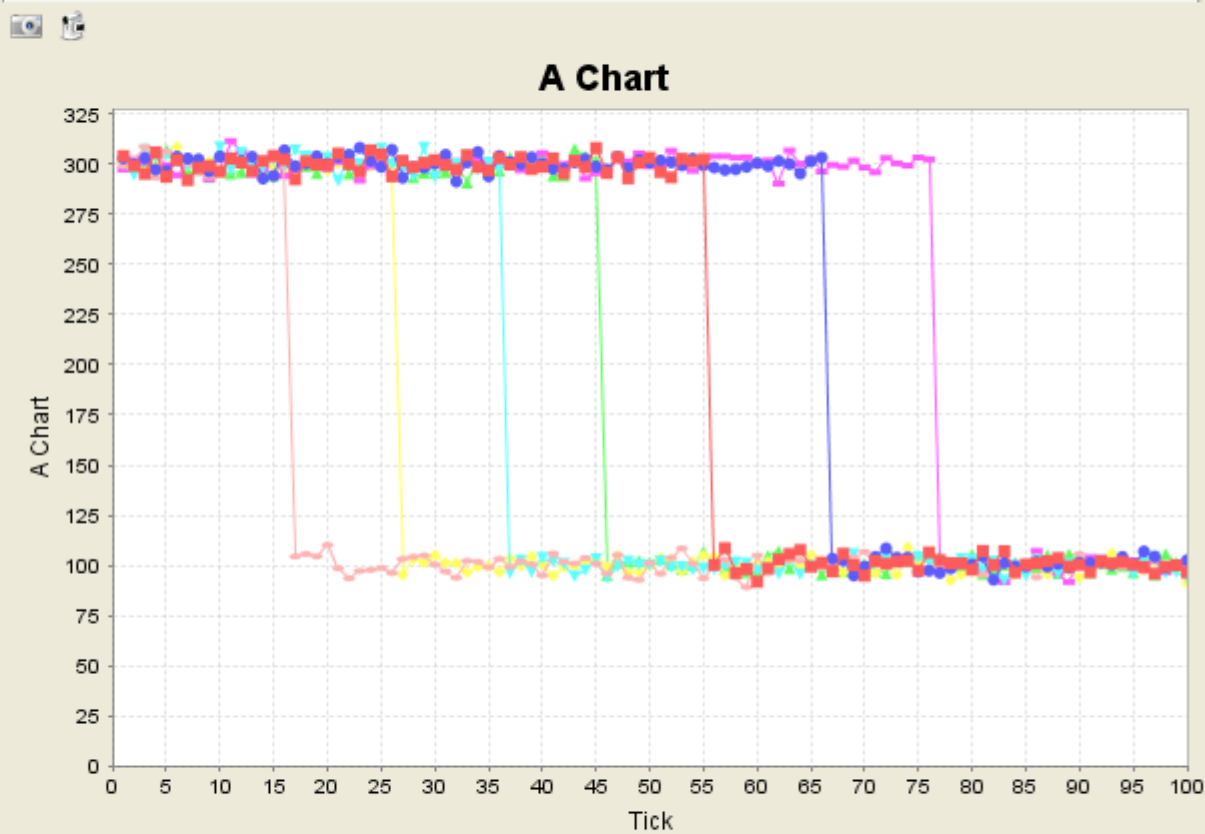
Measured Pressure:

Node pressure:

Locations

Grid: 3, 27

A Chart



- GasNode 4
- GasNode 3
- GasNode 1
- GasNode 5
- GasNode 6
- GasNode 2
- GasNode 7

A Chart InfrastructureDemo:2D Display

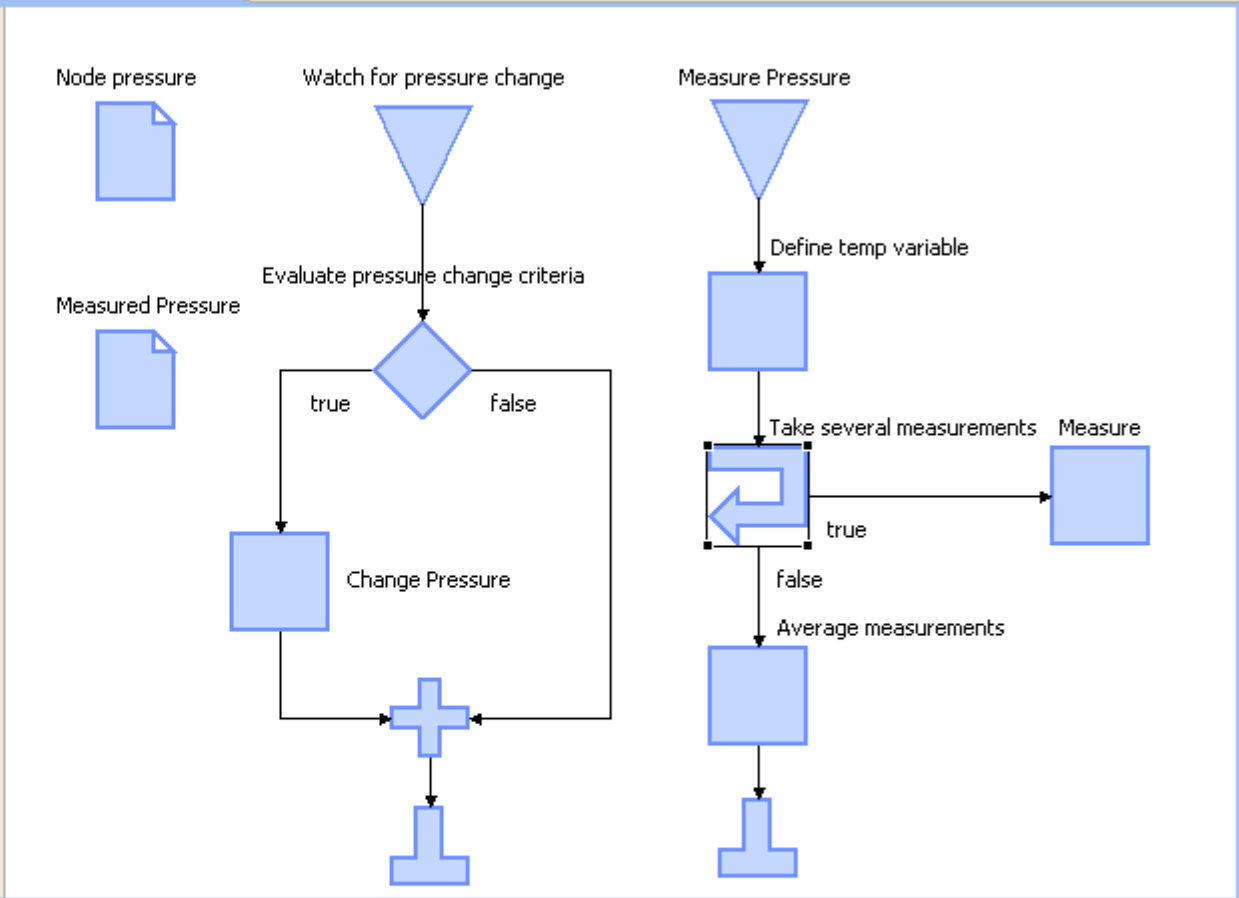
Paused

Package Explorer

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
  - JRE System Library [eclipse]
  - Referenced Libraries
  - batch
  - data
  - docs
  - icons
  - infrastructuredemo.rs
  - installer
  - integration
  - launchers
  - lib
  - misc
    - license.txt
    - model\_description.txt
    - Repast.settings
    - velocity.log

model.score GasNode.agent

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



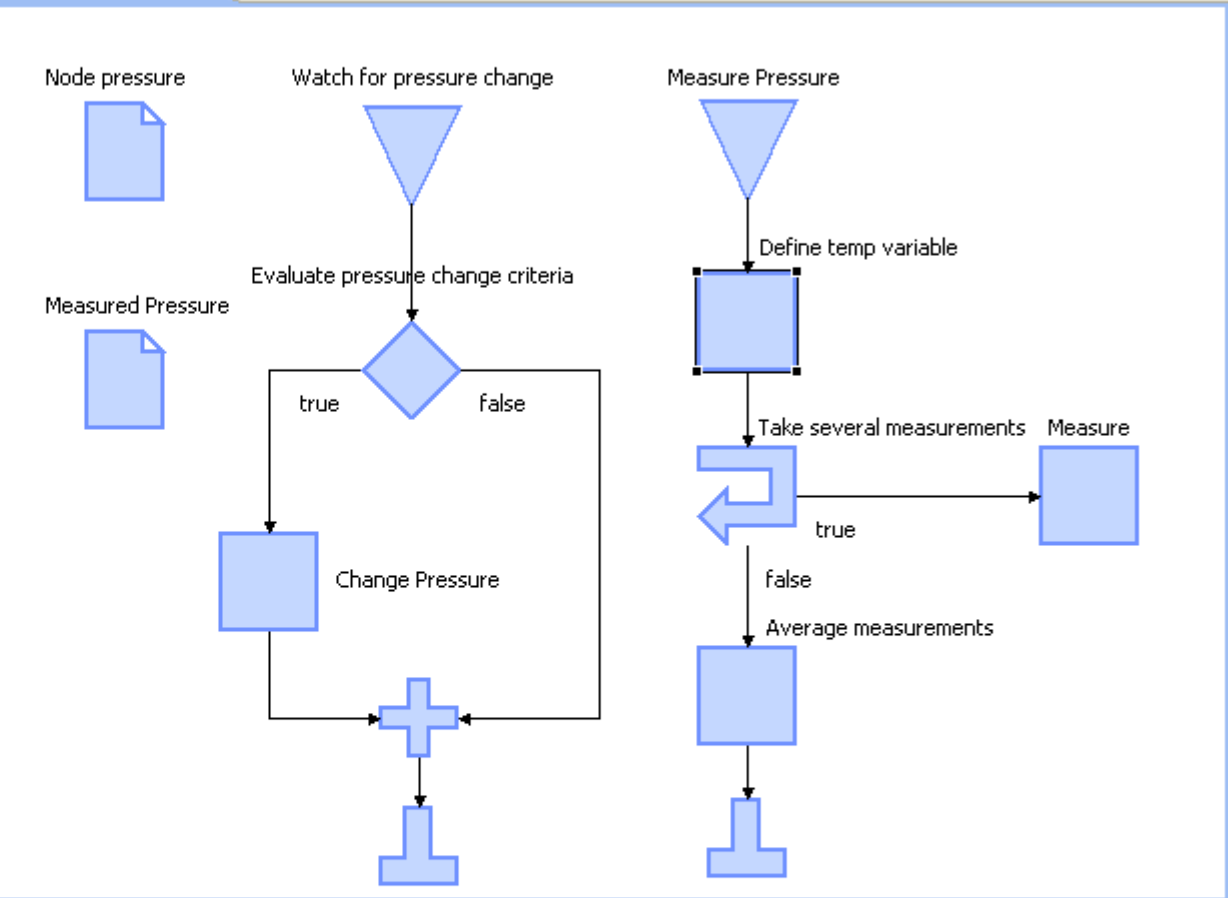
Property	Value
Step 1: Type in a Comment that Describes this Step	This is a loop.
Step 2: Type in a Human-Readable Diagram Label for the Property	Take several measurements
Step 3: Optionally Choose an Example from the List (Note the "!" is Nega	RandomDrawAgainstThreshold(0.3) /* Make a Uniform Random Draw and Ch
Step 4: Type in the Evaluation Criteria	RandomDrawAgainstThreshold(0.25)

Package Explorer

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
- JRE System Library [eclipse]
- Referenced Libraries
- batch
- data
- docs
- icons
- infrastructuredemo.rs
- installer
- integration
- launchers
- lib
- misc
  - license.txt
  - model\_description.txt
  - Repast.settings
  - velocity.log

model.score GasNode.agent

- Select
- Marquee
- Connection
- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End



Property	Value
Step 1: Type in a Comment that Describes this Task	This is a task.
Step 2: Type in a Human-Readable Diagram Label for the Property	Define temp variable
Step 3: Optionally Choose an Type from the Task List	General Operation: Create a Variable
Step 4: Optionally Note the Example Task	[def   Type] varName
Step 5: Type in Task Part 1	double x = 0
Step 6: Optionally Type in Task Part 2	int numTimesMeasured = 0
Step 7: Optionally Type in Task Part 3	

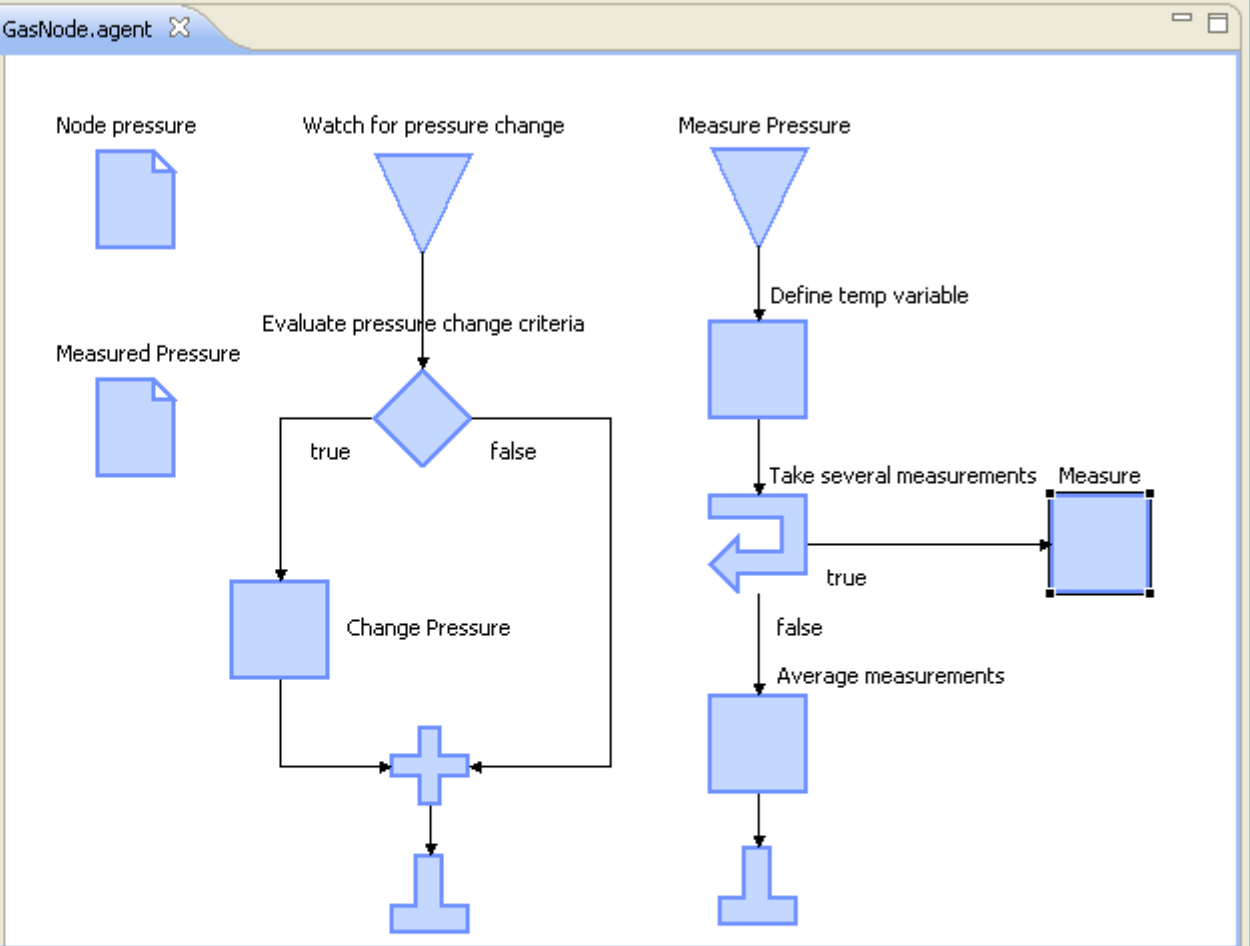


Package Explorer

- Infrastructure\_Demo
  - src
    - infrastructuredemo
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    - Repast.settings
    - velocity.log

model.score GasNode.agent

- Select
- Marquee
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- Steps
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- Behavior
- Task
- Decision
- Join
- Loop
- End



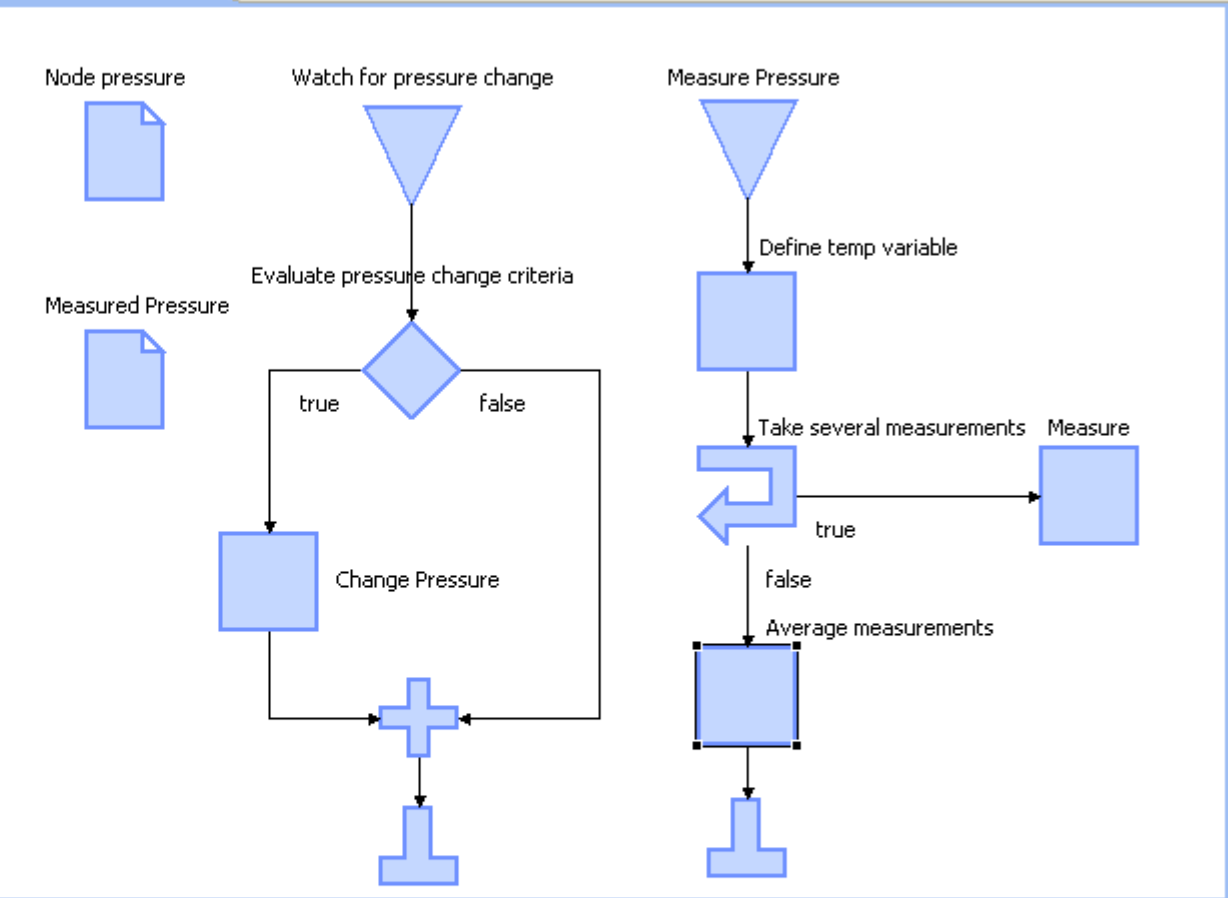
Property	Value
Step 1: Type in a Comment that Describes this Task	This is a task.
Step 2: Type in a Human-Readable Diagram Label for the Property	Measure
Step 3: Optionally Choose an Type from the Task List	Context Operation: Find a Context [Context FindContext(String contextf
Step 4: Optionally Note the Example Task	Context context = FindContext("root/sub1")
Step 5: Type in Task Part 1	x = x + pressure + RandomDraw(-20.0, 20.0)
Step 6: Optionally Type in Task Part 2	numTimesMeasured++
Step 7: Optionally Type in Task Part 3	

Package Explorer

- Infrastructure\_Demo
  - src
    - infrastructuredemo
      - GasNode.agent
      - GasNode.groovy
- JRE System Library [eclipse]
- Referenced Libraries
- batch
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  - model\_description.txt
  - Repast.settings
  - velocity.log

model.score GasNode.agent

- Select
- Marquee
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- Steps
- Property
- Behavior
- Task
- Decision
- Join
- Loop
- End

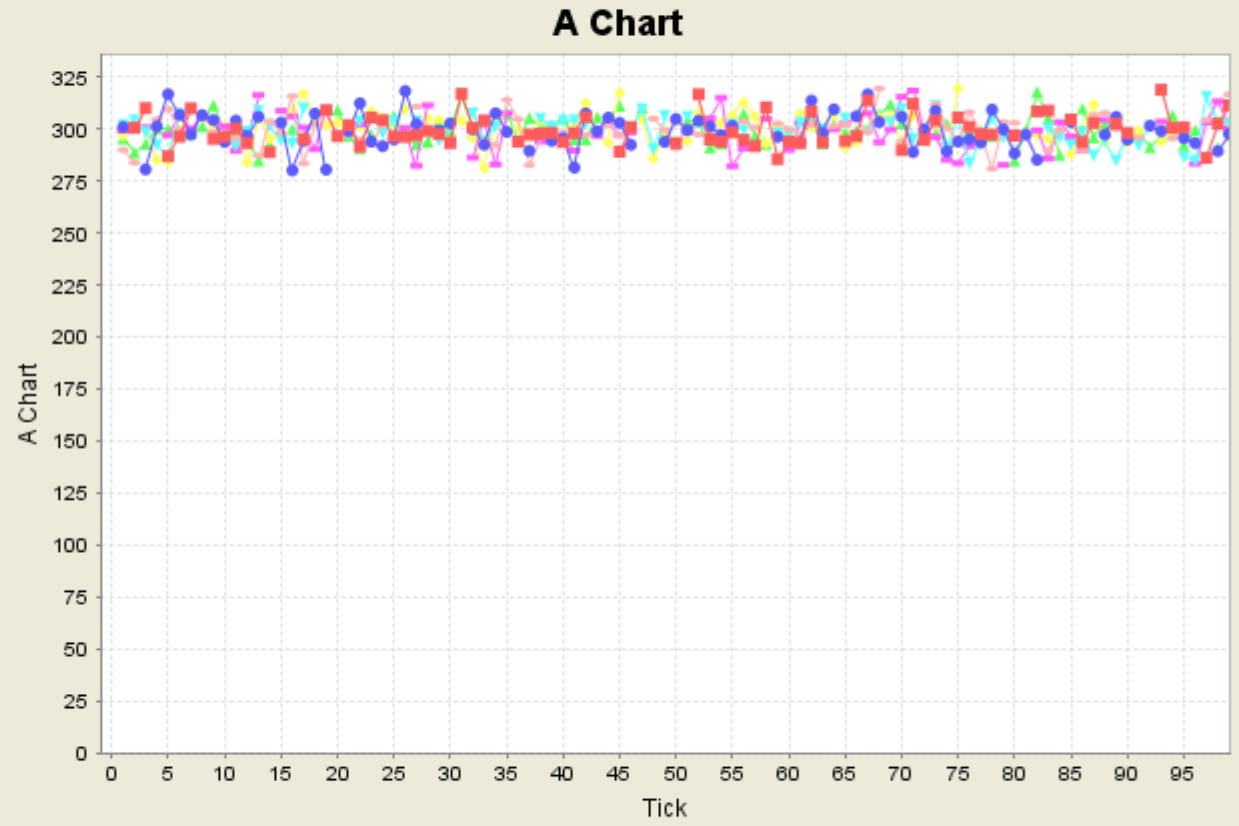


Property	Value
Step 1: Type in a Comment that Describes this Task	This is a task.
Step 2: Type in a Human-Readable Diagram Label for the Property	Average measurements
Step 3: Optionally Choose an Type from the Task List	Context Operation: Find a Context [Context FindContext(String contextf
Step 4: Optionally Note the Example Task	Context context = FindContext("root/sub1")
Step 5: Type in Task Part 1	measuredPressure = x / numTimesMeasured
Step 6: Optionally Type in Task Part 2	
Step 7: Optionally Type in Task Part 3	

Scenario Tree

- InfrastructureDemo Model
  - InfrastructureDemo
    - Charts
      - A Chart
    - Data Loaders
      - Delimited File Data Loader
    - Data Sets
      - A Data Set
    - Displays
      - 2D Display
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
      - File Outputter
    - Random Streams
    - User Specified Actions

A Chart



■ GasNode 4 ● GasNode 6 ▲ GasNode 7 ◆ GasNode 2 ★ GasNode 1 ◆ GasNode 5 ▲ GasNode 3

# Advanced example

- Gas-node model
- Social network model
- Sky center model (GIS)
- Predator-prey model

Scenario Tree

- Idemo Model
  - Idemo
    - Charts
    - Data Loaders
      - Score Context Builder
    - Data Sets
    - Displays
      - Infrastructure physical**
      - Physical 3D
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
    - Random Streams
    - User Specified Actions

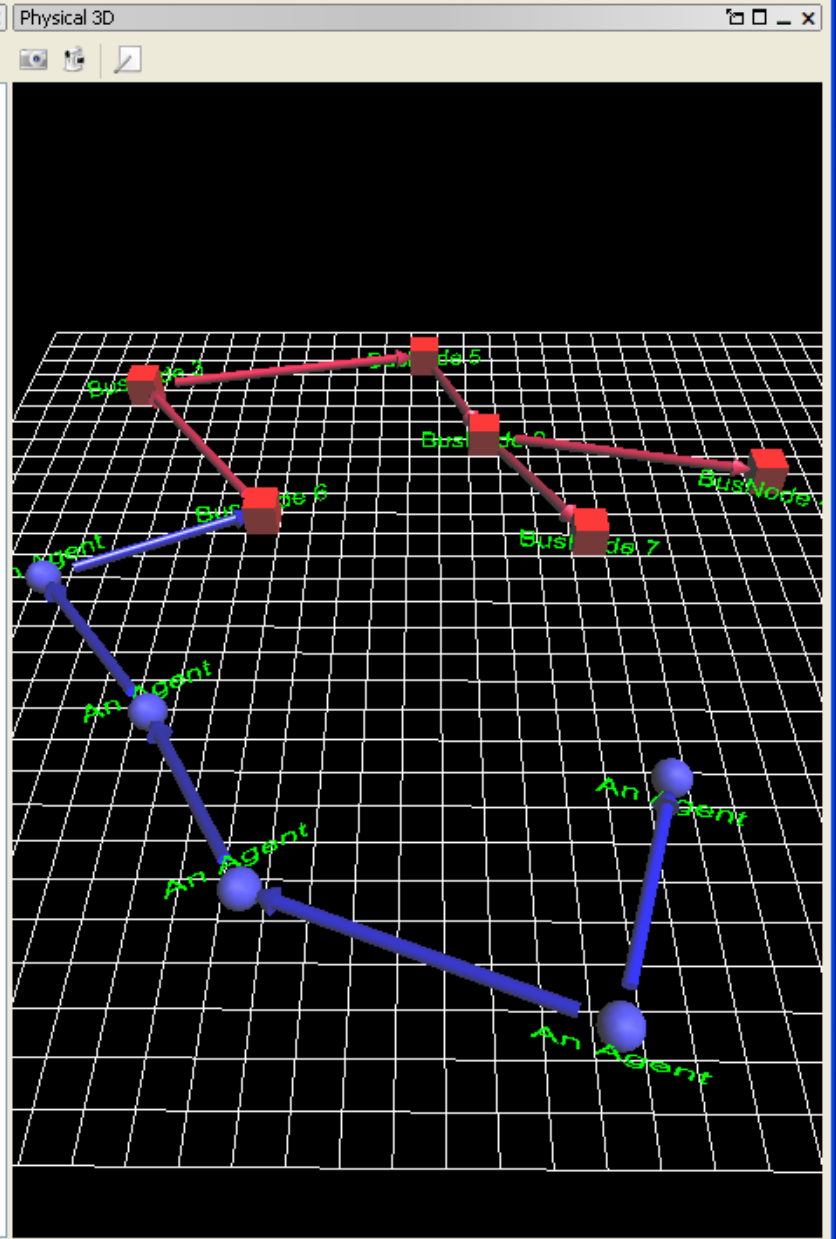
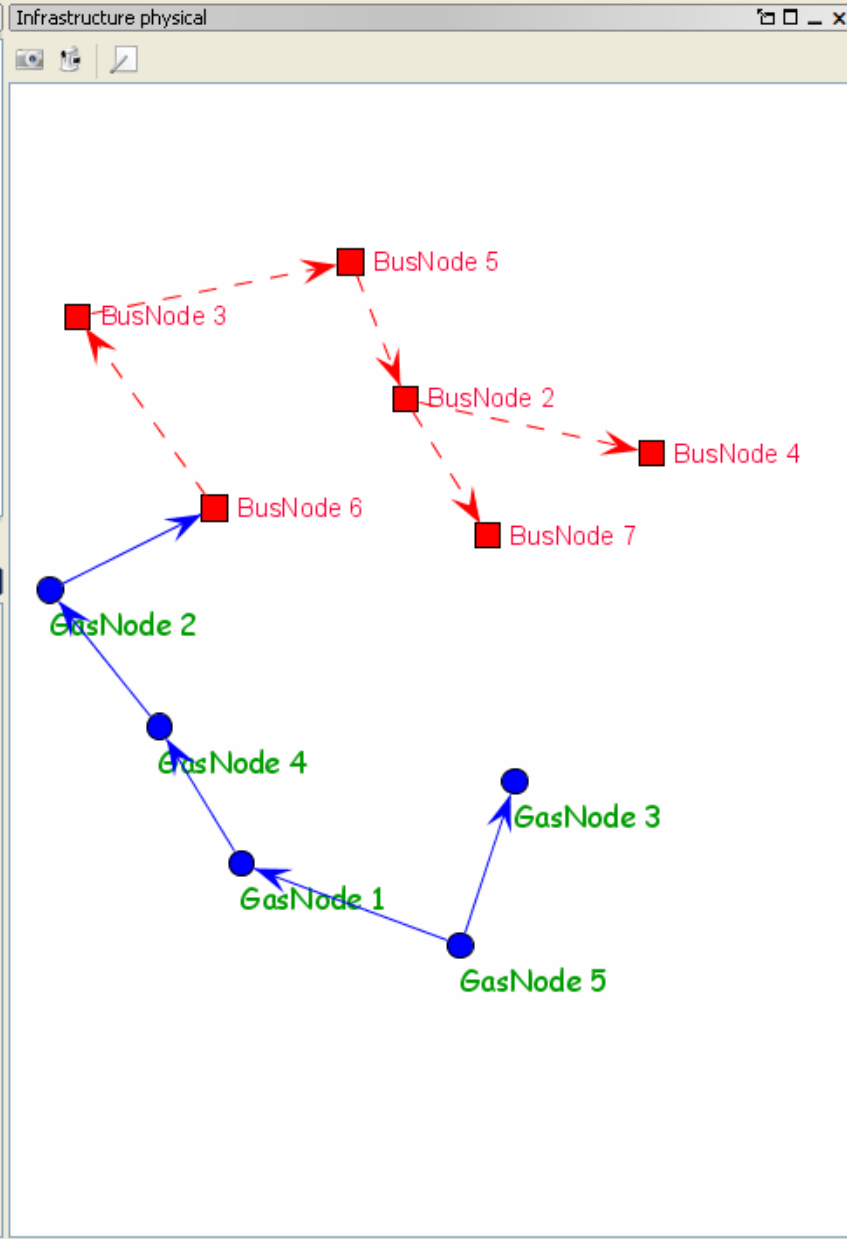
GasNode 5

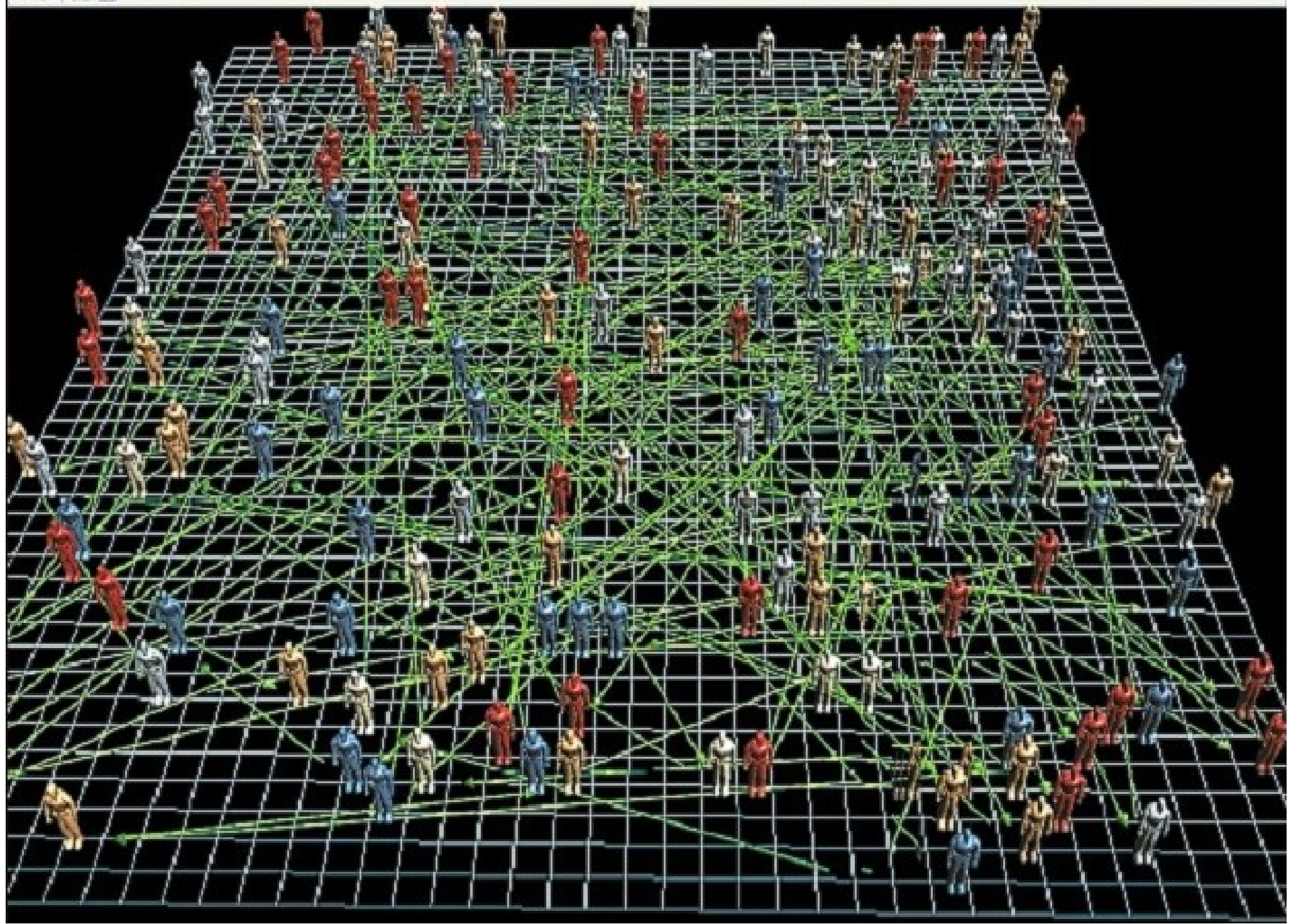
GasNode 5

Pressure Property: 1,000

Locations

physical grid: 18, 2





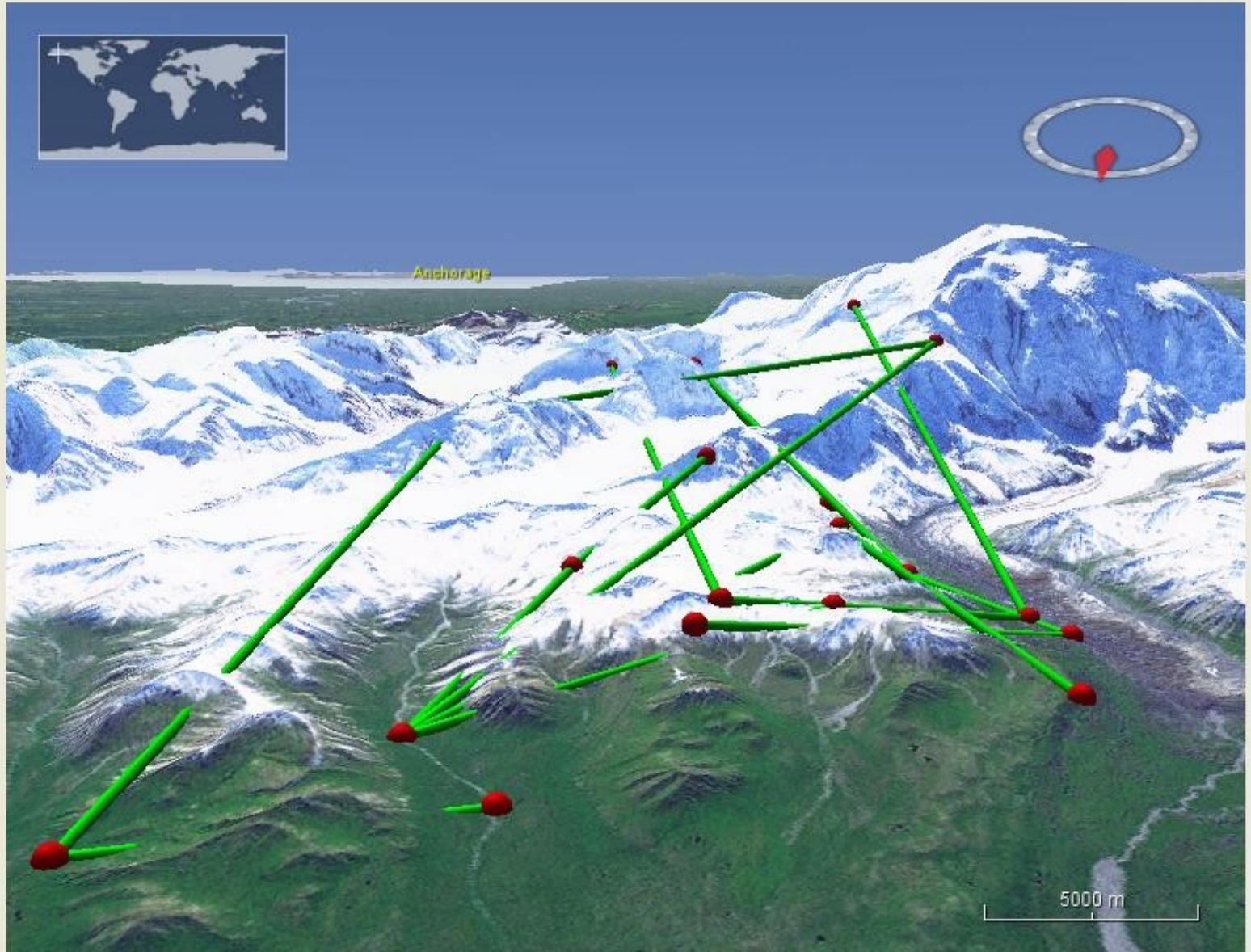


Geo Model:A Display

Enter search

Layers

- Stars
- Atmosphere
- Fog
- NASA Blue Marble Image
- NASA Blue Marble
- i-cubed Landsat
- USGS Urban Area Ortho
- Place Names
- World Map
- Scale bar
- Compass
- GisAgent
- Network



Altitude 6 km

Off globe

Paused



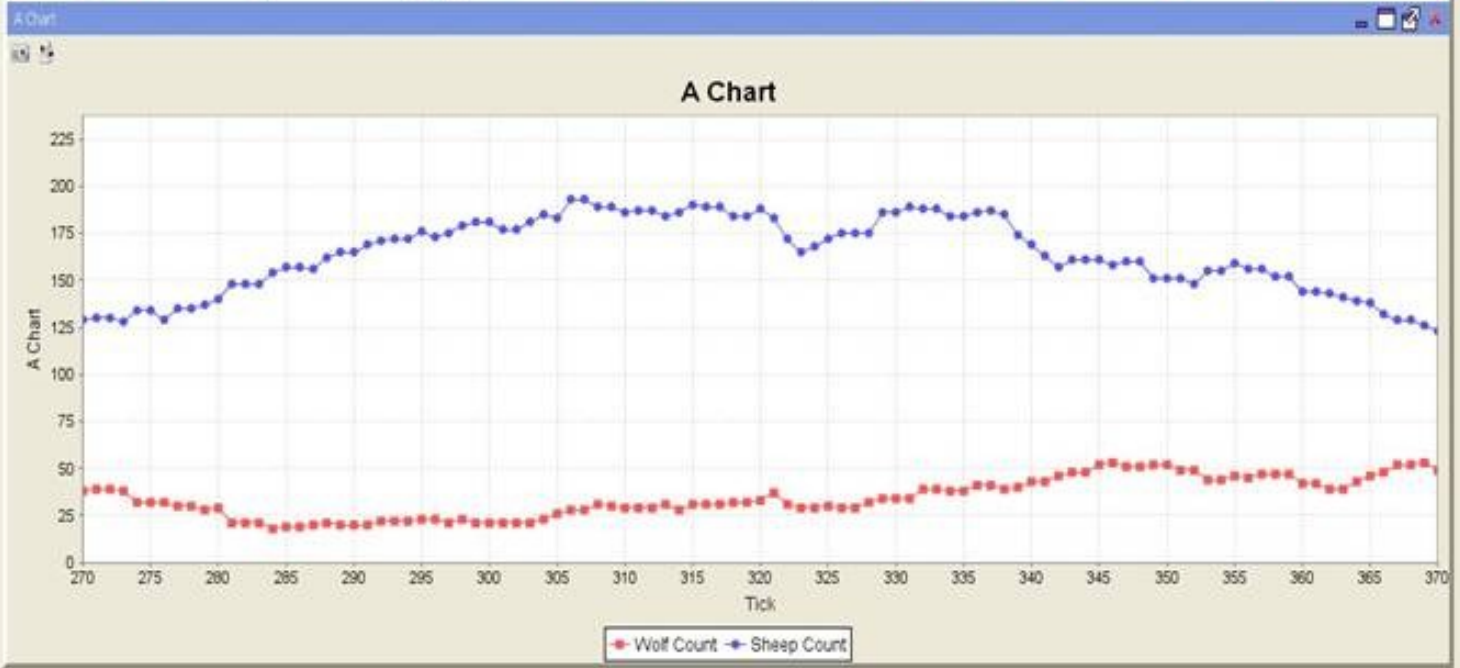


Scenario Tree

- Predator Prey Model Model
  - Predator Prey Model
    - Charts
      - A Chart
    - Data Loaders
      - PPContextCreator
    - Data Sets
      - World and Sheep Count
    - Displays
      - A Display
    - Miscellaneous Actions
    - Model Initialization
      - Schedule Initialization
      - Watcher Initialization
    - Outputters
    - Random Streams
    - User Specified Actions

Parameters Scenario Tree Run Options

User Panel





# Resources

- <http://repast.sourceforge.net>
- <http://portal.ncess.ac.uk/access/wiki/site/mass/repastcity.html>
- [http://agent2007.anl.gov/2007pdf/Paper%2015%20--%20North%20Agent%](http://agent2007.anl.gov/2007pdf/Paper%2015%20--%20North%20Agent%20)
- <http://agent2007.anl.gov/2007pdf/Paper%2016.pdf>
- [http://www.agent2006.anl.gov/2006procpdf/Howe\\_Agent\\_2006.pdf](http://www.agent2006.anl.gov/2006procpdf/Howe_Agent_2006.pdf)
- [http://agent2007.anl.gov/2005procpdf/Agent\\_2005\\_North\\_Runtime.pdf](http://agent2007.anl.gov/2005procpdf/Agent_2005_North_Runtime.pdf)
- [http://www.agent2006.anl.gov/2006procpdf/Tatara\\_Agent\\_2006.pdf](http://www.agent2006.anl.gov/2006procpdf/Tatara_Agent_2006.pdf)
- <http://www.us.oup.com/us/catalog/general/subject/Business/Management/>
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