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Constant Field Values

Contents

- langtonsant.*

langtonsant.*

- langtonsant.Settings

Modifier and Type	Constant Field	Value
private static final long	serialVersionUID	1950403861603766221L

langtonsant.game.*

- langtonsant.game.Display

Modifier and Type	Constant Field	Value
private static final long	serialVersionUID	1L

- langtonsant.game.Setup

Modifier and Type	Constant Field	Value
private static final long	serialVersionUID	−1621977115937294764L

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Deprecated API

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How This API Document Is Organized

This API (Application Programming Interface) document has pages corresponding to the items in the navigation bar, described as follows.

• Overview

The Overview page is the front page of this API document and provides a list of all packages with a summary for each. This page can also contain an overall description of the set of packages.

• Package

Each package has a page that contains a list of its classes and interfaces, with a summary for each. This page can contain six categories:

- ♦ Interfaces (italic)
- ♦ Classes
- ♦ Enums
- ♦ Exceptions
- ♦ Errors
- ♦ Annotation Types

• Class/Interface

Each class, interface, nested class and nested interface has its own separate page. Each of these pages has three sections consisting of a class/interface description, summary tables, and detailed member descriptions:

- ♦ Class inheritance diagram
- ♦ Direct Subclasses
- ♦ All Known Subinterfaces

- All Known Implementing Classes
- Class/interface declaration
- Class/interface description
- Nested Class Summary
- Field Summary
- Constructor Summary
- Method Summary
- Field Detail
- Constructor Detail
- Method Detail

Each summary entry contains the first sentence from the detailed description for that item. The summary entries are alphabetical, while the detailed descriptions are in the order they appear in the source code. This preserves the logical groupings established by the programmer.

Annotation Type

Each annotation type has its own separate page with the following sections:

- Annotation Type declaration
- Annotation Type description
- Required Element Summary
- Optional Element Summary
- Element Detail

Enum

Each enum has its own separate page with the following sections:

- Enum declaration
- Enum description
- Enum Constant Summary
- Enum Constant Detail

Use

Each documented package, class and interface has its own Use page. This page describes what packages, classes, methods, constructors and fields use any part of the given class or package. Given a class or interface A, its Use page includes subclasses of A, fields declared as A, methods that return A, and methods and constructors with parameters of type A. You can access this page by first going to the package, class or interface, then clicking on the "Use" link in the navigation bar.

Tree (Class Hierarchy)

There is a Class Hierarchy page for all packages, plus a hierarchy for each package. Each hierarchy page contains a list of classes and a list of interfaces. The classes are organized by inheritance structure starting with `java.lang.Object`. The interfaces do not inherit from `java.lang.Object`.

- When viewing the Overview page, clicking on "Tree" displays the hierarchy for all packages.
- When viewing a particular package, class or interface page, clicking "Tree" displays the hierarchy for only that package.

- # Deprecated API

  The Deprecated API page lists all of the API that have been deprecated. A deprecated API is not recommended for use, generally due to improvements, and a replacement API is usually given. Deprecated APIs may be removed in future implementations.

- # Index

  The Index contains an alphabetic list of all classes, interfaces, constructors, methods, and fields.

- # Prev/Next

  These links take you to the next or previous class, interface, package, or related page.

- # Frames/No Frames

  These links show and hide the HTML frames. All pages are available with or without frames.

- # All Classes

  The All Classes link shows all classes and interfaces except non-static nested types.

- # Serialized Form

  Each serializable or externalizable class has a description of its serialization fields and methods. This information is of interest to re-implementors, not to developers using the API. While there is no link in the navigation bar, you can get to this information by going to any serialized class and clicking "Serialized Form" in the "See also" section of the class description.

- # Constant Field Values

  The Constant Field Values page lists the static final fields and their values.

This help file applies to API documentation generated using the standard doclet.
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Frame Alert

This document is designed to be viewed using the frames feature. If you see this message, you are using a non-frame-capable web client. Link to <u>Non-frame version</u>.

Packages

- langtonsant
- langtonsant.entity
- langtonsant.game

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Packages

Package	Description
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langtonsant.entity	
langtonsant.game	

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Hierarchy For All Packages

Package Hierarchies:

- <u>langtonsant</u>,
- <u>langtonsant.entity</u>,
- <u>langtonsant.game</u>

Class Hierarchy

- java.lang.Object
  - ♦ langtonsant.entity.<u>Ant</u>
  - ♦ java.awt.Component (implements java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable)
    - ◊ java.awt.Container
      - · java.awt.Window (implements javax.accessibility.Accessible)
        - • java.awt.Frame (implements java.awt.MenuContainer)
          - ♦ javax.swing.JFrame (implements javax.accessibility.Accessible, javax.swing.RootPaneContainer, javax.swing.WindowConstants)
            - ◊ langtonsant.game.<u>Display</u>
            - ◊ langtonsant.game.<u>Setup</u>
  - ♦ langtonsant.game.<u>Game</u> (implements java.lang.Runnable)
  - ♦ langtonsant.entity.<u>Heading</u>
  - ♦ langtonsant.<u>Main</u>
  - ♦ langtonsant.<u>Settings</u> (implements java.lang.Comparable<T>, java.io.Serializable)
  - ♦ java.lang.Thread (implements java.lang.Runnable)
    - ◊ langtonsant.game.<u>TickThread</u>
      - · langtonsant.game.<u>Game.RenderThread</u>

· langtonsant.game.Game.UpdateThread
♦ langtonsant.entity.TileID

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Serialized Form

- ## Package langtonsant

    - ### Class langtonsant.Settings extends java.lang.Object implements Serializable

        serialVersionUID:
          1950403861603766221L
        - ◊ **Serialized Fields**

            - · **id**

                ```
                int id
                ```
            - · **scale**

                ```
                int scale
                ```
            - · **spacing**

                ```
                int spacing
                ```
            - · **antmargin**

                ```
                int antmargin
                ```

- ## Package langtonsant.game

♦ **Class <u>langtonsant.game.Display</u> extends javax.swing.JFrame implements Serializable**

serialVersionUID:
    1L

◊ **Serialized Fields**

· **canvas**

    `java.awt.Canvas canvas`

· **menuBar**

    `javax.swing.JMenuBar menuBar`

· **game**

    <u>Game</u> game

· **mem**

    `int[] mem`

· **width**

    `int width`

· **height**

    `int height`

· **editMenuPause**

    `javax.swing.JMenuItem editMenuPause`

♦

Class <u>langtonsant.game.Setup</u> extends javax.swing.JFrame implements Serializable

serialVersionUID:
    -1621977115937294764L

◊ **Serialized Fields**

· **game**

    <u>Game</u> game

· **settings**

    `java.util.HashSet<E> settings`

· **instructions**

    `java.util.TreeSet<E> instructions`

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langtonsant
Class Main

- java.lang.Object
- ♦ langtonsant.Main

```
public class Main
extends java.lang.Object
```

- ♦
Constructor Summary

Constructors

Constructor and Description

Constructor and Description

Main()

♦

Method Summary

All Methods Static Methods Concrete Methods

Modifier and Type	Method and Description
static void	main(java.lang.String[] args) Entry-point of the application.

◊

Methods inherited from class java.lang.Object

```
clone, equals, finalize, getClass, hashCode, notify,
notifyAll, toString, wait, wait, wait
```

● ♦

Constructor Detail

◊ **Main**

```
public Main()
```

♦

Method Detail

◊ **main**

```
public static void main(java.lang.String[] args)
                 throws java.io.IOException
```

Entry-point of the application.
Parameters:
    args - command-line arguments
Throws:
    java.io.IOException

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langtonsant
Class Settings

- java.lang.Object
-     ♦ langtonsant.Settings

- All Implemented Interfaces:
  java.io.Serializable, java.lang.Comparable<Settings>

```
public class Settings
extends java.lang.Object
implements java.io.Serializable, java.lang.Comparable<Settings>
```

See Also:
    Serialized Form

♦ **Field Summary**

Fields

Modifier and Type	Field and Description
private int	<u>antmargin</u>
private int	<u>id</u>
private int	<u>scale</u>
private static long	<u>serialVersionUID</u>
private int	<u>spacing</u>

♦

Constructor Summary

Constructors

Constructor and Description
<u>Settings</u>()
<u>Settings</u>(int scale, int spacing, int antmargin)

♦

Method Summary

All Methods <u>Instance Methods</u> <u>Concrete Methods</u>

Modifier and Type	Method and Description
int	<u>compareTo</u>(<u>Settings</u> o)
boolean	<u>equals</u>(java.lang.Object obj)
int	<u>getAntmargin</u>()
int	<u>getId</u>()
int	<u>getID</u>()
int	<u>getScale</u>()
int	<u>getSpacing</u>()
int	<u>hashCode</u>()
void	<u>setAntmargin</u>(int antmargin)
void	<u>setId</u>(int id)
void	<u>setScale</u>(int scale)
void	<u>setSpacing</u>(int spacing)
java.lang.String	<u>toString</u>()

- ◊ **Methods inherited from class java.lang.Object**

  ```
  clone, finalize, getClass, notify, notifyAll, wait, wait,
  wait
  ```

- ♦

  # Field Detail

  ### ◊ serialVersionUID

  ```
  private static final long serialVersionUID
  ```

  See Also:
  [Constant Field Values](#)

  ### ◊ id

  ```
  private int id
  ```

  ### ◊ scale

  ```
  private int scale
  ```

  ### ◊ spacing

  ```
  private int spacing
  ```

  ### ◊ antmargin

  ```
  private int antmargin
  ```

♦

Constructor Detail

◊ Settings

```
public Settings(int scale,
                int spacing,
                int antmargin)
```

◊ Settings

```
public Settings()
```

♦

Method Detail

◊ getID

```
public int getID()
```

◊ toString

```
public java.lang.String toString()
```

Overrides:
`toString` in class `java.lang.Object`

◊ **hashCode**

```
public int hashCode()
```

Overrides:
>   hashCode in class java.lang.Object

◊ **equals**

```
public boolean equals(java.lang.Object obj)
```

Overrides:
>   equals in class java.lang.Object

◊ **compareTo**

```
public int compareTo(Settings o)
```

Specified by:
>   compareTo in interface java.lang.Comparable<Settings>

◊ **getId**

```
public int getId()
```

◊ **setId**

```
public void setId(int id)
```

◊ **getScale**

```
public int getScale()
```

◊ **setScale**

```
public void setScale(int scale)
```

◊ **getSpacing**

```
public int getSpacing()
```

◊ **setSpacing**

```
public void setSpacing(int spacing)
```

◊ **getAntmargin**

```
public int getAntmargin()
```

◊ **setAntmargin**

```
public void setAntmargin(int antmargin)
```

Method Detail

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langtonsant

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Hierarchy For Package langtonsant

Package Hierarchies:

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Class Hierarchy

- java.lang.Object
  - ♦ langtonsant.<u>Main</u>
  - ♦ langtonsant.<u>Settings</u> (implements java.lang.Comparable<T>, java.io.Serializable)

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Uses of Package langtonsant

- Packages that use langtonsant

Package	Description
langtonsant	
langtonsant.game	

- Classes in langtonsant used by langtonsant

Class and Description
Settings

- Classes in langtonsant used by langtonsant.game

Class and Description
Settings

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langtonsant.game

Class Display

- java.lang.Object
-     ♦ java.awt.Component
-         ◊ java.awt.Container
-         ◊   · java.awt.Window
                ·   • java.awt.Frame
            •   ♦ javax.swing.JFrame
                ♦   ◊ langtonsant.game.Display

- All Implemented Interfaces:
    java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable,
    javax.accessibility.Accessible, javax.swing.RootPaneContainer,
    javax.swing.WindowConstants

```
public class Display
extends javax.swing.JFrame
```

See Also:
   Serialized Form

- ♦

Nested Class Summary

   ◊
   ### Nested classes/interfaces inherited from class javax.swing.JFrame

   `javax.swing.JFrame.AccessibleJFrame`

   ◊
   ### Nested classes/interfaces inherited from class java.awt.Frame

   `java.awt.Frame.AccessibleAWTFrame`

   ◊
   ### Nested classes/interfaces inherited from class java.awt.Window

   `java.awt.Window.AccessibleAWTWindow, java.awt.Window.Type`

   ◊
   ### Nested classes/interfaces inherited from class java.awt.Container

   `java.awt.Container.AccessibleAWTContainer`

   ◊
   ### Nested classes/interfaces inherited from class java.awt.Component

   `java.awt.Component.AccessibleAWTComponent,`
   `java.awt.Component.BaselineResizeBehavior,`
   `java.awt.Component.BltBufferStrategy,`
   `java.awt.Component.FlipBufferStrategy`

- ♦

Field Summary

Fields

Modifier and Type	Field and Description
private java.awt.Canvas	canvas
javax.swing.JMenuItem	editMenuPause
private Game	game
private int	height
private int[]	mem

Modifier and Type	Field and Description
protected javax.swing.JMenuBar	menuBar
private static long	serialVersionUID
private int	width

◊

Fields inherited from class javax.swing.JFrame

accessibleContext, EXIT_ON_CLOSE, rootPane,
rootPaneCheckingEnabled

◊

Fields inherited from class java.awt.Frame

CROSSHAIR_CURSOR, DEFAULT_CURSOR, E_RESIZE_CURSOR,
HAND_CURSOR, ICONIFIED, MAXIMIZED_BOTH, MAXIMIZED_HORIZ,
MAXIMIZED_VERT, MOVE_CURSOR, N_RESIZE_CURSOR,
NE_RESIZE_CURSOR, NORMAL, NW_RESIZE_CURSOR,
S_RESIZE_CURSOR, SE_RESIZE_CURSOR, SW_RESIZE_CURSOR,
TEXT_CURSOR, W_RESIZE_CURSOR, WAIT_CURSOR

◊

Fields inherited from class java.awt.Component

BOTTOM_ALIGNMENT, CENTER_ALIGNMENT, LEFT_ALIGNMENT,
RIGHT_ALIGNMENT, TOP_ALIGNMENT

◊

Fields inherited from interface javax.swing.WindowConstants

DISPOSE_ON_CLOSE, DO_NOTHING_ON_CLOSE, HIDE_ON_CLOSE

◊

Fields inherited from interface java.awt.image.ImageObserver

ABORT, ALLBITS, ERROR, FRAMEBITS, HEIGHT, PROPERTIES,
SOMEBITS, WIDTH

♦

Constructor Summary

Constructors

Constructor and Description
Display(java.lang.String title, Game game, int width, int height, int[] mem)

♦

Method Summary

All Methods Static Methods Instance Methods Concrete Methods

Modifier and Type	Method and Description
private void	`crateMenuBar()`
private void	`createFrame()`
void	`exportImage(java.io.File file)`
java.awt.Canvas	`getCanvas()`
boolean	`pause()`
void	`processImage(java.awt.Graphics g, int[`
static java.awt.image.BufferedImage	`toBufferedImage(java.awt.Image img)` convert to BufferedImage for export https://stackoverflow.com/questions/13605248/java-conv

◊

Methods inherited from class javax.swing.JFrame

```
addImpl, createRootPane, frameInit, getAccessibleContext,
getContentPane, getDefaultCloseOperation, getGlassPane,
getGraphics, getJMenuBar, getLayeredPane, getRootPane,
getTransferHandler, isDefaultLookAndFeelDecorated,
isRootPaneCheckingEnabled, paramString,
processWindowEvent, remove, repaint, setContentPane,
setDefaultCloseOperation, setDefaultLookAndFeelDecorated,
setGlassPane, setIconImage, setJMenuBar, setLayeredPane,
setLayout, setRootPane, setRootPaneCheckingEnabled,
setTransferHandler, update
```

◊

Methods inherited from class java.awt.Frame

```
addNotify, getCursorType, getExtendedState, getFrames,
getIconImage, getMaximizedBounds, getMenuBar, getState,
getTitle, isResizable, isUndecorated, remove,
removeNotify, setBackground, setCursor, setExtendedState,
setMaximizedBounds, setMenuBar, setOpacity, setResizable,
setShape, setState, setTitle, setUndecorated
```

◊

Methods inherited from class java.awt.Window

```
addPropertyChangeListener, addPropertyChangeListener,
addWindowFocusListener, addWindowListener,
addWindowStateListener, applyResourceBundle,
applyResourceBundle, createBufferStrategy,
createBufferStrategy, dispose, getBackground,
getBufferStrategy, getFocusableWindowState,
getFocusCycleRootAncestor, getFocusOwner,
getFocusTraversalKeys, getIconImages, getInputContext,
getListeners, getLocale, getModalExclusionType,
getMostRecentFocusOwner, getOpacity, getOwnedWindows,
getOwner, getOwnerlessWindows, getShape, getToolkit,
getType, getWarningString, getWindowFocusListeners,
```

getWindowListeners, getWindows, getWindowStateListeners, hide, isActive, isAlwaysOnTop, isAlwaysOnTopSupported, isAutoRequestFocus, isFocusableWindow, isFocusCycleRoot, isFocused, isLocationByPlatform, isOpaque, isShowing, isValidateRoot, pack, paint, postEvent, processEvent, processWindowFocusEvent, processWindowStateEvent, removeWindowFocusListener, removeWindowListener, removeWindowStateListener, reshape, setAlwaysOnTop, setAutoRequestFocus, setBounds, setBounds, setCursor, setFocusableWindowState, setFocusCycleRoot, setIconImages, setLocation, setLocation, setLocationByPlatform, setLocationRelativeTo, setMinimumSize, setModalExclusionType, setSize, setSize, setType, setVisible, show, toBack, toFront

◊

Methods inherited from class java.awt.Container

add, add, add, add, add, addContainerListener, applyComponentOrientation, areFocusTraversalKeysSet, countComponents, deliverEvent, doLayout, findComponentAt, findComponentAt, getAlignmentX, getAlignmentY, getComponent, getComponentAt, getComponentAt, getComponentCount, getComponents, getComponentZOrder, getContainerListeners, getFocusTraversalPolicy, getInsets, getLayout, getMaximumSize, getMinimumSize, getMousePosition, getPreferredSize, insets, invalidate, isAncestorOf, isFocusCycleRoot, isFocusTraversalPolicyProvider, isFocusTraversalPolicySet, layout, list, list, locate, minimumSize, paintComponents, preferredSize, print, printComponents, processContainerEvent, remove, removeAll, removeContainerListener, setComponentZOrder, setFocusTraversalKeys, setFocusTraversalPolicy, setFocusTraversalPolicyProvider, setFont, transferFocusDownCycle, validate, validateTree

◊

Methods inherited from class java.awt.Component

action, add, addComponentListener, addFocusListener, addHierarchyBoundsListener, addHierarchyListener, addInputMethodListener, addKeyListener, addMouseListener, addMouseMotionListener, addMouseWheelListener, bounds, checkImage, checkImage, coalesceEvents, contains, contains, createImage, createImage, createVolatileImage, createVolatileImage, disable, disableEvents, dispatchEvent, enable, enable, enableEvents, enableInputMethods, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange,

firePropertyChange, firePropertyChange, getBaseline,
getBaselineResizeBehavior, getBounds, getBounds,
getColorModel, getComponentListeners,
getComponentOrientation, getCursor, getDropTarget,
getFocusListeners, getFocusTraversalKeysEnabled, getFont,
getFontMetrics, getForeground, getGraphicsConfiguration,
getHeight, getHierarchyBoundsListeners,
getHierarchyListeners, getIgnoreRepaint,
getInputMethodListeners, getInputMethodRequests,
getKeyListeners, getLocation, getLocation,
getLocationOnScreen, getMouseListeners,
getMouseMotionListeners, getMousePosition,
getMouseWheelListeners, getName, getParent, getPeer,
getPropertyChangeListeners, getPropertyChangeListeners,
getSize, getSize, getTreeLock, getWidth, getX, getY,
gotFocus, handleEvent, hasFocus, imageUpdate, inside,
isBackgroundSet, isCursorSet, isDisplayable,
isDoubleBuffered, isEnabled, isFocusable, isFocusOwner,
isFocusTraversable, isFontSet, isForegroundSet,
isLightweight, isMaximumSizeSet, isMinimumSizeSet,
isPreferredSizeSet, isValid, isVisible, keyDown, keyUp,
list, list, list, location, lostFocus, mouseDown,
mouseDrag, mouseEnter, mouseExit, mouseMove, mouseUp,
move, nextFocus, paintAll, prepareImage, prepareImage,
printAll, processComponentEvent, processFocusEvent,
processHierarchyBoundsEvent, processHierarchyEvent,
processInputMethodEvent, processKeyEvent,
processMouseEvent, processMouseMotionEvent,
processMouseWheelEvent, removeComponentListener,
removeFocusListener, removeHierarchyBoundsListener,
removeHierarchyListener, removeInputMethodListener,
removeKeyListener, removeMouseListener,
removeMouseMotionListener, removeMouseWheelListener,
removePropertyChangeListener,
removePropertyChangeListener, repaint, repaint, repaint,
requestFocus, requestFocus, requestFocusInWindow,
requestFocusInWindow, resize, resize, revalidate,
setComponentOrientation, setDropTarget, setEnabled,
setFocusable, setFocusTraversalKeysEnabled,
setForeground, setIgnoreRepaint, setLocale,
setMaximumSize, setName, setPreferredSize, show, size,
toString, transferFocus, transferFocusBackward,
transferFocusUpCycle

◊

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify,
notifyAll, wait, wait, wait

◊ **Methods inherited from interface java.awt.MenuContainer**

```
getFont, postEvent
```

- ♦

Field Detail

◊ **serialVersionUID**

```
private static final long serialVersionUID
```

See Also:
     Constant Field Values

◊ **canvas**

```
private java.awt.Canvas canvas
```

◊ **menuBar**

```
protected javax.swing.JMenuBar menuBar
```

◊ **game**

```
private Game game
```

◊ **mem**

```
private int[] mem
```

◊ **width**

```
private int width
```

◊ **height**

```
private int height
```

◊ **editMenuPause**

```
public javax.swing.JMenuItem editMenuPause
```

♦

Constructor Detail

◊ **Display**

```
public Display(java.lang.String title,
               Game game,
               int width,
               int height,
               int[] mem)
```

♦

Method Detail

All Classes

◊ **createFrame**

```
private void createFrame()
```

◊ **pause**

```
public boolean pause()
```

◊ **crateMenuBar**

```
private void crateMenuBar()
```

◊ **getCanvas**

```
public java.awt.Canvas getCanvas()
```

◊ **processImage**

```
public void processImage(java.awt.Graphics g,
                          int[] mem)
```

◊ **exportImage**

```
public void exportImage(java.io.File file)
```

◊ **toBufferedImage**

```
public static java.awt.image.BufferedImage toBufferedImage(java.awt.I
```

convert to BufferedImage for export
https://stackoverflow.com/questions/13605248/java-converting-image-to-bufferedimage

Method Detail

- Detail:
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langtonsant.game

Class Game.RenderThread

- java.lang.Object
- ♦ java.lang.Thread
  - ♦ ◊ langtonsant.game.TickThread
    - ◊ · langtonsant.game.Game.RenderThread

- All Implemented Interfaces:
  java.lang.Runnable
  Enclosing class:
  Game

```
public class Game.RenderThread
extends TickThread
```

Handles the timing of drawing to the screen.

- • Nested Class Summary

  ◊
  ### Nested classes/interfaces inherited from class java.lang.Thread

  ```
  java.lang.Thread.State,
  java.lang.Thread.UncaughtExceptionHandler
  ```
- ♦
  ## Field Summary

  Fields

Modifier and Type	Field and Description
private Game.UpdateThread	ut

  ◊
  ### Fields inherited from class langtonsant.game.TickThread

  before, lapse, millisTilNextFrame, nanosTilNextFrame, now, paused, running, ticks, timePerTick, timeTilNextFrame

  ◊
  ### Fields inherited from class java.lang.Thread

  ```
  MAX_PRIORITY, MIN_PRIORITY, NORM_PRIORITY
  ```
- ♦
  ## Constructor Summary

  Constructors

Constructor and Description
RenderThread(long tickRate, java.lang.String name, Game.UpdateThread ut) RenderThread constructor.
- ♦
  ## Method Summary

  All Methods Instance Methods Concrete Methods

Modifier and Type	Method and Description
void	run() Sleeps for the necessary time to hit the *tickRate* if the operation in the tick did not last the whole tick.

◊ **Methods inherited from class langtonsant.game.<u>TickThread</u>**

<u>isPaused</u>, <u>isRunning</u>, <u>setPaused</u>, <u>setRunning</u>

◊

Methods inherited from class java.lang.Thread

```
activeCount, checkAccess, clone, countStackFrames,
currentThread, destroy, dumpStack, enumerate,
getAllStackTraces, getContextClassLoader,
getDefaultUncaughtExceptionHandler, getId, getName,
getPriority, getStackTrace, getState, getThreadGroup,
getUncaughtExceptionHandler, holdsLock, interrupt,
interrupted, isAlive, isDaemon, isInterrupted, join,
join, join, resume, setContextClassLoader, setDaemon,
setDefaultUncaughtExceptionHandler, setName, setPriority,
setUncaughtExceptionHandler, sleep, sleep, start, stop,
stop, suspend, toString, yield
```

◊

Methods inherited from class java.lang.Object

```
equals, finalize, getClass, hashCode, notify, notifyAll,
wait, wait, wait
```

• ♦

Field Detail

◊ **ut**

```
private Game.UpdateThread ut
```

♦

Constructor Detail

◊ **RenderThread**

```
public RenderThread(long tickRate,
                    java.lang.String name,
                    Game.UpdateThread ut)
```

RenderThread constructor.
Parameters:
    tickRate - sets the internal tick rate.
    name - the name of this thread.
    ut - reference to the update thread.

♦

Method Detail

◊ **run**

```
public void run()
```

Description copied from class: <u>TickThread</u>
Sleeps for the necessary time to hit the *tickRate* if the operation in the tick did not last the whole tick.
Specified by:
        run in interface java.lang.Runnable
Overrides:
        <u>run</u> in class <u>TickThread</u>

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langtonsant.game

Class Game.UpdateThread

- java.lang.Object
  - ♦ java.lang.Thread
    - ◊ langtonsant.game.TickThread
      - ◊ · langtonsant.game.Game.UpdateThread

- All Implemented Interfaces:
  java.lang.Runnable
  Enclosing class:
  Game

```
public class Game.UpdateThread
extends TickThread
```

Handles the timing of updating the ant.

- ♦ **Nested Class Summary**

  ◊
    Nested classes/interfaces inherited from class java.lang.Thread

    ```
    java.lang.Thread.State,
    java.lang.Thread.UncaughtExceptionHandler
    ```

♦
Field Summary

  ◊
    Fields inherited from class langtonsant.game.TickThread

    before, lapse, millisTilNextFrame, nanosTilNextFrame,
    now, paused, running, ticks, timePerTick,
    timeTilNextFrame

  ◊
    Fields inherited from class java.lang.Thread

    ```
    MAX_PRIORITY, MIN_PRIORITY, NORM_PRIORITY
    ```

♦
Constructor Summary

Constructors

Constructor and Description
UpdateThread(long tickRate, java.lang.String name)   UpdateThread constructor.

♦
Method Summary

All Methods Instance Methods Concrete Methods

Modifier and Type	Method and Description
void	run() Sleeps for the necessary time to hit the *tickRate* if the operation in the tick did not last the whole tick.

  ◊
    Methods inherited from class langtonsant.game.TickThread

    isPaused, isRunning, setPaused, setRunning

◊ Methods inherited from class java.lang.Thread

```
activeCount, checkAccess, clone, countStackFrames,
currentThread, destroy, dumpStack, enumerate,
getAllStackTraces, getContextClassLoader,
getDefaultUncaughtExceptionHandler, getId, getName,
getPriority, getStackTrace, getState, getThreadGroup,
getUncaughtExceptionHandler, holdsLock, interrupt,
interrupted, isAlive, isDaemon, isInterrupted, join,
join, join, resume, setContextClassLoader, setDaemon,
setDefaultUncaughtExceptionHandler, setName, setPriority,
setUncaughtExceptionHandler, sleep, sleep, start, stop,
stop, suspend, toString, yield
```
◊
Methods inherited from class java.lang.Object

```
equals, finalize, getClass, hashCode, notify, notifyAll,
wait, wait, wait
```

- ♦

Constructor Detail

◊ UpdateThread

```
public UpdateThread(long tickRate,
                    java.lang.String name)
```

UpdateThread constructor.
Parameters:
    tickRate - sets the internal tick rate.
    name - the name of this thread.

♦

Method Detail

◊ run

```
public void run()
```

Description copied from class: <u>TickThread</u>
Sleeps for the necessary time to hit the *tickRate* if the operation in the tick did not last the whole tick.
Specified by:
    run in interface java.lang.Runnable
Overrides:
    <u>run</u> in class <u>TickThread</u>

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Class Game

- java.lang.Object
-     ♦ langtonsant.game.Game

- All Implemented Interfaces:
    java.lang.Runnable

```
public class Game
extends java.lang.Object
implements java.lang.Runnable
```

- ♦

Nested Class Summary

Nested Classes

Modifier and Type	Class and Description
class	Game.RenderThread Handles the timing of drawing to the screen.
class	Game.UpdateThread Handles the timing of updating the ant.

♦
Field Summary

Fields

Modifier and Type	Field and Description
private Ant	ant
private Ant	ant2
private int	antmargin
protected java.awt.image.BufferStrategy	bs
private java.awt.Color[]	colors
Display	display
protected java.awt.Graphics	g
int	height
private java.lang.String	instructionset
protected int[]	mem
(package private) Game.RenderThread	renderThread
(package private) static int	runs
static int	saves
private int	scale
private int	spacing
(package private) int	steps
java.lang.Thread	thread
java.lang.String	title
(package private) Game.UpdateThread	updateThread
int	width

♦
Constructor Summary

Constructors

Constructor and Description
Game(java.lang.String title, int width, int height, int scale, int spacing, int antmargin, java.lang.String instructionset)

Nested Class Summary 49

Constructor and Description

♦
Method Summary

All Methods Instance Methods Concrete Methods

Modifier and Type	Method and Description
void	clearMem()
int	getAntmargin()
java.lang.String	getInstructionset()
int	getScale()
Settings	getSettings()
int	getSpacing()
private void	init()
private void	render(java.lang.String FPSs, java.lang.String UPSs) Draws the image from memory to the screen.
void	run()
void	setAntmargin(int antmargin)
void	setInstructionset(java.lang.String instructionset)
void	setScale(int scale)
void	setSpacing(int spacing)
void	start()
void	stop()
private void	tick() Updates the ant once.
void	tick(int stepper) Updates the ant by the amount specified in *stepper*.

◊
Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

• ♦
Field Detail

◊ **display**

       `public `<u>`Display`</u>` display`

◊ **width**

       `public int width`

◊ **height**

       `public int height`

◊ **title**

       `public java.lang.String title`

◊ **steps**

       `int steps`

◊ **runs**

       `static int runs`

◊ **saves**

       `public static int saves`

◊ **bs**

       `protected java.awt.image.BufferStrategy bs`

◊ **g**

       `protected java.awt.Graphics g`

◊ **thread**

       `public java.lang.Thread thread`

◊ **updateThread**

       <u>`Game.UpdateThread`</u>` updateThread`

◊ **renderThread**

       <u>`Game.RenderThread`</u>` renderThread`

◊ **ant**

       `private `<u>`Ant`</u>` ant`

◊ **ant2**

       `private `<u>`Ant`</u>` ant2`

◊ **scale**

       `private int scale`

◊ **spacing**

       `private int spacing`

◊ **antmargin**

       `private int antmargin`

Field Detail   51

◊ **instructionset**

```
private java.lang.String instructionset
```

◊ **mem**

```
protected int[] mem
```

◊ **colors**

```
private java.awt.Color[] colors
```

♦
Constructor Detail

◊ **Game**

```
public Game(java.lang.String title,
            int width,
            int height,
            int scale,
            int spacing,
            int antmargin,
            java.lang.String instructionset)
     throws java.io.IOException
```

Throws:
```
java.io.IOException
```

♦
Method Detail

◊ **init**

```
private void init()
```

◊ **start**

```
public void start()
```

◊ **stop**

```
public void stop()
```

◊ **tick**

```
public void tick(int stepper)
```

Updates the ant by the amount specified in *stepper*.
Parameters:
```
stepper
``` - the amount of times the ant should update

◊ **tick**

```
private void tick()
```

Updates the ant once.

Field Detail   52

◊ **render**

```
        private void render(java.lang.String FPSs,
                            java.lang.String UPSs)
                 throws java.lang.Exception
```

Draws the image from memory to the screen.

Parameters:

    `FPSs` - the property name

Throws:

    `java.lang.Exception` - if there is a graphics error.

◊ **run**

```
        public void run()
```

Specified by:

    `run` in interface `java.lang.Runnable`

◊ **getInstructionset**

```
        public java.lang.String getInstructionset()
```

◊ **getSettings**

```
        public Settings getSettings()
```

◊ **getScale**

```
        public int getScale()
```

◊ **setScale**

```
        public void setScale(int scale)
```

◊ **getSpacing**

```
        public int getSpacing()
```

◊ **setSpacing**

```
        public void setSpacing(int spacing)
```

◊ **getAntmargin**

```
        public int getAntmargin()
```

◊ **setAntmargin**

```
        public void setAntmargin(int antmargin)
```

◊ **setInstructionset**

```
        public void setInstructionset(java.lang.String instructionset)
```

◊ **clearMem**

```
        public void clearMem()
```

-
-

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Class Setup

- java.lang.Object
-     ♦ java.awt.Component
        ♦   ◊ java.awt.Container
            ◊   · java.awt.Window
                ·   • java.awt.Frame
                    •   ♦ javax.swing.JFrame
                        ♦   ◊ langtonsant.game.Setup

- All Implemented Interfaces:
        java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable,
        javax.accessibility.Accessible, javax.swing.RootPaneContainer,
        javax.swing.WindowConstants

```
public class Setup
extends javax.swing.JFrame
```

See Also:
    Serialized Form

- ♦
Nested Class Summary

◊
Nested classes/interfaces inherited from class javax.swing.JFrame

```
javax.swing.JFrame.AccessibleJFrame
```

◊
Nested classes/interfaces inherited from class java.awt.Frame

```
java.awt.Frame.AccessibleAWTFrame
```

◊
Nested classes/interfaces inherited from class java.awt.Window

```
java.awt.Window.AccessibleAWTWindow, java.awt.Window.Type
```

◊
Nested classes/interfaces inherited from class java.awt.Container

```
java.awt.Container.AccessibleAWTContainer
```

◊
Nested classes/interfaces inherited from class java.awt.Component

```
java.awt.Component.AccessibleAWTComponent,
java.awt.Component.BaselineResizeBehavior,
java.awt.Component.BltBufferStrategy,
java.awt.Component.FlipBufferStrategy
```

♦
Field Summary

Fields

Modifier and Type	Field and Description
private Game	game
private java.util.TreeSet<java.lang.String>	instructions
private static long	serialVersionUID
private java.util.HashSet<Settings>	settings

◊ **Fields inherited from class javax.swing.JFrame**

```
accessibleContext, EXIT_ON_CLOSE, rootPane,
rootPaneCheckingEnabled
```

◊ **Fields inherited from class java.awt.Frame**

```
CROSSHAIR_CURSOR, DEFAULT_CURSOR, E_RESIZE_CURSOR,
HAND_CURSOR, ICONIFIED, MAXIMIZED_BOTH, MAXIMIZED_HORIZ,
MAXIMIZED_VERT, MOVE_CURSOR, N_RESIZE_CURSOR,
NE_RESIZE_CURSOR, NORMAL, NW_RESIZE_CURSOR,
S_RESIZE_CURSOR, SE_RESIZE_CURSOR, SW_RESIZE_CURSOR,
TEXT_CURSOR, W_RESIZE_CURSOR, WAIT_CURSOR
```

◊ **Fields inherited from class java.awt.Component**

```
BOTTOM_ALIGNMENT, CENTER_ALIGNMENT, LEFT_ALIGNMENT,
RIGHT_ALIGNMENT, TOP_ALIGNMENT
```

◊ **Fields inherited from interface javax.swing.WindowConstants**

```
DISPOSE_ON_CLOSE, DO_NOTHING_ON_CLOSE, HIDE_ON_CLOSE
```

◊ **Fields inherited from interface java.awt.image.ImageObserver**

```
ABORT, ALLBITS, ERROR, FRAMEBITS, HEIGHT, PROPERTIES,
SOMEBITS, WIDTH
```

♦ **Constructor Summary**

Constructors

Constructor and Description
Setup(java.lang.String title, Game game)

♦ **Method Summary**

All Methods Instance Methods Concrete Methods

Modifier and Type	Method and Description
private void	addConfig(Settings config)
private void	createFrame()
private void	loadSettings()
private void	saveSettings()

Modifier and Type	Method and Description

◊

Methods inherited from class javax.swing.JFrame

```
addImpl, createRootPane, frameInit, getAccessibleContext,
getContentPane, getDefaultCloseOperation, getGlassPane,
getGraphics, getJMenuBar, getLayeredPane, getRootPane,
getTransferHandler, isDefaultLookAndFeelDecorated,
isRootPaneCheckingEnabled, paramString,
processWindowEvent, remove, repaint, setContentPane,
setDefaultCloseOperation, setDefaultLookAndFeelDecorated,
setGlassPane, setIconImage, setJMenuBar, setLayeredPane,
setLayout, setRootPane, setRootPaneCheckingEnabled,
setTransferHandler, update
```

◊

Methods inherited from class java.awt.Frame

```
addNotify, getCursorType, getExtendedState, getFrames,
getIconImage, getMaximizedBounds, getMenuBar, getState,
getTitle, isResizable, isUndecorated, remove,
removeNotify, setBackground, setCursor, setExtendedState,
setMaximizedBounds, setMenuBar, setOpacity, setResizable,
setShape, setState, setTitle, setUndecorated
```

◊

Methods inherited from class java.awt.Window

```
addPropertyChangeListener, addPropertyChangeListener,
addWindowFocusListener, addWindowListener,
addWindowStateListener, applyResourceBundle,
applyResourceBundle, createBufferStrategy,
createBufferStrategy, dispose, getBackground,
getBufferStrategy, getFocusableWindowState,
getFocusCycleRootAncestor, getFocusOwner,
getFocusTraversalKeys, getIconImages, getInputContext,
getListeners, getLocale, getModalExclusionType,
getMostRecentFocusOwner, getOpacity, getOwnedWindows,
getOwner, getOwnerlessWindows, getShape, getToolkit,
getType, getWarningString, getWindowFocusListeners,
getWindowListeners, getWindows, getWindowStateListeners,
hide, isActive, isAlwaysOnTop, isAlwaysOnTopSupported,
isAutoRequestFocus, isFocusableWindow, isFocusCycleRoot,
isFocused, isLocationByPlatform, isOpaque, isShowing,
isValidateRoot, pack, paint, postEvent, processEvent,
processWindowFocusEvent, processWindowStateEvent,
removeWindowFocusListener, removeWindowListener,
removeWindowStateListener, reshape, setAlwaysOnTop,
setAutoRequestFocus, setBounds, setBounds, setCursor,
setFocusableWindowState, setFocusCycleRoot,
setIconImages, setLocation, setLocation,
```

```
setLocationByPlatform, setLocationRelativeTo,
setMinimumSize, setModalExclusionType, setSize, setSize,
setType, setVisible, show, toBack, toFront
```

◊
Methods inherited from class java.awt.Container

```
add, add, add, add, add, addContainerListener,
applyComponentOrientation, areFocusTraversalKeysSet,
countComponents, deliverEvent, doLayout, findComponentAt,
findComponentAt, getAlignmentX, getAlignmentY,
getComponent, getComponentAt, getComponentAt,
getComponentCount, getComponents, getComponentZOrder,
getContainerListeners, getFocusTraversalPolicy,
getInsets, getLayout, getMaximumSize, getMinimumSize,
getMousePosition, getPreferredSize, insets, invalidate,
isAncestorOf, isFocusCycleRoot,
isFocusTraversalPolicyProvider,
isFocusTraversalPolicySet, layout, list, list, locate,
minimumSize, paintComponents, preferredSize, print,
printComponents, processContainerEvent, remove,
removeAll, removeContainerListener, setComponentZOrder,
setFocusTraversalKeys, setFocusTraversalPolicy,
setFocusTraversalPolicyProvider, setFont,
transferFocusDownCycle, validate, validateTree
```

◊
Methods inherited from class java.awt.Component

```
action, add, addComponentListener, addFocusListener,
addHierarchyBoundsListener, addHierarchyListener,
addInputMethodListener, addKeyListener, addMouseListener,
addMouseMotionListener, addMouseWheelListener, bounds,
checkImage, checkImage, coalesceEvents, contains,
contains, createImage, createImage, createVolatileImage,
createVolatileImage, disable, disableEvents,
dispatchEvent, enable, enable, enableEvents,
enableInputMethods, firePropertyChange,
firePropertyChange, firePropertyChange,
firePropertyChange, firePropertyChange,
firePropertyChange, firePropertyChange,
firePropertyChange, firePropertyChange, getBaseline,
getBaselineResizeBehavior, getBounds, getBounds,
getColorModel, getComponentListeners,
getComponentOrientation, getCursor, getDropTarget,
getFocusListeners, getFocusTraversalKeysEnabled, getFont,
getFontMetrics, getForeground, getGraphicsConfiguration,
getHeight, getHierarchyBoundsListeners,
getHierarchyListeners, getIgnoreRepaint,
getInputMethodListeners, getInputMethodRequests,
getKeyListeners, getLocation, getLocation,
getLocationOnScreen, getMouseListeners,
```

```
getMouseMotionListeners, getMousePosition,
getMouseWheelListeners, getName, getParent, getPeer,
getPropertyChangeListeners, getPropertyChangeListeners,
getSize, getSize, getTreeLock, getWidth, getX, getY,
gotFocus, handleEvent, hasFocus, imageUpdate, inside,
isBackgroundSet, isCursorSet, isDisplayable,
isDoubleBuffered, isEnabled, isFocusable, isFocusOwner,
isFocusTraversable, isFontSet, isForegroundSet,
isLightweight, isMaximumSizeSet, isMinimumSizeSet,
isPreferredSizeSet, isValid, isVisible, keyDown, keyUp,
list, list, list, location, lostFocus, mouseDown,
mouseDrag, mouseEnter, mouseExit, mouseMove, mouseUp,
move, nextFocus, paintAll, prepareImage, prepareImage,
printAll, processComponentEvent, processFocusEvent,
processHierarchyBoundsEvent, processHierarchyEvent,
processInputMethodEvent, processKeyEvent,
processMouseEvent, processMouseMotionEvent,
processMouseWheelEvent, removeComponentListener,
removeFocusListener, removeHierarchyBoundsListener,
removeHierarchyListener, removeInputMethodListener,
removeKeyListener, removeMouseListener,
removeMouseMotionListener, removeMouseWheelListener,
removePropertyChangeListener,
removePropertyChangeListener, repaint, repaint, repaint,
requestFocus, requestFocus, requestFocusInWindow,
requestFocusInWindow, resize, resize, revalidate,
setComponentOrientation, setDropTarget, setEnabled,
setFocusable, setFocusTraversalKeysEnabled,
setForeground, setIgnoreRepaint, setLocale,
setMaximumSize, setName, setPreferredSize, show, size,
toString, transferFocus, transferFocusBackward,
transferFocusUpCycle
```
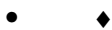
◊
Methods inherited from class java.lang.Object

```
clone, equals, finalize, getClass, hashCode, notify,
notifyAll, wait, wait, wait
```

◊
Methods inherited from interface java.awt.MenuContainer

```
getFont, postEvent
```

- ♦
Field Detail

◊ **serialVersionUID**

```
private static final long serialVersionUID
```

See Also:
> [Constant Field Values](#)

◊ **game**

```
private Game game
```

◊ **settings**

```
private java.util.HashSet<Settings> settings
```

◊ **instructions**

```
private java.util.TreeSet<java.lang.String> instructions
```

♦

Constructor Detail

◊ **Setup**

```
public Setup(java.lang.String title,
             Game game)
```

♦

Method Detail

◊ **createFrame**

```
private void createFrame()
```

◊ **addConfig**

```
private void addConfig(Settings config)
```

◊ **loadSettings**

```
private void loadSettings()
```

◊ **saveSettings**

```
private void saveSettings()
```

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langtonsant.game

Class TickThread

- java.lang.Object
-    ♦ java.lang.Thread
-       ◊ langtonsant.game.TickThread

- All Implemented Interfaces:
      java.lang.Runnable
  Direct Known Subclasses:
        [Game.RenderThread](#), [Game.UpdateThread](#)

```
public abstract class TickThread
extends java.lang.Thread
```

A thread with a built-in tick rate based sleep system.

♦ **Nested Class Summary**

◊
Nested classes/interfaces inherited from class java.lang.Thread

```
java.lang.Thread.State,
java.lang.Thread.UncaughtExceptionHandler
```

♦
Field Summary

Fields

Modifier and Type	Field and Description
protected long	before
protected long	lapse
protected long	millisTilNextFrame
protected int	nanosTilNextFrame
protected long	now
protected boolean	paused
protected boolean	running
protected int	ticks
protected long	timePerTick
protected long	timeTilNextFrame

◊
Fields inherited from class java.lang.Thread

```
MAX_PRIORITY, MIN_PRIORITY, NORM_PRIORITY
```

♦
Constructor Summary

Constructors

Constructor and Description
TickThread(long tickRate, java.lang.String name) TickThread constructor.

♦
Method Summary

All Methods Instance Methods Concrete Methods

Modifier and Type	Method and Description

-

boolean	isPaused()	
boolean	isRunning()	
void	run() Sleeps for the necessary time to hit the *tickRate* if the operation in the tick did not last the whole tick.	
void	setPaused(boolean paused)	
void	setRunning(boolean running)	

◊

Methods inherited from class java.lang.Thread

```
activeCount, checkAccess, clone, countStackFrames,
currentThread, destroy, dumpStack, enumerate,
getAllStackTraces, getContextClassLoader,
getDefaultUncaughtExceptionHandler, getId, getName,
getPriority, getStackTrace, getState, getThreadGroup,
getUncaughtExceptionHandler, holdsLock, interrupt,
interrupted, isAlive, isDaemon, isInterrupted, join,
join, join, resume, setContextClassLoader, setDaemon,
setDefaultUncaughtExceptionHandler, setName, setPriority,
setUncaughtExceptionHandler, sleep, sleep, start, stop,
stop, suspend, toString, yield
```

◊

Methods inherited from class java.lang.Object

```
equals, finalize, getClass, hashCode, notify, notifyAll,
wait, wait, wait
```

- ♦

Field Detail

◊ **running**

```
protected boolean running
```
◊ **paused**

```
protected boolean paused
```
◊ **timePerTick**

```
protected long timePerTick
```
◊ **now**

```
protected long now
```
◊ **before**

```
protected long before
```

◊ timeTilNextFrame

```
protected long timeTilNextFrame
```

◊ millisTilNextFrame

```
protected long millisTilNextFrame
```

◊ lapse

```
protected long lapse
```

◊ ticks

```
protected int ticks
```

◊ nanosTilNextFrame

```
protected int nanosTilNextFrame
```

♦
Constructor Detail

◊ TickThread

```
public TickThread(long tickRate,
                  java.lang.String name)
```

TickThread constructor.
Parameters:
        tickRate - sets the internal tick rate.
        name - the name of this thread.

♦
Method Detail

◊ run

```
public void run()
```

Sleeps for the necessary time to hit the *tickRate* if the operation in the tick did not last the whole tick.
Specified by:
        run in interface java.lang.Runnable
Overrides:
        run in class java.lang.Thread

◊ isRunning

```
public boolean isRunning()
```

◊ setRunning

```
public void setRunning(boolean running)
```

◊ **isPaused**

```
public boolean isPaused()
```

◊ **setPaused**

```
public void setPaused(boolean paused)
```

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Classes

- Display
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Package langtonsant.game

- Class Summary

Class	Description
Display	
Game	
Setup	
TickThread	A thread with a built-in tick rate based sleep system.

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Hierarchy For Package langtonsant.game

Package Hierarchies:

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Class Hierarchy

- java.lang.Object
  - ♦ java.awt.Component (implements java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable)
    - ◊ java.awt.Container
      - · java.awt.Window (implements javax.accessibility.Accessible)
        - • java.awt.Frame (implements java.awt.MenuContainer)
          - ♦ javax.swing.JFrame (implements javax.accessibility.Accessible, javax.swing.RootPaneContainer, javax.swing.WindowConstants)
            - ◊ langtonsant.game.Display
            - ◊ langtonsant.game.Setup
  - ♦ langtonsant.game.Game (implements java.lang.Runnable)
  - ♦ java.lang.Thread (implements java.lang.Runnable)
    - ◊ langtonsant.game.TickThread
      - · langtonsant.game.Game.RenderThread
      - · langtonsant.game.Game.UpdateThread

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Uses of Package langtonsant.game

- Packages that use langtonsant.game

Package	Description
langtonsant.game	

- Classes in langtonsant.game used by langtonsant.game

Class and Description
Display
Game
Game.RenderThread Handles the timing of drawing to the screen.
Game.UpdateThread Handles the timing of updating the ant.
TickThread A thread with a built-in tick rate based sleep system.

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