



Introduction to JAVA SE 8

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-Thought Process



thought process

What You Need to Know

Learning About Java

- **Basic syntax and vocabulary**

Java Essential Training

- **Advanced syntax & design patterns, Java 7 features**



Using Eclipse

- **Programming in Eclipse**

Up and Running with Eclipse



What's New in Java SE 8



The Big Changes

- **Project Lambda**
Functional programming with lambda expressions
- **New Date/Time API**
Simpler management of dates and times
- **Stream API**
Improved collection management, parallel processing
- **Nashorn JavaScript engine**
Program in JavaScript, using Java classes and objects
- **Concurrency enhancements**
Managing and accumulating values in multiple threads

Smaller Changes

- **Joining String values**

Two new approaches to concatenating literal strings

- **Aggregating numbers**

Number classes (Integer, etc.) have new methods

- **Working with files**

New convenience methods, BASE64 management

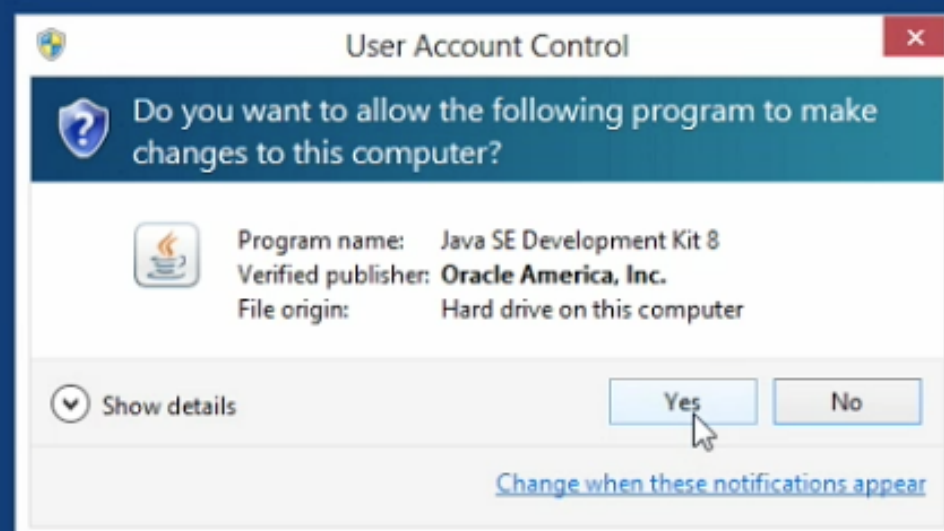
When is Java SE 8 Available?

- Java SE 8 was released on March 18, 2014
- JavaFX supports Java 8 now
- Java EE vendors mostly support Java 8 now
- Android does not support Java SE 8 syntax or APIs

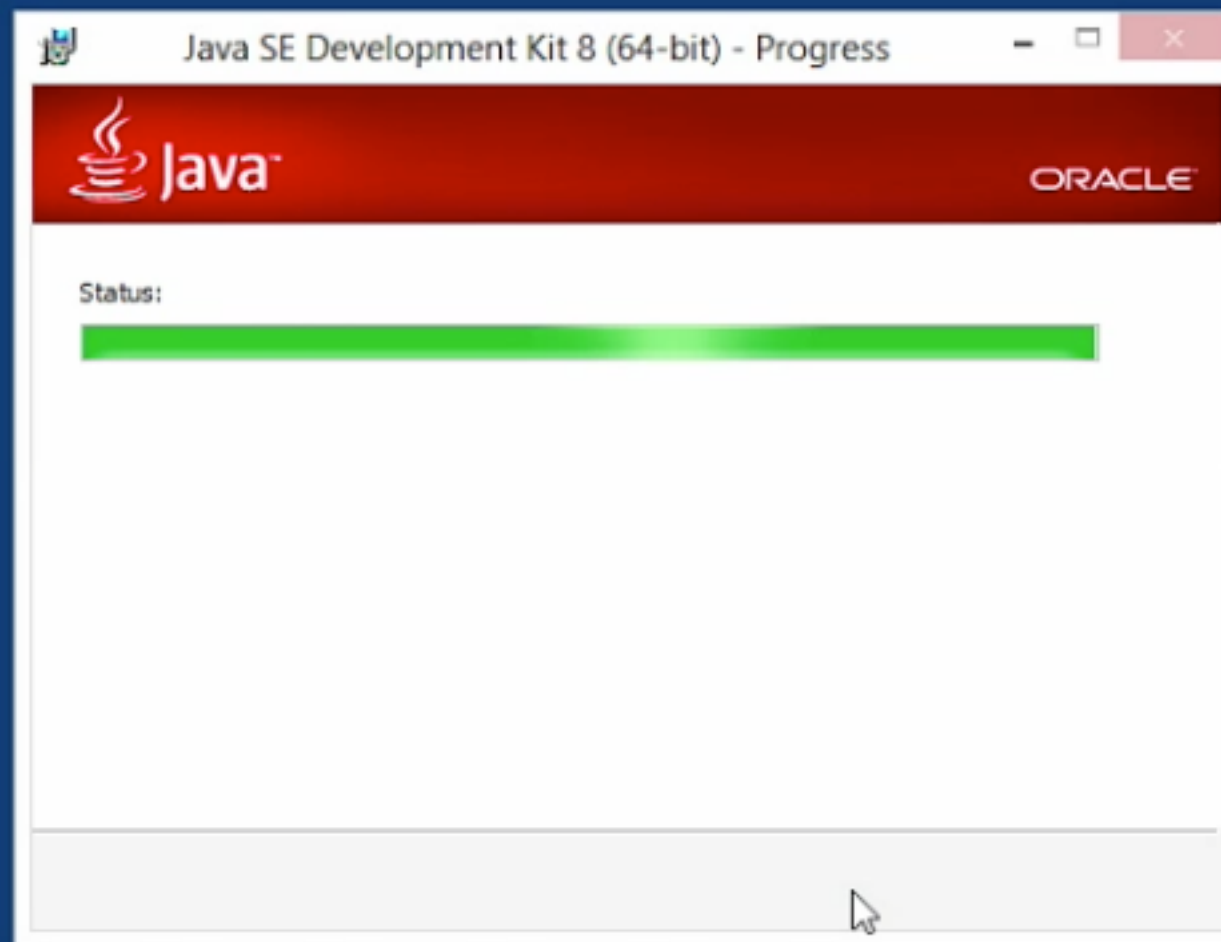
Java 8 on Windows

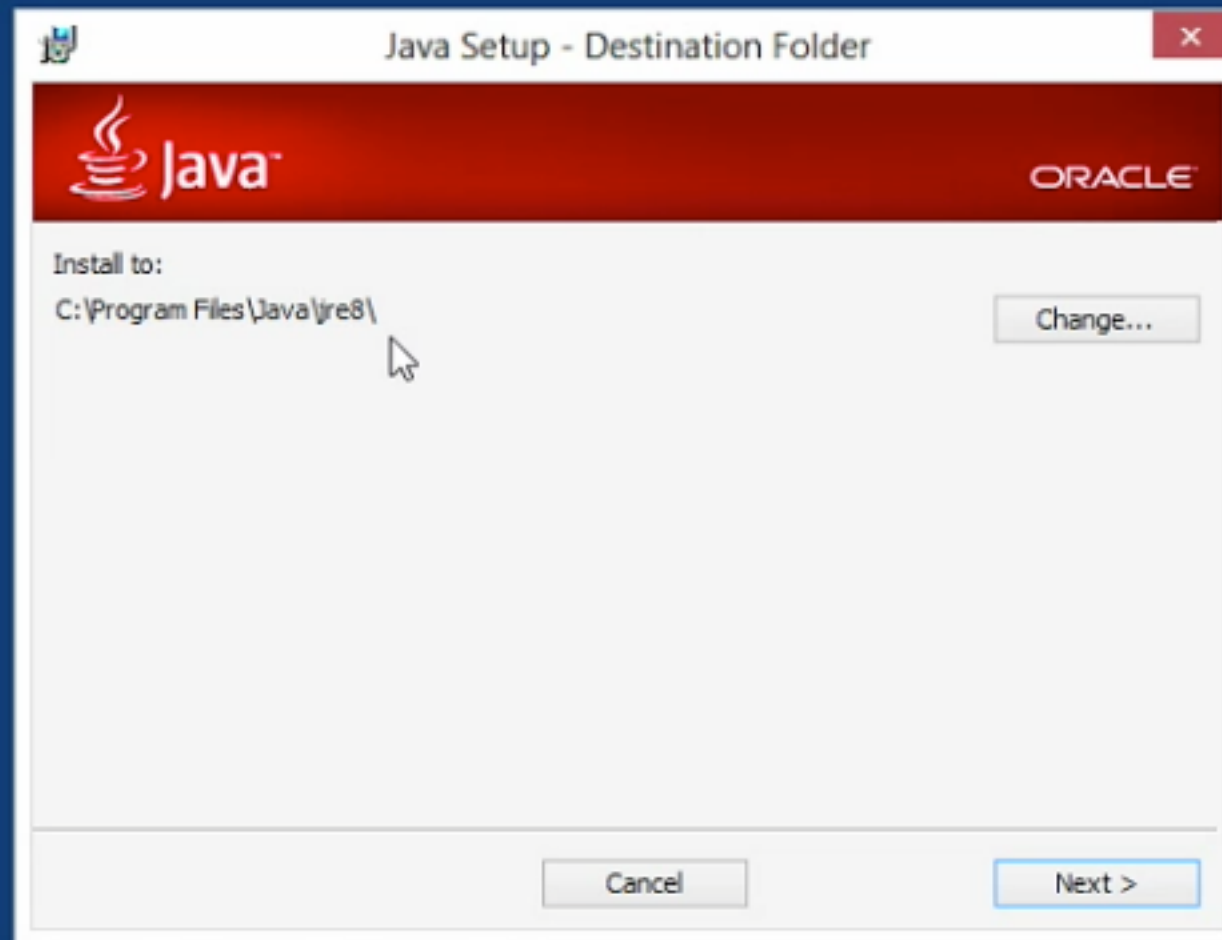
System Requirements

- Windows 8+ (desktop only; Windows RT not supported)
- Windows 7
- Windows Vista SP2
- Windows XP SP3 (32-bit); Windows XP SP2 (64-bit)
- Windows Server 2008 and 2012 (64-bit)

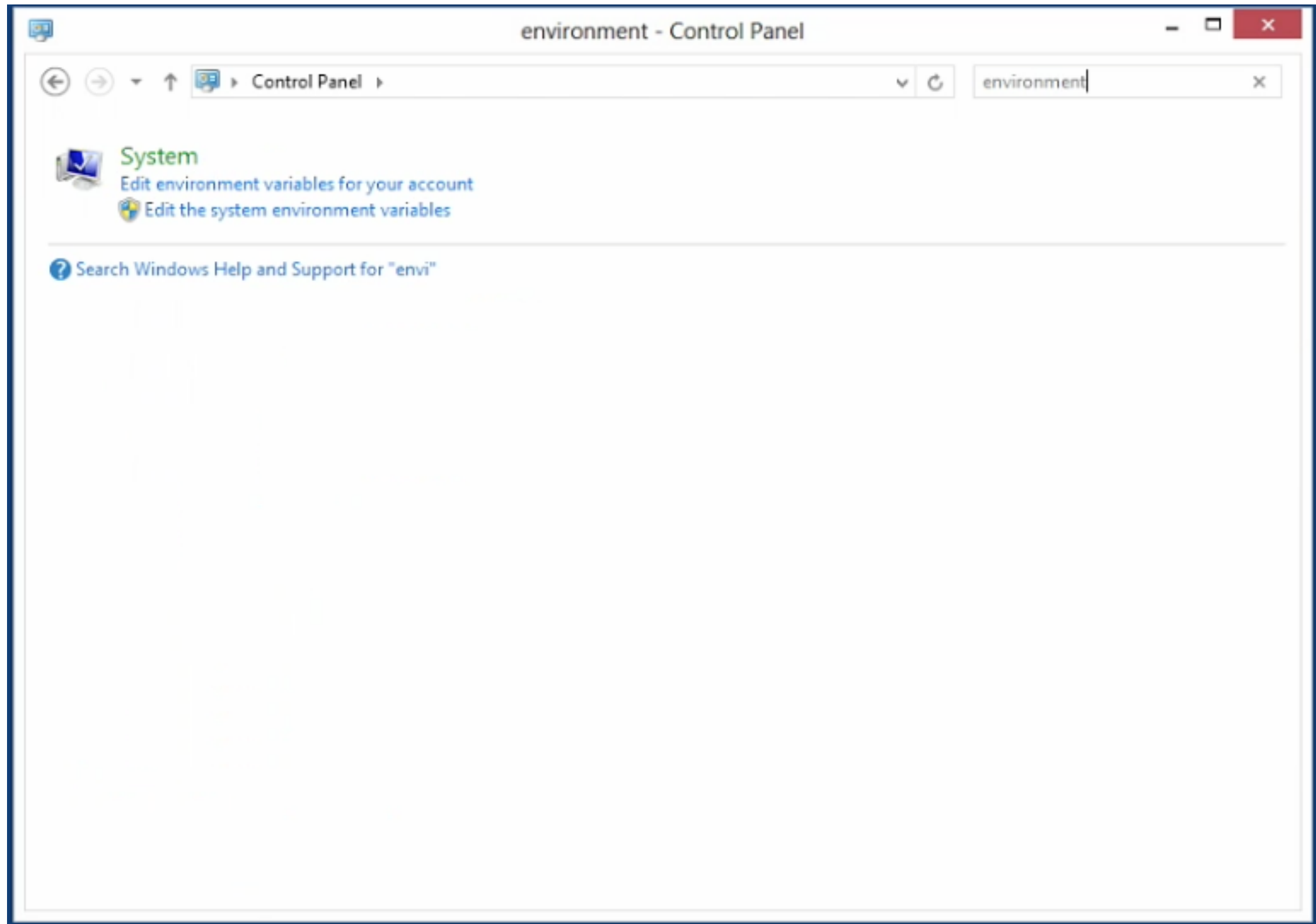












System Properties

Computer Name Hardware Advanced System Protection Remote

You must be logged on as an Administrator to make most of these changes.

Performance

Visual effects, processor scheduling, memory usage, and virtual memory

Settings...

User Profiles

Desktop settings related to your sign-in

Settings...

Startup and Recovery

System startup, system failure, and debugging information

Settings...

Environment Variables...

OK

Cancel

Apply

environment - Control Panel

Control Panel

environment

[Variables for your account](#)
[environment variables](#)

[Find Support for "environment"](#)

System Properties

Computer Name Hardware Advanced System Protection Remote

Environment Variables

New System Variable

Variable name: JAVA_HOME

Variable value: C:\Program Files\Java\jdk1.8.0

OK

Cancel

System variables

Variable	Value
ComSpec	C:\Windows\system32\cmd.exe
FP_NO_HOST_C...	NO
NIEXTCOMPIL...	C:\Program Files (x86)\National Instrum...
NUMBER_OF_P...	8

New...

Edit...

Delete

OK

Cancel

jdk1.8.0

BOOTCAMP (C:) > Program Files > Java > jdk1.8.0

Search jdk1.8.0

	Date modified	Type	Size
	3/25/2014 12:50 PM	File folder	
	3/25/2014 12:50 PM	File folder	
	3/25/2014 12:50 PM	File folder	
	3/25/2014 12:50 PM	File folder	
	3/25/2014 12:50 PM	File folder	
COPYRIGHT	3/4/2014 4:29 AM	File	4 KB
afx-src	3/25/2014 12:50 PM	Compressed (zipp...	4,564 KB
CENSE	3/25/2014 12:50 PM	File	1 KB
ADME	3/25/2014 12:50 PM	Chrome HTML Do...	1 KB
ease	3/25/2014 12:50 PM	File	1 KB
:	3/4/2014 4:30 AM	Compressed (zipp...	20,699 KB
HIRDPARTYLICENSEREADME	3/25/2014 12:50 PM	Text Document	175 KB
HIRDPARTYLICENSEREADME-JAVAFX	3/25/2014 12:50 PM	Text Document	121 KB

13 items

System Properties

Computer Name Hardware Advanced System Protection Remote

Environment Variables

Edit System Variable

Variable name: Path

Variable value: ;\Java\jdk1.7.0_51\bin;C:\Program Files (x86)

OK

Cancel

System variables

Variable	Value
Path	C:\Windows\system32;C:\Windows;C:\...
PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;....
PROCESSOR_A...	AMD64
PROCESSOR_ID...	Intel64 Family 6 Model 42 Stepping 7, G...

New...

Edit...

Delete

OK

Cancel

jdk1.8.0

BOOTCAMP (C:) > Program Files > Java > jdk1.8.0

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13 items

Project Lambda

Lambda Expressions

- Lambda expressions are anonymous functions
- Instantiate interfaces with a single method
- Replace more verbose class declarations

Implementing an Interface

```
public class MyRunnable implements Runnable {  
    @Override  
    public void run() {  
        System.out.println("Hello!");  
    }  
}
```


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```

```
MyRunnable r = new MyRunnable();  
new Thread(r).start();
```

Using an Inner Class

```
Runnable r = new Runnable() {  
    @Override  
    public void run() {  
        System.out.println("Hello!");  
    }  
};  
  
new Thread(r).start();
```

Using an Anonymous Class

```
new Thread(new Runnable() {  
    @Override  
    public void run() {  
        System.out.println("Hello!");  
    }  
}).start();
```

Using a Lambda Expression

```
Runnable r = () -> System.out.println("Hello!");  
new Thread(r).start();
```

Where to Use Lambda Expressions

Lambda expressions can only appear in places where they will be assigned to a variable whose type is a functional interface.

Functional Interfaces

- A functional interface has a single abstract method
- Functional interfaces included with Java runtime
Runnable, Callable, Comparator, TimerTask
- **Prior to Java SE 8**
Known as “Single Abstract Method” (SAM) Types

Lambda Expression Syntax

```
Runnable r = () -> System.out.println("Hello!");
```

↑
Method
signature

↑
Method
implementation

Lambda Expression Syntax

```
Runnable r = () -> {  
    System.out.println("Print Line One");  
    System.out.println("Print Line Two");  
};
```

LAB 1