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centered below photo

JavaOneSM

LAB-6808: Working with PDF and Java

Duane Nickull
Adobe Systems, Inc.
Sr. Technical Evangelist

Instructor-Led Hands-on Labs

Instructor(s) will provide background for exercises``

Exercises are self-paced

- Hard-copy and online lab guides are available

- Use suggested durations as a guide

Raise your hand at any time for assistance

To get the most out of the lab...

- Read** the lab guide, especially the background

- Don't** just copy and paste the solutions

Housekeeping

Before you leave, **please** fill out a survey and hand it to someone before you leave

We **really** want to know what you think!

Please log out of your machine when done

Please look around to make sure you have all of your belongings

The hard copies of the lab guides are yours to keep

Agenda – do not present

Date/Time: JavaOne 2009

Location (room): TBA

Track: Core Technologies

Presentation Format: 90-minute or 120 minute Hands on Lab (HOL)

Audience level: beginner-intermediate

Abstract: The PDF ISO standard has experienced a large growth in adoption by government and enterprises. Many of these have requirements to round trip information between a J2EE environment and PDF forms or static documents. This hands on labs will be about 25% presentation and 75% coding and working with the PDF libraries.

The core Java PDF libraries will be explored included how to create PDF documents, how to read and write to and from file systems, how to get PDF attachments, how to access metadata libraries and more.

The lab environment will be set up with JDK, JBoss and Adobe LiveCycle ES. Developers wishing to continue with the development will be able to take the environment home.

ISO PDF – a global standard

The PDF ISO standard has experienced a large growth in adoption by government and enterprises. Many of these have requirements to round trip information between a J2EE environment and PDF forms or static documents.

Some core Java PDF libraries will be explored included how to create PDF documents, how to read and write to and from file systems, how to get PDF attachments, how to access metadata libraries and more.

The lab environment will be set up with JDK, JBoss and Adobe LiveCycle ES. Developers wishing to continue with the development will be able to take the environment home. Developer licensing of some libraries is available at no cost.

Understanding PDF

PDF files are made from “objects”

Objects in a PDF Document have identifiers to reference them.

Objects can occur in any order in a file

Objects can refer to each other by number

References can create a cross-linked set of objects (mathematical graph)

Cross reference table maps object numbers to places within the file

Let's look at “HelloWorld.pdf”

Hello World PDF



```
%PDF-1.2
1 0 obj
<<
  /Type /Page
  /Parent 5 0 R
  /Resources 3 0 R
  /Contents 2 0 R
>>
endobj

2 0 obj
<<
  /Length 51
>>
stream
BT
  /F1 24 Tf
  1 0 0 1 260 254 Tm
  (Hello World)Tj
ET
endstream
endobj
```

Hello World

```
3 0 obj
<<
  /ProcSet [/PDF/Text]
  /Font <</F1 4 0 R >>
>>
endobj

4 0 obj
<<
  /Type /Font
  /Subtype /Type1
  /Name /F1
  /BaseFont/Helvetica
>>
endobj
```

```
5 0 obj
<<
  /Type /Pages
  /Kids [ 1 0 R ]
  /Count 1
  /MediaBox
    [ 0 0 612 446 ]
>>
endobj

6 0 obj
<<
  /Type /Catalog
  /Pages 5 0 R
>>
endobj

trailer
<<
  /Root 6 0 R
>>
```

PDF Objects are numbered



```
%PDF-1.2
1 0 obj
<<
  /Type /Page
  /Parent 5 0 R
  /Resources 3 0 R
  /Contents 2 0 R
>>
endobj

2 0 obj
<<
  /Length 51
>>
stream
BT
  /F1 24 Tf
  1 0 0 1 260 254 Tm
  (Hello World)Tj
ET
endstream
endobj
```

Hello World

```
3 0 obj
<<
  /ProcSet [/PDF/Text]
  /Font <</F1 4 0 R >>
>>
endobj

4 0 obj
<<
  /Type /Font
  /Subtype /Type1
  /Name /F1
  /BaseFont/Helvetica
>>
endobj
```

```
5 0 obj
<<
  /Type /Pages
  /Kids [ 1 0 R ]
  /Count 1
  /MediaBox
    [ 0 0 612 446 ]
>>
endobj

6 0 obj
<<
  /Type /Catalog
  /Pages 5 0 R
>>
endobj

trailer
<<
  /Root 6 0 R
>>
```


Exercise 1 – Let's open up a PDF

XPAAJ.jar is the XML PDF Access API for Java.

This is a library you can request if you are in the Adobe Enterprise Developer Program and use LCES.

Open Eclipse

Open Project JavaOne2009-1 and let's get coding!

Exercise 2: Find out something about the PDF instance

Keep code project from Exercise 1 open

Look at API docs for method signatures on how to get the PDF version and the length of pages in the document.

XMP Metadata

PDF uses XMP (Extensible Metadata Platform) for Metadata.

XMP can be placed manually into PDF documents by Acrobat.

XMP also exists in most CS4 products file formats.

XMP can be programmatically manipulated too.

<http://www.adobe.com/products/xmp/>

“[XMP] is an important piece that brings the Semantic Web closer to realization.”

– Eric Miller, W3C Semantic Web Activity Lead

Exercise 3 – open up PDF with a text editor

```

endobj
xref
0 1
0000000013 00000 f
16 1
0000280803 00000 n
67 2
0000280894 00000 n
0000281150 00000 n
trailer
<</Size 69/Root 16 0 R/Info 67 0 R/ID[<0FAE3071A1BCD149B75F11CECCEC1412><87C758A974D440A18E56B2745C9512E7>]/Prev 280553 >>
startxref
285019
%%EOF
16 0 obj
<</Names 18 0 R/Metadata 71 0 R/AcroForm 17 0 R/Pages 6 0 R/Type/Catalog>>
endobj
70 0 obj
<</CreationDate(D:20030613120500-07'00')/Subject()/Author(Some guy who is known to us)/Keywords(Can we read this too????)/ModDate(D:20061025153752-07'00')/Title(Aesopès
Fables)>>
endobj
71 0 obj
<</Subtype/XML/Length 3886/Type/Metadata>>stream
<?xpacket begin="ï¿" id="W5M0MpCehiHzreSzNTczkc9d"?>
<xmpmeta xmlns:x="adobe:ns:meta/" x:xmpTk="Adobe XMP Core 4.0-c316 44.249992, Sun Sep 10 2006 17:09:14">
  <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#">
    <rdf:Description rdf:about=""
      xmlns:xap="http://ns.adobe.com/xap/1.0/">
      <xap:ModifyDate>2006-10-25T15:37:52-07:00</xap:ModifyDate>
      <xap:CreateDate>2003-06-13T12:05:00-07:00</xap:CreateDate>
      <xap:MetadataDate>2006-10-25T15:37:52-07:00</xap:MetadataDate>
    </rdf:Description>
    <rdf:Description rdf:about=""
      xmlns:xapMM="http://ns.adobe.com/xap/1.0/mm/">
      <xapMM:DocumentID>uuid:141b1ec7-f777-452e-ab99-0210dd97e09f</xapMM:DocumentID>
      <xapMM:InstanceID>uuid:da8e1619-f23f-cb4b-9884-83552403e197</xapMM:InstanceID>
    </rdf:Description>
    <rdf:Description rdf:about=""
      xmlns:dc="http://purl.org/dc/elements/1.1/">
      <dc:format>application/pdf</dc:format>

```

← XMP

Exercise 4: Grabbing Annotations

An annotation associates an object with a location on a page of a PDF document and provides a way to interact by means of the mouse and keyboard.

PDF includes a wide variety of standard annotation types

Can be flagged as visible, invisible, print etc.

8.4.5 Annotation Types



This is also an
annotation

PDF supports the standard annotation types listed in Table 8.20. The following sections describe each of these types in detail. Plug-in extensions may add new annotation types, and further standard types may be added in the future. (See implementation note 88 in Appendix H.)

Annotation Types (not complete)

TABLE 8.20 Annotation types

ANNOTATION TYPE	DESCRIPTION	MARKUP?	DISCUSSED IN SECTION
Text	Text annotation	Yes	"Text Annotations" on page 621
Link	Link annotation	No	"Link Annotations" on page 622
FreeText	(PDF 1.3) Free text annotation	Yes	"Free Text Annotations" on page 623
Line	(PDF 1.3) Line annotation	Yes	"Line Annotations" on page 626
Square	(PDF 1.3) Square annotation	Yes	"Square and Circle Annotations" on page 630
Circle	(PDF 1.3) Circle annotation	Yes	"Square and Circle Annotations" on page 630
Polygon	(PDF 1.5) Polygon annotation	Yes	"Polygon and Polyline Annotations" on page 632
PolyLine	(PDF 1.5) Polyline annotation	Yes	"Polygon and Polyline Annotations" on page 632

Exercise 5 – Creating PDF with LiveCycle ES

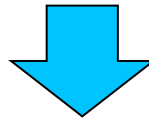
Grab a browser and go to Exercise 5

Open up ~/CreatePDF.java

Method Detail

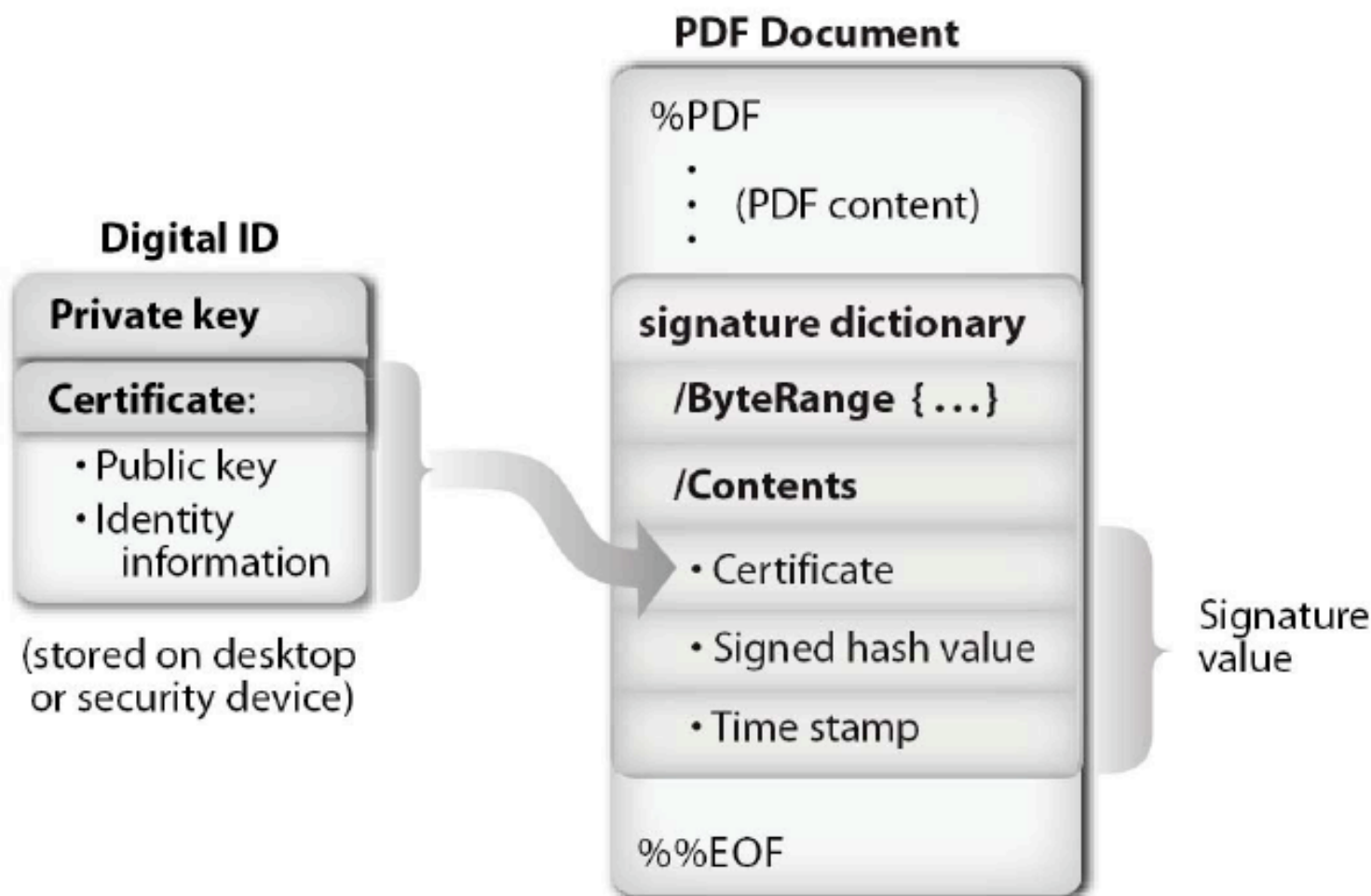
createPDF()

```
public CreatePDFResult createPDF(Document inDoc, String inputFileName, String fileTypeSettings, String pdfSettings, String securitySettings, Document inSettingsDoc, Document inXMPDoc)
```

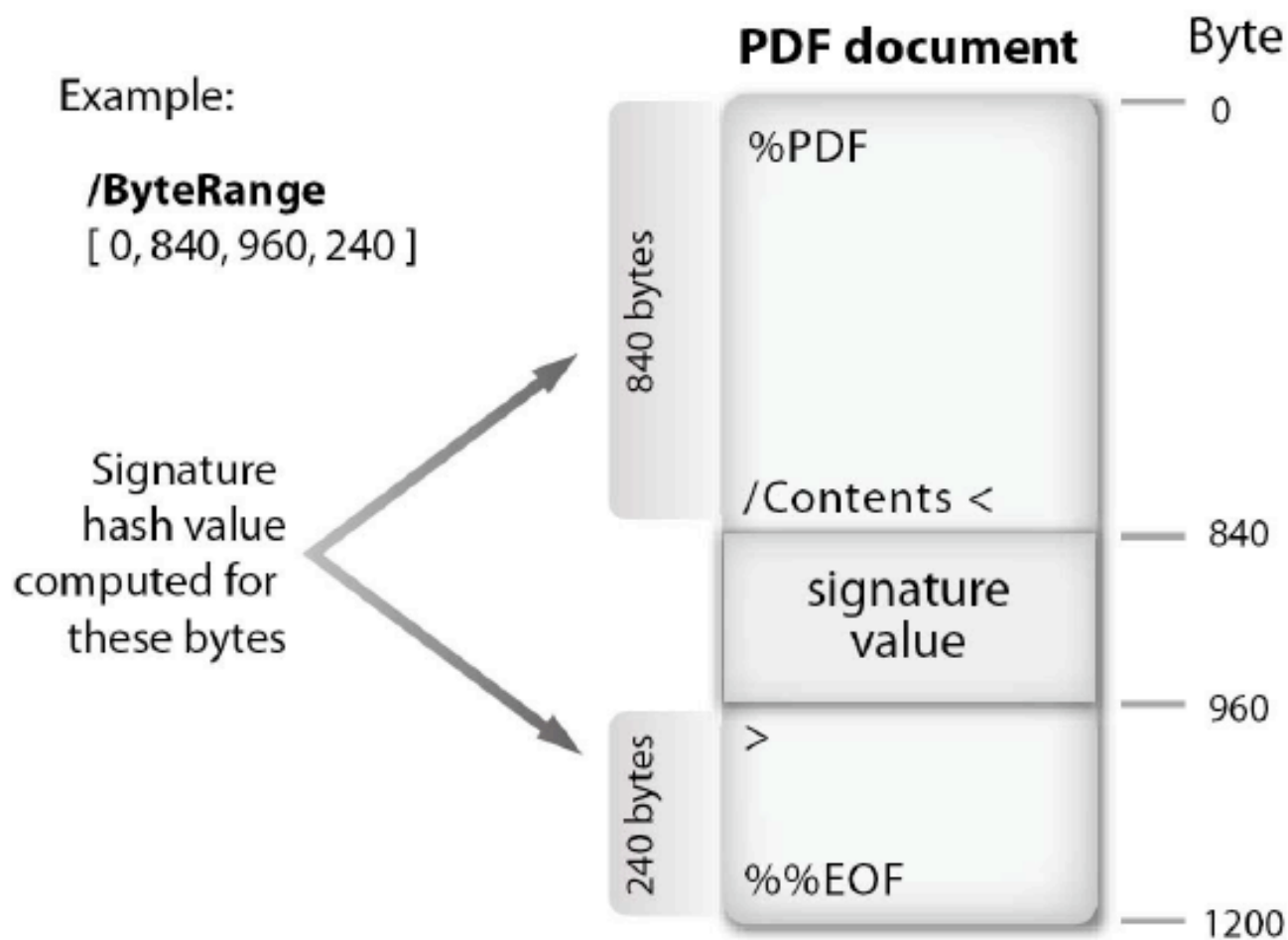


```
System.out.println("\nTrying to createPDF...");  
result = disClient.createPDF(  
    inDoc,  
    inFileName,  
    adobePDFSettings,  
    securitySettings,  
    null,  
    null  
);
```

Exercise 6: Adding a signature field to PDF document



Exercise 6: Adding a signature field to PDF document



Exercise 6 – adding a signature field programmatically

```
//Create a PositionRectangle object that specifies
//the signature fields location
PositionRectangle post = new PositionRectangle(193,47,133,12);

//Specify the page number that will contain the signature field
java.lang.Integer pageNum = new java.lang.Integer(1);

//Add a signature field to the PDF document
Document sigFieldPDF = signClient.addSignatureField( inDoc,
                                                    fieldName, pageNum, post, null, null);
```

addSignatureField()

```
public Document addSignatureField(Document inPDFDoc, String signatureFieldName, Integer pageNumber,
PositionRectangle positionRectangle, FieldMDPOptionSpec fieldMDPOptionsSpec, PDFSeedValueOptionSpec
seedValueOptionsSpec)
```

Creates a visible signature field within the PDF document.

Exercise 6 - Parameters

inPDFDoc — A `com.adobe.idp.Document` object that represents the PDF document to which the signature field is added. This is a required parameter and cannot be null.

signatureFieldName — The name of the signature field. This is a required parameter and cannot be null.

pageNumber — The page number on which the signature field is added. Valid values are 1 to the number of pages contained within the document. This is a required parameter and cannot be null.

positionRectangle — An `PositionRectangle` object that specifies the position for the signature field. This is a required parameter and cannot be null. If the specified rectangle does not lie at least partially on the crop box of the specified page, an `InvalidArgumentException` is thrown. Also, neither the height or width value of the specified rectangle can be 0 or negative. Lower left X or lower left Y coordinates can be 0 or greater but not negative, and are relative to the crop box of the page.

fieldMDPOptionsSpec — A `FieldMDPOptionSpec` object that specifies the PDF document fields that are locked after the signature field is signed. This is an optional parameter and can be null.

seedValueOptionsSpec — An `SeedValueOptions` object that specifies the various seed values for the field. This is an optional parameter and can be null.

Exercise 7: Converting PDF to Image

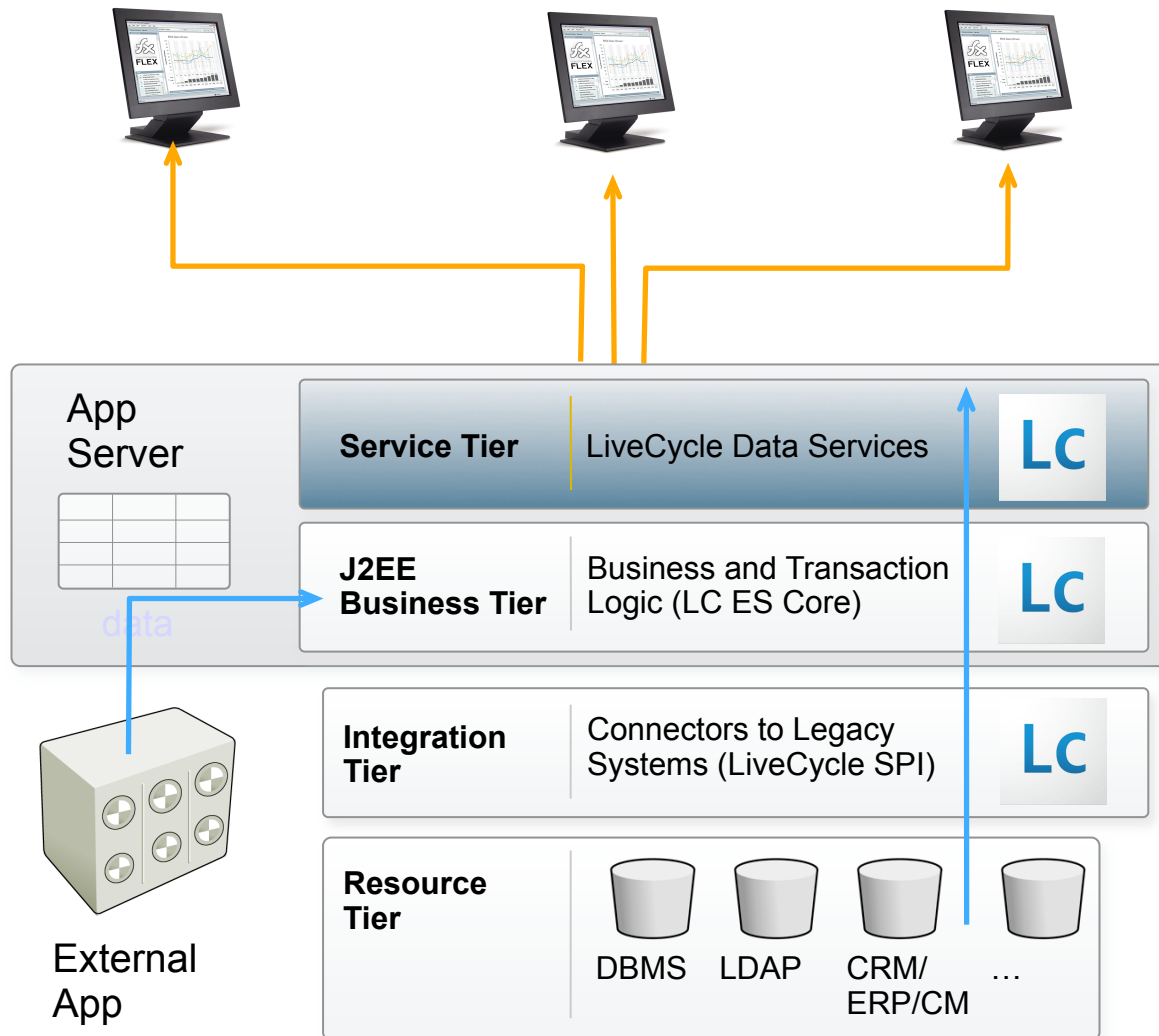
Class ConvertPdfServiceClient

Methods

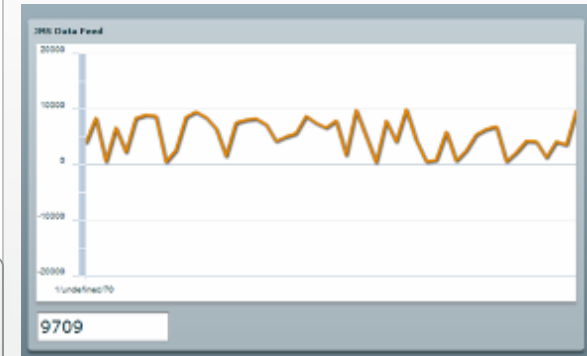
toImage()

```
public Document toImage(Document inPdfDoc, ToImageOptionsSpec toImageOptionsSpec)
```

Converts a PDF document to Image file. The resulting image files are zipped and returned as a [com.adobe.idp.Document](#), except in the case of TIFF files, in which case .tiff files are returned. Supported image formats are JPEG, JPEG2K, PNG and TIFF.



Example applications:



<http://localhost:8600/testdrive/sample6/startfeed.jsp>

<http://localhost:8600/testdrive/sample6/FeedClient.mxml>

<http://localhost:8600/testdrive/sample6/stopfeed.jsp>

DEMO

AIR Client 1



THANK YOU!



Revolutionizing
how the world engages
with ideas and information



Exercises

Exercise 1: Making Love Out Of Nothing At All

Expected duration: 20 minutes

Exercise 2: Livin' La Vita Loca

Expected duration: 30 minutes

Exercise 3: Burning Down the House

Expected duration: 30 minutes

Exercise 4: Walking in Memphis

Expected duration: 20 minutes

Getting Started

If you have not logged in, log in with

username: <LAB NUMBER>

password: javaone09

Online lab guide will open in a browser window

All necessary software and lab files **are** already installed on your lab machine

Start from **exercise 1**

<EXERCISE 1 INTRO SLIDE(S)>

Explain whatever needs to be explained for this exercise

- What is the exercise about

- What additional things do they need to know?

Keep it **really** short

- No more than 5 minutes

- No more than 2 slides

If no extra info needs to be explained leave it at one slide telling what the exercise is about

<EXERCISE 2 INTRO SLIDE(S)>

Explain whatever needs to be explained for this exercise

- What is the exercise about

- What additional things do they need to know?

Keep it **really** short

- No more than 5 minutes

- No more than 2 slides

If no extra info needs to be explained leave it at one slide telling what the exercise is about

<EXERCISE 3 INTRO SLIDE(S)>

Explain whatever needs to be explained for this exercise

- What is the exercise about

- What additional things do they need to know?

Keep it **really** short

- No more than 5 minutes

- No more than 2 slides

If no extra info needs to be explained leave it at one slide telling what the exercise is about

<EXERCISE 4 INTRO SLIDE(S)>

Explain whatever needs to be explained for this exercise

- What is the exercise about

- What additional things do they need to know?

Keep it **really** short

- No more than 5 minutes

- No more than 2 slides

If no extra info needs to be explained leave it at one slide telling what the exercise is about

Congratulations!

You should now have completed this lab

If you would like more time to continue working,
please consider taking the lab exercises with you

Discs containing all of the labs offered this year are
available for you to take home

To save your work, please copy it to a USB drive or
email it to yourself

The lab guide will tell you where to get help with this
lab after JavaOne

Thank you for attending this hands-on lab!



JavaOneSM

Thank You

Speaker Name, Arial 28pt

Speaker Contact Info, 22pt

Misc Info, 16pt

