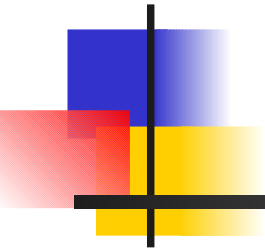


# Java Web Start



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# Topics Covered

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- Java Web Start
  - What is Java Web Start?
  - Installing on a client
  - Deploying your app
  - Talking to servlets
  - Simple chat and networked game



# Presentation Format

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- Interactive:
  - for (int i = 0; i < numTopics; i++)
  - {
    - listen to presenter, look at slides
    - discuss
    - try exercise
    - if (!havingFun())
    - {
      - throw new BoredException()
    - }
  - }



# What is Java Web Start?

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- Rich client application
- Launch and manage applications right off the Web
- Easy, one-click activation of programs
- Runs any Java program (with some configuration)



# • Similar to Applets

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- Can start from browser
- Runs in secure sandbox
- Jar caching



# • How is it different from Applets?

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- Can run offline – no connection to server needed
- Automatic setup of shortcuts on desktop
- Can target a particular JRE
- No browser frame – more real estate for your app



# • Why Java Web Start?

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- Highly interactive user interface
- No Javascript incompatibility issues!
- Lower bandwidth requirements
- Your app automatically updates itself
  - Install changes in only one place – the web server
- Cross platform: Linux, Mac OS X, Windows



# • Installing on a client

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- Included in J2SE 1.4.2
- Web Start client can trigger install
- User has choice of adding shortcuts for individuals apps



# • Hands on: Installing JWS

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- Point to presenter's server



# • Deploying your app

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- Min. requirements

- Java program with “main” method
- Everything in a jar file
- JNLP XML file
- Web hosting
  - [www.lunarpages.com](http://www.lunarpages.com) allows servlets, JSP's and is cheap
- Configure jnlp mime type on server



# • What software do you need?

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- Minimum
  - JDSK (1.4 preferable)
  - Web Server (Apache works)
- Optional but useful
  - Servlet container
  - JNLP dev pack
  - Your favorite IDE Netbeans, Eclipse, etc.
  - Ant



# •Configuring the web server

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- ADD jnlp mime type
  - Server must return application/x-java-jnlp-file type for JNLP files
- Apache
  - .mime.types file
    - application/x-java-jnlp-file    JNLP



# •Creating a JNLP file

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- Modify an existing file
- Basics
  - codebase – where is it on the web
  - href – reference to jnlp file
  - j2se version
  - jar – of application
  - main class



# • Hands on – configuring a sample app

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- Example jnlp
  - `java_web_start\web\jnlp_setup\example.jnlp`
- Install Java SDK
- Apache (if needed)
  - Setup mime type
- Grab swing demo application and configure to run from server root
- Make link from html file if desired
  - see `index.html` in web directory



# •Auto-install scripts

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- Use javascript or vbscript to detect JWS and version
- Can set up auto-install (Windows)
- See `c:\java_web_start\web\jnlp_setup\launch_jnlp.html`
- Warning: may break JNLP on Linux – add non-scripting page



# • Loading Resources

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- Must be stored in a jar
- Jar files must be specified in JNLP file
- Or retrieved using HTTP
- Cannot read from hard-drive without signing jar or using JNLP API



# • Resource loading code

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**// Get current classloader**

```
ClassLoader cl = this.getClass().getClassLoader();
```

**// Create icons**

```
Icon saveIcon = new ImageIcon(cl.getResource  
("images/save.gif"));
```

```
Icon cutIcon = new ImageIcon(cl.getResource  
("images/cut.gif"));
```



# • JNLP API

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- Provides additional information to app
- Things not available in J2SE
- Example – see BasicServices code in example\_hello dir
  - Gets the host name – don't have to hard-code or store in resource file
  - See descriptions in
    - `C:\java_web_start\sun_jws_examples\services.htm`



- JNLP API examples

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- See

C:\java\_web\_start\sun\_jws\_examples



# Deploy with a WAR file

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- Sun: jnlp-servlet.jar
  - see dev pack
- Vamp
  - <http://www.vamphq.com/ant.html>



# Going beyond the sandbox

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- Done by signing the jar file
- Allows app to do things like read/write files without using JNLP API
- Web Start will display dialog to user
- For commercial apps, should sign with official cert from Verisign, Thawte (others?)



## • Self-signed jar

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- `keytool -genkey`
- creates mykey alias
- `jarsigner Notepad.jar mykey`



# Hands on: self-sign

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- Take Swing jar file used before
- Sign it
- Add all-permissions setting to JNLP file – see example.jnlp
- Try it



# Talking to servlets

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- See
  - `example_servlet`
  - `example_servlet_client`
  - Can extend to have Swing forms talk to servlets
    - Use Swing to validate, give immediate feedback



# • Simple Chat

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- Based on code from here:
  - <http://fivedots.coe.psu.ac.th/~ad/jg/>
  - Java Game Programming Techniques
  - Andrew Davison
  - Book will be out in the Fall



# Hands on

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- Simple client servlet
- Tic-Tac-Toe chat
  - Play the game, play with the code



## • If time left...

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- Take a Java game
  - Try to make Java Web Startable
- General discussion on Java Web Start



# More Information

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- Sun's Main web page:
  - <http://java.sun.com/products/plugin/index.jsp>
- Java Web Start to the Rescue
  - <http://www.javaworld.com/javaworld/jw-07-2001/jw-0706-webstart.html>
- Unofficial Java Web Start/JNLP FAQ
  - <http://lopica.sourceforge.net/faq.html>
- Java Game Programming Techniques
  - Andrew Davison
  - <http://fivedots.coe.psu.ac.th/~ad/jg/>
  - On bookshelves this fall!