



**Episode # MWLug 2016**

**Hello and Welcome to NotesIn9**

**The Undiscovered Country**



## MWLUG 2016

Defining the Art of Collaboration

August 17-19, 2016  
Four Seasons, Austin TX



# David Leedy

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- IBM Champion
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# Agenda

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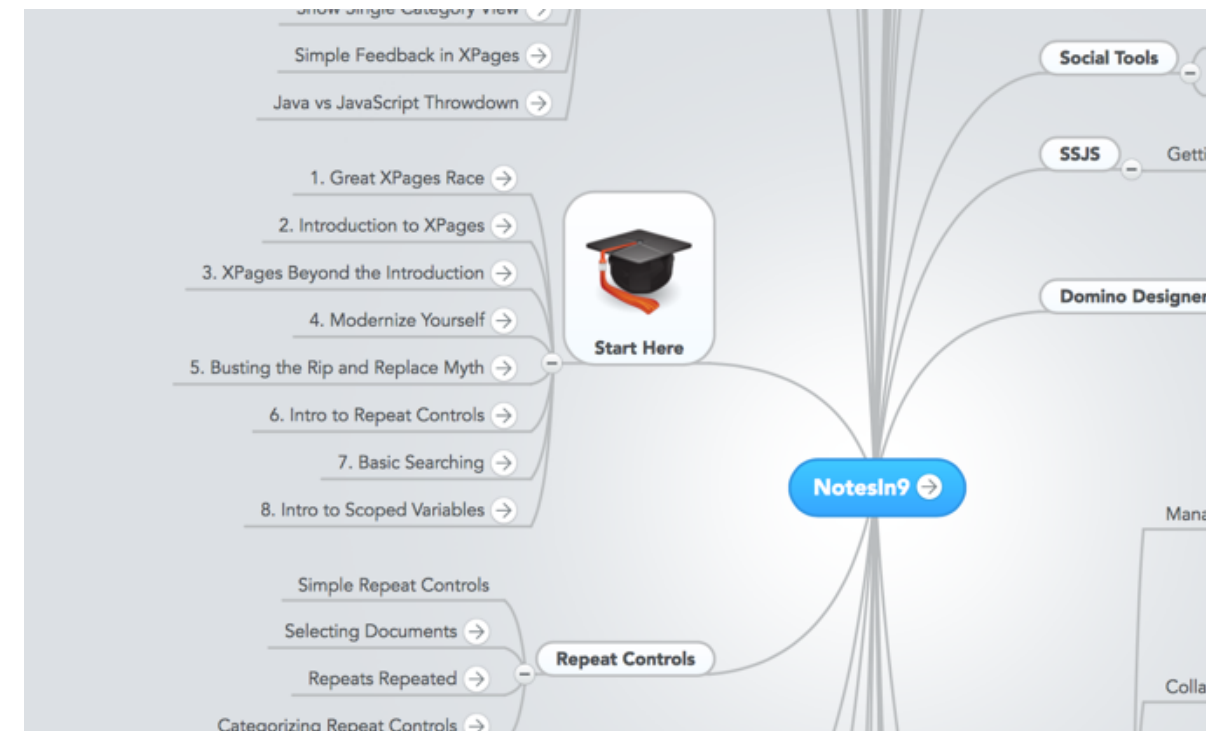
- About NotesIn9
- Older Concepts
- New Concepts
  - ♦ 7 Demos / Code Walkthroughs
- **Warning : Buckle Up. We will be moving at a high speed. More detail will be coming to future NotesIn9 shows.**

NotesIn9

# David Leedy

- Free video Tutorials and Tips
  - [NotesIn9.com](#), [YouTube.com](#), [XPages.TV](#)
- Almost 200 Videos mostly focusing in XPages
  - for now! :)
- Over 30 AMAZING contributors!
- XPages.TV
  - An attempt at a nicer index since the shows have a long shelf life
- Mind Map
  - <https://www.mindmeister.com/280533435/notesin9>
- XPagesCheatSheet.com
  - ♦ Printed Cheatsheets
  - ♦ Online URL Cheatsheet

NotesIn9.com



Why?



# Why create NotesIn9?

- Learning XPages was difficult and few resources were available.
  - ♦ I didn't want others to go through my pain.
- I wanted to put something positive into the community.
- Believe it or not but Videos are easier then writing blog posts.
- Was a great way to self document what I was learning.
- Never about Ego. It was only ever about sharing.
- Where did the 9 come from?
  - ♦ At the time YouTube had a 10 minute upload limit.
  - ♦ Early shows were very short.
    - ▶ The Good old days!

# What did I gain from NotesIn9

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- Learned a LOT along the way.
  - The act of sharing made me a better developer
- Became a speaker at user groups and even Lotusphere/Connect.
  - Many new and really good friends.
- Became an IBM Champion.
  - Since the program started. 5-6 years now.
- Emails and discussion from people around the world.
- A Dream Job.

# Some Favorite Shows

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- 23 - The Great XPages Race
- 24 - Fancy Type Ahead in XPages
- 51 - Introduction to XPages
  - ♦ [Original IBM Video Fest Winner](#)
- 59 - Using Java HashMap and TreeMap In XPages
- 76 - What Are Java Beans?
- 106 - Intro to Java Controller Classes
- 122 - Working with Java Objects In XPages
- 141 - Java vs JavaScript Throwdown
  - ♦ [Spoiler: Marky Roden lost. :\)](#)

# Old Concepts

# Old Concepts

- Domino Designer

- ♦ JVM Memory Settings,

- ▶ <http://www.tlcc.com/admin/tips.nsf/tipurlref/20120217>

- ♦ Customize your font - Consolas, Alphabetize your Control Pallet

- ♦ <https://nathantfreeman.wordpress.com/taming-ibm-domino-designer>

- ♦ Use Design Definitions in custom controls

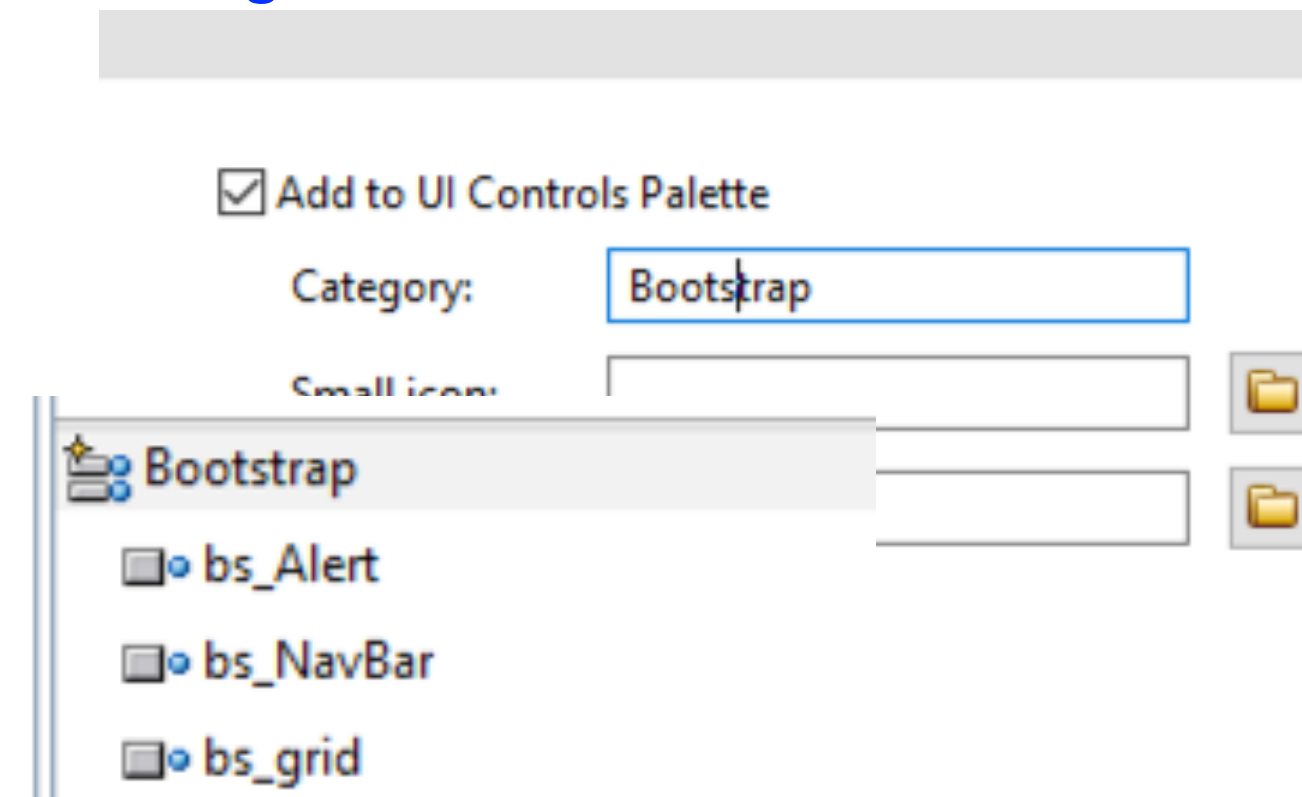
- ♦ Categorize your Custom Controls

- ♦ Install Debug Plugin

- ▶ If you can install libraries

- ♦ Install XPages Log Reader

- ▶ It's just an .nsf file!



# Source Control

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- **USE IT!**
  - ♦ Even if you're a solo developer.
  - ♦ The rest of the developer world uses it.
    - ▶ Easy to grab other peoples projects and code.
    - ▶ Like the demo files from this very session!
- Keeps Track of your code history
- Allows you to revert back to any place in time
- Use Branches to juggle multiple versions
  - ♦ Gold, app.NEXT, Hot Fixes
- Different flavors to choose from
  - ♦ Git, Mercurial, SVN
- Episodes : ~~41, 44~~, 131, 140, 162, 168



<xp:preachySegment speed="FAST">

**NotesIn9 100: Modernize Yourself!**

# @Fomulas

- IBM did a nice job creating XPages versions of common @Forumlas
  - ♦ Doesn't mean you have to use them! (And you probably shouldn't)
- @DbColumn() / @DbLookup()
  - ♦ Returns a string if one value is returned
  - ♦ Returns an Array if multiple values are returned
  - ♦ has a 64k limit.
  - ♦ So how helpful is this really?
- Not Always the same as the original version
  - ♦ @Unique() vs session.evaluate("@Unique")
- computeWithForm
  - ♦ Allows you to run @formula code from the form
  - ♦ Don't do it. You're better then that. XPages doesn't even need forms.

# Server Side Java Script

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- Language of choice for the BEGINNER
- Can use Java Objects and Managed beans
  - ♦ A great way to get started with Java Objects
    - ▶ **HashMaps, TreeMap**
      - *scopedVariables are just Java HashMaps*
- Does not compile down to Java. Remains Interpreted
  - ♦ Adding ; at the end of each line DOES matter
  - ♦ Interpreted at each HTTP request
- SSJS is ok but do NOT stop learning with SSJS

# Java

- Language of choice for the intermediate developer
- Java is your learning destination.
- A “Bean” is just a Java Object
  - Can be “Managed” or “Unmanaged”
- Custom Objects
  - Similar to the Domino Object Model - but for your apps
  - Similar to Custom Classes in LotusScript
- A lot of Java projects out there just waiting for you!
  - We’re going to look at several as soon as I’m done the preaching segment :)
- You don’t need Java to make XPages apps
  - But you might need it to keep viable employment
  - XPages is a great place to better learn HTML, CSS, JavaScript and Java

Join the Conversation



# There's a community around you. Embrace it!

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- **Make Friends!**
  - ♦ Look around you. Lots of people with a common interest
  - ♦ Say hello, Share Info, Ask Questions, Thank a blogger!
- **XPages Slack Chat**
  - Join it!!
  - [xpages-slack.herokuapp.com](https://xpages-slack.herokuapp.com) - auto invite link
- **StackOverflow.com**
- **Start a blog!**
  - ♦ Talk about what you're interested in or working on
- **The more you share, the more you gain!**
  - ♦ This is what happened to me!!!

I know what you're thinking

# Common Excuses

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- **I don't have a blog. I've no place to post anything.**
- **I don't have time to blog.**
- **This is too easy - no one cares.**
- **It's been blogged about before.**
- **I'm not an expert. I might be doing something wrong.**

# Common Excuses

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- I don't have a blog. I've no place to post anything.
  - Free options. Also wiki's, forums and even guest posting as an option
- I don't have time to blog.
  - What company doesn't like documentation?
- This is too easy - no one cares.
  - If it took you 5 minutes it'll take someone else 10
  - Always new people coming from behind you.
- It's been blogged about before.
  - Can you really find a single post out of the whole internet?
  - The original blogger doesn't own the topic. They shared for a reason. Add your voice!
- I'm not an expert. I might be doing something wrong.
  - You might. But someone will tell you and then you and future readers will learn

# The Future

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- It's more difficult to be a “Full Stack” Developer
  - ♦ Specializing between front end and back end may make sense.
- It's time to start looking at what's next, and the skills you need to get there.
- Reusable Skills from XPages Development
  - ♦ HTML, CSS, JavaScript - especially client side, Java, Dojo, jQuery, Bootstrap
- Non Reusable Skills
  - ♦ LotusScript, @formulas, SSJS - for the most part

</xp:preachySegment>



# Demos

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- 1. Force a User to Logout**
  - 2. A better way to upload files - PLUPload**
  - 3. Fill Out a PDF Form From XPages**
  - 4. No Dependency PageControllers**
  - 5. Sending Alert Messages to an XPage**
  - 6. Converting a Document to a Java Object**
  - 7. BitMask to Enum for a Customizable Excel report**
- 
- Disclaimer : My Java demos use the OpenNTF Domino API. Everything could be done without it though.**

**Episode # 193**

# Force a User to Logout in XPages

Don't let the door hit you on the way out.

# Force Logout

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- Force Logout after a set amount of time
  - ♦ Similar to most banking websites
- From a great Steve Zavocki Blog
  - ♦ <http://notesspeak.blogspot.com/2014/06/force-your-expired-xpage-to-return-to.html>
- Great comment by Daniel Juarez to provide more information
  - ♦ See how this sharing thing works?
- Reminder/Warning: sessionScope is NOT userScope!!!
  - ♦ it's really more like browserScope
    - ▶ This demo does not address that issue.

# Force Logout

- **Set Anonymous access to “No Access”**
  - Set Anonymous to allow Read Public Documents
- **Create a classic Domino “Page”**
  - NOT an XPage
  - Set Available to Public Access Users
  - This is where you put your message and maybe a link to your home page
    - Remember that would be a link inside “Pass Thru HTML”
  - This could be in a different .nsf if you wanted to prevent all anonymous access
- **2 CSJS code Snippets**
  - 1 On the Page
    - Use a Layout Custom control or NavBar
  - 1 in CSJS Script Library

Demo

**Episode # 194**

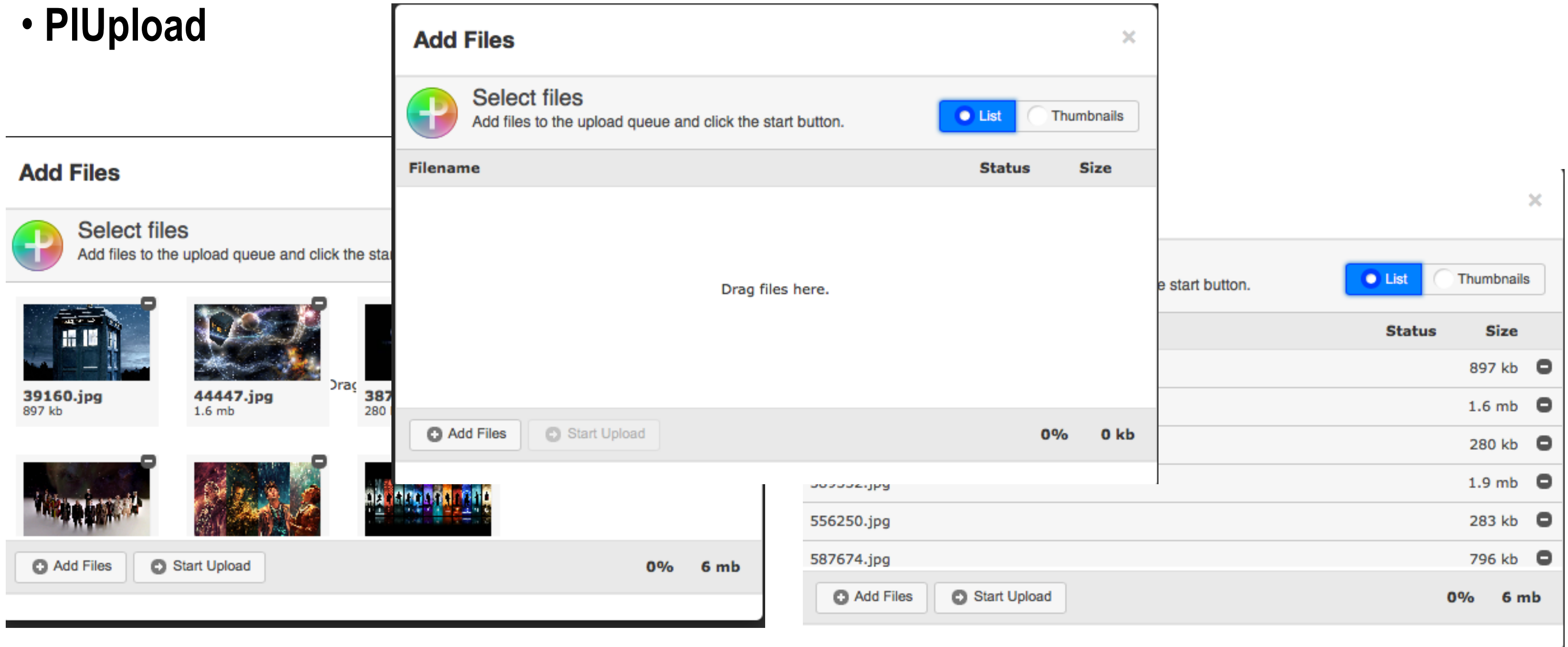
# Uploading Files to XPages with PLUpload

Unless of course you like the built in upload control.



## Upload files

- I've never used the File upload control
  - PIUpload
- 
- A screenshot of a file upload control, showing a button labeled "Add Files" in blue text on a white background.



# Upload Files

- This is only about getting the files into the .nsf
  - ♦ 1 file per document
- Custom Control for the uploader
  - ♦ XAgent is used to facilitate the upload
  - ♦ Pass in unique “token” to work with the documents later
  - ♦ When uploading is complete call additional code to further process documents
    - ▶ Not Demo'd but example inside FileVault
    - ▶ <https://bitbucket.org/leedy/filevault>
- Several areas where you can limit file size
  - ♦ PIUpload, XPages Template, Server config?
- If using iPad set multiSelect to False to use the live camera
- Note: Watch for the jQuery loader issue.

# File Upload Flow

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- PLUpload talks to the server
- Demo uses XAgent and SSJS
  - ♦ All Java solution possible and preferred
- XAgent will :
  - ♦ Get files from temp server directory
  - ♦ Sanitize file names to be html friendly
  - ♦ add to database - hardcoded form and view
    - ▶ document will contain the unique token
  - ♦ Rename the files back to original name so server can delete
  - ♦ Call additional code for further processing
    - ▶ Save to a document, resize images, etc.

Demo

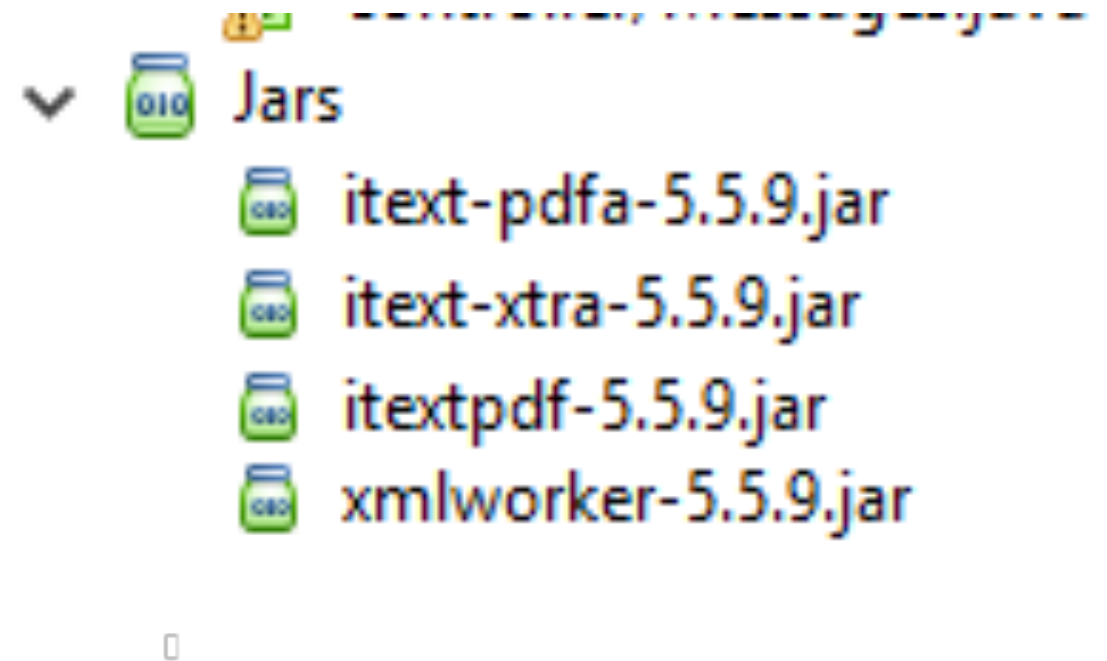
**Episode # 195**


# Use XPages to Fill in a PDF form

Just the Facts

# PDF Form

- Create form with Acrobat Pro or Similar
- This is about a fixed form.
  - ♦ Unlimited rows are possible via combining multiple PDF's into one.
- Add Fields to the form.
  - ♦ Suggest you don't have spaces in field names
- Import the file to “File - Resources” in the .ntf
  - ♦ I'd also avoid spaces in the name. Keep it html friendly
- Demo uses 5.5.9. Version 7 is very different.
  - ♦ [iTextPDF.com](https://www.itextpdf.com)
    - ▶ <https://github.com/itext/itextpdf/releases>
  - ♦ Import as Jars or use OSGI Library
- Note Licenses. Not Free for commercial use!





**Bill of Lading – Short Form – Not Negotiable**

Exhibitor: \_\_\_\_\_

Job Number: \_\_\_\_\_

Manifest #: \_\_\_\_\_

Date: \_\_\_\_\_

Ship From:	Ship To:

<b>Freight Charge Terms</b> (Freight charges are prepaid unless marked otherwise):			<b>Driver Information:</b>	
Prepaid <input checked="" type="radio"/>	Collect <input type="radio"/>	3rd Party <input type="radio"/>	Trailer number:	

<div>3rd Party Freight charges guaranteed by:</div>	<div>Driver Name (Printed):</div> <div>Driver Phone Number:</div> <div>Special Instructions:</div>
---	--

<b>Bill of Lading Details:</b>	
Carrier:	
Tracking #:	



[illegible]

**Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 USC § 14706(c)(1)(A) and (B).**



Received, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications, and rules that have been established by the carrier and are available to the shipper, on request, and to all applicable state and federal regulations.

Shipper Signature/Date	Trailer Loaded:	Freight Counted:	Carrier Signature/Pickup Date
	<input type="checkbox"/> By shipper	<input type="checkbox"/> By shipper	

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 Protect

 **Fill & Sign**

 Prepare Form

[xhe](#) Send for Signature

→... Send & Track

Store and share files in the Document Cloud

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- I use an XAgent
  - ♦ You could also do this in a pure Servlet
- XAgent will just call Java Code from beforePageLoad()
- Calling Java from SSJS is perfectly acceptable
  - ♦ Be a developer not a Purist! :)

```
// Run a report  
var thisReport = new com.notesIn9.itext.pdf.BOL();  
thisReport.doReport();
```

# PDF Form - Java Class

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- **com.notesIn9.itext.pdf.BOL**
  - ♦ **Note: Adapted code so additional unneeded pieces inside.**
    - ▶ **Additional developers Declan Lynch & Devin Olson.**
  - ♦ **Also - removed calls to other Java Objects / Documents**
    - ▶ **Just using hardcoded data**
- **Main Flow**
  - ♦ **doReport()**
  - ♦ **buildFullCoverPage()**
  - ♦ **sendToClient()**
- **Read from URL to get custom Data**
- **Produce Report**

Demo

**Episode # 196**

# **No Dependency Page Controllers in XPages**

Yeah we're talking about this again.

# Page Controllers

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- **Get's closer to real “MVC”**
  - ♦ **Model, View, Controller**
  - ♦ **Model = Data, View = Web Page, Controller = the logic on the Web Page**
- **Why Care?**
  - ♦ **It's a common best practice in other technologies**
  - ♦ **It's so nice getting all the JavaScript off the .xsp**
  - ♦ **Separation of UI, Data, and Logic is easier to read and support**
  - ♦ **A great place to put globally available functions**
  - ♦ **Less need for managed beans in faces-config**
  - ♦ **No more random viewScope variables**
- **A controller is just an in memory bean to control page logic.**

# Dependencies?

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- **The BEST way to do this is with the XPages Scaffolding Library**
  - From Jesse Gallagher
  - Library Automates many things and is just awesome
- **But what if you can't install a library on the server?**
  - Let's just use an `<xp:panel>` and fake it
  - We lose the automatic bits and `beforePageLoad()`
  - But it's still better then not doing it.

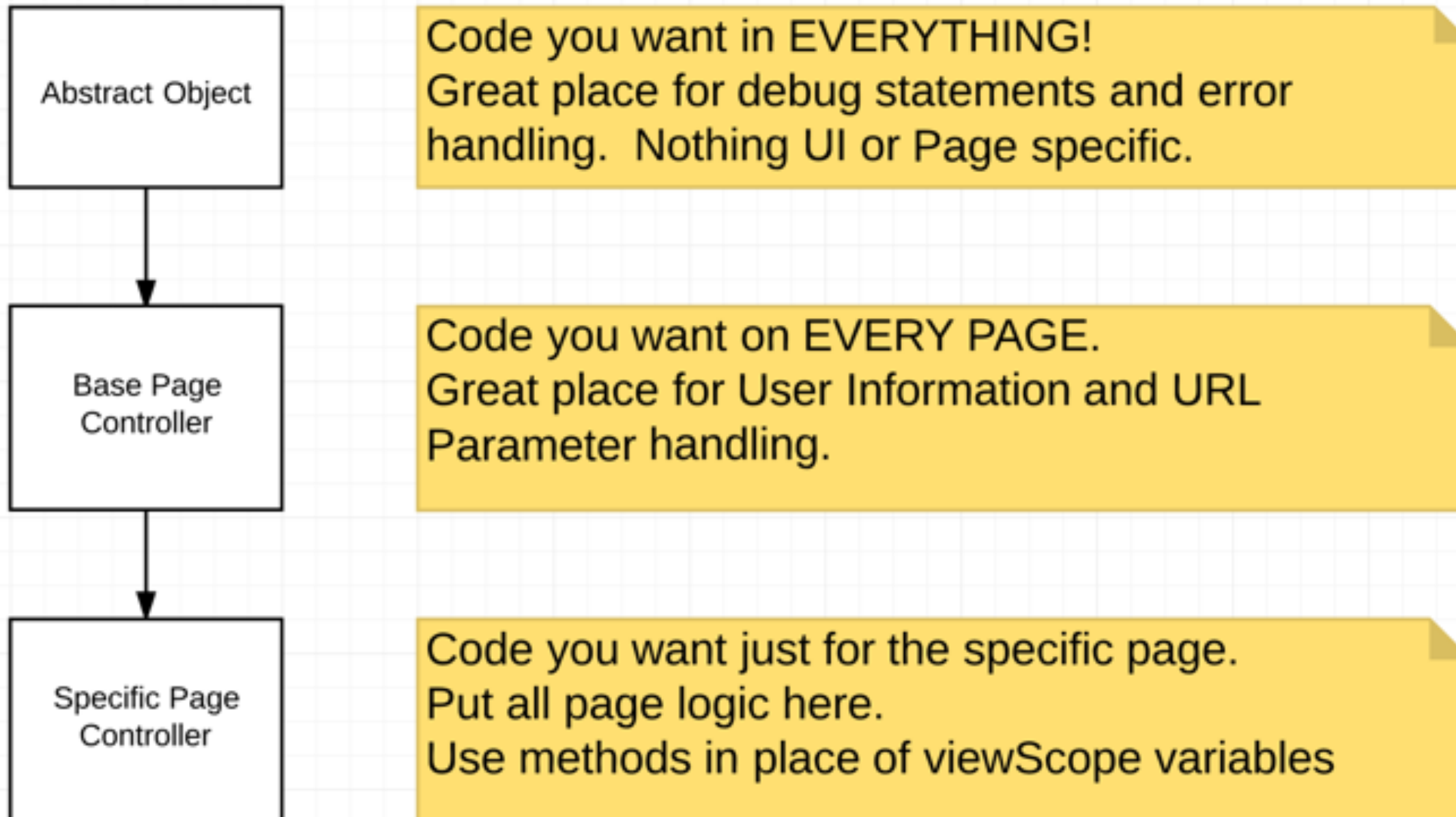
# Setting it up.

- The controller is 1 java class
- Given an XPage
  - ♦ Add 1 panel to encompass the whole page
  - ♦ Use object Data to create an object to become your pageController

```
<xp:this.data>
  <xe:objectData var="controller">
    <xe:this.createObject><![CDATA[#{javascript:var temp = new controller.Messages();
temp.pageInit();
return temp}]]></xe:this.createObject>
  </xe:objectData>
</xp:this.data>
```

- Access methods in the controller with EL (or SSJS)  
**<xp:text escape="true" id="computedField1"  
value="#{controller.myMethod}"></xp:text>**

# Java Object Relationship





# Code Walkthrough

**Episode # 197**

# **Sending Alert messages to an XPage**

Users like to know what's happening

# Combobox and PageMessage Demo

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- **SelectItemGroups and SelectItem**
- **Java Class to aid in outputting Bootstrap Alerts**
- **requestScope Managed bean**
- **Custom Control for display**
- **Bootstrap styling included for ease of use.**
- **NOT a replacement for DisplayErrors**
  - ♦ **If that could be integrated in I'd love to know.**

# Combobox and PageMessage Demo

- requestScope Bean so it's available easily from SSJS

**<managed-bean>**

**<managed-bean-name>pageMessage</managed-bean-name>**

**<managed-bean-class>com.notesIn9.xsp.PageMessage</managed-bean-class>**

**<managed-bean-scope>request</managed-bean-scope>**

**</managed-bean>**

# PageMessage Class

- **com.notesIn9.xsp.PageMessage**
  - ♦ **Contains an Enum to control Bootstrap Alert Styling**
    - ▶ ***SUCCESS***("alert alert-success"), ***WARNING***("alert alert-warning")
      - *So you don't have to remember or adapt it to other CSS*
  - ♦ **isValid()** - it knows if it has any messages or not
  - ♦ **appendMessage(String)** - Add as many as you want
  - ♦ **setSuccess(), setError()** - More shortcuts to make life easier
  - ♦ **Contains a static method to make sure there's only ever 1 Object**
    - ▶ **Singleton**
    - ▶ **Thanks Devin!**

# Using the PageMessage

- From the base pageController

```
public PageMessage getMessage() {  
    return PageMessage.getPageMessage();  
}
```

- ♦ Note this is calling a Static method in PageMessage.
- Now it's available to every page the extends the base

```
this.getMessage().setSuccess();  
this.getMessage().appendMessage("My Message Here");
```

Demo

**Episode # 198**

# Converting a Document to a Java Object in XPages

Even documents like to dress up for an evening out



# Objects instead of Documents

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- Objects can be serializable, Documents are not.
- You can enhance your documents with additional functionality
- It's the first step in making a custom business API
  - ♦ This is a great way to live!

# Key Steps

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- **Instantiate the Java Object**
- **To Load**
  - ♦ Load values from Domino Document
  - ♦ Discard the Document - but NOT the values
- **To Save**
  - ♦ Re-Load the Domino Document
  - ♦ Update any values
  - ♦ Save the Document
- **Note: I am NOT extending DataObject for this.**
  - ♦ Most people probably would
  - ♦ Pros and Cons to using DataObject

# Key Methods

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- **load(String key)**
  - ♦ This can be overridden for additional convenience
    - ▶ **load(Document doc)**
    - ▶ **load(ViewEntry entry)**
  - ♦ With (String key) you could test for UNID or other key type
    - ▶ There is a method in the ODA to try and determine a UNID
- **loadValues(Document doc)**
  - ♦ This reads in any fields from the document to your object
- **save()**
  - ♦ Store the UNID in the object for easy retrieval
- **saveValues()**
  - ♦ Update the document from the object

# Code Walkthrough

**Episode # 199**

# **Bitmask, Enums and Creating Excel reports from XPages**

Yeah this is as painful as it sounds - but worth it.

# Bitmask

- No I can't really explain it. So let's use LotusScript
- `MessageBox ( message [ , [ buttons + icon + default + mode ] [ , boxTitle ] ] )`

*buttons*

Defines the number and type of buttons to be displayed in the message box:

Constant name	Value	Buttons displayed
MB_OK	0	OK
MB_OKCANCEL	1	OK and Cancel
MB_ABORTRETRYIGNORE	2	Abort, Retry, and Ignore
MB_YESNOCANCEL	3	Yes, No, and Cancel
MB_YESNO	4	Yes and No
MB_RETRYCANCEL	5	Retry and Cancel

*icon*

Defines the icons to be displayed in the message box:

Constant name	Value	Icon displayed
MB_ICONSTOP	16	Stop sign
MB_ICONQUESTION	32	Question mark
MB_ICONEXCLAMATION	48	Exclamation point
MB_ICONINFORMATION	64	Information

*default*

Defines the default button in the message box. Pressing ENTER has the same effect as clicking the default button:

Constant name	Value	Default button
MB_DEFBUTTON1	0	First button
MB_DEFBUTTON2	256	Second button
MB_DEFBUTTON3	512	Third button

*mode*

Defines the message box modality:

Constant name	Value	Description
MB_APPLMODAL	0	Application modal. Stops the current application until the user responds to the message box.
MB_SYSTEMMODAL	4,096	System modal. Stops all applications until the user responds to the message box.

It's kinda like that.

- **Few to Many Options - think Hamburger toppings**
  - ♦ **Each get a number (“ordinal”)**
    - ▶ ex) 1,2,4,8,16,32,etc...
    - ▶ 1 - Lettuce
    - ▶ 2 - Ketchup
    - ▶ 4 - Mustard
    - ▶ 8 - Onions
    - ▶ 16 - Hot Peppers
    - ▶ 32 - Salt
    - ▶ 64 - Pepper
  - ♦ **With only the total number you can determine which options were set.**
    - ▶ Well I can't. But Java can.



# ENUM

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- Useful when the programmer is working with a “Fixed Set of Constants”
  - ♦ It's like a combobox for programming
- `public enum Color { RED, BLUE, GREEN, YELLOW };`
  - ♦ They can be a LOT more complex if needed.
  - ♦ This prevents you from misspelling “YELLOW” at design time.
    - ▶ Compiler will yell at you.

# Excel Creation

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- Use Apache POI
  - ♦ **FREE!**
- Create a Worksheet
- Build the Header Row
  - ♦ Loop through all the values of the ENUM
  - ♦ BUT only use those that are contained in the bitmask number
- Build the sheet content
  - ♦ Note can be picky about data types.

Demo

# Additional Resources

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- **Community**
  - ♦ **Stack OverFlow**
    - ▶ **Over 4,000 questions asked and many answered**
  - ♦ **OpenNTF.org**
  - ♦ **Google for “XPages Forum”**
  - ♦ **Google+ community - “XPages”**
- **Paid**
  - ♦ **TLCC.com**
  - ♦ **Engage a mentor**

# Contact Info

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