

What's New in IBM Domino Designer and Domino App Dev 9.0 Social Edition



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Agenda

- IBM Domino Designer 9.0 Social Edition
- XPages in 9.0 Social Edition
- OpenSocial / Embedded Experiences
- Programmability
- Futures



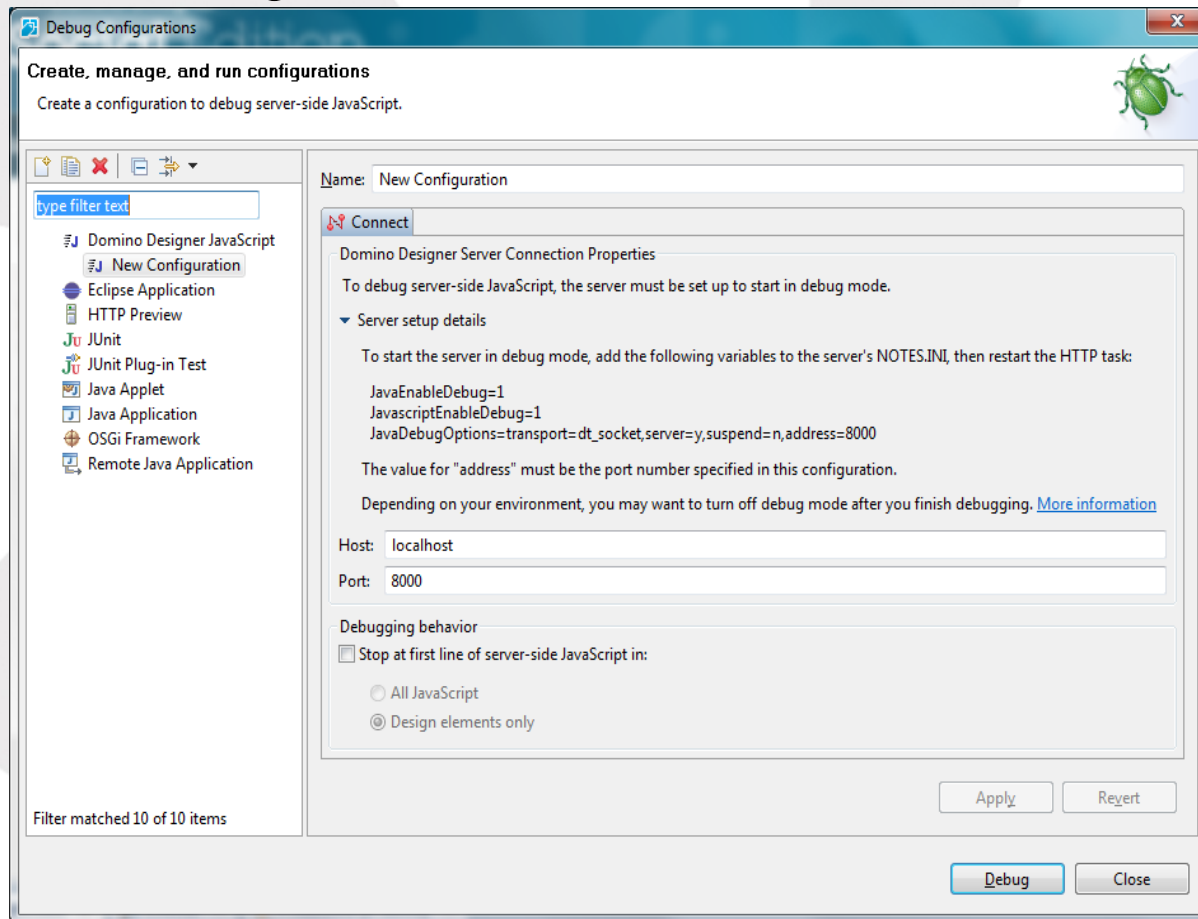
Domino Designer 9.0 Social Edition Design Goals

- Integrate Domino Designer Extension Library tooling into Designer “core”
- Improve Domino Designer “Welcome” and “Home Page” experiences
- Improve XPages developer productivity
- New Jar design element
- Integrate and improve XSP Properties editor
- Bug fixes and quality improvements in key 'high traffic' areas (such as LS editor)
- Improve Server Side JavaScript debugging experience!!



Domino Designer Server Side JavaScript Debugger

- We heard you!!!!
- New “Domino Designer Server Side JavaScript” Debug Configuration

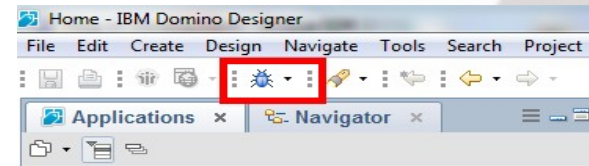


- Debugging is only supported on Domino Social Edition servers and later
- Debugger is based on Eclipse “Remote Java Connection” protocol and uses JPDA/JDI



Domino Designer Server Side JavaScript Debugger

- Debugger can be invoked from a new toolbar item
- Breakpoints can be set directly within XPages' SSJS or within SSJS Script Library
- New 'breakpoint' keyword has been added to the SSJS syntax to allow for permanent breakpoints
 - Breakpoints are only enabled when the server is running in debug mode
- Sever must be configured to run in 'debug mode' in order for debugger to work
 - Note this implies that a port must be opened on the server, so it is not recommended to debug servers that have unprotected access to the internet!
 - JavaEnableDebug=1
 - JavascriptEnableDebug=1
 - JavaDebugOptions=transport=dt_socket,server=y,suspend=n,address=8000



Debugging Server Side JavaScript!

The screenshot displays the IBM Domino Designer interface during a JavaScript debugging session. The top panel, titled "Variables - IBM Domino Designer", shows the "Server Call Stack" with a red arrow pointing to the current line of code: `/xsp:view[1]/xsp:this.data[1]/xe:objectData[1]/xe Line: 7`. The middle panel shows the XPages editor with a red arrow pointing to a breakpoint in the JavaScript code: `return parseLotusLiveProfile(result);`. The right panel shows the "Variables" window with a red arrow pointing to the `result` variable, which is an object with the value `[Object] (id=420223244)`.

Server Call Stack

- IBM Lotus Domino Designer JavaScript thread [Thread-6] (Suspended)
- /xsp:view[1]/xsp:this.data[1]/xe:objectData[1]/xe Line: 7
- ServerThread.stopHere(String) line: 129
- ServerThread.newContext(ExecutionContext) line: 85
- ServerThread(DebugInspector).setExecutionContext(ExecutionContext, ASTDebug) line: 82
- ServerThread(ASTDebug).interpret(ASTNode, IExecutionContext, InterpretResult) line: 136
- ServerThread(ASTProgram).interpret(ASTNode, IExecutionContext, InterpretResult) line: 119
- ServerThread(ASTProgram).interpretEx(IExecutionContext, InterpretResult) line: 139
- ServerThread(JSExpression).interpretExpression(IExecutionContext, InterpretResult) line: 435

Breakpoints in Server Side JS code with the XPages editor

```
<?xml version="1.0" encoding="UTF-8"?>
<xp:view xmlns:xp="http://www.ibm.com/xsp/core"
  xmlns:xc="http://www.ibm.com/xsp/custom"
  xmlns:xe="http://www.ibm.com/xsp/coreex">
  <xp:this.data>
    <xe:objectData var="objectData1">
      <xe:this.createObject><![CDATA[#{javascript:var ep = @Endpoint("lotuslive");
var svc = new abt.LotusLiveProfilesService(ep);
var params = {
  "format": "json"
}
var result = svc.get(params, "json");
return parseLotusLiveProfile(result);
}]]></xe:this.createObject>
    </xe:objectData>
  </xp:this.data>
  <xp:this.resources>
    <xp:script src="/Utils.js" clientSide="false"></xp:script>
  </xp:this.resources>
  <xp:this.beforePageLoad><![CDATA[#{javascript:var ep = @Endpoint("lotuslive");
if(!ep.isAuthenticated()) {
  ep.authenticate(true);
}]]></xp:this.beforePageLoad>
  <xp:table>
    <xp:tr>
```

Server side JS variables

Name	Value
result	[Object] (id=420223244)
entry	[Object] (id=425990500)
params	[Object] (id=727133015)
svc	(id=1332)
ep	(id=1062)
authenticationService	null
forceTrustSSLCertificate	false
label	null
oaProvider	OAProvider (id=1071)
proxyEnabled	false
requiresAuthentication	false
url	"https://apps.lotuslive.com" (id=1812)
lbl	undefined
s	XPages Social Enabler - LotusLive Profiles

Client-Side JavaScript/Dojo Debug Option

- New debug options

- Use case:

- Dojo Library deployed in an OSGi bundle on the server
 - Developer needs to debug uncompressed version of the source files
 - e.g. xspClientDojo.js vs xspClientDojo.js.uncompressed.js

- How:

- Set the “Use uncompressed resources” option in XSP Properties editor

- Result:

- The XPages runtime will server *.uncompressed.js & *.uncompressed.css if available (from within the OSGi bundle)

Options

- Evaluate the entire page on partial refresh
- Use runtime optimized JavaScript and CSS resources
- Use uncompressed resource files (CSS & Dojo)
- Use Dojo layer libraries (recommended for simplified client side debugging)
- Discard JavaScript context after each page

Compiled JavaScript cache size: (expressions)

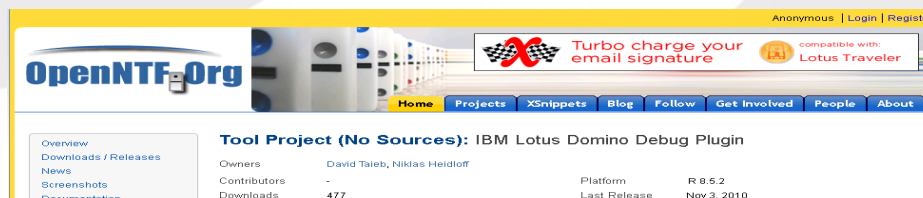
Compiled XPath cache size: (expressions)

Global resource expiration: (days)

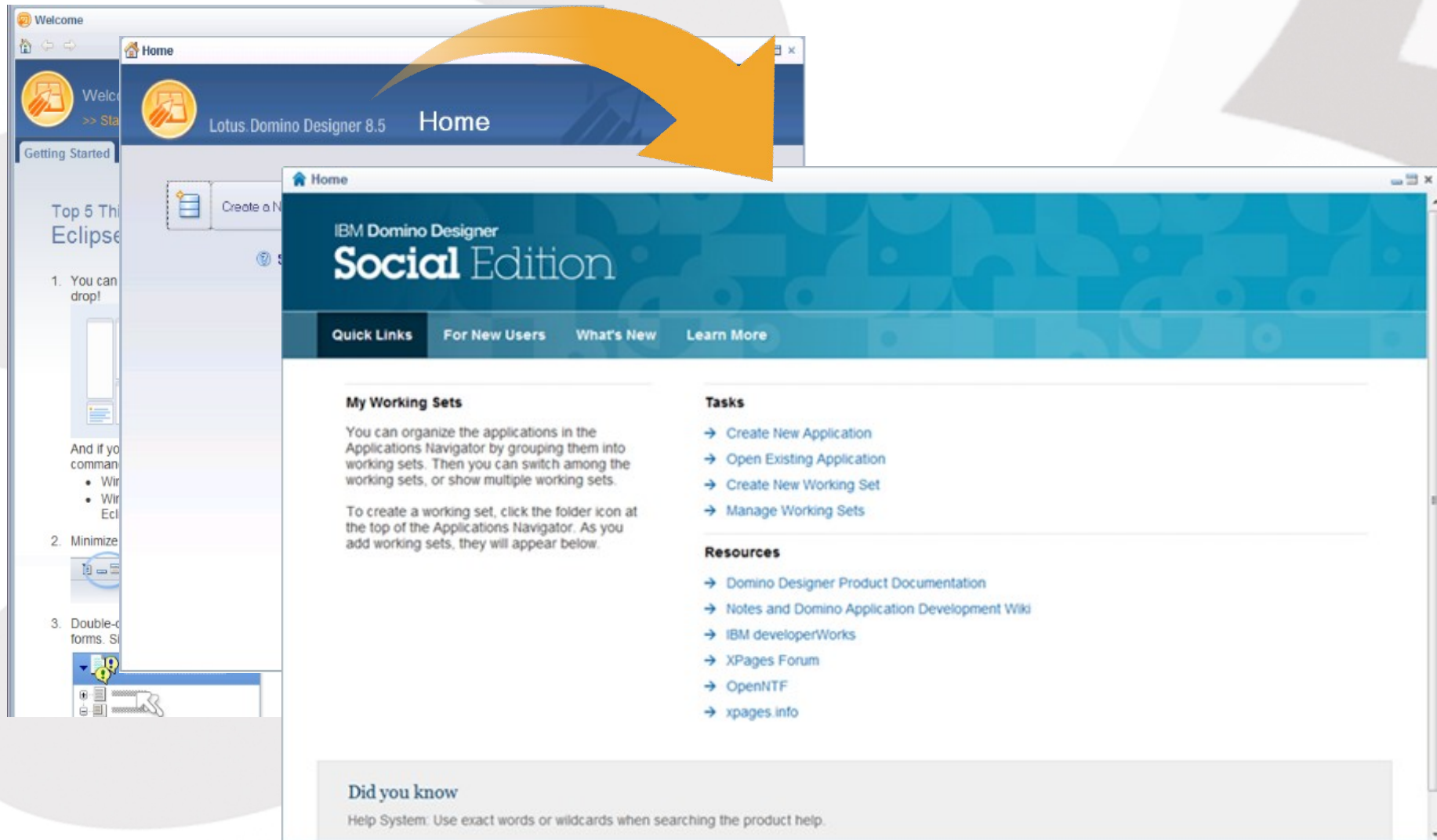


Server-Side Debug Options

- Java Source code is included for all plug-ins in Social edition that originate in 8.5.3 UP1
- Development Environment setup:
 - VERY SIMILAR TO SSJS DEBUG SETUP!! :-)
 - Server must be started in debug mode (again be aware of open server port!)
 - JavaEnableDebug=1
 - JavaDebugOptions=transport=dt_socket,server=y,suspend=n,address=8000
 - Install Domino Debug Plugin into Domino Designer
 - <http://tinyurl.com/XPagesDominoDebugPlugin>
 - Import Java source plug-ins into Domino Designer
 - <http://tinyurl.com/XPagesDesignerInstallSource> (refer to step #11)
 - Set up Domino server and OSGI debug configurations



Improve Domino Designer “Welcome” and “Home Page” experience



Home Page and Welcome Experience

- Updated look and feel to align with the new “Discover” page
- Simplified by removing the Welcome page altogether and consolidating content onto Home page
- Updated content with intros and help links to help topics for major functional areas
- Quick Links tab provides a list of working sets (shows more than 5 working sets at a time!), task links, links to resources, and tips
- Home remains closed on restart if manually closed before shutdown



Improve XPages Developer Productivity

- Content assist in xsp source editor editor!! (also works with SSJS in xsp source editor)
- Hyperlink navigation within the xsp source editor
- Hover help within the xsp source editor
- Palette State Saving
- Jar design element
- Navigator now shows all working sets!! :-)

The screenshot illustrates the IBM XPages Developer interface with several productivity-enhancing features highlighted:

- Code Completion:** The top-left pane shows XML code for `<xe:applicationLayout id="applicationLayout1">`. A cursor is positioned over the `label="` attribute, and a list of possible values (e.g., `binding`, `configuration`, `disableTheme`) is displayed.
- Hover Help:** A tooltip is visible over the `binding` attribute, providing details: "Attribute: binding. Specifies an expression that binds the control to a particular control property. Data Type: object_vb".
- Hover Help (Control):** Another tooltip is shown over the `<xe:formTable id="formTable1">` tag, describing the control: "Form Table (formTable). Displaying a form of input controls with rows containing labels and error fields, an overall title and an area at the bottom for the Save and Cancel actions. Control Identifier (id). Specifies the name identifier for the control. No two controls can have the same name identifier in a single page."
- Navigator:** The bottom-right pane shows the Navigator palette with a list of working sets. The "All Working Sets" option is selected, revealing a sub-list: "1 Alpha Bank Apps", "2 Connect 13", "3 IBM Apps", "4 LS 2012", "5 Zeta Corp Apps", "6 Zeta Corp Apps".
- Code Editor:** The main editor area shows the XML code with the `<xe:formTable id="formTable1">` tag highlighted.

Bug Fixes to Critical Issues

- Bug fixes for:
 - Error 500 when using Java Design Element (also fixed in 853 FP1)
 - Source control issues encountered when importing databases with many script libraries (also fixed in 853 FP2)
 - Fixes to tooling issues reported against Upgrade Pack 1
- Fixes to the LotusScript Editor and builder
 - Problems view reports correct line numbers for LotusScript errors!
 - Improve search navigation
- Performance/memory improvements in the XPages editor
- IMPORTANT! - Increase Designer JVM settings
 - See technote 1617708: Designer Performance Technote
 - <http://tinyurl.com/DesignerJVMSettings>



Help Enhancements

- Domino Designer 9.0 Social Edition user assistance
 - Improved Designer Home Page info and tips
 - Content assist and hover help within the XPages source
- Designer Eclipse help plugins
 - Many customer Feedback issues addressed in help
 - ~ 1000 updates in the Designer basic guide
 - Content organization streamlined to remove redundant material
 - Language cross references added to some topics
 - Many new code examples
 - C&S APIs....
- LotusScript Editor F1 help

- IBM Domino Designer Basic User Guide and Reference
- IBM Domino Designer User Guide
- IBM Domino Designer XPages Reference

The screenshot displays the IBM Domino Designer IDE. The main window shows a code editor with the following content:

```
Common - (Declarations)
47 Const IBM_LOTUS_NOTES_ERROR = CS_SHARED_STRING
48 Const INVALID_DOCUMENT_ERROR = CS_SHARED_STRING
49 Const REPAIR_EVENT_ERROR = CS_SHARED_STRING +
50 Const EXCESSIVE_REPEATS = CS_SHARED_STRING +
51
52 'Back end classes
53 Dim session As NotesSession
54 Dim db As NotesDatabase
55 Dim note As NotesDocument
56 Dim profile As NotesDocument
57 Dim item As NotesItem
58 Dim NameLookup As NotesName
59 Dim agentlog As noteslog
60 Dim PathAndName As String
61
62
63 'General Purpose classes
64 Dim Owner As String
65 Dim NewDocument As Integer
66
67 'Client Differentiation
68 Dim IsWebClient As Variant
```

The right-hand sidebar shows the 'Related Topics' section, which includes the following information:

- NotesSession class**
Represents the environment of the current script, providing access to environment variables, Address Books, information about the current user, and information about the current Notes platform and release number.
- See also:
 - Examples: NotesSession class
 - NotesSession class
- More results...
- Dynamic Help Search

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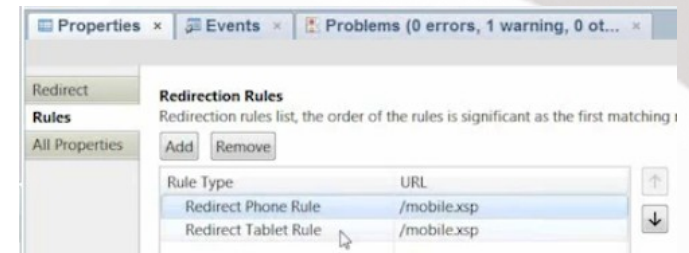
Some Core Enhancements

- Added 8.5.3 Upgrade Pack 1 to Domino, XWork, Domino Designer and Notes
 - XPages Extension Library from UP1 now delivered with base platform!
 - Domino data service (REST APIs)
 - Teamroom and Discussion application templates
- Upgrade core dependencies
 - Dojo 1.8.1 offers enhanced mobile support and bug fixes
 - CKEditor 3.6.6
 - Fixed a number of bugs regarding multiple instances on an XPage, image resizing, attachment handling
 - Added support for spell checker
 - Improved behavior on iOS (note: CKEditor is not supported on iOS)
 - Active Content Filter upgraded to 2.5.0.11



Redirect Control

- Use cases:
 - Traveller or iNotes rewrites the Notes doclink to a web link
 - Custom redirect handling required within an application
- How:
 - Set form display property to a target XPage that includes a Redirect control instance



- Result:
 - The Redirect control instance will transform the request URL accordingly based on the set of redirect rules




- Example:

- For a mobile redirect rule:
- <http://foo/bar.nsf/0e5e7/04aae/?OpenDocument>
 - becomes...
- <http://foo/bar.nsf/mobile.xsp?documentId=04AAE&action=openDocument#document>

```
<xe:redirect>  
<xe:this.rules>  
<xe:redirectPhoneRule url="/mobile.xsp"  
  disableRequestParams="false" urlHash="document">  
</xe:redirectPhoneRule>  
<xe:redirectTabletRule url="/mobile.xsp"  
  disableRequestParams="false" urlHash="document">  
</xe:redirectTabletRule>  
</xe:this.rules>  
</xe:redirect>
```



A Fresh Look at XPiNC Performance Improvements

- Single Copy XPage Design feature
 - *Design Only* copy of your XPiNC app locally deployed and preloaded
 - Java classes (*.class) and resources (*.css, *.js *.image etc) are cached
 - **VERY** efficient for many instances of a single application run using XpiNC
- Single Copy Design with computeWithForm enhancements
 - computeWithForm *can* be very expensive when running remote applications
 - Computed form plus all its children must be downloaded and executed within the client
 - Forms may be arbitrarily large
 - Large forms + High Latency Networks == Poor XPiNC performance 
 - With local S.C.D computeWithForm loads design elements from **local** NSF
- XPiNC – Beware of Application Design Bad Practices 
 - Avoid any application logic that incurs **unnecessary** network transactions 
 - Custom Columns in a viewPanel that call `getDocument.getItemXxx()`;
 - `@DbColumn()`.. `@DBLookup()` calls within the *rendered* property of controls



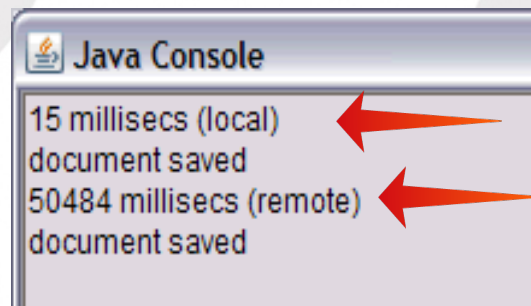
XPiNC Performance Improvements

■ computeWithForm example:

- Run a Java Agent in a Local application and then on the same application on a server

```
Database app = session.getCurrentDatabase();  
// Database app = session.getDatabase("myServer", "remoteReplica");  
Document doc = app.createDocument();  
doc.replaceItemValue("Form", "frmTask");  
doc.replaceItemValue("Subject", "computeWithForm operation");  
doc.replaceItemValue("Body", "Text ... ..");  
// log time before computeWithForm operation  
long startTs = System.currentTimeMillis();  
if (doc.computeWithForm(false, false)) {  
// log time after computeWithForm operation  
long endTs = System.currentTimeMillis();  
System.out.println(Long.toString(endTs-startTs) + " millisecs (local)");  
doc.save(true, true);  
System.out.println("document saved");  
}
```

**Sample
Results !**



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XPiNC Performance Improvements – Run on Server

- New “Run on Server” option
 - Ability to run remote applications directly on the Domino server
 - Mitigates situation where many XPiNC network transactions degrade performance
 - Maintains XPages current look and feel
 - Continues to support XPiNC custom features
 - Notes bookmarking
 - Notes clients context menus (e.g. Open in Designer)
 - EnabledModifiedFlag/DisableModified flag behavior
 - XPiNC applications can be coded conditionally according to execution mode
 - Uses Notes Account framework
 - Facilitates seamless application access by avoiding re-authentication
 - If seamless authentication fails, runtime falls back to conventional XPiNC mode (run on client)
 - Run on Server is **NOT** enabled by default
 - Can be set using an application wide setting; enabled by end user; set via policy

Launch Properties

Notes Client Launch

Launch:

XPage:

On Basic clients, the default view will open instead.

Run server-based XPages applications directly on Domino server



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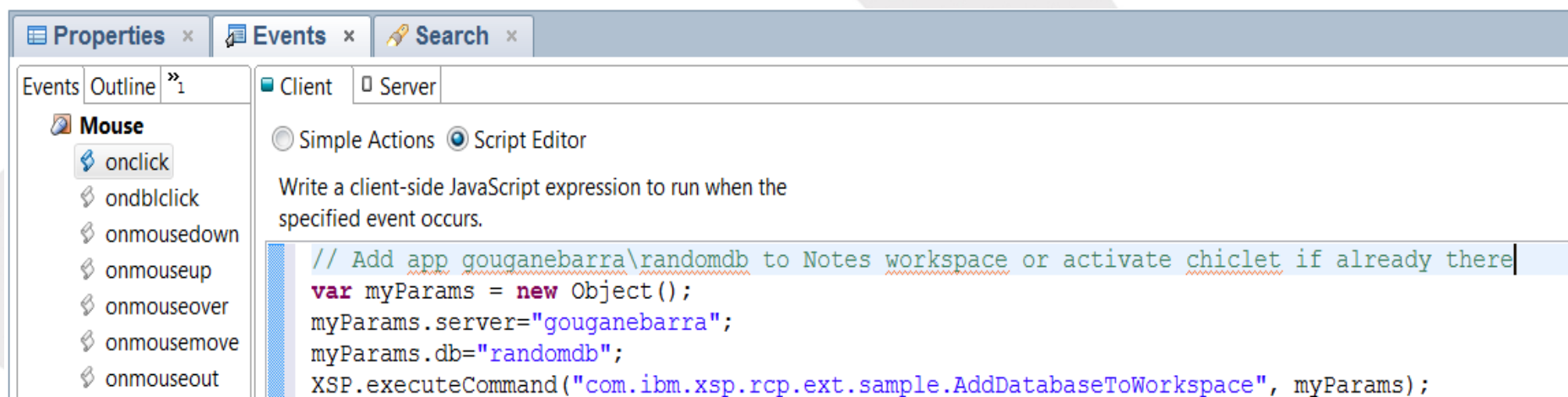
XPiNC Client Side JS Enhancements

- XPiNC now has an extensible client side JavaScript model
 - Since Domino 8.5.1 the client side XPiNC programming model has been limited
 - Developers were limited to a small number of predefined commands (alert, confirm etc..)
 - New XSP command available in IBM Domino 9.0 Social Edition
 - `XSP.executeCommand(commandID, commandParameters)`
 - `commandID` identifies the requested function
 - `commandParams` is an object containing arbitrary arg values
 - Or can be null
 - The referenced commands are implemented via client side Java plug-ins
 - Extension point name; “com.ibm.xsp.rcp.ExtendedCommands
 - Uses simple `IextendedCommands` Java interface
 - Provides secure access to Notes front end functionality via:
 - `NotesUIWorkspace` classes
 - Eclipse API classes
 - Custom Java code



XPiNC Client Side JS Enhancements

- XSP.executeCommand(...) - How it works:
 - XSP.executeCommand uses the same runtime path as other XPiNC XSP JS commands such as XSP.alert(...), XSP.publishEvent(..) etc..
 - XSP.executeCommand(..) looks through the list of 'registered' providers (registered via ext point)
 - If a contributor is found, it is called
 - Results, if required are returned



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Simplifying Access to Your Application's Data & Services

- Challenge: constant context switching with today's applications
 - Many applications send notifications to our activity streams and inbox
 - One workflow application may generate thousands of notifications/day
 - Notifications not very useful by themselves
 - Constant context shifting from one app to another adversely impacts productivity
- Embedded Experiences keep you in the app(s) you work in the most
 - They work where you work: Inbox or Activity Stream
 - Enhances and extends the basic notification – emails become actionable with the latest data
 - Reduces cycle time and improves organizational productivity & responsiveness
- Support for embedded experiences:
 - IBM Connections 4 CR2 mail & personal and community activity streams
 - Goal: IBM Notes 9.0 Social Edition and IBM iNotes 9.0 Social Edition
- Embedded experiences contain either ...
 - Arbitrary web pages (XPages)
 - OpenSocial gadgets



XPages Social Edition Integration Points

- New XPages SendMail Action:
 - Drag & Drop action to facilitate sending simple e-mail
 - Advanced features support Embedded Experience
 - Encapsulates required JSON or XML payload

Enter values for simple action arguments

Category: Basic

Action: Send Mail

Arguments for this Action

Basics Deliver Options Embedded Experience

Format: JSON

HTML URL:

Gadget URL:

Gadget context properties:

Name	Value

Add Remove

OK Cancel

The screenshot displays the XPages Social Edition user interface. The top navigation bar includes 'Renovations Inc', 'Home', 'Profiles', 'Communities', and 'Apps'. The main content area is titled 'Home' and features a sidebar with navigation options like 'Getting Started', 'I'm Following', 'Status Updates', 'Action Required', 'Saved', 'My Notifications', 'Discover', and 'My Page'. The 'I'm Following' section shows a 'Trouble Ticket' gadget with a notification: 'New Trouble Ticket assigned to you.' at 8:06 AM. Below this, there are several activity updates from Ronald Denham regarding computer purchases and file tagging. A 'View Ticket' modal window is open, showing details for a ticket: 'Summary: iPad does not work', 'Category: Mobile Devices', 'Priority: High', 'Requestor: Heather Reeds', and 'Status: Closed on 7/23/12 9:07 AM by Ed El-Amon'. The 'Problem Details' section contains the text 'My iPad stopped working.' and a 'History' section with two entries: '[7/23/2012 9:03:26 AM] Heather Reeds/renovations: Ticket submitted' and '[7/23/2012 9:06:07 AM] Dan Misawa/renovations: Ticket assigned to Ed El-Amon/renovations'. The modal window has 'Edit', 'Close', and 'Comment' buttons at the top.



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Programmability Updates

- Backend Classes
 - Enhanced performance ViewNavigator
- Enhancements to Domino data service
 - Improved support for rich text
 - Support for concurrent updates to documents (Last-Modified, If-Unmodified-Since, etc.)
 - Miscellaneous bug fixes
- Java1.6SR12 + ifix
- New Calendaring and Scheduling APIs!!!
 - Provides management of personal calendar data and scheduling operations
 - Based on iCalendar
 - Available for C, Java™, LotusScript®, and server-side JavaScript



C&S APIs: Capabilities

■ Simple CRUD actions

- Create, Read, Update, and Delete calendar entries
- Leverage iCalendar data format
- Support for repeating entries
- Support for all calendar entry types
 - Meetings, appointments, reminders, all day events, anniversaries

■ Implicit Scheduling

- Invitations, updates, reschedules, cancels, etc – all sent out automatically

■ Calendar level operations

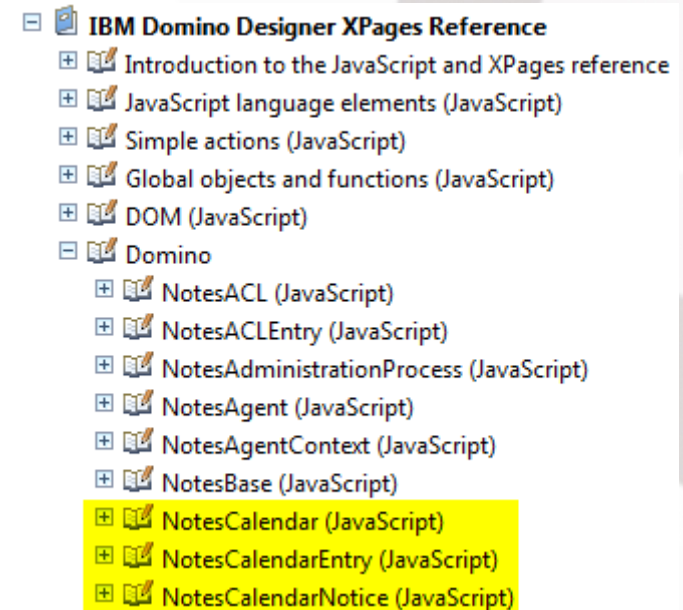
- Read calendar view data, get newly arrived invitations, ...

■ Entry level operations

- Cancel a meeting, counter a meeting on a calendar, delete an appointment, etc

■ Notice level operations

- Accept, decline, counter, and take other actions on invitations, reschedules, etc



Even though it says JavaScript, help covers Java & LotusScript

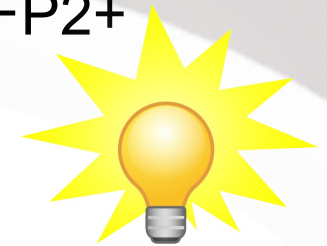
LotusScript® syntax and examples

```
NotesCalendar.AutoSendNotices As Boolean
```

This agent creates a meeting calendar entry for today at 1600 UTC, with no notices being sent, and posts its UID to an environment variable.

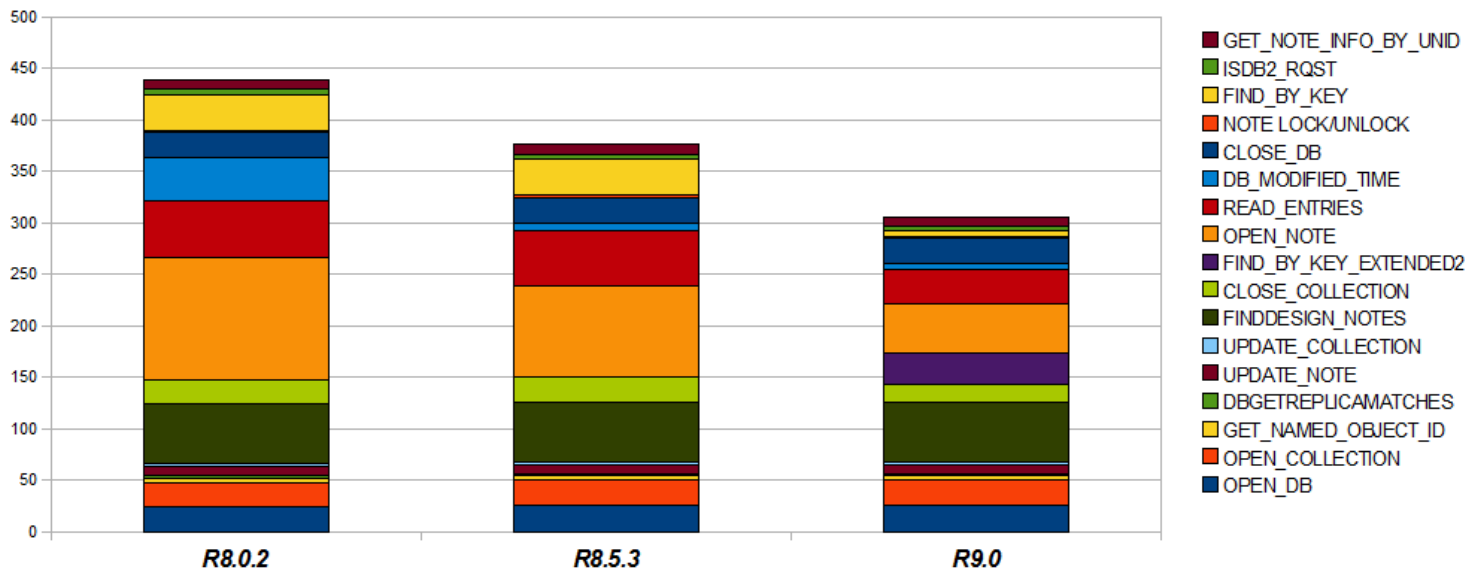
Case Study – Core Transaction Enhancements

- Large customer has critical Notes application taking 5 seconds minimum for common operations
 - Running 8.0.2
- Comparative analysis showed benefits of moving to 8.5.3 FP2+
- Outcome from just upgrading client to 8.5.3 FP2+
 - ~ 50% decrease in hourglass waiting
 - ~ 40% decrease in overall NRPC



Upgrading to current release can really payoff

Comparative Transaction Count

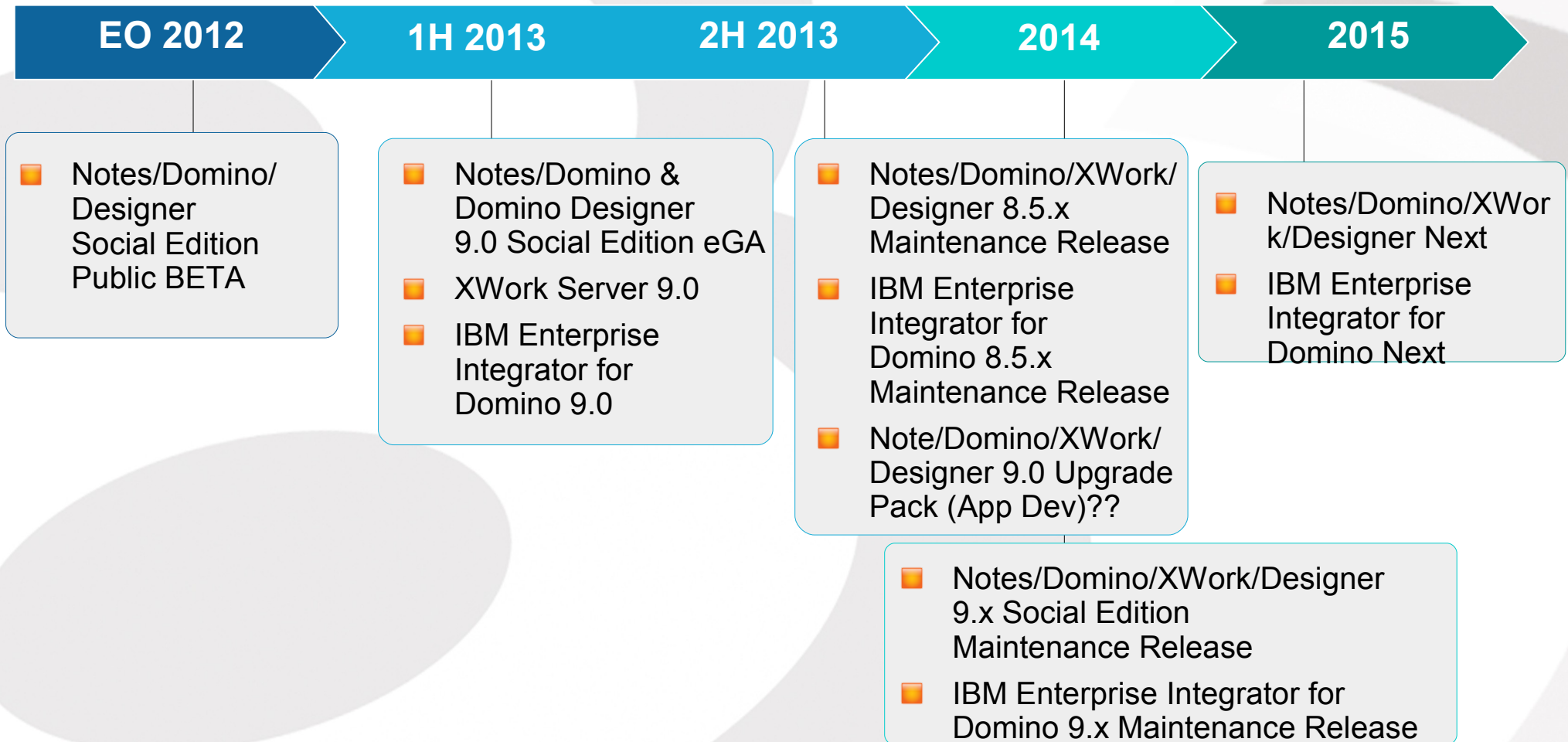


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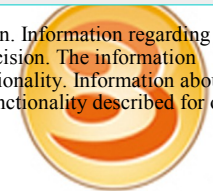
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IBM Domino/XWork & Domino Designer Continued Investment In Application Development



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Proposed Enhancements for Domino Designer

- UI enhancements to accelerate XPages development
 - New application creation experience (desktop and mobile web)
 - Improve usability when using CSS and Themes
- Investigate Eclipse platform upgrade to improve development tooling
- Support new XPages controls
- Support for OpenSocial gadgets
- Improve documentation
- Improve serviceability



Proposed Enhancements for XPages & Social

- XPages core
 - Relational Database & REST data sources
 - Dojo upgrade + Asynchronous Module Definition (AMD) support to improve performance
 - Encryption and signature support
- XPages mobile
 - Make it simpler to build mobile web apps
 - Further leverage Dojox mobile,
 - Better Tablet support
 - Mobile renderings for additional XPages controls
 - Improved support hybrid applications
 - Working with IBM Worklight
- Leverage social services from Connections, Sametime, SmartCloud
 - Merge Social Business Toolkit SDK into XPages Social Enabler
- Domino as an OAuth provider
- Support for OpenSocial gadgets



Appathon

Social app dev contests

\$10,000 in
contest
prizes!



appathon.openntf.org

Two Social App Dev Contests

- IBM Connections
- IBM XPages technology

Sponsored by

- TIMETOACT GROUP
- WebGate
- IBM developerWorks

Hosted by

- OpenNTF



Q & A

