Application Development using IBM® Lotus® Domino® 7

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Agenda

- Web services
- IBM DB2® integration options
- Usability improvements
- Productivity enhancements
- Additional new features
Web Services

Web services extend the reach of Lotus Domino applications by providing a standards based interface for external applications.
What are web services?

- 太多不同的應用系統無論是在 Extranet or Intranet

- 不同的資料格, 不同的語言, 不同的邏輯

- 統一資料儲存格式 - XML

- XML是一個文件儲存格式的標準
That is great about XML but what about web services?

- 不同的應用系統間的應用程式, 要如何互相利用？

- Web Service的基本概念: 提供一個標準, 讓不同的平台上面不同應用系統能分享他們的應用功能

- Make reuse and integration easier with other applications
Web Service Hosting in Lotus Domino Designer 7

- Lotus Domino Designer provides the development support
- New NSF design element: Web Service
  - Extends Web Agent behavior
  - LotusScript or Java
  - WSDL Import & Export
- Lotus Domino HTTP task provides the execution environment
  - ?OpenWebService
  - ?WSDL
- Web Service engine based on Apache AXIS 1.1+
  - Provides SOAP 1. and WSDL support
Web Services Design Element
Web Service From Imported WSDL
Web Services Properties

Security Features

Advanced
Lotus Domino 7 Web Service Delivers….

<table>
<thead>
<tr>
<th>Developer Support</th>
<th>Pre-Lotus Domino 7</th>
<th>Lotus Domino 7</th>
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<tbody>
<tr>
<td>No Design time tools</td>
<td>Lotus Domino Designer</td>
<td></td>
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<tr>
<td></td>
<td>▪ Web Services design element</td>
<td></td>
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<tr>
<td></td>
<td>▪ Import / Export WSDL for LotusScript &amp; Java web services</td>
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<thead>
<tr>
<th>Runtime Support</th>
<th>Could write code that simulates a SOAP engine</th>
<th>Added Apache Axis SOAP engine</th>
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<tbody>
<tr>
<td></td>
<td>Added Apache Axis SOAP engine</td>
<td>Parses messages</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Deserialize service arguments</td>
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<td></td>
<td></td>
<td>Calls the service method</td>
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<td></td>
<td>Serialize the service response value into a SOAP response</td>
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<td></td>
<td>Returns the SOAP response</td>
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Demo!!

- 員工資料庫 Domino DB – KAOND7.nsf
- Using Java App and .Net App to retrieve and acc data to KAOND7.nsf
DB2 Enabled Databases in Lotus Domino 7

DB2 support provides developers with the ability to provide a relational interface to their applications.

Applications access using SQL:
- create, read, update & delete
DB2 Support

- **DB2 Access View (DAV)**
  - organize your fields into DB2 views
  - use in SQL statements
  - expose IBM Lotus Notes® data to DB2 applications

- **Query views**
  - SQL statement describes the selection
  - dynamically computed Select statement
  - full SQL fetch power (joins, etc)
DAV (DB2 Access View)

- Use SQL to work with Lotus Domino data
- Improves reporting on Lotus Domino data by exposing unstructured data in a relational format
  - Read Lotus Notes data, with Lotus Domino security semantics (ACL's, reader lists)
  - Third party reporting tools can work via ODBC/JDBC
- Lotus Domino data can be modified via DB2
  - Insert, Update, and Delete notes with full Lotus Domino semantics
  - Support for replication/save conflict, document locking
DB2 Access View (DAV)

Choosing Fields

Validation
DB2 Access View (DAV) Properties

**DAV Properties**

- Name: Estimate DAV
- Comment: Customer repair estimates
- Catesia: Select the form(s) associated with this DAV access view
  - All forms
  - Claim
  - Estimate
  - Estimate2

**Access View Entry Properties**

- Field Name: Estimated
- Notes type: Number
- DB2 Type: DOUBLE

- DB2 index field
- Read only in DB2
- Allow truncation of Notes data
- Store multiple values as: First value only
- DB2 Input delimiter
- DB2 Display delimiter
- Column length: 0

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Query View

- Lotus Notes view based on SQL query

- Query Views are dynamic
  - Query runs in response to a view open or view rebuild
  - Query Views are recalculated and are not persisted

- Queries can be parameterized and personalized

- Queries can JOIN data for display. Data in view can include:
  - Lotus Domino data from current NSF exposed through a DAV
  - Lotus Domino data from another NSF exposed through a DAV
  - DB2 data
  - DB2 federated data (QRACLE, MS SQL.....)
Query View – SQL Defined Selection

SQL Statement

SELECT EMPTOOL#NOTEID, EMPTOOLEMPID, EMPLOYEE.FIRSTNAME, EMPLOYEE.LASTNAME, EMPLOYEE.WORKDEPT, EMPLOYEE.PHONENO
FROM TESTNSFD.EMPTOOL AS EMPTOOL, D8ADMIN.EMPLOYEE AS EMPLOYEE
WHERE EMPTOOL.EMPID = EMPLOYEE.EMPNO

Edit SQL Query Formula

SQL Query

SELECT EMPTOOL#NOTEID, EMPTOOLEMPID, EMPLOYEE.FIRSTNAME, EMPLOYEE.LASTNAME, EMPLOYEE.WORKDEPT, EMPLOYEE.PHONENO
FROM TESTNSFD.EMPTOOL AS EMPTOOL, D8ADMIN.EMPLOYEE AS EMPLOYEE
WHERE EMPTOOL.EMPID = EMPLOYEE.EMPNO
Query View – Joining Data

Data from DB2 Access View

Data from Different DB2 App
Demo!!

- 主管資料 Domino DB – HSCND7.nsf
- 員工資料 DB2 Database – Sample
- DB2 Database – Domino need to set Federated Database Object with Sample
Lotus Designer 7 Usability Improvements

- Design list changes
  - Rearranged to show more information
  - Hover text for image indicators
  - Column width resizes remembered
  - Edit-in-place for element name, alias and comment
  - Sortable comment column
- Sign button available for agents, web services and script libraries
- Status bar message when enable or disable LotusScript debugger
- Close warning and Close all open windows
Design List Enhancements

Icons save Space

Comments Sortable

and Comment fields
Toggle LotusScript Debugger
Shared Columns

- Reuse common column formulas and formats.
  - entire column definition or just formula

- “Where used” feature

- Backwards compatible
Java Enhancements

- Lotus Domino 7 supports Java 1.4.2

- Java Debugging support
  - Client side debugging of Java code in agents, web services and script libraries
    - Enable using option in design element
    - Configure using File-Tools-Java Debugging Preferences
  - Requires 3rd party debugger that supports the JPDA (Java Platform Debugger Architecture).
    - For instance, Eclipse or RAD/WSAD
Agent and Web Service Profiling

- Tracks the time elapsed to perform each method in agent or Web service.
  - Can use in conjunction with Lotus Domino Domain Monitoring – Application Monitoring
- Supports LotusScript and Java
- Enable using option in individual design element’s properties box
- View profiling results using new NotesAgent method or Design menu item - View Profile Results
New Features

- AutoSave on a per form basis
- Actions available on right mouse button menu
- ‘Input enabled’ formulas for Lotus Notes style fields
- User definable View columns (multiple per view)
- Embedded outline control option for maintaining folder unread marks
- New @commands and @functions
- New LotusScript methods and properties
What does AutoSave do?

On fixed intervals that specified on the individual Lotus Notes Client, the items in the current document will be saved into a separate Autosave database.
AutoSave on a Per Form Basis

- Not the same as doing File-Save!
  - Enabled on a per form basis
  - User edits are saved to the local AutoSave database
  - Not all form script events are run when AutoSave occurs

- AutoSave must be enabled on Lotus Notes Client
  - Can be set through:
    - Policy document OR
    - Lotus Notes Client User Preferences dialog

- New Menu to access AutoSave options
  - File >> AutoSave
Actions available on right mouse button menu
Input Enabled Formula for Lotus Notes Style Fields

- Support extended to include most Lotus Notes style fields
  - Exceptions: Rich Text and Rich Text Lite
- Input Enabled event in Programmer’s Pane

- Formula enables/disables an editable field for input
  - Evaluates to 0 – field cannot be edited
  - Evaluates to anything else – field can be edited
User Definable View Columns – Multiple per View

- Multiple view columns can use profile document for formula
- “User definable” always displayed
- Can be used for more than just color coding
  - Example: Attention indicator in mail
- If multiple columns use profile doc, they must all use the same profile doc
New @Command

- @Command([DiscoverFolders])
  - Displays a dialog listing the folder(s) where the selected document can be found.

Requires embedded outline with “Maintain folder unread information” property set.
New @Functions

- @PolicyIsFieldLocked (fieldname)
  - Use in input enabled and hide formulas.
  - Tells whether $DPLocked field will prevent changes to field from being saved
- @IsEmbeddedInsideWCT
  - Returns TRUE if Lotus Notes is running embedded within the IBM Workplace Managed Client™
- @AdminECLIsLocked
  - Returns TRUE if Administration ECL is locked
- @DB2Schema (server : filename)
  - Returns the DB2 schema name for the given database. Use in DB2 Query Views SELECT statements
- @IsDB2 (server : filename)
  - Returns TRUE if given database is backed by DB2
New LotusScript/COM/OLE Methods and Properties

- `NotesAdministrationProcess.ApproveHostedOrgStorageDeletion` method
- `NotesAgent.GetPerformanceDocument` method
- `NotesDatabase.GetModifiedDocuments` method
- `NotesDocumentCollection.UntilTime` property
- `NotesUIDocument.ModifiedSinceSaved` property
- `NotesUIWorkspace.IsEmbeddedInsideWCT` property
- Several new properties and methods for `NotesDOMxxx`
- Several new properties and methods for `NotesDXLxxx` classes
Summary

- IBM Lotus Domino Designer 7
  - 保障了用戶在Domino Application上面的投資
  - Web services 將 Domino 延伸進入SOA架構
  - DB2 integration allows relational constructs
Resources

- Lotus Notes/Domino 7 and DB2 v8.2 Trial Download
- Microsoft SOAP Toolkit to allow you to call web services from LotusScript
  http://www.microsoft.com/downloads (SOAP Toolkit 3.0)
- Ed Brill blog web site
  http://www.edbrill.com
- 在Domino中使用GoogleSearch API
  http://www-128.ibm.com/developerworks/cn/lotus/google-app/
- Integrating Amazon Web Services with Domino
  http://www-10.lotus.com/ldd/today.nsf/Lookup/AWS_integration

coryma@tw.ibm.com
Lotus ND7 download site

Try trial versions of Lotus Notes, Lotus Domino, and Domino Designer.
- Lotus Domino 7
- Lotus Notes, Domino Designer, and Domino Administrator 7
Agenda (Backup slides)

- IBM Lotus Domino Designer® 7
  - Web services
  - IBM DB2® integration options
  - Usability improvements
  - Productivity enhancements
  - Additional new features

- IBM Lotus Enterprise Integrator® 7

- IBM Lotus Workflow™

- IBM Workplace tools
Lotus Enterprise Integrator

- Enables Lotus Domino applications to leverage external system data and business logic
- Opportunity to reduce training and external system licensing costs and take data mobile
- Industrial-strength server for real time data access and data transfer & synchronization
- Intuitive graphical user interface (UI), no programming required
- Lotus Domino as front end to SAP data using Lotus Enterprise Integrator with Lotus Connector for SAP

Lotus Enterprise Integrator 7 Enhancements

- Real time enhancements
  - Synchronize external events
- Fail-over server
- Admin usability and productivity enhancements
Lotus Workflow

- Extends the native workflow capabilities of Lotus Domino using point-and-click tools and reusable object libraries for routing rules, role assignment, deadline handling, and task automation.

- Automate document approval cycles for Lotus Domino Document Manager

- Graphical process flow is automatically turned into scripted actions

Lotus Workflow 7

- Web services
  - Core Lotus Workflow services
  - Interface to any Lotus Workflow process
- RAS
- Web attachments

Domino Utility server entitles Lotus Workflow!
Agenda

- IBM Lotus Domino Designer® 7
  - Web services
  - IBM DB2® integration options
  - Usability improvements
  - Productivity enhancements
  - Additional new features
- IBM Lotus Enterprise Integrator® 7
- IBM Lotus Workflow™
- IBM Workplace tools
IBM Workplace Products provide Role-based, Composite Applications

- Discussion Component
- Lotus Domino app
- Custom forms, workflow
- My Team
- Enterprise Content
Programming Model for Composite Applications

Build Components / Templates

- Easy to use, no programming
  (Workplace application builder)

- Fast time to value, using visual, scripting tools
  (IBM Workplace Designer)

- Ultimate flexibility through coding
  (IBM Rational® Tools, Workplace Toolkits)

Assemble and Deploy Applications

- Template Editor
  (Workplace application builder)

Clients

- Browser
- Workplace Managed Client™
IBM Workplace Designer
*The fastest way to create components for IBM Workplace applications.*

- Supports the creation of document-oriented business process components and applications.
  - Automate typical enterprise processes, such as expense reports, change requests, or project management.
- Helps reduce development costs.
  - Little or no training required due to the easy to use, high-level visual design environment.
  - Creates reusable J2EE™ components.
- Low barrier to entry, easy to get started.
  - Enables script level developers, Lotus Domino application designers, Visual Basic developers and others to easily create J2EE components for IBM Workplace applications.
- Readily supports the robust security and administration features of IBM Workplace applications.
IBM Workplace Designer

The fastest way to build components for IBM Workplace environments.

- Forms
- UI Controls
- XML storage in a relational db
- Schema Editor
- JavaScript™ Editor
- Document API
- Workplace application integration
IBM Workplace Collaboration Services
*API Toolkit v. 2.5*

- Build on top of IBM Workplace server or client
- Integrate with collaboration services
- Extend with new functionality
- Sample code
- Java API

Sample App. for IBM Workplace Managed Client
IBM Rational Application Developer

- Create new IBM WebSphere Portal projects
- Create new skins and themes
- Create new Portlets
- Workplace components
- Workplace Managed Client applications
- Can use IBM Workplace Collaboration Services 2.5 API Toolkit
Summary

- **IBM Lotus Domino Designer 7**
  - Application investments protected
  - Web services extend Domino into Service Oriented Architecture
  - DB2 integration allows relational constructs

- **IBM Workplace tools**
  - Allows use of existing skill set
  - Readily support role based, composite applications