

CONNECT WITH THE EXPERTS



Deploying Domino Applications to BlackBerry MDS Studio

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Director, HADSL*



What We'll Cover...

- Introduction
- Architectures
- Web Service Enabling a Domino Application
- Installing MDS
- BlackBerry MDS Overview
- First Application
- Summary and Questions

Who is the Target Audience?

- Lotus Notes developers in BlackBerry enabled environments.
- Developers who wish to deploy applications to BlackBerries.

What is this About?

- This talk aims to demonstrate:
 - How to web service enable Domino applications.
 - The BlackBerry MDS studio.
 - Developing your first BlackBerry application.

What is this About?

- Why BlackBerry?
 - Market leading handheld data device.
 - Robust.
 - Loved by CIOs.
 - Do you have them already?
- Who am I?
 - Bill Buchan.
 - Dual PCLP in v3, v4, v5, v6, v7.
 - 10+ years senior development consultancy for Enterprise customers.
 - Learn from my pain!

What is this About?

- Where do I find BlackBerry MDS Studio?
 - The BlackBerry web site:
 - <http://www.BlackBerry.com>
- The MDS toolkit contains:
 - A BlackBerry simulator.
 - The BlackBerry Mobile Data Suite Engine.
 - An integrated development environment.

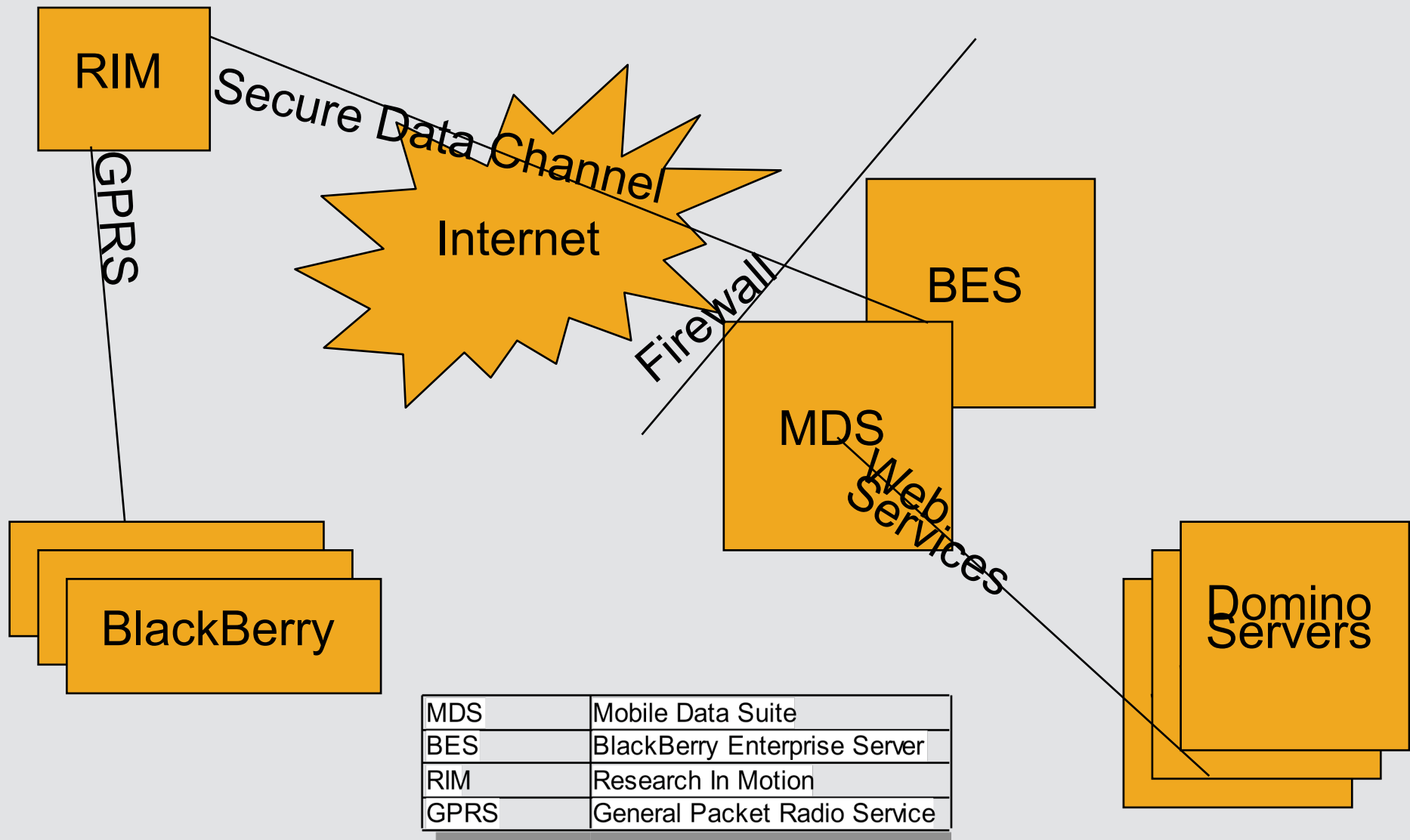
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MDS Architecture

- MDS is a Java-based application stack:
 - May run on the BlackBerry Enterprise Server'
 - In a small environment.
 - Larger environments may require dedicated servers.
 - Application repository holds applications.
 - Can push applications to users' BlackBerries.
- MDS also provides:
 - On-line data connectivity services via web services.
 - Allowing handsets to utilise web services.
 - Application access to PIM data on the BlackBerry.
 - Allowing applications to interrogate the BlackBerry.

Solution Architecture



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 **BlackBerry**

Solution Architecture (cont.)

- We are interested in:
 - Web service enabling a Domino application.
 - Interacting via a BlackBerry handset.
- Is this difficult?
 - No. The Blackberry MDS Studio makes it simple for you.
- Is the Blackberry MDS Studio lightweight?
 - No. It creates enterprise applications.
- Is it difficult to use?
 - No. This presentation will lead you through your first application.

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Web Service Enabling: Introduction

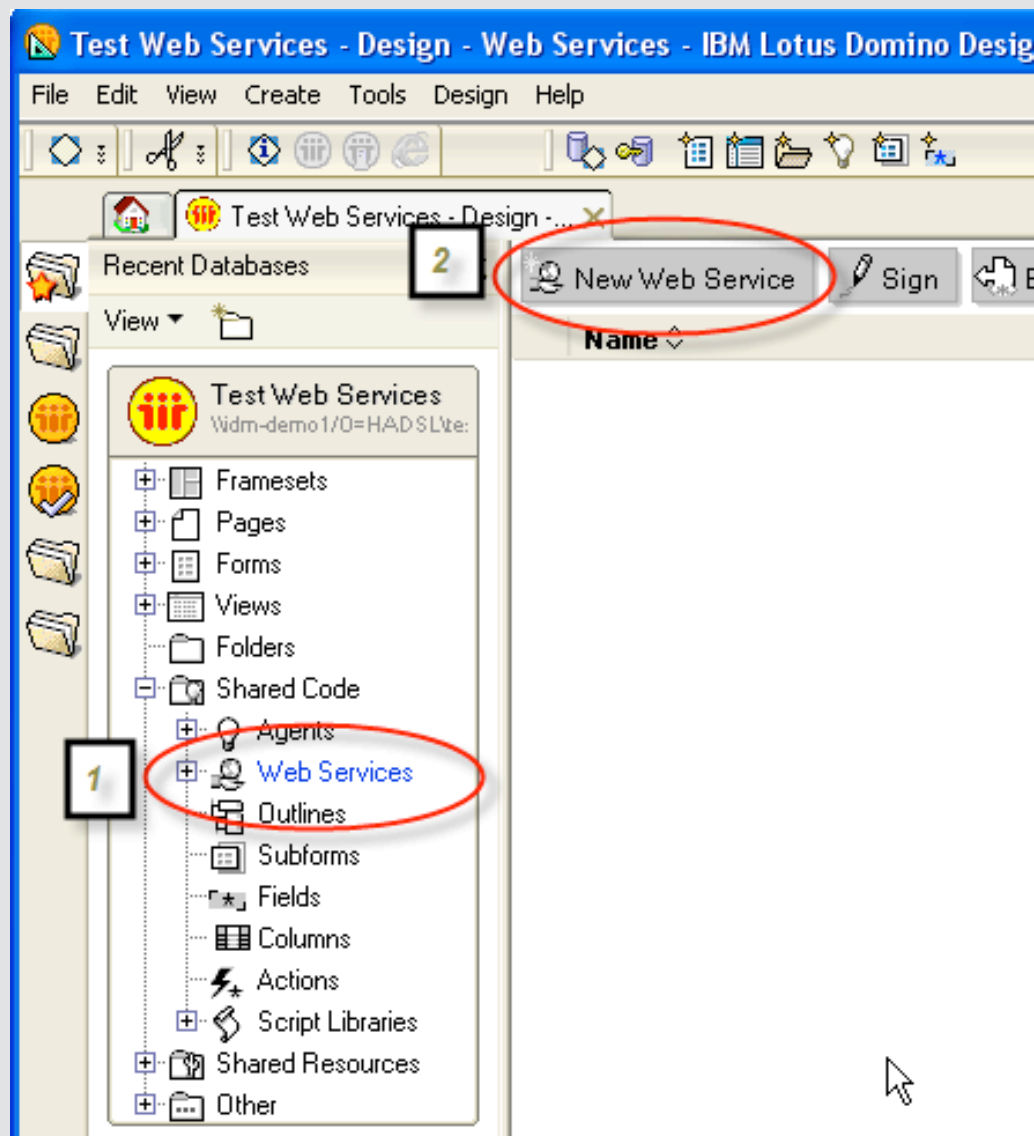
- What is a web service?
 - A web service is a standard application-to-application interface.
 - It usually uses the “http” protocol—just like a web page.
 - It usually encapsulates its data into an XML file.
 - It can be made secure.
- How can I create a web service?
 - Prior to Domino 7, using Java Servlets.
 - In Domino 7 you can create web services in LotusScript.
- How can I “consume” a web service:
 - Quick and Dirty: MS SOAP DLL.

Web Services: Resources

- www.nsftools.com
 - Julian’s site is a very good repository of Domino Java Code.
- www.billbuchan.com
 - My “Speaking Engagements” page has a web services example from ILUG.
- www.openNtf.org
 - The “Stubby” project.

Web Services: Design

- We shall
 - Create a web service that provides a single function:
 - GetJoke() returns a string containing a single Joke.
 - Repeated calls will return different jokes on a random basis.
 - Open Designer and navigate to “web services”.
 - Create a new web service called “Simple”.



Web Services: Demo

Web Service Demo



Web Services: Performance

- Domino reloads LotusScript on each call:
 - Ouch. It might not handle large concurrency.
 - No persistent (in memory) data.
 - Don't do complex actions during your web service.
 - Keep it to lookup or store operations:
 - Write documents that are then “completed” by a scheduled agent.
 - How can I tell if its taking a long time?
 - User response.
 - Lack of scalability in terms of concurrent users.
 - “Profile” the Web service using agent profiling.

Web Service: Scalability

- Want a heavyweight, scalable web service?
 - Consider rewriting in Java:
 - Persistent session data.
 - Caching of common lookup views.
 - Able to use threading to separate “heavy duty” tasks.
- Use a LotusScript web service to prototype and test.
- If performance does not scale, rewrite in Java.

Web Services: Summary

- Web service enabling a Domino application:
 - Domino 7 makes it simple to web service enable an application using LotusScript.
 - Lots of web service tutorials on the web.
- Remember:
 - Web services are a standard, platform independent, language independent, application-to-application interface.
 - Useful for exposing Domino data to other platforms.
 - Useful dispelling anti-Domino bias in your company.
 - Web services are not the point of this presentation!

What We'll Cover...

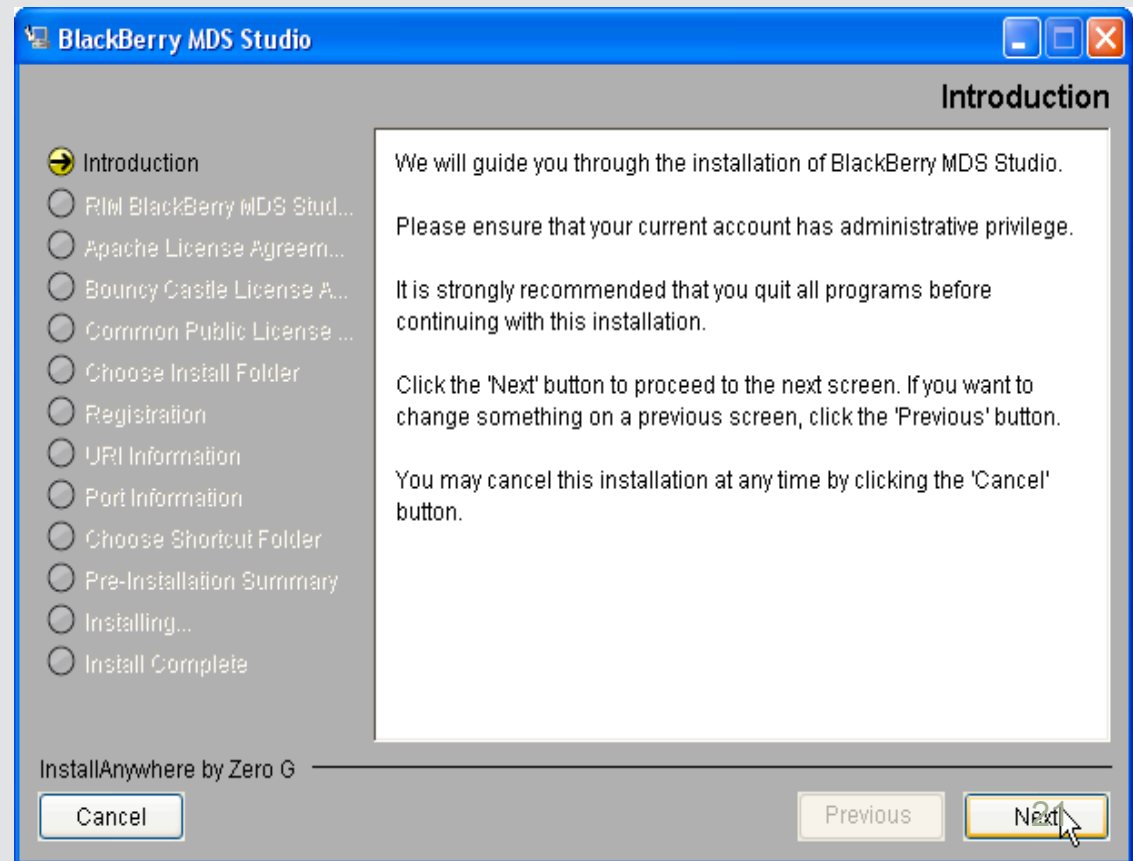
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Installing BlackBerry MDS Studio:

- BlackBerry MDS Studio:
 - Its a Windows-only installation kit.
 - Download from www.blackberry.com.
 - Installation is relatively painless—less than 20 mins.
 - Needs 1.5gb free disk space.
 - Needs at least 1gb RAM.

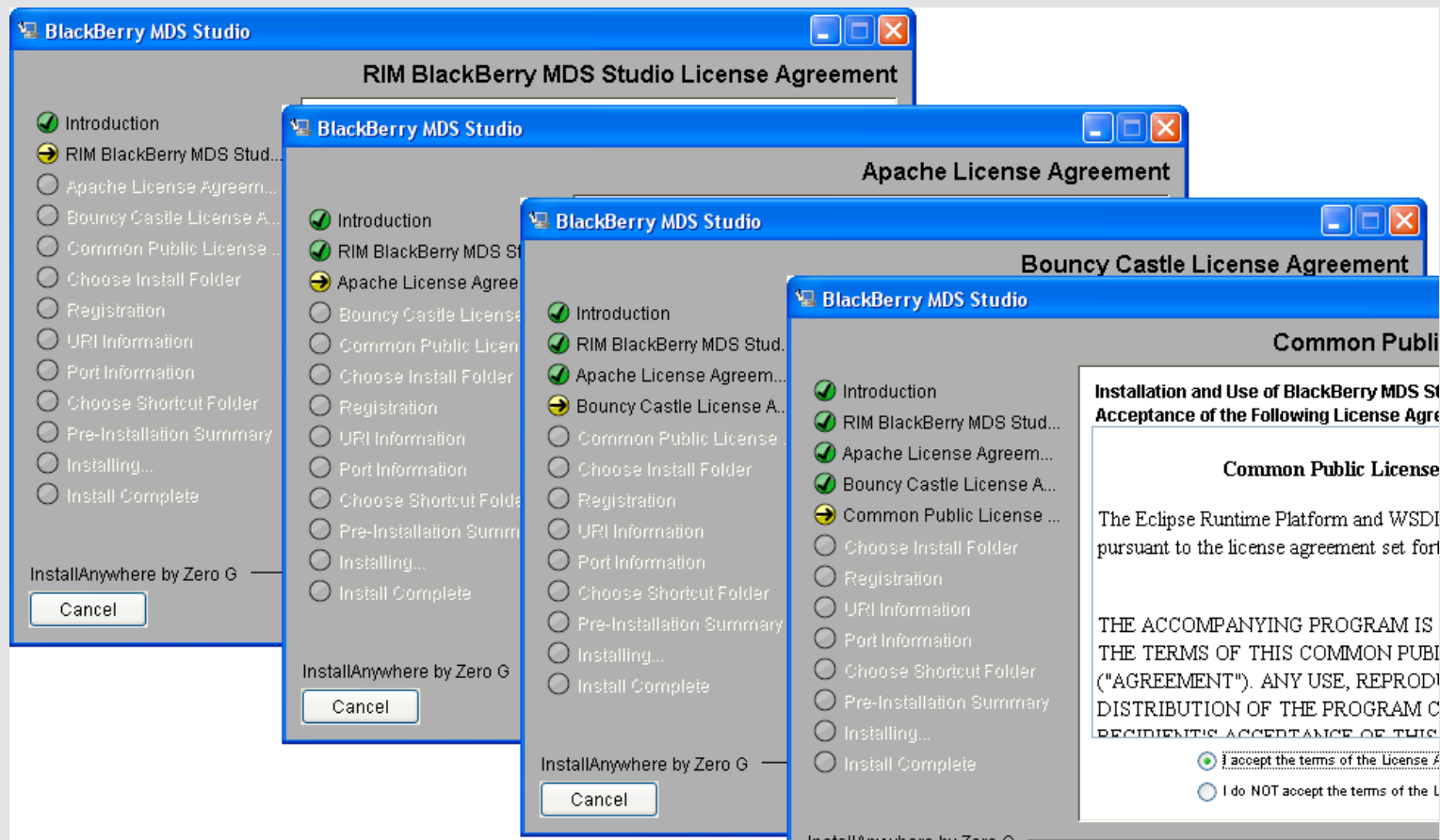
BlackBerry MDS Studio: Installation

- Run the downloaded file, it will extract:
 - “Setup.exe”
 - a PDF document.
- Run “Setup.exe”



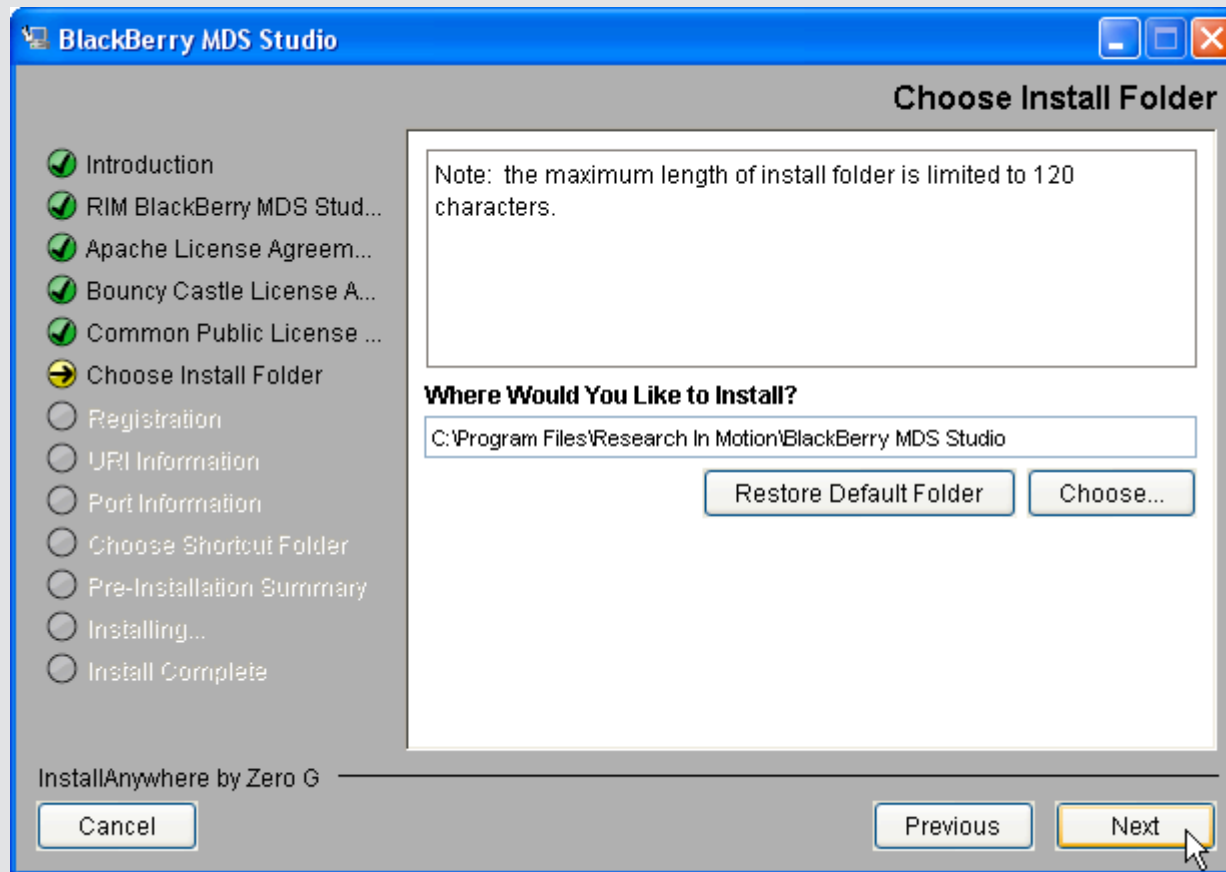
BlackBerry MDS Studio: Installation

- Accept all 4 license screens.
 - Including the “Bouncy Castle” License:



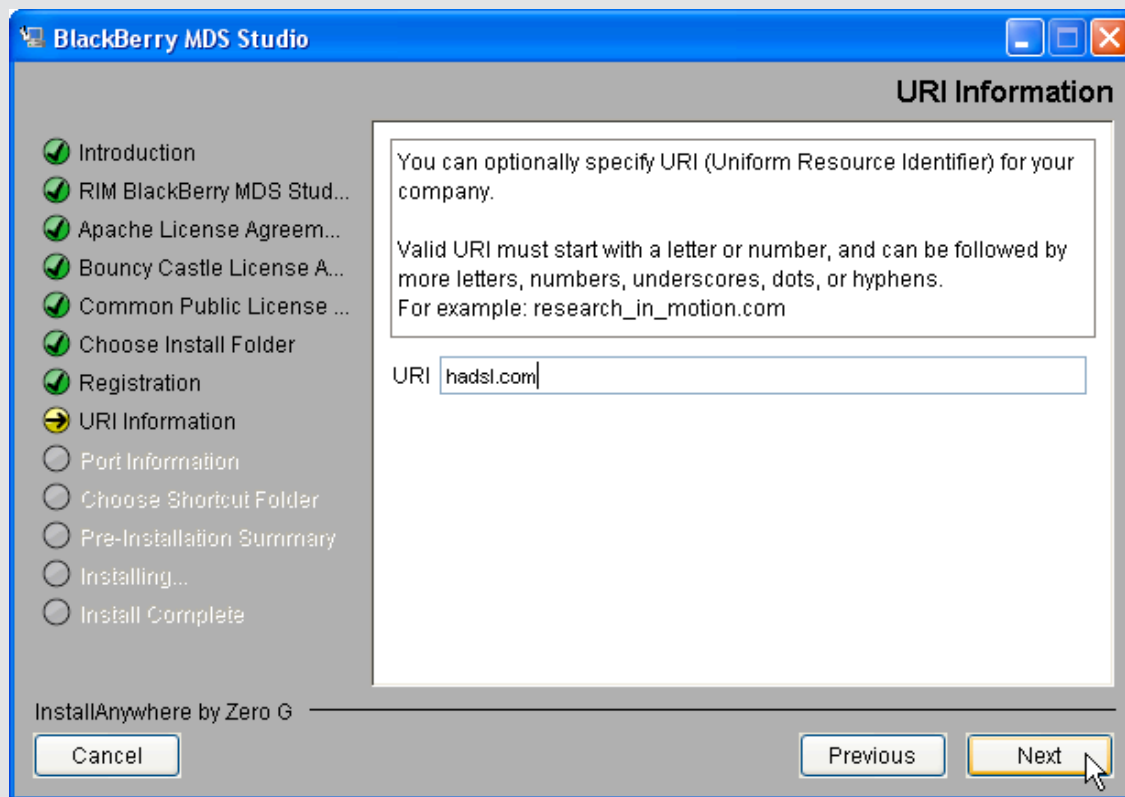
BlackBerry MDS Studio: Installation

- Enter the file path:
 - I usually choose the default one.



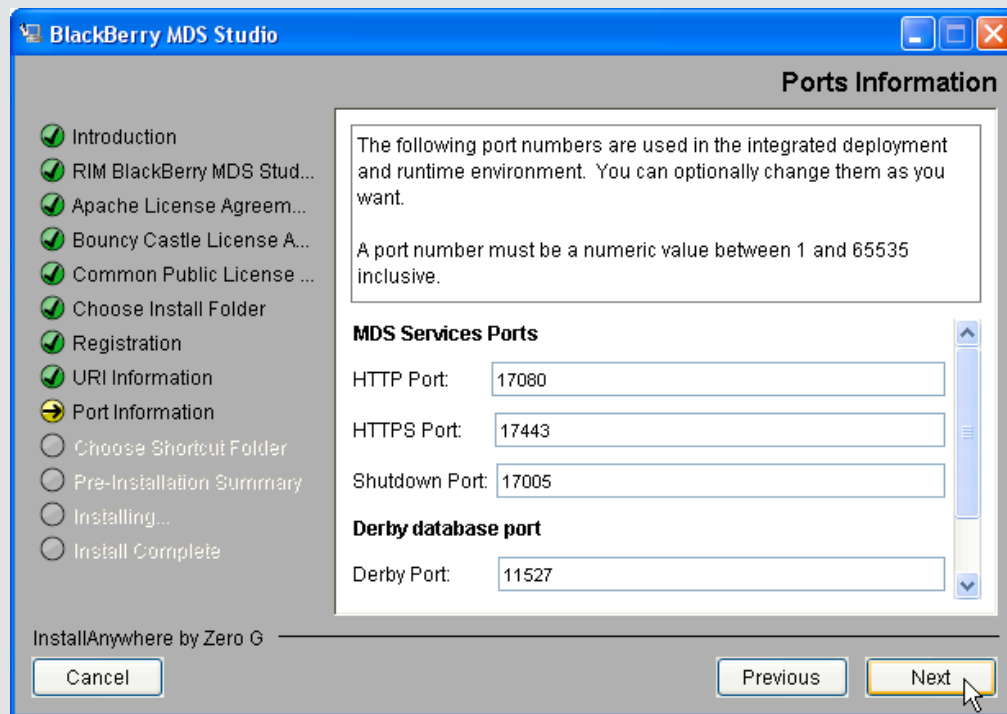
BlackBerry MDS Studio: Installation

- Enter a URI you wish to associate with your applications
 - I used “CompanyName.com”.



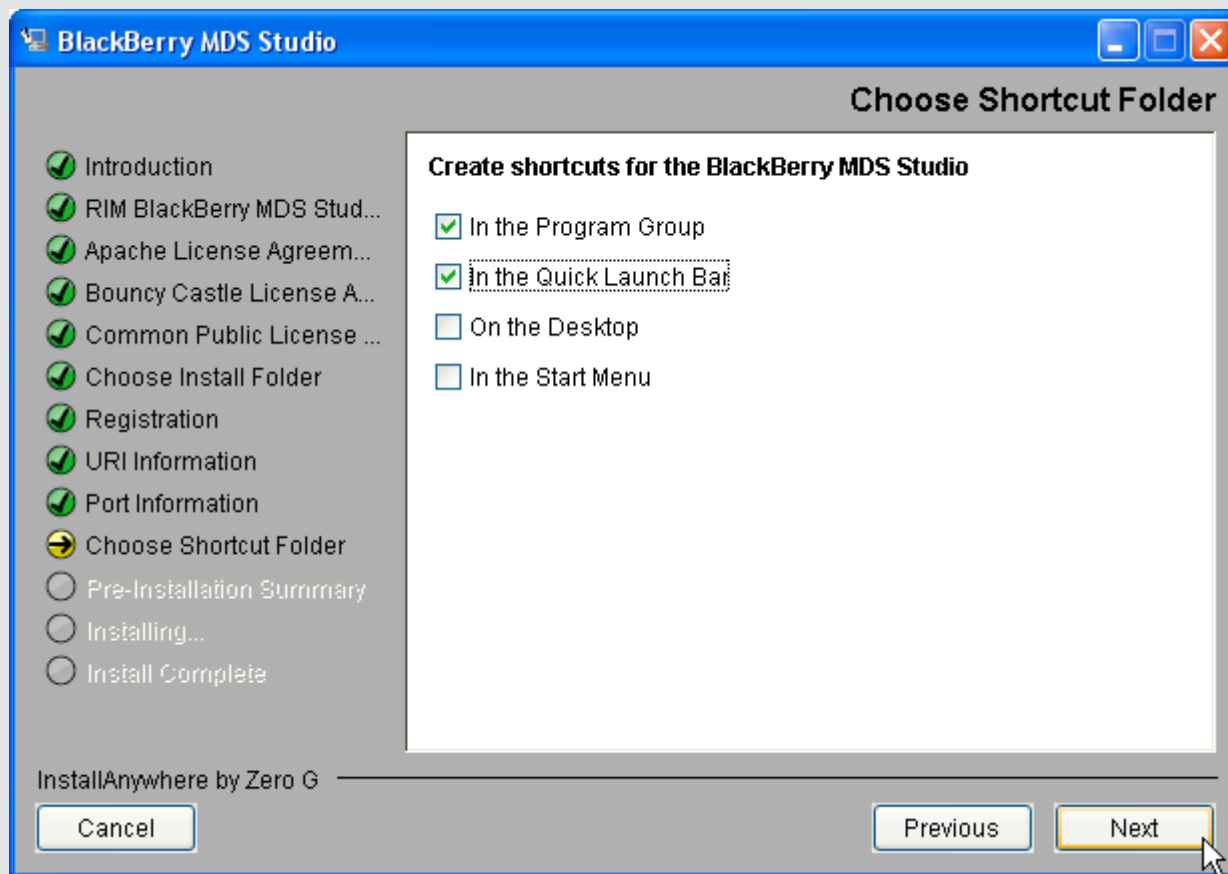
BlackBerry MDS Studio: Installation:

- You are now prompted to select ports for various MDS services.
 - I recommend you leave defaults unless you absolutely know what you are doing!



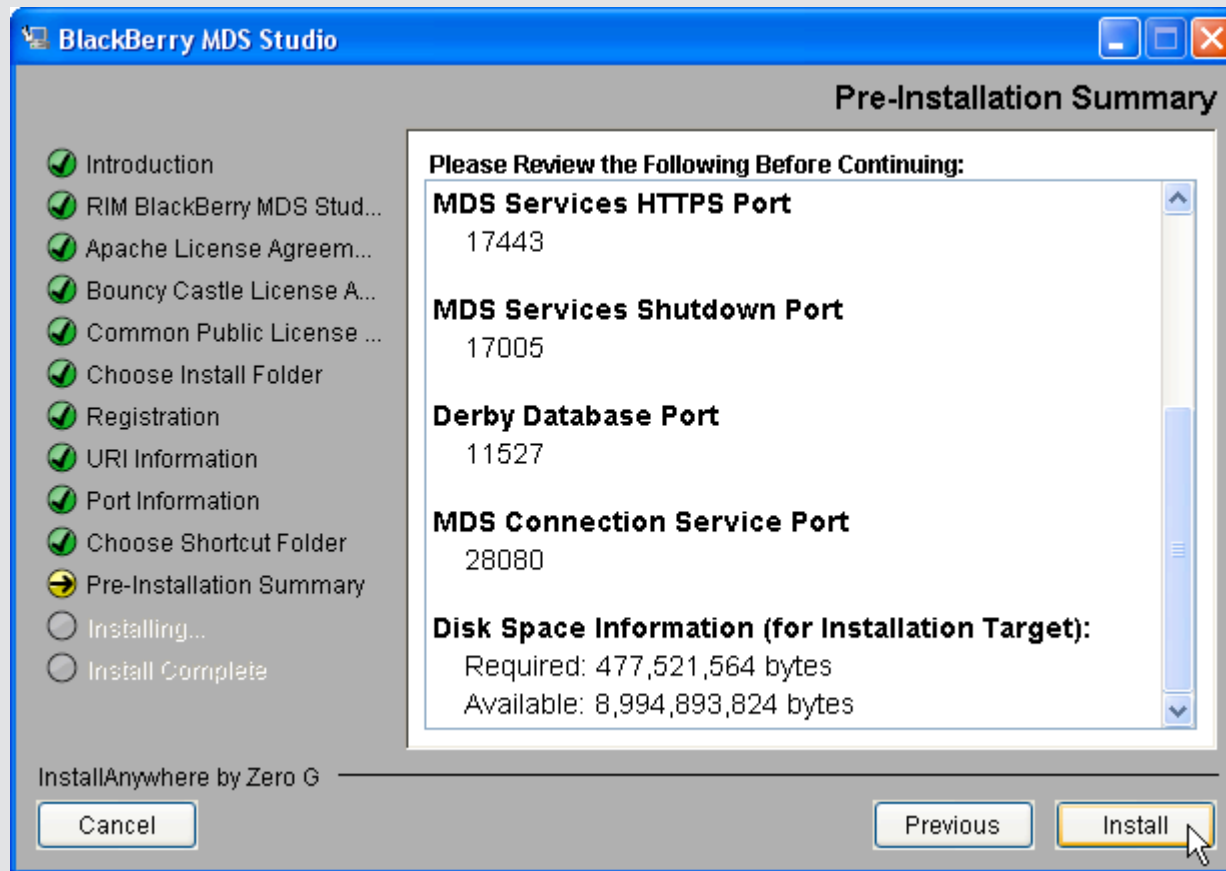
BlackBerry MDS Studio: Installation

- Choose where you wish to create shortcuts:



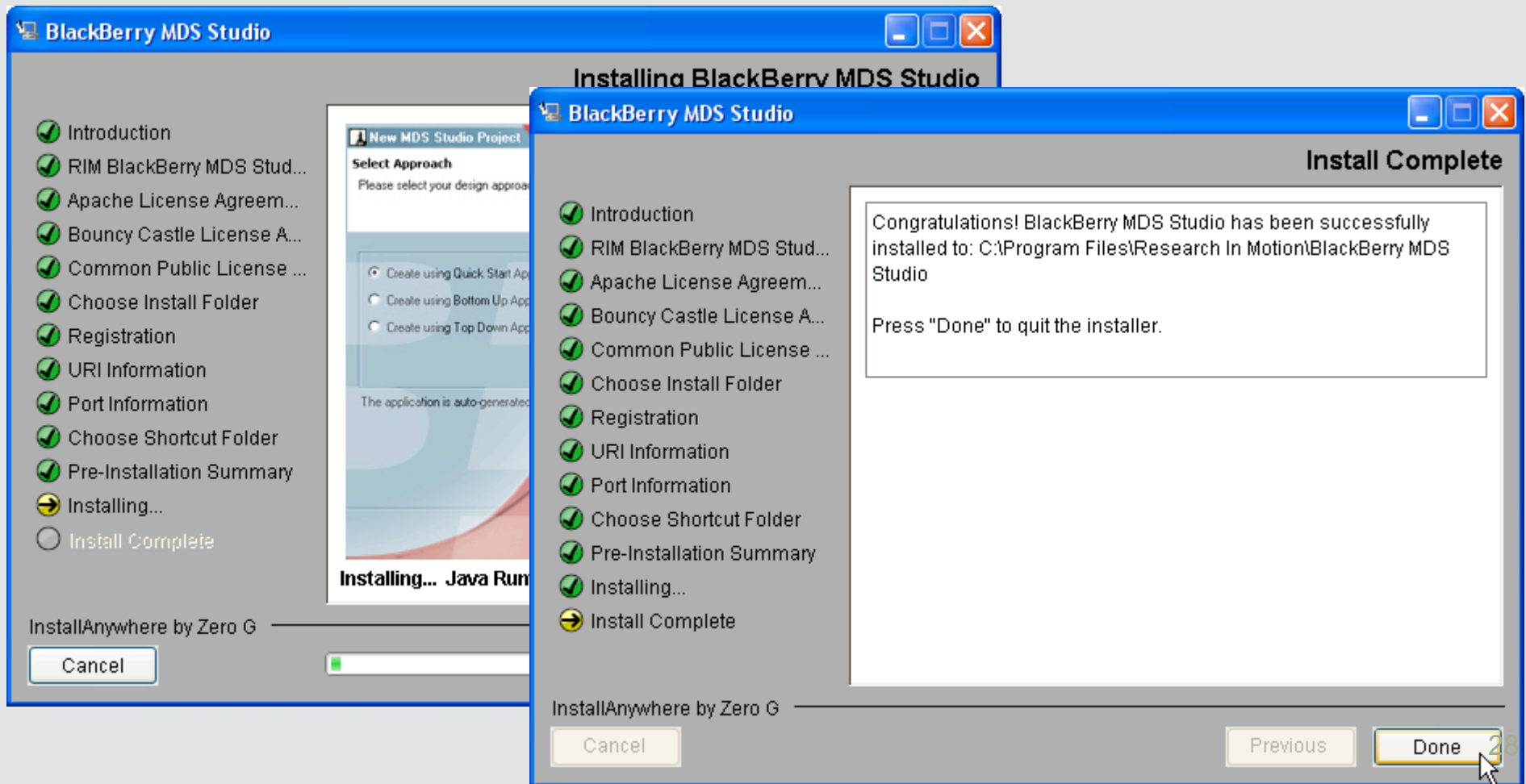
BlackBerry MDS Studio: Installation

- Confirm you wish to continue:



BlackBerry MDS Studio: Installation

- Now sit back for 10-30 minutes whilst it installs:



BlackBerry MDS Studio: Installation

- If the installation failed:
 - You might want to consider uninstalling and reinstalling.
- Start up BlackBerry MDS Studio
 - You should see this splash screen:



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MDS Studio First Look:

- Like many other IDEs:
 - It has lots of screens.
 - It has a tree-style navigator to see objects.
 - Double-clicking on an object opens it in the editor.
 - Selecting an item allows you to edit its properties.
- It has two “perspectives”:
 - Application perspective is for editing the application.
 - Test perspective is for testing the application.

MDS Studio First Look (cont.)

- It has a BlackBerry simulator.
 - You can choose different models to test your code.
- Generally, it's:
 - Stable.
 - Quick.
 - Easy to use.
- It's very quick for debug/test cycles.
 - Just change perspective, edit and retest.

MDS Documentation

- The documentation is pretty good. But:
 - Quite sparse in some respects.
 - You should rely on the online technical forum.
 - You might consider a technical support contract.

MDS Demo

Demo
Blackberry MDS Studio
first look



CONNECT WITH THE EXPERTS

 **BlackBerry**

What We'll Cover...

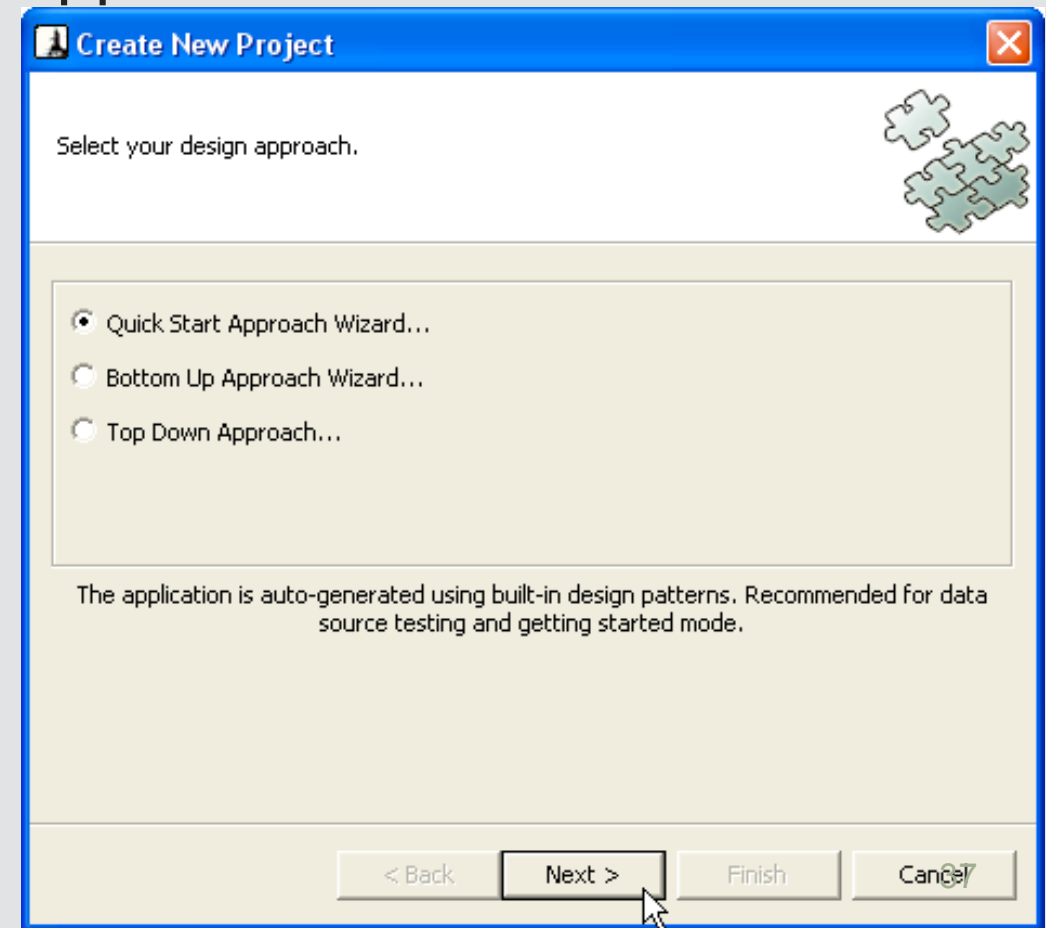
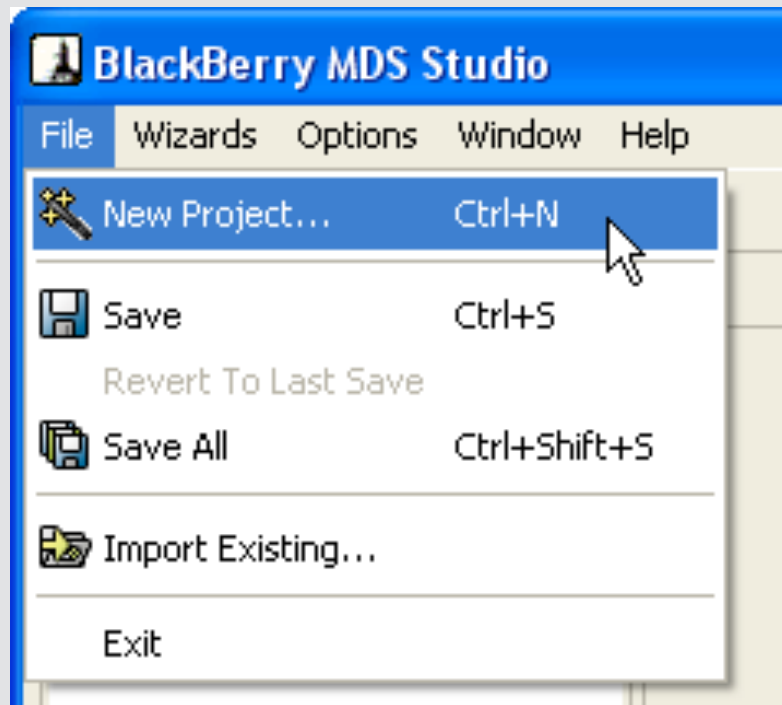
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First Application: Introduction

- We shall create a BlackBerry application:
 - To retrieve information from our Domino Server.
 - Using the web service we created earlier.
 - That is easy for the end user.
 - That shows how to:
 - Amend screens.
 - Create scripts.
 - Call different actions.
- We shall compile and distribute the application:
 - To the inbuilt BlackBerry simulator.

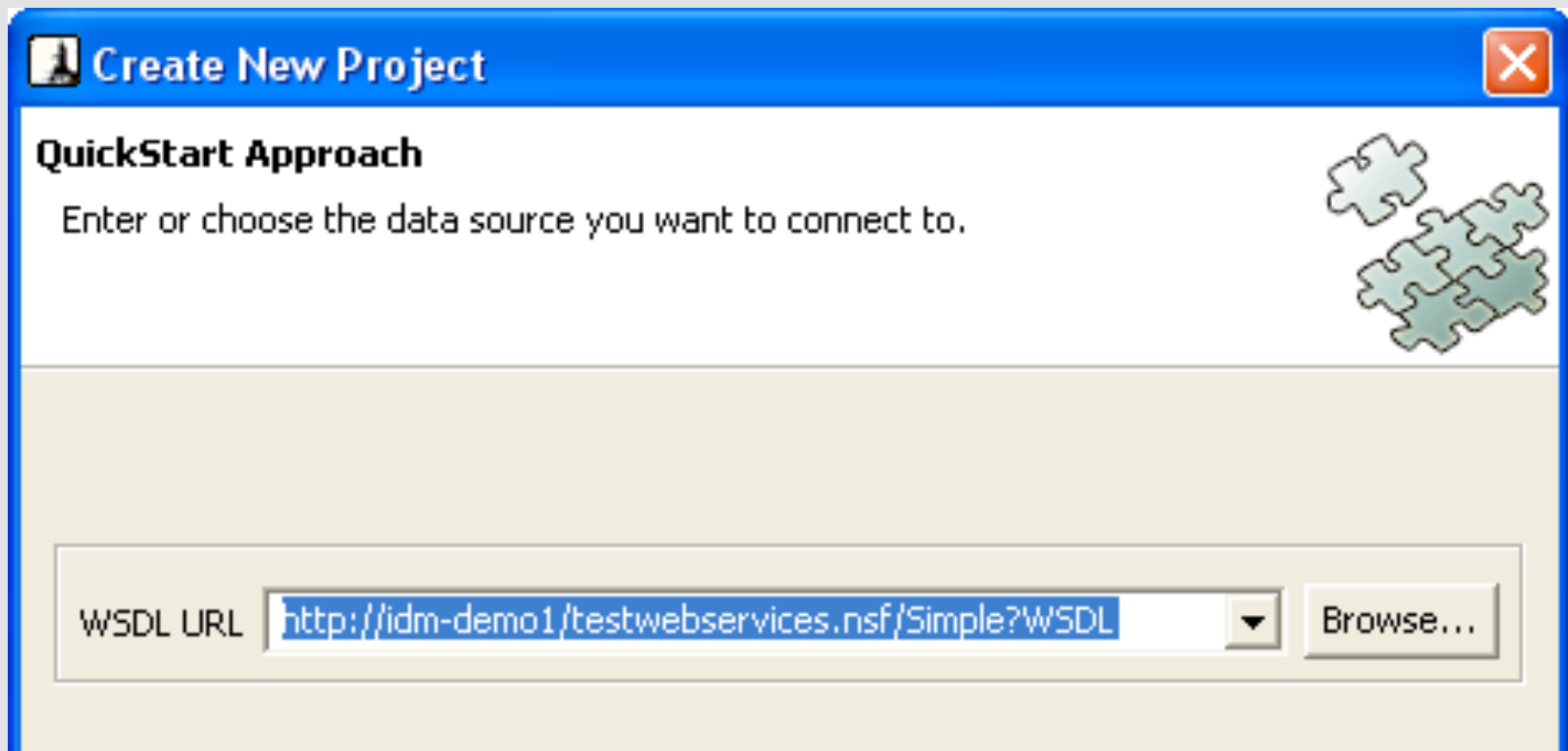
First App: Creating a New Project

- Choose “File, New Project”.
 - And choose “Quick Start Approach Wizard”.



First App: Creating a New Project

- Now enter the URI of the Web service Application:
 - `http://<server>/<database>/<webservicename>?WSDL`.



Create New Project

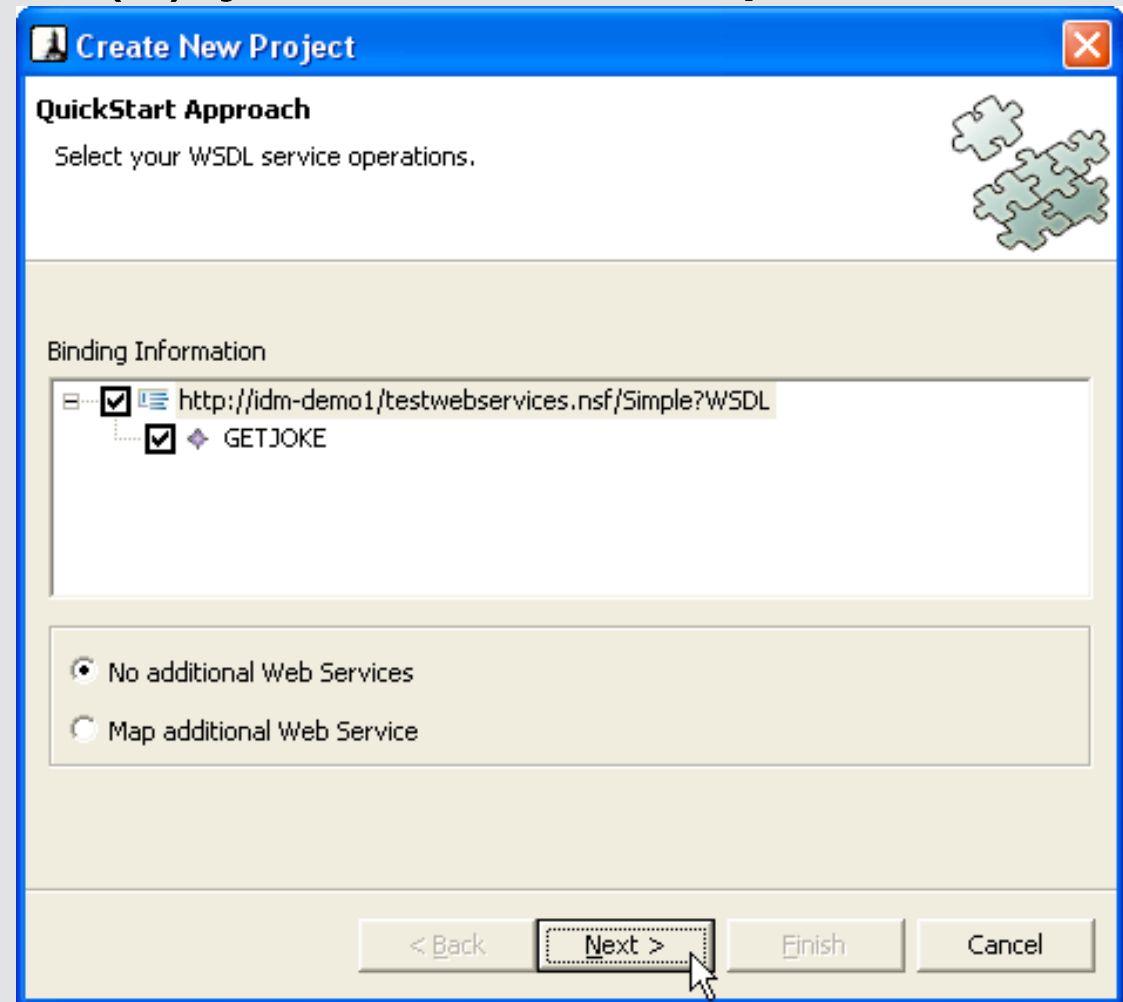
QuickStart Approach

Enter or choose the data source you want to connect to.

WSDL URL

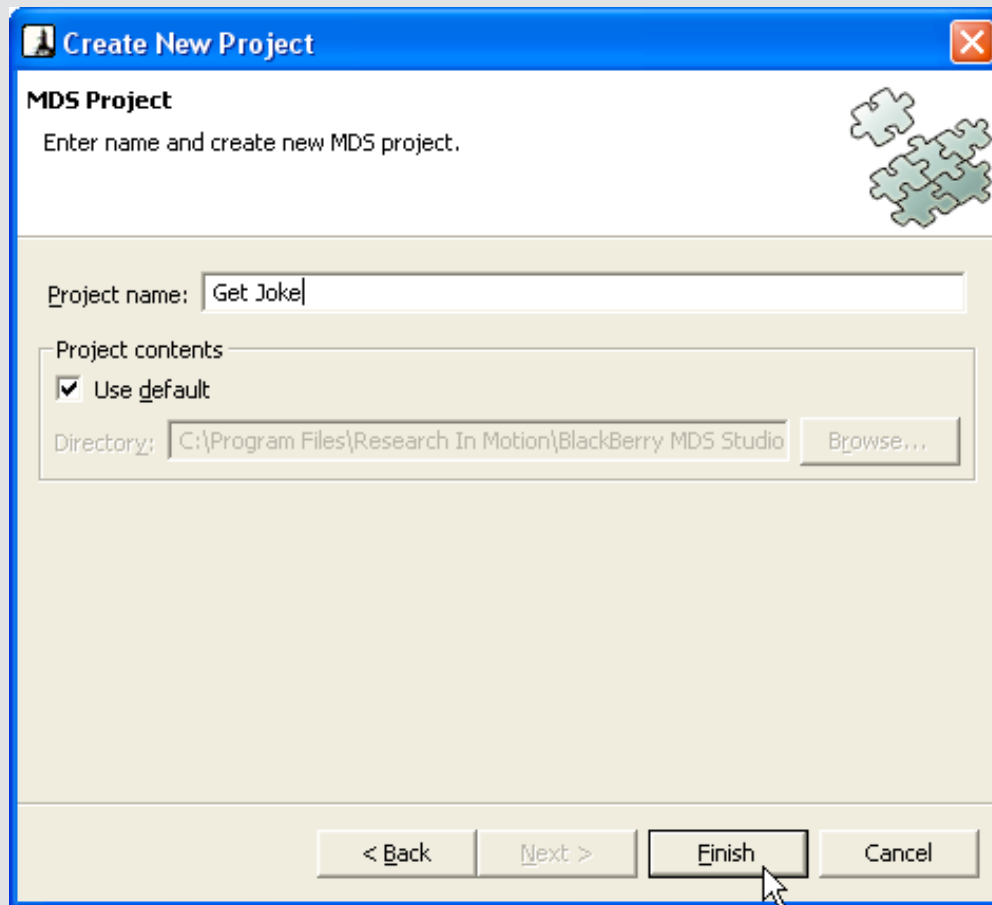
First App: Creating a New Project

- Select the web service(s) you wish to import.
 - In our case, we just choose the single function:
 - GetJoke()



First App: Creating a New Project

- Finally, give the project a name:



First Application: Quick Fix

- We shall apply a quick fix to this application:
 - The default application sends a web service query to our Domino server, and then displays a screen stating that the web service request has been sent.
 - We need to edit the Javascript routine that the “Go” button calls in order to allow the response event to trigger, and display our return value.
 - In the navigator screen, navigate to “Scripts”.
 - Open script “GETJOKERrequest_onSubmit.”
 - Delete the second line of the script.
 - Click on “File”, “Save All.”

First Application: Quick Fix (cont.)

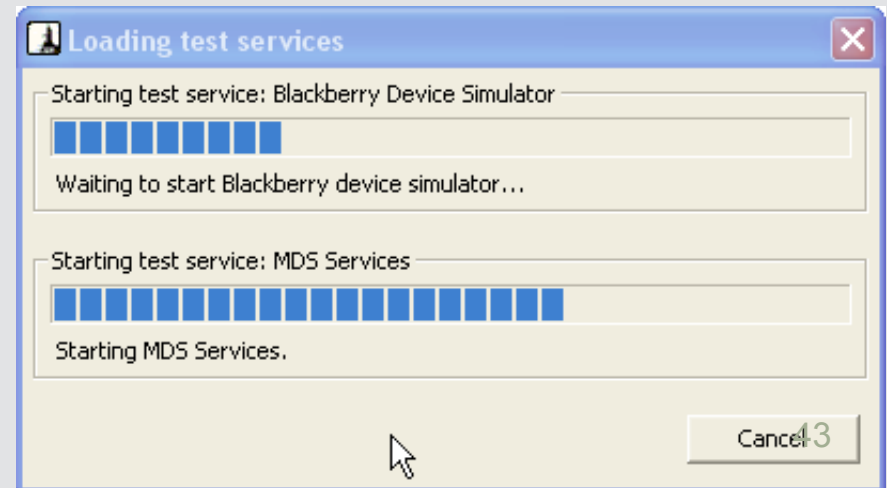
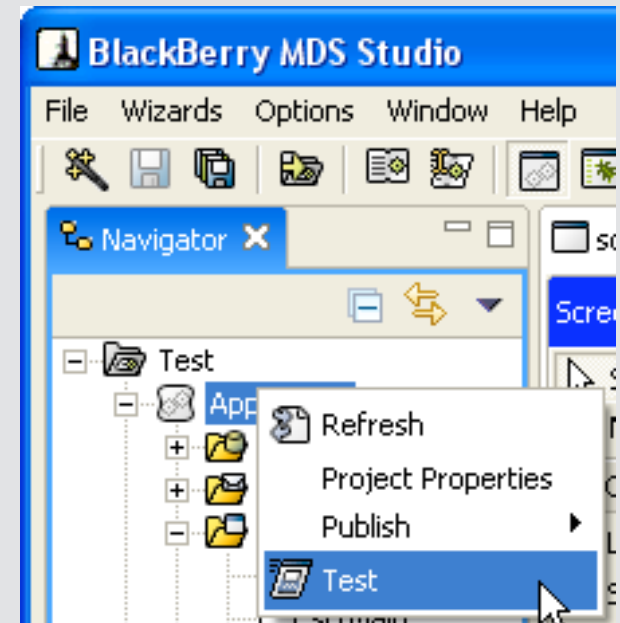
The screenshot shows the BlackBerry MDS Studio interface. On the left, the Navigator pane shows a project structure with folders for Application, Data, Messages, Screens, Resources, Styles, Workflow, Scripts, and Data Sources. The 'Scripts' folder is expanded, and 'GETJOKERrequest_onSubmit' is selected. The main editor area shows the script for 'GETJOKERrequest_onSubmit'. The script contains two lines of JavaScript code:

```
1 GETJOKERrequest.send();  
2
```

A callout box with a black border and yellow text is overlaid on the second line, containing the instruction: *Delete the second line of this script*.

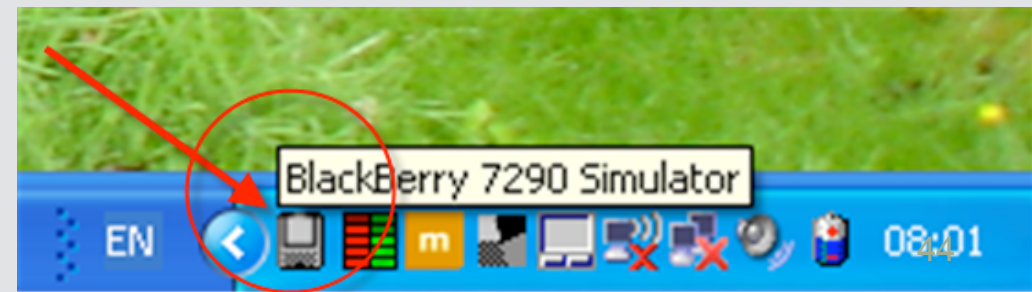
First Project: Running the Project:

- Right click on the project name in the explorer bar, and select “Test”:
 - This will compile, publish, & deploy the application to the simulator, and start the simulator.
 - If the MDS services have not yet started, they will also be started.



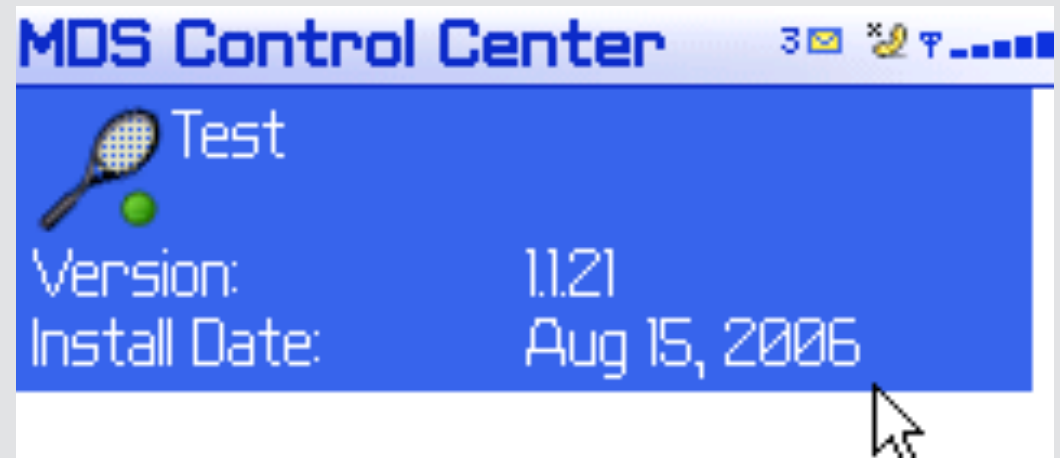
First Project: Running the Project

- Simulator
 - Use your mouse scroll wheel (or the down–arrow) to select the MDS Control Center icon on the BlackBerry menu:
 - Click the mouse scroll button to select (or click on the ScrollWheel on the right)
- Cant see the



Viewing the Project on the Simulator

- On the simulator screen:
 - Select MDS Control Center.
 - Scroll down to your application.
 - Click on the application and choose “Start.” from the menu.



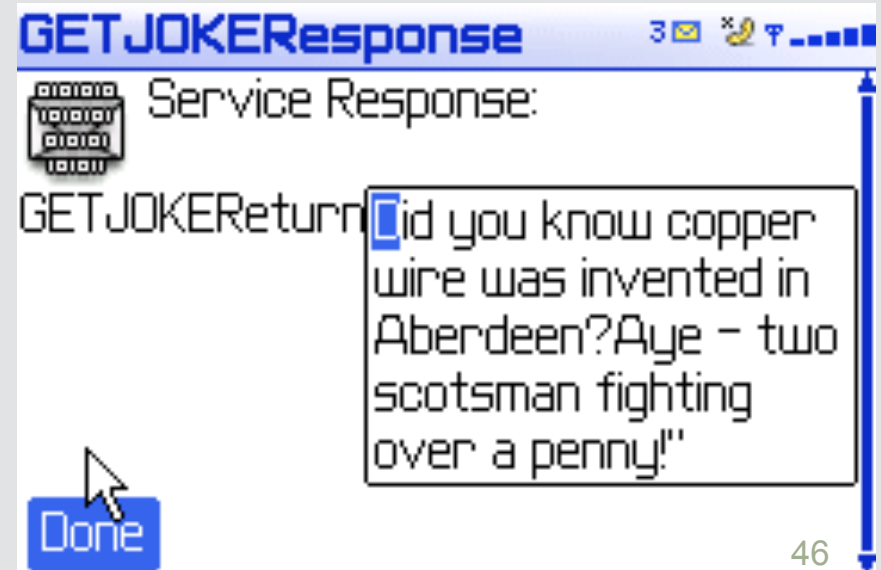
Running the Project on the Simulator

- We see a single screen with a single button.

- Select and click on “Go”



- The application will then call our Domino Web service and display the results.



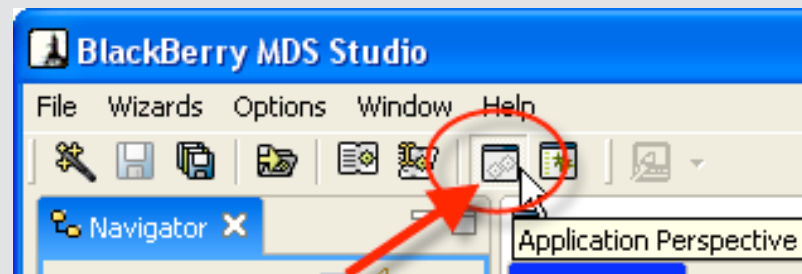
First Project: Initial Comments:

- We need to do some work:
 - Add more meaningful screen titles.
 - Bypass the “Go” button on the first screen so that the application automatically gets the first Joke.
 - Add a “Get Another” button to the second screen.
 - Make the Joke text read-only so that the user does not have to scroll past it to get to the button:
 - In fact—lets move the button to the top.

Updating the Front Screen

- Switch back to BlackBerry MDS Studio

- On the BlackBerry MDS Studio, switch from the “Test Perspective” back to the “Development Perspective”.



- On the Navigator, expand the “Test” project, expand “Applications”, expand “Screens”.
- Double-click on the “scrMain” screen.
- Remove the button.
- Change the caption to “fetching the first joke”.
- Click on the screen itself and change the Initialize property to run Script “GETJOKERrequest_onSubmit”.

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Updating the Front Screen

BlackBerry MDS Studio

File Wizards Options Window Help

Navigator

Application

- Data
- Messages
- Screens
 - scrGETJOK...
 - scrMain
 - scrMessag...
- Resources
- Styles
- Workflow
- Scripts
- Data Sources
- http://idm-der...
- Test

scrMain

Screen Editor Screen Preview

Joke Server

Fetching first joke...

Properties

Property	Value
Dialog	false
Layout	Vertical
Local Variables	
Name	scrMain
On Init	GETJOK ...
On Show	
Parameters	
Refresh Me...	
Style	
Title	Joke Ser

On Init Event Definition

Script: GETJOKERrequest_onSubmit

Arguments

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BlackBerry

Updating the Second Screen

- Lets update the second screen:
 - Double click on the “scrGETJOKEResponse” screen.
 - Delete the “service Response” text and icon.
 - Delete the “JokeResponse” label.
 - Drag the button to the top of the screen.
 - Change the button text to “Get Another Joke”.
 - Change the OnClick action:
 - To a Script.
 - Choose Script GETJOKERequest_onSubmit.
 - Change the returned text to “read-only”.
 - Change the window title to “Joke Server”.

Updating the Second Screen

BlackBerry MDS Studio

File Wizards Options Window Help

Navigator

Application
Data
Messages
Screens
Resources
Styles
Workflow
Scripts
Data Sources
Test

scrMain scrGETJOKE...

Screen Editor Screen Preview

Properties

Property	Value
Caption	Get Anoth...
Image	
Name	btnDone
On Click	GETJOKERReq ...
On Init	
Place...	
Style	
Visibility	true

2 & 3 are deletions of text

On Click Event Definition

Accept Changes: none

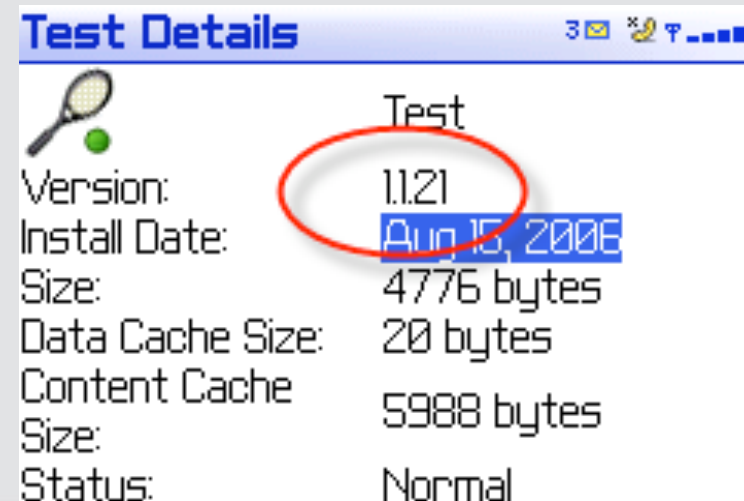
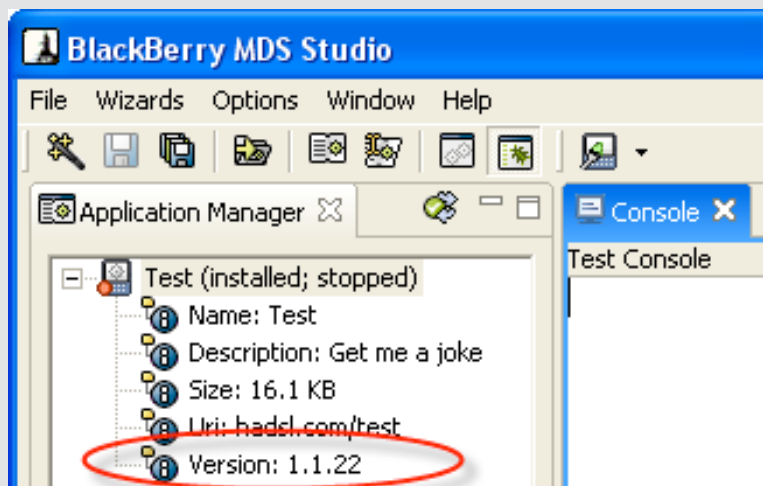
Script GETJOKERRequest_onSubmit

Arguments

GETJOKERresponse
regionGETJOKERes
regionDone

First Project: Testing

- Right click on the project, and choose “Test”:
 - This will recompile and redeploy the application to the simulator:
 - The application will refresh on the simulator screen.
 - Check that the version of the application on the simulator is the version you expect:



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First Project: Conclusion

- **Congratulations!**

- We have just completed an entire test + development cycle:
- Web service enabled a Domino application.
- Tested the web service application.
- Created a complete new BlackBerry application using the Web Service Definition Language (WSDL).
- Deployed the application to the simulator.
- Tested that application making “live” web service calls back to Domino.
- Redesigned the UI of that application.

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Resources

- The BlackBerry MDS Studio:
 - www.blackberry.com
- The BlackBerry Developers area
 - Domino Sample Code:
 - www.blackberry.com/developers/resources/domino/samplecode.shtml
- LotusUserGroup.org articles on BlackBerry Development
 - <http://www.lotususergroup.org/Submissions.nsf/ContentSpotlight/affe2c858c6a896e8625732f004b0e63?OpenDocument&TableRow=2.3.1.0#2.3.1>

Summary

- Domino applications can be easily web service enabled.
- You don't need a BlackBerry or a BES Server to code and test BlackBerry applications.
- Deploying Domino applications to the BlackBerry MDS Studio:
 - Uses web services.
 - Is straightforward.
- Blackberry MDS Studio:
 - Is a fairly simple IDE.

Questions?

- Bill Buchan
 - Personal Blog: <http://www.billbuchan.com>
 - HADSL: <http://www.hadsl.com>