Advanced MDS Studio Development Techniques

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Simplified Technology Solutions, Inc

Session E12

BlackBerry
DEVELOPER CONFERENCE

08 | BUILDING FOR SUCCESS

Agenda

- About Me
- Polls, Myths and a Quiz!
- Make It Look Nice
- Regions & Visibility
- JavaScript
- New in 4.5 Device OS
    - LBS
    - Java integration
    - Real world example of Java and MDS

About Me

- My Favorite Slide!
- Using MDS Studio Over 3 Years
- Developing Software for Long Time
- Employer Has a Commercial MDS Runtime Application
  - Sprint, RIM and Turner
- Part of the 2.0 Closed Private Beta
- Active member of the old and new MDS Runtime developer forums
  - http://blog.darrenduke.net
  - http://www.simplified-tech.com
  - Darren.Duke@simplified-tech.com

Nomenclature

- MDS Runtime platform is actually MDS-IS
  - MDS – Integration Services
    - **AND NOT** MDS – CS (Connection Services is different)
  - MDS – IS is the server side component
  - MDS Runtime is the device side component
    - All called MDS Control Center
    - Device OS version specific
- All full BES implementations have MDS-IS as an installable option
  - Not in BPS (BlackBerry Professional Server)
  - If it is not installed, simply do a "Modify" on the BES in Control Panel/Add-Remove Programs
  - 4.0 BES and higher

Quick Poll

- MDS Runtime platform poll
  - Never used it
  - MDS Studio 1.1
  - MDS Studio 2.0
  - Plug in for Visual Studio
- Backend System poll
  - Web Service connector
  - MS SQL Server connector
  - Oracle Connector
- Most (if not all) of the information can also be used in Visual Studio
- Breaking news! MDS Studio 2.0 is out of beta

Dispel the Myths

- MDS Runtime true or false quiz
  - You need to know Java to develop in MDS Runtime?

  - You need to know SOAP to develop in MDS Runtime?

  - MDS Studio and the Visual Studio plug in are different?

  - MDS Runtime applications cannot do two way transactions?

  - MDS Runtime applications cannot do "Push"

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    - False
  - MDS Runtime applications cannot do "Push"
    - False (requires custom web services conforming to WS-Eventing)
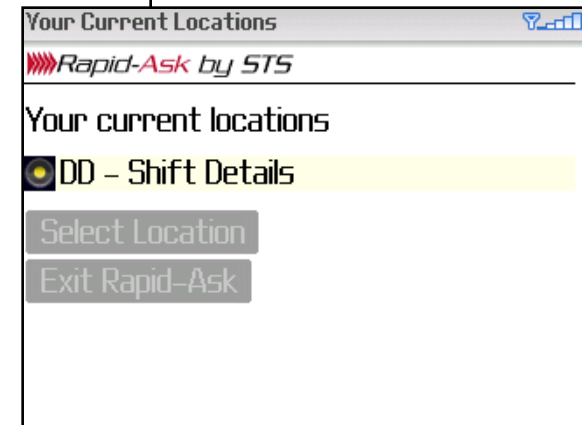
The Basics (sorry!)

- MDS Studio development
  - Visual screen design, drag and drop
  - All code is JavaScript (unless you choose otherwise)
  - Applications can be tied to data sources by:
    - SQL statements, INSERT, UPDATE, etc
    - Stored Procedures
    - SOAP web services (.NET, Java, Domino, etc)
      - Make sure you know what XSD types are supported
        » Get rid of `XSD:AnyType`
      - Yes, it really is documented. Read the developers guides

Make it look nice - 1

- Obvious right?
- Quick Start is a good **starting** point
  - Not for production as-is
- I know, you're a "developer"
- Add header graphics
- Use "separators"
  - Spread it out
  - White space or solid
- Make it easy on the user
  - Change your app icon
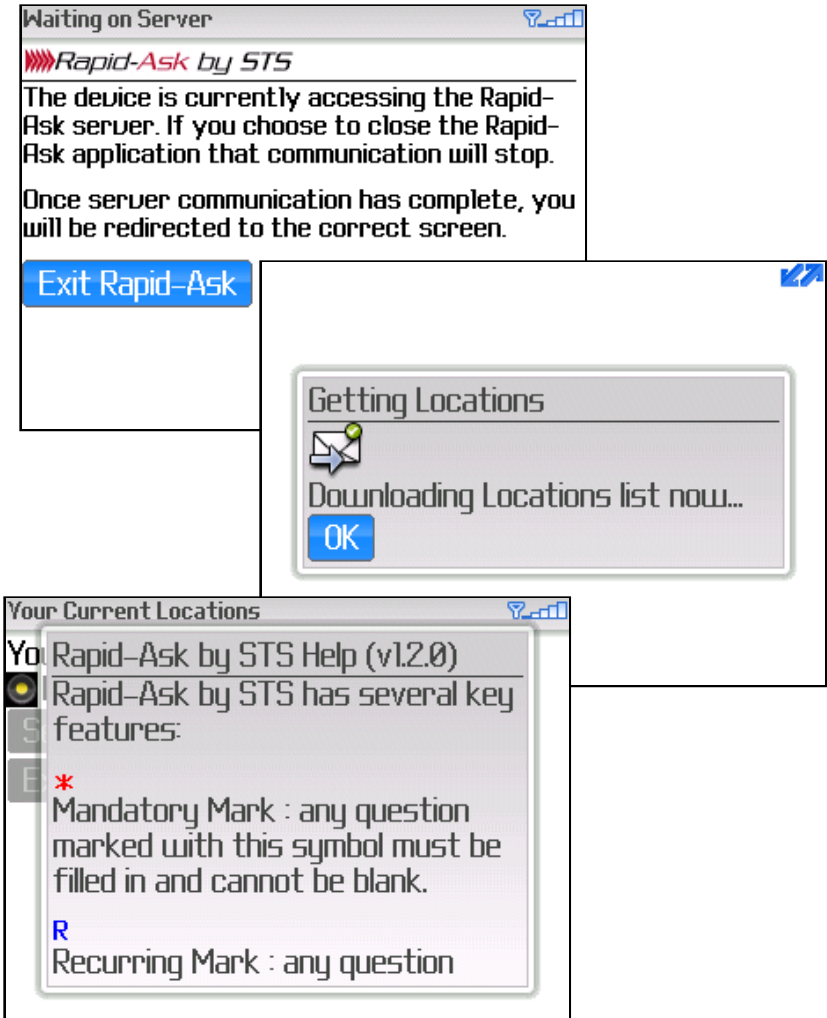 - Color input fields

Make it look nice - 2

- Use Dialogs for transitions
    - Inform the user
    - Useful for server transactions
    - **Warn** if exiting the app

- Add About and Help screens
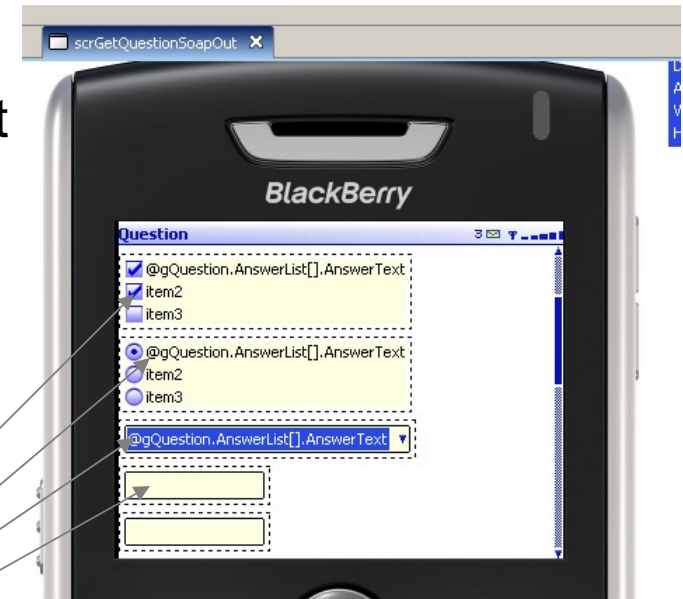
Regions & Visibility

- Regions allow for runtime screen changes
- Together with visibility, simplify screen management
- Use with init scripts
  - Hide/show the region, not the element
  - Allows the data to control the screen
  - Dynamic screen controlling
- Control **every** aspect of the screen

JavaScript 1

- Use init scripts, **not** screens
  - Set `visible = false`
  - Then "switch on" what you need
  - Gives far more control

```
22 //RESET THE SCREEN
23 scrGetQuestionSoapOut.regionRadio.visible = false;
24 scrGetQuestionSoapOut.regionText.visible = false;
25 scrGetQuestionSoapOut.regionCheckbox.visible = false;
26 scrGetQuestionSoapOut.regionList.visible = false;
27 scrGetQuestionSoapOut.regionNumeric.visible = false;
28 scrGetQuestionSoapOut.regionDate.visible = false;
29 scrGetQuestionSoapOut.regionTime.visible = false;
30 scrGetQuestionSoapOut.regionDateTime.visible = false;
31
32 if (type == 'DATE'){
33     scrGetQuestionSoapOut.regionDate.visible = true;
34 }
35
36 if (type == 'TIME'){
37     scrGetQuestionSoapOut.regionTime.visible = true;
```

- Use exit scripts to
  - Control mandatory fields
  - Yes, there is a property
  - No, it is not dynamic
  - Choose next screen

```
146 //handle mandatory
147 if (displayMandatoryError && isBlank){
148     Dialog.display('This field requires a value :
149 } else {
150     // handle recurring question
151     //  Dialog.display(gExitRecur);
152     if (gQuestion.Recur) {
153         gPostAnswer.exitRecur = gExitRecur;
154     } else {
155         gPostAnswer.exitRecur = true;
156     }
157     PostAnswerSoapIn.send();
158     scrMessageSent.display();
159 }
```

JavaScript 2

- JavaScript is a **full and powerful** language
- Disregard the stigma and **learn** it
  - www.w3cSchools.com
  - Powerful for String manipulation
    - Important for Java integrations (see later)
- JavaScript 1.3 extensions are supported
- Some MDS Studio arrays provide additional support beyond 1.3
- Custom objects include `Screen`, `System` and `Dialog`
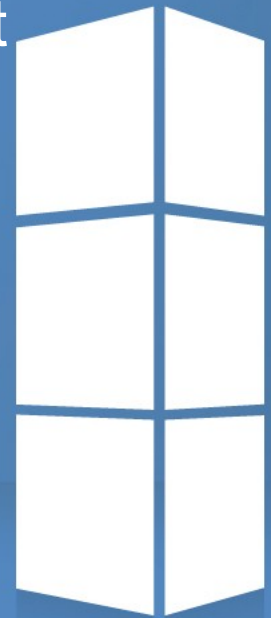
JavaScript 3

- Use MDS Studio 2.0
    - More JS are functions supported
        - Array
        - String
        - Date
    - New String functions allow far better manipulation
    - Better code complete, most things are in there now
    - Some things work in 1.1 despite any warning errors
        - new Date()
        - Trial and error

MDS Studio 2.0 and Device 4.5 Additions

What is new and How It Can Dramatically Affect the Quality of a MDS Studio Application

New in OS 4.5 & MDS 2.0

- Location Based Services (LBS)
  - You know it as GPS
  - All carriers are not equal
    - **setAidMode** can cause confusion

```
function getGPS() {
    var lat;
    var lon;
    if (blackberry.location.GPSSupported) {
            blackberry.location.setAidMode(0);
            blackberry.location.refreshLocation();
            lat = blackberry.location.latitude;
            lon = blackberry.location.longitude;
    } // end if
} // end function
```

Device Integration Options

- Java Integration Options
  - Call a MDS application from Java
  - Call a Java application from MDS
    - Requires MDS Studio 2.0 or VS 1.1
  - Can be used to produce **powerful** MDS applications
    - Pass values to, and invoke Java, **return output** to MDS
    - Strings only as parameters
  - Allows MDS Runtime functionality to be enhanced
  - Use Software Configurations to push out Java Application (see your BES admin)

  - MDS Studio calling Java:

```
System.exec(APP_TYPE.JAVA, "BarCodeMDSRuntime");
```

- Requires Code Signing Ability ($20)
  - Free to Alliance Members
  - https://www.blackberry.com/SignedKeys/
- Uses new **ApplicationManager** functionality in Device OS 4.5

```
ApplicationManager.getApplicationManager().launch(
"com_bb_mds_launcher_simplifiedtechcombarcodeexample79bb?"
+ bc_real);
```

MDS Application COD file name from JAR (open in Winzip, etc)

String parameters

Java to MDS

- Change MDS Entry Point
  - Use "Distributor pattern"
    - Traffic Cop
  - Hence use Scripts for Entry
- Handle the String param

Entry Points

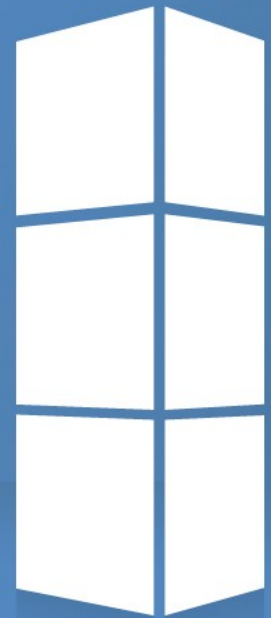Entry Point: appInit

```
function appInit(string bc_list) {

    if (bc_list == null){
        scrMain.display();

    } else {

        Dialog.display(bc_list);
        gBarCodeList = bc_list.split("~");
        Dialog.display(gBarCodeList.length);
        scrDisplayBarCodes.display();
    }
}
```

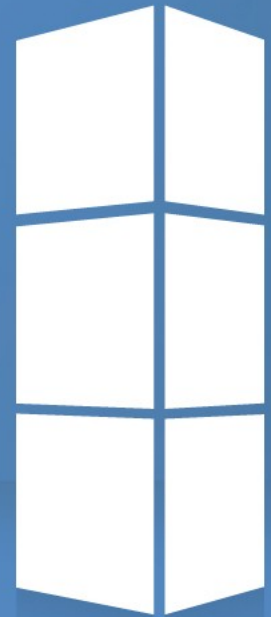# MDS Studio and Java
Real World Example

Business Case: Utilize MDS Studio for RAD
Capabilities, Time to Market and Simplicity
BUT
Need Bluetooth Bar Code Functionality

Demo: MDS/Java Integration

Summary

- MDS Studio **can** produce applications:
    - Quickly
    - Professionally
    - With extended functionality (thanks to Java)
    - Can utilize "Push" BlackBerry capability
- Incremental improvements in UI **will** payoff
- Never use Quick Start in production
- Think like a user

- Try it out!
  - Use the developer forums
    - Now RIM supported
    - Make sure to RTFM
  - Feel free to stop me during the rest of the conference
  - http://blog.darrenduke.net (some MDS stuff)
  - http://www.simplified-tech.com/articles
  - http://www.w3cShools.com (for JavaScript basics)
  - Make sure to try MDS Studio 2.0 if you have not already done so
    - Make sure to install the correct version of Eclipse
    - Or, just download the new version already bundled

Thank You and Questions

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