



Blackberry BBM SDK

Week 1: Getting Started with BBM and the BBM SDK



Overview

- **What is BBM?**
- **Setting up the Environment**
- **Setting up BBM Connected Simulators**
- **Tools**
- **References**



What is BBM?

- **BBM or BlackBerry Messenger is a messaging platform available only for BlackBerry smartphone owners**
- **There are over 50 million active subscribers, with over 2 million new users joining each month**
- **Allows instance messages to be sent anywhere around the world with no additional cost to the end user**



BBM SDK

- **Blackberry BBM SDK can be used to create Blackberry applications which can access BBM contact lists, user profiles while enabling user to chat within their applications**
- **Gives the potential for a wide range of truly interactive applications that are only available on BlackBerry devices**



BBM SDK Compatibility

- Apps developed using the BBM SDK can either be written in Java or WebWorks
- There is no support for the BlackBerry PlayBook at the moment
- BlackBerry devices need to have BlackBerry Messenger version 6.1 or above installed to take advantage of the SDK
- BlackBerry OS 5.0 or later is also required to take advantage of the SDK
- The SDK currently does not support Java 7



BBM SDK Compatibility

- There are different dependencies between different versions of the **BBM SDK**, **BlackBerry Messenger** and the **BlackBerry Device Software**.

BBM SDK Version	BBM Version	BlackBerry Device Software Version
1.0	6.0.0	5.0 and later
1.2	6.0.1	5.0 and later
1.3	6.1.0	5.0 and later



BBM SDK System Requirements

- **For Java:**
 - **BlackBerry Messenger SDK for Java version 1.3 or above**
 - **Java SE Development Kit (JDK), 32-bit, Version 6, Update 20 or higher**
 - **Either the BlackBerry Java Plug-in for Eclipse (Includes BlackBerry Java SDK 6.0) or the BlackBerry Java Development Environment 6.0**



BBM SDK System Requirements

- **For WebWorks:**
 - **BlackBerry Messenger SDK For WebWorks version 1.1 or above**
 - **BlackBerry® WebWorks™ SDK for Smartphones 2.2 or higher**
 - **Java SE Development Kit (JDK), 32-bit, Version 6, Update 20 or higher**



BBM Pre-Production Environment

- An environment dedicated to allowing to develop and test your application with a small beta community before you deploy it.
- Provides all the functionality of a production environment with the following limitations:
 - Each application is limited to 100 instances
 - Each application expires after 180 days
 - Application is pre-production cannot communicate with the same application that is registered in BlackBerry App World



Limitations on Communication

- The BBM Platform will limit the traffic of an application that uses too much bandwidth
- All messages and application data for all BBM connected applications running on a BlackBerry device are limited to a maximum data transfer rate (configured by the BBM server)
- The BBM server may throttle application traffic to reduce transfer rates to acceptable levels



Limitations on Communication

- File transfers sent from BBM connected applications are exempt from the limitation of data transfer rate
- File transfers are limited to 60K per transfer for a BBM connected application
- The maximum number of users in a connection is limited to 24



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Setting up the Environment



Installing and Configuring Simulators for the BBM SDK

- To test your BBM connected applications, the BlackBerry MDS simulator and the BlackBerry smartphone simulators need to be configured
 - This is required to allow communication between two instances of the BlackBerry smartphone simulator



Installing and Configuring Simulators for the BBM SDK

- **First, make sure that you have the Java SE development kit installed**
- **For Java and WebWorks Development:**
 - **Open the Environment Variables dialog**
 - **Right click on Computer in the Start Menu**
 - **Click on Properties**
 - **Click on Advanced System Settings**
 - **Click on Environment Variables**



Installing and Configuring Simulators for the BBM SDK

- Set the **JAVA_HOME** environment variable to the directory where you installed the the JDK, for example: **C:\Program Files\Java\jdk1.6.0_24**. In 64-bit Windows, the default path is **C:\Program Files(x86)\Java\jdk1.6.0_24**.
- In the **PATH** environment variable, add **%JAVA_HOME%\bin;** to the beginning of the existing text for Value
- Click **OK** which will save and close the **Environment Variables Dialog**



Installing and Configuring Simulators for the BBM SDK

- Verify that the environment is installed correctly by typing in command prompt: `java -version`
- Something similar to the following should appear:

```
java version "1.6.0_24" Java(TM) SE Runtime  
Environment (build 1.6.0_24-b07) Java HotSpot(TM)  
Client VM (build 19.1-b02, mixed mode, sharing)
```

- Download and extract the BlackBerry Messenger SDK from:
<http://us.blackberry.com/developers/blackberryMessenger/>



Installing and Configuring the MDS simulator

- **Install and run the BlackBerry MDS simulator:**
- **For Java and WebWorks:**
 - **In the folder where you extracted the BlackBerry Messenger SDK, open the ‘MDS Simulator’ folder**
 - **Extract the contents of the MDSv3.x.x.zip file into the same folder**
 - **Open the mds folder and double click ‘run.bat’ to launch the simulator**



Installing and Configuring the MDS simulator

- If the following errors occur, configuring the MDS simulator to use unlimited strength encryption is needed

```
Administrator: C:\Windows\System32\cmd.exe
<2012-01-27 08:54:29.149 EST>:[501]<BBM_MDS>:<ERROR>:<LAYER = SCM, EVENT = Exception, Caused by: java
a.security.InvalidKeyException: Illegal key size>
<2012-01-27 08:54:29.149 EST>:[501]<BBM_MDS>:<ERROR>:<LAYER = SCM, EVENT = Exception, at javax.cry
pto.Cipher.a(DashoA13*..)>
<2012-01-27 08:54:29.149 EST>:[501]<BBM_MDS>:<ERROR>:<LAYER = SCM, EVENT = Exception, at javax.cry
pto.Cipher.a(DashoA13*..)>
<2012-01-27 08:54:29.149 EST>:[501]<BBM_MDS>:<ERROR>:<LAYER = SCM, EVENT = Exception, at javax.cry
pto.Cipher.a(DashoA13*..)>
<2012-01-27 08:54:29.149 EST>:[501]<BBM_MDS>:<ERROR>:<LAYER = SCM, EVENT = Exception, at javax.cry
pto.Cipher.init(DashoA13*..)>
<2012-01-27 08:54:29.149 EST>:[501]<BBM_MDS>:<ERROR>:<LAYER = SCM, EVENT = Exception, at javax.cry
pto.Cipher.init(DashoA13*..)>
<2012-01-27 08:54:29.149 EST>:[501]<BBM_MDS>:<ERROR>:<LAYER = SCM, EVENT = Exception, at net.rim.p
rotocol.keynego.a.c.X1(Unknown Source)>
<2012-01-27 08:54:29.149 EST>:[501]<BBM_MDS>:<ERROR>:<LAYER = SCM, EVENT = Exception, at net.rim.p
rotocol.keynego.a.c.<init>(Unknown Source)>
<2012-01-27 08:54:29.149 EST>:[501]<BBM_MDS>:<ERROR>:<LAYER = SCM, EVENT = Exception, at net.rim.p
rotocol.keynego.KeyNegoProtocol.kE(Unknown Source)>
<2012-01-27 08:54:29.149 EST>:[501]<BBM_MDS>:<ERROR>:<LAYER = SCM, EVENT = Exception, at net.rim.p
rotocol.keynego.KeyNegoProtocol.start(Unknown Source)>
<2012-01-27 08:54:29.149 EST>:[501]<BBM_MDS>:<ERROR>:<LAYER = SCM, EVENT = Exception, at net.rim.s
ervice.c.start(Unknown Source)>
<2012-01-27 08:54:29.149 EST>:[501]<BBM_MDS>:<ERROR>:<LAYER = SCM, EVENT = Exception, ... 2 more>
C:\Program Files (x86)\BlackBerry JDE 6 Eclipse Plug-in\BBM SDK\MDS Simulator\mds\Servers\MDS1>
```



Installing and Configuring the MDS simulator

- To configure the MDS simulator to use unlimited strength encryption:
 - Download the 'jce_policy-6.zip' file from the Oracle website:
<http://www.oracle.com/technetwork/java/javase/downloads/jce-6-download-429243.html>
 - Extract the files to your computer
 - In the JDK directory (for example: C:\Program Files (x86)\Java\jdk1.6.0_23\jre\lib\security) replace the 'local_policy.jar' and 'US_export_policy.jar' in the security folder



Installing and Configuring the MDS simulator

- The MDS simulator should now open successfully

```
C:\Windows\System32\cmd.exe - java -classpath ..\..\classpath\*;\..\webservice\lib\*;"C:\Program Files (x86)\Java\jdk1.6.0_23\bin...
ment>
<2012-01-27 09:00:16.670 EST>:[80]:<BBM_MDS>:<DEBUG>:<LAYER = MDP, EVENT = Started>
<2012-01-27 09:00:16.669 EST>:[79]:<BBM_MDS>:<DEBUG>:<LAYER = EP2P, Recovery done. Summary <Incoming
/Outgoing>=> Total: 0/0; Nulls: 0/0; Expired: 0/0; Recovered: 0/0; Store file ep2p_store.dat>
<2012-01-27 09:00:16.676 EST>:[81]:<BBM_MDS>:<DEBUG>:<LAYER = MDP, EVENT = Started, THREAD = MdpLaye
rHigherLayerListeningThread:REG>
<2012-01-27 09:00:16.676 EST>:[84]:<BBM_MDS>:<DEBUG>:<LAYER = MDP, EVENT = Started, THREAD = MdpLaye
rDatagramGC>
<2012-01-27 09:00:16.676 EST>:[83]:<BBM_MDS>:<DEBUG>:<LAYER = MDP, EVENT = Started, THREAD = MdpLaye
rLowerLayerListeningThread:GPAK>
<2012-01-27 09:00:16.676 EST>:[82]:<BBM_MDS>:<DEBUG>:<LAYER = MDP, EVENT = Started, THREAD = MdpLaye
rHigherLayerListeningThread:GME>
<2012-01-27 09:00:16.676 EST>:[85]:<BBM_MDS>:<DEBUG>:<LAYER = GPAK, EVENT = Initialization>
<2012-01-27 09:00:16.679 EST>:[86]:<BBM_MDS>:<DEBUG>:<LAYER = GPAK, EVENT = Started>
<2012-01-27 09:00:16.680 EST>:[87]:<BBM_MDS>:<DEBUG>:<LAYER = GPAK, EVENT = Started, THREAD = GpakLa
yerHigherLayerListeningThread:MDP>
<2012-01-27 09:00:16.680 EST>:[88]:<BBM_MDS>:<DEBUG>:<LAYER = GPAK, EVENT = Started, THREAD = GpakLa
yerLowerLayerListeningThread:UDP>
<2012-01-27 09:00:16.708 EST>:[89]:<BBM_MDS>:<DEBUG>:<LAYER = UDP, EVENT = Initialization>
<2012-01-27 09:00:16.708 EST>:[90]:<BBM_MDS>:<DEBUG>:<LAYER = UDP, EVENT = Started>
<2012-01-27 09:00:16.717 EST>:[92]:<BBM_MDS>:<DEBUG>:<LAYER = UDP, EVENT = Started, THREAD = UdpLaye
rReceiverThread>
<2012-01-27 09:00:16.717 EST>:[91]:<BBM_MDS>:<DEBUG>:<LAYER = UDP, EVENT = Started, THREAD = UdpLaye
rSenderThread:GPAK>
```



Installing and Configuring the Smartphone Simulator

- Download and install any one of the compatible BBM v6.1 enabled simulators: <http://us.blackberry.com/developers/blackberryMessenger/>
- For Java and WebWorks Development:
 - Navigate to the folder where you extracted the simulator
 - Double click on the **BlackBerry_Simulators_<version>_<model>.exe** file



Installing and Configuring the Smartphone Simulator

- **Complete the install process**
 - It is a requirement to install the Visual Studio C++ Redistributable. The installation process will do this for you
- **After the installation is completed, two .bat files (named sim1.bat and sim2.bat) are available in the installation folder**
- **These two .bat files will launch two instances of the BlackBerry simulator**
- **The simulators will be able to communicate using the BlackBerry MDS simulator**



Installing and Configuring the Smartphone Simulator

- If you want to configure the simulator without launching the two provided 'sim.bat' files, you can create your own '.bat' files which have specific parameters supported by the BlackBerry Messenger SDK
- Parameters:
 - **app-param=regDestIP**
 - Specifies the IP of the computer running the MDS simulator



Installing and Configuring the Smartphone Simulator

- **app-param=regDestIP**
 - Specifies the IP of the computer running the MDS simulator
- **app-param=regDestPort**
 - Specifies the default port. Should be the same for every instance of the BlackBerry simulator
- **app-param=DisableSyncServiceRecord**
 - Specifies that PIN to PIN connections between devices are possible. Simulator must be cleaned before the parameter will work
 - Click BlackBerry > Clean to clean the simulator



Installing and Configuring the Smartphone Simulator

- **session**
 - Specifies the session number which must be unique for each simulator instance
- **app-param=regSrcPort**
 - Specifies the port number which must be unique for each instance of the simulator
- **pin**
 - Specifies the PIN of the simulator. The parameter must be 0x2100000 or greater and unique for each instance of the simulator



Installing and Configuring the Smartphone Simulator

– Example Simulator 1 .bat contents

```
@echo off fledge.exe /app=Jvm.dll /handheld=9800  
/session=Sim1 /app-param=JvmAlxConfigFile:9800.xml /data-  
port=0x4d44 /data-port=0x4d4e /pin=0x2100000A /app-  
param=regVersion=3 /app-param=regDestIP=127.0.0.1 /app-  
param=regDestPort=19781 /app-param=regSrcPort=19780 /app-  
param=DisableSyncServiceRecord
```

– Example Simulator 1 .bat contents

```
@echo off fledge.exe /app=Jvm.dll /handheld=9800  
/session=Sim2 /app-param=JvmAlxConfigFile:9800.xml /data-  
port=0x4d44 /data-port=0x4d4e /pin=0x2100000B /app-  
param=regVersion=3 /app-param=regDestIP=127.0.0.1 /app-  
param=regDestPort=19781 /app-param=regSrcPort=19782 /app-  
param=DisableSyncServiceRecord
```



Setting up the Java Development Environment

- **To create a project for a BBM connected application in Eclipse:**
 - **In Eclipse, open the BlackBerry Application Development perspective**
 - **Click File, New, BlackBerry Project**
 - **In the New BlackBerry Project dialog box, in the Project Name field, type a name for your project**
 - **In the JRE section, make sure you select a BlackBerry JRE that is version 5.0 or later, and click Finish**



Setting up the Java Development Environment

- In the Package Explorer view, right-click the project and click Properties
- In the Properties dialog box, in the left pane, click Java Build Path
- Click the Libraries tab
- Click the Add External JARs button
- Navigate to the folder where you extracted the BlackBerry Messenger SDK file,. In the BBM SDK folder, double-click net_rim_bb_qm_platform.jar
- Click Next, then in the Properties window click OK



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**Setting up BBM Connected
Simulators**



Setting up BBM Connected Simulators

- You can run your BBM connected simulators from Eclipse or manually using the BlackBerry Smartphone Simulator
 - **Within Eclipse:**
 - Click on Run, then Debug Configurations
 - Create a new BlackBerry Simulator launch configuration by right clicking on 'BlackBerry Simulator', clicking 'New' and then type in a name
 - On the Simulator tab, click General
 - In the Device dropdown list, select a simulator (for example: `SimPackage-6.0.0.313_9800-9800`)



Setting up BBM Connected Simulators

- In the Device dropdown list, select a simulator (for example: **SimPackage-6.0.0.313_9800-9800**)
 - If no simulators appear, click the ‘Apply’ button on the bottom right, then choose a simulator
- Click the **Advanced** tab
- Check the ‘Use customized command options’ checkbox
- In the ‘Customized command line’ box, type the argument from the **sim1.bat** file



Setting up BBM Connected Simulators

- **Sample arguments in the sim1.bat file:**
"C:\Program Files\Research In Motion\BlackBerry Smartphone Simulators 6.0.0\6.0.0.313 (9800)\fledge.exe" /handheld=9800 /app-param=JvmAlxConfigFile:9800.xml /pin=0x2100000A /data-port=0x4d44 /data-port=0x4d4e /session=9800 /app="C:\Program Files\Research In Motion\BlackBerry Smartphone Simulators 6.0.0\6.0.0.313 (9800)\Jvm.dll" /app=Jvm.dll /handheld=9800 /session=Sim1 /app-param=JvmAlxConfigFile:9800.xml /data-port=0x4d44 /data-port=0x4d4e /pin=0x2100000A /app-param=regVersion=3 /app-param=regDestIP=127.0.0.1 /app-param=regDestPort=19781 /app-param=regSrcPort=19780 /app-param=DisableSyncServiceRecord /title="BlackBerry 9800-1 Simulator"



Setting up BBM Connected Simulators

- In the 'Customized working directory' box, type the path for the directory where you installed the simulator package
- In the 'Customized MDS directory' box, type the path of the directory where you installed the MDS simulator package
- Click Apply to save the settings
- Click the Projects tab
- Select the BBM application projects you wish to use this configuration for
- Click Apply in save the settings
- Click Close



Setting up BBM Connected Simulators

- **Using the BlackBerry Smartphone Simulator**
 - In the folder where you extracted the BBM SDK, open the MDS Simulator folder, then the sdk folder then the mds folder
 - Double click 'run.bat' to launch the MDS simulator
 - Navigate to the folder where you installed the smartphone simulator
 - Launch the first instance of the simulator by double clicking on 'sim1.bat' (or another batch file you configured to connect to the MDS simulator)
 - Launch the second instance of the simulator by double clicking on 'sim2.bat' (or another batch file you configured to connect to the MDS simulator)



Setting up BBM Connected Simulators

- To have each instance of the simulator have the other as a contact, open BBM in the first simulator
- When the name field appears, type 'simulator 1' as the name. When the window pops up asking you to select contacts, hit cancel
- Open BBM in the second simulator, and type 'simulator 2' when the name field appears. Again hit cancel when the select contacts dialog box appears
- On the first simulator, click the Menu key and click the Invite Contact menu item
- In the 'To' field, type '2100000B' or the PIN you set for the second simulator in the sim2.bat file



Setting up BBM Connected Simulators

- On the second simulator accept the invitation. Send a test message from both devices.
- You are now ready to load your BBM connected applications onto the simulators





Tools

- BlackBerry Java Application Development Tools-
<http://us.blackberry.com/developers/javaappdev/>
- BlackBerry WebWorks SDK -
<http://us.blackberry.com/developers/browserdev/devtoolsdownloads.jsp>
- <http://us.blackberry.com/developers/blackberrymessenger/>
- BBM SDK 1.3 for BlackBerry Java -
<http://swdownloads.blackberry.com/Downloads/contactFormPreload.do?code=DC727151E5D55DDE1E950767CF861CA5&dl=70749A1F8C31FD5DD2FDABA69D48B94A>
- BBM SDK 1.1 for BlackBerry WebWorks-
<http://swdownloads.blackberry.com/Downloads/contactFormPreload.do?code=DC727151E5D55DDE1E950767CF861CA5&dl=BEC7A49FE8DDDD6ED13781CB67B3406D&check1=A>
- List of BBM SDK downloads -
<http://us.blackberry.com/developers/blackberrymessenger/>



References

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<http://us.blackberry.com/developers/blackberrymessenger/>
- *BlackBerry Messenger SDK Getting Started Guide*. 25 Jan. 2012.
<http://docs.blackberry.com/en/developers/deliverables/36641/>