

Logging: Easy and Flexible

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COM 26

October 18 - 20, 2011

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Who Am I ?

ekke

I Survived Many Technologies

 **BlackBerry** DevCon



- Assembler
- Cobol
- Basic, Pascal



- 30+ Years of Business Applications (ERP, CRM)
- Using Java[®] Since 2000
- Domain Specific Languages (DSL)
- Eclipse Runtime (OSGi[™] Equinox)
- Eclipse Riena (Committer)
- Eclipse Modeling (Xtext, Xtend)
- Open Source Projects
- Mobile Development: BlackBerry[®] Java Applications

- Native Java Applications BlackBerry® 6 and BlackBerry® 7
- SuperApps
- Location Based Applications
- Business Applications
- BlackBerry® Enthusiast:
 - ▶ Blogs
 - ▶ Twitter®
 - ▶ Conferences
 - ▶ Articles

Overview

Why Logging ?

What's Different With Mobile Applications ?

Overview

Why Logging ?



Overview

Why Logging ?

- Find Bugs
- What's Your Application Doing ?
- Why Something Went Wrong
- Logging vs. Debugging

Logging Java SE, OSGi

Most Used Logging Frameworks For Java SE
Logging Services For OSGi

Logging Java SE, OSGi Logging Frameworks

 **BlackBerry** DevCon



Package `java.util.logging`



Pax Logging





- SLF4J
- Bridges For
- Log4J
- Apache Commons Logging
- JDK Logging (java.util.logging)
- Services For OSGi

Logging Java SE, OSGi

EasyLogging (SLF4J + LOGBack)



LOGBackTM
The Generic, Reliable
Fast & Flexible
Logging Framework



- LogBack
- Native Implementation Of SLF4J

Logging Java SE, OSGi

EasyLogging (Monitoring)



LOGBack[™]
*The Generic, Reliable
Fast & Flexible
Logging Framework*



- Lilith Logging Monitor
- Live Monitoring
- Listening For LogBack Events
- TCP Socket Connection

Logging For BlackBerry Java

What's Possible Out Of The Box ?

Logging For BlackBerry Java

Out-of-the-box ?




```
try {  
    gpsDatabase.rollbackTransaction  
();} catch (DatabaseException e) {  
    System.out.println("Houston, we  
have a problem");}
```

Logging For BlackBerry Java

System.out.println

- Easy To Implement
- Drawback: Only Works In Debug Mode

Logging For BlackBerry Java

Logging BlackBerry Java (Event Log)



- alt L
- alt G
- alt L
- alt G

Logging For BlackBerry Java

Logging BlackBerry Java (Event Log)

Event Log (Warning)

a System - JVM Error 104

a System - VM:+BORK

S Java Exception - NullPointerException

a System - Process net_rim_bb_medialibrar

a System - Process net_rim_bb_options_app

a net.rim.simapp - EF

Uncaught Exception Trace

Name: NullPointerException

Severity: Severe Error

GUID: 9c3cd62e3320b498

Time: Jul 26, 2011 07:49:31

No detail message

Logging For BlackBerry Java

Logging BlackBerry Java (Event Log)



- Good As An Additional Ressource If In Trouble
- Really No Fun To Search / Scroll Through

Easy Logging For BlackBerry Java ?

HowTo Make Logging Easy And Flexible ?

Easy Logging For BlackBerry ?



Easy Logging For BlackBerry ?

Current State



- SLF4J / LOGBack Depends On Java 5
- n/a For BlackBerry Java

Easy Logging For BlackBerry ?

Own Solution ?



- Create Your Own Solution ?
- There Are Examples How To Log And Display Last n Events
- Drawback: Not Flexible And Additional Costs

Easy Logging For BlackBerry ?

Use An Open Source Framework



- Logging Should Be As Easy As Using Logging Frameworks In Java SE
- It's Time For Logging4BB ...

Logging4BB

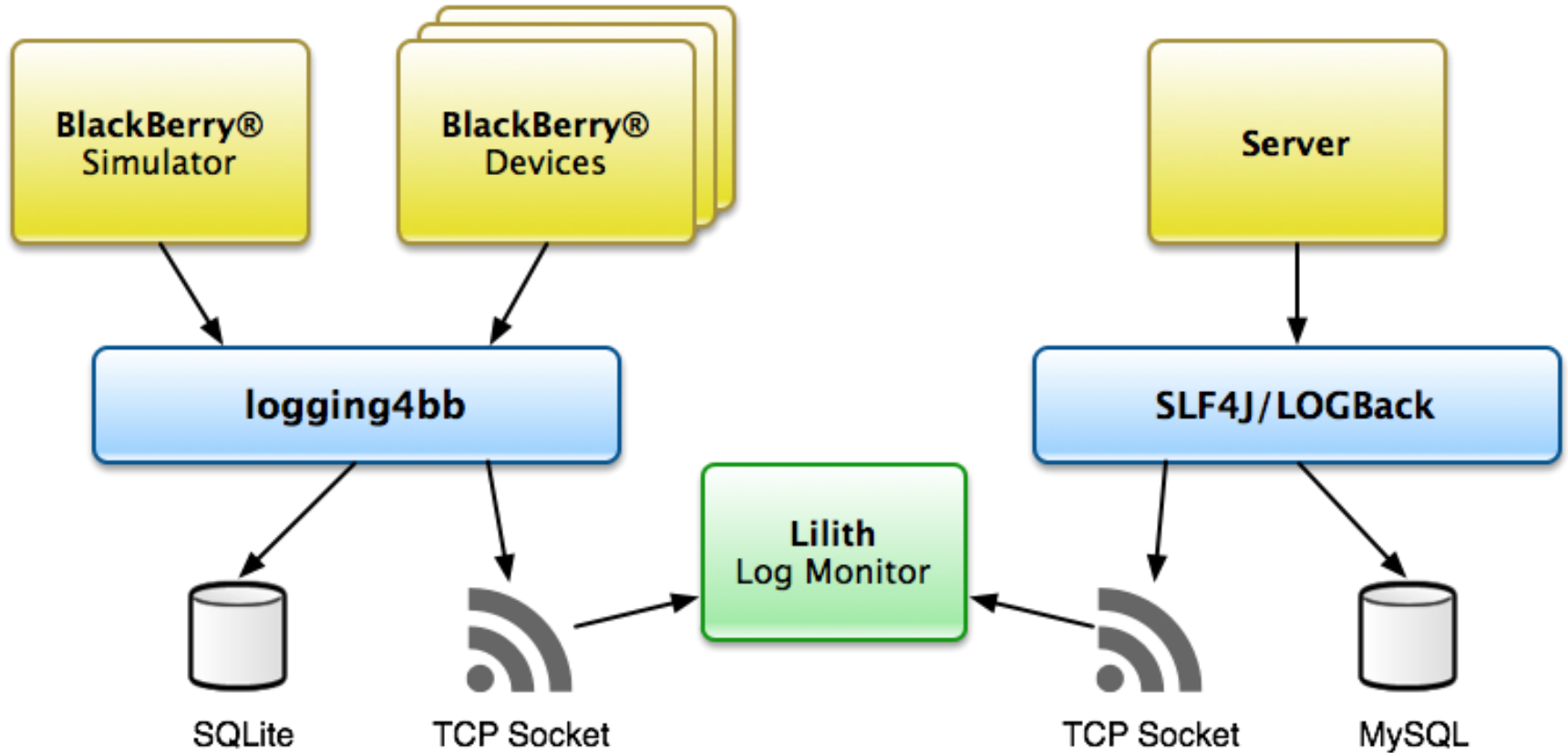
Logging Framework For BlackBerry

Overview, Use Cases, Open Source License

- Logging From Simulator
- Logging From Device
- Persist Log Events And Analyze Later
- Logging From (Push Content-) Server
- Logging While Developing And Testing
- Logging For Users In Production Mode
- Easy Monitoring Of Log Events

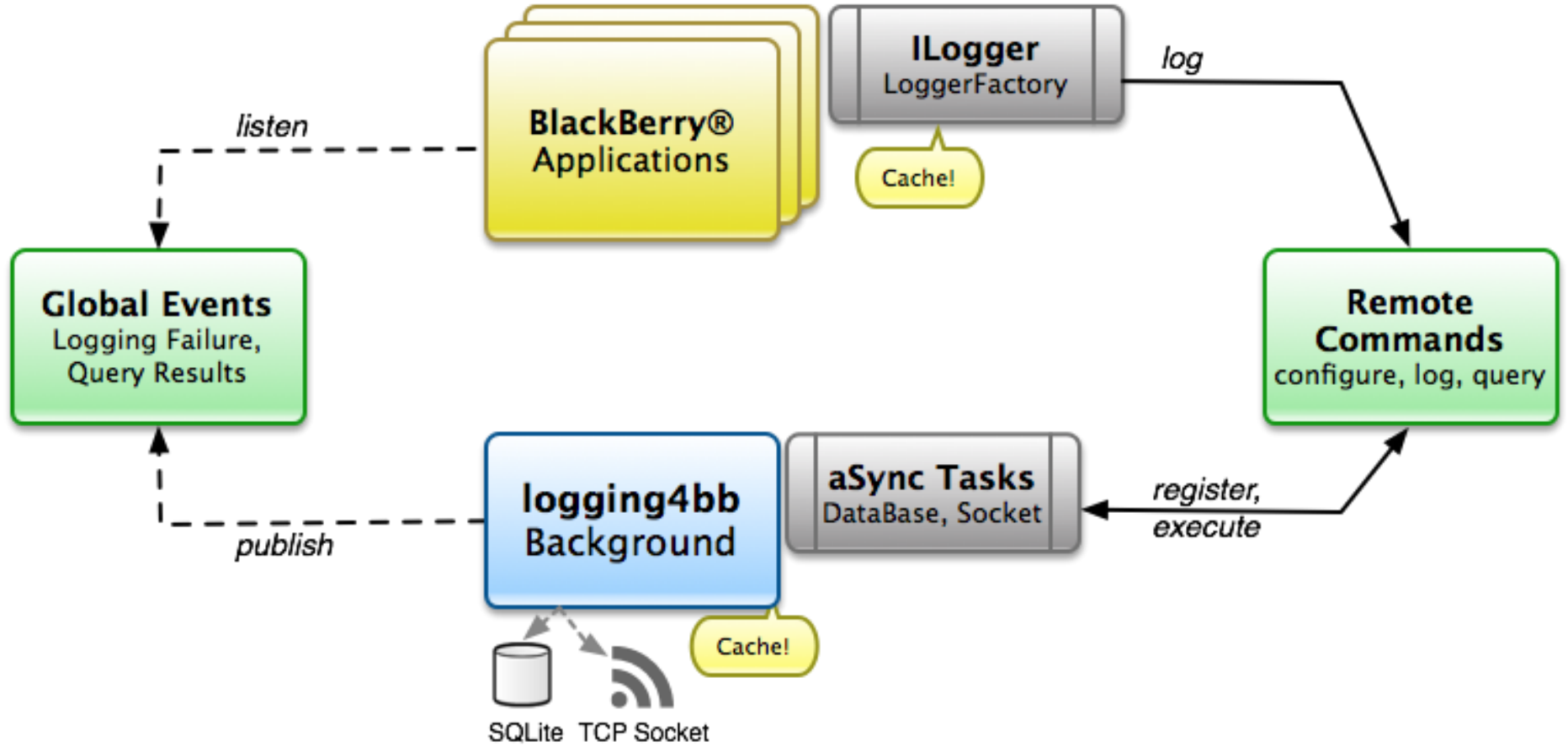
Logging4BB

Overview



Logging4BB

Overview



- At Startup: Initialize The Framework

```
private synchronized void initLogger(){  
    LoggerFactory.initLogStore(LOG_STO  
    RE_ID, MY_APP_ID);}
```

- Each Class Gets An Own Logger

```
public static final ILogger logger =  
    LoggerFactory.getLogger(SpeakerDetailsS  
creeen.class);
```


- A Simple Log (INFO Level)

```
logger.log("Speaker initialized");
```

- A Conditional Log (DEBUG Level)

```
if (logger.isDebugEnabled()) {  
    logger.debug("look for sessions of this  
speaker");}
```

Logging4BB

Log Like You Already Do It For Java SE

- Logging Code Looks like Java SE Logging
- Easy To Change Implementation Later
- No Learning Curve

Logging4BB

Robust Framework - Avoid Black Holes



- No Black Holes At Startup
 - ▶ Cache Log Events Until Database
 - ▶ Or TCP Connection Ready

- Fallback
 - ▶ If No Database And No Connection:
 - ▶ Fallback To System.out...

Logging4BB Monitoring



Logging4BB

Monitor Logging

The screenshot shows a logging window with the following data:

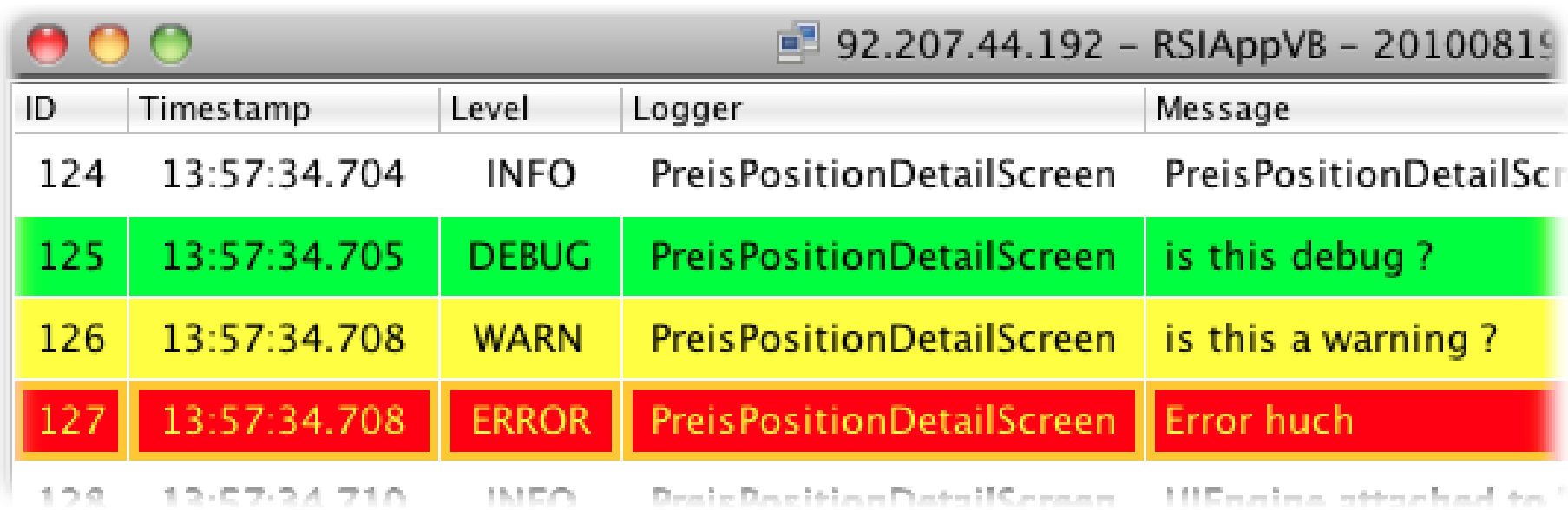
ID	Timestamp	Level	Class	Message	Application
19	11:15:39.042	INFO		...	ekkes_apps_ese_2010{9700:553648138}
20	11:15:39.045	INFO		want to initialize Sessions	ekkes_apps_ese_2010{9700:553648138}
21	11:15:39.046	INFO	SessionSelectScreen	create Fields for	ekkes_apps_ese_2010{9700:553648138}
22			SessionSelectScreen	Sessions initialized	ekkes_apps_ese_2010{9700:553648138}
23			SessionSelectScreen	UIEngine attached to 'SessionSelectScreen'	ekkes_apps_ese_2010{9700:553648138}
24	11:15:40.079	INFO	ESEScreenController	ScreenController pushSessionSelectScreen() after...	ekkes_apps_ese_2010{9700:553648138}
25	11:15:40.080	INFO	Utilities	Screen Stack contains: 2 Screens:	ekkes_apps_ese_2010{9700:553648138}
26	11:15:40.083	INFO	Utilities	org.ekkesapps.conferences.ese.screen.SessionSe...	ekkes_apps_ese_2010{9700:553648138}
27			Utilities	--> ESE NavigatorScreen	ekkes_apps_ese_2010{9700:553648138}

Callouts in the image:

- logged from Class**: points to the Class column.
- Log Level (INFO, DEBUG, WARN, ERROR)**: points to the Level column.
- a Logging Message**: points to the Message column.
- App, Device, PIN**: points to the Application column.
- details of a Log Message**: points to the entire log entry for ID 27.

Logging4BB

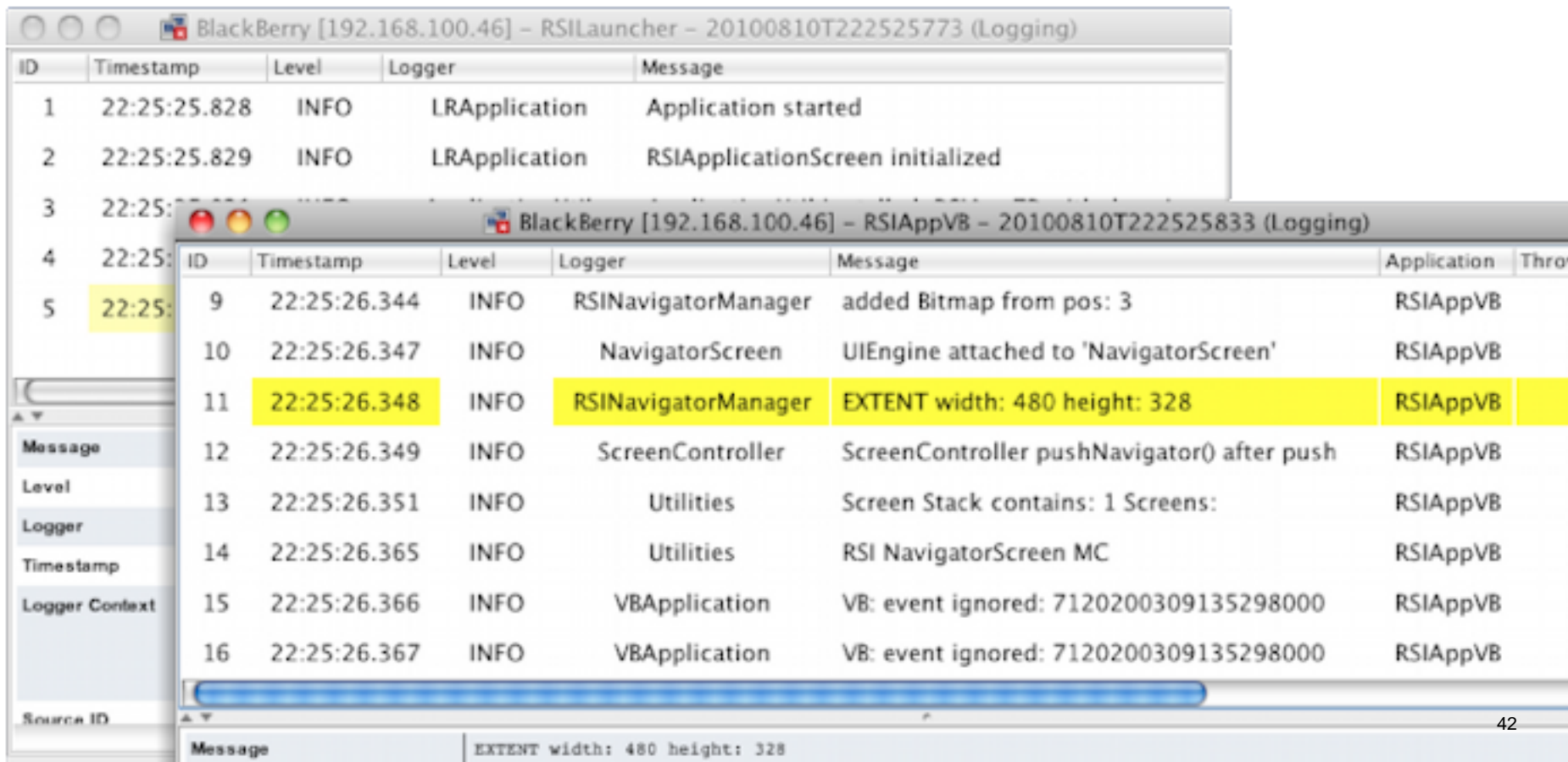
Monitor Logging



ID	Timestamp	Level	Logger	Message
124	13:57:34.704	INFO	PreisPositionDetailScreen	PreisPositionDetailScr
125	13:57:34.705	DEBUG	PreisPositionDetailScreen	is this debug ?
126	13:57:34.708	WARN	PreisPositionDetailScreen	is this a warning ?
127	13:57:34.708	ERROR	PreisPositionDetailScreen	Error hoch
128	13:57:34.710	INFO	PreisPositionDetailScreen	UIEngine attached to

Logging4BB

Monitor Logging



BlackBerry [192.168.100.46] - RSILauncher - 20100810T222525773 (Logging)

ID	Timestamp	Level	Logger	Message
1	22:25:25.828	INFO	LRApplication	Application started
2	22:25:25.829	INFO	LRApplication	RSIApplicationScreen initialized
3	22:25:...			

BlackBerry [192.168.100.46] - RSIAppVB - 20100810T222525833 (Logging)

ID	Timestamp	Level	Logger	Message	Application	Thro
4	22:25:...					
5	22:25:...					
9	22:25:26.344	INFO	RSINavigatorManager	added Bitmap from pos: 3	RSIAppVB	
10	22:25:26.347	INFO	NavigatorScreen	UIEngine attached to 'NavigatorScreen'	RSIAppVB	
11	22:25:26.348	INFO	RSINavigatorManager	EXTENT width: 480 height: 328	RSIAppVB	
12	22:25:26.349	INFO	ScreenController	ScreenController pushNavigator() after push	RSIAppVB	
13	22:25:26.351	INFO	Utilities	Screen Stack contains: 1 Screens:	RSIAppVB	
14	22:25:26.365	INFO	Utilities	RSI NavigatorScreen MC	RSIAppVB	
15	22:25:26.366	INFO	VBApplication	VB: event ignored: 7120200309135298000	RSIAppVB	
16	22:25:26.367	INFO	VBApplication	VB: event ignored: 7120200309135298000	RSIAppVB	

Message: EXTENT width: 480 height: 328

- SLF4J:
 - ▶ MIT License, Compatible With Apache License 2.0
- LOGBack: Dual Licensed
 - ▶ Eclipse Public License
 - ▶ LGPL
- Lilith: Dual Licensed
 - ▶ Apache License 2.0
 - ▶ LGPL
- Logging4BB:
 - ▶ Eclipse Public License (EPL)

Live Demo

This Is A Developer Conference -
Let's Hack Some Code Live

- HowTo Install Logging4BB
- Configure Logging
- Hacking Some Logging Statements
- Start Server
- Run Applications
- Push Content From Server To Device
- Watch And Analyze Logging From Lilith

- Live Coding....

More Information?

You need more Information?

- Logging4BB:
 - ▶ Download For Free From EclipseLabs:
 - ▶ <http://code.google.com/a/eclipselabs.org/p/logging4bb/>
- Lilith (Logging Monitor):
 - ▶ More Info and Download: <http://sourceforge.net/projects/lilith/>
- Push- / Content- / Communication Server:
 - ▶ More Info: <http://enMOcs.org>
 - ▶ Download For Free From EclipseLabs:
 - ▶ <http://code.google.com/a/eclipselabs.org/p/enmocs/>

- EclipseCon 2011 Europe (2011-11-02 ... 04)
 - ▶ <http://www.eclipsecon.org/europe2011/>
- W-JAX 2011 Germany (2011-11-07 ... 11)
 - ▶ <http://jax.de/>
- BlackBerry DevCon Europe (2012-02-07 ... 08)
 - ▶ <http://www.blackberrydevcon.com/europe>
- EclipseCon 2012 America (2012-03-26 ... 29)
 - ▶ <http://www.eclipsecon.org/2012/>

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Q & A

Any Questions ?

Q & A

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THANK YOU

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