Bio-Plex™
Suspension Array System

Release Notes
Bio-Plex Manager™ Software
Version 4.1.1
April 2006

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1. About Bio-Plex Manager 4.1.1

1.1   Bio-Plex Manager 4.1.1
Bio-Plex Manager 4.1.1 is a minor software revision that contains a number of improvements over Bio-Plex Manager 4.1. The improvements are listed below:

1.1.1   Platform Temperature
The platform temperature reported in the platform heater window and status bar has been updated to reflect the temperature reported by the latest LXR library instead of a calculated average platform temperature which was 1 to 2°C higher.

1.1.2   DD Temperature
The DD temperature reported in the Instrument Information window, Calibration Detail log and in the Raw Data report now reflects actual DD temperature instead of the board temperature which is very similar, but not the same.

1.1.3   Total Classified Sample Run Option
The Total Classified sample run option now correctly reads and saves run data for all wells marked for reading.

1.2   Bio-Plex Manager 4.1
Bio-Plex Manager version 4.0 was updated to version 4.1 to operate using the latest LXR library from Luminex Corporation. The benefits include automatic port detection, ability to cancel any fluidic operation, sample timeout, choice of bead maps (25, 50 or 100 regions), control of the filling function of the HTF, and compatibility with hyperthreading computer systems (a feature found on newer computers with processor speeds $\geq$ 3GHz).

1.3   Bio-Plex Manager 4.1.1 Manuals and User Guides
The following manuals and user guides also apply to Bio-Plex Manager 4.1.1:
    1.3.1   Bio-Plex Manager 4.1 Software User Guide (10003414)
    1.3.2   Bio-Plex Manager 4.1 Security Edition Software Configuration Setup Guide (10000528)
    1.3.3   Bio-Plex Manager 4.1 Software Upgrade Instructions for Workstations with 3.0 or 4.0 Software (10005028)
    1.3.4   Bio-Plex Manager 4.1 Software Installation Instructions for Workstations with IS 2.3 Software (10005029)
    1.3.5   Bio-Plex Manager Hardware Protection Key Single License Manual (10000525)
    1.3.6   Bio-Plex Manager Hardware Protection Key Multi-License Network Manual (10000524).

2. Installation Instructions for New Users
Refer to Bio-Plex Manager 4.1 Software User Guide (10003414) provided with Bio-Plex Manager 4.1.1 software. All references to Bio-Plex Manager version 4.1 throughout also apply to version 4.1.1.

3. Upgrade Instructions for 4.1 Users
Refer to Bio-Plex Manager 4.1 Software User Guide (10003414) provided with Bio-Plex Manager 4.1.1 software. All references to Bio-Plex Manager version 4.1 throughout also apply to version 4.1.1. It will be necessary to uninstall Bio-Plex Manager 4.1 prior to installing 4.1.1. The calibration database will be preserved when Bio-Plex Manager 4.1 is uninstalled.

4. Upgrade Instructions for 3.0 and 4.0 Users
Refer to Bio-Plex Manager 4.1 Software Upgrade Instructions for Workstations with 3.0 or 4.0 Software (10005028). These instructions are provided with Bio-Plex Manager 4.1 Standard Software for 3.0 Workstation (Catalog # 171SUPG30) and Bio-Plex Manager 4.1 Software for 4.0 Workstation (Catalog # 171SUPG40). All references to Bio-Plex Manager version 4.1 throughout also apply to version 4.1.1.

5. Installation Instructions for IS 2.3 Users
Refer to Bio-Plex Manager 4.1 Software Installation Instructions for Workstations with IS 2.3 Software (10005029). These instructions are provided with Bio-Plex Manager 4.1 Standard Software for IS 2.3 System (Catalog # 171STND23). All references to Bio-Plex Manager version 4.1 throughout also apply to version 4.1.1.

6. Security Edition
Bio-Plex Manager 4.1.1 Security Edition provides a secure environment for the maintenance, verification, and tracking of all electronic records generated by Bio-Plex Manager. These records include Protocol and Results files, the Calibration, Validation, Instrument Operations Logs and Audit Trail. Bio-Plex Manager 4.1.1 Security Edition software enables compliance with FDA 21 CFR Part 11 regulations.

The Security Edition is controlled by a special coded hardware protection key (HPK). When Security Mode is enabled, only an authenticated user can access the software. Different levels of users have access to different features and functions of the software.

7. Workstation Users
Bio-Plex Manager Workstation is designed to collect, analyze and output data from the Bio-Plex system. It runs as a Windows 2000 or XP application on a PC that is directly connected to the array reader and microplate platform.

An HPK is included with Bio-Plex Manager Workstation. It's necessary to attach the HPK to a PC before running the software. The PC must be powered off before installing the HPK. The HPK attaches to a USB port on the PC. The HPK has a driver that is automatically installed when you install Bio-Plex

Manager. See the Bio-Plex Manager Hardware Protection Key Single License Network Manual (10000525) for HPK installation instructions.

8. Desktop Users
Bio-Plex Manager Desktop allows the analysis of Bio-Plex data files on any PC configured with Windows 2000 or Windows XP. It is not designed to control the Bio-Plex system. Data can be analyzed using all of the features available with Bio-Plex Manager Workstation

An HPK is included with Bio-Plex Manager Desktop. It's necessary to attach the HPK to a PC before running the software. The PC must be powered off before installing the HPK. The HPK attaches to a USB port on the PC. The HPK has a driver that is automatically installed when you install Bio-Plex Manager. See the Bio-Plex Manager Hardware Protection Key Single License Network Manual (10000525) for HPK installation instructions.

9. Network Desktop Users
Bio-Plex Manager Network Desktop uses a single HPK installed on a network file server to provide multiple licenses to network users. The network key can be configured to support 5 or 10 users, depending on the type of license.

Bio-Plex Manager Network Desktop allows the analysis of Bio-Plex data files on any PC configured with Windows 2000 or XP and linked to the server. It is not designed to control the Bio-Plex system. Data can be analyzed using all of the features available with Bio-Plex Manager Workstation. See the Bio-Plex Manager Hardware Protection Key Multi-License Network Manual (10000524) for instructions on installing the HPK on a file server.

10. Reporting Feature Requests to Bio-Rad
The installer for Bio-Plex Manager also installs Solobug (BPM) in a Bug Reporter subfolder within your Bio-Plex Manager folder. Please use this program to request features, request design changes, or report non-critical Bio-Plex Manager problems.

To use Solobug, click on the Windows Start button, select the Bio-Plex Manager folder from the Programs list, and open Solobug from within this folder. Alternatively, select the Solobug icon on the desktop. In Solobug, enter the required information with a description of the request and select Save. This will create a report that can be attached to an e-mail and sent to Bio-Rad.

Please email Solobug files to **LSG.TechServ.US@Bio-Rad.com** from within the US and **LSG.TechServ.Intl@Bio-Rad.com** outside the US.

11. Frequently Asked Questions

   Will BPM 4.1.1 run on my Luminex IS 2.3 system?
      Yes. BPM 4.1.1 runs with the same firmware and library as the IS 2.3 system.

   Does BPM 4.1.1 offer the Security Edition?
      Yes. All of the features that were included in BPM 4.0 are still present in 4.1.1 plus several additional tracking features including Bead Map and Sample Timeout.

   Is my Bio-Plex system upgradeable to BPM 4.1.1?
      If your reader was purchased prior to October 2000 it cannot be upgraded to 4.1.1. If your XY platform was purchased prior to August 2001 it may not be upgradeable.

I am trying to upgrade to BPM 4.1.1, but the LxFirmware wizard isn't detecting all of the firmware versions. What's wrong?

The firmware wizard will only upgrade or downgrade the firmware when using the serial cables. Be sure you have not prematurely connected the USB cable. If the problem is detecting the HTF firmware be sure you are using the correct cable. You must reconnect the platform serial cable to the HTF. Be sure you are not using the CAN BUS cable that is supplied to connect the reader to the HTF.

I upgraded to BPM 4.1.1 and installed the new USB cable and now the system will not connect. What's wrong?

Keep trying to connect. This could take a couple of minutes due to the automatic port detection feature of BPM 4.1.1. If you still cannot connect after at least 3 minutes go to the Device Manager in the Control Panel and see if there is a menu item listed for "Luminex Devices". If not, go to 'Actions' and select scan for new hardware and see if the "Luminex Devices" item is created. If so, try to connect again. If you still cannot connect replace the USB cable with the serial cable that was previously installed. Try connecting. If the system connects you can run the system with the serial cable until field service can be notified.

I had attempted to upgrade to BPM 4.1.1, but encountered a problem. I need to reinstall BPM 4.0 to do my work, but I get "Error 1722" when I begin the installation. What do I do?

Do the install again, but use the "Custom" installation method and do not install the "Hasp support" portion of the installer. Even though you had uninstalled BPM 4.1.1 it doesn't uninstall the hasp key and the different hasp keys in the 2 versions conflict. BPM 4.0 will operate normally using the BPM 4.1.1 hasp.

I have IS 2.2 on my Luminex and purchased BPM 4.1.1. BPM 4.1.1 runs fine, but I can't run IS 2.2 any more. I thought I could run both?

You can. But, you must turn off LxService before running IS 2.2. Go to the Utilities folder found in the Bio-Plex Manager 4.1.1 folder and click on "Stop LxService". This will turn off the service and allow you to launch IS 2.2. Each time you launch BPM 4.1.1 it will restart the service, so every time you go back to run IS 2.2 you'll need to use this utility.

I have BPM 4.1.1 on my system and keep getting a message during my runs stating "the sheath pressure limit was triggered during the acquisition". Why?

The system pressure settings are not correct. Go to the folder 'Bio-Plex Manager 4.1.1' and open the folder 'Utilities'.   Double click on the file RIPS.exe. In the dialog that comes up select 'Proceed'. Cycle the power on the instrument and launch BPM 4.1.1. The system settings will be automatically set. Follow the instructions then try running samples again. If the error message continues you have a leak in the system.

I have purchased BPM 4.1.1 for my system, but also have applications for which I must use IS 2.3 software. My data is not very good after I switch applications, what gives?

Be sure to calibrate any time that you change applications as calibration settings don't carryover between the applications. Run only one application at a time.

The same error message continually comes up during a run. I know this problem will not hurt my data, but I must baby sit the instrument to keep it running. Can I turn off the message?

Yes. If the run is in progress stop your run and go to the Utilities folder in the Bio-Plex Manager 4.1.1 folder and double click on the BWMM.exe file (Bio-Plex Warning Message Manager). Click the option to "Hide" the warning messages. Restart your run using Rerun/Recovery mode. The message you were getting will no longer stop the run. But, beware that you have turned off ALL error messages. As soon as your instrument problem is fixed be sure to return to BWMM.exe and click the "Show" option to re-enable the messages.

What's the purpose of Sample Timeout?

This allows you to set the acquisition time of the samples you are running to a value less than the default time. Default times are based on sample volume, so for a 50 µl sample volume the default sample timeout is about 80 seconds. For a 100 µl volume it is about 150 seconds, etc. There is no reason to allow longer times because the sample will have completely run through the system by the default time. But, shorter times might be used to speed up the run especially if you are running a plate in which all the wells don't have the same bead regions present as might be encountered in some phosphoprotein assay runs.

My run is taking a long time on each sample because I neglected to add one of my beads. Can I set Sample Timeout in the middle of a run and is it tracked?

Yes. You can stop a run and set or change the Sample Timeout time and restart the run using Rerun/Recovery. The Sample Timeout time is tracked in the raw data table for each sample.

When would I use a 25 or 50 region map instead of the 100 region map?

The regions in the 25 region map are larger and will provide better classification efficiency if using Bio-Rad's magnetic beads which are larger (8 µm) than the non-magnetic beads (5.6 µm). The 50 region map may be useful if an assay is demonstrating excessive scatter causing misclassification of beads. This can happen due to bead degradation or assay effects. The 100 and 25 region maps will be most used.

Can I change bead region maps during a run and, if I do, will the region used in each sample be identifiable?

Yes. You can stop a run and change the bead map then restart the run using Rerun/Recovery. It will be tracked in the raw data table for each well.

I need to run another application on my Bio-Plex computer and need to use hyper-threading. Hyper-threading is disabled on my PC; can I turn it on without harming the Bio-Plex system or software?

Yes. BPM 4.1.1 is compatible with hyper-threading enabled computers.

Can my BPM 3.0, 4.0, or 4.1 files be opened on BPM 4.1.1?

Yes. They can be opened and used.

Can BPM 4.1.1 files be opened on BPM 4.0 or earlier versions?

No. BPM 4.1.1 generated files cannot be opened on BPM 4.0 or earlier versions.