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Mercury Refresh

Abstract and content description

This technical note takes users through the steps required to completely update a Mercury unit, either iPS-M, iPS-S or iTC. It explains how to tell which version of base firmware is running, how to update the base firmware, OIDB drivers, device firmware and main application. There is an additional optional task to re-enable the updated GPIB library (loaded with the main application update) should this be necessary. It also covers checking and correcting the unit MAC address and touch screen recalibration.

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Introduction

By design, the Mercury file system can be updated by OI service personnel or the end user. This means that any operational bugs that have been identified after shipment can be resolved and any new development features are available to all users. This technical note is intended to be a step-by-step guide to updating Mercury units to fix operational issues and to update all users to the current standard of the file system and applications.

Warning for Cryojet and Heliox users

Cryojet and Heliox system users can proceed with items 1 to 5 listed below (Back-up, Updating BAF, Updating OIDB, MAC check, TS Cal), but do not perform item 6, main application and device update. Contact Oxford helpdesk first.

1. Backing-up the unit

All firmware versions

1. From the Home screen of the unit tap “Settings”
2. Scroll across to the “Factory” tab.
3. Tap the box “Enter name” to open the alpha-numeric keypad. Type in a file name for the back-up restore data. Tap “RTN”
4. Tap “Save Configuration”.

2. Updating the base arm firmware

There are current 2 versions of base arm firmware (BAF) for Mercury, version 1.0 and version 2.0. To determine which version is running on your unit, power up the unit. The first screen that is shown is the uboot splash screen. There is an Oxford logo in the top left corner of the screen. If the background to this logo is **grey** then BAF version 1.0 is installed. If the background to this logo is **blue** then BAF version 2.0 is installed. If your unit is running BAF version 2.0 then there is nothing to do, just skip to the next section. However, if your unit is running BAF version 1.0 it is advised that you update by following the instructions below. It is necessary to run an “override script”. This application will run before the main application boots and will load and update of the system base firmware.

1. Having unzipped the Refresh package to a temporary directory, copy the “cryosys.override” encrypted file from “BAF” to an **empty USB stick**.
2. Switch off the Mercury unit.
3. Insert the USB stick into the USB-A port on the back of the Mercury unit.
4. If an RJ45 cable is connected to the TCP/IP port then unplug it.
5. Power up the Mercury unit. The normal file system splash screen will come up then the progress bar showing the file system loading. Normally, at this point the blue splash screen with the Oxford logo would appear as Cryosys loads, but instead the override script will run and some checking messages will appear.
6. There will be a set of statements confirming the deployment of the updates.
7. Remove the USB stick and re-start the Mercury unit.
8. Using your pc, delete the override.script from the USB stick.

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3. Updating the OIDB drivers

To update the OIDB drivers it is necessary to run an "override script". This application will run before the main application boots and will load an update of the system base firmware.

1. Having unzipped the Refresh package to a temporary directory, copy the "cryosys.override" and associated "oidbDriver.ko" and "oidbMsg.ko" files from "OIDB drivers" to an **empty USB stick**.
2. Switch off the Mercury unit.
3. Insert the USB stick into the USB-A port on the back of the Mercury unit.
4. If an RJ45 cable is connected to the TCP/IP port then unplug it.
5. Power up the Mercury unit. The normal file system splash screen will come up then the progress bar showing the file system loading. Normally, at this point the blue splash screen with the Oxford logo would appear as Cryosys loads, but instead the override script will run and some checking messages will appear.
6. There will be a set of statements confirming the deployment of the updates.
7. Remove the USB stick and re-start the Mercury unit.
8. Using your pc, delete the override.script from the USB stick.

4. Checking/fixing the MAC address

A small number of Mercury units were shipped with incorrect MAC addresses. This application will check the MAC address and unit serial number, compare these with its internal database and if necessary update the protected MAC address and re-apply the protection.

1. Having unzipped the Refresh package to a temporary directory, copy the "cryosys.override" encrypted file from "MAC_check" to an **empty USB stick**.
2. Switch off the Mercury unit.
3. Insert the USB stick into the USB-A port on the back of the Mercury unit.
4. If an RJ45 cable is connected to the TCP/IP port then unplug it.
5. Power up the Mercury unit. The normal file system splash screen will come up then the progress bar showing the file system loading. Normally, at this point the blue splash screen with the Oxford logo would appear as Cryosys loads, but instead the override script will run and some checking messages will appear.
6. If the message "Unable to check that the MAC address of this unit is correct because the information about its motherboard is not contained in this override package" then your Mercury unit was manufactured after the MAC address issue was captured and you unit is OK. In this case remove the USB stick and restart the Mercury unit as normal.
7. Tap "Quit" to exit override mode.
8. Remove the USB stick and re-start the Mercury unit.
9. Using your pc, delete the override.script from the USB stick.

5. Re-calibrating the touch screen

The touch screen calibration of some Mercury units has become corrupted. Evidence of this is tapping one of the virtual buttons at the bottom of the screen and the adjacent button is activated. This is particularly bad when tapping the remote interface on/off button at the bottom left of the screen – often the "Plot" virtual button will be activated. If this is the case the touch screen can be re-calibrated by running this application.

1. Having unzipped the Refresh package to a temporary directory, copy the "cryosys.override" and "ts_test" files from "Calibrate_TS" to an **empty USB stick**.
2. Switch off the Mercury unit.
3. Insert the USB stick into the USB-A port on the back of the Mercury unit.
4. Power up the Mercury unit. The normal file system splash screen will come up then the progress bar showing the file system loading. Normally, at this point the blue splash screen with the Oxford logo would appear as Cryosys loads, but instead the override script will run and some checking messages will appear.
5. Once the message "TSLIB calibrate utility" "Touch crosshair to calibrate" appears the touch screen calibration routine has started.
6. With a dome pointed stylus tap the cross-hair in the top-left corner of the screen. The crosshair will move to the top-right corner.
7. Tap on that and it will move to bottom right.
8. Tap it again and it will move to the bottom left.

9. Tap it again and it will move to the centre.
10. Tap it again to complete the calibration and bring up the test screen.
11. In “Drag” mode check you can move the crosshair to each corner of the screen.
12. In “Draw” mode a white line trail will show where the touch screen has recorded the stylus pointer has been. This should be a smooth line. If its “noisy” contact customer support.
13. Tap “Quit” to exit touch screen calibration mode.
14. Remove the USB stick and re-start the Mercury unit.
15. Using your pc, delete the override.script from the USB stick.

6. Updating the Device firmware and main application (Cryosys)

Download “Merc FW updates - Issue 06.pdf” [2] from...

http://www.mymercurysupport.com/downloads/documents

Download the latest mercury firmware from...

http://www.mymercurysupport.com/downloads/firmware

and follow the instructions.

7. Activate the GPIB library (optional)

An updated version of the GPIB library (v3.2.21) is installed with the main application update (6). In some rare cases the update can cause the GPIB interface to stop working. In this case it is necessary to activate GPIB library to ensure it is working when invoking GPIB communication. To do this it is necessary to run an “override script”. This application will run before the main application boots and will activate the pre-loaded update of the GPIB library.

1. **Note: Do NOT run this override script if the GPIB interface is working!**
2. Having unzipped the Refresh package to a temporary directory, copy the “cryosys.override” encrypted file from “GPIB_Act” to an **empty USB stick**.
3. Switch off the Mercury unit.
4. Insert the USB stick into the USB-A port on the back of the Mercury unit.
5. If an RJ45 cable is connected to the TCP/IP port then unplug it.
6. Power up the Mercury unit. The normal file system splash screen will come up then the progress bar showing the file system loading. Normally, at this point the blue splash screen with the Oxford logo would appear as Cryosys loads, but instead the override script will run and some checking messages will appear.
7. On completion, the message “The GPIB driver has been upgraded to version 3.2.21” will appear signifying the process has completed successfully.
8. Remove the USB stick and re-start the Mercury unit.
9. Using your pc, delete the override.script from the USB stick.

References

Documents are located at http://www.mymercurysupport.com/downloads/documents

[1] Where can I find firmware version installed on my Mercury.pdf
[2] Merc FW updates Tech Note_Issue 6.pdf