

Upgrade Procedures for R1.0 ML910[™] RUGGED NOTEBOOK Firmware and Software:

1) Embedded Controller Firmware, for #2 or as a prerequisite for a R1.0 to R1.1 upgrade 2) Support RF Pass-through in Retrofitted ML900 Docking Stations

Purpose and Requirements

This procedure provides step-by-step instructions for a qualified computer technician or administrator to upgrade the firmware and software components of Release 1.0 ML910[™] RUGGED NOTEBOOK COMPUTERS (ML910) shipped prior to approximately June 2, 2008. R1.0 notebooks shipped after that date already include these features, as do all R1.1 notebooks.

There are two cases for using these procedures:

1) To upgrade the Embedded Controller (EC) BIOS firmware to version 4.8, which is a prerequisite for upgrading the EC to version 5.1 or later, as part of the ML910 R1.0 to R1.1 upgrade. The latter upgrade is required when migrating from Windows® XP Professional to Windows Vista[™] Business edition, and is covered by a separate upgrade package. For this case, only Procedure I needs to be completed.

2) To enable a R1.0 notebook to operate properly in an upgraded ML900 docking station. Procedures I through IV need to be completed.

The new features in the ML Administrator Application (MLAA) and the ML User Application (MLUA) are added specifically for customers intending to operate their ML910 notebooks in ML900 docking stations that have been modified to add ML910-compatible RF pass-through connectors. ML910 RF pass-through operation is automatic and requires no configuration when used with ML910 high-tier docking stations, but must be enabled and configured using MLAA and MLUA for use with these modified ML900 docking stations. These instructions are provided in Procedure IV.

Additional information regarding RF pass-through operation is included in the latest ML910 Rugged Notebook User Guide, 6871008P31-B. Refer to Chapter 4, Expanding Your Computer, under the RF Pass-Through heading. This guide may be downloaded from the same site where these instructions and the firmware/software upgrade package are located: www.Motorola.com/ML910.

What You Will Need

<u>CD or DVD Burner</u> In addition to the Motorola firmware and software files, a CD or DVD burner is required to create a bootable disc needed to update the EC BIOS. The ML910 you plan to upgrade may already include an optional drive in its media bay; either the Combo (CD RW / DVD) or the Dual (CD RW / DVD RW) drive can burn CDs. Only the Dual drive can burn DVDs. External media burners may be used as well.

<u>CD/DVD Burning Application</u> The R1.0 ML910 notebook initially was shipped with a copy of Nero 7 Essentials, which was later updated to Nero 8 Essentials. Either version can be used to create the

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bootable disc for the downloaded ISO¹ file. This procedure assumes Nero 8 Essentials will be used, but Nero 7 operation is similar, and most CD/DVD burning software can write ISO files to disc.

<u>CD or DVD Media</u> A blank CD-R or CD-RW disc to become the bootable disc. The following DVD formats are compatible with the Dual drive: DVD±R, DVD±RW and DVD±R DL.

<u>CD Reader</u> If the ML910 notebook does not already have its own Combo or Dual drive installed, you can either temporarily install one in its media bay or use an external drive connected through one of the notebook's USB² ports.

<u>**High-Speed Internet Access</u>** Since the upgrade package is very large (>60MB) we recommend it be downloaded over a high-speed network.</u>

Experience in Performing Upgrade Procedures These instructions are written with the understanding that the person performing the upgrade is already familiar with the terms and similar computer support procedures, and is able to adapt to variations that may be encountered, due to customer-applied configurations, policies, etc.

Caution

It is critically important that the EC BIOS procedure be performed with the utmost care. Among other precautions, make sure the ML910 is securely plugged into a reliable AC power source. If this FLASH procedure should be interrupted and fail, there is no "undo" or recovery procedure. The ML910 would need to be returned to Motorola's Service Depot for repair.

<u>Support</u> If you are unsure of any step in this procedure or otherwise need Motorola support, please call the Motorola System Support Center (SSC) at **1-800 221-7144**. You may key in **2**, **2** and **1** to bypass the greeting and be directed to the ML910 support team.

¹ ISO (International Organization for Standardization) refers to a standardized file format (.iso) used for optical discs.

² USB (Universal Serial Bus) refers to the standard serial interface receptacles found on most newer computers. The ML910 notebook includes three USB ports.

Step-by-Step Procedure

Important Before you begin this procedure confirm that the current version EC BIOS running on the ML910 notebook is 4.7 or earlier. If the EC BIOS is 4.8 or later you will not need to update it, i.e., skip steps 11 through 14 in the EC BIOS Upgrade Procedure. Steps 1 through 10 will still be required in order to access the applications files from the downloaded ISO image.

To determine the EC BIOS version:

- a. Double click on the ML User Application icon in the System Tray.
- b. Check the EC Version where highlighted below.



If you intend to use the Nero 8 Essentials application, install it if it has not already been installed. You may select a "Typical" installation, which is sufficient for this procedure.

Caution As a standard practice when performing procedures like this, it is recommended that critical user data be backed up in the event an error or problem occurs.

Perform Procedures I, II and III in order.

I. EC BIOS Upgrade Procedure

- Download the ML910[™] Rugged Notebook R1.0 RF Pass-through Upgrade Package from <u>www.Motorola.com/ML910</u> and extract the files to a folder on the desktop. The bootable ISO image is RF-PT.iso. This image contains:
 - a. EC BIOS V4.8
 - b. ML User Application V4.A
 - c. ML Administrator Application V4.A

The files in the extracted MLAA folder will be used later in Procedure III.

- 2. Launch Nero 8 StartSmart Essentials from the Programs menu or shortcut on desktop.
- **3.** Click on the icon in the lower left corner of the window as highlighted below, to launch the Nero Application List.



4. Launch Nero Express Essentials from the Application List.



5. Click on "Image, Project, Copy".



6. Click on "Disc Image or Saved Project".



7. Browse to the folder where the downloaded ISO bootable file is located and select it.

Open						? 🔀
Look jn:	📋 My Documer	nts	~	G 🦻	• 📰 🕈	
My Recent Documents	Bluetooth Excl My Music My Pictures	hange Folder				
Desktop						
My Documents						
My Computer						
	File <u>n</u> ame:				~	<u>O</u> pen
My Network	Files of type:	All Supported Compi	lations and Imag	jes	~	Cancel

8. Insert a blank CD/DVD disc into the drive and click the **Burn** button to create the bootable media.

Final Burn Settings Cild: Burn' to start the recording process. gurrent recorder: Qurrent recorder: Qist type: @ CD gist type: Proge File: Els@FPTLiso Tabe (CD TEXT): gender: Ryumber of copies: 1 Querify data on disc after burning	🐖 Nero Express Essent	als		X
Gurrent recorder: D: Option: Opt	Final Burn Settings Click 'Burn' to start the recor	ding process.	-	R
Bits type:	Current recorder:	D: Onlier: DVD RW/4D-75604		Ontions
In age file: EXPE-PT.aso Tde (CD [EXT): Grist (CD TEXT): Language: U Usumber of copies: Ugenfy data on dsc after burning	Disc type:			Showing
Tde (CD (EXT): Artist (CD TEXT): Language:	Image file:			
Artist (CD TEXT):	Title (CD TEXT):			
Language:	Artist (CD TEXT):			
Number of copies: 1 💮	Language:		~	
	Number of copies:	1 💮		

9. Burning process and status are displayed.

₹ Nero	Express Es	sentials				
Burning Please w	ait					R
0	Time 2:03:26 PM 2:04:35 PM 2:04:35 PM 2:04:35 PM	Event Optiarc DVD RW AD-7560A Buffer underrun protection activated Caching of Hiss started Caching of Hiss stompleted Burn process started at 10x (1,500 KB/s)				
		8			Ų	Шą
Pro	icess status:		Remaining time:	0:00:33	Total time:	0:00:16
Wr	iting at 10× (1,	,500 KB/s)				6%
2]				0	Stop

10. Burn process completed successfully message should display. The bootable disc is now ready to begin the upgrade.

Burning Burn proc	Process ess finished s	uccessfully	R
0	Time 2:03:26 PM 2:04:35 PM 2:04:35 PM 2:04:35 PM 2:06:56 PM	Event Optier: UNR RM-07590A Baffer underna protection activated Caching of lifes started Caching of lifes completed Burn pro Nerro Express Essentials Burn pro Development of the started successfully at 10x (1,500 KB	K 3(6)
Proc	iess status:	Remaining time: 0:00:00	Total time: 0:02:3
Writ	ing at 10x (1,		() 3m

11. In order for your notebook to boot from this disc, the Boot Device Priority Sequence must be set in the System BIOS to place the optical drive you intend to use at a higher priority than any other

available drive, usually the standard Hard Disk Drive. Please refer to the ML910[™] Rugged Notebook User Guide (6871008P31), Chapter 5, for complete instructions on how to access and use the BIOS Setup Utility, to check and change the Boot Device Priority if necessary.

12. Confirm that your EC BIOS version is 4.7 or earlier. Then reboot your notebook using the bootable disc that you just created. If EC BIOS is 4.8 or later, skip steps 13 and 14.

Caution

It is critically important that the EC BIOS procedure be performed with the utmost care. Among other precautions, make sure the ML910 is securely plugged into a reliable AC power source. If this FLASH procedure should be interrupted and fail, there is no "undo" or recovery procedure. The ML910 would need to be returned to Motorola's Service Depot for repair.

S DOS	
Action Edit CD Floppy Help	
You are about to upgrade the EC BIOS on this computer. Are you sure you want to continue[Y.N]?	
🗢 🕑 🔒 🧰 🕹	

- **13.** Choose "Y" Yes to update the EC BIOS to version 4.8. This will take about 20 seconds to complete and the system will restart automatically.
- **14.** After the EC BIOS update is completed, eject and remove the bootable CD and restart the system, allowing it to boot-up in the Windows mode.
- **15.** In the Windows mode, insert the upgrade disc and locate the ML Applications upgrade package in the **ML APPLICATION** folder. Follow the ML910 ML Application Upgrade procedures in the next sections to upgrade the ML Applications to version 4.A.

II. ML User Application Upgrade Procedure

- 1. Confirm the version number of the existing ML910 ML User Applications (MLUA) is 4.7 or earlier.
 - a. Double click on the **ML User Application** icon in the System Tray
 - b. Check the version as highlighted below.



- 2. Uninstall the existing version of these ML Applications.
 - a. Click Start > Control Panel > Add or Remove Programs.
 - b. Select ML User Application and click Remove to uninstall.
 - c. If ML Administrator Application is installed, select it and click Remove to uninstall.
 - d. Select MLService and click Remove to uninstall.
- 3. The ML APPLICATION folder (on the disc) should include the following:
 - a. MLSERVICE folder
 - i. MLSERVICE.MSI
 - ii. SETUP.EXE
 - b. MLUA folder
 - i. MLUA.MSI
 - ii. SETUP.EXE
 - c. VCREDIST_X86.EXE (Microsoft Visual C++ 2005 Runtime Libraries)

These executables may be run directly from the upgrade disc or downloaded to the target system and run from there, if you choose.

4. Locate and double-click on VCREDIST_X86.EXE.

5. Click <u>Yes</u> to install Microsoft Visual C++ 2005 Runtime Libraries.



- 6. Double-click on SETUP.EXE in the MLSERVICE folder.
- 7. Click the <u>Next</u> > button to continue.

记 MLService
Welcome to the MLService Setup Wizard
The installer will guide you through the steps required to install MLService on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel < Back Next >

8. Accept the default settings and click the <u>Next</u> > button.

HLService			X
Select Installation Folde	r		
The installer will install MLService to the f	ollowing folder.		
To install in this folder, click "Next". To in	stall to a different fo	lder, enter it be	low or click "Browse".
<u>F</u> older:			
C:\Program Files\Motorola\MLService	e\		B <u>r</u> owse
			<u>D</u> isk Cost
Install MLService for yourself, or for an	yone who uses this	computer:	
Everyone			
⊂ Just <u>m</u> e			
	Cancel	< <u>B</u> ack	<u>N</u> ext >

9. Click the <u>**Next**</u> > button to start the installation.

B MLService			X
Confirm Installation			
The installer is ready to install MLService	on your computer.		
Click "Next" to start the installation.			
	Cancel	< <u>B</u> ack	<u>N</u> ext >

10. Please wait while MLService is being installed.

HLService			
Installing MLService			
MLService is being installed.			
Please wait			-
	Cancel	< <u>B</u> ack	<u>N</u> ext >

11. Click on the <u>**C**</u>lose button when **MLService** is successfully installed.

id MLService	_ 🗆 🔀
Installation Complete	
MLService has been successfully installed.	
Click "Close" to exit.	
Please use Windows Update to check for any critical updates to the .NET Frameworl	ς.
Cancel < Back	<u>C</u> lose

- 12. Double-click on SETUP.EXE in the MLUA folder.
- **13.** Click the <u>**Next**</u> > button to continue.



14. Accept the default settings and click the <u>Next</u> > button.

😸 ML User Application		
Select Installation Folde	r	
The installer will install ML User Applicatio	on to the following folder.	
To install in this folder, click "Next". To in	stall to a different folder, enter it be	elow or click "Browse".
<u>F</u> older: C:\Program Files\Motorola\MLUA\		Browse
,		<u>D</u> isk Cost
Install ML User Application for yourself,	or for anyone who uses this comp	uter:
• Everyone		
C Just <u>m</u> e		
	Cancel < <u>B</u> ack	Next >

15. Click the <u>**Next**</u> > button to start the installation.

🛃 ML User Application			
Confirm Installation			
The installer is ready to install ML User A	pplication on your comp	puter.	
Click "Next" to start the installation.			
	Cancel	< <u>B</u> ack	<u>N</u> ext >

16. Please wait while ML User Application is being installed.

🛃 ML User Application			🛛 🔀
Installing ML User Appli	ication		
ML User Application is being installed.			
Please wait			
	Cancel	< <u>B</u> ack	<u>N</u> ext >

17. Click on the <u>Close</u> button when ML User Application is successfully installed.



18. Proceed to the next section (III. ML Administrator Application Upgrade Procedure).

III. ML Administrator Application Upgrade Procedure

ML Administrator Application (MLAA) is an optional application intended for use by System Administrator (SA) personnel to configure the parameters of various functions in the notebook, like the default configuration that automatically loads when the ML910 notebook is turned on. As such, this application is normally installed only when needed by System Administrators and then removed.

Note

MLAA is required for initially configuring the ML910 RF Pass-through feature to operate in a ML900 docking station that has the RF Retrofit kit installed. By default, the ML910 notebook will assume the ML900 dock is not compatible and RF will not switch to its pass-through connectors. Please refer to the ML910 Rugged Notebook User Guide, 6871008P31-B, for configuration instructions.

Note: This procedure assumes that the **ML Service** and **ML User Application** version 4.A are already installed on the target system.

- If the ML Administrator Application was present on the notebook being upgraded, it would have been uninstalled in the previous procedure, Step 2.c. If so, skip to Step 3 below. Confirm the version number of an existing ML910 ML Administrator Application is 4.7 or earlier.
 - a. Double click on ML Administrator Application icon on the Desktop.
 - b. Check the ML Administrator Application version where highlighted below.

🖗 ML Admini:	strator Application			×
1	Description	Value	Unit	^
	Power Source	13.8	Voltage	
Read From EC	Ignition Setup	Ignition or Power Button		
	Power Off Delay Timer	15	Seconds	
	HDD Heater	Disable		
	Heater Start Up Temperature	41	۹F	
	Heater Stop Temperature	46	۴F	
Read From File	Heater Up Timeout Timer	16	Hours	
	Lowest Heater Temperature	-8	۴F	
	Lowest Car Power	10	Voltage	
<u> </u>	Lowest Battery Capacity	30	%	
	Docking Fan Start Up Temperature	86	۴F	
Write To EC	Docking Fan Stop Temperature	77	°F	
	Keyboard Backlight Brightness	4	Level	
	Keyboard Backlight Threshold Control	Enable		
	Keyboard Backlight Threshold On [Low]	20	Count	
	Keyboard Backlight Threshold Off [High]	64	Count	
Save To File	Keyboard Backlight Sensor Light Count	6	Count	
	Speaker Output	Auto		
	Notebook Speaker Mode(For Manual Output Only)	ON		
\bigcirc	GPS	OFF		
	GPIO 0	OFF		
Help	GPIO 1	OFF		~
(į)	Information EC Version: 4.8 Application File Name:	Version: 4.7		
About				

- 2. Uninstall the existing version of the ML Administrator Application
 - a. Click Start > Control Panel > Add or Remove Programs.
 - b. Select ML Administrator Application and click Remove to uninstall.
- 3. Open the folder on the desktop where the extracted files from the upgrade package were saved. Locate and open the MLAA folder. You may choose to copy these on to a USB FLASH drive for upgrading additional notebooks later. The files need to be kept in the same directory/folder, and are:
 - a. MLAA.msi
 - b. MLService.msi
 - c. setup.exe
 - d. vcredist_x86.exe

- 4. Double-click on setup.exe.
- 5. Click the <u>Next > button to continue</u>.



6. Accept the default settings and click the <u>Next</u> > button.

👹 ML Administrator Application	
Select Installation Folder	
The installer will install ML Administrator Application to the following folder.	
To install in this folder, click "Next". To install to a different folder, enter it be	low or click "Browse".
<u>E</u> older:	
C:\Program Files\Motorola\MLAA\	Browse
	Disk Cost
Install ML Administrator Application for yourself, or for anyone who uses th	is computer:
C <u>E</u> veryone	
Just me	
Cancel < <u>B</u> ack	<u>N</u> ext>

7. Click the <u>Next</u> > button to start the installation.

😸 ML Administrator Application			
Confirm Installation			
The installer is ready to install ML Adminis	trator Application o	on your computer.	
Click "Next" to start the installation.			
	Cancel	< <u>B</u> ack	<u>N</u> ext >

8. Please wait while ML Administrator Application is being installed.

🖟 ML Administrator Application	
Installing ML Administrator Application	
ML Administrator Application is being installed.	
Please wait	
Cancel Sack	<u>N</u> ext >

9. Click on the <u>Close</u> button when **ML Administrator Application** is successfully installed.

i ML Administrator Application	_ 🗆 🔀
Installation Complete	
ML Administrator Application has been successfully installed.	
Click "Close" to exit.	
Please use Windows Update to check for any critical updates to the .NET Framewo	rk.
Cancel < <u>B</u> ack	<u>C</u> lose

- **10.** The upgrade procedure is complete. Restart the system in BIOS Setup mode if you wish to reset the Boot Device Priority Sequence. Also, restore any security or policy configurations that may have been disabled in order to perform this upgrade.
- **11.** Proceed to the next section (IV. Enabling the RF Pass-Through Option Using MLAA and MLUA) when you are ready to enable and configure this feature.

IV. Enabling the RF Pass-Through Option Using MLAA and MLUA

1. Launch the ML Administrator Application.



- 2. Go to the RF Pass-Through options available in MLAA (highlighted in Figure 1, below).
- 3. Change the RF Pass-Through User Control from [Disable] to [Enable] (Figures 2 & 3).
- 4. Select [Write to EC] to change the setting (Figure 4), a message will be shown after the setting is updated to System EC (Figure 5).

Secretion Value Use 000 007	🛞 ML Adminis	strator Application				🧬 ML Adminis	trator Application			X
OPC0 OPC OPC OPC VMAL OPC OPC OPC OPC VMAL DPC OPC OPC OPC OPC OPC OPC OPC OPC OPC OPC OPC OPC OPC<	Ŷ	Description	Value	Unit		Ŷ	Description	Value	Unit	
Image: Transmit OPC 1		GPIO 0	OFF				GPIO 0	OFF		
With the control of	Road Erom EC	GPIO 1	OFF			Road Even EC	GPIO 1	OFF		
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Reset From Fie WAM ON Press Triving/ Mode ON With Tote Press Triving/ Mode ON Press Triving/ Mode ON With Tote Press Triving/ Mode ON Press Triving/ Mode ON With Tote Press Triving/ Mode Office Press Trivin	4	LCD Brightness Threshold	45	°C		4	LCD Brightness Threshold	45	*C	
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Seve To File Monte Docking Board Temperature Enable Workdr Docking Ten Speed Enable Enable Workdr Docking Ten Speed Enable Enable High Temperature Working Message Enable Enable Workdr Docking Ten Speed Enable Enable Information Application Version: 4.7 Application Version: 4.8.2 Information Ever From EC Munder Docking Ten Speed Enable Information Prime Interview Working Message Enable Information Concernment (Second Temperature Working Message) Enable Monter Docking Ten Speed Monter Docking Ten Speed Enable Information Prime Tenerature Working Message Enable Information Application Version: 4.8.2 T Prime Tenerature Working Message Enable Prime Tenerature Working Message Enable Information Prime Tenerature Working Message Enable Information Application Prime Tenerature Working Message Enable Prime Tenerature Working Message Enable Information Prime Tenerature Working Message Enable Prime Tenerature Working Message Enable Informati		Monitor Car Voltage	Enable				Monitor Car Voltage	Enable		=
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5. Launch the ML User Application.



- 6. Select the RF Pass-through option available in the MLUA.
- 7. Before the RF Pass-through User Control in MLAA is changed to [Enable], the RF Pass-Through Control will be grayed-out.
- 8. After the RF Pass-through User Control in MLAA has been set to [Enable], the default setting will be [Automatic Selection].
- 9. User can select [Manual Selection] to either Enable or Disable the RF Pass-Through. [Apply] needs to be pressed by User in order to make the selection valid.
- **10.** Enabling the RF Pass-Through will disable the Internal Antenna and vice versa.

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- **11.** Note that the RF Pass-Through Option will not be applicable under the following conditions:
 - a. The ML910 does not have RF Pass-Through option installed. RF Pass-Through here refers to the internal factory-installed RF Antenna Switching Board.
 - b. The ML910 is being docked in either an ML900 mobile dock or an Office Port Replicator.
- **12.** The internal antennas will function if User selects the **[RF Pass-Through Off]** in the RF Pass-Through Mode.
- **13.** The external antenna option will be available if User selects the **[RF Pass-Through On]** in the RF Pass-Through Mode.