



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

CD or DVD Burner 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.

CD/DVD Burning Application 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

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.

CD or DVD Media 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.

CD Reader 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.

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

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.

Support 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.

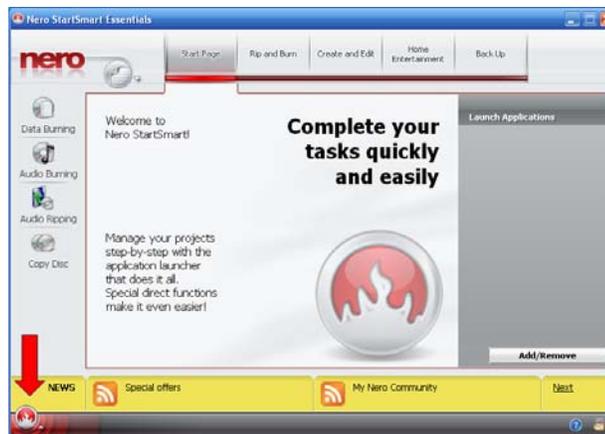
Perform Procedures I, II and III in order.

I. EC BIOS Upgrade Procedure

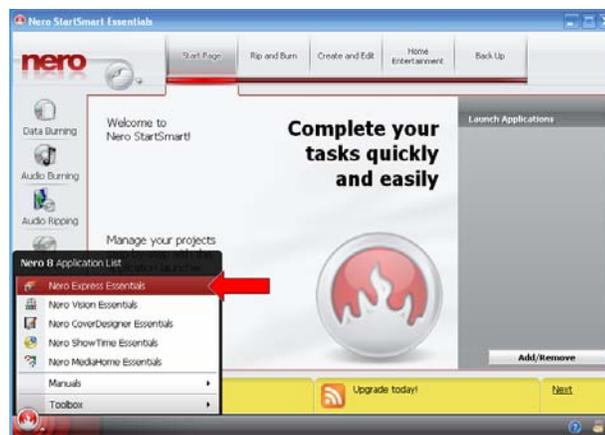
1. Download the **ML910™ Rugged Notebook R1.0 RF Pass-through Upgrade Package** from www.Motorola.com/ML910 and extract the files to a folder on the desktop. The bootable ISO image is **RF-PT.iso**. This image contains:
 - a. EC BIOS V4.8
 - b. ML User Application V4.A
 - c. ML Administrator Application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

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

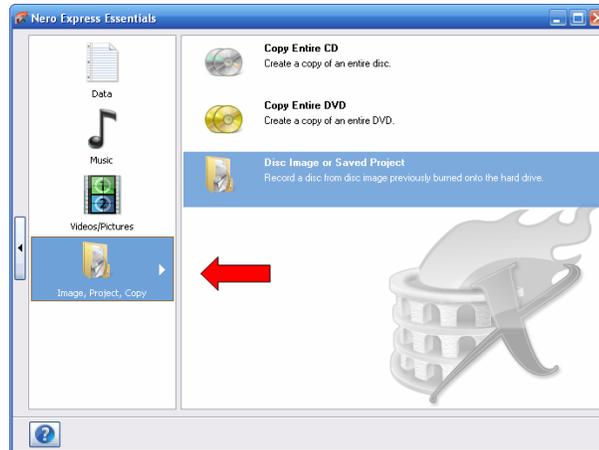
2. Launch Nero 8 StartSmart Essentials from the Programs menu or shortcut on desktop.
3. Click on the icon in the lower left corner of the window as highlighted below, to launch the Nero Application List.



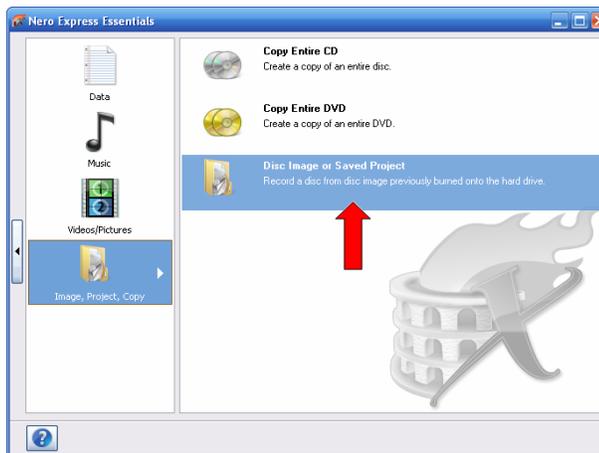
4. Launch Nero Express Essentials from the Application List.



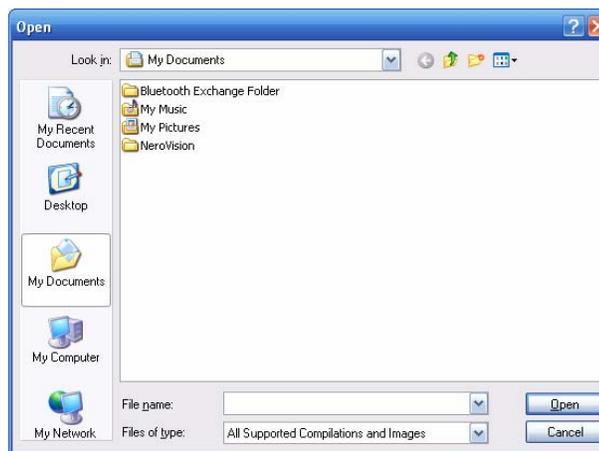
5. Click on “Image, Project, Copy”.



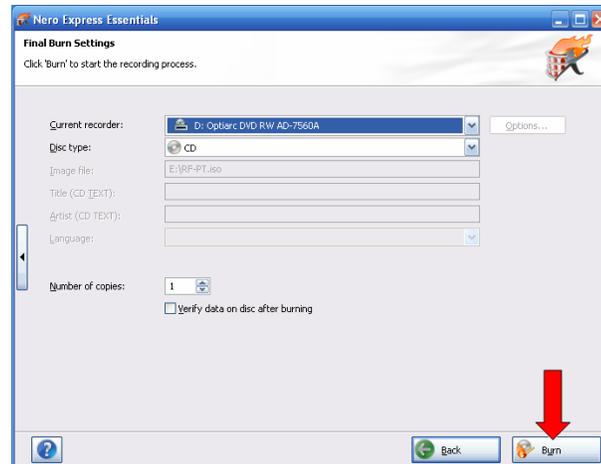
6. Click on “Disc Image or Saved Project”.



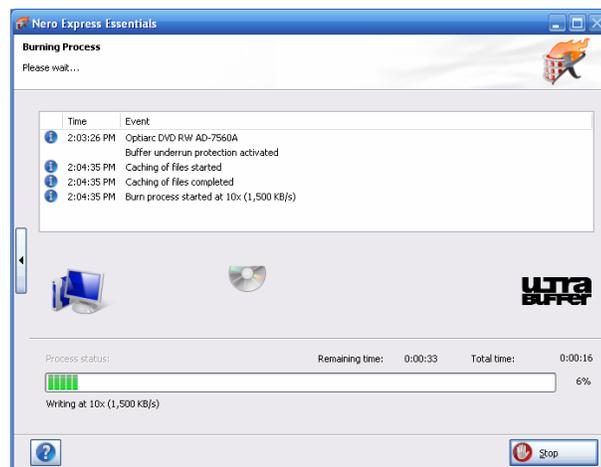
7. Browse to the folder where the downloaded ISO bootable file is located and select it.



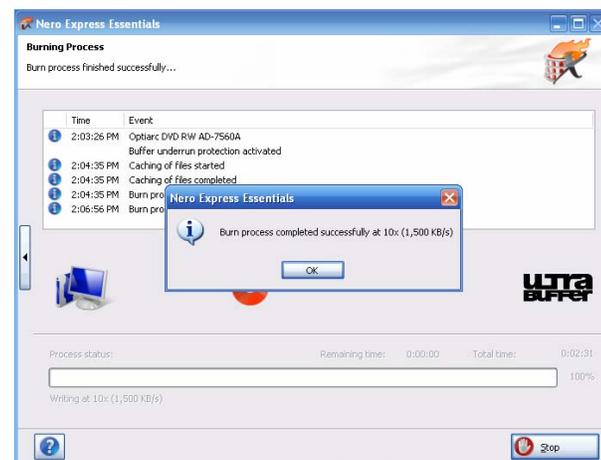
8. Insert a blank CD/DVD disc into the drive and click the **Burn** button to create the bootable media.



9. Burning process and status are displayed.



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



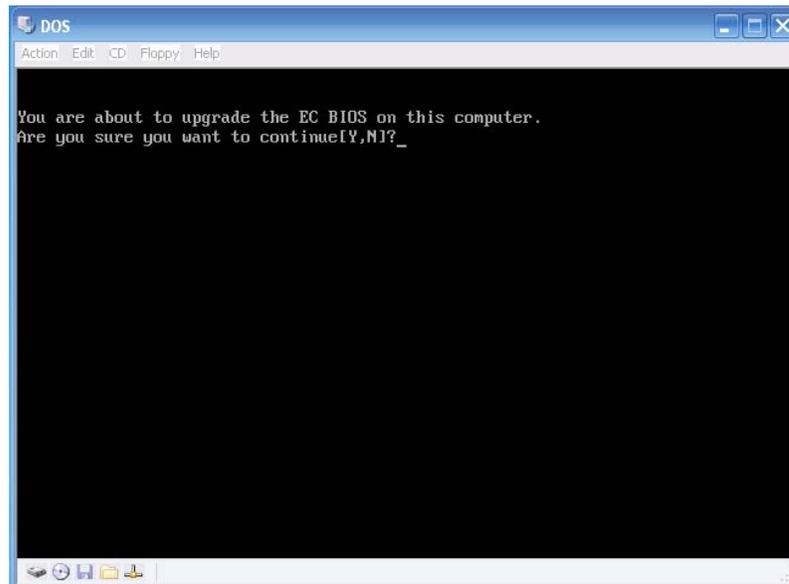
11. In order for your notebook to boot from this disc, the Boot Device Priority Sequence must be set in the System BIOS to place the optical drive you intend to use at a higher priority than any other

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.



- 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.

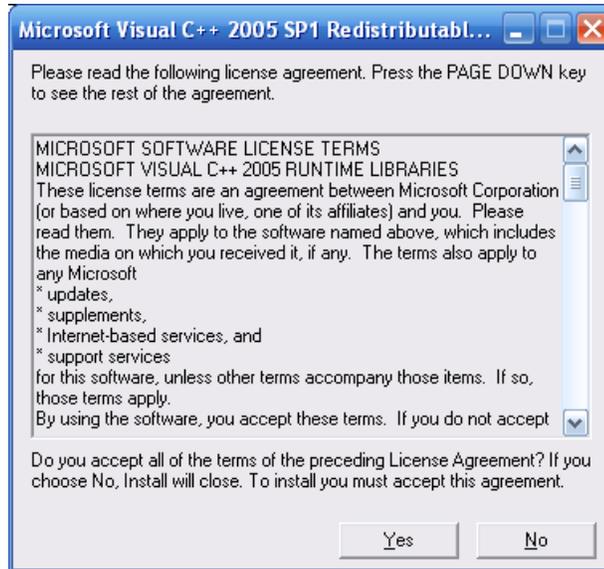


2. **Uninstall** the existing version of these ML Applications.
 - a. Click **Start > Control Panel > Add or Remove Programs**.
 - b. Select **ML User Application** and click **Remove** to uninstall.
 - c. If **ML Administrator Application** is installed, select it and click **Remove** to uninstall.
 - 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)

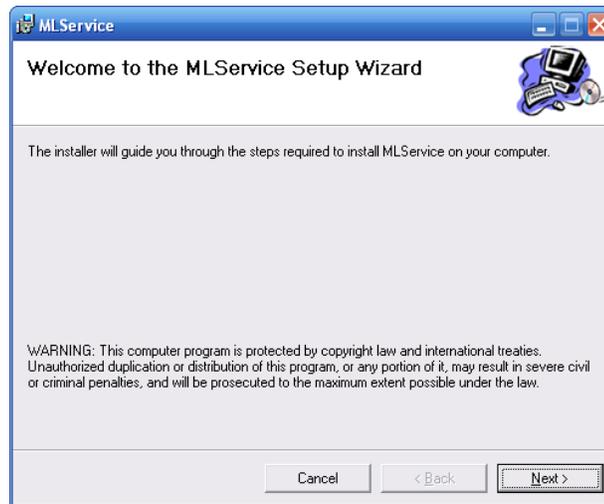
These executables may be run directly from the upgrade disc or downloaded to the target system and run from there, if you choose.

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

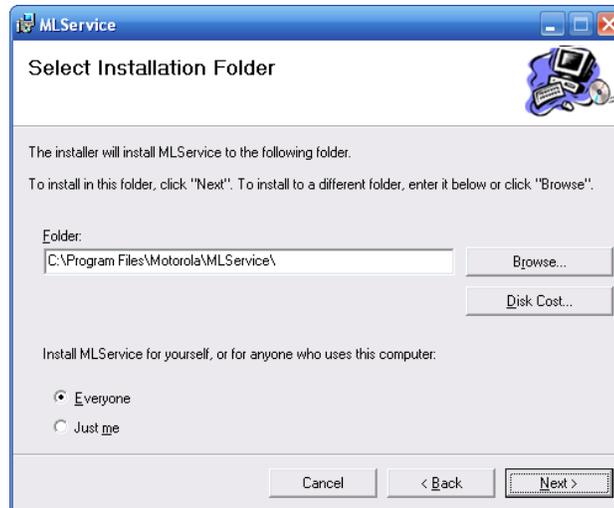
5. Click **Yes** to install Microsoft Visual C++ 2005 Runtime Libraries.



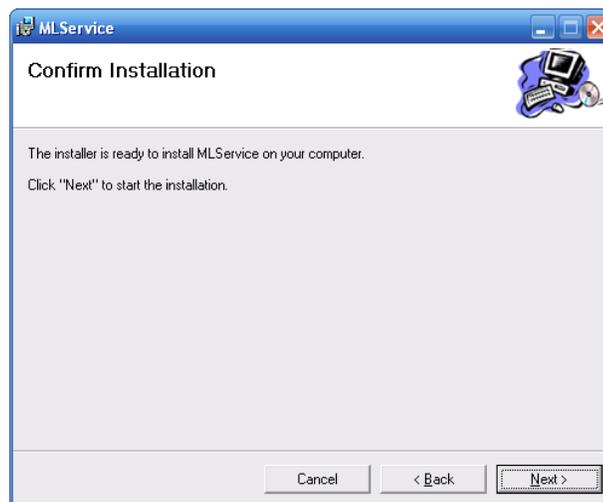
6. Double-click on **SETUP.EXE** in the **MLSERVICE** folder.
7. Click the **Next >** button to continue.



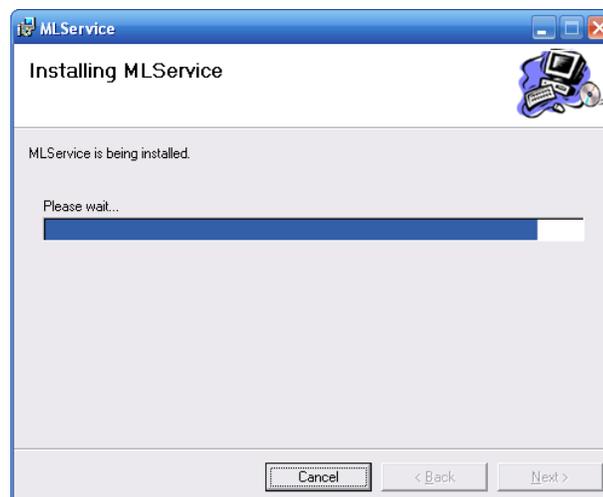
8. Accept the default settings and click the **Next >** button.



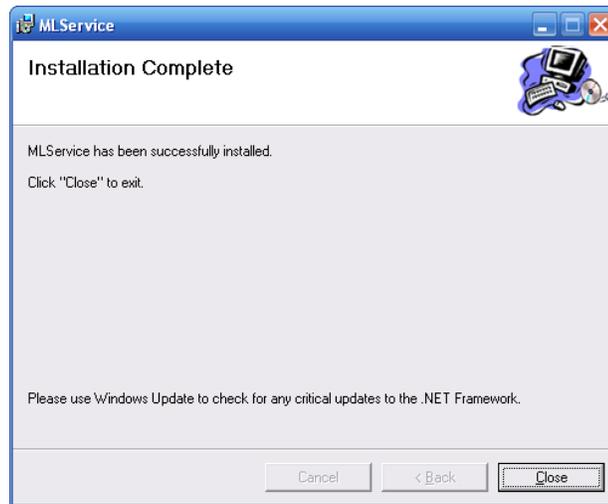
9. Click the **Next >** button to start the installation.



10. Please wait while **MService** is being installed.

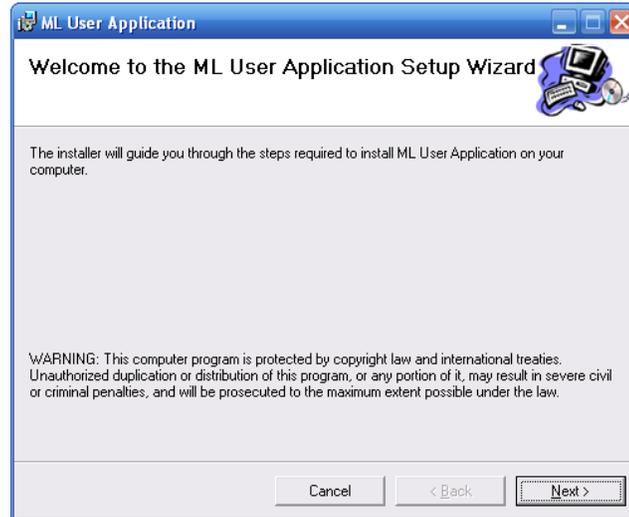


11. Click on the **C**lose button when **MLService** is successfully installed.

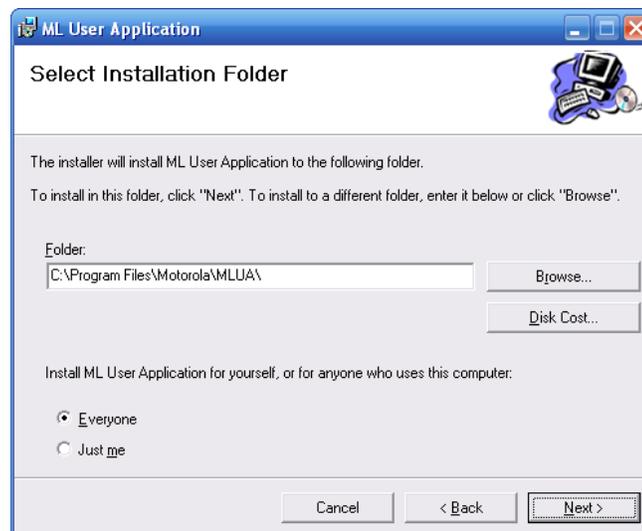


12. Double-click on **SETUP.EXE** in the **MLUA** folder.

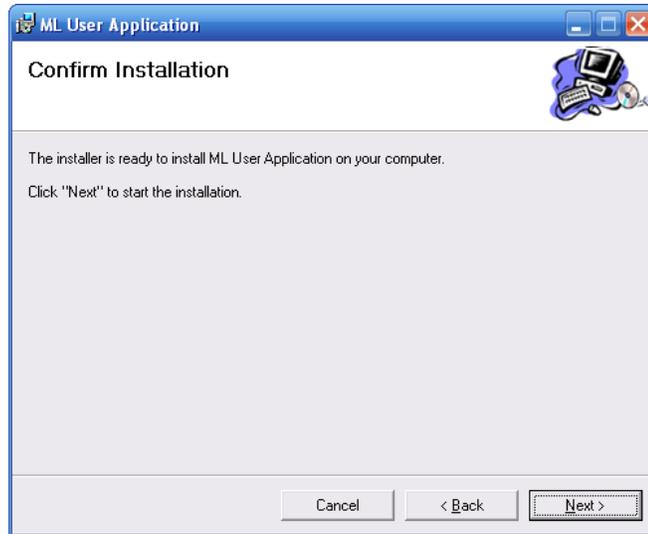
13. Click the **Next >** button to continue.



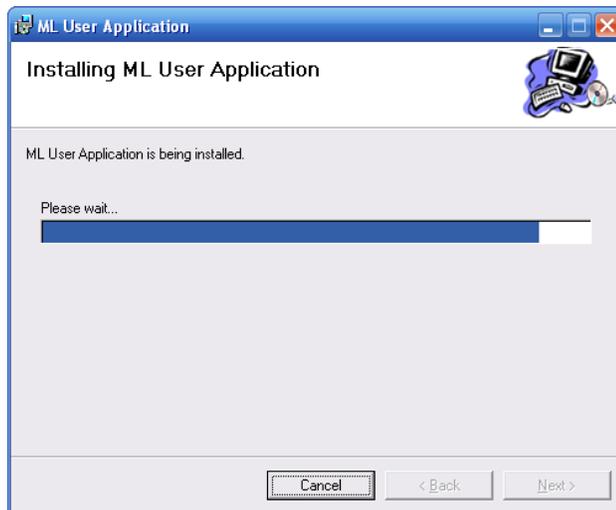
14. Accept the default settings and click the **Next >** button.



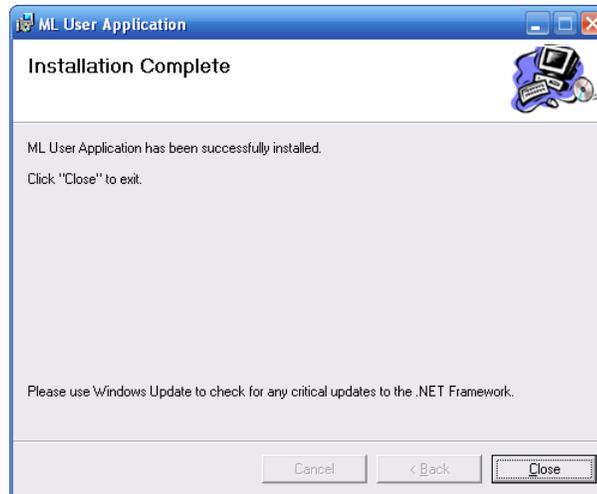
15. Click the **Next >** button to start the installation.



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



17. Click on the **C**lose 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

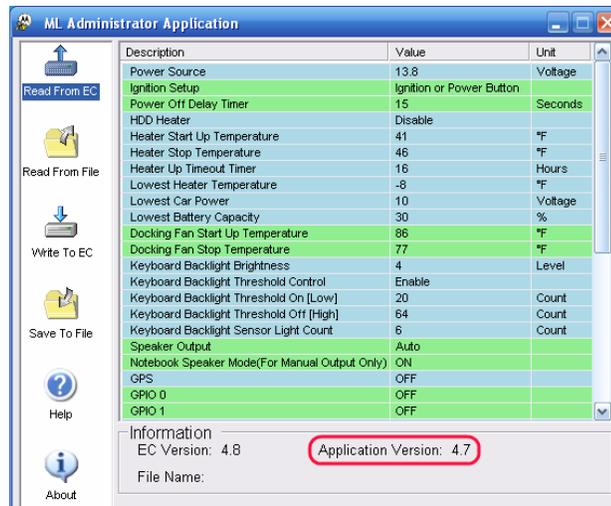
ML Administrator Application (MLAA) is an optional application intended for use by System Administrator (SA) personnel to configure the parameters of various functions in the notebook, like the default configuration that automatically loads when the ML910 notebook is turned on. As such, this application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

1. 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.

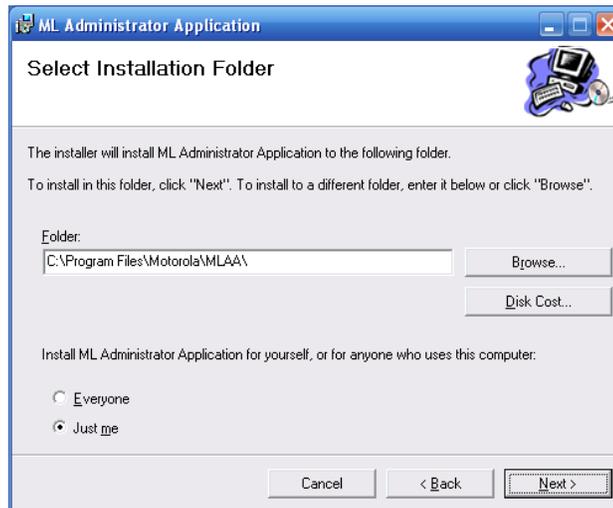


2. **Uninstall** the existing version of the **ML Administrator Application**
 - a. Click **Start > Control Panel > Add or Remove Programs**.
 - b. Select **ML Administrator Application** and click **Remove** to uninstall.
3. Open the folder on the desktop where the extracted files from the upgrade package 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

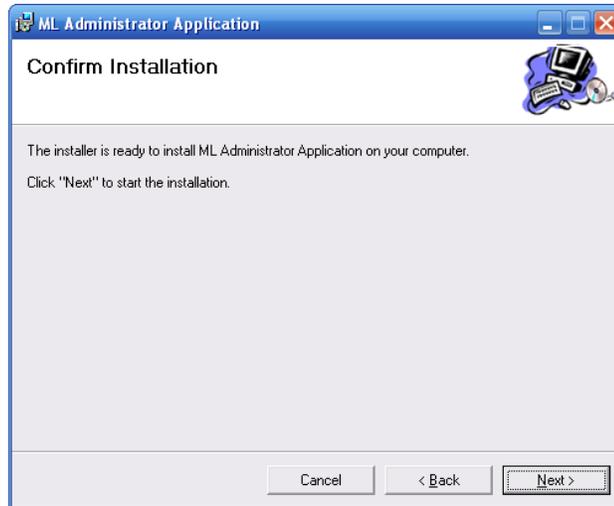
4. Double-click on **setup.exe**.
5. Click the **Next >** button to continue.



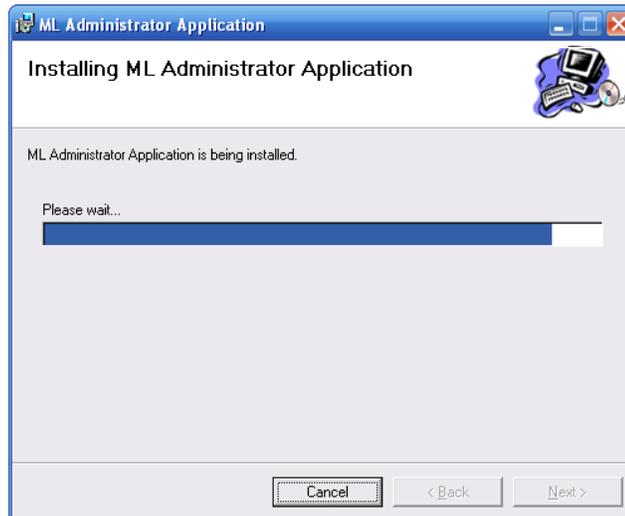
6. Accept the default settings and click the **Next >** button.



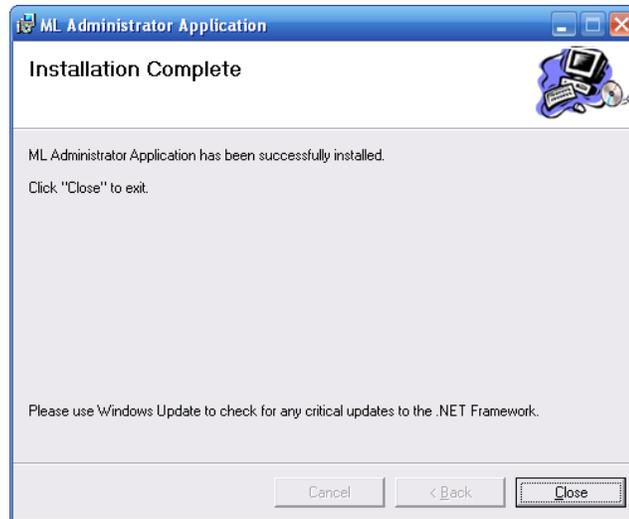
7. Click the **Next >** button to start the installation.



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



9. Click on the **C**lose button when **ML Administrator Application** is successfully installed.



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).

The figure consists of four screenshots of the ML Administrator Application interface, labeled 1 through 4, and a final message box labeled 5.

Figure 1: The application window shows a table of system settings. The 'RF Pass-Through User Control' setting is highlighted with a red box. The 'Write to EC' button is visible on the left sidebar.

Description	Value	Unit
GPIO 0	OFF	
GPIO 1	OFF	
WWAN	ON	
LCD Maximum Brightness	63	Level
LCD Brightness Slope	15	Minutes
LCD Brightness Threshold	45	°C
WLAN	ON	
MODS Communication	Disable	
CPU turn off from MODS Command	NO	
Battery Charger Profile	Mostly Office-Dock/AC...	
RF Pass-Through Control	Automatic	
RF Pass-Through Mode	OFF	
RF Pass-Through User Control	Disable	
Monitor Processor Temperature	Enable	
Monitor Battery Capacity	Enable	
Monitor Car Voltage	Enable	
Monitor Docking Board Temperature	Enable	
Monitor Docking Fan Speed	Enable	
High Temperature Warning Message	Enable	
Low Temperature Warning Message	Enable	
Low Car Power Warning Message	Enable	
Battery Discharger Warning Message	Enable	

Figure 2: The 'RF Pass-Through User Control' dropdown menu is open, showing 'Enable' as the selected option.

Figure 3: The 'Write to EC' button is highlighted with a red circle.

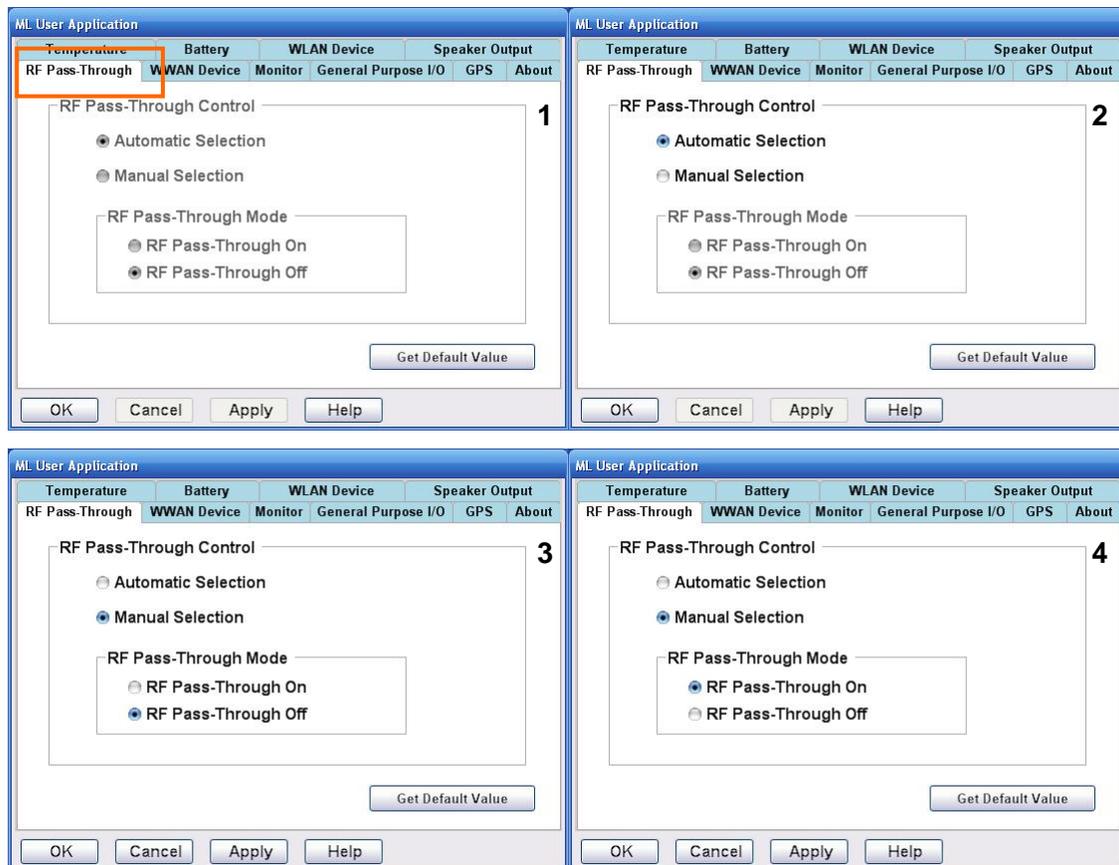
Figure 4: The 'Write to EC' button is highlighted with a red circle.

Figure 5: A message box titled "System EC configuration updated successfully." with an "OK" button.

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.



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.