

Application Note: Updating from Older Versions of ALEOS

This document provides instructions for updating the following Sierra Wireless AirLink® gateways with ALEOS 4.3.5 or earlier installed to the latest version of ALEOS:

- GX400
- GX440
- ES440
- LS300

If the gateway you are updating has ALEOS 4.3.6 or later installed, refer to the ALEOS Software Configuration User Guide for instructions on updating to the latest version of ALEOS.

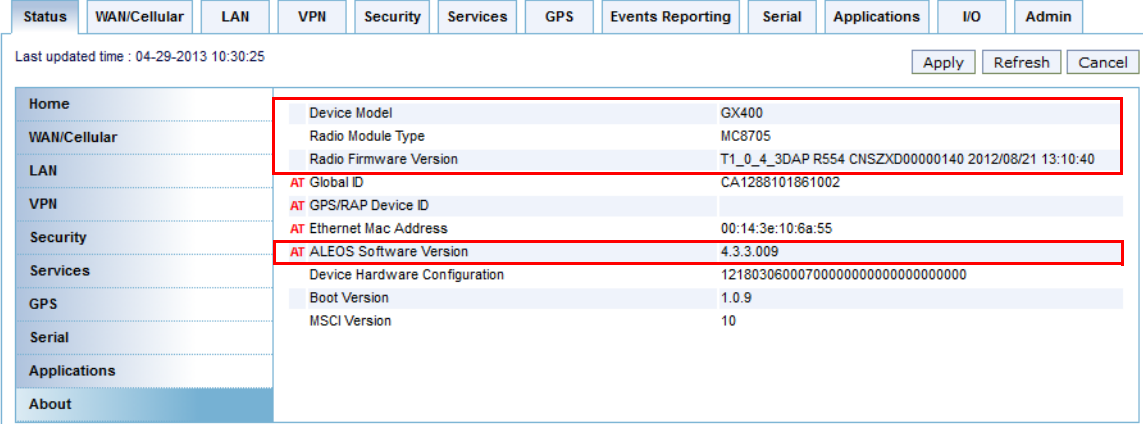
You can use ACEmanager to update one gateway at a time or AirVantage Management Service (AVMS) to update one or multiple gateways at the same time.

Step 1—Planning Your Update

1. For each of the gateways you want to update, make a note of the:
 - Device Model
 - Radio Module Type
 - Radio Firmware Version
 - ALEOS Software Version
 - Mobile Network Operator

Information for the first four bullets is available in AVMS and in ACEmanager (Status > About).

If the ALEOS Software Version is 4.3.4 or later, the information is available in ACEmanager (Status > Home). If the ALEOS Software Version is older than 4.3.4, check the label on the bottom of the gateway to determine the Mobile Network Operator. (International gateways may also be labeled as ROW.)



The screenshot shows the ACEmanager interface with the 'About' tab selected. The 'About' section contains the following information:

Device Model	GX400
Radio Module Type	MC8705
Radio Firmware Version	T1_0_4_3DAP R554 CNSZXD00000140 2012/08/21 13:10:40
AT Global ID	CA1288101861002
AT GPS/RAP Device ID	
AT Ethernet Mac Address	00:14:3e:10:6a:55
AT ALEOS Software Version	4.3.3.009
Device Hardware Configuration	12180306000700000000000000000000
Boot Version	1.0.9
MSCI Version	10

Figure 1: ACEmanager: Status > About

2. Refer to the appropriate flowchart for your gateway to determine the update path and ALEOS software required:
 - [AirLink GX400](#) on page 2
 - [AirLink GX440](#) on page 3
 - [AirLink LS300](#) on page 3
 - [AirLink ES440](#) on page 4
 3. If you are planning to use ACEmanager to do the update:
 - a. Go to source.sierrawireless.com to download ALEOS.
 - b. A radio module firmware may be part of the download firmware. Only apply the radio firmware if ALEOS prompts you to do so.
- If you have any questions or concerns, contact your distributor for support.

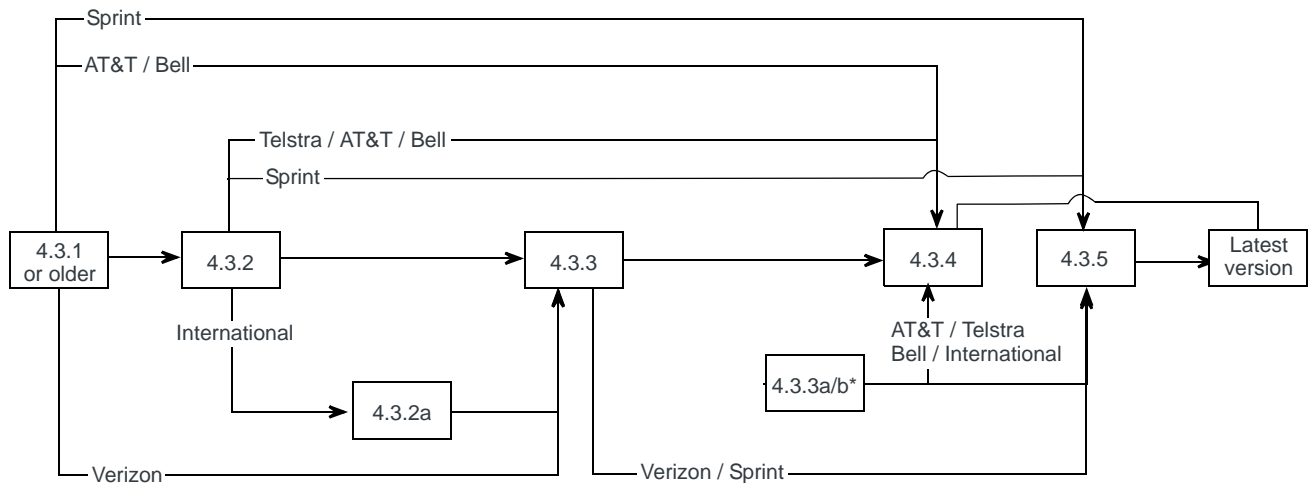
ALEOS Software and Radio Module Firmware Update Overview

For the correct update path for your gateway and Mobile Network Operator (MNO):

1. Go to the appropriate chart for the product you are updating:
 - [AirLink GX400 Update Paths](#)
 - [AirLink GX440 Update Paths](#)
 - [AirLink LS300 Update Paths](#)
 - [AirLink ES440 Update Paths](#)
2. On the chart, find the version of ALEOS that is on the gateway you are updating.
3. Follow the update path for your Mobile Network Operator. If a path is not specified for your Mobile Network Operator, use the unlabeled path.

AirLink GX400

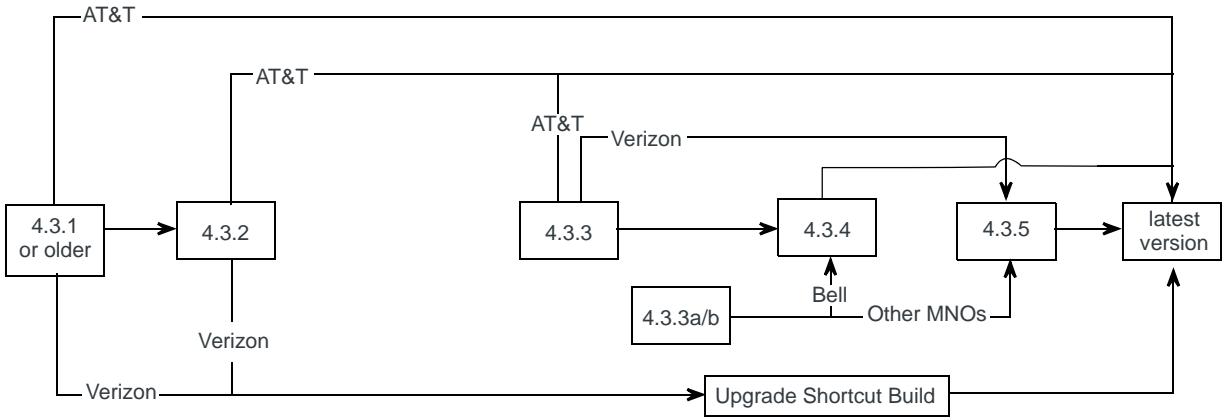
Figure 2: AirLink GX400 Update Paths



* If you have a Sprint GX400 with ALEOS 4.3.3a/b and radio module firmware 1.56.00, contact Sierra Wireless TechSupport (support@sierrawireless.com) for help with your update.

AirLink GX440

Figure 3: AirLink GX440 Update Paths



Additional Information for Verizon GX440 Customers

Upgrade Shortcut Build

If you are updating a Verizon AirLink GX440 from ALEOS 4.3.2 or older, the Upgrade Shortcut Build saves time by reducing the number of hops required to update to the latest version of ALEOS. Note:

- The Upgrade Shortcut Build is only available for the Verizon GX440.
- This build is only intended for the upgrade process. It is not supported for long-term use. Once the Upgrade Shortcut Build is installed, update immediately to the latest ALEOS build.

One-click Tool

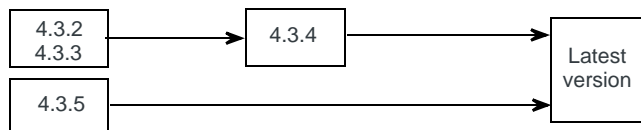
If you are updating a Verizon Wireless AirLink GX440 gateway, you can use the One-click tool to update from any version of ALEOS to 4.3.6. From there, you can update to the latest version in one step. The One-click tool is available:

- As a downloadable application that runs on your computer. To download the computer-based application, go to source.sierrawireless.com.
- As a cloud-based application. To use the cloud-based application, go to: <https://doc.airvantage.net/display/USERGUIDE/One-click+AirLink+Firmware+Upgrade+for+Verizon+GX440+AirLink+Gateways>

You must have an AVMS account to use the cloud-based One-click tool. For more information, see [page 10](#).

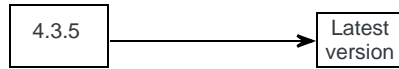
AirLink LS300

Figure 4: AirLink LS300 Update Paths



AirLink ES440

Figure 5: AirLink ES440 Update Paths



Recommendations

Sierra Wireless recommends that you contact your authorized Sierra Wireless distributor before updating the radio module firmware.

Scheduling the update

The update can take up to 30 minutes to complete, depending on the speed of your network connection. The AirLink gateway being updated will be off-line during the update, so take this into account when scheduling the update.

Important: ***BE PATIENT!** The firmware update can take up to 30 minutes to complete. Ignore connection time out messages—the update process is still running. Waiting for the process to complete is faster than troubleshooting the problems that can be caused by interrupting the process midway. (Interrupting the process may result in having to return the gateway to the factory for repairs.)*

Step 2—Update the ALEOS Software and Radio Module Firmware

Using ACEmanager to Update a Single AirLink Gateway

To update the ALEOS software and radio module firmware on one AirLink gateway:

1. Connect the AirLink gateway you want to update to your laptop, launch your browser and enter the URL for the gateway. The default IP address for the Ethernet interface is <http://192.168.13.31:9191>. If it is a remote gateway, enter the domain name or public IP (WAN) address.

Note: If you are connected to the gateway remotely, any files transferred to the gateway are transferred over-the-air and you may incur data charges. (For file size information, see the flowchart on [page 2](#).)

2. Log in to ACEmanager.
User name: user
Default password: 12345
3. Click the Firmware link.
The Firmware Update window opens.

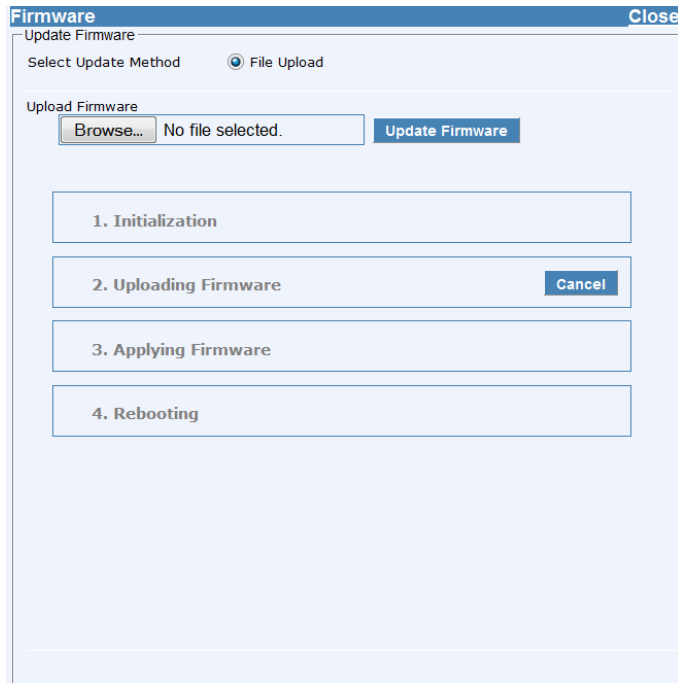


Figure 6: Firmware Update window

If you are updating from ALEOS 4.3.4 or newer, the update window shows the current ALEOS and radio module firmware versions and the device model. It also gives you the option to update both ALEOS and the radio module firmware, or update only the radio module firmware. Unless advised otherwise by Sierra Wireless, we recommend that you select ALEOS software (which updates ALEOS and prompts you to update the radio module firmware if a newer version is available for your gateway).

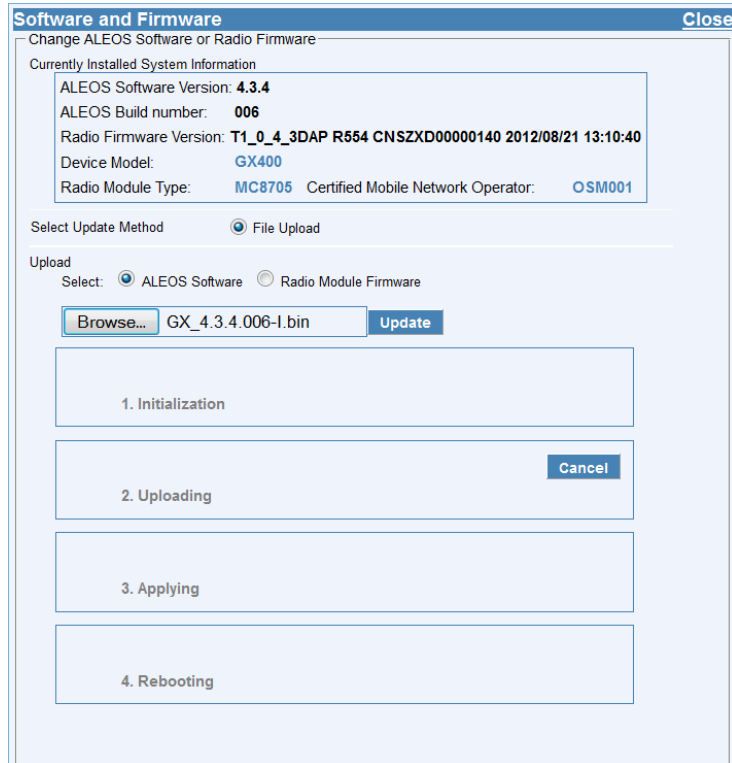


Figure 7: ALEOS 4.3.4 Software and Firmware update window

4. Click Browse... and navigate to the ALEOS software you downloaded from the Sierra Wireless Web site.

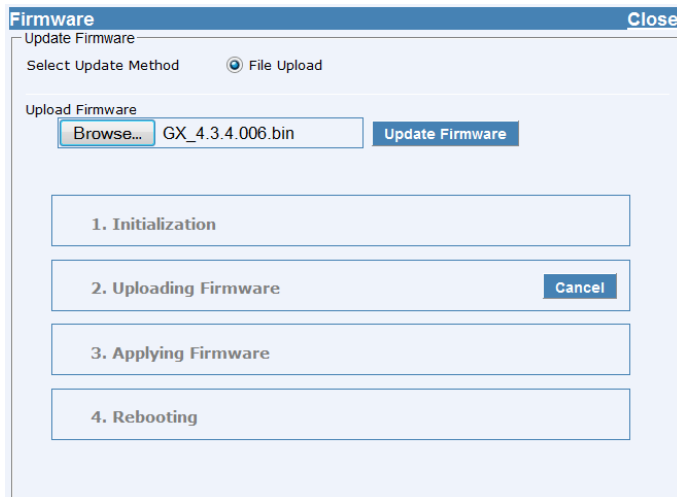


Figure 8: ALEOS file selected

5. Click Update Firmware.

The ALEOS software update runs automatically and green check marks appear beside each step, as it is completed. If you are doing the update over-the-air (especially if you are doing a radio module update), it may occasionally appear as if the next step is beginning before the green check mark appears. This is a known issue in the UI and does not affect the update.

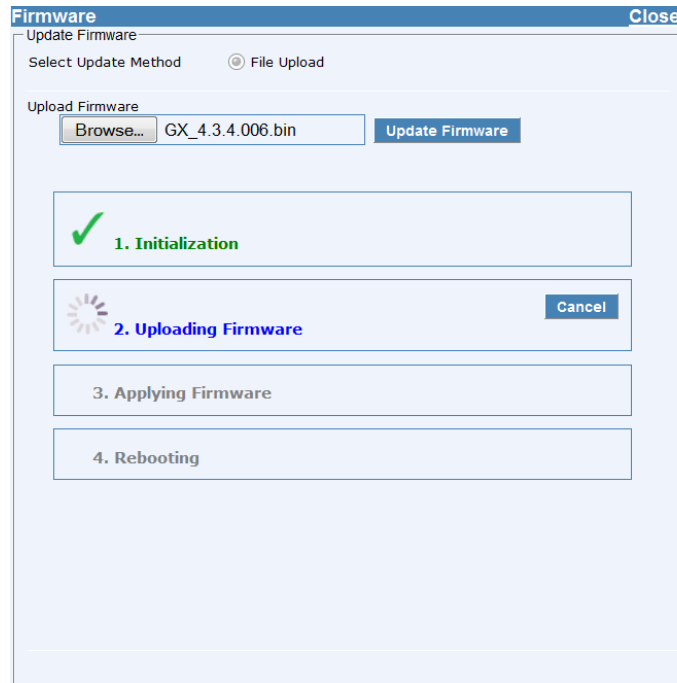


Figure 9: ALEOS software update in progress

Important: Do not disconnect the AirLink gateway from the computer, and do not power cycle or reset the gateway during the update. If you see any error messages, refer to the [Troubleshooting](#) on page 10.

6. Depending on the version of ALEOS you are updating to, ALEOS may check the radio module firmware and prompt you if it needs to be updated.
If you do not receive a prompt, the radio firmware is up to date. Proceed to step 9.
If you are prompted to update the firmware, proceed to step 7.
7. Under Applying Firmware, click Browse... and navigate to the radio module firmware you downloaded from the Sierra Wireless Web site.

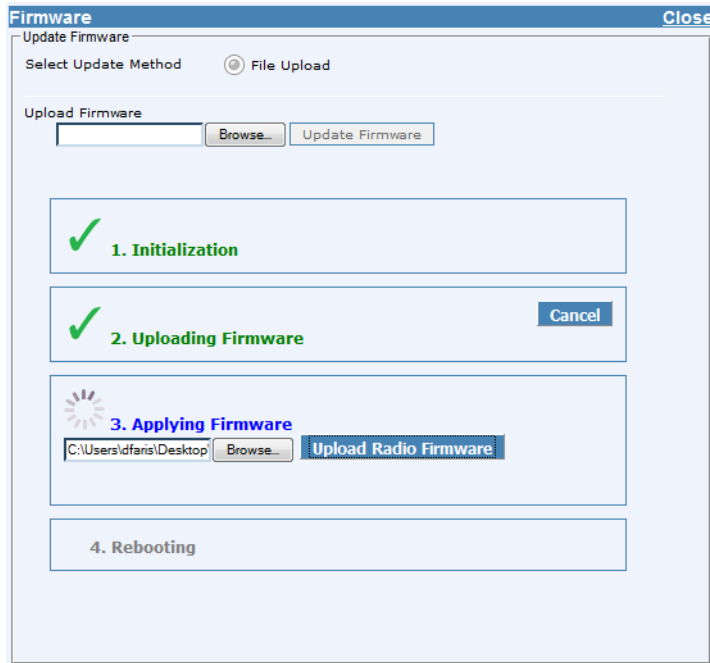
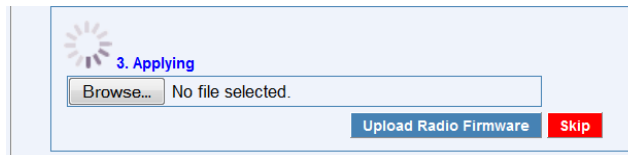
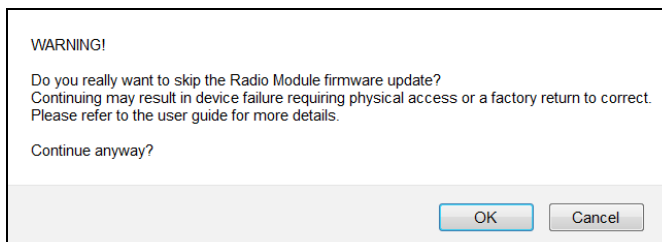


Figure 10: ALEOS software update in progress, prompt to update radio module firmware

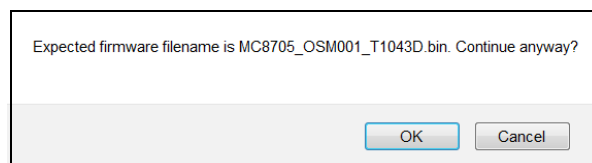
You may be given the option to skip the radio module firmware.



We recommend that you do NOT skip the radio module firmware update unless advised to do so by Sierra Wireless. If you choose to skip the radio module firmware update, you'll see the following warning.



If you select a file that is not supported on your gateway, you will see a warning message similar to the following:



Unless you have been advised by Sierra Wireless to do so, we recommend you do not install an unsupported version of the radio module firmware.

8. Click Upload Radio Firmware.

The radio module firmware may take 10 to 20 minutes to upload and install.

Important: Do not disconnect the AirLink gateway from the computer or reboot the gateway while the firmware update is in progress. During the radio module firmware update, the gateway LEDs flash rapidly in sequence (an LED chase or caterpillar). When the radio module firmware update is complete, the gateway reboots automatically.

If you see a message saying that the connection has timed out, ignore the message and continue to wait for the gateway to reboot.

If you clicked OK when you saw the timed out message and logged back in, you'll see the old version of the firmware. The firmware update process is still going on, so DO NOT reset the gateway or disconnect the power. DO NOT click Cancel. Continue to wait the 10 to 20 minutes for the radio module firmware update to complete. The gateway reboots once the firmware update is complete.

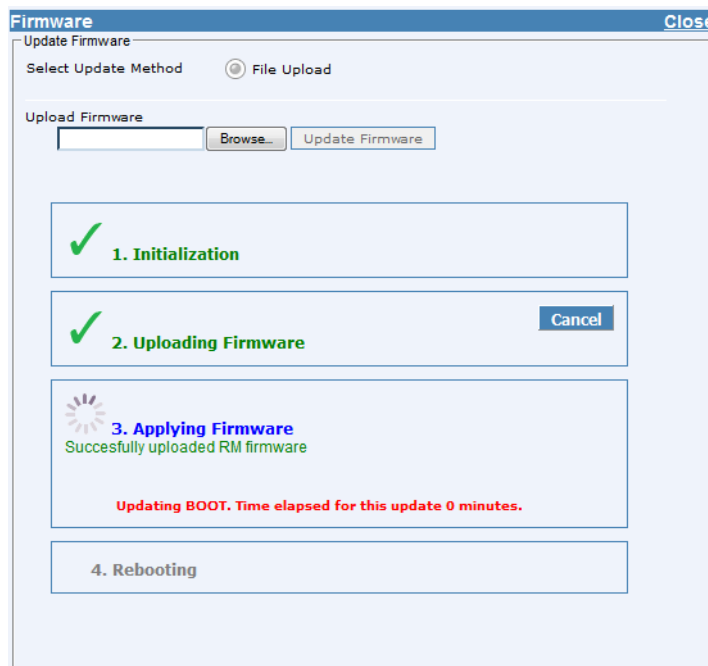


Figure 11: Radio module firmware update in progress

9. When the update is complete, the AirLink gateway reboots and you are returned to the Login screen.
10. When you see the Login screen, wait a few seconds to ensure that the reboot is complete and then log in.
11. Go to Status > About.
12. Click Refresh. Once the gateway has an IP address, check the ALEOS Software Version and the Radio Firmware Version fields to confirm that the ALEOS software and the radio module firmware have been updated.

If the ALEOS software version and the radio module firmware version have not been updated, repeat the firmware update.

Using AirVantage Management Service (AVMS) to Update One or Multiple AirLink Gateways Over-the-Air

You can use AirVantage Management Service to update the ALEOS software and radio module firmware over-the-air on one or multiple AirLink gateways.

If you don't have an AVMS account:

1. In ACEmanager, go to the Services tab and ensure that AVMS is enabled and the server URL is <http://na.m2mop.net/msci/com>. If this is not the case, enter the correct URL, click Apply and then click Reboot.
2. Go to www.sierrawireless.com/ALMS for more information or to sign up for an account.

Updating to ALEOS software with an AVMS account:

3. Go to <http://na.airvantage.net/start> and log in.
4. Follow the instructions in the online AVMS documentation to update the ALEOS software and radio module firmware.

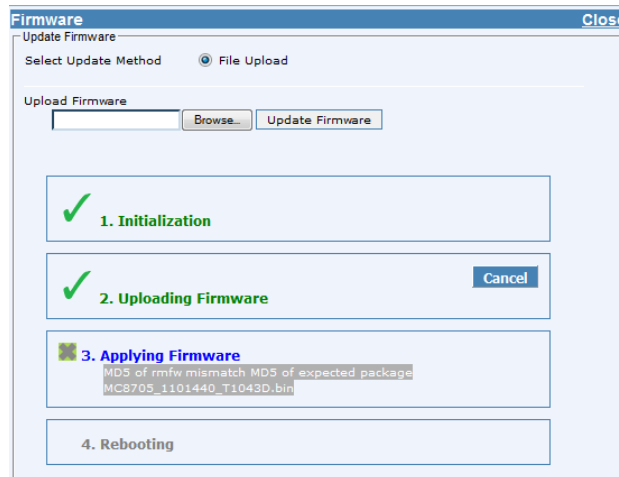
Troubleshooting

When I am trying to update the radio module firmware, the connection times out and I cannot reconnect to the gateway.

Depending on the file size and the connection speed, it can take 10 to 20 minutes to upload and install the radio module firmware. While this is taking place, you may see a "connection timed out" message. You can ignore this message, as the connection is still valid and the firmware update process is continuing. If you are connected to the gateway over-the-air, you will not be able to access the gateway until the radio module update is complete.

1. Continue to wait for the process to complete and the gateway to reboot.
 - **Do Not** reset the gateway.
 - **Do Not** disconnect the power.
 - **Do Not** click Cancel.
2. If after 20 minutes, the gateway does not reboot, contact Sierra Wireless Technical Support.

During the radio module firmware update, I see an “X” beside Applying Firmware and a message similar to the following: “MD5 of rmfw mismatch MD5 of expected package MC8705_1101440_T1043D.bin” under Applying Firmware.

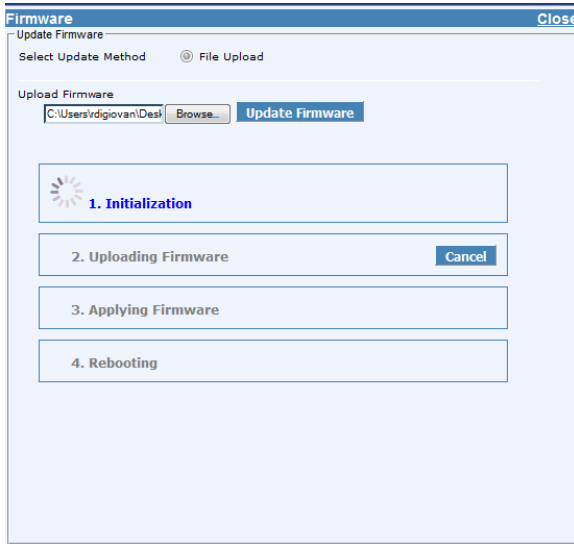


The radio module firmware file selected is not the correct one for the gateway.

1. Make a note of the file name at the end of the error message. (In this example, MC8705_1101440_T1043D.bin) This is the correct radio module firmware file for the gateway you are updating.
2. Close the Firmware window.
3. Reboot the gateway.
This returns the gateway to the original ALEOS software and radio module firmware versions.
4. Update the ALEOS software and radio module firmware as described in this application note, using the correct file for the radio module firmware update. (If you do not have the correct file, you can download it from source.sierrawireless.com.)
5. If it still fails, even when you use the correct file, there may have been a problem downloading the file, and it may be corrupted. Download the file again from source.sierrawireless.com and try again.

If it still fails, contact your FSE or Sierra Wireless Support.

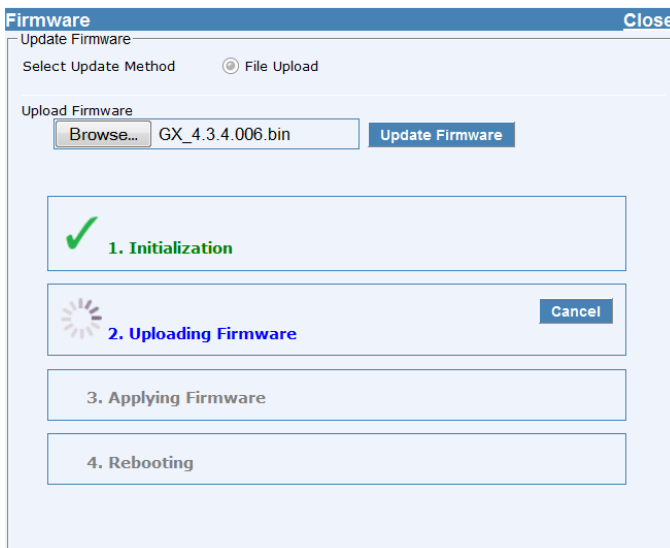
When I try to update the ALEOS software, the process gets “stuck” in the initialization phase.



If the update remains in the initialization phase for more than 5 minutes, as shown in the preceding illustration:

1. Close the Firmware window.
2. Reboot the gateway.
This returns the gateway to the original ALEOS software and radio module firmware versions.
3. Update the ALEOS software and radio module firmware as described in this application note.

When I try to update the ALEOS software or the radio module firmware over-the-air, the process appears “stuck” at either the Uploading Firmware or Applying Firmware phase.

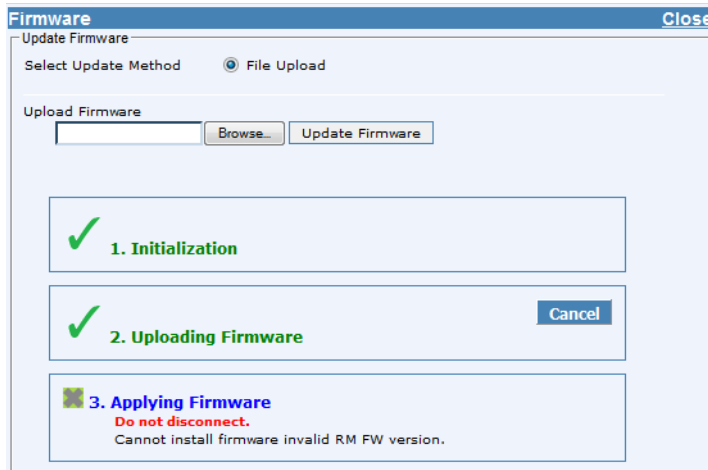


When you are updating the radio module over-the-air, the radio shuts down during the update and therefore is unable to send the update status to ALEOS.

Wait for the process to complete and the gateway to reboot. (This could take up to 20 minutes).

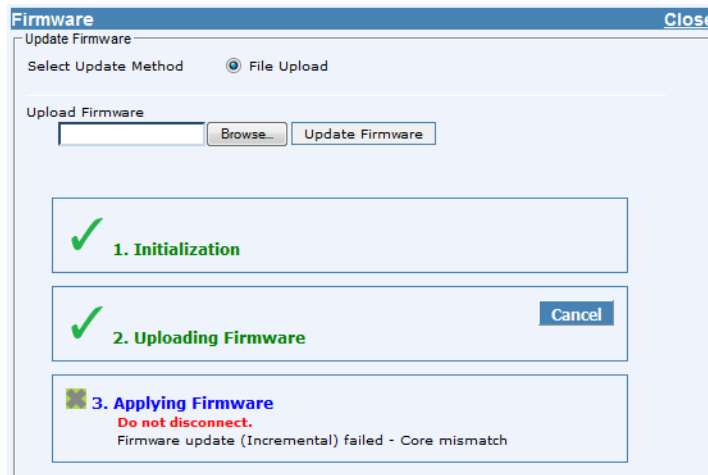
1. Once the gateway has rebooted, log in to ACEmanager.
2. Go to Status > About and confirm that the software/firmware has been updated.

When I try to update the firmware, I see an “X” beside Applying Firmware and the error message “Cannot install firmware invalid RM FW version”.



The firmware version you are trying to install is not supported by the gateway. Contact your Sierra Wireless assistance.

When I try to install ALEOS 4.3.2a using ACEmanager, I see the following message: “Firmware update (Incremental) failed - Core mismatch”.



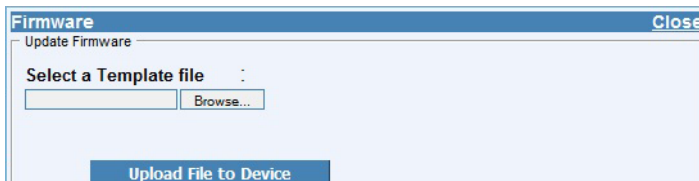
ALEOS 4.3.2 is an important intermediate update step that all gateways must go through before you can update them to a version of ALEOS that is newer than 4.3.2.

This message appears when the gateway you are trying to update has ALEOS version 4.3.1 (or older) and you are attempting to update it to ALEOS 4.3.2a directly without first installing ALEOS 4.3.2.

To correct the problem:

1. Click Cancel.
2. Close ACEmanager, re-launch it, and log in.
3. Click the Firmware link
4. First update to ALEOS 4.3.2, and then update to ALEOS 4.3.2a-I.

When I open the Firmware window, part of it appears to be missing.

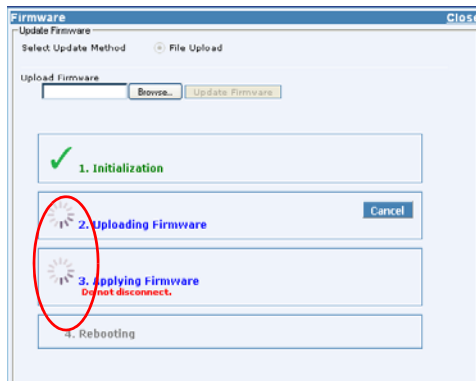


If the Firmware window is not displaying properly:

- Reboot the gateway and try again.
Or
- Close ACEmanager, reopen it in Firefox[®] (rather than Internet Explorer[®]) and try again.

When I run the firmware update, it looks as if the gateway is applying the firmware before the firmware upload is complete. Is this going to prevent the firmware from updating properly?

This is a known issue in the User Interface. The firmware update is not affected. Even though the progress circle beside Uploading Firmware does not change to a check mark before the next process circle appears beside Applying Firmware, the firmware upload does complete before the gateway begins applying the firmware.



When I try to update the radio module using AVMS, I receive an error message.

The following table provides a brief explanation of the firmware update error messages.

Error message	Meaning	Corrective action
Cannot Install Firmware	The system has encountered errors from which it cannot recover and requires at least a reboot before trying to update again.	Press the reset button for 20 seconds to reset the gateway to the factory default settings and try again. If it still does not work, contact AVMS support ^a .
Link not up in 3 minutes...Exiting	The radio module was not able to establish the connection in 3 minutes. The update has been aborted, but can be relaunched as soon as the connection is OK.	Wait for network connectivity and then try again.
Unable to download JUD file from <url>	The URL is wrong, or the download failed (interruption, no space left...).	Contact AVMS support ^a .
Core version not found in JUD file	JUD file is not valid. Core Version is a mandatory field.	There is a problem with the package on the AVMS server. Contact AVMS support ^a .
Required information (URL, Size or MD5) is missing from JUD file	JUD file is not valid. URL, Size, and MD5 sum of the firmware package are mandatory fields.	There is a problem with the package on the AVMS server. Contact AVMS support ^a .
Cannot perform update — No space left on device	Firmware is larger than available space for the download.	Contact AVMS support ^a . The support team will need to access the gateway to clear space, or you can return the gateway to Sierra Wireless under an RMA.
Unable to download ALEOS firmware from <url>	Firmware URL is not valid, or the download failed.	Retry. If the download fails several times, contact AVMS support ^a . The support team will need a log from the gateway.
Undefined ALEOS firmware URL	ALEOS firmware URL not specified, so firmware cannot be retrieved.	Contact AVMS support ^a to confirm that there is not a problem with the service.
ALEOS firmware MD5 check failed	The downloaded firmware package failed the integrity check. The update is aborted.	There is a problem with the package on the gateway or the download may have failed. Restart the firmware download. If the problem persists, contact AVMS support ^a . There may be a problem with the package on the AVMS server.
Unable to apply ALEOS firmware and Unable to apply ALEOS firmware (retry)	ALEOS firmware could not be applied. Check the ALEOS log messages to determine exactly why the update failed.	Retry. If the problem persists, contact AVMS support ^a and provide them with the log messages.
Radio Module URL is missing from JUD file	JUD file is not valid. The Radio Module Firmware URL is a mandatory field.	There is a problem with the package on the AVMS server. Contact AVMS support ^a .
Radio Module package MD5 sum is missing from JUD file	JUD file is not valid. The Radio Module Firmware MD5 sum is a mandatory field.	There is a problem with the package on the AVMS server. Contact AVMS support ^a .

Updating from Older Versions of ALEOS

Error message	Meaning	Corrective action
Radio Module firmware MD5 check failed	The downloaded firmware package failed the integrity check. The update is aborted.	There is a problem with the package on the gateway or the download may have failed. Try downloading the file again. If the problem persists, contact AVMS support ^a . There may be a problem with the package on the AVMS server.
Radio Module backup failed	The radio module was saved to prevent a power failure. If the firmware cannot be backed-up on persistent storage, the firmware update will not proceed because of the risk that the radio module update will not be able to finish if interrupted.	Contact AVMS support ^a . The support team will need to access the gateway to clear space, or you can return the gateway to Sierra Wireless under an RMA.
Radio Module firmware download failed	Firmware URL is not valid, or download failed.	Retry several times. If the problem persists, contact AVMS support ^a . The support team will need a log from the gateway.
Undefined Radio Module firmware URL	The URL cannot be retrieved. The update is aborted.	Retry. If the problem persists, contact AVMS support ^a .
Radio Module firmware update failed	Radio module firmware could not be applied. Check the ALEOS log messages to determine exactly why the update failed.	Retry. If the problem persists, contact AVMS support ^a .

a. AVMS technical support: <https://issues.m2mop.net>