



bktechnologies.com

RES Training Workbook

Lesson: Zero



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Installing Radio Editing Software (RES)

Preliminary Note

RES is BK Technologies' replacement software for programming KNG, KNG2, and mobile model radios. Please note RES only supports the writing of radios that contain firmware version 5.5.0 and higher. Any radios with firmware older than version 5.5.0 can only be read from. This means they can have their codeplugs opened but no modifications to the codeplug can be written to the radio.

Installing RES

- 1) Navigate to <http://www.relmservice.com/products>. The page should be titled "Product Support Pages".

Product Support Pages

Software, Firmware and Publications

For the KNG Series and KNG2 Portable Radios, starting with Firmware Release 5.5.0, NeoVision will no longer be supported. Instead the new editor, RES will take its place. The compatible RES (Radio Editing Software) version is 5.5.0. Please check with your Radio Administrator to see if this software is right for the specifications that fit your radio network configuration. If you own a valid copy of the KAA0732 Editor, your serial number will work for this updated software.

TECH BULLETIN: Read the full tech bulletin on software and firmware.

KAA0732 > KAA0733 (UPGRADE ONLY)

If you have a valid copy of KAA0732 and would like to upgrade to KAA0733, click here

BK KNG Digital Radios, Including KAA0733

BK Radio Analog Radios

RELM Brand Analog Radios

Show all available
Show discontinued items
Search all manuals

- 2) From that page, select the corresponding category for the radio you need the drivers for. Most models will be found under "BK KNG Digital Radios, Including KAA0733"

KAA0732 > KAA0733 (UPGRADE ONLY)

If you have a valid copy of KAA0732 and would like to upgrade to KAA0733, [click here](#)

BK KNG Digital Radios, Including KAA0733

BK Radio Analog Radios

RELM Brand Analog Radios

- 3) Select your radio's model from the table. (Your radio's model can be found by looking on the device directly above the display.) A new page will open.



Digital & APCO P25 Radios

Click on a product for details

Portables	Mobiles	Base Stations	Repeaters
KNG-P150 & CMD (5000 Ch.) KNG-P400 (5000 Ch.) KNG-P500 (5000 Ch.) KNG-P800 (5000 Ch.) KNG-P150S (512 Ch.) KNG-P400S (512 Ch.) DPHX5102X DPH5102-CMD DPH5102X KNG2-P150 KNG2-P400 KNG2-P500 KNG2-P800	KNG-M150 KNG-M400 KNG-M500 KNG-M800 DMH5992X DMH5992R	KNG-B150 KNG-B400 KNG-B500 KNG-B800 DBH-01 DBH-100	DRH-100 DRH-01-100 RDPR

[BK Radio Brand Analog Radios](#) | [RELM Brand Analog Radios](#)

- 4) The new page will contain a table with several tabs and categories. Select the tab marked as "Software". *Release Date* contains the official date that the Firmware was released. *Revision Number* contains the Software version number for that row. *Part Number* indicates the radio model supported. *Release Notes* contains a PDF file describing the changes and features updated within that revision.

- 5) In the table, select the “Update” link for the RES version you wish to put on your machine. An authentication page will open.

[Firmware & Patches](#) [Software](#) [Manuals Etc.](#) [Drivers Etc.](#)

Radio Editors for KNG-P150 & CMD (5000 Ch.)

Release Date	Revision Number	Part Number	Release Notes	
7/10/2017	5.5.2	KAA0733	 Release Notes	Update

- 6) From the authentication page, enter your product serial number provided to you, then press “Continue.”

RELM/BK Radio Software Updater

To proceed to the software update page please enter the serial number from your software disk.

Serial Number: - - [Continue](#)

[Lost your serial number?](#)

- 7) If your serial number is valid, you should see the screen below with available revisions of the RES software. From this screen select the “Download” button next to the version you wish to install.

Available Revisions for KAA0733

Release Date	Revision Number	Part Number	Release Notes	
7/10/2017	5.5.2	KAA0733	 Release Notes	Download
4/6/2017	5.5.1	KAA0733	 Release Notes	Download
1/26/2017	5.5.0	KAA0733	 Release Notes	Download

NOTE: Each version is built on the previous, and thus it is recommended that you always install the newest version at the top of the table. For specific changes with each version read the release notes linked.

8) Once download is complete, in your windows file explorer navigate to your “Downloads” folder.

9) Locate the zip file you’ve downloaded within the “Downloads” folder.

Name	Date modified	Type	Size
 KAA0733_5_5_2	7/12/2017 2:37 PM	Compressed (zipped) F...	167,638 KB

10) Right-click on the file. Then, press “Extract All...”

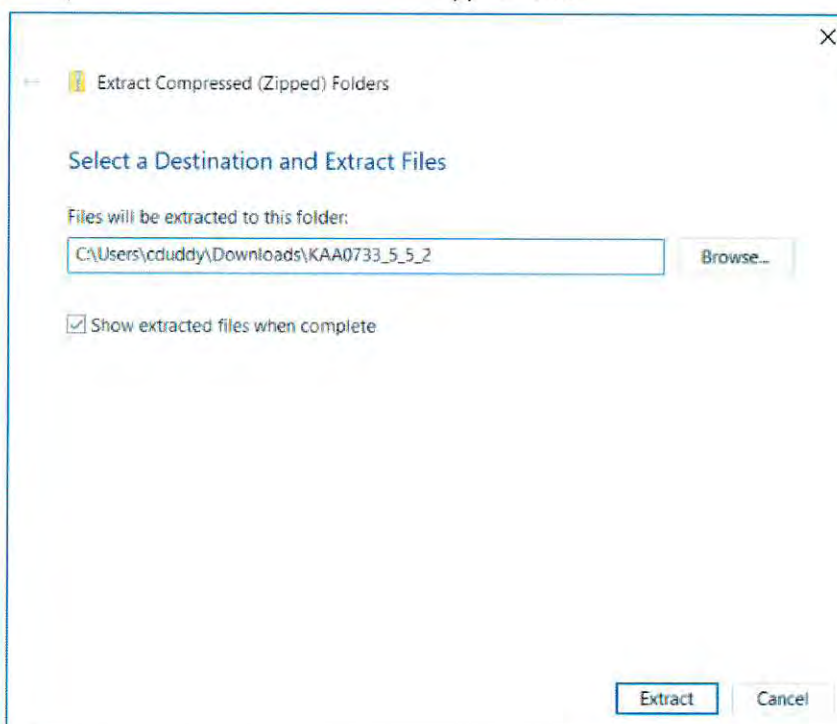
Name	Date modified	Type	Size
 KAA0733_5_5_2	7/12/2017 2:37 PM	Compressed (zipped) F...	167,638 KB

Open

Open in new window

Extract All...

11) A window will open to extract the files from the Zipped Folder.



NOTE: This window will give you an opportunity to move your extracted files to a different location within your file directory. It is recommended you do not change the location of the unzipped folder, but if you choose to, take note of the location.

12) To finish the extraction, press “Extract.”

13) A new file explorer window will open with the extracted files. Select the folder whose type is “File folder” and open it.

Name	Date modified	Type	Size
KA0733_5_5_2	7/12/2017 2:41 PM	File folder	
KA0733_5_5_2	7/12/2017 2:37 PM	Compressed (zipped) F...	167,638 KB

NOTE: If the extracted file does not come up, the folder containing the RES setup can be found within the same directory as the Zipped file. If you did not change the location, this should be in “Downloads.”

14) The extracted files will be shown from the selected folder. Within the folder, there are two different install applications based on your system architecture.

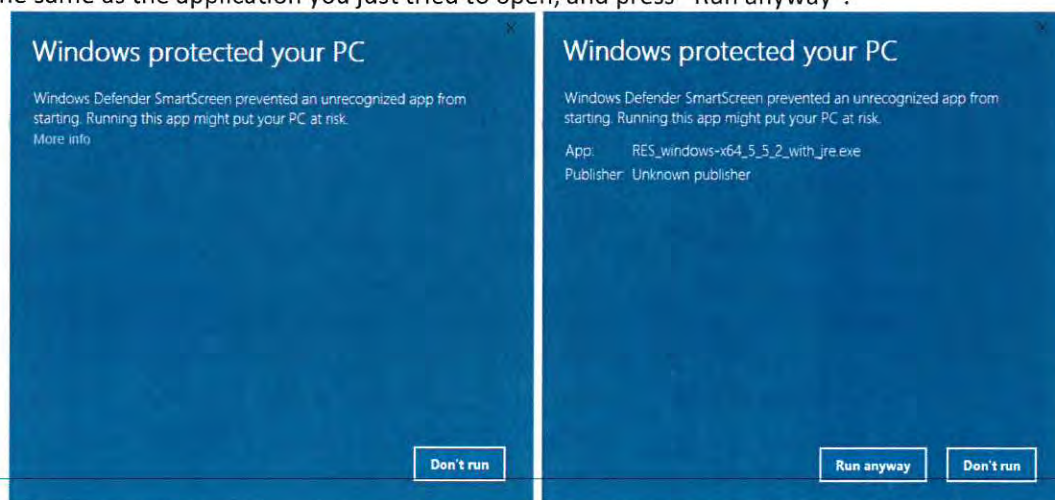
- For 64 Bit Windows, right-click “RES_windows-x64_5_5_2_with_jre” and select “Open.”

RES_windows-x64_5_5_2_with_jre	7/12/2017 2:41 PM	Application	78,100 KB
Open			

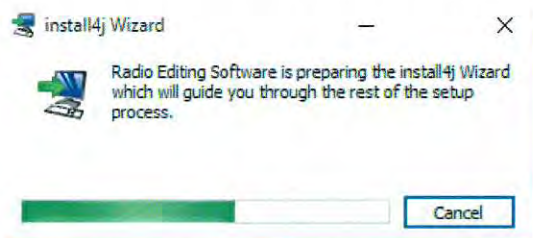
- For 32 bit Windows, right-click “RES_windows_5_5_2_with_jre” and select “Open.”

RES_windows_5_5_2_with_jre	7/12/2017 2:41 PM	Application	74,169 KB
Open			

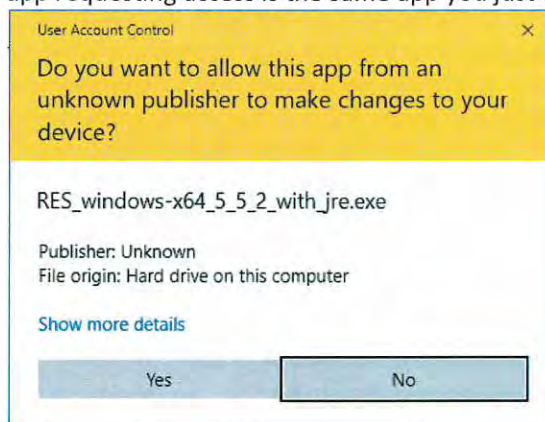
15) If the image below appears, select “More info” and then verify that the app requesting access is the same as the application you just tried to open, and press “Run anyway”.



16) After this, the install4j Wizard will start the install process and appear like below.



As this is installing you will likely be prompted again to approve of the installation. If the screen below appears, verify the app requesting access is the same app you just opened, and select "Yes"

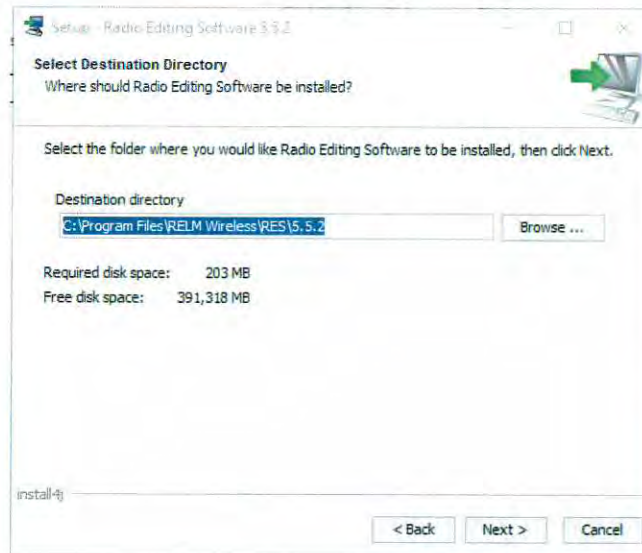


17) Step 14 is the beginning of the RES Software setup wizard. For those who already have RES installed and are updating, proceed to step F on page 10 of this document.

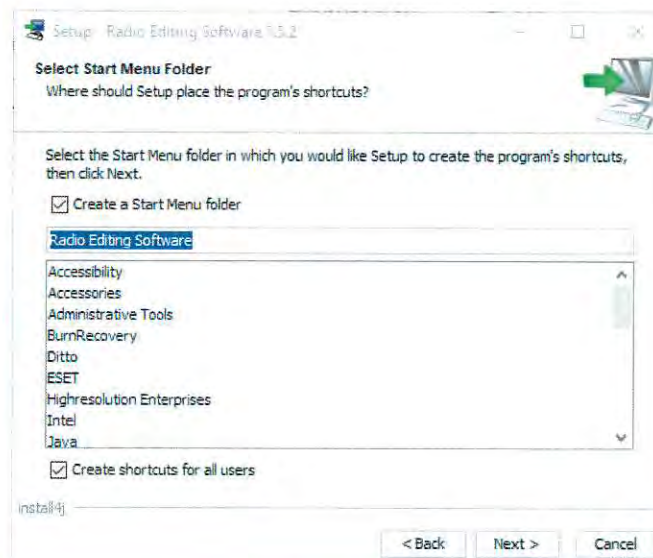
A. After pressing "Yes" the install wizard will open. From the first screen select "Next"



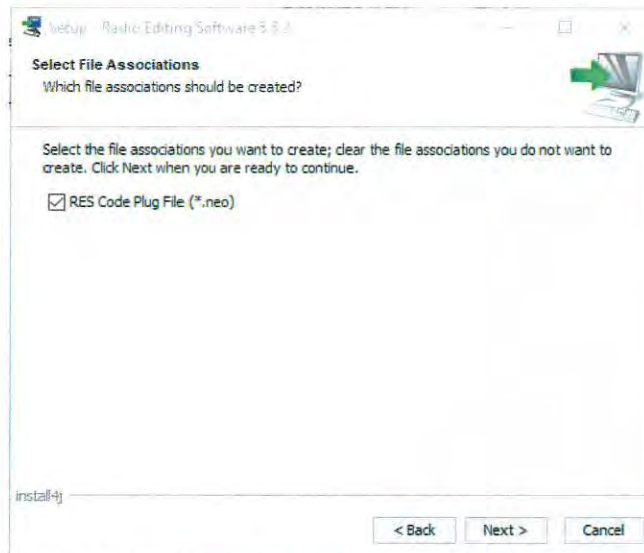
- B. After selecting next, you will be prompted to select an install destination for RES. To select a different location other than the default, press “Browse” and navigate to the destination you wish for RES to be installed. After you have chosen a new destination, or if you have left it in the default location, press “Next.”



- C. The next screen will ask if you would like a start menu folder, as well as shortcuts to the application. For ease of use it is recommended that you keep both selected but it is not required. You can also modify the folder name that will be placed in the start menu, if you desire. Once you have made your selections press “Next.”



- D. The final selection screen before the install prompts you to select the file associations you wish to create. RES utilizes a custom file type (*.neo) to generate codeplugs. It is recommended that you leave this option selected and press "Next."

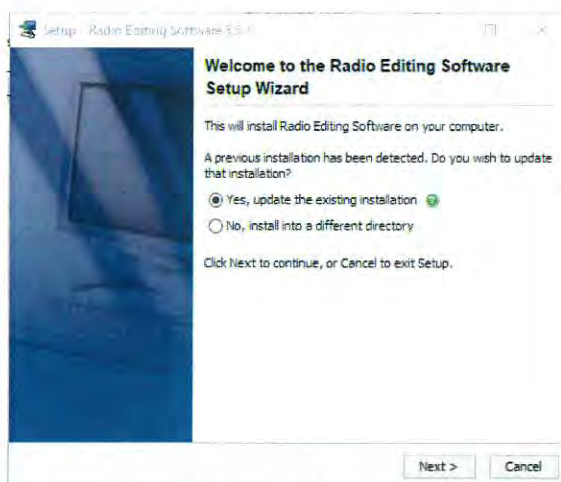


Note: If this option is unchecked the immediate opening of RES when a file of .neo type is clicked will be removed. For more information see : [https://msdn.microsoft.com/en-us/library/windows/desktop/dd758090\(v=vs.85\).aspx](https://msdn.microsoft.com/en-us/library/windows/desktop/dd758090(v=vs.85).aspx)

- E. After pressing Next, the install of RES will begin. After the progress bar finishes the Completion screen will appear. On this screen you can choose to run RES immediately upon pressing finish. To complete the install press "Finish." You are now finished with the RES installation.



- F. If you are updating a previous version of RES, the installer will prompt you whether or not you want to update the existing installation. This is your choice, but it is recommended you select “Yes, update the existing installation” and press Next. If you choose “No, install in a different directory” please refer to step B on page 9 to continue and complete your installation.



- G. The final selection screen prompts you to select the file associations you wish to create. RES utilizes a custom file type (*.neo) to generate codeplugs. It is recommended that you leave this option selected and press “Next.”



Note: If this option is unchecked the immediate opening of RES when a file of .neo type is clicked will be removed. For more information see : [https://msdn.microsoft.com/en-us/library/windows/desktop/dd758090\(v=vs.85\).aspx](https://msdn.microsoft.com/en-us/library/windows/desktop/dd758090(v=vs.85).aspx)

- H. The install wizard will then uninstall the previous version currently detected on the machine, and then it will install the version you are attempting to install. Once finished the completion screen will open. On this screen you can choose to run RES immediately upon the closing of the wizard. To complete the install press "Finish."



The installation of RES is now complete.

Installing Firmware (Lightning Light)

Preliminary Notes

Installing Lightning Light requires an internet connection and the knowledge of which firmware version you are wishing to input into your radio. If you are unsure of this please contact your [BK Technologies](#) representative for further assistance.

If you're referring to this document for how to use Lightning Light, please refer to the *Lightning Light User Guide*.

If you're referring to this document to remedy an "Unsigned Driver" error, for Windows 10/8.1 proceed to page 7. For Windows 7/Vista/XP proceed to page 10.

Installing Lightning Light

- 1) Navigate to <http://www.relmservice.com/products>. The page should be titled "Product Support Pages".

Product Support Pages

Software, Firmware and Publications

For the KNG Series and KNG2 Portable Radios, starting with Firmware Release 5.5.0, NeoVision will no longer be supported. Instead the new editor, RES will take its place. The compatible RES (Radio Editing Software) version is 5.5.0. Please check with your Radio Administrator to see if this software is right for the specifications that fit your radio network configuration. If you own a valid copy of the KAA0732 Editor, your serial number will work for this updated software.

TECH BULLETIN: Read the full tech bulletin on software and firmware.

KAA0732 > KAA0733 (UPGRADE ONLY)

If you have a valid copy of KAA0732 and would like to upgrade to KAA0733, click here

BK KNG Digital Radios, Including KAA0733

BK Radio Analog Radios

RELM Brand Analog Radios

[Show all available](#)
[Show discontinued items](#)
[Search all manuals](#)

- 2) From that page, select the corresponding category for the radio you need the drivers for. Most models will be found under “BK KNG Digital Radios, Including KAA0733”

KAA0732 > KAA0733 (UPGRADE ONLY)

If you have a valid copy of KAA0732 and would like to upgrade to KAA0733, click here

BK KNG Digital Radios, Including KAA0733

BK Radio Analog Radios

RELM Brand Analog Radios

- 3) Select your radio’s model from the table. (Your radio’s model can be found by looking on the device directly above the display.) A new page will open.



Digital & APCO P25 Radios

Click on a product for details

Portables	Mobiles	Base Stations	Repeaters
<u>KNG-P150 & CMD (5000 Ch.)</u> KNG-P400 (5000 Ch.) KNG-P500 (5000 Ch.) KNG-P800 (5000 Ch.) KNG-P150S (512 Ch.) KNG-P400S (512 Ch.) DPHX5102X DPH5102-CMD DPH5102X KNG2-P150 KNG2-P400 KNG2-P500 KNG2-P800	KNG-M150 KNG-M400 KNG-M500 KNG-M800 DMH5992X DMH5992R	KNG-B150 KNG-B400 KNG-B500 KNG-B800 DBH-01 DBH-100	DRH-100 DRH-01-100 RDPR

BK Radio Brand Analog Radios

RELM Brand Analog Radios

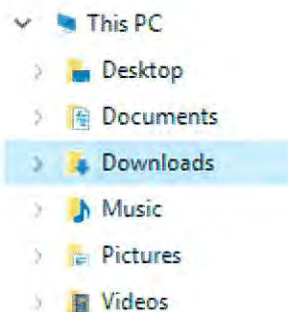
- 4) The new page will contain a table with several categories. *Release Date* contains the official date that the Firmware was released. *Revision Number* contains the Firmware version number for that row. *Required Editor* contains the Lightning Light version number. *Release Notes* contains a PDF file describing the changes and features updated within that revision. And the *Firmware* category contains a direct download link for the Lightning Light application.

Firmware & Patches Software Manuals Etc. Drivers Etc.

Firmware for KNG-P150 & CMD (5000 Ch.)
Firmware installation driver required.

Release Date	Revision Number	Required Editor	Release Notes	Firmware
3/24/2017	5.5.0b	KAA0733 Ver. 5.5.0	 Release Notes	Download
1/26/2017	5.5.0a	KAA0733 Ver. 5.5.0	 Release Notes	Download

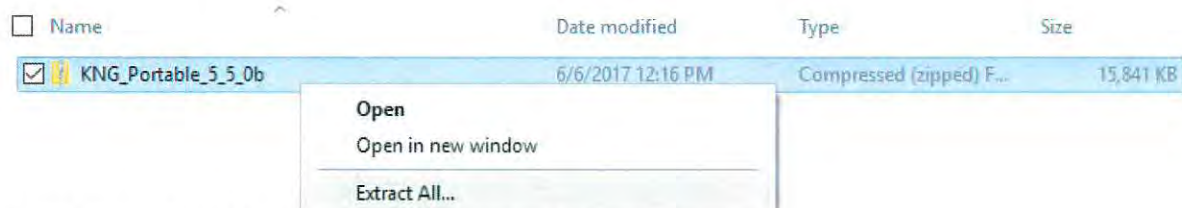
- 5) In the table, select the “Download” link in the “Firmware” category for the firmware you wish to put on the radio. A zip file will download.
- 6) Once the download is complete, in your windows file explorer navigate to your “Downloads” folder.



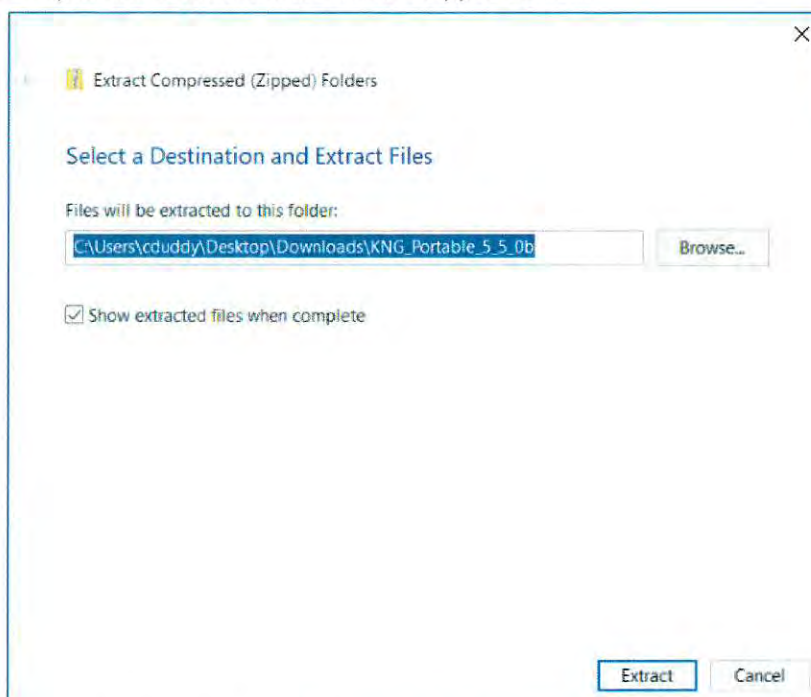
- 7) Locate the zip file you’ve downloaded within the “Downloads” folder.

☐ Name	Date modified	Type	Size
 KNG_Portable_5_5_0b	6/6/2017 12:16 PM	Compressed (zipped) F...	15,841 KB

Right-click on the file. Then, press “Extract All...”



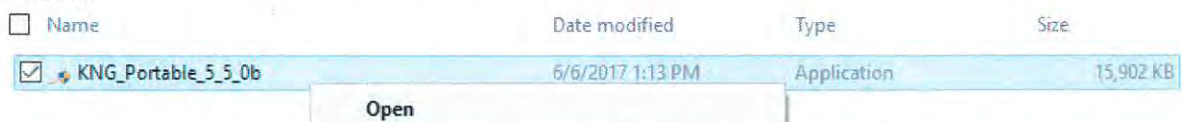
A window will open to extract the files from the Zipped Folder.



NOTE: This window will give you an opportunity to move your extracted files to a different location within your file directory. It is recommended you do not change the location of the unzipped folder, but if you choose to, take note of the location.

To finish the extraction, press “Extract.”

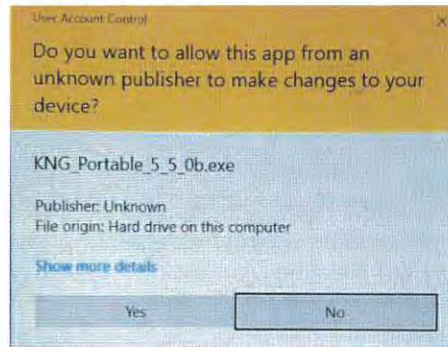
- 8) A new file explorer window will open with the extracted files. Open the Application within this window.



Note: If the extracted file does not come up, the folder containing the Lightning Light Setup can be found within the same directory as the Zipped file you downloaded. If you did not change the location, this should be in “Downloads.”

☐ Name	Date modified	Type	Size
KNG_Portable_5_5_0b	6/6/2017 1:13 PM	File folder	
KNG_Portable_5_5_0b	6/6/2017 12:16 PM	Compressed (zipped) F...	15,841 KB

- 9) If the image below appears, verify that the app requesting access is the same as the application you just tried to open, and press "Yes".



- 10) After this, the Lightning Light Setup will come open. Follow all instructions within the setup and Lightning Light will be installed.

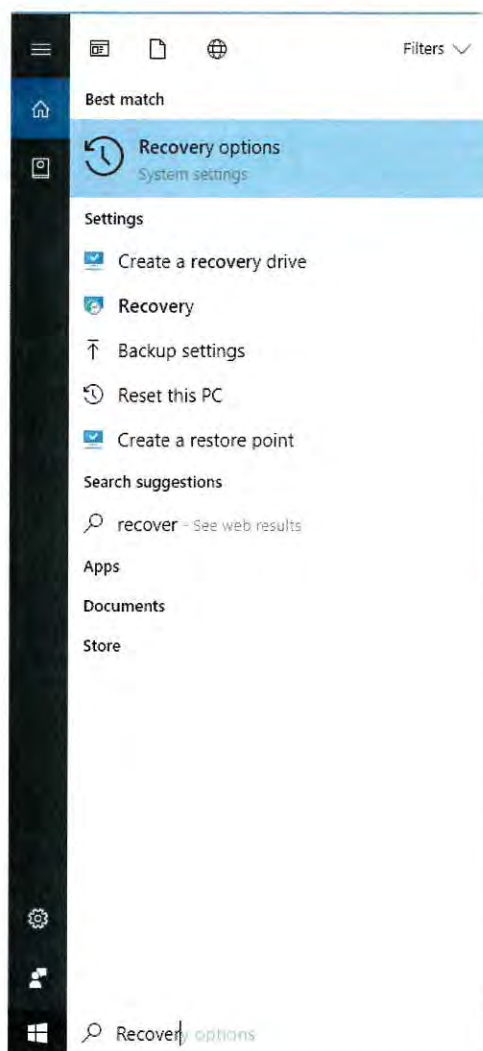


NOTE: The below steps assume that Lighting or Lightning Light have been previously (or are currently) installed.

Unsigned Driver Repair Windows 10/8.1

1. Disabling Driver Signature Enforcement Windows 10/8.1

1. In the Search Bar type "Recover" and select the Recover Options Icon.



2. From the Recover Menu select Restart Now under Advanced Startup.

WARNING: This will reboot your computer and any unsaved work will be lost.

Recovery

Reset this PC

If your PC isn't running well, resetting it might help. This lets you choose to keep your personal files or remove them, and then reinstalls Windows.

Get started

Advanced startup

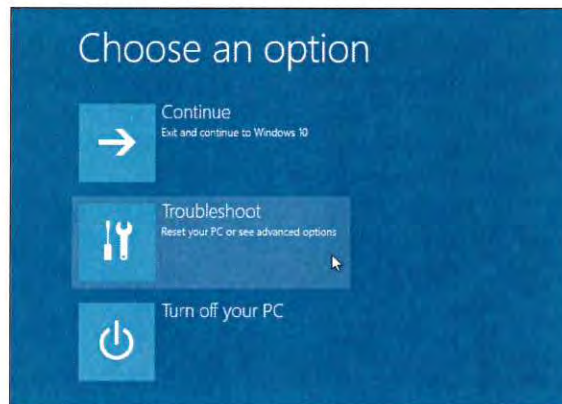
Start up from a device or disc (such as a USB drive or DVD), change your PC's firmware settings, change Windows startup settings, or restore Windows from a system image. This will restart your PC.

Restart now

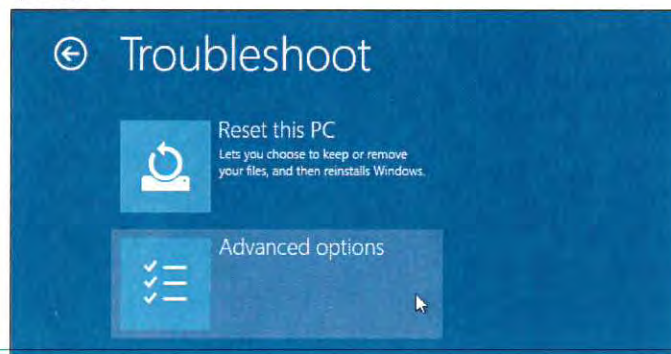
More recovery options

[Learn how to start fresh with a clean installation of Windows](#)

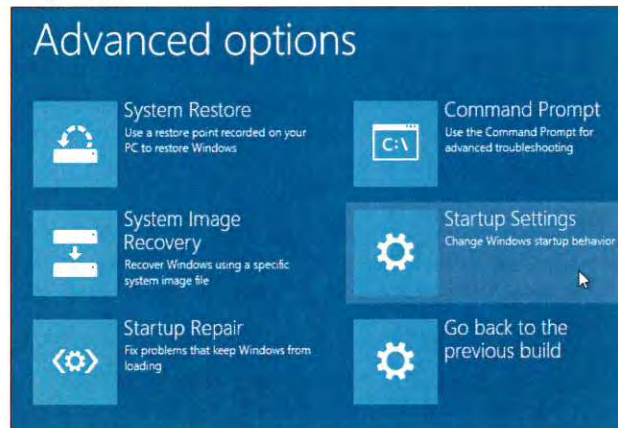
3. From the "Choose an option" menu select Troubleshoot



4. Select "Advanced options".



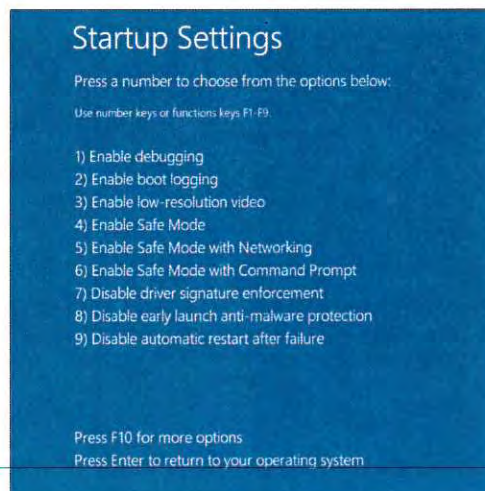
5. Click the “Startup Settings” tile.



6. Click the “Restart” button to restart your PC into the Startup Settings screen.



7. Type “7” or “F7” at the Startup Settings screen to activate the “Disable driver signature enforcement” option.



NOTE: Driver Signature enforcement is now disabled.

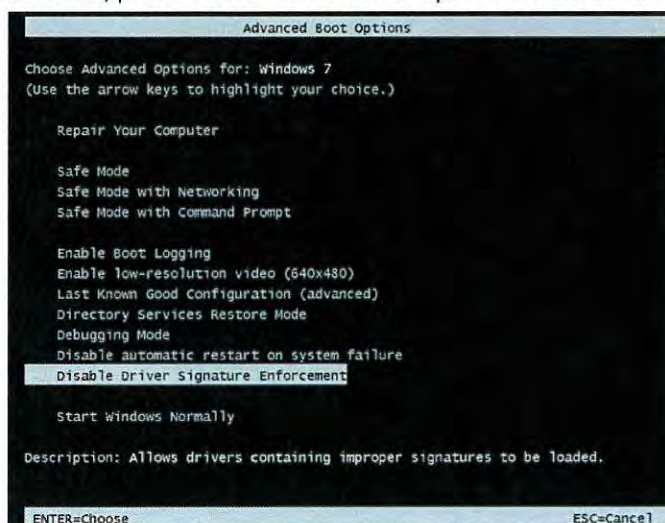
Unsigned Driver Repair Windows 7

1. Disabling Driver Signature Enforcement

1. Restart your computer. During the restart process continuously press “F8” to access “Advanced Boot Options”.



2. From the “Advanced Boot Options” menu, navigate to the “Disable Driver Signature Enforcement” option using the “Down” arrow key. When “Disable Driver Signature Enforcement” is selected, press “Enter” to select the option. Windows will now reboot.

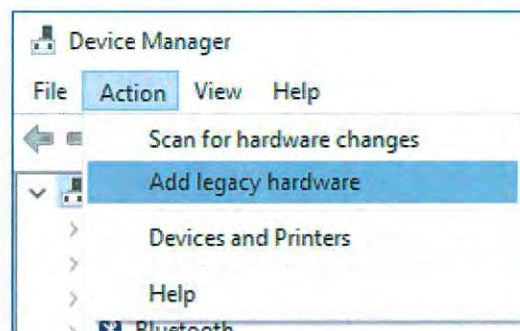


2. Reinstalling the Lightning Driver

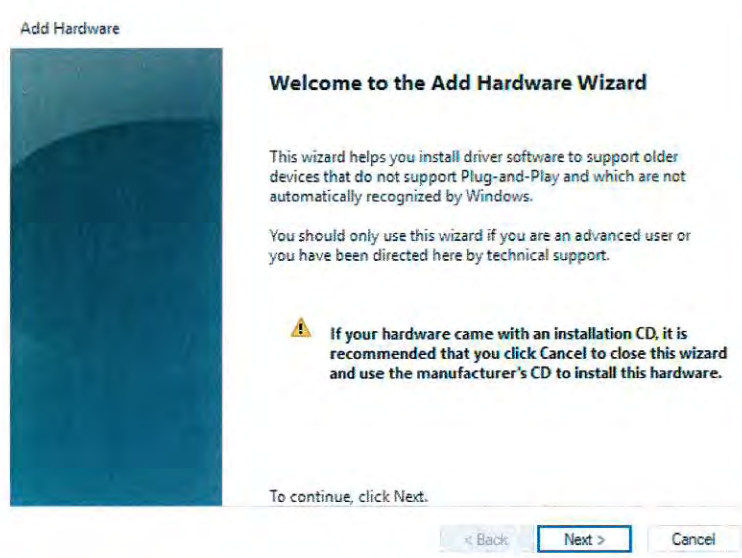
1. In the Search Bar type "Device Manager" and select the Device Manager Icon.



2. To start, right click on your desktop, then reselect the device manager window. Then, from the menu bar select Action and then "Add legacy hardware".



3. The "Add hardware" wizard will come up. From this window select "Next"



- On the next screen under the options for “What do you want the wizard to do?” Select “Install the hardware that I manually select from a list (Advanced)”. Then press “Next”.

Add Hardware

The wizard can help you install other hardware

The wizard can search for other hardware and automatically install it for you. Or, if you know exactly which hardware model you want to install, you can select it from a list.

What do you want the wizard to do?

☐ Search for and install the hardware automatically (Recommended)

☒ Install the hardware that I manually select from a list (Advanced)

< Back Next > Cancel

- Select “Show All Devices” from the list, and then press “Next”.

Add Hardware

From the list below, select the type of hardware you are installing

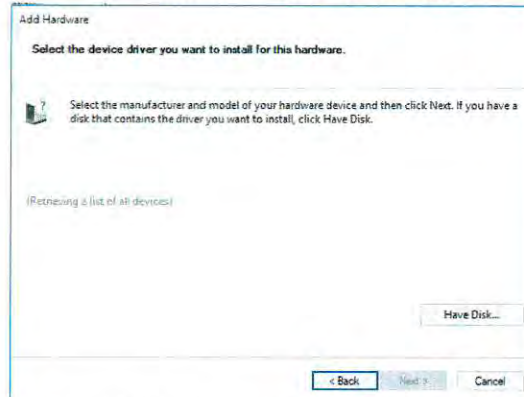
If you do not see the hardware category you want, click Show All Devices.

Common hardware types:

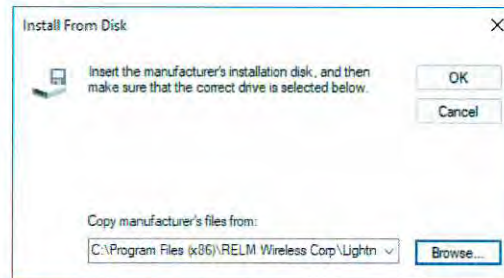
- Show All Devices
- Digital Media Devices
- Display adapters
- Generic Remote Desktop devices
- IDE ATA/ATAPI controllers
- IEEE 1284.4 compatible printers
- IEEE 1284.4 devices
- IEEE 1394 host controllers
- IEEE 1667 silo and control devices

< Back Next > Cancel

6. Select "Have Disk..." and the "Install From Disk" window will appear.

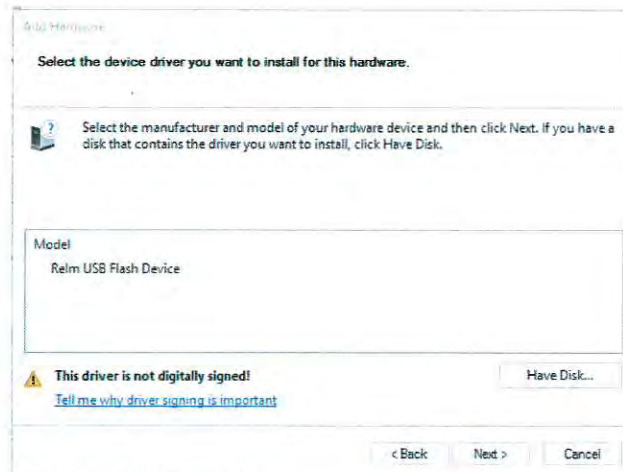


7. In the "Install From Disk" window, select "Browse..." and navigate to where Lightning/Lightning Light is installed. Then press "OK".



For Example: C:\Program Files (x86)\RELM Wireless Corp\Lightning Light Portable 2.1.0
5.5.0b\Drivers

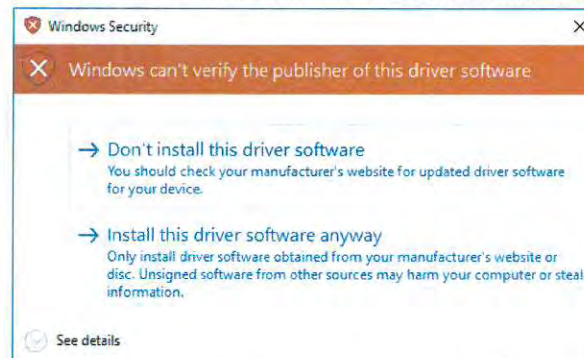
8. The "Have Disk..." screen should update like below, with "Relm USB Flash Device" under the Model Category. Press "Next".



9. The next screen will prompt you for the install of the driver. Select “Next”.



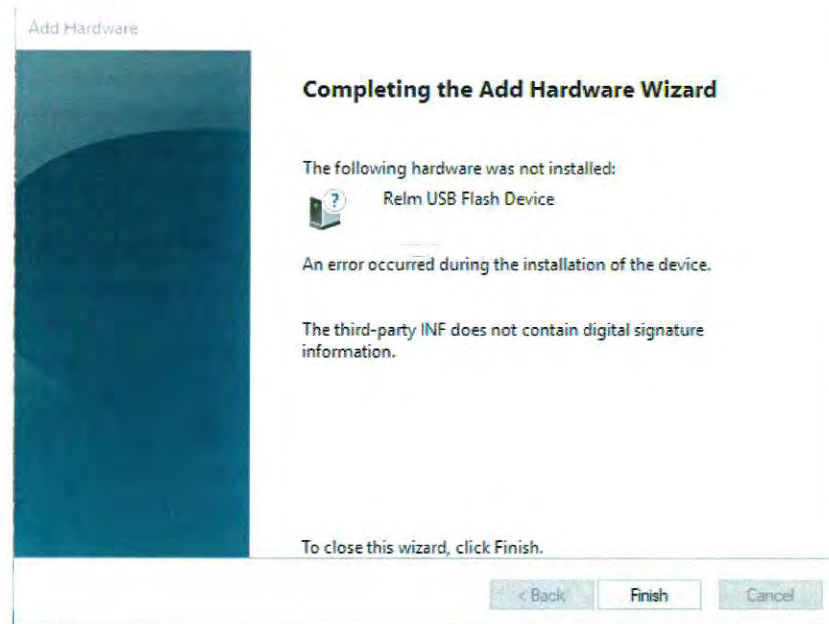
10. A warning message will popup, select “Install this driver software anyway”.



11. After this, the install should complete and the screen will look like below. Select “Finish”.



Note: If you get the following error, Driver Signature Enforcement was NOT disabled. Return to Step 1 and start the process over again.



Installation of Lightning Light is now complete!

Updating Firmware (Lightning Light)

Preliminary Notes

The user should make sure that both Lightning Light, and the Lightning Light Driver have been installed. If the driver has not been installed, refer to the Driver Install Guide.

General Guideline: Make sure that the intended/correct firmware is being flashed onto the radio, failure to do so will result in repeating these procedures.

Radio Setup for Programming

1) Power down the radio by turning the volume knob counter-clockwise until an audible “click” is heard. Once the click is heard the screen of the radio should say “Powering Off”.



a) In the event the radio is frozen, or “Soft Power Mode” is turned on, and it is not powering down, the radio’s battery must be removed to turn it off. To do this, apply pressure to the top of the battery clip and force it downward until a click is heard and the battery comes loose.



Note: Even if battery is removed, the volume knob must remain in the “off” position.

- 2) Insert battery back into the radio, and attach a USB side connector, pictured below, to the radio.
- a) If the battery was removed, insert it into the back of the radio by first inserting the bottom portion and then pushing the top towards the battery clip. Push on the battery until an audible “click” is heard.



- b) To attach the side connector, on the right side of the radio, insert the upward flange of the side connector into the opening above the pin connections on the radio.



- c) Then apply pressure to the side connector and turn the side connector’s knob clockwise, to secure the side-connector to the radio. (It’s best to get a tight fit to ensure a good connection.) (Shown on the next page)



Note: The side connector should be flush with the radio, and secure.

3) Once the side connector is attached, plug the Mini-USB end of the provided programming cable into the side connector and the standard USB into the computer with Lightning Light installed.



Mini-USB



Standard USB



4) To put the radio in programming mode, using one hand, press the Push-to-Talk button. While the button is depressed turn the radio on using the Volume Knob, by turning it clockwise.



If the Radio's led is blinking blue, you have successfully put the radio into programming mode. In the event it is not flashing blue, return to Step 1 and carefully follow the instructions again, making sure you verify every sub step.

Programming the Radio

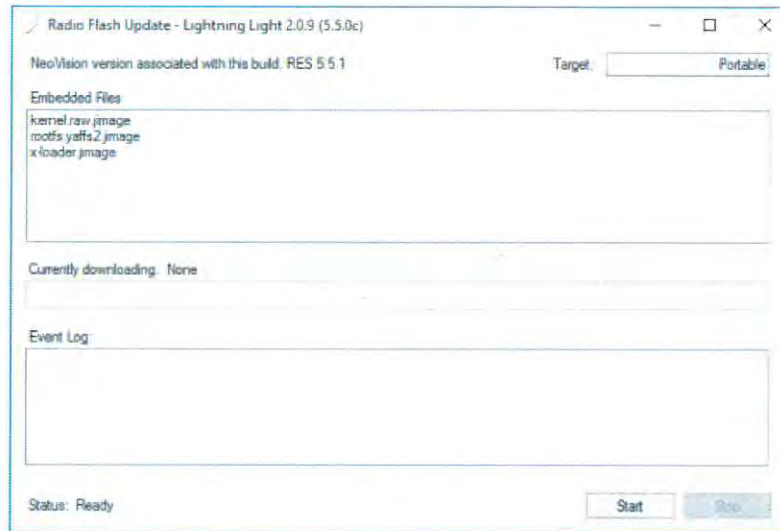
General Guideline: Make sure that the intended/correct firmware is being flashed onto the radio, failure to do so will result in repeating these procedures.

1) Open the correct Lightning Light Program for the device you will be updating. You can confirm this by looking at the "Target:" box in the upper right corner of the program.

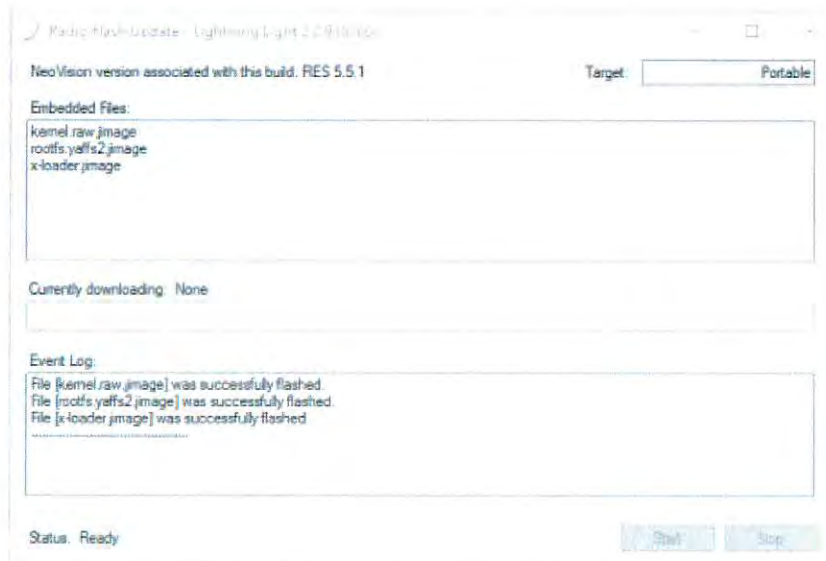


If Lightning Light is open and the radio is in programming mode (Blue light is flashing) the start button in the bottom right of the window will enable, and will no longer be grayed out.

2) Press the start button to begin programming the radio.



3) Once the radio has been successfully flashed the radio will automatically reboot, and you should see the following message in the Event Log portion of lightning. After this, the radio has successfully been programmed.

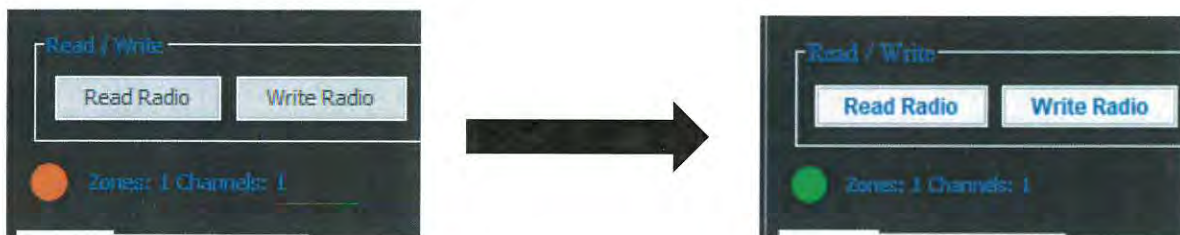


Firmware Upgrading is now complete!

Programming Basics

Read/Write

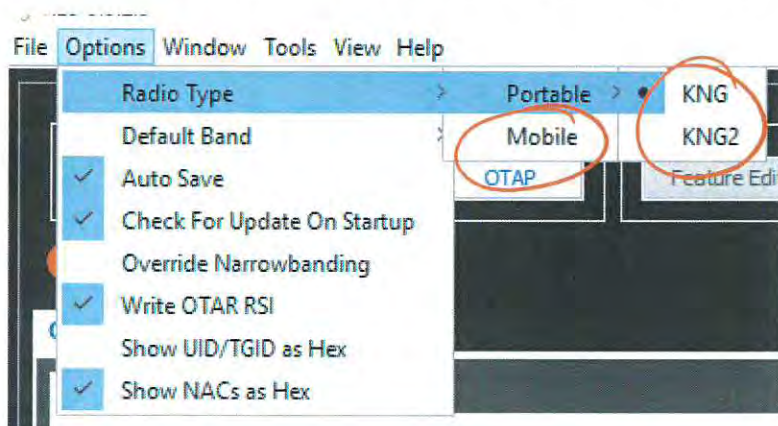
Whether programming new radios or troubleshooting existing radios, you will need to be able to Read and Write the radio. With RES open, use your programming cables to connect your radio to the computer. Turn on the radio and watch for the red indicator in RES to turn green. This indicator will tell you that your radio is properly connected.



Click "Read Radio" to determine what information is programmed into the radio, or codeplug. If changes need to be made to the codeplug, they will not automatically change in the radio. Make all edits and click "Write Radio".

Radio Type

RES requires each codeplug to be radio type specific. This means that trying to put a codeplug for a mobile radio into a portable radio will cause problems. The benefit of this feature is mostly in the Buttons/Menus options later. To select the correct type of radio, select Options> Radio Type



Radio Options

Radio options are dependent on what was purchased with the radio. Sometimes users are under the assumption that all radios will have the same features available. When in question, Radio Options can be viewed in RES by clicking Feature Editing Software in the top/middle of the screen.



A window will open to Read the radio. With the radio connected and turned on, click "Read". The window will then display all current features available in the radio. Though radio options are not editable from RES, changes can be made by contacting a BK Technologies Field Engineer.

RES Feature Editing Software 5.5.2

File

ESN
ESN: 10 00 00 00 00 00 00 00

Connected ●

Display

☐ Phoenix
☐ sTek
☐ Phoenix II
☐ Mobile
☒ None

Versions

Logic Board Version: 0
RF Board Version: 0
PCB Revision: 0
Date of Manufacture: 00/00/0000
Tier: 1

Conventional Options

☐ Vote Scan Enabled

Trunking Options

☐ P25 Trunking Enabled
☐ Phase II Enabled
☐ Authentication

Hardware Options

☐ Mobile High Power Enabled ☐ GPS Enabled
☐ Continuous Channel Knob ☐ Base Station
☐ Bluetooth Enabled ☐ Encryption Enabled
☐ Three Way Priority Switch

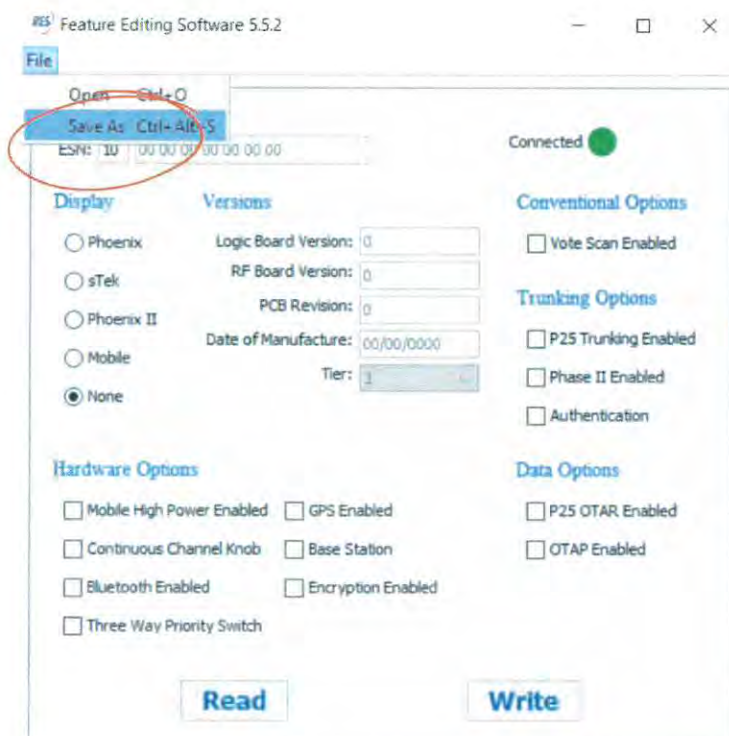
Data Options

☐ P25 OTAR Enabled
☐ OTAP Enabled

Read **Write**

Changing Radio Options

In some instances, radio options will need to be enabled or disabled solely for the convenience of a user. For example, though a county may have purchased GPS, some users may not require the feature and want it removed to save battery life. Go to File> Save As, and the Option File can be emailed to BK Technologies for editing.

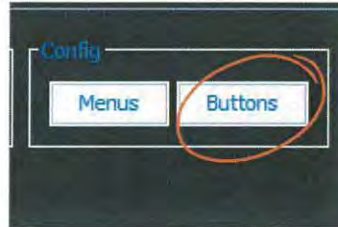


Editing Buttons/Menus

Radios may have default buttons and menu options, or users may have special requests that require making changes to radios. Some models of radios have buttons or switches that other models don't, so communication with the end-user is vital to avoid excessive reprogramming of radios. The following instructions are a general guide, but each customer will have different requirements.

Buttons

In the top/right corner of RES, click “Buttons”.

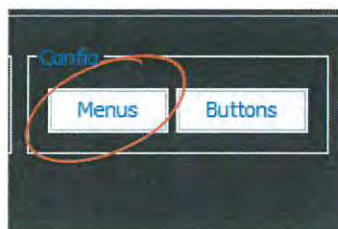


In the Button Configuration window, select the drop down menu to choose conventional or trunking options. Trunked systems have additional options that are not available on conventional radio systems. Additionally, ensure you have the correct radio selected in RES, as a mobile codeplug will have different button options than a portable codeplug. Pick and choose which button capabilities would suit the needs of the customer, a basic recommended configuration can be seen below.



Menus

In the top/right corner of RES, click “Menus”.



In the Radio Menu Configuration window, select the drop down menu to choose conventional or trunking options. Like the buttons, Trunked systems have additional options that are not available on conventional radio systems. Pick and choose which button capabilities would suit the needs of the customer, a basic recommended configuration can be seen below.