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Setting Up Wired and Wireless MDI 2 Connections

There are several possible methods – both wired and wireless – to connect with the MDI 2 (EL-52100). Which is best for you depends on typical use of the tool and the dealership environment.

Although wireless provides a flexible connection for technicians, it's also the least reliable method of connection due to possible interference issues that can be experienced in the shop environment.

USB and ethernet cables are two methods that can be used for a hardwired connection with the MDI 2.

Keep in mind that GM only supports the original 10-foot (3 meter) USB cable that comes with the MDI 2 kit. The cable (EL-52100-2) can be purchased separately from GM Dealer Equipment.

Aftermarket cables, cables longer than 10 feet, repeater cables or USB hubs are not supported. If a hardwired connection longer than 10 feet is required, GM recommends setting up an ethernet connection instead as it supports lengthy cable runs of several hundred feet or more.

Here's a closer look at the options and how to set up each connection.

WIRELESS CONNECTIONS

A wireless connection allows the MDI 2 to be used without a physical connection to the PC. However, users will have a more consistent and reliable experience with hardwired connections. Point-to-Point wireless is recommended over Access Point wireless if a user wishes to use a wireless connection.



Point-to-Point Wireless Setup

The Point-to-Point connection establishes a private wireless connection between the MDI 2 and the PC and allows the PC and MDI 2 to be moved outside the range of the shop's wireless network.

A Point-to-Point setup only needs to be performed if the MDI 2 has never been connected to the PC being used. If Point-to-Point configuration is needed,

2. Start the MDI Manager software by clicking the MDI Manager icon.
3. Plug the USB cable into the PC and the MDI 2.
4. Wait for the MDI 2 to appear in the Explorer window.
5. Unplug the USB cable. The device icon should change from USB to Wireless.
6. Click Connect to confirm the wireless connection.

TIP: In the MDI Manager Network Setup tab, the IP Address Configuration applies only to Access Point wireless. It does not apply to Point-to-Point wireless.



a yellow triangle icon will appear over the MDI 2 in the MDI Manager application.

Configuring/Pairing a Point-to-Point Connection

1. Plug a supported wireless 802.11 dongle (EL-52100-4) into the PC.

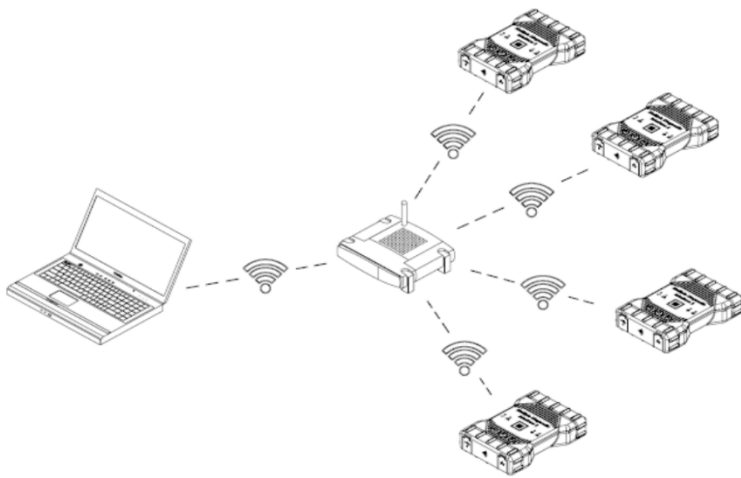


Wireless 802.11 dongle plugged into the PC.

Access Point Wireless Setup

An Access Point connection establishes a shared wireless connection between the MDI 2 and PC. The connection is limited to the range of the shop's wireless network.

Configuring an MDI 2 for an Access Point connection is typically done by a network administrator in the dealership. Before modifying the MDI 2 communications interface, contact your



IT network administrator if you are not comfortable performing the procedure, or if you need assistance with any of the following items:

- Does the dealership LAN automatically assign IP addresses? If not, you will need an IP Address and Subnet Mask to assign to your tester.
- Wireless communication access point SSID (network name).

- Required network authentication is WPA2.
- Required data encryption is TKIP or WEP (64-bit or 128-bit).
- Wireless security password (encryption key).

Configuring an Access Point Connection

1. Start the MDI Manager software by clicking the MDI Manager icon.
2. Plug the USB cable into the PC and the MDI 2.
3. Power on the tester via the self-test adapter or by connecting to the vehicle Data Link Connector.
4. Select and connect to the MDI 2 in the MDI Explorer tab of the MDI Manager.
5. Select the Network Setup tab. If 12 volts is not detected, the MDI Manager will display the message "External power is required."
6. Select the Wireless tab.
7. Select the Enable Wireless Interface check box in the Interface Control box to enable the interface. Once the interface is enabled, the IP Address Configuration box and the Apply and Cancel buttons become active.
8. Select Obtain an IP Address Automatically if your LAN automatically assigns IP addresses. Otherwise, enter the assigned IP Address and Subnet Mask.

Configuring an Access Point Connection, continued

9. Select Access Point to begin wireless access point configuration.
 - If not within range of the access point, or if the access point is not broadcasting its SSID, select the Enter Network Name [SSID] radio button and type the network name.
 - If within range of the wireless access point, choose the Select from Available Network List radio button. The list will be automatically updated, and the software will search for wireless network signals. The detected networks are displayed in the Network Name box.
10. After entering the network name, select Configure.
11. Enter the security setting required by your network, and then select Next.
12. Select Yes to re-configure your MDI 2 or select No if you want to start over.
13. Select OK. MDI 2 Configuration in Process will flash during the update process. MDI 2 Interface Changes Complete will be displayed briefly when the update process is finished.
 - Your MDI Manager will automatically save the last ten wireless configurations that have been used for Access Point communication.
 - Do not unplug the MDI 2 from the PC or remove power from the MDI 2 during the update process; otherwise, the MDI 2 will have to be recovered.
14. After the update process is complete, select the Properties tab to verify that the MDI 2 is configured correctly.
15. Record or print your settings as they are displayed on the Properties tab for future reference.

The MDI 2 is now configured for use when connected to any PC where MDI Manager software has been installed. Installing the MDI Manager software installs certain utilities that are required for Techline Connect to use the MDI 2. It is not necessary to start the MDI Manager software before using Techline Connect.

WIRED ETHERNET CONNECTION

Configuring an MDI 2 for a wired ethernet connection is typically done by an IT network administrator in the dealership. Before modifying the MDI 2 communications interface, contact your IT network administrator if you are not comfortable performing the procedure, or if you need assistance with any of the following items:

- Does the dealership LAN automatically assign IP addresses? If not, you will need an IP Address and Subnet Mask to assign to your MDI 2.

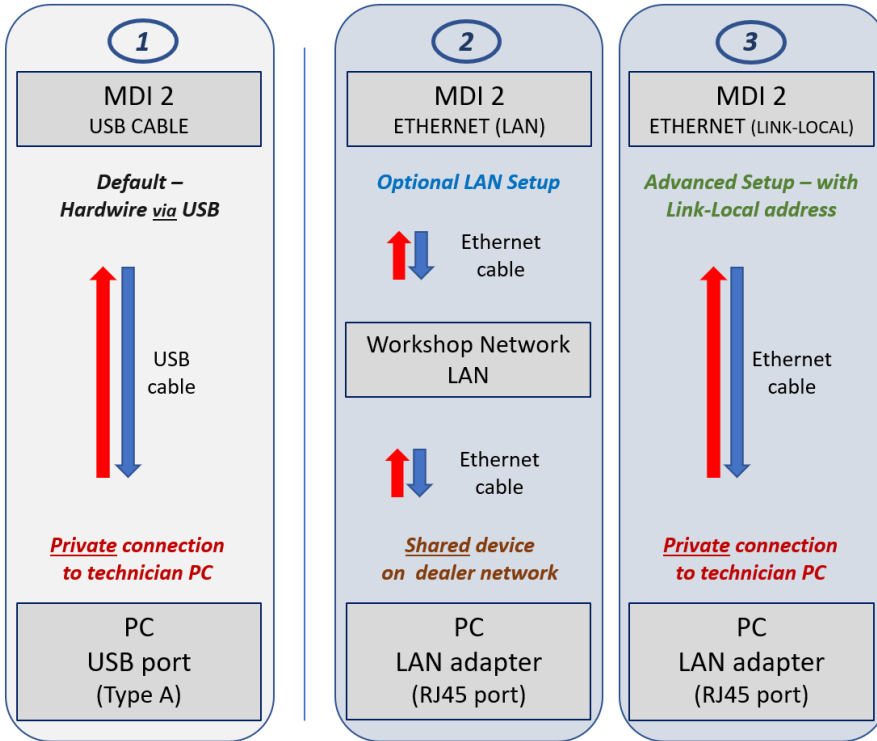
Configuring a Wired Ethernet Connection

1. Plug the USB cable into the PC and the MDI 2.
2. Apply 12 volts to the tester via the self-test adapter or by connecting to the vehicle Data Link Connector.
3. Start the MDI Manager software by clicking the MDI Manager icon.
4. On the MDI Explorer tab, select the MDI 2 and click the Connect button. A check mark appears over the MDI 2 icon to indicate that the connection has been made.
5. Select the Network Setup tab.
6. Select the Wired Ethernet tab.
7. Select the Enable Wired Ethernet Interface check box in the Interface Control box to enable the interface. Once the interface is enabled, the IP Address Configuration box and the Apply and Cancel buttons become active.
 - The MDI Manager software will store the changes made for each interface. You can select the other interface, make additional changes, and then apply all changes to both interfaces at once by clicking the Apply button. Start over at any time by selecting Cancel,
8. Select Obtain an IP Address Automatically if your LAN automatically assigns IP addresses. Otherwise, enter the assigned IP Address and Subnet Mask.
9. Select Apply to reconfigure the MDI Manager. Use the screen at the right to check your communication changes.
10. Select Yes to continue or No to go back to the Network Setup tab to make any changes.
11. Select OK. MDI 2 Configuration in Process will flash during the update process. MDI 2 Interface Changes Complete will be displayed briefly when the update process is finished.
 - Do not unplug the MDI 2 from the PC or remove power from the MDI 2 during the update process; otherwise, the MDI 2 will have to be recovered.
12. After the update process is complete, select the Properties tab to verify that the MDI 2 is configured correctly.
13. Record or print your settings as they are displayed on the Properties tab for future reference.

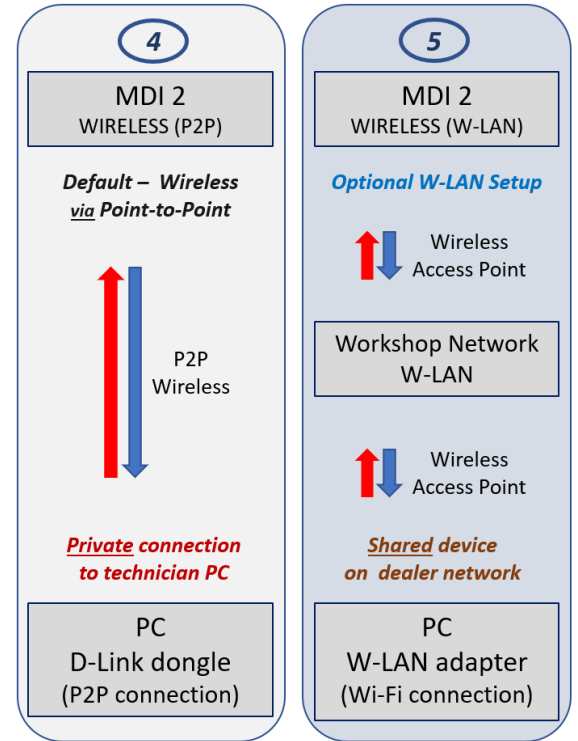
which discards all changes before they are recorded.

WIRED OR WIRELESS? PROS AND CONS TO CONSIDER

MDI 2 – HARDWIRE Configurations



MDI 2 – WIRELESS Configurations



1. USB Cable – Recommended for Troubleshooting

PROS

- Simple, easy default method of connection to MDI 2.
- Hardwired reliability (USB cable).
- 'Direct to PC' connection permits testing outside boundaries of shop networks (essential for road testing).
- 'Private' connection minimizes interference for higher reliability.

CONS

- Movement is restricted by the USB cable length (10 ft.).
- Cables are susceptible to wear and damage.

2. ETHERNET (LAN)

PROS

- 'Shared' connection permits MDI 2 to be available to multiple PCs across the shop network.
- Hardwired reliability (ethernet cable).
- Greater distance: ethernet cable length can be several hundred feet.

CONS

- Unable to support on road testing.
- Setup is more complex and may require IT assistance.
- Shop network adds complexity, potential for network traffic interference and additional points of failure.
- Complexity makes troubleshooting difficult; TCSC is limited in diagnosis and often requires dealership IT engagement regarding the network.
- Cables are susceptible to wear and damage.

WIRED OR WIRELESS? PROS AND CONS TO CONSIDER

3. ETHERNET (LINK-LOCAL Address)

PROS

- Hardwired reliability (ethernet cable).
- 'Direct to PC' connection permits testing outside boundaries of shop networks (essential for road testing).
- 'Private' connection minimizes interference for high reliability.
- Greater distance: ethernet cable length can be several hundred feet.

CONS

- Secondary network adapter may be required (USB-to-ethernet adapter may be needed).
- Setup is more complex and may require IT assistance.

4. WIRELESS (P2P)

PROS

- Relatively simple and preconfigured for easy setup.
- Wireless convenience for cable-free movement.
- 'Direct to PC' connection permits testing outside boundaries of shop networks (essential for road testing).
- No cables to be concerned about for wear or damage caused by harsh shop environment.

CONS

- Movement and reliability restricted by wireless range.
- Potential to be exposed and affected by Wi-Fi interference.

5. WIRELESS (W-LAN)

PROS

- 'Shared' connection permits MDI 2 to be available to multiple PCs across the shop network.
- Wireless convenience for cable-free movement.
- No cabling to be concerned about for wear or damage caused by harsh shop environment.

CONS

- Unable to support on road testing.
- Setup is more complex and may require IT assistance.
- Workshop network adds complexity, potential for network traffic interference and additional points of failure.
- Complexity makes troubleshooting difficult; TCSC is limited in diagnosis and often requires dealership IT engagement regarding the network.
- Movement and reliability restricted by wireless range.
- Potential to be exposed and affected by Wi-Fi interference.



MDI 2 Advanced Setup Technical Tips Update

With the MDI Manager application software, the MDI 2 can be configured to communicate with a PC using several possible networks, such as a USB cable, ethernet cable, Wireless Local Area Network (WLAN), or Point-to-Point wireless.

TIP: All Service Programming System (SPS) events require a hard-wired connection from the PC to the MDI 2 using either a USB or ethernet connection, which provides a reliable connection method and eliminates wireless interference. An ethernet connection will provide the best overall performance.

Connectors on the MDI 2 include:

USB Ports (left) – Connects to a single PC running the MDI Manager software and allows configuration of LAN or WLAN settings required by the dealership local network. USB connection must be made directly with the PC port. Do not connect through a USB hub.

Wireless Adapter Port (center) - Allows for a wireless adapter to be inserted to enable the use of a WLAN or Point-to-Point wireless.

Ethernet Port (right) - Enables the use of an ethernet cable.

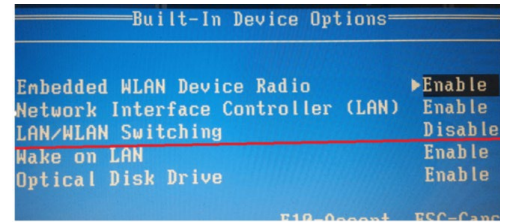


A wireless connection allows the MDI 2 to be used without a physical connection to the PC. Point-to-Point wireless is recommended over Access Point wireless if a user wishes to use a wireless connection.

Depending on the configuration setup for wired or wireless communication, it may be necessary to change some of the settings and options on the MDI 2 or PC.

LAN Switching in BIOS

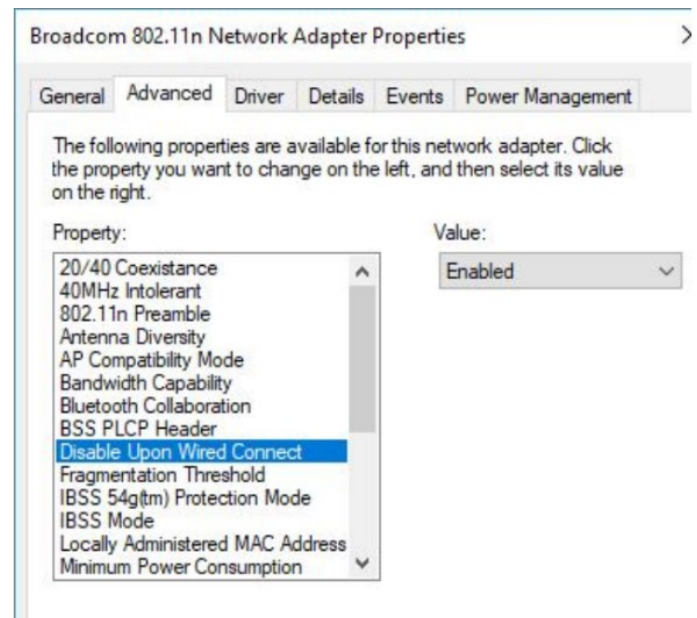
LAN Switching is a feature in Windows used to define how network interface adapters (ethernet or wireless) are to operate. Disabling this setting in BIOS tells the PC not to disable one network (ethernet or wireless) when another network is detected. Using the internet browser, search your PC Make and Model for the function key to enter BIOS during the PC boot.



LAN/WLAN switching setting

LAN Switching at Adapter Interface

On some PCs, LAN switching at the wireless adapter may be disabled in Windows. This feature may not be available on all adapters.

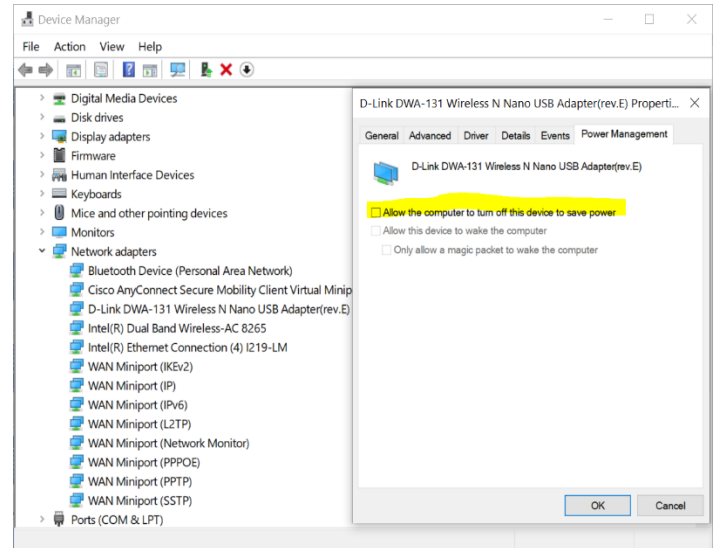


LAN switching at adapter interface

PC Sleep Setting

It is very important to change the default Power Management option for your interface to the MDI 2. With the proper setup, if a test takes longer to execute than the PC Power and Sleep Option configuration, your interface adapter will not be allowed to sleep.

For additional information on setup of the MDI 2 using the MDI Manager, refer to the MDI 2 User Manual or contact TCSC.



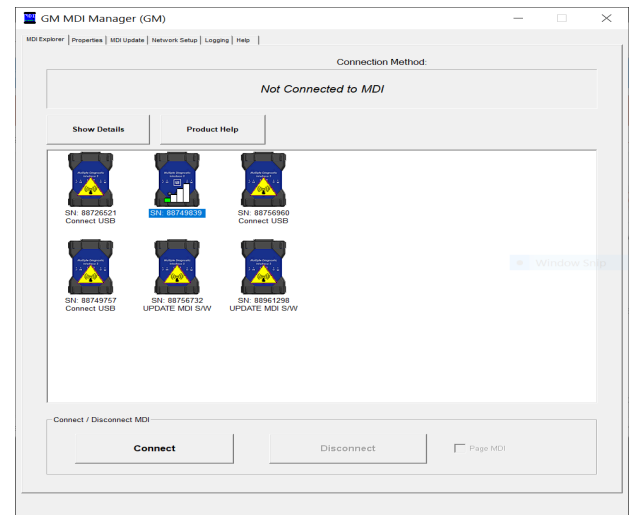
Interface adapter setting

MDI Manager Configuration

The MDI Manager application is used only for MDI configuration, firmware updates and enabling functionality. Connection to a device from the MDI Manager does not use SAE J2534.

Device status is shown under the MDI 2 icon and indicates the required step to perform first before connecting to a device.

The MDI 2 can be configured to use USB, ethernet and wireless connections. USB and Point-to-Point wireless modes are pre-configured as the default. The easiest way to configure the Ethernet (RJ45) configuration for the MDI 2 is via a Link Local IP address. Other ways involve using a USB-to-Ethernet adapter or a local Hub.



Device status on MDI Manager

A yellow icon indicates that pairing is required for a Point-to-Point connection. A wireless configuration via an Access Point (AP) requires that the 802.11 b,g,n AP SSID is visible and set up with WPA2 security.

Ethernet Interface using a Link Local IP Address with MDI 2

This step assumes that your laptop is equipped with an RJ45 port. The MDI Manager is used to configure the interfaces to the MDI 2. There are three mediums for connecting with the device: two wired (USB and RJ45) and one wireless in two modes – AP (Access Point) mode and P2P (Point-to-Point) mode.

For an ethernet connection using a static IP Link Local address, configure the MDI 2 with an IP address in the same range as 169.254.1.x with subnet 255.255.0.0. The IP of the CGM is 169.254.1.0, so the address can be anything in the 1-254 range for the last octet.

Wired Ethernet Connection using a Link Local IP Address with MDI 2

In this configuration, the steps below illustrate how to assign a static Link Local address for the MDI 2. This setup procedure allows a secondary (USB connection is auto configured) wired interface to the MDI 2.

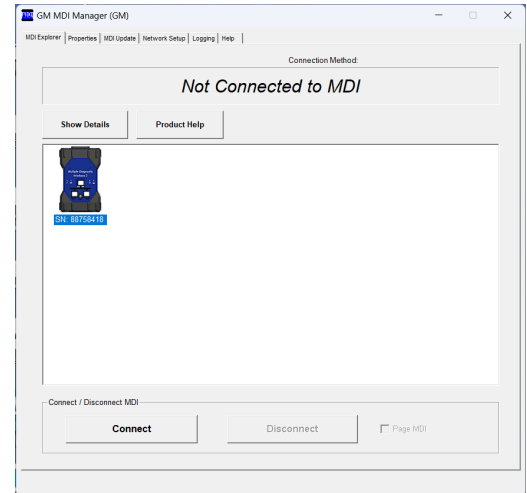
To configure an Ethernet Link Local IP Address for MDI 2:

1. Plug the USB cable into the PC and the MDI 2.
2. Plug in an RJ45 cable between the MDI 2 and the PC.
3. Apply 12 volts to the MDI 2 via the self-test adapter or by connecting to the vehicle Data Link Connector to power the MDI 2.
4. Start the MDI Manager software by clicking the MDI Manager icon.
5. On the MDI Explorer tab, select the MDI 2 and click the Connect button. A check mark appears over the MDI 2 icon to indicate that the connection has been made (connection by default is over USB).
6. Select the Network Setup tab.
7. Select the Wired Ethernet tab.
8. Select the Enable Wired Ethernet Interface from the MDI 2 Manager check box in the Interface Control box to enable the interface. Once the interface is enabled, the IP Address Configuration box and the Apply and Cancel buttons become active. Enter 169.254.1.x(1-254) as the IP address for the MDI 2 and 255.255.0.0 for the Subnet Mask. The GM CGM ECU has a default Link Local IP address of 169.254.1.0.

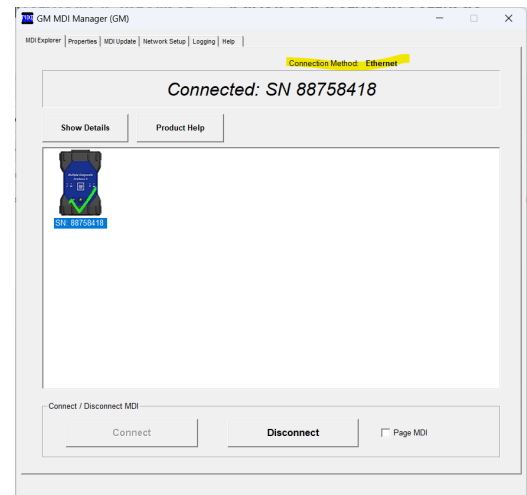
Wired Ethernet Connection using a Link Local IP Address with MDI 2, continued

9. The MDI Manager software will store the changes made for each interface. Select the Apply button to save the changes.
10. Follow the Configuring a Static IP Link Local Address for PC Ethernet Adapter steps below to configure the PC Ethernet Adapter
11. Remove the USB cable and leave the Ethernet cable connected to the MDI 2 and PC.
12. Verify the configuration is successful.
13. Disconnect from device and remove USB cable only.
14. Reconnect from MDI Manager over Ethernet now to verify configuration is complete.

TIP: Your PC-to-network/internet connection must be via the wireless interface and the PC-to-MDI 2 connection via the Ethernet ports on both the PC and MDI 2 via a RJ45 cable. If the laptop does not have an ethernet port, a USB-Ethernet adapter can be configured in the same way as the onboard PC ethernet board to use Link Local IP Address.



Disconnect from device.

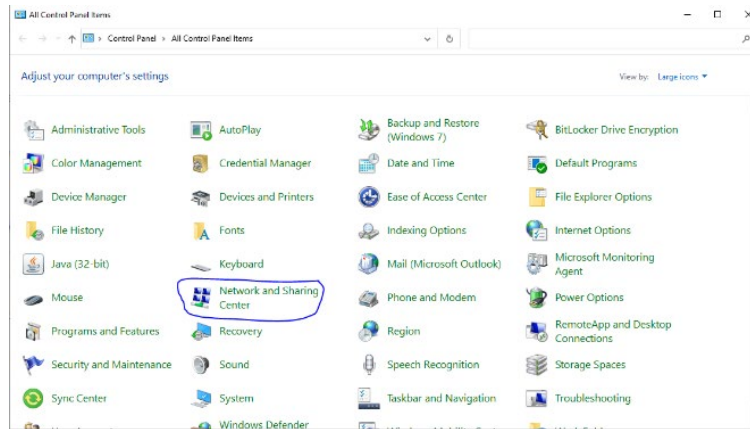


Reconnect from MDI Manager over Ethernet.

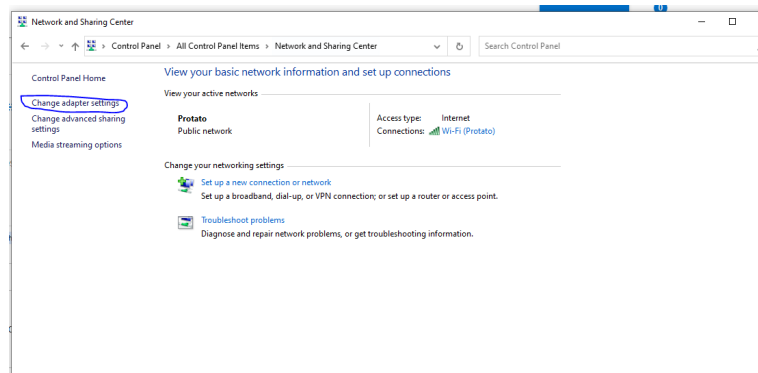
Configuring a Static IP Link Local Address for PC Ethernet Adapter

Follow the steps below to assign a Link Local IP Address for your ethernet adapter.

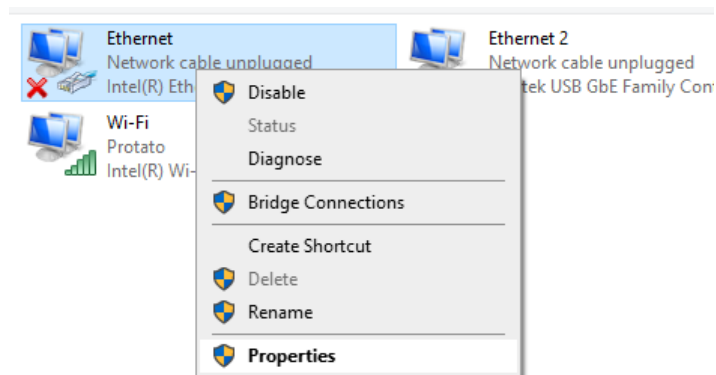
1. Select Network and Sharing Center.



2. Select Change adapter settings.

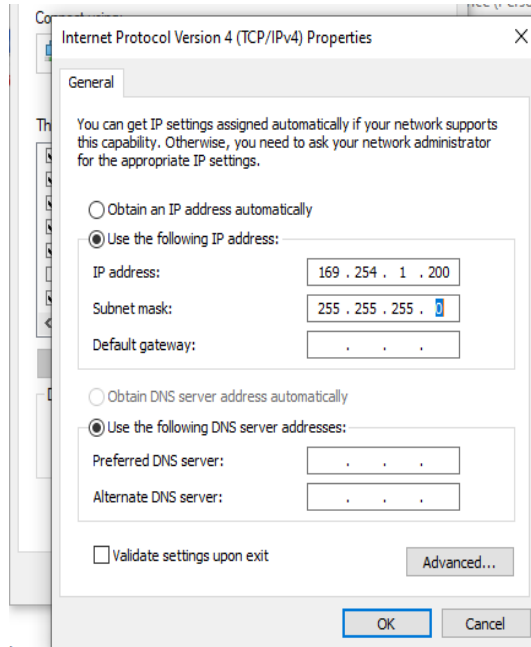


3. Under Ethernet, select Properties.

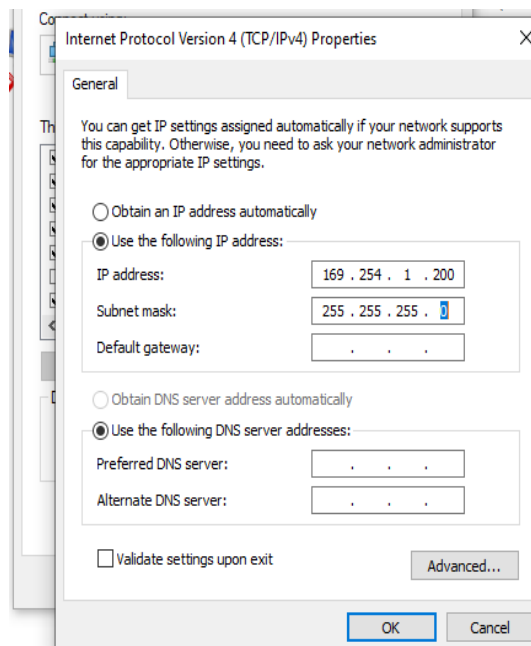


Configuring a Static IP Link Local Address for PC Ethernet Adapter, continued

4. Select Internet Protocol Version 4.



5. Select OK to save the new settings.



MORE INFORMATION

Dealer Infrastructure & Security Guidelines

The Dealer Infrastructure & Security Guidelines (DISG) provide the latest PC equipment specifications recommended for use in the service department. The guidelines can be accessed from Global Connect using the Dealer Information Technologies app in the Apps section. Select the Dealer Infrastructure & Security Guidelines link to view the guidelines.

In Canada, the latest DISG can be found in the Dealer Security and Information Technology App on GM Global Connect.

For additional information on setup of the MDI 2 using the MDI Manager, refer to the MDI 2 User Manual available in Service Information or contact the Techline Customer Support Center (TCSC) at 1-800-828-6860 (English) or 1-800-503-3222 (French).