FCA

FIAT CHRYSLER AUTOMOBILES

DODGE CHARGER PURSUIT

uconnect 12.1 Setup Instructions

Version 1.9

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NAFTA REGION

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Introduction

The purpose of this document is to provide instructions on how to properly setup RealVNC® on a computer to integrate with the Uconnect 12.1 screen in the Dodge Charger Pursuit vehicle. This document also provides an optimization guide and troubleshooting steps.

Note: While the screen may be interfaced with any version of Windows or Mac OS the majority of customers are using Windows 10, 7, or XP. This guide is written to address those users. Please reach out via the Contact Us link for questions regarding other operating systems.

Required Steps

1. Install RealVNC®
2. Register FCA RealVNC® license
3. Configure RealVNC® settings
4. Open Windows firewall ports (version specific)
    1. Windows 10/7
    2. Windows XP
5. Adjust screen resolution
6. Adjust screen rotation
7. Connect the computer to the vehicle
8. Show/hide Uconnect overlay

Optimization Guide

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Required Steps: 1) Install RealVNC®

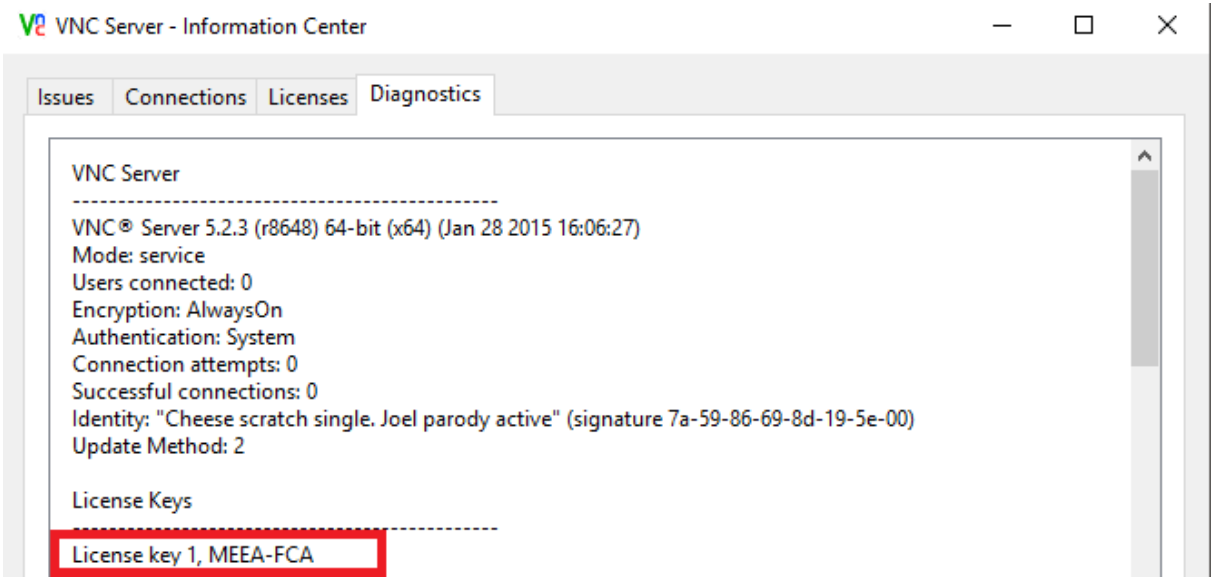
The installation of RealVNC® requires administrative access. If you are unable to begin installation please contact your System Administrator for assistance.

1. Download RealVNC® **5.2.3** for Windows from the following location. Newer versions are not supported, including the latest from the RealVNC® website.
   https://www.realvnc.com/download/file/vnc.files/VNC-5.2.3-Windows.exe
2. Locate the downloaded setup file and **double click** to begin installation. You may be prompted with a request for administrator password or confirmation to proceed.
3. Proceed through the Setup Wizard by selecting your **preferred language**, accepting the **License Agreement**, and ensuring the **VNC Server** checkbox is checked for installation when prompted.
4. Press **Next** through the remaining prompts and choose **Install**.
5. Upon reaching the **Choose Licensing Operation** screen click **Cancel** and **Yes** on the prompt.
   1. The FCA provided license will be applied in the next step. License purchase is **not required**.
6. Click **Finish**.

Required Steps: 2) Register FCA RealVNC® license

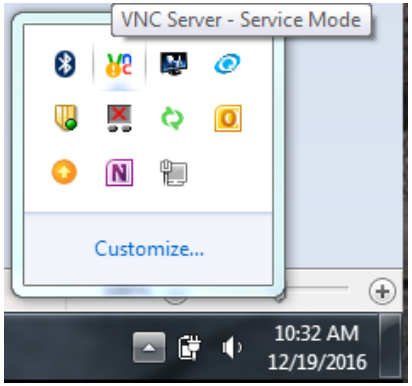
The screen and computer require the FCA provided license to handshake. Any other RealVNC® license, even if actively registered, will not allow the screen to function.

1. Send an e-mail request to LawEnforcement@Chrysler.com to request the RealVNC® license.
    1. If you have already contacted FCA or been provided a desktop Uconnect kit (PTU), it is likely this file was supplied in the initial e-mail to your agency. Look for an attachment titled "*meaa-server-closed-system-production.vnclicense*".
2. The above ".vnclicense" file will be e-mailed in response. **Double click** this file.
3. A prompt stating **License key has been applied** will be shown. Click **OK**.
4. Confirm the license has been applied by **right clicking** the VNC icon in the taskbar, selecting **Information Center…** then **Diagnostics**.
5. Installation is complete when **MEEA-FCA** is shown under **License Keys**.



Required Steps: 3) Configure RealVNC® settings

1. Open **RealVNC® Options** by right clicking the RealVNC® icon in the Windows Taskbar and choosing **Options**. You may be prompted with a request for administrator password or confirmation to proceed.
    1. You may need to unhide icons by selecting the expand arrow to reveal this icon.



2. On the **Security** settings page ensure **Authentication** is set to **None**.
3. On the **Connections** settings page ensure **Allow VNC connections over TCP** is **checked**.
4. On the **Expert** settings page search for **Idle Timeout** and set the value to **0**. Click **Apply** to commit this setting change.

    This setting affects how long the screen will remain active without activity. The default value is 3600 seconds (60 minutes).

Required Steps: 4.1) Open Windows 10/7 firewall ports

Note: This step is for Windows 10/7. Review step 4.2 for Windows XP.

Windows 10/7

1. Open Windows Firewall settings
    1. Windows 10: Click the **Start** button, **Settings Icon**, **Network & Internet**, **Windows Firewall** link.
    2. Windows 7: Click the **Start** button, **Control Panel**, **Network and Internet**, **Network and Sharing Center**, **Windows Firewall**.
2. In the left pane, click **Advanced settings**. You may be prompted with a request for administrator password or confirmation to proceed.
3. Select **Inbound Rules** from the left pane.
4. Click **New Rule...** on the right pane.
5. Choose **Port** as the type of rule and click **Next**.
6. Ensure TCP is checked and in the **Specified local ports:** field enter **5900** and click **Next**.
7. Ensure **Allow the connection** is selected and click **Next**.
8. Ensure **Domain**, **Private**, **and Public** are checked and click **Next**.
9. Provide a friendly name for your reference (e.g. RealVNC Passthrough) and click **Finish**.
10. Within the **Inbound Rules** screen, locate **all** rules named **File and Printer Sharing (Echo Request – ICMPv4-In)**. Ensure all applicable rules (there will be several) are enabled. **Right click** and select **Enable Rule** on any that are not.

Required Steps: 4.2) Open Windows XP firewall ports

Note: This step is for Windows XP. Review step 4.1 for Windows 10/7.

Windows XP

1. Configure Firewall settings for your network adapter by clicking **Start**, **Control Panel**, **Network and Internet Connections**, **Network Connections**.
2. Right click the **Local Area Connection** that will be used for connectivity to the screen and select **Properties**.
3. Click the **Advanced** tab. If the **checkbox** on this page is not selected, no further action is required as the Firewall is not enabled. Otherwise, continue below.
4. Click the **Settings…** button.
5. On the **Services** tab click **Add** to open a new port. In the **Description** field, type a friendly name for your reference. In the **Name or IP address of the computer…** field enter **127.0.0.1** In both remaining fields enter **5900** and select **TCP**. Press **OK**.
6. Click the **ICMP** tab and check **Allow incoming echo request**.
7. Press **OK** until the dialogues opened by this process are closed.

Required Steps: 5) Adjust screen resolution

For proper appearance the screen should be set to a resolution of 1024x768 (un-rotated) or 768x1024 (rotated).

1. **Right click** an empty portion of the **Windows Desktop**. Select **Display Settings** (Windows 10), **Screen Resolution** (Windows 7), or **Properties** (Windows XP).
2. Set Resolution: to 1024x768 (see note below) and click **OK**. Click **OK** again when prompted to **keep display settings**.

Note: The Uconnect 12.1 screen is configured to **auto scale** the resolution output by your computer. While the screen's physical resolution is 1024x768, **other resolutions are possible** and **may provide better presentation of your software**. During initial setup, please test available resolutions. Specifically, positive results have been observed at the following resolutions (if supported by your computer):

- 1024x768
- 1200x1024
- 1280x1024

Required Steps: 6) Adjust screen rotation

The orientation of the Uconnect 12.1 screen is portrait vs. the default landscape orientation of most computers. If the screen is not rotated, a partial view of the desktop will be visible.

Many computers ship with Intel video software which supports a keyboard shortcut for rotation:

1. Press **Ctrl** + **Alt** + **Right Arrow** (→) simultaneously to rotate the screen.

If the above shortcut is not assigned, adjust rotation in Windows 10/7 settings:

1. **Right click** an empty portion of the **Windows Desktop**. Select **Display Settings** (Windows 10) or **Screen Resolution** (Windows 7).
2. Adjust the **Orientation** dropdown to **Portrait**.
3. Click **Apply** and **Keep changes** when prompted.

When using the computer outside of the vehicle, return orientation to landscape by pressing **Ctrl** + **Alt** + **Up Arrow** (↑)simultaneously or reverting steps 1 through 3 above.

Required Steps: 7) Connect the computer to the vehicle

If the in vehicle computer does not have an available Ethernet port there are two options for interfacing to the vehicle Ethernet connector:

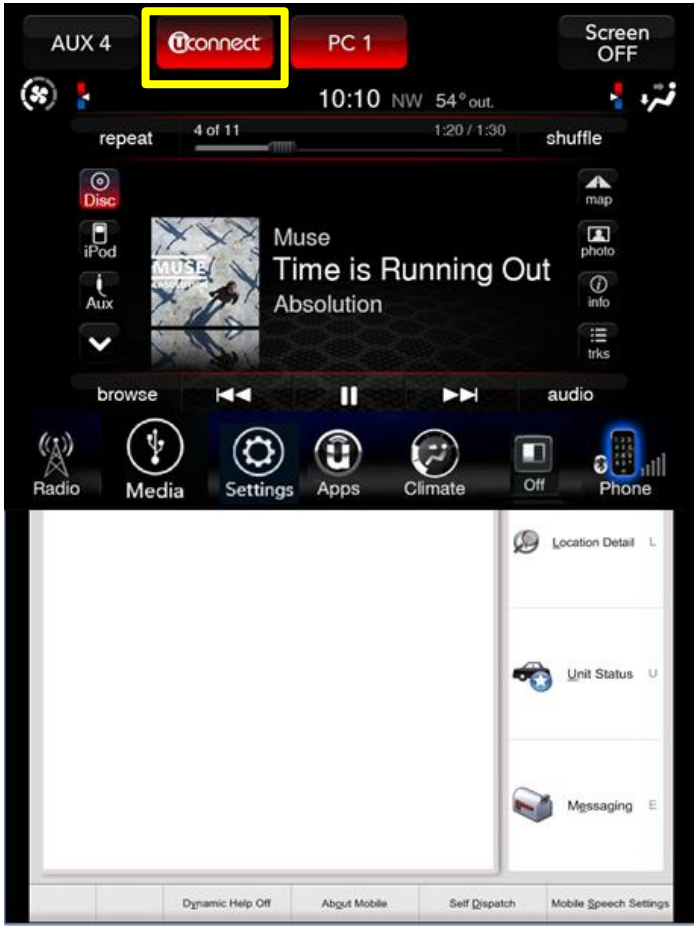
- In the case of some manufacturers, the dock Ethernet port can be simultaneously with the computer's. Check computer specifications or contact your manufacturer.
- Otherwise, a USB 2.0 or USB 3.0 Ethernet adapter may be added. Initial installation of this device may require administrative access.

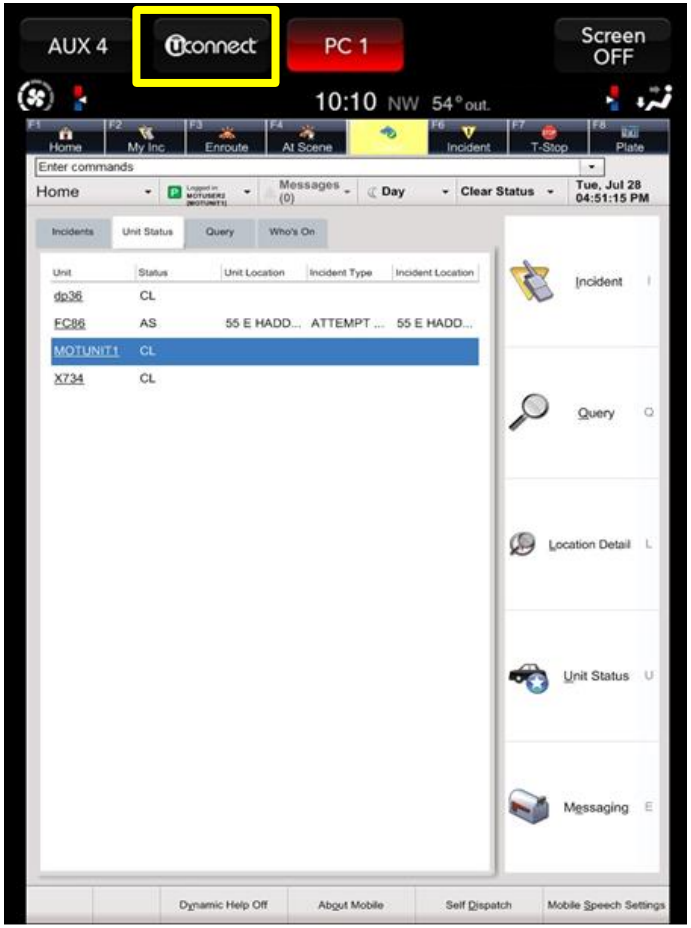
1. Locate the vehicle Ethernet and audio wires in the trunk.
    1. If the vehicle was ordered with the trunk tray the wiring bundle will include these two wires.
    2. Otherwise, the wires are tucked under the trunk lining on the right hand side over the wheel well. They may be found nearly as far up as the rear seat. Remove the cargo area cover for easy access. See below picture for reference.
2. Connect both to the computer. If equipped, the computer's link activity light will illuminate.

Required Steps: 8) Show/hide Uconnect overlay

By default the Uconnect radio overlay consumes the top portion of the screen. Once a computer is successfully connected, the red Uconnect button will allow you to show/hide this overlay.

1. After the computer is connected, select the Uconnect bar to toggle full screen on/off.





Optimization Guide

The following steps are optional but strongly encouraged. Please review to determine applicability within your configuration.

1. User experience optimization
2. Computer power management
3. Single click to open
4. Network power settings
5. Screen capture method

Optimization Tips: 1) User experience optimization

Keyboard/mouse connectivity:

A wireless keyboard and mouse with receiver directly connected to the computer is strongly encouraged. If a wired keyboard and mouse is used, consider running a USB extension from center console to the computer during upfit for best performance.

Screen update delay:

This may reduce computer processing requirements and increase update speed. This affects computer to screen encryption only.

1. Open **RealVNC® Options** (refer to Required Step 3 above for how-to).
2. On the **Security** tab, adjust the **Encryption** dropdown to "**Prefer Off**".
3. Click **OK**.

Windows Performance Settings:

Reducing the animation effects within the Windows environment may improve performance.

1. Open the Advanced system settings dialog:
    1. Windows 10: Right click the **Start button**, select **System, Advanced system settings** link.
    2. Windows 7: Click **Start**, **Control Panel**, **System and Security**, **Advanced system settings** link.
    3. Windows XP: Click **Start**, **Control Panel**, **Performance and Maintenance**, **System**.
2. Select the **Advanced** tab. Under the **Performance** heading click **Settings…**
3. Choose the **Adjust for best performance** radio button.
4. Click **OK** to close out all dialogs and **reboot**.

Optimization Tips: 2) Computer power management

If the computer's power plan is configured to sleep when closing the lid or after a period of inactivity, the screen will lose connectivity.

Windows 10/7

1. Open Windows Power Options:
    1. Windows 10: Click **Start**, **Settings icon**, **System**, **Power & sleep**, **Additional power settings.**
    2. Windows 7: Click **Start**, **Control Panel**, **System and Security**, **Power Options**.
2. On the currently selected power plan, click **Change plan settings**.
3. Under the **Plugged in** column change **Put the computer to sleep:** to **Never** and press **Save changes**.
4. In the left pane select **Choose what closing the lid does**. Under the **Plugged in** column change **When I close the lid:** to **Do nothing**.
5. Click **Save changes**.

Windows XP

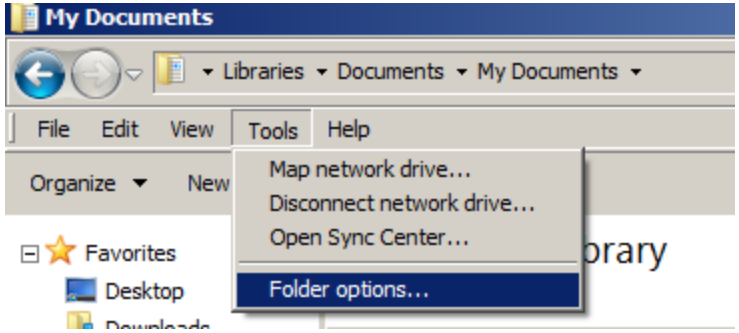
1. Click **Start**, **Control Panel**, **Performance and Maintenance**, **Power Options**.
2. On the currently selected **Power scheme** under the **Plugged in** column change the **System Standby:** to **Never**.
3. Click the **Advanced** tab. Change the **When I close the lid of my portable computer:** field to **Do nothing**.
4. Click **OK**.

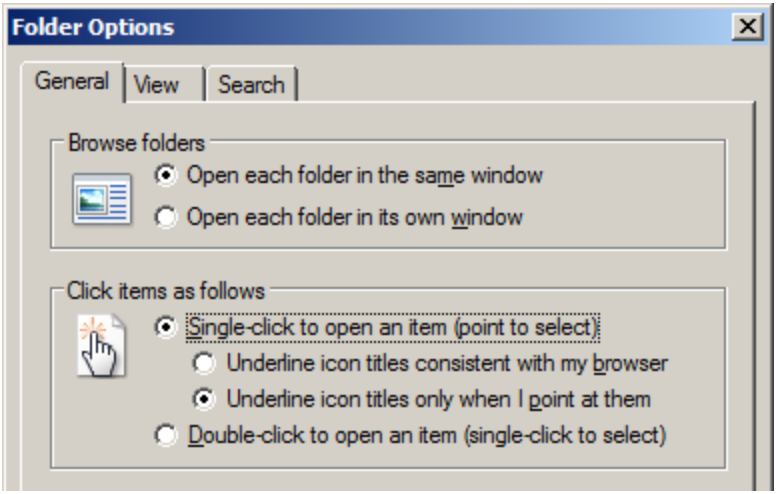
Optimization Tips: 3) Single click to open

This setting improves interaction with the Windows Desktop in touch only mode by replacing double clicks with single clicks. If you intend to primarily use a mouse for interaction this setting is optional.

1. Open any Windows folder. For example press **Start**, **Documents**.
2. Open the **Folder Options** dialog:
    1. Windows 10: Select **File**, **Change folder and search options**.
    2. Windows 7/XP: Click the **Tools** drop down. If this toolbar is not visible under Windows 7, press **Alt** + **T** simultaneously to show this toolbar. Select **Folder Options…**
3. On the **General** tab change the **Click items as follows** selection to **Single-click to open an item (point to select)**.
4. Click **OK** to save settings.

When using the touchscreen, one click will act as a double click on all Windows icons.

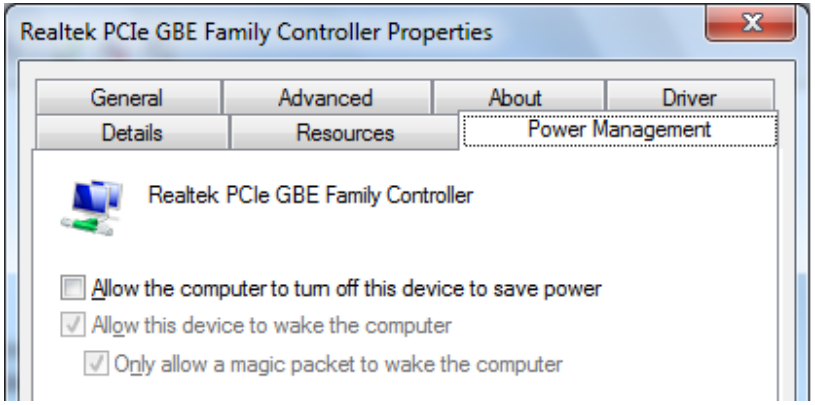


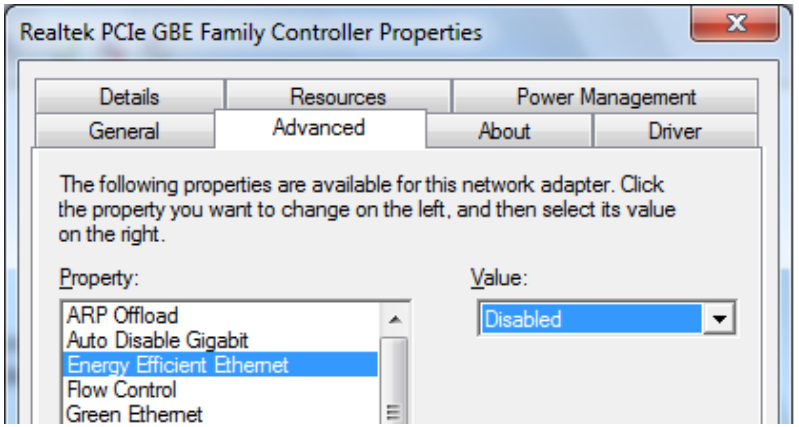


Optimization Tips: 4) Network power settings

Some computers are equipped with network adapters that have power saving options. These may interfere with connectivity to the screen and are observed as random dropped connections. These settings may require administrative access to change.

1. Open Device Manager :
    1. Windows 10: Right click **Start**, select **Device Manager**.
    2. Windows 7: Click **Start**, right click **Computer,** click **Properties**, select the **Device Manager** link.
    3. Windows XP: Click **Start**, right click **My Computer,** select **Properties**, change to the **Hardware** tab and select **Device Manager**.
2. Expand **Network Adapters**.
3. **Right click** the applicable adapter (i.e. Realtek PCIe GBE Family Controller or the USB device you added). Select **Properties**.
4. If available, select the **Power Management** tab. Uncheck **Allow the computer to turn off this device to save power**.
5. If available, select the **Advanced** tab. **Disable** options related to power such as **Green Ethernet**, **Energy Efficient Ethernet**, and any related options.



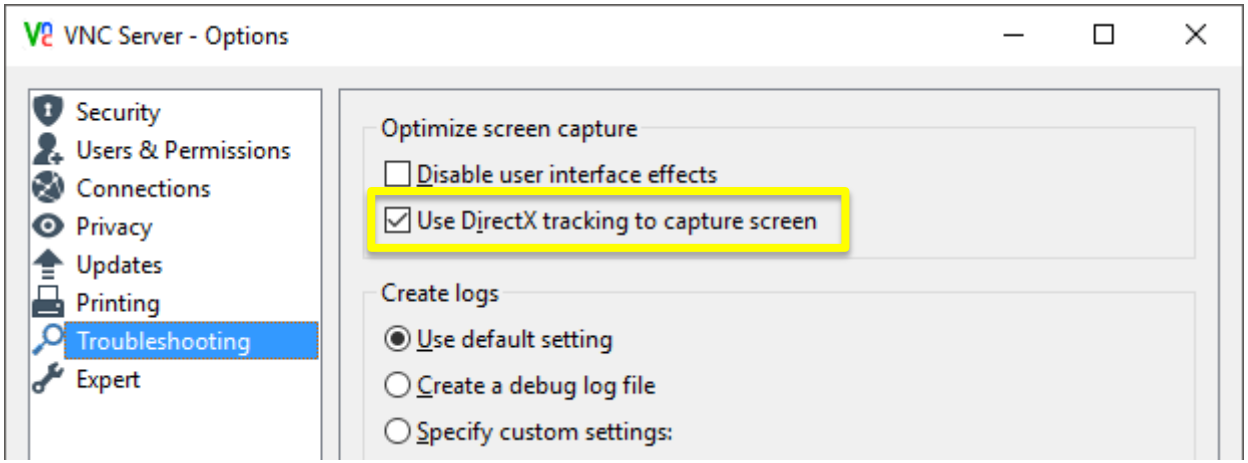


Optimization Tips: 5) Screen capture method

RealVNC® provides several methods for capturing the computer's screen to send to the Uconnect 12.1 system. Performance and functionality may be improved by adjusting the following settings:

1. Open **RealVNC® Options** (refer to Required Step 3 above for how-to).
2. On the **Troubleshooting** tab, under the **Optimize screen capture** heading adjust **Use DirectX tracking to capture screen.**
3. Click **OK** and **reboot**.

Impacts of this setting depend on hardware/software used. Evaluate in-vehicle performance with this both on and off.



Troubleshooting Articles

The majority of issues related to interfacing with the Uconnect 12.1 system are in successfully establishing a RealVNC® connection. For successful connection the following are required:

- Successful “ping” response from the computer
- Open port 5900 to establish a connection to RealVNC® Server

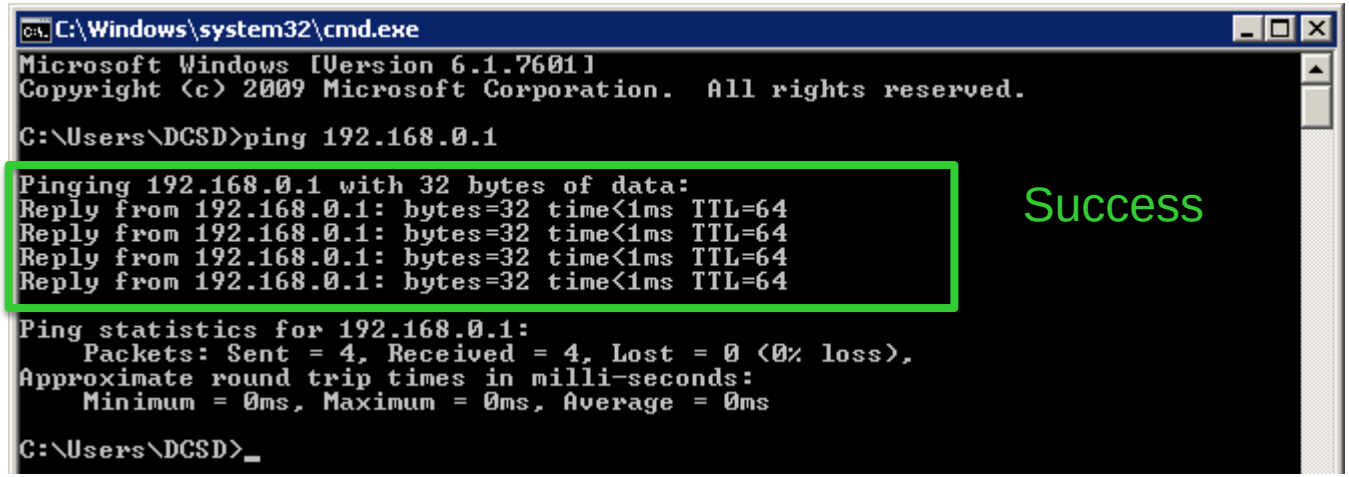
Any software which might block this communication such as firewalls, VPN tools, etc. should be reviewed.

1. Test communication
2. IP Addressing
3. Selected port
4. Software conflicts
5. Screen drops on VPN connection
6. Screen will not rotate

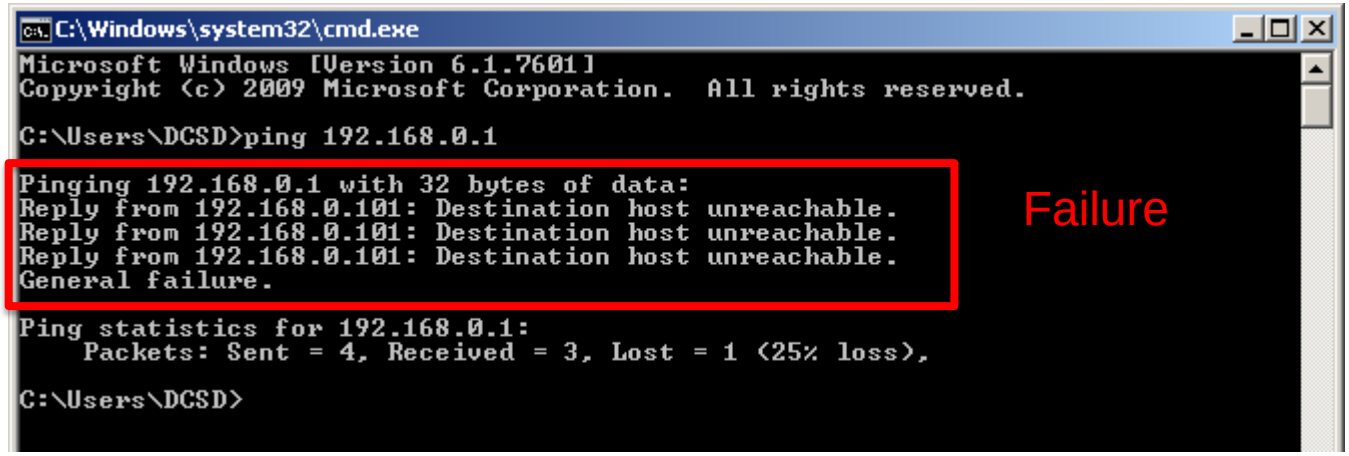
Troubleshooting: 1) Test communication

Validate the computer and screen can communicate at a basic level:

1. Click **Start**, **Run**, enter **CMD** and press **OK**.
2. At the prompt, type **ping 192.168.0.1** and press **Enter**.



If the screen is not responding to pings check physical connectivity.

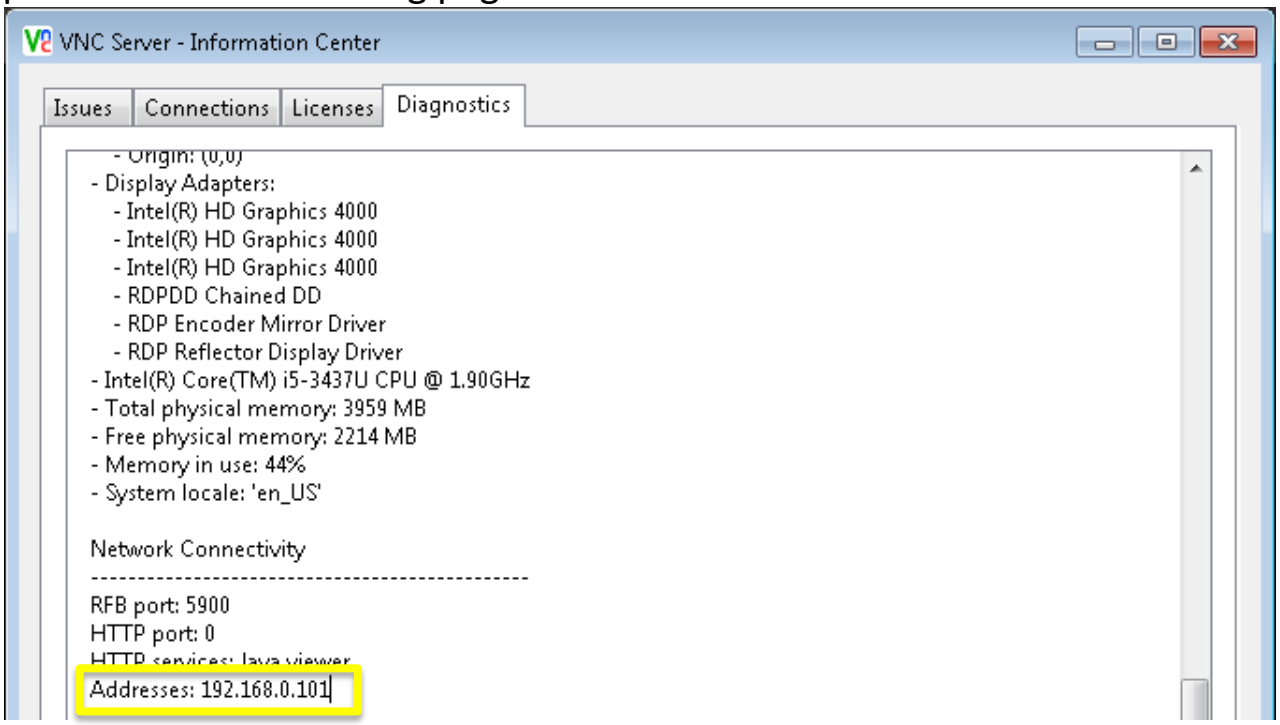


Troubleshooting: 2) IP Addressing

Validate the screen is able to assign an IP Address to the computer while connected to the vehicle:

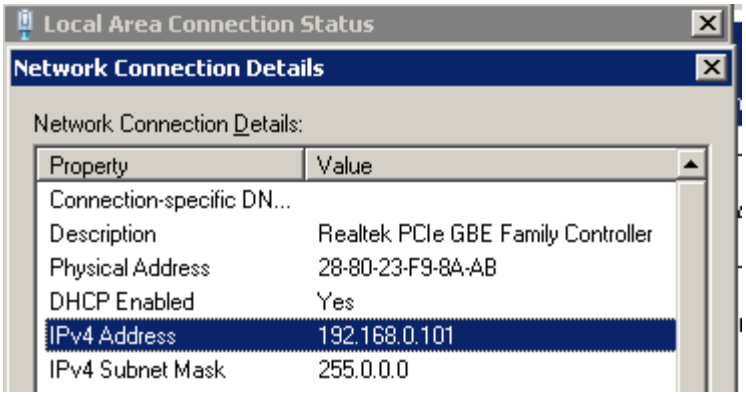
1. Right click the RealVNC® icon in the taskbar and select **Information Center…**
2. Select the **Diagnostics** tab.
3. Scroll down to the **Network Connectivity** heading. Under **Addresses:** 192.168.0.100 or 192.168.0.101 should be present *while connected to the vehicle*.

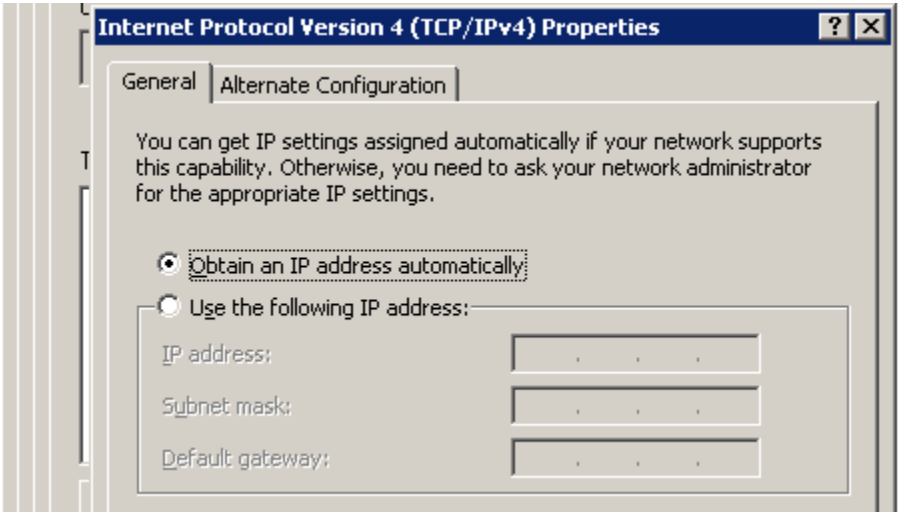
If not, proceed to the following page.



Troubleshooting: 2) IP Addressing

1. Open network adapter settings.
    1. Windows 10: Click **Start**, **Change adapter options.**
    2. Windows 7: Click **Start**, **Control Panel**, **Network and Internet**, **Network and Sharing Center**, **Change adapter settings**.
    3. Windows XP: Click **Start**, **Control Panel**, **Network and Internet Connections**, **Network Connections**.
2. Double click the **Local Area Connection** that will be used for connection to the screen. Select **Properties** (10/7) or **General** then **Properties** (XP).
3. Double click **Internet Protocol Version 4 (TCP/IPv4)** (10/7) or **Internet Protocol (TCP/IP)** (XP).
4. Ensure **Obtain an IP address automatically** is selected.
5. Select **OK**, **reboot**, and re-perform steps on the previous page.

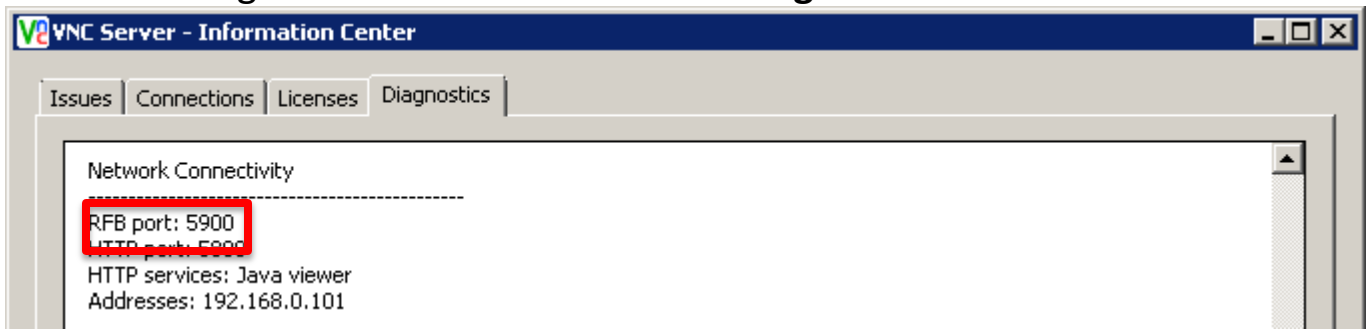




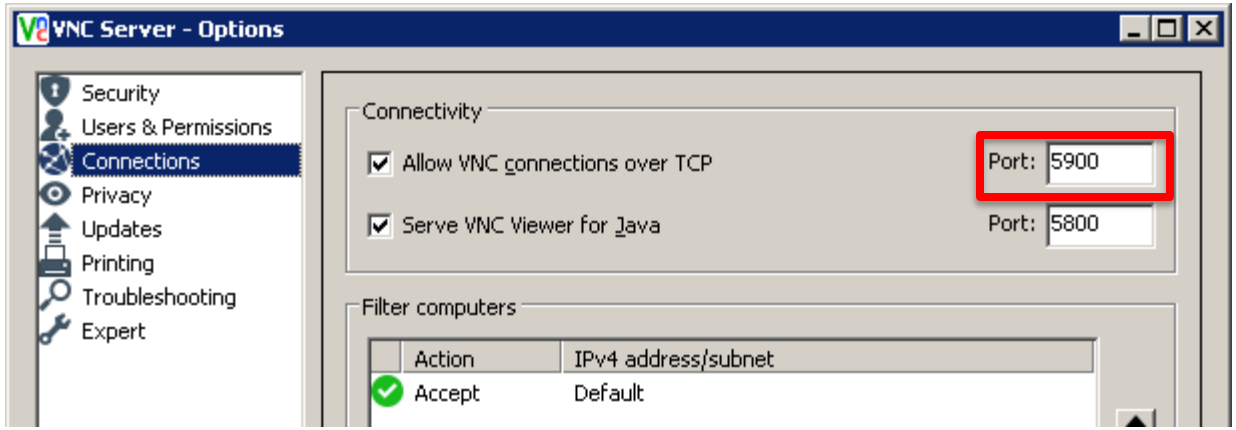
Troubleshooting: 3) Selected port

Ensure VNC is listening on the proper port:

1. Ensure RealVNC® is listening on port **5900** by **right clicking** the VNC icon in the taskbar, selecting **Information Center…** then **Diagnostics**.



2. If it is not, identify if another copy of VNC was previously installed, remove it, and adjust the port in RealVNC® **Options** under **Connections**.



Troubleshooting: 4) Software conflicts

Isolate any additional security settings which may be blocking communication. Rebooting after performing these change is recommended.

1. Temporarily disable security solutions which contain a Firewall
   - AVG Internet Security
   - Symantec Endpoint Protection
   - ZoneAlarm, etc…

If disabling these components allows successful connection, consult with the software documentation to allow TCP port 5900 prior to re-enabling.

2. Temporarily disable VPN software
   - Cisco AnyConnect
   - Citrix NetScaler
   - Juniper Network Connect
   - NetMotion
   - SonicWall, etc…

Many VPN solutions have a default option to block local networks. This is to prevent "piggybacking" of devices onto a corporate / agency VPN such as in a home office environment. Since the Pursuit 12.1 screen is an isolated network (no modem or other connectivity) it is safe to allow local networks. See the next section for configuration examples.

Troubleshooting: 5) Screen drops on VPN connection

Many VPN solutions have a default option to block local networks. This is to prevent "piggybacking" of devices onto a corporate / agency VPN such as in a home office environment. Since the Pursuit 12.1 screen is an isolated network (no modem or other connectivity) it is safe to allow local networks.

Cisco AnyConnect: http://www.cisco.com/c/en/us/support/docs/security/asa-5500-x-series-next-generation-firewalls/70847-local-lan-pix-asa.html#anc10

Citrix NetScaler: https://docs.citrix.com/en-us/netscaler-gateway/10-5/ng-connect-users-wrapper-con/ng-plugin-config-connection-wrapper-con/ng-plugin-split-tunneling-tsk.html

Juniper Network Connect:
http://www.juniper.net/techpubs/software/ive/guides/howtos/How_To_NC_Config.pdf

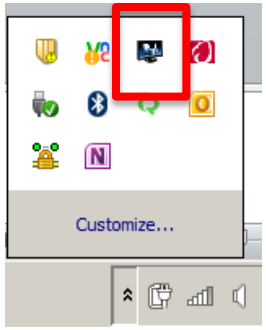
NetMotion:

http://discover.netmotionwireless.com/rs/netmotionwireless/images/NetMotion-Wireless_Policy-Management_PS.pdf

Troubleshooting: 6) Screen will not rotate

If the Ctrl + Alt + Up shortcuts referenced in the setup directions do not function it may be the case that your computer does not support this functionality or that it is running a driver which does not support the option.

If running an Intel video solution, check the Intel site for an updated driver. In some cases, manufacturer provided drivers have rotation excluded. Alternatively, these shortcuts may be disabled. Validate by performing the following:



1. Right click the **Intel(R) HD Graphics** icon in the system tray.
2. Select Graphics **Properties…**, **Advanced Mode**, **OK**.
3. Select **General Settings** under the **Display** heading.
4. If **Rotation** is not present as an option, search for an updated driver.
5. Otherwise, choose **Options and Support**, **Hot Key Manager**. Here you can define the Ctrl + Alt + Up shortcuts for users of this computer.

While this shortcut is not available on every computer, the instructions for using the built in rotation on Windows 10/7 are still available. Refer to Required Step 6 for reference.

Contact Us

Direct configuration questions to the following:

Team Inbox

LawEnforcement@Chrysler.com

Document Contributor / 12.1” Uconnect Support

Ryan.K.Austin@FCAGroup.com