

Streamcorder Application Note 3

Subject: Wired Peer-to-Peer Connections from Streamcorder to Computer



This application note applies to the GY-DV300, GY-DV5000 and BR-DV6000 Streamcorders equipped with optional network packs KA-DV300/350, KA-DV5000 or SA-DV6000

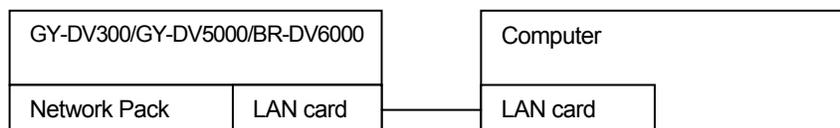
Objective

Successfully connecting your Streamcorder to a computer using wired LAN cards involves installation and configuration of a KA-DV300/350, KA-DV5000, or SA-DV6000 Network Pack and LAN card, and (installing and) configuring your computers' network interface.

This Application Note describes connecting a single Streamcorder wired directly to a single computer in a peer-to-peer manner, with no switch or hub present. Other connection strategies are described in other Application notes.

System Components

There are five components, or 'blocks' required when connecting the camera to a computer as shown here.

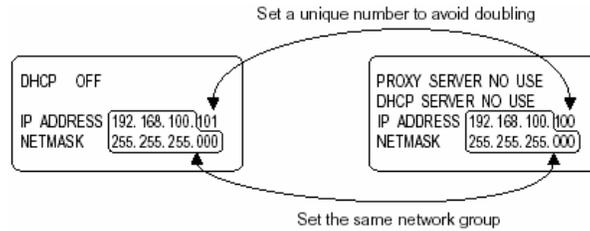


Other than the obvious components, i.e., a computer and a Streamcorder, you need a Network Pack with a network interface (LAN) card (built-in to the SA-DV6000), and another LAN card for the computer (this may be built into the computer as well). In addition, **you will need a 'crossover' network cable to connect the Network Pack to the computer.**

Socket Communications (www.socketcom.com) model EA2900-117 is the only wired LAN card currently approved for use in the KA-DV300, KA-DV350 or KA-DV5000. This is a Compact Flash (CF) sized card, so a CF to PCMCIA adapter is also required. Other cards will be added to the list of accepted cards as the required drivers become available. The SA-DV6000 has a built-in LAN interface.

Any compatible LAN card can be used in the computer.

Peer-to-Peer Network Basics



Unless the computer is a server providing IP addresses to all connected devices, IP addresses and Netmask settings must be configured manually.

In peer-to-peer networks, both devices **MUST** have unique IP addresses in the same network group. The network group is defined by the first three numbers of the four number IP address. Connecting camera to computer, only the fourth group of number must be different. In the example above, the network group is 192.168.100. The camera's IP address 192.168.100.101 and the IP address of the computer is 192.168.100.100, unique numbers in the same network group.

Although IP addresses of all devices on a network must be unique, the Netmask must be the same. In the example above, both devices use 255.255.255.0 as a Netmask.

What You Need

- GY-DV300 camera with a KA-DV300 or KA-DV350 Network Pack, a GY-DV5000 camera with a KA-DV5000 Network Pack, or a BR-DV6000 VTR with an SA-DV6000 Network Pack.
- A Socket Communications EA2900-117 Low Power Ethernet Card for either of the cameras. The SA-DV6000 Network Pack has an integral Ethernet port, and no additional card is needed.
- A CF to PCMCIA adapter for use with either the KA-DV300/350 or KA-DV5000.
- A computer with a wired LAN card.
- A crossover CAT-5 cable.

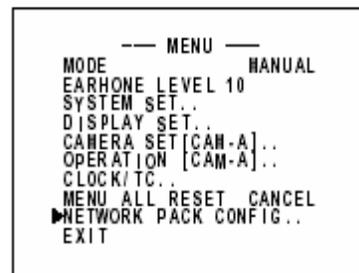
Configuring the KA-DV300, KA-DV350, KA-DV5000 or SA-DV6000 Network Pack

Before you can use your camera or VTR with a wired LAN interface, you must configure it properly. You only need to configure the network pack when using it for the first time or when connecting to a different computer.

The menus illustrated in the following discussion are from a KA-DV300 revision 1.04. The SA-DV6000, KA-DV5000 and other revisions of the KA-DV300/350 may have different menu structures; however, the parameters involved in setup are the same. Please consult your owners' manual for more information.

To configure the network pack and LAN card:

1. Turn the camera/VTR power ON and wait for the Network Pack initialization sequence to finish. With the KA-DV5000, you must also turn the network pack power ON as well. You will know when the sequence finished when the icon, shown to the right, appears in the viewfinder.
2. From the camera, press and hold the MENU button until the main menu appears. With the BR-DV6000, you just press the menu button; there is no need to hold the button down. Please refer to your User's Guide for instructions on menu navigation if necessary.



3. From the top menu, shown here for the GY-DV300, select 'NETWORK PACK CONFIGURATION'. From the NETWORK PACK CONFIG window (not shown here), select 'NETWORK SET'.
4. From the first of the NETWORK SET windows, shown, following parameters are set:

- HOST NAME – This is an arbitrary name, up to 64 characters, that will be used by the host computer for saving files.
- DHCP – When set to 'ON', this allows a host device or IP service provider to dynamically assign an IP address. For direct connections as outlined here, this must be set to 'OFF'
- IP ADDRESS – Since Dynamic IP addressing is turned OFF, a specific address must be assigned. Since, in this application, there is no direct connection to the outside world and thus there can be no conflicts, any address following the standard addressing format can be used. The factory default is 192.168.100.101.

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--- NETWORK SET[1 / 2] ---
▶HOST NAME..
DHCP                OFF
IP ADDRESS..
NETMASK..
GATEWAY..
NEXT PAGE
PAGE BACK

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- NETMASK – The netmask is used to establish how many simultaneous users can connect to the network. The factory default is 255.255.255.0, and this is acceptable for this application.
- GATEWAY – This setting is not applicable for this configuration, and does not have to be changed.

Parameter	Factory Default
Host Name	'none'
DHCP	OFF
IP Address	192.168.100.101
Netmask	255.255.255.0
Gateway	192.168.100.254

5. Under normal circumstances, no other network parameters need to be changed from the factory default settings. Please refer to your Owners' Manual if any of the following parameters need to be changed:

- RTSP port– (This item may be shown as 'RTSP for WMP' or 'RTSP for Streamproducer' and 'RTSP for QuickTime'). This sets the port for Real Time Streaming Protocol, used to distribute real-time audio and video on a UDP TCP/IP network, such as the Internet.
- HTTP port– (This item may be shown as 'HTTP for Web Browser'). The port used for the standardized protocol used for the exchange of data over the World Wide Web. The setup port is used to Web Browser and Streamproducer connections. With the direct connection discussed here, the factory default port 80 can be used.
- HTTP for Media Player – This is the port that is used to connect to the camera using Windows Media Player. With the direct connection discussed here, the factory default port 8080 can be used.
- USER NAME – This allows you to set a unique user name of the camera. The user name provides security and is required for connecting to the camera through the built-in Web server.
- PASS WORD – This allows you to set a unique password for the camera. The password provides security and is required for connecting to the camera through the built-in Web server.

NOTE: After the password is set, it is hidden from view on the display. If you change the password from the factory setting, you should keep a record of the current password. If you forget the password, you must enter a new one or perform a complete menu reset to restore the factory default password.

6. Press the 'MENU' button to exit the configuration menu.

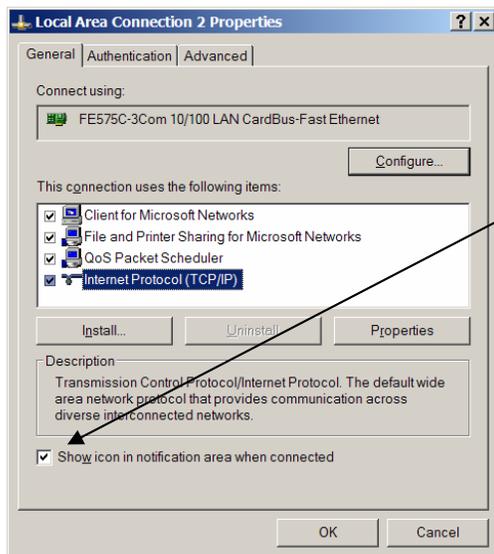
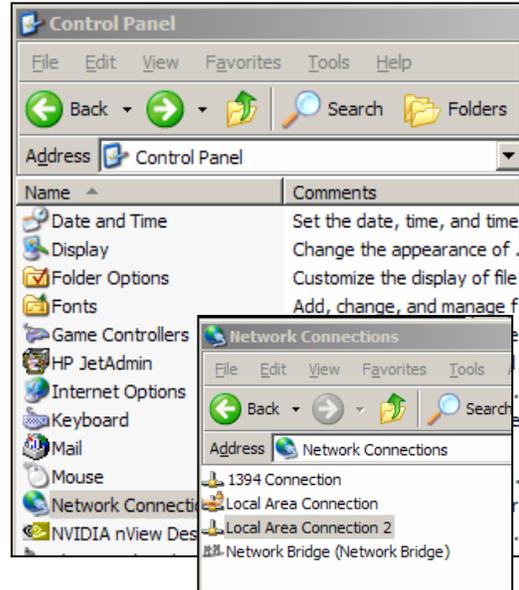
This completes the configuration of the Network Pack and network interface card. The next step is to configure the NIC in the computer.

Configuring the PC's LAN connection:

To connect to the Streamcorder, it is necessary to have a LAN card in the computer (many computers have this built-in). The installation of the LAN card and any associated drivers required in the PC is covered by each specific LAN card manufacturer, and as such, is beyond the scope of this Application Note. Please refer to the documentation supplied with your computer and/or network interface

The exact LAN card configuration procedures depend on the PCs operating system. The examples shown here are for Windows XP Professional and may not correspond exactly to your system. MAC users configure the network interface from the 'Preferences' pane.

1. From the Windows Task Bar, click 'Start' then 'Control Panel (Windows XP) or 'Start', 'Settings', 'Control Panel' (Windows 2000).
2. From the Control Panel, select 'Network Connections' and then select the LAN connection that will be connecting to the Streamcorder (shown at right). This example shows I have two NICs in my computer.
3. From the Status window that opens when the connection is selected (not shown here), click on 'Properties'.
4. From the Connection Properties window shown below, double click on 'Internet Protocol (TCP/IP)'.



IP

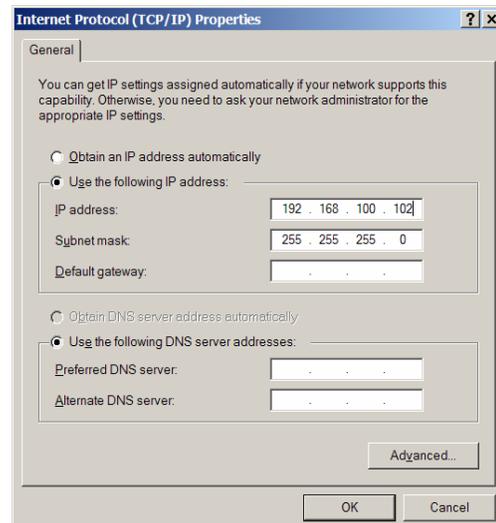
NOTE: you must select a unique IP address using the same Network Group (using the first three sets of numbers) as the cameras NIC. In this example, the IP address is 192.168.100.102 as shown here below.

6. Use the same Subnet mask as the camera, in our case, 255.255.255.0.
7. Click 'OK' on all LAN configuration and property windows to save these settings.

Please note: We recommend that the 'Show icon in notification area...' option be selected as shown here. This places a network condition icon in the Windows notification area as shown here, enabling you to tell the status at a glance.

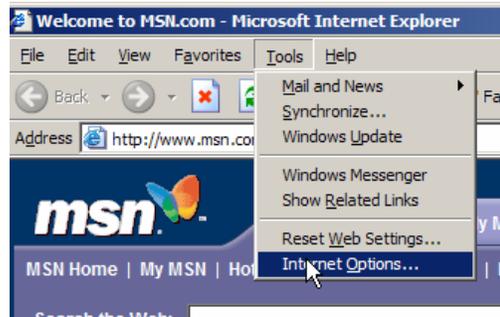
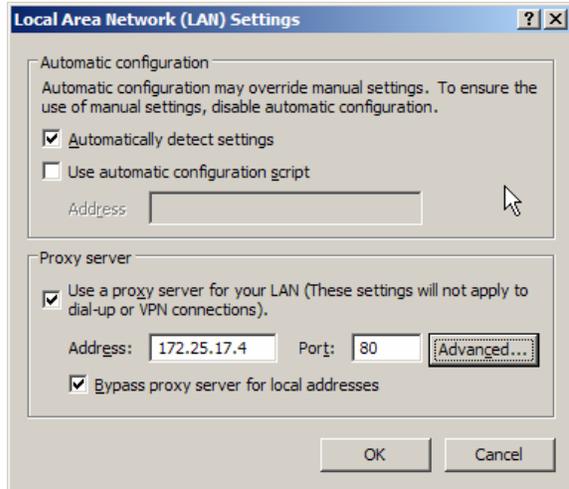


5. From the 'Internet Protocol (TCP/IP) Properties' window (shown below), select 'Use the following address' and enter an IP address.

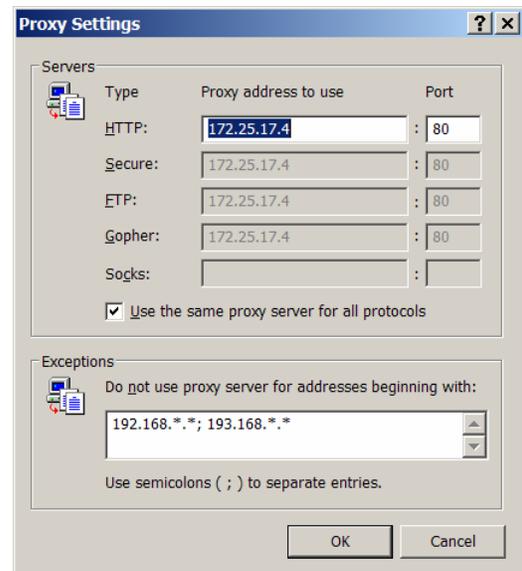


You need to perform the following steps only if you have more than one NIC in your computer and are connected to an Intranet or Internet via a proxy server through the other NIC.

8. Open Internet Explorer and from the Toolbar, select 'Tools', 'Internet Options' as shown here. From the Internet Options window that opens (not shown here) click the 'Connections' tab. Near the bottom of the Connections window, click 'LAN Settings'. This opens the window shown below.



9. If your LAN connection is functioning properly, the current settings in this window should not be changed. Click on the 'Advanced' button to open the Proxy Settings window shown below.



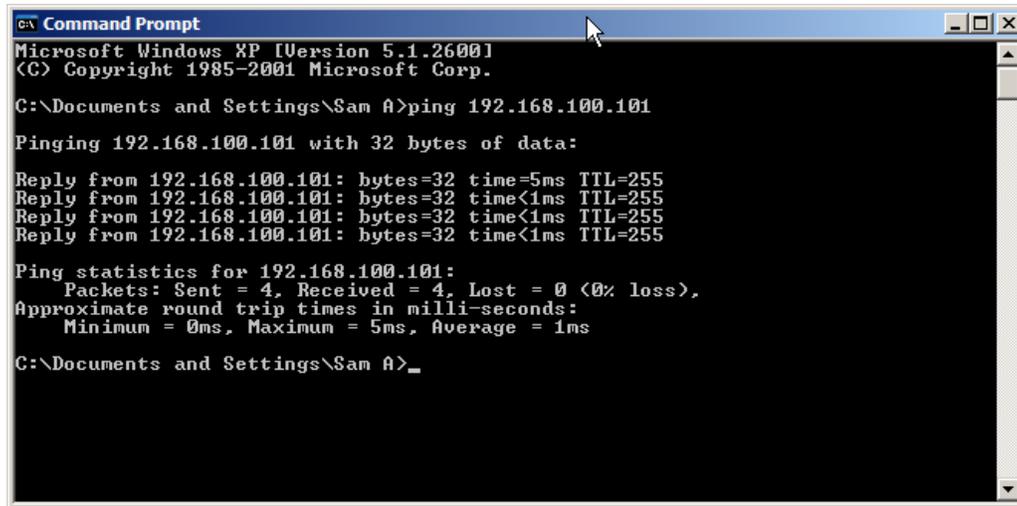
10. When two NICs are used and one is used for communicating with the outside world, your computer must be told not to go out to the Intra/Internet for the Streamcorder, addresses beginning with 192.168 (or whatever you changed the camera to if you are not using the factory default IP address). In the 'Exceptions' window, enter the camera's address as 192.168.*.*, as shown here. This tells the computer that any address beginning with 192.168 should be treated as a locally connected machine and should not go through the Internet.
11. Click 'OK' on all open settings windows to save changes.

This completes connecting the configuration of the network interfaces that allow a direct connection between a Streamcorder and a computer. **For direct camera-to-computer connections, a 'crossover' network cable must be used.** These cables are available in various lengths at most computer supply stores.

You should now test the connection by 'Pinging' the Streamcorder from your computer

1. Make sure the camera/VTR and network pack power is ON.
2. From your Windows desktop, click 'Start', 'Programs', 'Accessories', 'Command Prompt' to open a DOS command prompt window.

3. Type the command 'ping address', where address is the IP address of the KA-DV300, KA-DV350, KA-DV5000, or SA-DV6000 Network Interface.



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Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Sam A>ping 192.168.100.101

Pinging 192.168.100.101 with 32 bytes of data:

Reply from 192.168.100.101: bytes=32 time=5ms TTL=255
Reply from 192.168.100.101: bytes=32 time<1ms TTL=255
Reply from 192.168.100.101: bytes=32 time<1ms TTL=255
Reply from 192.168.100.101: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.100.101:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 5ms, Average = 1ms

C:\Documents and Settings\Sam A>_
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If everything is connected and configured correctly, you should get a response similar to that shown above. You are now ready to shoot and stream!

JVC wants you to get the most from your Streamcorder. If you have any comments, concerns or questions, please feel free to contact us at netinfo@jvc.com.