# NewTek NDI™ Problem Solving

## INTRODUCTION

Like any network-based system, successful implementation of NDI depends on at least two machines or devices being able to connect and communicate with each other. Of course, there are any number of conditions that could impact its success in a given environment. This document will help explain the most common issues in order to help you diagnose and correct them to get the full benefit of using NDI.

## OVERVIEW

Basically, NDI networking consists of just two operations:

1.   Detecting NDI sources on the network using mDNS, which uses port 5353.

2.   Utilizing available network ports for a messaging server on the sending device and the number of NDI video streams it requires. The NDI messaging server uses port 5960. Subsequent ports required by the sending device to accommodate the total number of NDI video streams it supports are assigned in ascending order. Ports must be open through the entire path between network subnets.
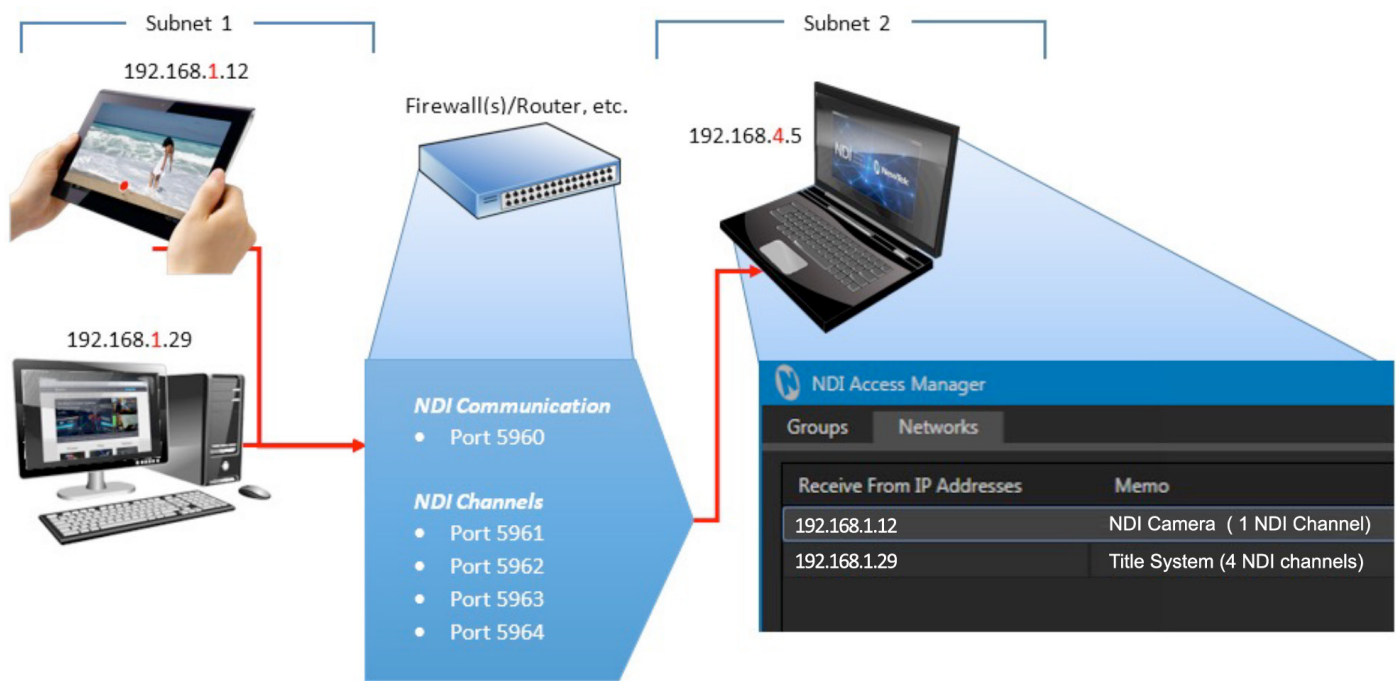


**Figure 1. Sample Networking Scenario.** The total number of NDI channels matters. You must ensure that, starting from port 5960, enough network ports are available to accommodate the maximum number of NDI video streams supplied by any one NDI source – plus an additional port for the NDI messaging server. For example, adding an IP Address for a system supplying one NDI video stream to the Receive from IP Addresses list means ports 5960 and 5961 must be available. A second system serving eight NDI video streams would need ports 5960 – 5968 to be free, etc.

## RESOLVING ISSUES

Obviously, your local network router or switch must permit communication using the ports assigned to NDI.  Although most common networks do not block the mDNS port, it is not uncommon for networks to be configured to block high port numbers. This would prevent NDI from transmitting video.

Similarly, a software-based firewall on the system itself might block the ports used by NDI. It is best to first test with firewalls turned off, then add the relevant firewall rules as needed.

Note, too, that WiFi routers often block multicast traffic or transfer over certain port ranges between wired and wireless networks.

If you cannot see other NDI sources on the network, the three most common causes are:

1.     The mDNS ports are blocked on the sender, receiver or network.

2.     The NDI sources are not on the same subnet. NDI-enabled devices must be on the same subnet to automatically discover each other.

3.     The NDI sources are not in the NDI groups you are monitoring. The easiest way to check this is to use NDI Access Manager (included in the free NDI Tools download available at www.newtek.com/ndi) and remove all of the listed Output and Receive groups for the NDI sources in question.

If you can see other NDI sources on the network but video is not being transmitted, the most common cause is that the port numbers required for video transmission are blocked by local firewalls, or by the network hub itself.

To debug failed connections, proceed as follows:

1.     Run reliable NDI sending and receiving applications, such as NDI Test Patterns and NDI Video Monitor (also included in the free NDI Tools download), on the same machine. This approach bypasses the local network infrastructure. If they fail to connect, then the problem is either your NDI group configuration or software-based local firewalls.

2.     Connect two computers together using a network crossover cable. If NDI connections succeed in this configuration, but fail when attached to the network, the network infrastructure is the most likely cause of the problem.

## APPLICATIONS

NDI compatibility with NewTek products and select third-party applications is as follows:

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| **NewTek iVGA™ PRO** | Not supported. It has been replaced by NDI Scan Converter, which is included in the free NDI Tools download available at www.newtek.com/ndi. |
| **NewTek LiveText™** | LiveText 3.0 offers native support for NDI, and is available as a free download to registered owners of the software at www.newtek.com/downloads. |
| **NewTek TriCaster® 8000, 860, 460, 410, & Mini** | TriCaster version 2-5 (standard edition) offers native support for NDI on both Network inputs and the Network output. The current update is available as a free download to registered owners of TriCaster at www.newtek.com/downloads. |
| **NewTek TriCaster Advanced Edition (TriCaster 8000, 860, 460, 410, & Mini)** | TriCaster Advanced Edition version 4-0 offers a complete, end-to-end, IP-based workflow with native support for NDI on all inputs and outputs. The current update is available for free download to registered owners of the software at www.newtek.com/downloads.<br><br>TriCaster Advanced Edition version 3-2 offers native support for NDI on both Network inputs and the Network output. The current update is available for free download to registered owners of the software at www.newtek.com/downloads. |
| **Other TriCaster models** | Not currently supported. |
| **NewTek TalkShow®** | Current versions of TalkShow offer native support for NDI on input and output. Recent updates are available for free download to registered owners of TalkShow at www.newtek.com/downloads. |

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| NewTek 3Play®<br>(3Play 4800, 440, Mini, & 425) | 3Play version 3-1 (160408 and later) for 3Play 4800 and 3Play 440 offers native support for NDI on both Network inputs and Network outputs.<br><br>3Play version 4-0 (160408 and later) for 3Play Mini offers native support for NDI on both Network inputs and Network outputs.<br><br>3Play version 1-5b (160407 and later) for 3Play 425 offers native support for NDI on both Network outputs.<br><br>These respective updates are available for free download to registered owners of 3Play at www.newtek.com/downloads. |
| Other 3Play models | Not currently supported. |
| Applications created prior to March 2016 by 3rd party vendors that support AirSend™ networking with NewTek products | NewTek AirSend Updater enables NDI on any 3rd party system, device, or application that uses AirSend to deliver video or graphics over IP to NewTek products. It is available for free download at www.newtek.com/ndi/applications. |

## KNOWN ISSUES

### *NDI Scan Converter Displays Black or Incorrect Video for Some Applications*

When a system has two discrete graphics cards (ex. NVIDIA® and Intel®), Windows® is not able to capture the contents for some specific applications correctly (ex. Google Chrome™). Disabling one of the GPUs will resolve this issue.

If Aero or Desktop Window Manager (DWM) is disabled in Windows, it is not possible to capture all contents of an application when other applications obscure them. The relevant area of the desktop will be captured in that case.