



## ShowMaster Networking

---

### Overview

- Networking is done through the operating system's 'file-sharing' mechanism.
- The master computer loads the packaged show and then must share it using the *Networking->Share with Others->Share Current Show on the Network* option.
- The slaves do not load the packaged show: they don't need to. Instead, they join the shared show. Once they do this, they will receive a copy of all the required files over the network.
- When slaves are online, they send all their changes directly to the Master via the shared files.
- When slaves are offline, they store all their changes and data locally; when resynchronized manually (using the refresh button) the slaves send their info to the Master.
- At the end of the show the Master *should* have a copy of everything, but you should still create an archive of each station before heading home.

**You should get networking setup before going to the show.** The show floor is the wrong time to start the process of getting familiar with networking; it will likely require information and passwords you may not have access to when out of the office. Once setup, networking works well, but setup requires configuring a number of things that you may not have experience with.

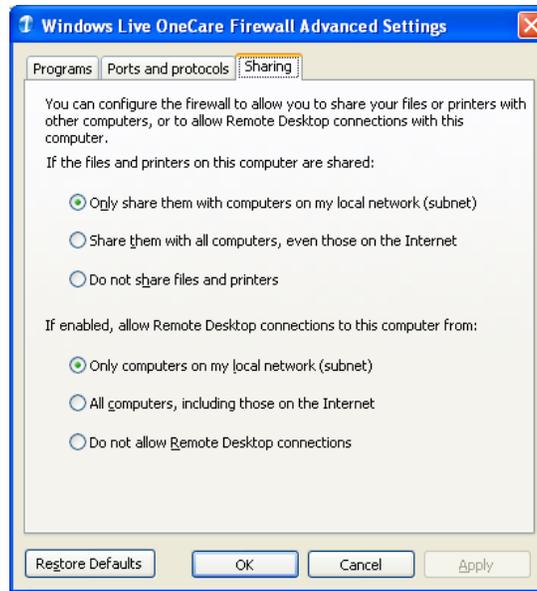
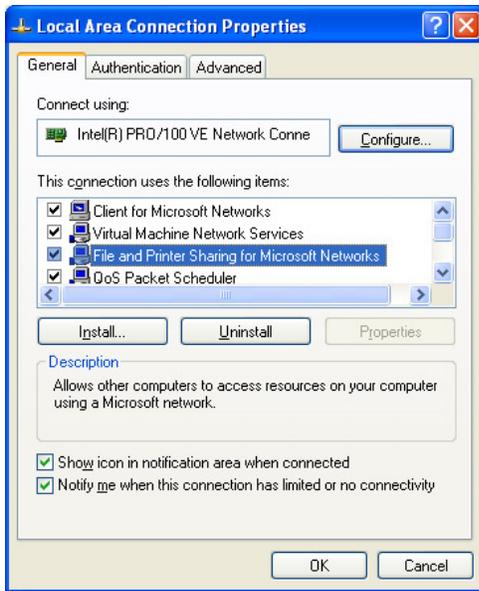
### Setting Up

To use networking, you will need to:

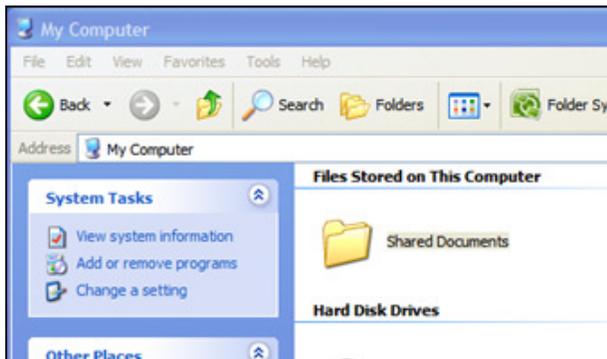
- Have a working network, either hardwire or Wi-Fi.
- Have all computers set to the same workgroup (this may not be a requirement under Vista, but is under XP).
- Enable file sharing.
- Share a file manually on the Master.
- Configure your firewall to allow packets to be sent and received.

The trickiest part (at least nowadays) is to setup file sharing. While this used to be straightforward, increasing security requirements in Windows have made this more cumbersome.

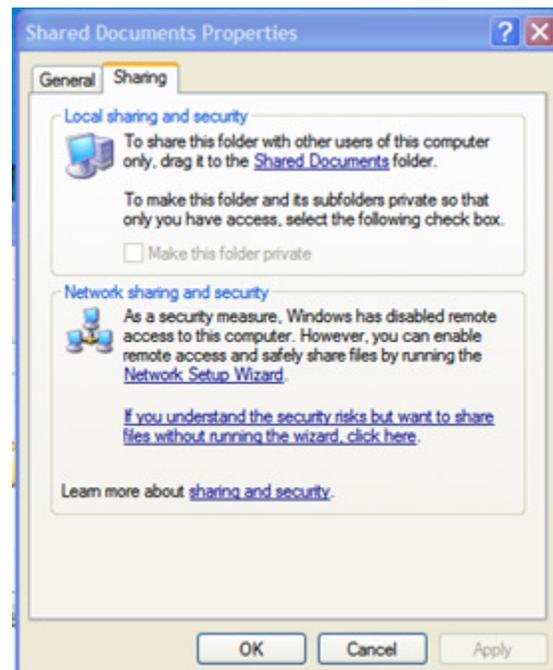
To enable file sharing, you must ensure that it is available at the OS level from the network properties. This however is not sufficient. You will also need to configure any firewall program (such as MS One-care) to allow file sharing as well:



And you will need to share a file or folder as read-write ('allow others to change my files') on the Master in order to disable password requirements. You can do this by right-clicking the shared documents folder and selecting to share it. The icon will then show a hand underneath the usual folder icon.



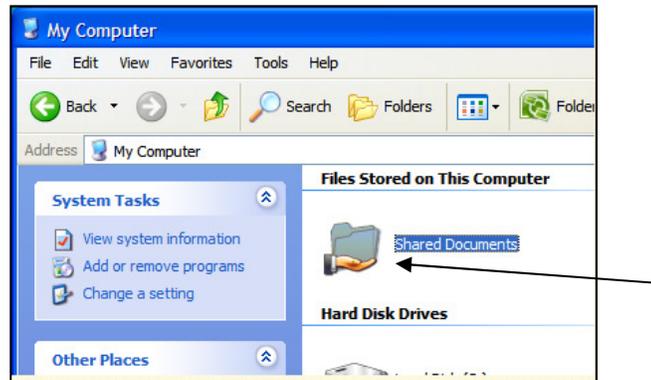
Step 1: Right-click the shared documents folder and Select "Sharing and Security..."



Step 2: Under Network sharing and security, select "If you understand the security risks but want to share files without running the wizard, click here"



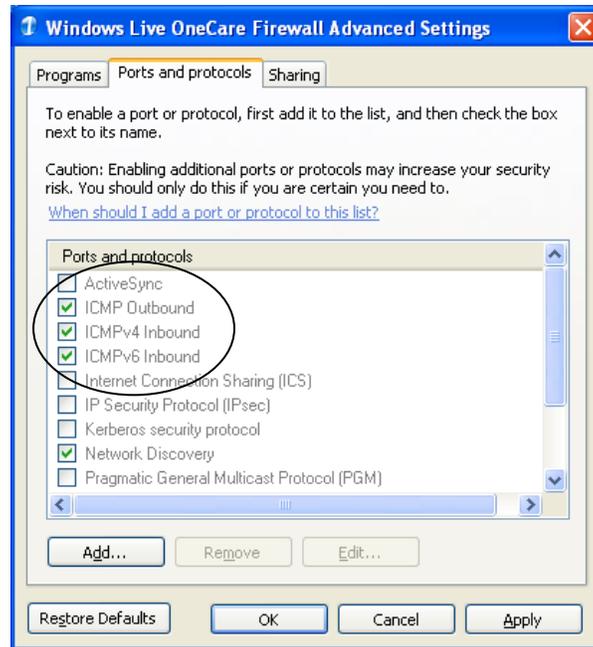
Step 3: Select "Just enable file sharing"



Step 4: The folder is now shared

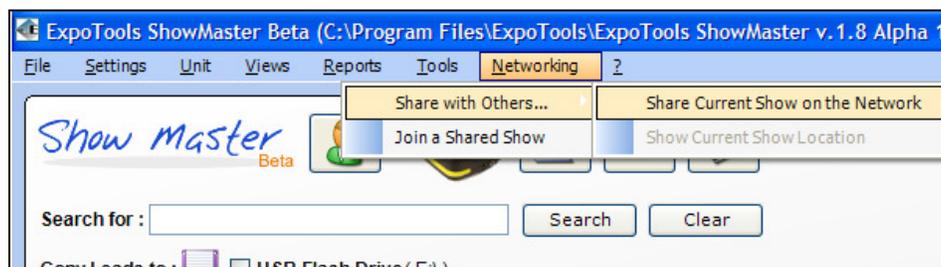
Once setup (and after the 2 to 5 minute wait if you just connected the network cabling) you should be able to see each of the computers from the *My Network Places* -> *View other workgroup computers*. You should also be able to double-click on the computers and see their shared documents folders. If not, something is wrong; ShowMaster Networking will not work until this is resolved.

For the slaves to be able to find the Master, you will need to enable *ICMP Outbound* on the Master and *ICMPvx Inbound* on the Slaves. If you do not do this, the beacon that the Master sends out will be blocked and the Slaves will have to be told where to find the Master manually, which at best is an error prone process.

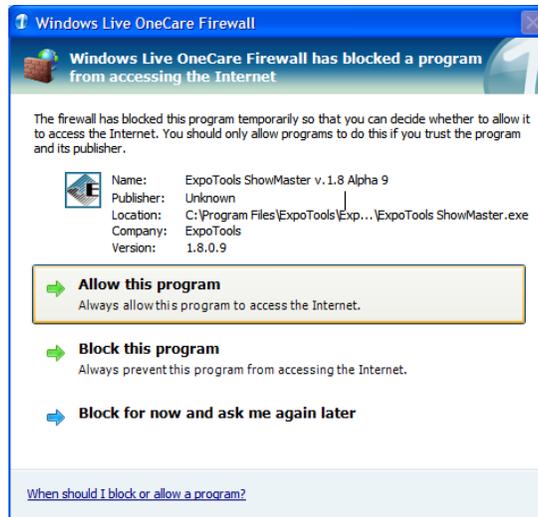


## Sharing the Show

Start ShowMaster on each of the Slaves as well as the Master. From the Master, load the packaged show (if required) and then share it with the network using *Network->Share with Others...->Share Current Show on the Network*.



That computer will start to send out a beacon, allowing other computers to find the show. If you receive a message from your firewall program asking you if you wish to allow ShowMaster to access the internet or network, say yes and unblock it. Otherwise, the beacon will not be transmitted.



Once the show has been shared you can register the Slaves with the Master by choosing *Network->Join a shared show*. The Slaves will look for the beacon and, if found, ask you if you would like join the corresponding show. After selecting the show, all the required files will be transferred from the Master to the Slave. This can take several seconds (usually around 30 or 40, but this depends upon the size of the show and the speed of the network). For this reason it is best to bring only one Slave online at a time.

If the Slaves cannot locate the beacon it is almost always due to the packet being blocked by a firewall program, such as Norton, AVG or Windows One-care. Re-check the firewall settings. From our experience, it is best to un-install Norton completely: more productivity is likely lost every day to Norton than to all viruses combined.

Should you be unable to disable the firewall or locate the beacon, you can still use networking but you will have to enter the shared show's location manually. To see what this location is, click on *Networking->Share with Others...->Show Current Show Location* on the Master and then enter the path shown *verbatim* on the Slaves.

### **Restrictions during Networking**

When sharing a show, Slaves have reduced privileges: they can no longer alter show settings, generate emails or send files to the web-upload site. Their ability to alter settings is now restricted to the local settings, which includes only things that the local station needs to override such as the serial port to use, the drive letter for the USB flash drive and so on. Any changes to the show settings must be made by the Master, which will then be transferred automatically to the Slaves. Note that some settings, such as adding additional columns to the database (custom columns) will require the Slaves to close ShowMaster and then re-open it. Most settings are, however, transferred seamlessly to the Slaves.

## **When Good Networks Go Bad**

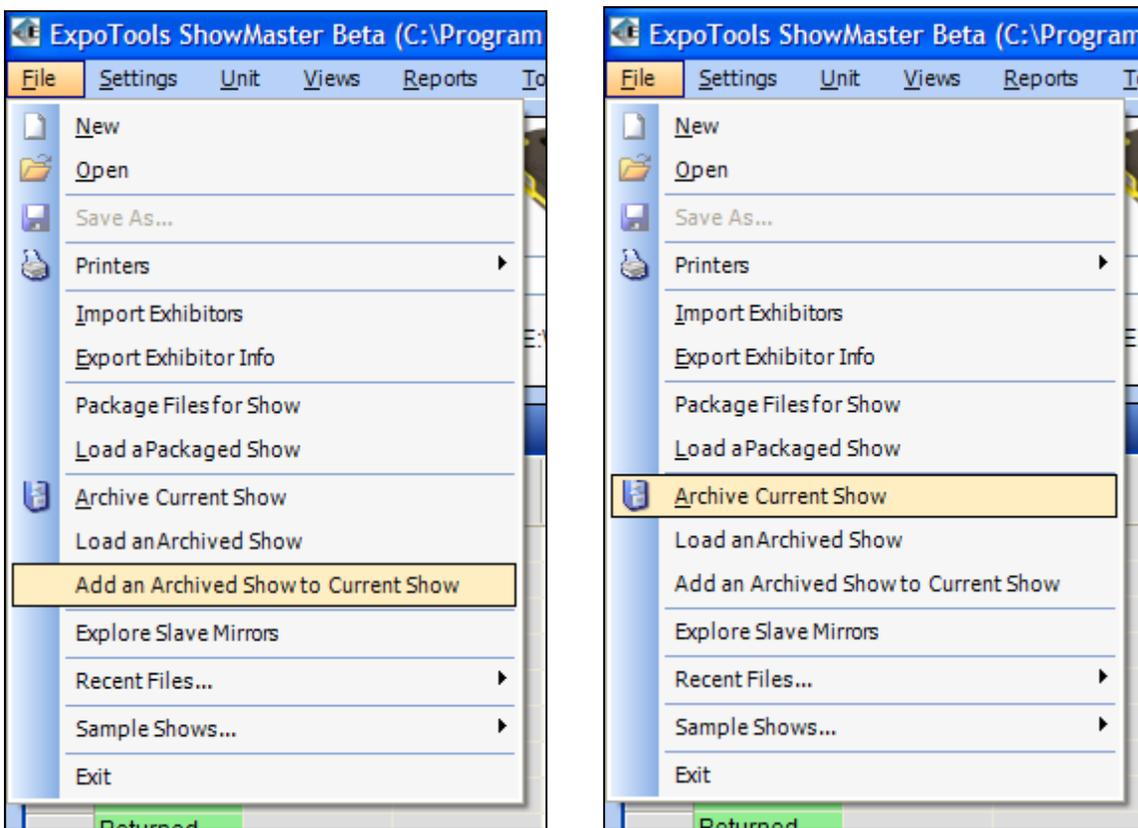
Networks have a tendency to go down at the worst possible moment, and show site is no exception. In this particular case, networks will usually tank towards the end of the show, right in the middle of the return process. This is no accident, as it is usually at exactly this moment that the registration and IT guys are tearing down and packing their equipment. From their perspective, the show is pretty much over and it is time to crate everything up. The problem with this is of course that you still need the network they just packed up.

In this situation, there is usually little time to re-establish the network, or by the time it would be reconnected the return rush will have abated. ShowMaster handles situations like this, where the network has disappeared and will not return, by providing a manual re-sync process with USB flash drives as the transport mechanism. It is not by any means as convenient as real-networking, but it does allow you to finish the process.

Once the network disappears, each of the Slaves will go off line and start logging all data locally. This data consists of two things during the return process: the data actually downloaded from the scanners as they are returned (i.e. the leads) and the status information related to the return. Both of these are stored on the Slaves for later exchange with the Master and other Slaves.

During the return process, the leads themselves are not required at all stations; they will only be needed at the end of the show to generate reports, web-uploads or emailings. Only the station where the unit was returned typically needs that data immediately, and only to remit a copy to the exhibitor. What is required during the return process, at least on the Master station, is the status information indicating who has returned units and who hasn't. This information is provided automatically to all stations in real-time when networking is operational. However, it is not absolutely necessary to have it in real-time: periodic updates every 30 or 60 minutes would, in a pinch, be serviceable. This is what manual re-sync provides: a copy of the data and updated status information on the Master whenever you run through the process, which will likely be on the order of a half-hour.

To perform a manual re-sync, you will need a USB flashdrive with sufficient space to hold a copy of all the archives from all the Slave computers (256MB is typically enough). From each Slave, insert the USB flashdrive and go to *File->Archive*, creating an archive of the Slave's current state, which includes the local data. Once this is done, you will need to use the *File->Add an Archived Show to Current Show* menu option on the Master for each of the Slave archives. This will reconcile all the information onto the Master. Note that the Slaves will still not have the whole picture, only the Master will have valid status information and all the lead data. You can perform this procedure as often as you feel necessary (or as time permits) but as it is a manual and error prone process, it is best to wait until things calm down, run through the manual re-sync, which will update the Master, and then stop using the Slaves for the remainder of the show. All returns can then be performed only on the Master, which will be and stay up to date.



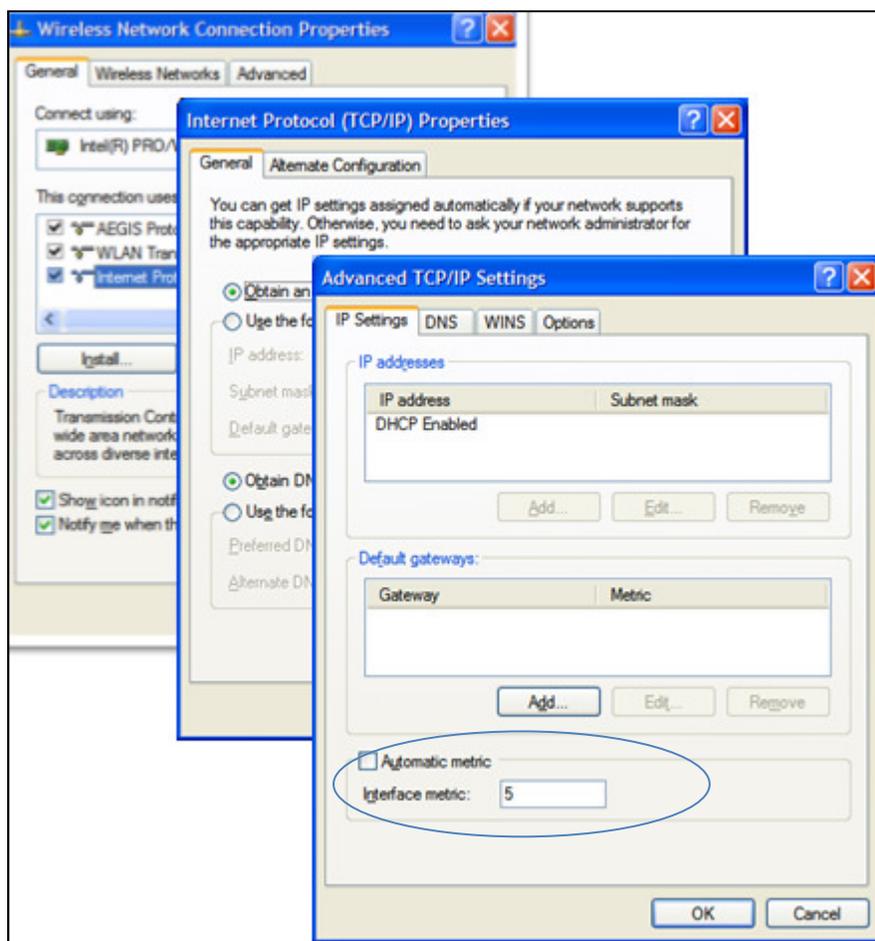
Note that much of this can be avoided by procuring a separate four or eight port router specifically for use by the lead-retrieval team. These have become extremely inexpensive and will allow you to keep control over your sub-network as long as you deem necessary.

### Dual-Network Access

It is quite common to want to use a hard-line and a wireless network at the same time during events. Usually, this is to gain internet access (via Wi-Fi) while using hard line connections for ShowMaster networking. Although this works, there is a problem from the point of view of the operating system: it

does not know which network to use for internet traffic, as opposed to local traffic. Strictly speaking, this is not true: the OS uses an algorithm to determine which of the various network connections should be used for internet traffic. The problem is that this algorithm usually decides to use the wrong network. Each of the network transport layers (such as hard-line Ethernet and Wi-Fi) has an associated 'cost' setting, unhelpfully called the 'connection metric'. The OS will, when it needs to send a packet, send it via the lowest cost method, i.e. the one with the lowest metric. Unfortunately, the metric for wireless networks is usually set higher than the metric for hard-line connections. The OS will therefore route internet traffic to the hard-line connection, which likely does not have internet access.

To rectify this, you need to set the metric for the wireless network to less than the one for the hard-line. This can be done by going to the TCP/IP settings for the wireless network card, disabling the 'automatic metric' checkbox and setting it to a lower value than the hard-line connection. As the OS typically uses an automatic setting for the hard-line connection, it is difficult to know what to use, but a value of 05 usually works well, as few networks have an automatic cost metric of less than 10. Once done, this will allow the OS to send external traffic (i.e. internet related packets) over the wireless connection even while the hard-line connection is open.



## At the End of the Show

At the end of the show you must do two things before shutting down the stations. First, you must click the refresh button to ensure that all data has been sent over the network to the Master. Secondly, you must create an archive of every computer, Slave and Master alike. While the Master will have all the data, you must make an archive backup of each computer to avoid unpleasant surprises. Stolen laptops are irritating, stolen data is painful.

## Notes

- Although ShowMaster does not require it, a low-cost router will usually make setting up the network easier. It can be set up to handle allocating IP addresses instead of having to manually assign them or run a DHCP server on the Master.
- The advantage of using the file-share system for networking is that the Master does not need to be running ShowMaster for networking to function; after the Slaves discover the shared show via the beacon, the ShowMaster can be closed on the Master computer.
- Wireless networks are much slower for uplink than you would expect, typically only 200kpbs, often less than 20kpbs.
- As of version 1.80, data reconciliation requires the database to be placed on each slave individually and manually *using the same path name (e.g. 'C:\reg\_db.csv')*.
- If renting some of your computers, the Master should ideally *not* be one of the rented machines, since at the end all of the data will reside upon that machine.
- All of this works under Vista as well as XP (arguably better), but the settings panels are different. Also, you must run ShowMaster as Administrator, since it is the only way to share a file.
- Networking can take several *minutes* to come up under Windows when reconnecting a computer or hub.
- A Slave can be converted into the Master, but it is intentionally cumbersome. After ensuring that all computers are up to date, create an Archive for the show (preferably from the Master, but it can be from a Slave) and then load that archive on the Slave you wish to promote. You can then share that show and have all the other Slaves join that new (and different) show. Although this works, it is not recommended as confusion can arise over which shows and archives are which.
- Additional Slaves can be added at any time, for example just before the return rush.

## Running ShowMaster under Vista

Running ShowMaster under Vista requires you to run the application using Administrative privileges. Open *My Computer* and go to ShowMaster's installation directory. By default, this path is *C:\Program Files\ExpoTools\ExpoTools ShowMaster v.x.y Beta*. Once there, right-click *ExpoTools ShowMaster.exe* (type -> *Application*) and select *Properties*. When the *properties* window appears, select the *Compatibility* tab and place a check in the *Run this program as an administrator* option under *Privilege Level*. Save these settings.

