

Networking

Section Six

Network settings and features

Introduction

GENERAL

There are many changes to the Networking services in XP (backup IP addressing in case you cannot access DHCP, Bridging, a Personal Firewall and extended connectivity media formatting). As the campus moves to its new roll out of DNS and DHCP, you will see the significance in this functionality. Further, as Active Directory makes its' presence on campus XP will undoubtedly become integrated with those services and require networking services to adapt accordingly.

Since we can not cover all of the changes XP provides in networking services we will cover the following that best apply to our campus roll out:

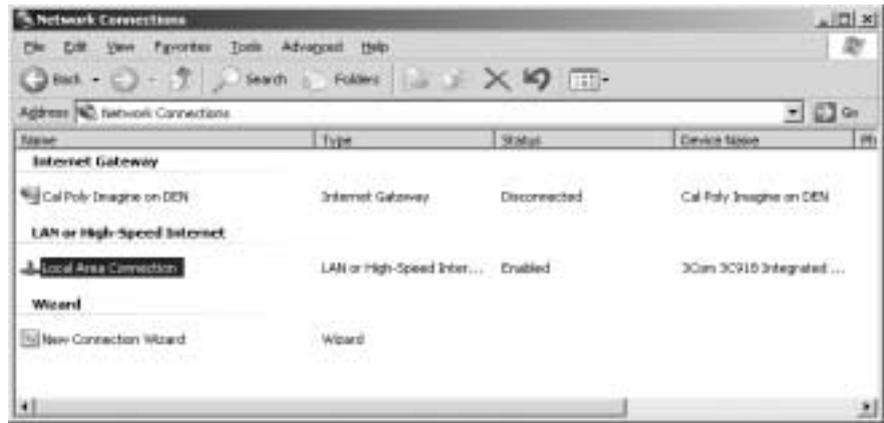
- Basic network settings
- Dual IP addressing
- Personal firewall
- WLAN technology

Basic Networking configuration settings

DEFAULTS

Network Connections has had a face lift (as have many of the networking configuration settings). In order for Microsoft to make networking concepts simpler for the common user, many additions have been made to the main screen (including the Network Wizard).

FIGURE 1. Network Connections



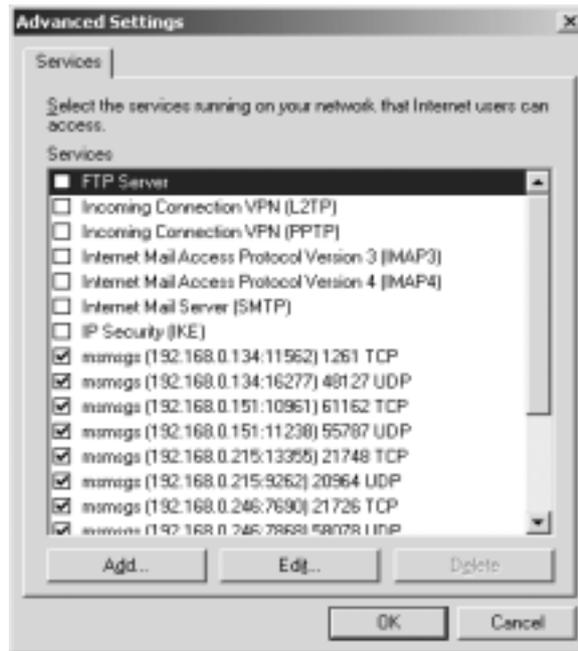
Options have been broken down into three main categories:

- Internet Gateway
- LAN or High-Speed Internet
- Wizard

INTERNET GATEWAY

In this case, the Internet Gateway refers to the configuration we have in place for the Imagine Network at Cal Poly. Configuration settings would be made in the Advanced settings tab of the Internet Gateway.

FIGURE 2. Advanced Settings



As you can see from the above figure, none of the settings have been applied to this configuration. These setting have not been defined as of yet and will require the inte-

gration of VPN and tunnelling protocol technologies with our campus firewall to work properly.

LOCAL AREA CONNECTION PROPERTIES

FIGURE 3. Local Area Connection Status



When you click on the Local Area Connection icon, you get the Local Area Connection Status dialog box providing you with some very useful information:

- Connection Status
- Connection Duration
- Connection Speed
- Activity (sent and received) in bytes

These metrics help you to determine the “real time” states of network connectivity. Here would be the first place to look if someone can’t get to their network resources.

LOCAL AREA CONNECTION PROPERTIES

FIGURE 4. Local Area Connection Properties



In the Local Area Connection Properties dialog box you will find the following connection items made available:

- **Client for Microsoft Networks** (Required)
- **File and Printer sharing for Microsoft Networks** (required for peer to peer file and printer sharing)
- **QoS Packet Scheduler** (Required to verify quality of data transmission)
- **Internet Protocol (TCP/IP)** (required for access to our network)

INTERNET PROTOCOL SETTINGS

FIGURE 5. Internet Protocol Settings

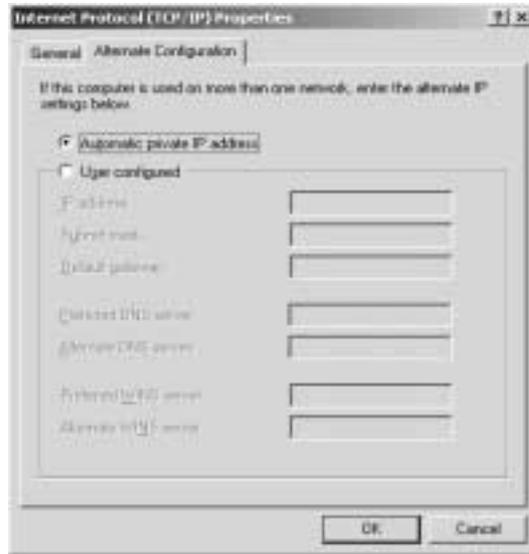


Using DHCP, normally no entries would be seen here (DHCP sets IP, DNS and all other TCP/IP settings). For this configuration we have forced DNS entries. As the campus moves to DHCP items in this dialog box will be left blank and all settings will be obtained automatically from the DHCP servers on campus.

ALTERNATIVE CONFIGURATION

In using DHCP, the second tab is made available (Alternative Configuration). If a static IP had been inserted, this tab would not be made available.

FIGURE 6. Alternative Configuration Properties



This is where you would place a static (backup) IP address in case DHCP failed. This option offers a fail-safe resource so that work is not interrupted by failed network appliances.

TABS IN INTERNET PROTOCOL PROPERTIES

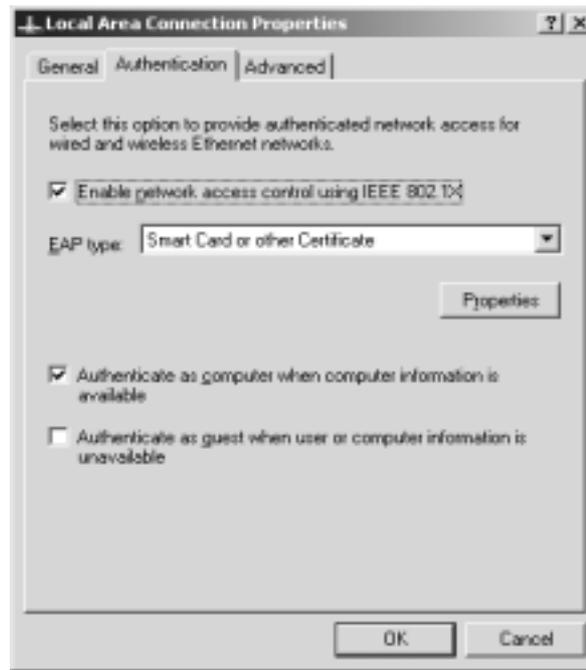
Additionally, you will see three tabs near the top of the dialog box:

- General (the default tab)
- Authentication (new to XP)
- Advanced (Firewall settings)

The General tab, is the default tab which appears when you first open the Internet Protocols properties.

Authentication allows for you to apply high security logon connection between computers and campus resources.

FIGURE 7. Authentication



Campus defaults are shown in the above figure.

PERSONAL FIREWALL

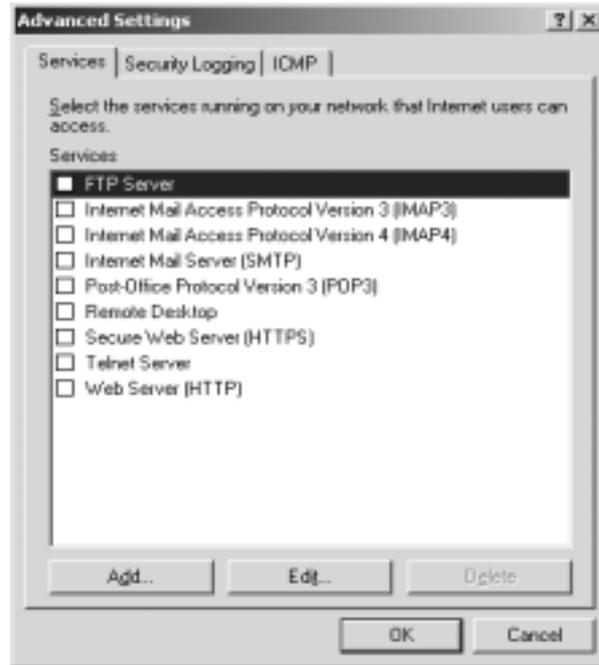
Clicking on the Advanced tab in Local Area Connection Properties, you find the toggle option for personal firewall settings.

FIGURE 8. Personal Firewall Dialog Box



The default settings for on-campus is “not applied”, meaning that we turn off the personal firewall. Since the campus has a firewall in place, using this option will cause your computer to not work correctly in our environment. For home use this option is a valuable tool that will protect you from possible damage by hackers.

FIGURE 9. Firewall Settings



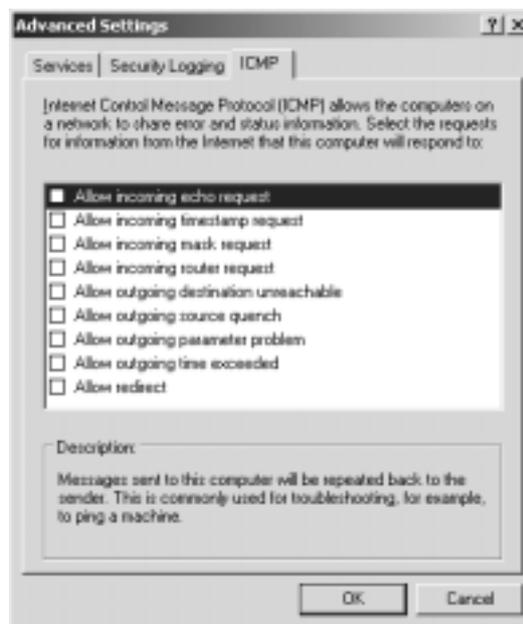
You may notice a similarity between the firewall settings dialog options and the Internet Gateway properties dialog box. Changes made here will directly be seen in the Internet Dialog Box properties settings -- they are intertwined with each other. It would be good for users to read the help files concerning these settings before applying them.

FIGURE 10. Security Logging



The personal firewall allows for you to maintain logs on important information (dropped packets, successful connections) and gives you the ability to set size limits.

FIGURE 11. Internet Control Message Protocol



The ICMP tab allows you the ability to manage the type of traffic your computer will share.

Windows XP offers ground breaking WLAN functionality

You use your laptop at home, in your docking station, and during meetings, roaming across networks from different physical locations. If your laptop had been configured with Windows XP and a wireless network card, you would have had network connectivity at each stop and, better yet, you would not have had to do any reconfiguration as you roamed to each place.

Wireless LANs in Windows XP

This kind of network roaming would have been much more difficult (impossible in most cases) in Windows 2000 and other versions of Windows. That's because in Win2K, wireless networking configuration is handled primarily by third-party utilities that are installed along with WLAN network card drivers that come from WLAN vendors. The best part of Windows XP's enhanced WLAN support is that driver and WLAN configuration are absorbed directly into XP's NIC configuration, and WLAN network roaming is handled with precision and simplicity.

SUMMARY

As you can see, XP networking has come a long way from Windows 98 and NT. It shares many of the functionality Windows 2000 put in place while expanding those resources to better protect your computer. With all of the new and improved capabilities in XP networking, you can see that Microsoft has listened to their customers (especially those who have moved into the cable modem and DSL technologies. For our campus we will not use the personal firewall, but for home it's a great advantage. DHCP will simplify our networking configuration but is great to see that we can have a fail-safe system in case DHCP goes down. Wireless technology will aid us in our continued efforts to become more mobile.