



Hardware Installation Instructions

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PC Desktop, PC Portable, and Macintosh

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The WABnet Help Desk

WABnet InfoSource (World-Wide Web server):
<http://wabnet.wabash.edu/>

E-mail:
helpdesk@wabash.edu

Phone:
x6150

(Phone support is available 10am-midnight, from August 20 through September 28)

For further assistance:

Connecting a computer to a complex, high-speed network such as WABnet is inherently tricky. You should not get discouraged if you experience difficulty, as Computer Services support staff are ready to help with any connection problems.

Your primary help resource for network-related problems is the WABnet Help Desk. The help desk can be reached by Web site, phone, e-mail, as indicated above. Consult the WABnet Connection Support Policy (a copy is included with your connection kit) for specific information on what help is available from Computer Services.

For general WABnet information, check the WABnet InfoSource on the World-Wide-Web (<http://wabnet.wabash.edu>). You can register your WABnet connection on-line, or submit a help request or question. The InfoSource also contains additional installation documentation, troubleshooting tips, and answers to frequently asked questions (FAQs), and other information related to our campus network and phone system. The InfoSource is also the best source for information on new versions of WABnet-approved software.

After reviewing the installation instructions, if you prefer not to attempt the installation yourself, you can have Computer Services install the network card and software for \$20. Contact the Help Desk for more information and to arrange a time.



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Introduction

This booklet steps you through the process of preparing your computer for connection to WABnet: determining which network adapter you need, registering your connection with Computer Services, installing the network card, and connecting the computer to the network. Instructions are included for IBM-compatible PCs and portables, as well as all Apple Macintosh systems.

WABnet System Requirements

Almost all computers can connect to WABnet. However, to take full advantage of all WABnet has to offer, Computer Services recommends the following:

IBM-Compatible PCs

- Pentium or better processor
- 50MB free disk space (before WABnet installation)
- 16MB or more of RAM
- Microsoft Windows 95 or higher

Macintosh and Power Macintosh

- Power Mac processor
- 50MB free disk space (before WABnet installation)
- 32MB or more of RAM
- System 7.1 or higher

These computers will be able to take advantage of all standard features offered by WABnet (although specialized software you could use with WABnet, such as some Netscape plug-ins, may have even higher system requirements). **Lesser-equipped computers can also connect** and utilize e-mail, print services, and file services, but may not be able to run all software.

Selecting the Correct Network Adapter

Different types of computers require different network adapters. Most computers, however, will use the standard kits that are stocked in the Wabash College Bookstore. Before you can do anything else, you must determine which adapter you will need. If you are at all in doubt, contact the WABnet Help Desk.

PC Desktop Computers

Two connection kits are available for IBM-compatible desktop PCs. Since virtually all desktop PCs will use only one of these kits to connect to WABnet, the bookstore only stocks the PCI version. Contact Computer Services for information on obtaining an ISA card.

WABnet Connection Kit for PC Desktops (PCI Version)

The network card included with this kit plugs into newer high-speed PCI expansion slots. If you have a **Pentium or faster computer**, you should use this kit. The high-

performance plug-and-play Intel network card included with this kit works great with WABnet today, and has the power to take full advantage of future WABnet upgrades. Plus, the card is easy to configure, even with systems that have other devices already installed (such as sound cards and modems).

As computer-savvy users are aware, Pentium computers also have ISA slots (see below), so technically the ISA version of the connection kit will work with these systems. However, configuring ISA cards in new systems can be difficult due to limits on system resources for ISA devices. For this reason, *Computer Services cannot provide connection support for users with Pentium or faster computers who select ISA kits over PCI kits.*

WABnet Connection Kit for PC Desktops (ISA Version)

The PCI bus has only been standard in computers for a few years, so older computers require network cards that connect through the computer's ISA bus. If your computer has a **486 or slower processor**, it likely does not have a PCI bus—and even if it does, the gains offered by PCI on these slower systems is minimal.

PC Portable Computers

Because of their small size, PC portable and laptop computers do not have a PCI or ISA bus like their desktop counterparts. Fortunately, most laptops have another industry-standard slot, called the PCMCIA slot (or PC Card). If your portable has a PCMCIA slot, you can use the standard WABnet Connection Kit for PC Portables, which includes a 3COM PCMCIA network adapter.

If your laptop does not have a PCMCIA slot (or no free PCMCIA slot), then you must connect your laptop with an external network adapter that connects to the system's parallel port. Contact the Help Desk for ordering and pricing information.

Apple Macintosh

All Apple Macintosh systems, including portables and Power Macs, fit into one of the following categories. Some Macs have a built-in 10Base-T network adapter (only a cable is required to connect the Mac to WABnet). Other Macs have a built-in ethernet adapter, with an AAUI interface (an external adapter and cable is required). Some older Macs do not have built-in ethernet (an internal 10Base-T network adapter and cable is required to connect to WABnet).

The correct connection kit is included with all Macintosh systems sold through Wabash College. If you purchased your Mac some place other than Wabash, you should contact the Help Desk, and tell them what model of Mac you have. They can then determine what you need to connect, and can providing ordering and pricing information.

Registering Your WABnet Connection

All WABnet Connection Kits include a registration form. The information you provide on this form is used by Computer Services to activate your network connection, and to assign Internet address information for your particular system. Before you install your network card and attempt to connect to WABnet, you **MUST** make sure that you have registered with Computer Services. *You will not be able to connect to WABnet until you have properly registered your connection!*

Special Instructions for those connecting before October 1

To reduce connection times and to simplify connecting during the busy weeks at the start of the school year, Computer Services has activated all ports in all rooms. Until October 1, you can connect to WABnet *before* registering your connection. However, on October 1 all unregistered ports will be deactivated. So you must register your connection to continue using WABnet, or else you will lose connection when your port is turned off.

The Registration Form

Fill out the registration form that came with your Connection Kit and return it to Computer Services, in Baxter 16. You can also register on-line at the WABnet InfoSource Web site. In either case, the form requires the following:

- Your name
- Your user name
- Your campus phone number
- Your living unit
- The number of the data jack you will use to connect your computer
- The type and brand of your computer
- The operating system installed on your computer
- The ethernet address of your network adapter

In most living units, data jacks are identified by a 'D' (such as 17D). Data jacks in Martindale Hall are numbered differently, such as 1-23, or 3-11. Data jack numbers in Kappa Sigma are duplicated on each side of the house, so you should indicate whether you are in the north or south side. Most rooms have multiple data jacks; select one for your computer, and write that number on the form.

For PC Connection Kits, the ethernet address of the network adapter will be printed on the top of the box. If you have a Macintosh, you can obtain this number by going to the Control Panels menu, clicking on TCP/IP and then clicking on the Ethernet icon while holding down the option key (**note:** your Mac must be connected to the network for this to work). If you cannot locate this number, Computer Services can determine it for you, but this will cause a delay in having your connection fully activated.

You will receive e-mail from Computer Services when your network port has been activated. It generally takes one or two working days to process a registration form.

Any time you change rooms, you must re-register. You can get another form from Baxter 16, or register on-line from the WABnet InfoSource Web server.

Installing the Network Interface Card

In order to connect to a network, your computer must have a network interface card. For all desktop PCs and some older Macs, you will need to open your computer to install an internal network card. If you have a system that requires installing an internal card, **you must take great care when opening your computer to prevent damage to the internal components.**

If, after reviewing the hardware installation instructions, you are uncomfortable with opening your computer, you should contact the Help Desk about the Installation Fairs put on by Computer Services. For \$20, support staff will install the network card for you, and install all WABnet software.

Installing the Intel EtherExpress Pro (PC Desktops)

The following documentation is a step by step guide to installing and configuring your new Intel network card. This card enables your computer to connect to the WABnet file servers and the Internet. The installation process is fairly straightforward, though it does require that you open your computer and work inside it. You should take your time and proceed carefully.

TOOLS: To install the network card, you need to have a screwdriver. To find out what type of screwdriver you will need, look at the screws on the back of the computer. Most computers require a #2 Phillips-head screwdriver.

Step 1: Preparation

The first step is to prepare your computer and work environment. In normal situations, computers are fairly durable. However, when their cases are removed and the chips on the inside are exposed, they become vulnerable and must be handled carefully. There are several steps you can take to help ensure that nothing happens to your computer during the installation process. Start by disconnecting all devices from the back of your computer. This includes, but is not limited to: the monitor, mouse, keyboard, speakers, joystick, scanner, printer, and the power cord. **EVERYTHING** must be unplugged from the computer. Make sure to take note of where things were plugged in as this will help you later on when you have to reconnect everything.

Once you have everything unplugged from the PC computer, move it to a flat surface, such as a table, in an area that is **NOT** carpeted. Carpet is an excellent conductor for static electricity and a static electricity discharge can render a computer chip useless. Also, make sure that you remove everything from your work area, especially liquids.

Step 2: Case Removal

To install the network card in your computer, you will have to remove its protective case. To remove this cover from the computer, you will need to loosen and remove the screws in the back of the computer (see Figure 1). Some computers will have these screws marked with tiny arrows or some other indicator. Once the screws are removed, carefully lift or slide the casing off and place it out of the way.

If for some reason you cannot locate the screws to remove the case, or you cannot get the casing off of the computer, check your owner's manual.

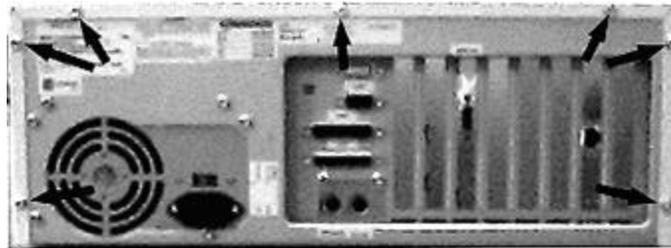


Figure 1: Cover screws on the back panel of a Gateway 2000 PC

Step 3: Locating an Empty Expansion Slot

To install an internal network card there must be an empty expansion slot in your computer. Most computers will have several expansion slots that can be used. The expansion slots are generally situated in a row at the back of the machine. Some slots may already have cards in them; do not remove any cards as that may affect the operation of your computer.

Newer IBM-compatible computers have both PCI and ISA slots. Generally ISA slots are black, and PCI slots are white or yellow. PCI expansion slots are also shorter than ISA slots, and slightly further from the back of the computer. Do not attempt to install a PCI card in an ISA slot, or an ISA card in a PCI slot, as this may damage the card or your computer. If you have an older computer with only ISA slots, you may have some shorter 8-bit ISA slots in addition to normal 16-bit slots. Unless you obtained a special ISA kit from Computer Services, you must use the PCI slot. If you are unsure of which expansion slot to use, consult your owner's manual or the WABnet Help Desk.

NOTE: If you discover that you do not have an available slot of the type you need, contact the WABnet Help Desk for assistance.

Step 4: Removing the Slot Cover and Seating the Card

The next step in the installation process is to remove the cover from the slot you have chosen. On most computers, the slot cover is held in place by a single screw. Once you remove this screw, the cover should pop right out.

After you remove the slot cover, you can seat the card in the slot. To seat the card in the expansion slot, simply line up the connectors on the card with those on the expansion

slot. When you have it all lined up, press down firmly on the top of the card until you hear it click into place (see Figure 2). You may have to use a bit of pressure, as it will be a tight fit. However, take special care not to bend the card. Once the card is firmly seated, secure it into place by replacing the screw that you removed with the original slot cover.

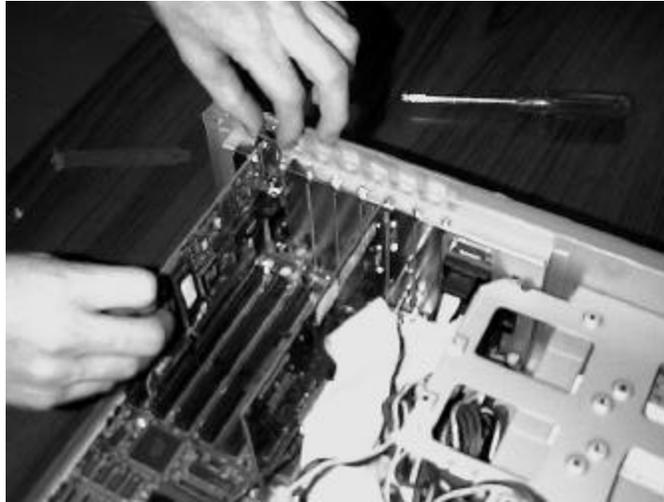


Figure 2: Seating the Intel network card in a 16-bit ISA slot

Step 5: Replacing the Cover and Finishing Up

Now that you have the network card installed, you have to replace the cover and reconnect everything. To replace the cover, simply line it up with the case and drop or slide it back into place. You may have to jostle it a bit to get it lined up, but take special care not to force it into place as this can bend the cover. Once the cover is back in place, replace the screws that you removed earlier. Finally, reconnect the cables that you removed at the beginning of the installation process.

Next, proceed to the section *Connecting Your Computer to the Network* below.

Installing the 3COM PCMCIA Card (PC Laptops)

You do not need to open the case on your laptop to install a PCMCIA card. Simply slide the 3COM adapter into an empty PCMCIA slot. You should hear or feel it lock into place when it is all the way in. Slight pressure may be required, but do not force it, as that can damage the card or your computer.

Note: many laptops have two PCMCIA slots. With most systems you can use either slot, but some require you to use slot 1 if you only have one PCMCIA card.

The 3COM card comes with a special adapter cable, which connects between the standard network cable and the card. Be careful not to lose or damage this cable, as without it, the card is useless. After your card is installed, proceed to the section *Connecting Your Computer to the Network* below.

Installing Apple Macintosh Adapters

Apple Macintosh network card installation varies depending on whether the Mac has built-in ethernet (and if so, what kind).

Macs with 10/100Base-T ethernet interface

Macs with a built-in 10/100Base-T network card already have the correct network interface for WABnet, and require no special installation. Proceed to the section *Connecting Your Computer to the Network* below.

Macs with built-in ethernet, AAUI interface

Older Macs fall into this category. The ethernet card included has a “generic” AAUI interface, which can connect to a variety of network types through the use of an external transceiver, or adapter. To connect the external 10Base-T transceiver, simply plug the transceiver into the ethernet port on the back of the Mac. The transceiver will only fit into the ethernet port. Make sure you hear it lock in place so that it doesn’t later come loose. After connecting the transceiver, proceed to the section *Connecting Your Computer to the Network* below.

Macs without built-in ethernet

Some Macintosh models do not include built-in ethernet. Typically these are older Macs, or Macs marketed towards home users. To connect these Macs to WABnet, you must install an internal network card.

The hardware installation procedure varies greatly from model to model. For this reason, you should refer to the hardware installation instructions that came with the card for help. If you have questions, you should contact the Help Desk. After installing the network card, proceed to the section *Connecting Your Computer to the Network* below.

Connecting Your Computer to the Network

Once you have installed your network card, you are ready to connect your computer to the network. To do this, simply plug either end of the network patch cable into your network card, and plug the other end into the data jack on your wall outlet. You should hear the cable click into place it is properly connected.

The first time you turn on your computer, check the back of the network card. You should see a small light labeled “link” or “LNK”. This light should be on solid (the color varies by network brand; it will either be green or amber). If the link light is not lit, there is a problem somewhere. Check the cable connections, making sure you are connected to a data jack and not a voice jack (the cable will fit into either). If you cannot find any problems, contact the Help Desk for further assistance.

Where to Go From Here

Now that you have completed the steps in the hardware installation, you should proceed to the software installation instructions. There are two separate software installation manuals: one for Windows 95/98 and one for Apple Macintosh. You should find the correct version in your connection kit.

Basic Hardware Troubleshooting Tips

The network cards selected for use with WABnet are chosen primarily because they are reliable, easy to install and configure, and work well with a wide range of computer brands and models. Nevertheless, as with all computer components, adding a network card can potentially cause problems with your system.

When installing your network card, be sure it is seated completely. It is possible for the back end of the card to be seated (and even screwed in) while the front of the card is not making a good connection. In this case, very peculiar device errors are often seen.

When connecting the network cable, you must use the data network cable included with your kit. **Phone cords are incompatible with WABnet**, and will not allow for a connection. Also, be sure you are plugging into a data jack, rather than a phone jack, and also that you connect to the jack that you register. Your network card will show a link light when properly connected to the network.

Windows 95 and Windows 98 should automatically recognize your network card and configure it for you the first time you start up your computer. However, depending on the specific release of Windows you may have, it may configure everything automatically, or you may have to insert your Windows CD-ROM, or the Intel Driver Diskette included with your connection kit. Refer to the *Windows 95/98 Software Installation Guide* for more information on installing and configuring network drivers.

Some problems are caused by hardware conflicts, such as when two devices are configured to use the same interrupt or I/O memory address. A big advantage with PCI devices is that they have many more hardware settings available, so the chance of device conflict is greatly reduced.

With the Intel ISA card, hardware conflicts are not uncommon (for this reason, the ISA card is no longer supported by Computer Services in systems that can use the PCI card). Generally, the more components added to a computer, the more likely a hardware interrupt will occur. If you have a sound card, modem, joystick, MIDI card, scanner, video input/output, or similar devices (especially if you have several of these devices), the default settings on the network card may conflict with another device in your system.

Fortunately, all network cards included with WABnet Connection Kits are easily configurable, so that such conflicts can be resolved. However, if your system reports a hardware conflict and you instruct it to automatically reconfigure the system, you can create more problems than you solve. The first time you turn on your computer after installing the network card, watch the screen carefully for any errors or unusual messages. If you see a report of a conflict, **DO NOT** select any options to reconfigure system parameters. If given such an option, select **No** or **Cancel**. When your system has booted up, check to make sure things are working properly. Sound cards are particularly likely to conflict with your new network card, be sure to check the sound.

If you notice anything unusual with your system after installing the network card, contact the Help Desk *before* proceeding to the WABnet Software Installation. When in doubt, wait for assistance from the Help Desk. If you make any mistakes while trying to fix a problem yourself, you can cause bigger problems with your system. If necessary, you can always remove the network card while waiting for assistance.