TROY

EtherBridge
Ethernet to Wireless Client Adapter

Installation and User's Guide

Part Number 40177-100
Revision X1

Notice

Warning

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against such interference when operating in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with this guide, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause interference in which case the user, at his or her own expense, will be required to take whatever measures will be required to correct the interference.

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TROY Group, Inc.
2331 S. Pullman Street
Santa Ana, CA 92705
TEL: (949) 250-3280
FAX: (949) 250-8972
http://www.troygroup.com
sales@troygroup.com

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READ ME FIRST

TROY Installation Instructions
(FOR USE WITH TROY ETHERBRIDGE ADAPTERS)

NOTE: **This User's Guide is available in other languages that can be printed from the TROY EtherBridge Installation CD.**

Introduction
The TROY EtherBridge Adapter is an Ethernet-to-wireless adapter that converts any 10/100 Ethernet-enabled device to an 802.11b wireless client device.

Package Contents
- TROY EtherBridge Adapter
- 5-Volt Power Supply
- Ethernet Crossover Cable
- Universal Mounting Kit (for attaching the EtherBridge adapter to a convenient location)
- Desktop Mounting kit (for placing the EtherBridge adapter on a desktop surface)
- User's Guide (This booklet)
- TROY EtherBridge Installation CD

NOTE: If any of the above items are missing or damaged, contact TROY.

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EtherBridge Adapter Components

- **Power Connector** – The power supply cable plugs into this connector.

- **LED Status Indicators** – used to indicate the operational status of the EtherBridge adapter. Refer to the table below for detailed LED status light descriptions.

- **LAN Port** – used for connecting the EtherBridge adapter to any 10baseT or 100baseTX Ethernet connection (an Ethernet card, hub, router, or other wired access point) for network access. You must use the included Ethernet crossover cable (or any other crossover cable) when you directly connect two devices (such as a PC, printer, or other Ethernet-enabled device) without the use of a hub or switch.

- **Reset Button** – used to restore the EtherBridge adapter to factory default settings.

Restoring Factory Default Settings

The TROY EtherBridge Adapter can be reset to factory default settings by performing the following steps:

1. Disconnect power from the EtherBridge Adapter. Press and hold the reset button for three seconds while reapplying power to the device.

2. Release the reset button as soon as the WLAN LED is blinking and the LAN LED is off.

3. Press and hold the reset button again for approximately ten seconds.

4. Release the reset button as soon as the WLAN and LAN LEDs begin flashing rapidly.

LED Status Indicators

The front panel of the EtherBridge adapter provides three LED (Light Emitting Diode) indicators for easy monitoring. The following table defines the function of each LED.

Label	Color	State	Description
PWR	**GREEN**	ON	The device is receiving power.
		OFF	The device is not receiving power.
WLAN	**GREEN**	ON	The device is associated to a wireless access point and has wireless LAN activity.
		OFF	No wireless LAN activity.
LAN	**GREEN**	Blinking	Wired LAN activity.
		OFF	No wired LAN activity.
		ON	Ethernet link established.

Installing the EtherBridge Adapter Hardware

1. Connect the EtherBridge to any 10/100 Ethernet connection.

    NOTE: Use the included Ethernet crossover cable when directly connecting two devices together (such as a PC, printer, or other Ethernet-enabled device) without the use of hub or switch.

2. Connect the power supply adapter to the power socket on the EtherBridge adapter, and plug the other end of the power supply into a suitable electrical outlet.

3. Mount the EtherBridge adapter on either the desktop or other convenient location:

    ▪ **Desktop mount** – attach the adhesive rubber feet (provided in the desktop mounting kit) to the bottom of the EtherBridge adapter as shown below.

    ▪ **Universal mount** – peel off the protective backing from the Velcro strips (provided in the universal mounting kit) and attach one strip on each side of the product label as shown below.

Configuring the EtherBridge Adapter

The EtherBridge adapter can be configured from either the EtherBridge Configuration Utility (supplied on the TROY EtherBridge Installation CD that came with the product and downloadable from www.troygroup.com), or by using a standard Web browser (e.g., Internet Explorer or Netscape Navigator).

Installing the EtherBridge Utility

1. Insert the EtherBridge Installation CD into the CD-ROM drive of your Windows-based computer. The CD should start automatically on any Windows 95 or later PC, and then display a top-level menu.

2. Click on *EtherBridge Utility Setup*, and follow the on-screen instructions to install the EtherBridge Utility.

3. After the installation is complete, start the EtherBridge Utility from the Windows Start menu (*Start*, *Programs*, *TROY Group, EtherBridge, EtherBridge Utility*), and it will search for all available EtherBridge adapters on the network.

4. Select the EtherBridge you want to configure. Enter the password (the default password is `access` using all lower-case letters), and then click on the *Login* button. You should now be able to configure the EtherBridge.

EtherBridge Utility Menus

The EtherBridge Utility provides five main menus (*INFO*, *SECURITY*, *STATUS*, *AP BROWSER*, and *ABOUT*) to assist you with monitoring and configuring the Etherbridge adapter. The following are brief descriptions of each available menu.

Info

This menu item displays the current EtherBridge settings such as ESSID, adapter name, rate, IP address, subnet mask, and default gateway.

ESSID

The ESSID is a unique ID used by access points and client stations to identify a wireless LAN. Wireless clients associating to any access point must have the same ESSID. The default ESSID is "ANY", which will connect the EtherBridge to the nearest access point. The ESSID can have up to 32 characters.

NAME

Assign a unique name for the EtherBridge Adapter. The default name is EtherBridge.

RATE

The EtherBridge provides various data rate options for you to select. Data rates options include **1 Mbps, 2 Mbps**, **5.5 Mbps**, **11 Mbps**, and **Auto**. In most networking scenarios, the factory default "**Auto**" setting will usually provide the most efficient data rate.

IP ADDRESS

Assign an IP address to your EtherBridge if you wish to configure it via the Web Browser interface. Consult your network administrator to obtain an available IP address (the default IP address is 192.168.1.1). For further setup, please refer to the following section.

SUBNET MASK

Assign a subnet mask to your EtherBridge if you wish to configure it via the Web Browser interface. Consult your network administrator to obtain the correct subnet mask to use.

DEFAULT GATEWAY

Assign a default gateway to your EtherBridge if you wish to configure it via the Web Browser interface. Consult your network administrator to obtain the correct default gateway to use.

PASSWORD

It is highly recommended that you assign a new password to your EtherBridge for security. Enter the new administrator password you would like to use in the *New Password* and *Confirm Password* fields respectively. Passwords are case-sensitive and are limited to a maximum length of 32 alphanumeric characters.

After setting the parameters, click on the *Apply* button to save and activate the changes. To return to the previous page, click on the *Cancel* button.

DEFAULT

Click on the *Default* button to restore the EtherBridge to factory default settings.

Security

To prevent unauthorized wireless stations from accessing data transmitted over the network, the Wireless LAN Smart Station Adapter offers WEP (Wired Equivalent Privacy), which encrypts data transmitted over the wireless medium.

Click on the *Security* tab to view the current security status of the EtherBridge. Click on the *Setup* button to change the current security configuration.

WEP

To enable WEP encryption, select the encryption type (either 40-bit or 128-bit), and Key Format (ASCII, Hex, or Passphrase). Then enter a WEP Key in the **Edit Key** field.

For 40-bit encryption you may choose the following:

ASCII: *5 characters* (case sensitive) ranging from "a-z", "A-Z" and "0-9" (e.g., MyKey)

Hex: *10 hexadecimal digits* in the range of "A-F", "a-f" and "0-9" (e.g., 11AA22BB33)

For 128-bit encryption you may choose the following:

ASCII: *13 characters* (case sensitive) ranging from "a-z", "A-Z" and "0-9" (e.g., MyKey12345678)

Hex: 26 *hexadecimal digits* in the range of "A-F", "a-f" and "0-9" (e.g., 00112233445566778899AABBCC)*.*

Create Encryption Keys Using a Passphrase

1. To create encryption keys by using a passphrase, select a key format (either 40-bit or 128-bit).

2. Type a character string in the Passphrase field to generate the key fields, and then click on *Generate*. As you type, the utility will generate the four keys automatically.

3. Select one key from the *Edit Key* field, and then click on the *Apply* button to save and activate the changes.

   NOTE: Remember that the WEP key must match the WEP key of your wireless access point.

After defining the WEP keys, click on the *Apply* button to save and activate the changes.

Status

The *Status* tab selection allows you to monitor the general information regarding communications between the EtherBridge adapter and the wireless access point.

AP Browser

By clicking the *Refresh* button, the AP Browser will reload and display the available access points within range of the EtherBridge adapter. Besides showing the BSSID of each access point, it also displays the ESSID, channel, support, and capability. The AP Browser can have up to 16 access points.

About

The *About* tab selection displays the version of the EtherBridge Utility and the firmware version of the EtherBridge adapter.

Web Browser Configuration

The Web Browser Interface allows the user to configure the EtherBridge with a standard web browser such as Netscape Navigator or Microsoft Internet Explorer. Therefore, any operating system that supports web browser capabilities can be used to configure the EtherBridge adapter. In order to use this feature, you must first make sure that you have a web browser installed on your computer and that you have configured an IP address in both the computer and the EtherBridge adapter.

NOTE: **The EtherBridge and the computer need to be on the same TCP/IP subnet (or both configured properly with the correct subnet mask and default gateway if on a different subnet). For example, because the EtherBridge default IP Address is 192.168.1.1, you would set your computer to have an IP Address of 192.168.1.10.**

Also, ensure that you have configured your computer's web browser properties to communicate over the local area network (rather than via a PPP dial-up connection).

To use the Web Browser, start your web browser, and enter the default IP address http://192.168.1.1 of the EtherBridge Adapter as the destination web site. Once you are connected, enter the default password *access* using all lower-case letters, and then select the item that you wish to configure. You will then be connected to the appropriate web page for configuration of that item. You may use the normal browser buttons to move forward and backward through the web pages.

Upgrading the EtherBridge Firmware

The Firmware Upgrade Utility is included with the installation of the Configuration Utility.

1. Start the Upgrade Utility by clicking on *Start*, *Programs*, *TROY Group*, *EtherBridge*, *Firmware Upgrade Utility*. After the Upgrade Utility starts, it will search for all available EtherBridge adapters on the network.

2. Select the EtherBridge adapter you want to upgrade. Enter the password (the default password is *access* using all lower-case letters), and then click on the *Login* button.

3. Enter the firmware file name and path (folder or directory location) in the file entry field (e.g., C:\downloads\ethbg20.bin) or browse for the firmware file by clicking the *Open File* button. The latest firmware files can be found at http://www.troygroup.com.

    NOTE: **Firmware upgrades are not normally needed. Only upgrade the firmware if you are experiencing difficulties with the EtherBridge adapter or have been advised to do so by a TROY Technical Support representative.**

4. Click on the *Upgrade* button to automatically load the file into the flash-file memory area of the EtherBridge adapter. When the upgrade process is complete, the message "*Upgrade successful*" will appear on the screen, and then the Upgrade Utility will return to the main screen. The EtherBridge adapter is now ready for normal operation.

Obtaining Technical Support

TROY technical support is available to assist you with any questions concerning the setup, operation, or maintenance of your TROY EtherBridge adapter.

Worldwide Web Support

Located at http://www.troygroup.com/wireless, the TROY web site provides answers to many common technical questions and also includes copies of product manuals and literature, as well as utilities and firmware load images.

Technical Support

North and South America

If you need to talk to one of our Technical Support Specialists, our support line is open Monday through Friday, 8 AM to 8 PM, Eastern Standard Time.

U.S. 48 contiguous States: (800) 332-6427

Canada, Alaska, Hawaii, and South America: +1-304-232-0899

E-Mail: technicalsupport@troygroup.com

Europe

Technical support is available in either German or English from Monday through Thursday, 9 AM to 12 PM and 1 PM to 5 PM, and on Friday from 9 AM to 12 PM and 1 PM to 4 PM.

Phone: +49-7032-9454-21

E-Mail : support@troygroup.de

Web: http://www.troygroup.de

Returning Products

If you need to return a TROY product for any reason (failures, incorrect shipments, etc.), follow the steps below:

1. Contact the TROY Technical Support group at (304) 232-0899 to request a Return Goods Authorization (RGA) number (for North and South American customers), or call +49-7032-9454-21 (for European customers) and request a Return Material Authorization (RMA) number.

2. Be prepared with the serial number of the unit you are returning. You will be asked for the serial number to verify warranty coverage.

Please record these serial numbers in the space provided below for future reference.

EthrBridge Model #: _____

EtherBridge S/N: _____

Make sure that you write the RMA or RGA number on the outside of the shipping container you use to return the product. Please ship the defective product(s) to the appropriate address below:

North and South America: Europe:

TROY Group, Inc.   TROY GmbH

RGA# _____   RMA# _____

3 Bryan Drive   Schwarzwaldstr. 99

Wheeling, WV 26003   D-71083 Herrenberg,

                                              Germany

Contacts

Corporate Headquarters

TROY Group, Inc.
2331 South Pullman Street
Santa Ana, CA 92705   USA
(949) 250-3280

Technical Support

North and South America

U.S. 48 contiguous States: (800) 332-6427
Canada, Alaska, Hawaii, and South America: +1-304-232-0899
E-Mail: technicalsupport@troygroup.com

Europe

Phone: +49-7032-9454-21
E-Mail: support@troygroup.de
Web: http://www.troygroup.de

Safety and Regulatory Notices

FCC Compliance Statement (for United States Users)

This equipment has been tested and found to comply within the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver,
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The radiated output power of EtherBridge is far below the FCC radio frequency exposure limits. Nevertheless, the EtherBridge shall be used in such a manner that the potential for human contact during normal operation is minimized.

Warning

The connection of a non-shielded equipment interface cable to this equipment will invalidate the FCC Certification of this device and may cause interference levels which exceed the limits established by the FCC for this equipment. It is the responsibility of the user to obtain and use a shielded equipment interface cable with this device. If this equipment has more than one interface connector, do not leave cables connected to unused interfaces. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

FCC Compliance Statement (for European Users)

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. TROY Group cannot be responsible for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product.

This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to CISPR 22/European Standard EN55022. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communications devices.

FCC Compliance Statement (for Canadian Users)

This Class B apparatus complies with Canadian ICES-003.

Cet appareil numérique de la class B est conforme à la norme NMB-003 du Canada.

Declaration of Conformity

According to 47CFR, Part 2 and 15 for Class B Personal Computers and Peripherals; and/or CPU Boards and Power Supplies used with Class B Personal Computers:

We: TROY GROUP, INC.

Located at: 2331 South Pullman Street

                          Santa Ana, CA USA

Declare under sole responsibility that the product identified herein, complies with 47CFR Part 2 and 15 of the FCC rules as a Class B digital device. Each product marketed, is identical to the representative unit tested and found to be compliant with the standards.   Records maintained continue to reflect the equipment being produced can be expected to be within the variation accepted, due to quantity production and testing on a statistical basis as required by 47CFR §2.909. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Trade Name: TROY

Type of Product: Ethernet to 802.11b Client Bridge

Model: EtherBridge

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Regulatory Information

To satisfy RF exposure requirements, this device and its antenna(s) must operate with a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users must be provided with specific operating instructions for satisfying RF exposure compliance.

European Union (EU)

TROY hereby declares that the 802.11b wireless technology built into the EtherBridge is in compliance with the essential requirements and other relevant provisions of European Directive 1999/5/EC. The internal function is a radio device using the 2.4 GHz frequency band (2.400GHz – 2.4835GHz). It is intended for wireless communication with other 802.11b-enabled devices. The internal 802.11b technology complies with all applicable regulations FOR INDOOR USE in the following countries: Austria, Belgium, Denmark, Finland, Greece, Germany, Iceland, Ireland, Luxembourg, Norway, Portugal, Sweden,

The use of 802.11b wireless technology in other countries than those listed above may be restricted: before using 802.11b products, please confirm with the frequency management authority in the country where you plan to use it. OUTDOOR USE REQUIRES A LICENSE IN MANY COUNTRIES AND IS FORBIDDEN IN ITALY. In some situations or environments, the use of 802.11b wireless technology might be restricted by the proprietor of the building or responsible representatives of the organization, for example onboard airplanes, in hospitals or in any other environment where the risk of interference with other devices or services is perceived or identified as harmful.

If you are uncertain of the policy that applies to the use in a specific organization or environment, you are encouraged to ask for authorization to use 802.11b wireless technology prior to switching it on. Consult your physician or the manufacturer of personal medical devices (pacemakers, hearing aids, etc.) regarding any restrictions on the use of 802.11b wireless technology.

United States of America and Canada

Tested to Comply With FCC Standards FOR HOME OR OFFICE USE. See FCC 47CFR, Part 15.19(b)(2).

This device complies with part 15 of the FCC rules and with RSS-210 / RSS-139 of the Industry Canada.

Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note that any changes or modifications to this equipment not expressly approved by the manufacturer may void the FCC authorization to operate this equipment.

Canada (IC notice)

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment that is installed outdoors is subject to licensing.

Pour empêcher un brouillage radioèlectrique au service fasant l'object d'une licence, cet appareil doit être utilisé à l'interieur et loin des fenêtres afin de founir un écran de blindage maximal. Au cas aù un installation en plain air, le materiel doit faire l'objet d'une licence.