# NetworkEye/270
# Frame Server

## Installation and Configuration Guide

**Manual Version 1.0**
**Firmware Version 1.0**

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1 Set a default router/gateway on the NetworkEye/270 so you can communicate with it across routers. (*Setting a Default Router/Gateway* on page 18)

2 Set a root password to restrict unwanted configuration on the NetworkEye/270. (*Setting a Root Password* on page 18)

3 Use different HTML pages to view the captured images. (*Using Different HTML Forms* on page 19)

### Reference Pages

Look here for more information on the NetworkEye/270's HTTP setup and functionality. (*More About HTTP and the M270* on page 25)

### Troubleshooting

Try these suggestions to troubleshoot communication and HTML related problems. (*Troubleshooting Tips* on page 29)

## Documentation Conventions

Command syntax and examples are formatted as follows:

- The Courier font in **boldface** indicates commands that you type.

  ```
  $ ping ftp.microplex.com
  ```

- Regular Courier font indicates displayed results.

  ```
  ftp.microplex.com is alive
  ```

- Example names and numbers described in text are **bold**. **Bold** is also used for emphasis.

  sends data to the NetworkEye/270 named **spike**...

  The ***ipaddress*** is...

  The **http** directory...

- Variable values are shown in *italics* both in command syntax, output, and in text. *Italics* are also used for emphasis.

  **ping *ipname***

  *ipname* is alive

  Please enter the ***ipname*** at the prompt.

  Make sure you *first* contact...

# GETTING TO KNOW THE M270

## Overview

The purpose of this chapter is to get you acquainted with the NetworkEye/270's setup and architecture.

## What is the NetworkEye/270?

The NetworkEye/270 is a dedicated network server for digital cameras. It is used to connect cameras anywhere on an Ethernet network without having to rely on a PC. Images gathered by the NetworkEye/270 from the attached camera are viewable by network stations running industry standard Web browsers. By directing the browser to a specific HTML page residing on the NetworkEye/270, the camera's images can be viewed as they are continuously updated.

**Note**: Currently the NetworkEye/270 supports the black and white PC QuickCam from Connectix Corporation.

**Note**: The NetworkEye/270 is optimized for Netscape version 2.02 and higher.

### Sample Uses

The NetworkEye/270 is ideal for low level security and surveillance or for monitoring conditions like weather, traffic, and lineups. It also allows you to add live images to corporate Web pages.

## How Does the NetworkEye/270 Work?

### Architecture

The NetworkEye/270 has two connections to the PC QuickCam: a socket for power and a proprietary parallel interface for data transfer. The NetworkEye/270 plugs into a power

outlet providing power for both devices and attaches to a UTP Ethernet cable providing network connectivity.

The NetworkEye/270 is a miniature Web or HTTP server consisting of a:

| | |
|---|---|
| **Flash File System** | A 63-kilobyte area for holding HTML documents and graphics files. |
| **HTTP Server** | Serves HTML documents stored on the NetworkEye/270 to requesting Web browsers. |
| **FTP Server** | Allows FTP clients to connect to the NetworkEye/270 to change, create, copy, and delete HTML-related files stored in the device's file system. |

### TCP/IP's Role

The NetworkEye/270 uses World Wide Web and Internet technology to display captured images. Therefore, TCP/IP is the network protocol used to communicate with the device.

Before you can access the NetworkEye/270 from network stations, you need to configure it with an IP address and netmask. These network stations might be Unix hosts with built-in TCP/IP support or other hardware platforms like PCs and Macs running TCP/IP stacks. Once this is done, you can load Web browsers onto these stations and access the captured images on the NetworkEye/270.

# PREPARING TO USE THE M270

## Overview

This chapter discusses the preparation needed before using the NetworkEye/270 on your network.

### Installation Checklist

Before configuring the NetworkEye/270, ensure that you have the following available:

- ☐ A black and white PC QuickCam from Connectix.
- ☐ A reliable 10Base-T Ethernet connection.
- ☐ At least one network station preferably on the same subnet as the NetworkEye/270's Ethernet connection. This station can be a Unix host or another hardware platform like a PC or Mac running a TCP/IP stack. This station should be able to run a Web browser like Netscape version 2.02 or higher.
- ☐ An FTP client on your network station.
- ☐ A valid IP address and netmask for the NetworkEye/270 to use. These values must integrate with the existing IP addressing scheme on your network.
- ☐ [optional] The IP address of your default router/gateway to allow communications across routers.

## Unpacking the M270

Upon receiving the NetworkEye/270, check the packaging for any damage or missing pieces. Immediately report problems to the shipping company or vendor. If everything is in acceptable order, fill out the **Warranty Registration/Customer Survey** card and mail it in.

## Site Requirements

Prepare to install the NetworkEye/270 in a clean, well-ventilated environment protected from extremes of temperature, humidity, mechanical shock, or vibration. Provide enough space at the front and back of the unit for cable connections.

Prepare to install the NetworkEye/270 within four meters (13 feet) of a grounded 115 or 230 VAC outlet. Power is supplied to the NetworkEye/270 from an external transformer through a two-meter (six-foot) output cord and a 5-pin Mini-DIN recepticle and plug. The external transformer connects through a two-meter (six-foot) line cord to a 115 or 230 VAC outlet.

# CONFIGURING THE M270

## Overview

This chapter explains the basic configuration process for the NetworkEye/270 including:

1 Attaching the NetworkEye/270 to the network.

2 Configuring the NetworkEye/270 with an IP address and netmask.

3 Viewing the default image on the NetworkEye/270.

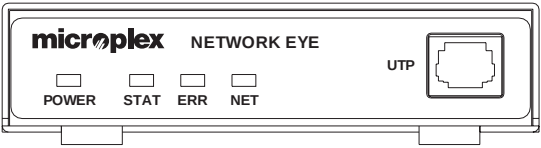
**Note**: If you haven't gone through the *Installation Checklist* on page 5, please do this before continuing on with configuring the NetworkEye/270.

## Attaching to the Network

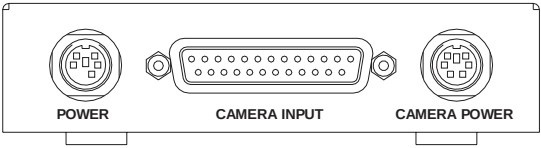
The NetworkEye/270 has one 10Base-T connector for connecting the device and the digital camera to an Ethernet network. It also has two power sockets: one for the camera and one for itself. Figure 1: *NetworkEye/270 Diagram* on page 7 shows the front and rear connector locations.

**Figure 1: NetworkEye/270 Diagram**

**Front View**



### Rear View




To attach the NetworkEye/270 to the network:

1 Plug your 10Base-T Ethernet cable into the NetworkEye/270's UTP port.

2 Plug the PC QuickCam's keyboard power plug into the NetworkEye/270's camera power socket. The camera should be plugged in to the device *before* the NetworkEye/270 is plugged in.

3 Plug in the NetworkEye/270's power supply.

Watch the lights on the front panel as they cycle through the power-on self test. When the test is complete, the proper LED pattern will show the POWER LED on solid, the STAT LED flashing, and possibly the NET LED flashing if network traffic is present.

## Configuring the IP Settings

The NetworkEye/270 requires an IP address and netmask before it can communicate over the network. There are three methods for configuring these settings:

1 ARP,

2 RARP,

3 BOOTP.

**Note**: ARP is the recommended method but if you already rely on RARP or BOOTP for assigning IP addresses on your network, you may want to use one of these methods instead.

## IP Configuration Using ARP

ARP allows you to associate the NetworkEye/270's Ethernet address found on the label on the bottom of the device with an IP address of your choice. The device can then be reached when you "**`ping`**" to it from a network station.

| Basic Requirements for ARP |
| --- |
| ☐ A network station running TCP/IP on the *same* subnet as the NetworkEye/270. |
| ☐ Root access on this network station. |

To configure the NetworkEye/270 with its IP settings using ARP, you will need to:

1 Log on to this local network station as *root* user.

**Note**: If you'd like to associate an IP name with the NetworkEye/270's IP address, add an entry for the NetworkEye/270 in your host table (i.e. /etc/hosts, hosts NIS map, or DNS name tables). You can then use this IP name rather than the address throughout these steps.

2 Find the Ethernet address for the NetworkEye/270 on the bottom of the device. It must be entered as part of this procedure.

3 Use the "**`arp`**" command to add an entry into the host's ARP table for this NetworkEye/270. This is the most common syntax for this command:

Syntax:

**`arp -s`** ***`ipaddress ethernetaddress`***

Example for Unix and most TCP stacks:

```
arp -s 192.75.11.9 00:80:72:05:1c:05
```

Example for Microsoft TCP stacks:

```
arp -s 192.75.11.9 00-80-72-05-1c-05
```

Example for the NetworkEye/270 with IP address, **192.75.11.9**, and Ethernet address, **00:80:72:05:1c:05**.

4 Check to see if the entry took properly on the host.

```
arp -a
```

You should see an entry in the listed ARP table with the IP address (or IP name) and Ethernet address you entered in Step 3.

5 Try to "**ping**" this IP address (or IP name) to see if the NetworkEye/270 is alive on your network.

```
ping ipaddress
```

**Note**: You will only be able to communicate with the NetworkEye/270 from a network station on the *same* subnet as the device. The NetworkEye/270 needs to be told about a default router/gateway so any packets that come in from a different subnet can be returned via this gateway. Please see *Setting a Default Router/Gateway* on page 18 to set this up.

6 Load a Web browser onto your local network station.

7 Direct your Web browser to the Uniform Resource Locator (URL) "**http://*M270ipaddress*/**" (e.g. "**http://192.75.11.9/**").

8 Click on "Configuration" under the Home Page menu.

9 Once prompted for a "User ID", type "**root**".

10 At the "Password" prompt, enter your root password if you have one configured. There is *no* password by default.

11 Click on the “OK” button.

12 On the “Configuration Menu” form that displays, click on “Network”.

13 On the “Network Configuration” form that displays, click in the box below the “IP Address” heading and type in the IP address for the NetworkEye/270.

14 Click in the box below the “IP Mask” heading and type in the netmask for the NetworkEye/270.

**Note**: If you would like to communicate with the NetworkEye/270 from across routers, you will need to fill in an entry below the “Routing” section of this form. Click in the first box under the “Gateway” heading and type in the IP address of your default router/gateway.

15 Click on the “Submit” button and reset the NetworkEye/270 by unplugging and plugging it back in.

If you can “**`ping`**” the NetworkEye/270 successfully, you can jump to *Viewing the Default Image* on page 15 for further configuration steps. If you cannot “**`ping`**” the NetworkEye/270, please see *Communication Problems* on page 29 for help.

## IP Configuration Using RARP

RARP allows you to dynamically assign an IP address to the NetworkEye/270 upon bootup.

| Basic Requirements for RARP |
| --- |
| ☐ A RARP server running on your network to provide responses to RARP requests from network devices like the NetworkEye/270. |
| ☐ The RARP request feature turned on within the NetworkEye/270. It is on by default. |

To configure the NetworkEye/270 with its IP settings using RARP, you will need to:

1 On your RARP server, make an entry in the /etc/ethers file for the NetworkEye/270.

Syntax:

***ethernetaddress ipaddress***

Example:

**00:80:72:05:1c:05 192.75.11.9**

Example for the NetworkEye/270 with IP address, **192.75.11.9**, and Ethernet address, **00:80:72:05:1c:05**.

2 Start the RARP daemon on the RARP server if it isn't running already. If it is running, send a HUP signal to it with the "**kill**" command:

Syntax:

**kill -HUP *pid***

where ***pid*** is the process ID of the RARP daemon.

3 Power up the NetworkEye/270 so that it immediately sends out a RARP request. Wait thirty seconds to allow the RARP process to complete.

4 Try to "**ping**" this IP address to see if the NetworkEye/270 is alive on your network.

**ping *ipaddress***

**Note**: You will only be able to communicate with the NetworkEye/270 from a network station on the *same* subnet as the device. The NetworkEye/270 needs to be told about a default router/gateway so any packets that come in from a different subnet can be returned via this gateway. Please see *Setting a Default Router/Gateway* on page 18 to set this up.

If you can "**ping**" the NetworkEye/270 successfully, you can jump to *Viewing the Default Image* on page 15 for further configuration steps. If you cannot "**ping**" the NetworkEye/270, please see *Communication Problems* on page 29 for help.

## IP Configuration Using BOOTP

BOOTP allows you to dynamically assign an IP address to the NetworkEye/270 upon bootup. In addition, the BOOTP server can provide additional details like a default router/gateway address.

**Basic Requirements for BOOTP**

- ☐ A BOOTP server running on your network to provide responses to BOOTP requests from network devices like the NetworkEye/270.
- ☐ The BOOTP request feature turned on within the NetworkEye/270. It is on by default.

To configure the NetworkEye/270 with its IP settings using BOOTP, you will need to:

1 On your BOOTP server, make an entry in the /etc/bootptab file for the NetworkEye/270.

Syntax:

```
M270ipname:\
  :sm=netmask:\
  :hd=homedirectory:\
  :bf=null:\
  :gw=defaultgateway:\
  :ht=ethernet:\
  :ha=ethernetaddress:\
  :ip=ipaddress:\
  :ts=timeserver:\
  :to=timezone:
```

Example:

```
spike:\
  :sm=255.255.255.0:\
  :hd=/usr/null:\
  :bf=null:\
  :gw=192.75.11.1:\
  :ht=ethernet:\
  :ha=008072051C05:\
  :ip=192.75.11.9:\
  :ts=192.75.11.7:\
  :to=25200:
```

2 Power up the NetworkEye/270 so that it immediately sends out a BOOTP request. Wait thirty seconds to allow the BOOTP process to complete.

3 Try to "**ping**" this IP address to see if the NetworkEye/270 is alive on your network.

**ping *ipaddress***

**Note**: You will be able to communicate with the NetworkEye/270 from network stations on different subnets if the device has been told about its default router/gateway in the BOOTP response from the BOOTP server.

If you can "**ping**" the NetworkEye/270 successfully, you can jump to *Viewing the Default Image* on page 15 for further configuration steps. If you cannot "**ping**" the NetworkEye/270, please see *Communication Problems* on page 29 for help.

## Viewing the Default Image

The NetworkEye/270 acts as a miniature Web or HTTP server holding HTML documents and related files and serving these to requesting client Web browsers. It is shipped with a default HTML page that displays a captured image from the attached camera. Please see *More About HTTP and the M270* on page 25 if you'd like to know more about the NetworkEye/270's HTTP setup and contents.

To view the default image page, you will need to:

1 Load a Web browser onto your network station.

**Note**: If you cannot "**`ping`**" to the NetworkEye/270 from a network station on a *different* subnet, you will have to load this Web browser onto a workstation on the *same* subnet as the device. To learn how to allow communications with the NetworkEye/270 across subnets, please see *Setting a Default Router/Gateway* on page 18.

2 Direct your Web browser to the URL of the default HTML image page.

Syntax:

**`http://`*`M270ipaddress`*`/image.html`**

Example:

**`http://192.75.11.9/image.html`**

A sample page will display showing you a captured image from the NetworkEye/270. If your Web browser supports the META tag, "refresh", you will see this image update itself every so many seconds. If not, you will have to hit the "reload" button within your Web browser to update this image.

**Note**: **If you are using Netscape version 2.02 or higher**, you will be able to use an HTML page which provides a smoother transition between

image updates. This is accomplished using Server Push rather than the “refresh” META tag within the docoment’s HTML source code. To see this image page, direct your Web browser to URL “**`http://M270ipaddress/images.html`**” (e.g. “**`http://192.75.11.9/images.html`**”).

If you have problems viewing the default image page, please see *HTML Problems* on page 33. If you’d like to edit a default HTML page or create a new one for viewing captured images, please see *Using Different HTML Forms* on page 19. For more information on the HTTP server functionality of the NetworkEye/270, please refer to *More About HTTP and the M270* on page 25.

# CUSTOMIZING THE M270

## Overview

This chapter discusses further NetworkEye/270 configuration options like setting a default router/gateway and storing a root password. It also shows you how to create different HTML forms to display your captured images.

## Optional Configuration

Once you can communicate with the NetworkEye/270 over the network, you can use special configuration HTML pages for additional settings. These pages come on the NetworkEye/270 by default and can be accessed if you:

1 Load a Web browser onto your network station.

**Note**: If you cannot "**`ping`**" to the NetworkEye/270 from a network station on a *different* subnet, you will have to load this Web browser onto a workstation on the *same* subnet as the device. Communicating across routers is covered next.

2 Direct your Web browser to URL "**`http://`*`M270ipaddress`*`/`**" (e.g. "**`http://192.75.11.9/`**").

3 Click on "Configuration" under the Home Page menu.

4 Once prompted for a "User ID", type "**`root`**".

5 At the "Password" prompt, enter your root password if you have one configured. There is *no* password by default. Click on the "OK" button when done.

The "Configuration Menu" will display allowing you to select the category containing the setting(s) you'd like to alter. A description of each category is given helping you decide which link to click on and online help is available. Two common examples are shown next.

## Setting a Default Router/Gateway

To allow network stations across a router to communicate with the NetworkEye/270, you will need to:

1 Click on “Network” once at the “Configuration Menu” HTML page (i.e. URL “**http://*M270ipaddress*/cgi-bin/indexConf**”).

2 If prompted for a “User ID”, type “**root**”.

3 At the “Password” prompt, enter your root password if you have one configured. There is *no* password by default.

4 Click on the “OK” button.

5 On the “Network Configuration” form that displays, click in the first box under the “Gateway” heading and type in the IP address of your default router/gateway.

6 Click on the “Submit” button and reset the NetworkEye/270 by unplugging and plugging it back in.

## Setting a Root Password

To set a root password on the NetworkEye/270, you will need to:

1 Click on “Administrator” once at the “Configuration Menu” HTML page (i.e. URL “**http://*M270ipaddress*/cgi-bin/indexConf**”).

2 If prompted for a “User ID”, type “**root**”.

1 At the “Password” prompt, enter your root password if you have one configured. There is *no* password by default.

2 Click on the “OK” button.

3 On the “Administration Configuration” page that displays, look at the section labeled “Root Password.”

4 Click in the box to the right of the “New” field and type in the password you would like to store.

5 Click in the box to the right of the “Confirm” field and retype this password.

6 Click on the “Submit” button and reset the NetworkEye/270 by unplugging and plugging it back in.

## Using Different HTML Forms

To view captured images on the NetworkEye/270, you can use the default image page as described in *Viewing the Default Image* on page 15 or you can create something new. For example, you may want to edit this form so your company name and logo are included.

### Editing the Default HTML Image Page

To edit the default image page, you will need to:

1 Start an FTP session with the NetworkEye/270.

Syntax:

**`ftp`** ***`ipaddress`***

Example:

```
ftp 192.75.11.9
```

2 Once prompted for a login name, type “**`root`**” followed by a RETURN.

3 At the password prompt, enter your root password followed by a RETURN. If this is a new NetworkEye/270, there should be no password by default so just hit RETURN.

4 Change to the **http** directory where the HTML files are stored on the NetworkEye/270.

```
cd http
```

5 Do a file listing looking for the file called "image.html".

```
dir
```

**Note**: **If you have Netscape version 2.02 or higher**, you will most likely want to use the default image page called "images.html" instead. This provides smoother transition between image updates since it relies on Server Push rather than the "refresh" META tag.

6 Copy this file to your network station for editing.

```
get image.html
```

or

```
get images.html
```

7 Close your FTP session with the NetworkEye/270.

```
bye
```

8 Rename this file so it doesn't get mixed up with the original default image page existing on the device. The file name cannot be longer than 32 printable characters.

You can now edit this file's HTML code using a text or HTML editor. When done editing, you need to place this file back into the NetworkEye/270's file system for use. You will need to:

1 Make a copy of this file on your network station to act as the master copy.

2 Start an FTP session with the NetworkEye/270.

Syntax:

```
ftp ipaddress
```

Example:

```
ftp 192.75.11.9
```

3 Once prompted for a login name, type "**`root`**" followed by a RETURN.

4 At the password prompt, enter your root password followed by a RETURN. If this is a new NetworkEye/270, there should be no password by default so just hit RETURN.

5 Change to the **http** directory where the HTML files are stored on the NetworkEye/270.

```
cd http
```

6 Place your new HTML page into this directory.

```
put filename
```

Example:

```
put my_image.html
```

7 Close your FTP session with the NetworkEye/270.

```
bye
```

You can now access this newly edited HTML page to view the captured images by pointing your Web browser to the URL "**`http://M270ipaddress/newfilename`**" (e.g. "**`http://192.75.11.9/my_image.html`**").

If your HTML code is correct within this file and the NetworkEye/270 and PC QuickCam are powered up and ready to go, you should begin seeing captured images displaying on this page. If you run into any problems, please see *HTML Problems* on page 33.

## Creating Your Own HTML Page

If you do not want to use a default HTML image page, you can create a new form using a text or HTML editor. However, please keep these guidelines in mind.

### HTML Guidelines

- ☐ You can have more than one HTML page display the captured images. However, the NetworkEye/270's file system allows 63 kilobytes worth of HTML files in total with some of this already taken up by files that come with the device by default. To find out how much space you have, change to the **http** directory and execute "**`dir`**" once logged into the device using FTP. Please refer to *Directory Structure and Default Files* on page 26 to find out more about the default files.
- ☐ You must remember to include a place to display the captured images. You should include something like "`<IMG SRC=″/cgi-bin/image>`" or "`IMG SRC=″/cgi-bin/animate>`" similar to the sample HTML pages provided, "image.html" and "images.html". You can load these with a Web browser and view their source code for reference. Please see *Viewing the Default Image* on page 15 for more information.
- ☐ When naming this new HTML file, remember to keep the full name no longer than 32 printable characters.
- ☐ Be sure to keep a master copy on a network station at all times for backup purposes.

When done creating this new page, you need to place it into the NetworkEye/270's file system for use. You will need to

1 Start an FTP session with the NetworkEye/270.

Syntax:

**`ftp ipaddress`**

Example:

**`ftp 192.75.11.9`**

2 Once prompted for a login name, type "**`root`**" followed by a RETURN.

3 At the password prompt, enter your root password followed by a RETURN. If this is a new NetworkEye/270, there should be no password by default so just hit RETURN.

4 Change to the **http** directory.

**`cd http`**

5 "**`put`**" this new HTML file into this directory.

Syntax:

**`put filename`**

Example:

**`put my_image.html`**

6 Close your FTP session with the NetworkEye/270.

**`bye`**

You can now access this new HTML page to view the captured images by pointing your Web browser to the URL "**`http://M270ipaddress/newfilename`**" (e.g. "**`http://192.75.11.9/my_image.html`**").

If your HTML code is correct within this file and the NetworkEye/270 and PC QuickCam are powered up and ready

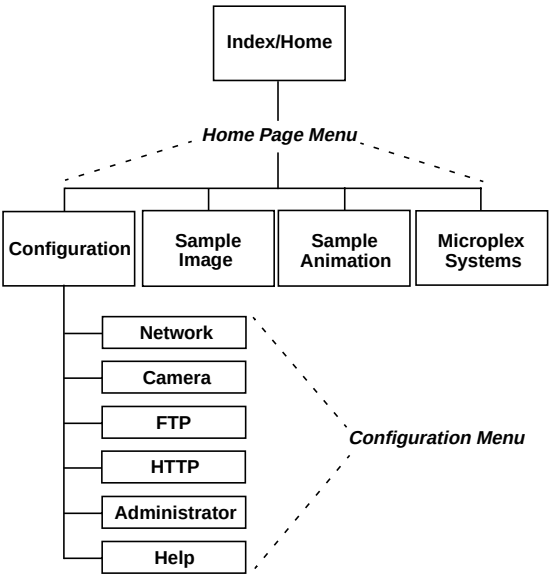
to go, you should begin seeing captured images displaying on this page. If you run into any problems, please see *HTML Problems* on page 33.

# M270 REFERENCE PAGES

## More About HTTP and the M270

The NetworkEye/270 is a miniature Web or HTTP server holding HTML documents and related files and serving these to requesting Web browsers. Its Web site can be accessed by directing your Web browser to URL "**`http://M270ipaddress/`**" (e.g. "**`http://192.75.11.9/`**").

**Figure 2: NetworkEye/270 Web Site Map**




**Note**: Online help is available for all HTML pages under the "Configuration Menu".

## Directory Structure and Default Files

When you open an FTP session to the NetworkEye/270 and you enter "**`dir`**" for a directory listing, you will see the following directories:

**cgi-bin** fixed directory for image files

**http** open directory for all HTML documents

The 63-kilobyte flash memory file system includes everything stored within the **http** directory. This is where you can move, copy, delete, and add HTML documents and related files. *Default HTML Files* on page 26 shows the documents that come with the NetworkEye/270.

### Table 1: Default HTML Files

| Name | Description |
|---|---|
| index.html | Index/Home page for NetworkEye/270. |
| image.html | Page displaying image captured from camera using "refresh" META tag. Use this as default HTML page for *all Web browsers*. |
| images.html | Page displaying continuous images captured from camera using Server Push. Use this only with *Netscape version 2.02 and higher.* |
| help.html | Online help for included HTML configuration pages. |

# Other Image Viewing Methods

The NetworkEye/270 not only allows you to view captured images through an HTML page but it also feeds raw GIF images directly to TCP ports for remote shell (i.e. **rsh**, **rcmd**, **remsh)** and FTP viewing.

For example, if you have a computer acting as a Web or HTTP server for your company site, you may want to transfer the images captured by the NetworkEye/270 to an HTML page on this server. To do this, you could use a remote shell command to grab the raw images from the NetworkEye/270 and have it saved to a file on the server. This command is used to do this:

Syntax:

```
remoteshellcommand M270ipaddress read image.gif > filename
```

Example:

```
rsh spike read image.gif > copy.gif
```

where **rsh** is the remote shell command for your network station, **spike** is the IP name of the NetworkEye/270, and **copy.gif** is the name of the file receiving the redirected image output.

**Note**: FTP can also be used to grab raw images from the NetworkEye/270 and transfer these to a file on the server. An FTP session must be opened with the device and you must change to the **cgi-bin** directory once logged in. Here you need to enter into "`binary`" mode allowing you to then execute "`get image`". This will transfer the current image to your server.

# GETTING HELP WITH THE M270

## Overview

This is an important chapter to read if you are in need of any assistance with the NetworkEye/270.

## Troubleshooting Tips

### Common Problems

**The NetworkEye/270 doesn't power up properly**

When the NetworkEye/270 powers up, the LEDs on the front go through a six-stage self test. However, *after waiting thirty seconds*, only the POWER, STAT, and possibly the NET LED should still be on or flashing. If the ERR LED comes on at all, try repowering the device and wait another thirty seconds to see if it clears. If it doesn't clear, contact your vendor.

### Communication Problems

**"`arp -s`" command doesn't work for NetworkEye/270**

If you find "**`arp -s`**" doesn't work or you don't see a valid entry showing when you do "**`arp -a`**" on your network station, you'll need to confirm:

- Did you enter the correct IP address or IP name and the correct Ethernet address for the NetworkEye/270 when doing the "**`arp -s`**" command?
- If you used the IP name rather than the IP address and this failed, have you tried using the IP address instead to rule out any name lookup issues?
- Are you sure the IP address you've assigned to this NetworkEye/270 is unique and valid for your network?

- Did you use the correct syntax (i.e. colons or hyphens) for the Ethernet address?
- Did you make sure you did the "**`arp -s`**" command on a network station located on the *same* subnet as the NetworkEye/270? ARP will not work across subnets.

If none of these suggestions help, you may want to try another configuration method like RARP or BOOTP. Please see *Configuring the IP Settings* on page 8 for further details.

## You cannot "**`ping`**" the NetworkEye/270

There are several reasons for this:

- Are you sure the IP address you've assigned to this NetworkEye/270 is unique and valid for your network?
- Have you assigned the correct netmask to the NetworkEye/270 based on your network addressing scheme?
- If you are trying to "**`ping`**" the IP name and this fails, have you tried to "**`ping`**" the IP address instead to rule out any name lookup issues?
- If you used the ARP configuration method, does "**`arp -a`**" on the network station show a valid entry for this NetworkEye/270?
- If you used the RARP or BOOTP configuration method, did you make the correct entries in the appropriate files (i.e. /etc/ethers and /etc/bootptab respectively) and reset the NetworkEye/270 when done?
- Have you confirmed that the UTP cable going to the NetworkEye/270 is good? Swapping cables or testing another working device on this same connection will help determine this.

- Is the STAT LED on the front of the NetworkEye/270 flashing once a second showing it is configured with an IP address? If it is flashing 2.5 times per second, you may want to repeat a configuration process found under *Configuring the IP Settings* on page 8.
- If you used the ARP or RARP configuration method or if you used BOOTP but did *not* specify a default router/gateway, are you trying to "**`ping`**" the NetworkEye/270 from a network station on the *same* subnet?
- Have you tried setting the S1 jumper inside the NetworkEye/270 to the default settings position and then tried to "**`ping`**" its IP address again? Please see *Jumpers* on page 41 for further details.

## You cannot "**`ftp`**" to the NetworkEye/270

If you are unable to open an FTP session with the NetworkEye/270, you'll need to confirm:

- Can you "**`ping`**" the NetworkEye/270? If not, refer to *Communication Problems* on page 29.
- If you are trying to "**`ftp`**" the IP name and this fails, have you tried to "**`ftp`**" the IP address instead to rule out any name lookup issues?
- If you used the ARP or RARP configuration method or if you used BOOTP but did *not* specify a default router/gateway, are you trying to "**`ftp`**" to the NetworkEye/270 from a network station on the *same* subnet?
- If this is not a new NetworkEye/270 you're trying to "**`ftp`**" to, might there be a TCP access entry set on it which restricts certain network stations from communicating with it?

## You have forgotten the NetworkEye/270's root password

If you have configured a root password but have forgotten it, you will need to:

1 Unplug the NetworkEye/270 and open its casing.

2 Move the S1 jumper to the default settings position. Please see *Jumpers* on page 41 for a graphical view of this.

3 Put the casing together and plug the unit in booting it up on the network.

**Note**: With the S1 jumper in the default settings position, you have **three minutes** to make the necessary changes. Otherwise, the ERR LED will come on and you will have to reset the device giving yourself another three minutes to make changes.

4 Load a Web browser on a network station and go to the URL "**`http://`*`M270ipaddress`*`/cgi-bin/adminConf`**" (e.g. "**`http://192.75.11.9/cgi-bin/adminConf`**").

5 Once prompted for a "User ID", type "**`root`**". At the "Password" prompt, enter your root password if you have one configured. There is *no* password by default. Click on the "OK" button when done.

6 Fill in the "New" and "Confirm" fields with a new password of your choice. You can also leave this blank for no password.

7 Press the "Submit" button.

8 Unplug the NetworkEye/270 and open its casing.

9 Move the S1 jumper back to the Enable Settings position. Please see *Jumpers* on page 41 for a graphical view of this.

10 Put the casing together and plug the unit in to boot it up on the network.

## HTML Problems

### You cannot open the default HTML image page

When this happens, please confirm:

- Can you "**`ping`**" the NetworkEye/270? If not, your Web browser will also have difficulty finding the URL of this default HTML page. Please refer to *Communication Problems* on page 29 for help.
- Have you used the correct URL for this page? It should be "**`http://M270ipaddress/image.html`**" (e.g. "**`http://192.75.11.9/image.html`**").
- If you configured the NetworkEye/270 using the ARP or RARP configuration method and you're trying to get to this default page for the first time, are you trying to go to this URL on a network station found on the *same* subnet as the NetworkEye/270? If you used BOOTP to configure the device but you did *not* specify a default router/gateway, local connections will only be allowed as well.
- If this is not a new NetworkEye/270, might there be a TCP access entry set which restricts certains hosts from communicating with it?

### The default image page does not display any images

If you have successfully loaded the default HTML page, "image.html" or "images.html", but you cannot see any images, please confirm:

- Is the PC QuickCam turned on and properly attached to the powered up NetworkEye/270? Please see *Attaching to the Network* on page 7 for further details.

## You cannot "**put**" an HTML file onto the M270

If you find you can "**ftp**" to the NetworkEye/270 but you cannot "**put**" any HTML files onto it, you will need to confirm:

- Once you opened an FTP session with the NetworkEye/270, did you execute "**cd http**"? HTML files must be placed inside this **http** directory only.
- Since the NetworkEye/270's file system is approximately 63 kilobytes, have you confirmed that you haven't used up this space already with earlier HTML pages? To find out how much space you have, change to the **http** directory and execute "**dir**" once logged into the device using FTP. You can delete unwanted HTML files to provide more space but keep copies on a network station.
- Is the name of your HTML file less than 33 printable characters? The file name size limit on the NetworkEye/270 is 32 bytes.
- When you started the FTP session with the NetworkEye/270, did you make sure you had permissions to move your HTML file?

## Your own HTML page does not display images

When this happens, be sure to confirm:

- Is the PC QuickCam turned on and properly attached to the powered up NetworkEye/270? Please see *Attaching to the Network* on page 7 for further details.
- Have you placed your HTML file into the **http** directory within the NetworkEye/270's file system?
- Have you used correct HTML coding for the image area? Within your HTML code, you should

have something like "`<IMG SRC="/cgi-bin/image>`" or "`IMG SRC="/cgi-bin/animate>`" similar to the sample HTML pages provided, "image.html" and "images.html". You can load these with a Web browser and view their source code for reference.

- Are you able to view images if you load a Web browser and go to the default HTML page at URL "**`http://`*`M270ipaddress`*`/image.html`**" (e.g. "**`http://192.75.11.9/image.html`**")? This is a good test to ensure images are being captured properly.

## Other Help Methods Available

For additional help, these options are available:

- "The Support Shack" at Microplex's Web site,
- Microplex's FTP site,
- Email, fax, or call Microplex.

### Web Site

Microplex's Web site contains information about the company and its products. The home page,"**`http://www.microplex.com/"`**, contains a link to Technical Support which brings up "The Support Shack", a centralized area for technical bulletins, firmware and software histories and files, and Support newsletters.

If you cannot find what you're looking for at this site, you can utilize the Support Request Form found at "**`http://www.microplex.com/microplex/support/forms/support.html`**". Once filled in, a request is sent to Microplex Technical Support.

## FTP Site

To obtain firmware and software for the NetworkEye/270, Microplex's FTP site, **"ftp.microplex.com"**, provides the best selection. Once logged in anonymously, you will need to change to the directory, **/support/m270**. Here, you will find several sub-directories pointing to software, firmware, and miscellaneous files.

## Contacting Microplex

If you need technical assistance for your NetworkEye/270 and you want to contact Microplex, please have this information on hand:

- NetworkEye/270 firmware version. Direct your Web browser to any one of the configuration HTML pages to view this information along the bottom.
- NetworkEye/270 serial number found on the bottom of the device.
- Web browser name and version.
- Description of the problem.

**Note**: The more details you have for the Support technician and the more prepared you are, the better.

These contact options are available:

- Email **support@microplex.com**.
- Fax to "Support" at +1 604 444-4239.
- Call +1 604 444-4232 or +1 800 665-7798 (in North America) and ask for Support.

**Note**: Email usually guarantees the *quickest* response.

# Repair Procedure

## Warranty Description

Microplex Systems Ltd. warrants this product to be free from defects in workmanship and material for the duration of **three** (**3**) years from the time of the original purchase date.

**Note**: This warranty can be extended to **six** (**6**) years from the time of the original purchase date if you fill out the **Warranty Registration/Customer Survey card** and mail it back to Microplex.

During this period, Microplex will repair or replace a defective product with a new or rebuilt product at no extra charge except as stipulated below.

At no time shall Microplex's liability exceed the replacement cost of the subject item.

All expressed and implied warranties for this product including all warranties of Merchantability, Suitability, and Fitness for a particular application are limited to **three** (**3**) years from the time of the original purchase date. In no event shall Microplex be liable for Loss of Use, Loss of Profits or Revenues, or other Indirect, Incidental, or Consequential Damages. This warranty *does not imply the right to loaner or replacement units during the time required to perform repairs*.

This warranty *does not* cover any losses or damage caused by:

- shipping,
- improper installation, use, or maintenance,
- unauthorized repair, modification, alteration, or replacement of components,
- excessive environmental conditions including electri-

cal power surges, temperature, humidity, or any other irregularities,

- negligence or abuse.

### Returning for Repair

To obtain service under this warranty, you must *first* contact Microplex's Technical Support department to rule out configuration errors. A Support technician will have you do some tests to ensure the problem is definitely hardware-related. If so, a Return Merchandise Authorization (RMA) number will be given to you by the technician. The defective product should then be returned to Microplex for repair.

Please use the following guidelines when shipping goods back for warranty claim:

- Package the product securely, in original packaging if possible, to prevent damage during shipping.
- Indicate the RMA number clearly on the address label of the shipping carton.
- Include a copy of the invoice/receipt.
- Use whichever courier company you prefer. However, we recommend using Federal Express due to its lower charges for customs.

**Note**: Microplex will pay the return shipping charges.

- If you ship from a country other than Canada, type (on any paper) a commercial invoice containing the following information:
    - your address,
    - Microplex's address (as *consignee*),
    - country of origin of the product (i.e. Canada),
    - number of packages in the shipment,
    - description of the product,

- quantity,
- total value of shipment (i.e. your total purchase price),
- reason for return (e.g. warranty repair),
- a declaration.

This invoice must accompany the returned product to meet Canadian customs requirements and should look like the sample on the next page.

## Figure 3: Sample Commercial Invoice

**COMMERCIAL INVOICE from**
Leslie Smith
ABC Corporation
1234 Western Parkway
Anycity, NC
USA, 27511

**DATE OF EXPORT**: 22/02/96

**AIR WAYBILL NO**: 123-12341234

**CONSIGNEE**:
Microplex Systems Ltd.
8525 Commerce Court
Burnaby, B.C.
V5A 4N3, Canada

**IMPORTER** (if other than consignee)
same as consignee

**COUNTRY OF ORIGIN**: Canada

| # OF PKGS | DESCRIPTION | QTY | TOTAL VALUE |
|---|---|---|---|
| 1 | network frame server | 1 | 100.00 |

**REASON FOR RETURN**: warranty repair

I declare all information contained in this invoice to be true and correct.

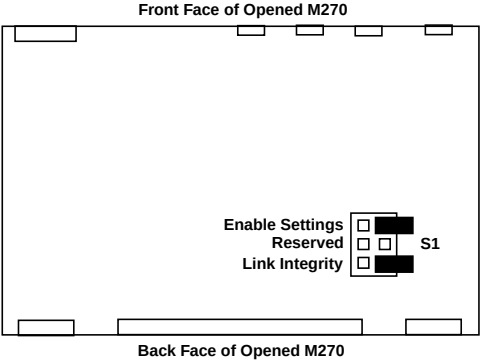
| SIGNATURE | NAME | DATE |
|---|---|---|
| | Leslie Smith | 24/03/96 |

# M270 SPECIFICATIONS

## Hardware Specifications

### Jumpers

**Figure 4: Default Jumper Positions**




| | |
|---|---|
| **Enable Settings** | Powers up the NetworkEye/270 so that the stored settings are utilized. If the jumper is positioned to cover both pins, **default settings** are enabled. Factory default settings are used rather than the settings you have configured. This is used when you are having communication problems or when you have forgotten the root password. |
| **Reserved** | Not for customer use. |
| **Link Integrity** | Enables link integrity on the UTP interface. If the jumper is positioned to cover both pins, link integrity will be disabled. |

## Network Interface

**UTP** IEEE 802.3 10Base-T UTP Ethernet female RJ45 connector.

## Physical Details

Dimensions:
Metric - 11.2cm W x 2.7cm H x 9.3cm D
Imperial - 4.4” W x 1.1” H x 3.7” L

Weight:
175g or .4 lbs without external transformer

## Environmental Details

Operating:
$0^{\circ}$ C to $50^{\circ}$ C

Storage:
$-40^{\circ}$ C to $70^{\circ}$ C

95% maximum humidity, non-condensing.

## Electrical Details

**Note:** The values given are for a NetworkEye/270 that is connected to a PC QuickCam.

External Transformer Power Requirements:

| | |
|---|---|
| Typical | 115VAC +/- 10% 36mA, 60Hz<br>220VAC +/- 10% 18mA, 50/60 Hz |
| Maximum | 115VAC +/- 10% 65mA, 60Hz<br>220VAC +/- 10% 27mA, 50/60Hz |

DC Power Requirements:

| | |
|---|---|
| Voltage | 6 VDC regulated |
| Current Typical | 160mA |
| Current Maximum | 200mA |

*Customer-supplied external transformers must be rated at 20 VA or greater for proper operation.

Power Consumption (Unit only):

| | |
|---|---|
| Typical | 992mW |
| Maximum | 1300mW |

Power Supply Options:

External transformer available in 120V/60Hz or 220-240V/50Hz.

## FCC Warning

This equipment generates, uses and can radiate radio frequency energy. If it is not installed and used as directed in this manual, interference to radio communications may result. The equipment has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference. In such a case the user will be required to correct the interference at the expense of the user.

## CE Mark Conformity Declaration

The NetworkEye/270 fulfills the requirements for radiated emission according to limit B of EN55022/1987 and the requirements for immunity according to EN50082-1/1992 residential, commercial, and light industry.

## M270 LEDs

**STAT** System Status.

**ERR** System error.

**NET** Data to network

**Power-on Self Test**

The six-stage power-on self test performs diagnostics on the processor, RAM, ROM, EEPROM, parallel port, and network interface. The STAT, ERR, and NET LEDs indicate which test is currently in progress.

**Operation Modes**

Run Mode is the normal operating state of the NetworkEye/270. In this mode, the STAT LED flashes differently depending on whether the device's IP address is configured.

### Table 2: STAT LED Patterns in Run Mode

| FLASH RATE | INDICATES |
|---|---|
| On once per second | Normal Mode, IP address configured |
| On 2.5 times per second | Monitor Mode, IP address not configured |

**ERR LED Conditions**

**License Violation** An invalid license mask and key forces the NetworkEye/270 into this mode *after three minutes* of operation. The LED pattern will show STAT off, ERR flashing, and NET on solid. To obtain the license key, you will need to contact Microplex Technical Support using

one of the methods listed under *Other Help Methods Available* on page 35.

**Note**: Having the S1 jumper in the default settings position for *more than three minutes* will also cause this LED state. Repowering the device will clear this situation for another three minutes. Moving the S1 jumper back to the Enable Settings position will stop this from happening.

**Hardware Exception** Internal errors force the NetworkEye/270 into this mode. The LED pattern will show STAT on solid, ERR flashing, and NET on solid. Repowering the device does not clear this mode. Contact your local vendor if this happens.

## Software Specifications

### Standards Supported

ARP (Address Resolution Protocol)
RARP (Reverse Address Resolution Protocol)
BOOTP (Bootstrap Protocol)
ICMP (Internet Address Resolution Protocol)
IEEE 802.3 10Base-T UTP Ethernet
IP (Internet Protocol)
TCP (Transmission Control Protocol)
FTP (File Transfer Protocol)
RSHD (Remote Shell Daemon)
UDP (User Datagram Protocol)
HTML (HyperText Markup Language)
HTTP (HyperText Transfer Protocol)

## TCP Port Numbers Used on the NetworkEye/270

| | |
|---|---|
| 20 | TCP Protocol for FTPD (data) |
| 21 | TCP Protocol for FTPD (control) |
| 68 | BOOTP client port |

# GLOSSARY

| | |
|---|---|
| **ARP** | Address Resolution Protocol. Associates a selected IP address with a network device's Ethernet address. |
| **BOOTP** | Boostrap Protocol. Allows a network device to discover its IP address dynamically upon bootup. The IP address doesn't need to be stored within the device itself permanently. |
| **Browser** | Also called a Web or HTML browser. Software tool for TCP/IP hosts providing a way to graphically view sites on the World Wide Web. Common browsers are Netscape and Mosaic. |
| **File System** | **http** directory within NetworkEye/270 which holds HTML-related files. It is approximately 63 kilobytes in size. |
| **FTP** | File Transfer Protocol used for transferring files from one TCP host to another. The NetworkEye/270 has an FTP daemon within it allowing FTP clients to transfer files such as HTML documents to it. |
| **GIF** | A standard graphics format used within HTML documents. |
| **HTML** | HyperText Markup Language. Format used for documents viewable on the World Wide Web. |
| **HTTP** | HyperText Transfer Protocol. The protocol used between the Web server and a Web browser to transfer HTML documents. |

| | |
|---|---|
| **HTTP Server** | Also called the Web server. Serves requested HTML files to Web browsers. |
| **IP** | Internet Protocol**.** |
| **netmask** | A binary value used to divide IP networks into smaller sub-networks or subnets. This mask is used to help determine whether IP packets need to be forwarded to a router/gateway. |
| **RARP** | Reverse Address Resolution Protocol. Allows a network device to discover its IP address dynamically upon bootup. The IP address doesn't need to be stored within the device itself permanently. |
| **Router/Gateway** | A device that forwards IP packets between sub-networks or subnets allowing devices on separate subnets to communicate. |
| **Socket** | TCP connection between two hosts consisting of a source and destination TCP port at each end. |
| **TCP** | Transmission Control Protocol used for reliable end-to-end communications over an IP connection. |
| **TCP/IP** | Name given to the suite of protocols (including both but not limited to TCP and IP) that govern the transmission and services of a network. |
| **TCP Port** | A logical connection point in the software of a TCP host or device. When two IP devices talk, they establish a socket which consists of a source and destination port on both ends. |
| **URL** | Uniform Resource Locator. Logical address for an HTML document. |

# INDEX

## D



## E



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## G



## H



## I

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## T



## U

## V



## W