HAI Web-Link User's Guide

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Introduction

Thank you for purchasing HAI Web-Link. Web-Link extends the powerful features of HAI controllers to the Internet. Web-Link provides a web-based interface to your controller, allowing you to view and control devices attached to it. Web-Link can be run on a standalone PC or accessed from the Internet.

There are two main components that make up Web-Link. The first is the server component (HAI Communications Service). The HAI Communications Service is responsible for the interaction between the controller and the PC as well as making the data available for web pages. The second component is the web pages. The web pages are created by querying the HAI Communications Service for needed information and then displaying it.

We at Home Automation, Inc. hope that you will take a few moments to become familiar with all of the features of this fine product by reviewing this document.

Installation

To set up Web-Link, follow each of the steps below:

1. Install a Web-Link compatible Internet browser

2. Install a Web Server

3. Install Web-Link Program Files

4. Make final configuration adjustments

5. Running Web-Link

1. Install a Web-Link compatible Internet browser

Web-Link requires version 4.0 of Internet Explorer or Netscape Navigator. Please note that Web-Link utilizes some advanced features of Internet Explorer and is therefore the preferred browser. At the time of this Web-Link release, the latest browser versions tested have been Internet Explorer 5.0 and Netscape Navigator 4.5. As you upgrade to new versions beyond those tested, we recommend that you check the HAI web site for possible Web-Link revisions.

To download and install Internet Explorer, visit Http://www.Microsoft.com/IE. To download and install Netscape Navigator, visit Http://www.Netscape.com.

Please consult the browser installation documents for further information on setting up and configuration the browser.

2. Install a Web Server

Web-Link requires a Web Server to supply all HAI controller information to client computers. The Web Server needed depends on the operating system of the computer that is connected to the HAI controller. Each section below describes the installation procedures for the various supported operating systems.

Note: Please read the instructions for the server as they pertain to Security carefully. You will likely want to alter the security settings appropriately so that you grant access only to those you wish. By default, most servers will grant 'Anonymous' access which means that everybody will be able to access your server, although they won't be able to access Web-Link without a user name and code.

Windows 95

Peer Web Server 4.0 is included as part of the Windows NT 4.0 Option Pack (Don't let the name fool you...this really is for Win95 too). The option pack can be downloaded free of charge at http://www.microsoft.com/NTServer/nts/downloads/recommended/NT4OptPk/. The option pack contains a host of new files however, you only need to download the Peer Web Server portion.

During the install process, choose the "Typical Install" option when prompted.

Please consult the PWS installation documents for further information on setting up and configuring the server.

Windows 98

Personal Web Server (PWS) is available on the Windows 98 CD.

To Install Personal Web Server for Windows 98:

1.   Insert the Windows 98 compact disk into your CD-ROM drive.

2.   Select the **Run** command from the **Start** menu.

3.   In the **Run** dialog box, type **x:\add-ons\pws\setup.exe**

4.   Substitute the letter of your CD-ROM drive for **x**, and click **OK**.

5.   Follow the directions in Personal Web Server setup.

     - For the "WWW Service" location, specify "C:\Inetpub\wwwroot"

To Run and Configure Personal Web Server for Windows 98:

1. Once you restart the computer after Setup finishes, Personal Web Server will start automatically. If it is running, an icon should appear in the tray on the Windows task bar.

2. To configure Personal Web Server, from the **Start** menu choose "**Programs \ Internet Explorer \ Personal Web Server \ Personal Web Manager**". See Help for instructions on configuring Personal Web Server (such as changing security options).

3. If you have problems running Personal Web Server, consult the troubleshooting guide. The guide can be accessed from the Personal Web Server Help Menu, choose "**ReadMe/Troubleshooting**".

Please consult the PWS installation documents for further information on setting up and configuring the server.

Windows NT 4.0 Workstation

Personal Web Server (PWS) is available on the Windows NT CD.

To Install Personal Web Server for Windows NT:

1. Insert the Windows NT compact disk into your CD-ROM drive.

2. Select the **Run** command from the **Start** menu.

3. In the **Run** dialog box, type **x:\i386\inetsrv\inetstp.exe**

4. Substitute the letter of your CD-ROM drive for **x**, and click **OK**.

5. Follow the directions in Personal Web Server setup.

   - For the "WWW Service" location, specify "C:\Inetpub\wwwroot"

Please consult the PWS installation documents for further information on setting up and configuring the server.

Windows NT Server

Internet Information Server is installed as part of the Windows NT operating system.

Please consult the Internet Information Server installation documents for further information on setting up and configuring the server.

3. Install Web-Link Program Files

Before running Web-Link Setup, the web server should already be installed.

Run the Web-Link setup program, [drive:]\Setup.exe.

1. Insert the HAI Web-Link compact disk into your CD-ROM drive.

2. Select the **Run** command from the **Start** menu.

3. In the **Run** dialog box, type **x:setup**

4. Substitute the letter of your CD-ROM drive for **x**, and click **OK**.

5. Follow the instructions provided on the screen.

4. Make Final Configuration Adjustments

You are almost finished! A few alterations need to be made before running Web-Link.

1. **Configure Serial Port, Baud Rate, and User Code** -- The Web-Link server needs to know the Serial Port, Baud Rate, and User Code to establish a connection to the controller.

   1. Start the Web-Link Server (if it isn't already) by choosing Start-->Programs-->HAI-->Web-Link-->HAI Communications Service

   2. Click the Web-Link Server icon located in the Windows toolbar tray (it's a picture of a house) to display the Properties Dialog

   3. Choose the 'System' tab

   4. Configure the Serial Port and Baud Rate in the 'Communications' section as per the settings on the HAI controller

   5. In the 'Login' section, specify a valid user code (the same user code that is used to arm/disarm the controller)

   6. Choose 'OK' or 'Apply' and a connection should be established with the controller

   7. If a connection cannot be established, consult HELP.htm for troubleshooting information

   8. Close the dialog

5. Running Web-Link

Now the fun begins! The following steps will guide you through running Web-Link.

1. Start the Web Server. The Web Server is usually started automatically when Windows loads. If it isn't loaded, you will need to start it manually from the Windows Start Menu.

2. Start the Web Browser and specify the address of the Web Server followed by "/Web-Link". For example, *Http://LocalHost/Web-Link*.

3. In the login dialog box, specify the NAME and corresponding CODE of a user. If you are unsure of the user name and code, check the controller for the codes that are defined there along with their corresponding name.

4. To view the various pages, click on the corresponding menu buttons on the left.

5. When finished, click the 'Logout' button on the top of the page.

Using Web-Link

Home

The Home page displays an overall summary of the system. This page displays information only and does not allow for the control of any devices. To control a device (such as turn a light on) you must navigate to that devices page.

Item	Description
Area Status	Current security mode of each Area as well as any alarms or malfunctions are displayed.
System Time	Current system time of the controller
System Date	Current system date of the controller
Sunrise	Calculated time of sunrise for the current day
Sunset	Calculated time of sunset for the current day
Temperatures	Current temperature of each Thermostat and Temperature Sensor
Messages	Text of any messages that are currently displayed on a console. (Note that this feature is available on OmniPro and Aegis controllers with firmware version 1.7E or greater)
	System is operating normally
	System is NOT operating normally
	System Date
	System Time
	Sunrise
	Sunset
	Thermostat
	Temperature Sensor or PESM
	Message
	General Trouble

Control

The Control page displays the current status of all named Units in the system and allows for their control. Selecting a Unit in the list will display more details about that Unit in the detail section at the bottom of the page. The detail section is also where each unit is controlled. To display more details for a given unit, click anywhere in the row of that unit (note that Navigator users must click on the unit's associated icon).

Item	Description
Units	Current status and name of each unit
Outputs	Current status and name of each output
Flags/Counters	Current status and name of each flag/counter
⚙	All Lights (or All Units)
💡	Unit is On
💡	Unit is Off
🟢	Output is On
🔴	Output is Off
🚩	Flag/Counter is On
🚩	Flag/Counter is Off

To control a unit, output, or flag:

6. Select the item to control from the list at the top of the page.

7. In the detail section, choose a command from the "Command" list.

8. Some commands require additional input such as dimming or brightening a certain number of steps. In this case an edit box will appear for additional input.

9. Choose a duration from the "Duration" list. Note that the duration does not apply to some commands so this option may not always be available.

10. Click on the "Update" button to send the command to the controller.

To issue an All Units On/Off command:

6. Select the "All Units" list entry at the top of the "Units" list.

7. In the detail section, choose a command from the "Command" list.

8. Click on the "Update" button to send the command to the controller.

Security

The Security page displays the current status of all Areas and Zones in the system and allows for their control. Selecting an Area or Zone in the list will display more details about that item in the detail section at the bottom of the page. The detail section is also where each area/zone is controlled. To display more details for a given item, click anywhere in the row of that item (note that Navigator users must click on the item's associated icon).

Item	Description
Areas	Current status and name of each Area
Zones	Current status and name of each Zone
	Area/Zone is Armed
	Area/Zone is Disarmed
	Zone is Bypassed

To control an Area or Zone:

4. Select the item to control from the list at the top of the page.

5. In the detail section, choose a command from the "Command" list.

6. Click on the "Update" button to send the command to the controller.

Button

The Button page displays a list of all available Buttons. Selecting a Button from the list allows that button to be executed.

Item	Description
Button	Name of each button
	Button

To control a Button:

6. Select the Button to control from the list at the top of the page.

7. In the detail section, click on the "Update" button to send the command to the controller.

Temperature

The Temperature page displays the current status of all Thermostats and Temperature Sensors in the system and allows for their control. Selecting a Thermostat or Temperature Sensor in the list will display more details about that item in the detail section at the bottom of the page. The detail section is also where each Thermostat/Temperature Sensor is controlled. To display more details for a given item, click anywhere in the row of that item (note that Navigator users must click on the item's associated icon).

Item	Description
Thermostats	Current name, temperature, and status of each Thermostat
Temp Sensors and PESMs	Current name, temperature, and status of each Temperature Sensor
	Thermostat
	Temperature Sensor or PESM

To control a Thermostat or Temperature Sensor

6. Select the item to control from the list at the top of the page.

7. In the detail section, choose a command from the "Command" list.

8. Depending on the command selected, additional input may be required (for example: choosing "Heat Setpoint" from the command list will display an edit field for specifying the temperature).

9. Click on the "Update" button to send the command to the controller.

Events

The Events page displays a list of the most recent System Events.

Item	Description
Event Name	Name of each Event along with its description, date, and time.
<Varies>	Event

Messages

The Messages page displays a list of messages currently displayed on consoles as well as a list of all available messages. Selecting a Message from the list allows that message to be controlled.

Item	Description
Displayed Message Name	Name of each message currently displayed on a console
Available Message Name	Name of each message available in the controller
	Message

To control a Message:

2. Select the Message to control from the list at the top of the page.

3. In the detail section, choose a command from the "Command" list.

4. Click on the "Update" button to send the command to the controller.

With Web-Link, you can also send a Custom Message to the controller to be displayed on the console (only available on OmniPro and Aegis controllers with firmware version 1.7E or higher).

To show a Custom Message:

6. In the detail section, choose the 'Show Custom Message' command from the "Command" list.

7. In the 'Custom Message' field, enter the text to be displayed (up to 15 characters).

8. Click on the "Update" button to send the command to the controller.

Note: When you send a Custom Message to the controller, it is stored in the controller as Message 128. If Message 128 has been previously named, when you send a Custom Message from Web-Link, it will be overwritten.

Using HAI Communications Service

The HAI Communications Service is the interface between the computer and the HAI Controller. The Properties dialog is accessed by clicking the HAI Communications Service icon (the small blue/grey house) in the Windows task bar. A description of each property page follows.

System - The System page displays the controller Model and Version, as well as settings for the Serial Port, Baud Rate, and Access Code. The Serial port should correspond to the port on the computer connected to the controller. The Baud Rate should correspond to the baud rate specified for communication within the controller. If you are unsure of the correct settings, verify the settings at the console or use the specified settings in the PC Access software. The Access Code should be a valid four-digit Master code that is specified in the controller.

Advanced - The Advanced page displays settings for whether or not Setup and Name information is retrieved from the controller each time the HAI Communications Service software is loaded. A checked box indicates that this information will be retrieved each time. Retrieving this information can take several seconds/minutes depending on the amount of data to be transferred, so it may be desirable to uncheck these boxes. Choosing either of the buttons will retrieve the associated information.

Tips & Tricks

Improve Web Page Load Time
Load the "HAI Communications Service" when the computer starts by placing its icon in the Windows Startup group. This will speed up the load time when the web page is accessed for the first time because the communications service will have already been started and configured.

Increase Security Levels to Keep Your System Protected
Configure your computer to use 'User Level Security' and then give permission only to those users that you want to gain access to Web-Link.

Upgrade Controller ROMs to Gain Access to More Features
Upgrading controller ROMs to at least firmware version 1.7E will provide additional functionality such as the ability to determine which messages are currently being displayed on a controller and to display custom messages on a console. The controller firmware version is displayed on the 'System' tab of the HAI Communication Service properties dialog.

Check the HAI Web Page Frequently for Updates and Information
The HAI web site can be accessed at www.homeauto.com.

Use Windows NT or Windows 2000
Windows NT and Windows 2000 are robust operating systems that lend themselves well to web environments due to their stability and security offerings.

Frequently Asked Questions

Does Web-Link require a connection to the Internet?

A connection to the Internet is only required if you wish to control your home/office remotely. Web-Link can run on a standalone PC and accessed via a web browser as if it were being accessed remotely.

Which browser works best with Web-Link? Internet Explorer or Navigator?

Although Web-Link runs effectively on both browsers, Web-Link takes advantage of some advanced DHTML in Internet Explorer that provides a more robust user interface.

Can I access Web-Link remotely if I do not have a dedicated connection to the internet?

Without a dedicated connection to the internet, the only way Web-Link can be accessed remotely is to configure your PC for "Remote Access" using Microsoft Windows "Dial Up Networking". See the Windows documentation for instructions on how to accomplish this. Once a connection is established to the PC via Dial up Networking, Web-Link can be accessed by following the instructions as outlined in the Using Web-Link section of this document. This is not a supported configuration, however.

After arming an area, the zones in that area do not immediately show the correct armed status

Most areas have a delay (i.e., Exit Delay) when they are armed. Although the Area displays its status as 'Armed', the zones within the area are not actually armed until after the delay expires. To view the updated status of the zones, refresh the web page by choosing the browsers REFRESH button or choosing the SECURITY menu button on the left menu pane.

Do I need to alter Web-Link at all if I upgrade my controller or system ROMs?

Yes! If you change controllers (i.e. Omni to OmniPro) or upgrade your system ROMs you should delete the HAIINFO.DAT file located in the same directory as HAICommSrv.exe. This file contains information specifically for the system (and version) that you are running. Failure to delete this file before running Web-Link may result in unexpected behavior.

Troubleshooting

Why can't I run the PC Access software while Web-Link is running

PC Access and Web-Link both use the same Comm port to communicate with the controller and therefore only one can be used at a time. To use PC Access you will need to first stop the HAI Communications Service. To stop the service, right-click on the HAI Communications Service on the toolbar and choose Close.

A connection with the server could not be established

When using Web-Link on a computer that does not have an active network connection, Web-Link may be unable to access files on the Web Server. The most common error message reported is "A connection with the server could not be established", although variations of this message may appear depending on browser type and version.

The cause of this is that the Web Server needs to have an active connection to the Internet to enable Domain Name Resolution. If the computer does not have an active connection to the Internet, it must be connected to an Internet Service Provider (ISP) by using Dial-Up Networking.

When Web-Link tries to connect to the Web Server using the local computer name, the TCP/IP stack is initialized and attempts to find the computer name. However, it is unable to find the computer name because there is no DNS or WINS service to resolve the Host name to an IP address. Host names are used in virtually all TCP/IP environments and always correspond to an IP address that is stored in a HOSTS file or on a DNS or a WINS server.

NOTE: The following workarounds will not work in all cases due to the complexity and possible variations in Network configurations for any given machine. Therefore, consult the appropriate documentation for your operating system or contact Windows Networking customer support.

Possible workarounds are listed below:

Workaround 1

Because the Web Server requires an active network connection, one solution is to connect to an Internet Service Provider (ISP) before attempting to use Web-Link. This resolves the problem because the ISP provides the Domain Name Resolution service that the Web Server requires.

Workaround 2

If Microsoft Internet Explorer is being used, connect to http://localhost. This initializes the TCP/IP stack and connects the browser to the home page on the local computer. The browser will then be able to access documents shared on the Web Server using the computer name instead of "localhost." If Internet Explorer is closed, the above steps must be repeated to access Web-Link as this workaround only applies to the current IE session.

Workaround 3

Use the HOSTS file to resolve the local machine name to the default IP Loopback address (127.0.0.1). The HOSTS file is used as a local Domain Name System (DNS) equivalent to resolve host names to IP addresses. The "Hosts.sam" file, located in the Windows directory (or the WinNT\System32\Drivers\Etc directory for Windows NT Workstation and NT Server). It shows an example of the entries that need to be made and can be used as a template. To edit the "Hosts.sam" file, open it in Notepad and replace word "Localhost" with the local machine's name. Because entries are case-sensitive, it is a good idea to assign multiple host names with different cases using the same IP address. Assuming the local machine's name is "Nikichan," an example of the edited "Hosts.sam" file is listed below.

After editing the HOSTS file, save it as "Hosts.txt" (by default, Notepad appends the .txt extension to all files that it saves, including file names without an extension), and then rename it to "Hosts" without the .txt file extension using the Windows Explorer. (To confirm that it is an extension- less file, go into click Options from the View menu, select the "Show all files" option, and deselect "Hide file extensions for known file types.") Reboot the machine so changes will take effect and load the HOSTS file into memory. Web-Link should now be able to access documents on Personal Web Server and documents in shared directories.

```
        ====================== Example Hosts.sam ======================

        # Copyright (c) 1994 Microsoft Corp.
        #
        # This is a sample HOSTS file used by Microsoft TCP/IP for Chicago
        #
        # This file contains the mappings of IP addresses to host names. Each
        # entry should be kept on an individual line. The IP address should
        # be placed in the first column followed by the corresponding host
name.
        # The IP address and the host name should be separated by at least one
        # space.
        #
        # Additionally, comments (such as these) may be inserted on individual
        # lines or following the machine name denoted by a '#' symbol.
        #
        # For example:
        #
        #      102.54.94.97     rhino.acme.com          # source server
        #       38.25.63.10     x.acme.com              # x client host

        127.0.0.1   Nikichan
        127.0.0.1   nikichan


        ================================================================
```

Note: Much of this information was obtained from the Microsoft Knowledge Base article, Q167661. Additional details can be found in this article as well as related ones. Consult the Microsoft Support Web Site at http://support.microsoft.com/support for more information.

Why does it take so long to load Web-Link the first time I access the server?
If the HAI Communications Service is not already loaded, it will automatically start when it is accessed via a web page. When the HAI Communications Service loads it polls the controller for the names of all devices as well as all controller setup information. This process can be fairly lengthy depending on the complexity of the controller configuration. Two ways to get around this are to make sure the HAI Communications Service is already loaded before accessing it through a web page. Placing the HAI Communications Service in the Windows Startup group is the suggested approach so that it loads automatically when Windows loads. Another alternative is to disable the downloading of setup information and names when the service starts. If the setup information and names rarely change then this is a viable alternative, however, you will need to manually download this information if you change anything. The options for downloading setup information and names can be found on the "Advanced" tab of HAI Communications Service Settings dialog.

No information is displayed on the web pages.
Verify all components are operating correctly by checking the following: Verify the web server is operating correctly by viewing the following file via the server. Load the web browser on the same computer that is acting as the web server and choose the Test HTML link. If the page fails to display then either the address to the help file is incorrect or the web server is not operating correctly. Recheck the address and then reference the web server documentation. If the page displays correctly then the next thing to check is whether the HAI Communications Service is communicating with the controller. Load the HAI Communications Service and then right-click on its icon in the toolbar to displays its settings. Verify that the controller Model and Version number are displayed in the dialog. If the Model or Version display "Unknown" then no communication is occurring. In this case verify that the Communications Port and Baud Rate settings are correct. Other things to check are whether any other applications are already accessing the comm port such as PC Access (these applications will need to be closed first). Verify that PC Access is able to communicate with the controller. If PC Access is unable to communicate with the controller then you must first get PC Access working before continuing with Web-Link. If the Model and Version are correctly displayed in the HAI Communications Service then you need to check and see if the Active Server pages component of the Web Server is operational. Run the browser on the same machine that is connected to the HAI controller and choose the Test ASP link. If the ASP test above was correctly displayed then you need to check and see if the HAI Communications Service ActiveX control is getting properly instantiated. Note that this test requires Internet Explorer 4.0 or higher. Run the browser on the same machine that is connected to the HAI controller and choose the Test ActiveX Control link. You will likely receive an error the first time you choose the link. If this occurs, follow the instructions on the test web page for specifying a user name and code and then re-run the test.

Raw HTML and Javascript text is displayed in the main Web-Link web page area

(1) Verify the address specified in the 'Address' field of the browser is using an HTTP address rather than a direct path to the web link files.
 	
Examples:
 	
    • Correct Address: Http://MyHome/Web-Link/Web-Link.htm
 	
    • Incorrect Address: C:\Inetpub\WWWRoot\Web-Link\Web-Link.htm
 	
(2) Verify that Active Server Pages (ASP) has been properly installed
(3) Verify 'Execute' or 'Script' rights on the Web-Link folder are enabled. This is a setting in the Web-Server Manager application.

Error: Server object error 'ASP 0177:800401f3'
The full error message is: **Server object error 'ASP 0177:800401f3'** **Server.CreateObject Failed** **The call to Server.CreateObject failed. The requested object instance cannot be created.** This error means that the Server was unable to create the necessary connection to the Web-Link server software. Reinstalling the Web-Link software will resolve this error.

Error: 403.9 Access Forbidden: Too many users are connected
The full error message is: **HTTP Error 403** **403.9 Access Forbidden: Too many users are connected** This error means that too many users are connected to the web server. Personal Web Server has a limit of ~10 active connections. To number of active connections can be verified in the Personal Web Server Manager application. See the PWS help for more information. More Information: Netscape Navigator may use several active connections for each client that is connected to the server whereas Internet Explorer will use one active connection for each client. This is because Navigator uses HTTP 1.0 and IE uses HTTP 1.1. Netscape/AOL say this will be fixed in the next release.

Login fails

To login to Web-Link requires a valid user name and code. User names and codes are assigned by the controller and can be easily added or changed using the PC Access software.

Web-Link prohibits the same user from being logged-in more than once at the same time. Any subsequent attempts to login while the same user is already logged-in will result in a login failure message.

This message will also be displayed if you do not properly logout out of Web-Link and then attempt to login again within a five-minute period of time.

Server Properties Dialog Doesn't Display When Clicked

If the Web-Link Server is retrieving Setup or Names from the controller, no other actions can be performed until those processes are completed. This will occur ONLY after the Web-Link is initially started and should take less than one minute depending on the amount of information that must be retrieved (more complex configurations will take longer). Placing the mouse over the Web-Link Server tray icon should display a tool tip displaying the current activity. Below is a summary of the various options that will be displayed:

- "Starting" -- Web-Link is establishing communication with the controller

- "Downloading Setup" -- Setup information is being retrieved from the controller

- "Downloading Names" -- Names are being retrieved from the controller

- "HAI Communications Service" -- Server is operational and can be accessed

Cannot see entire display at 640x480 resolution

Web-Link is designed for an 800x600 resolution or higher, however, 640x480 will work just fine if you massage your browser a bit.

To place your browser in FULL SCREEN mode in Internet Explorer, press the F11 key. Pressing the F11 key again will restore Internet Explorer to it's previous state.

Navigator users must turn off the Navigation, Location, and Personal toolbars. These options should be located under the View|Show menu.

Incorrect custom message is displayed in Web-Link

If you have turned off the downloading of names each time the HAI Communications Service starts, the list of available custom messages may differ from that actually in the HAI controller. If you notice that the custom message that Web-Link shows as being displayed is different from what is displayed on a console, you should download names so these will sync-up again. Turning on the downloading of names on startup will prevent this from happening.

Product Support

In the event that there are any questions, please call your installer first. If you need assistance directly from the manufacturer, please call us at (504) 736-9810, between the hours of 9:00 AM and 5:00 PM, Central Time. We will be happy to assist you.

When calling, please have the version and serial number of Web-Link ready, which can be found on the 'General' tab of the HAI Communications Service properties dialog.

Additional support is available on the Internet via a HAI users list. Send email to hai-users@celery.tssi.com.

Note that Microsoft Peer Web Server, Microsoft Internet Information Server, Microsoft Internet Explorer, Microsoft Active Server Pages and Netscape Navigator are all separate components from Web-Link and therefore problems specific to those applications should be directed to either Microsoft or Netscape.