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# Preface

This manual contains information to install, configure, and execute the Micro X software on your PC. Micro X implements the protocol specification of the X Window System over an Ethernet network or SLIP.

## About this Guide

The four chapters address the fundamentals of Micro X including installation and operation procedures. The Appendix provide additional information on various aspects of X server operation. The chapters are as follows:

| | |
|---|---|
| Chapter 1 | Introduction: A general description of Micro X. |
| Chapter 2 | Requirements: Hardware & Software requirements. |
| Chapter 3 | Installation: How to install Micro X |
| Chapter 4 | Using Micro X: |
| Appendix A | Host Access: Access to the X server. |
| Appendix B | XDMCP: |
| Appendix C | Transports: Installation for Microsoft Windows |
| Appendix D | Troubleshooting: |
| Appendix E | Sample Start-up Script |
| Appendix F | MXWIN.INI: Information about the control file |
| Appendix G | Keyboard Selection: International Keyboard support |

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debug=0 ..... 33
single=0 ..... 33
width=1016 ..... 33
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# Chapter 1 Introduction

## Micro X

Micro X is a Microsoft Windows program that will turn an 386/486 compatible PC into an X Window System server. This guide includes instructions for installing Micro X onto your computer.

Micro X-Win will allow X client programs located on other computers on the local area network to connect to your computer, and will use your computer to display the results using the MIT X11 graphical protocol.

## Advantages of Micro X

Using Micro X to access host computers and workstations provides several advantages:

- ⇨ Graphical display of X applications from the host computer.
- ⇨ Multiple windows running different tasks (perhaps, on several different computers) simultaneously.
- ⇨ The ability to run a wide range of commercially available X software packages.
- ⇨ Use of an intuitive point-and-click graphical user interface.
- ⇨ Microsoft windows and X11 windows can share the same desktop.
- ⇨ Microsoft windows and X11 use the same window manager to give the user a consistent interface.
- ⇨ Single Window Mode to allow the user to use remote window managers such as tab (twm), motif (mwm), and open look (olwm).

# Chapter 2 Requirements

## Software requirements:

- DOS 3.3 or better
- Microsoft Windows 3.1
- Supported TCP/IP network software such as TCP Open, FTP Software, Sun PC-NFS, or Windows Sockets (WinSock) such as the Trumpet Winsock..

## Hardware Prerequisites

- **Micro X** works on IBM Personal Computer AT's and compatibles (386/486).
- **Sufficient memory** - A minimum of 4MB of RAM.
- **Graphics Card** - Microsoft Windows supported VGA, 8514A, graphic accelerator, or high resolution graphics card.
- **Monitor** - A monitor matching the supported graphics card.
- **Mouse** - A Microsoft or compatible 2 or 3 button mouse with driver.
- **Ethernet card** - You should have an Ethernet card that is supported by the TCP/IP stack which will be used.
- **Hard Disk** - Minimum of 4MB of free space.

# Chapter 3 Installation

## PC Installation

The installation will be done under MS Windows. The installation will create the program group (X-Win), the program item (X-WIN), and configure the MXWIN.INI file.

FROM Microsoft Windows (2 diskettes)

Insert disk 1
Select the Program Manager.
Under the “File” option select “Run”.
Enter: **a:install**

Follow directions.

The installation creates a subdirectory called XWIN. All X-WIN files, except MXWIN.INI reside in this subdirectory or in subdirectories under it. MXWIN.INI resides in the WINDOWS subdirectory. Refer to Appendix F for a description of MXWIN.INI.

# Chapter 4 Using Micro X

## Initial Start-up

Several items will need to be considered for starting Micro X sessions.

1. **Is XDMCP to be used?**

   Micro X installs in a passive mode waiting for either an XDMCP or rsh/rexec session to be selected. XDMCP can be enabled by selecting XDMCP in a named session. Selecting that session will start the XDMCP session. If using the host name does not work, try using the I.P. address. If the session gets no further than the login window, then try using the F1 key instead of ENTER for terminating the "password" entry. This should give an xterm window. If this is the case, then you are prematurely exiting the Xsession or .xsession file. Refer to the troubleshooting section to correct the XDMCP problem.

   If XDMCP is not to be used, then sessions will have to be started using either an REXEC or RSH command to start an X session. Refer to later sections in this chapter on the form of the session entries and how to save them.

2. **Is a remote window manager to be used?**

   X-Win installs using MS Windows as the window manager. The Single Window Mode (Virtual Root) is disabled. The Single Window Mode must have been enabled in a prior X-Win session to allow use of a remote window amanger such as Tab, Motif, or Open Look.

   If you wish to use a remote window manage, it will have to be enabled using "Options" then "Window mode..." then selecting "Single Window Mode". If you are running on a Sun using Open Windows 3.0 and olwm then be sure that "Enable screen :0.1" is **not** selected during Single Window mode operation.

## Auto Start-up

The "Auto Startup" selection in a named session must be set to have a session automatically startup upon starting X-Win. Only one XDMCP session may be marked Auto Startup. If you mark an XDMCP session Auto Startup, X-Win will unmark all other Auto Startup selections.

A. If the remote host is running an X11R3 xdm, then the login window will automatically appear.

B. Under Sessions, if a session has "Auto-Startup" enabled, it will automatically be run each time X-Win is started. Multiple sessions can be started this way.

## Manually Starting Clients

The "Sessions" option provides a means of creating an rsh or rexec command string or specifying an XDMCP selection and saving it under a name.

An rsh and rexec command are provided to immediately execute a command or script on a remote host. The contents of the "Rsh..." or "Rexec..." commands are erased upon exiting X-Win. The results of a Rsh... or Rexec... command, such as ls, who, grep, or netstat will be shown in the X-Win window data area.

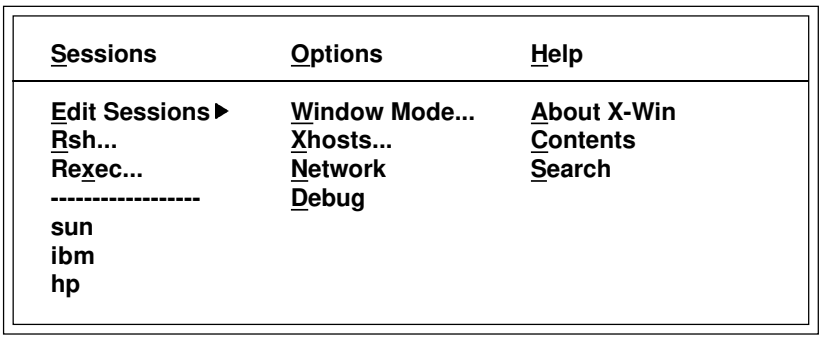
Use "Sessions" then "Edit Sessions" to create a saved rsh/rexec command. Rsh requires only a “login”, while rexec additionally requires a "password". This command line will be executed on the remote host selected. This command could simply be an xterm command to get a single window started. It could also be the name of a script file on the remote host which would bring the user up in a familiar X environment.

## Manually Starting Clients with Icons

Icons can be generated to start individual clients. From the Program Manager menu, use the New... option. Create it the same as the X-Win program item and add the name of a session after the xwin command. The command line would look like this:

**C:\XWIN\XWIN sun1**

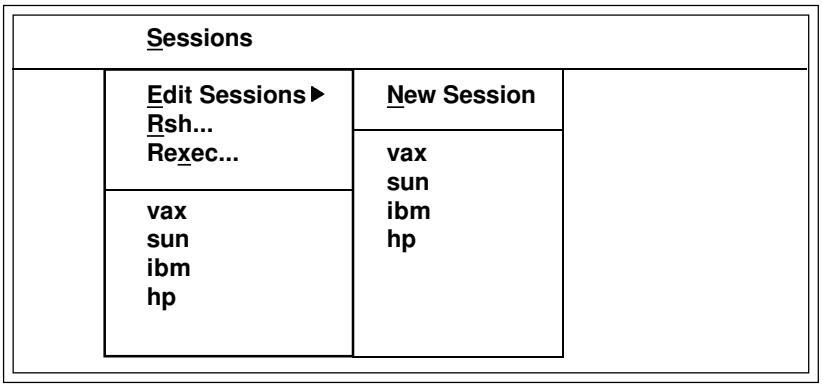
## X-Win Window




A brief description of the available options follows.

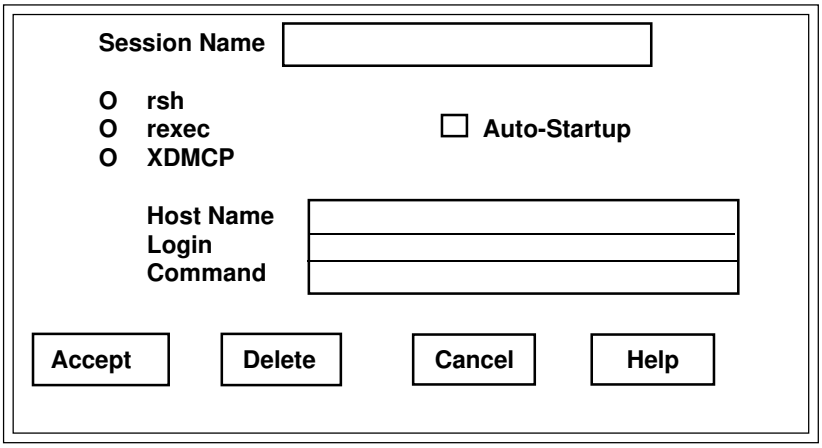
| | | |
|---|---|---|
| Sessions | Edit Sessions | Editing of sessions started using REXEC or RSH. |
| Sessions | Rsh...<br>Rexec... | rsh/rexec command/script to be immediately executed on the remote host. |
| Sessions | sun<br>ibm<br>hp | Sessions which were entered using the Edit Sessions options. |
| Options | Window Mode... | Controls selection of panning and multiple windows or virtual root window mode. |
| Options | Xhosts... | A database of hosts allowed to access this server without passing the "magic cookie". |
| Options | Network | Allows the user to select a supported tcp/ip transport. |
| Options | Debug | Reports X requests being processed. |
| Help | About X-Win | Gives the X-Win version number, support email address, and support telephone number. |
| Help | Contents | Contents of the Help file. |
| Help | Search | Searches by subject for help information. |

# Sessions




This selection allows the user to create an rsh/rexec command to be executed on remote hosts. The rsh/rexec command may be saved under a name for future use. A temporary (for this loading of Micro X only) rsh/rexec function is provided for testing and informational purposes. Results or error messages will be displayed in the main Micro X window. The user could use this feature to determine pathing, see a directory, see the environment, or etc. The Micro X window may be re-sized to accept larger messages.

## Session - Entry - rsh/rexec




**rsh/rexec**
You have the choice of using REXEC or RSH. If "New Session" was selected, the fields will be blank. If a session was selected, those entries will be shown. The "Session" may be saved (Accept) or removed (Delete).

Rsh and rexec are both de-facto protocols created with BSD4.1 (TCP/IP code from Berkeley). Once the connection is established, both protocols function identically. The difference between the two commands is in the information set at startup to authenticate the user. Rexec requires a "Login" and a "Password". Rsh only requires a "Login". The user may have to create an entry in his "Login" home directory on the remote host in the ".rhosts" file. This will give permission for that user to rsh to that host with that "Login".

**Note that use of rsh or rexec may not set the users environment. The pathing may need to be set in .cshrc or .profile.**

**Auto-Startup**
If this box is checked, this session will be automatically started when the server is started. Multiple sessions may have this box checked.

**Host Name**
"Host Name" is the IP address or name of the remote host. Note that some TCP/IP stacks (or some early versions) do not support host name resolution, which means that the IP address must be used. Some TCP/IP stacks have a "HOSTS" list into which the user must manually enter the host names and corresponding I.P. addresses. This would allow the user to use host names entered into this list. Forms of this entry may look as follows:

**192.1.1.1** or **unix1**

**Login**
"Login" is the users login name to the selected "Host Name".

**dick** or **user1**

If this field is left empty, the user will be forced to enter a login into a window when that session is selected. If the type of session is rexec, then a password will also be required.

**Command**
"Command" is the script file or command to be executed on the remote host. The command may be only one line which starts an xterm window on the X server. The following example would bring up an xterm window.

**/path/xterm -ls -n WindowName -display xpc:0 &**

A sample Xstart script file is included shown in Appendix D. The following example would run that script file "Xstart" on the remote host passing the parameter "xpc:0" or "192.1.1.23:0".

**Xstart xpc:0** or **Xstart 192.1.1.23:0**

The command line in our example, ‘Xstart xpc:0’ contains not only the script name on the remote host (‘Xstart’ in this case) but an additional argument, the name of the ‘display’. In X parlance, from the user’s perspective, every X server has a display name in this form:

**hostname:displaynumber.screennumber**

X client programs use this information to decide how best to connect to the X server and which screen should be used by default (on X displays with multiple monitors). This can be confusing at first. The parts of the display name are:

**hostname** - which machine the X display is physically connected to. If the host name is not given, the X client program assumes that it is to connect to a server on the same machine, which will never be the case with a X-SERVER based X server.

**displaynumber** - in X, the word "display" is normally used to refer to collections of monitors that share a common keyboard and mouse. Most PC compatible machines tend to have only one keyboard, and therefore only one display. A larger, multiuser system may have more than one display, so that more than one person could be using X simultaneously, To avoid confusion, each display on a machine is assigned a display number (starting at 0) when the X server for that display is started. On a computer running X-SERVER, the display number will always be 0. The display number must always be given in a display name.

**screennumber** - some displays share a single keyboard and mouse among two or more monitors. Since each monitor has its own set of windows, each monitor, or screen, is assigned a screen number (beginning at 0) when the X server for that display is started. This part of the display name is not required; if it is not given, then screen 0 will be used.

What this means is that the display name which has been given in the example command line is composed of the name of the PC running X-SERVER (in this case, a machine called 'xpc') followed by a ':0'. As is the case with the rest of the example, this is site-specific and you should substitute your X-SERVER machine name for 'xpc'.

**Variable Substitution**
Where the string "$DISPLAY" (capitalization important!) or "$MYIP" appears in the command field of an rsh or rexec, but not preceding another alphanumeric character, the variable "DISPLAY" or "MYIP" will be substituted.

**$DISPLAY**
The variable "DISPLAY" contains the hostname of the PC on which X-Win is running followed by ":0". If the hostname of the PC cannot be determined, MYIP is substituted.

example:

"user.company.com:0" = $DISPLAY

/usr/bin/X11/xterm -ls -display my_pcname:0 &
is replaced by:
/usr/bin/X11/xterm -ls -display $DISPLAY &

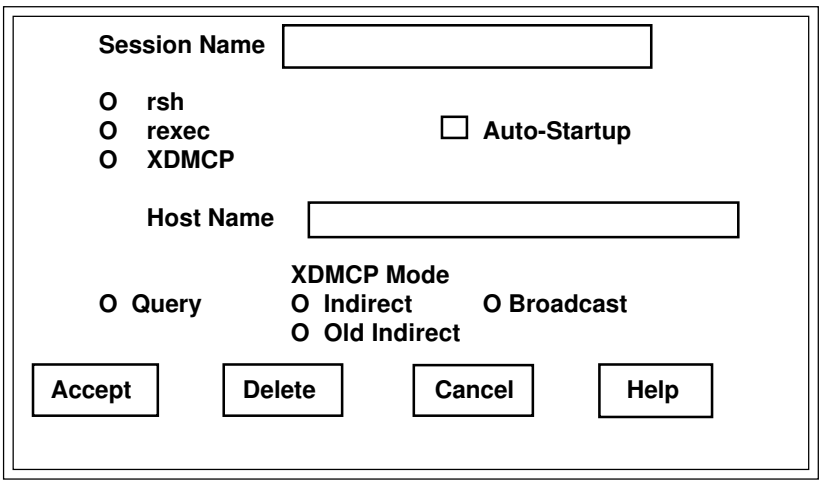
**$MYIP**
The variable "MYIP" contains the IP address of the PC on which X-Win is running in dotted quad notation.

example:

"192.1.1.23" = $MYIP

/usr/bin/X11/xterm -ls -display 192.1.1.23:0 &
is replaced by:
/usr/bin/X11/xterm -ls -display $MYIP:0 &

## Sessions - Entry - xdmcp

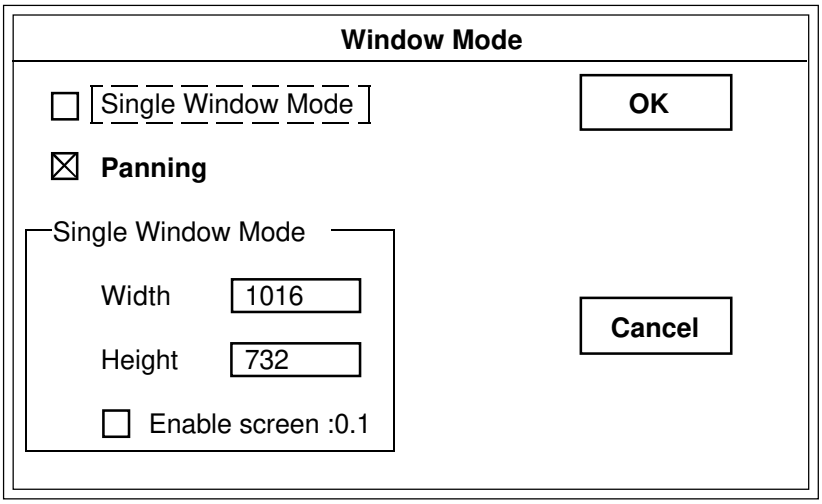



This selection configures the xdmcp mode of the X server. You may have to contact your network administrator to see if XDMCP is being used. The following chart gives a quick guide:

| | |
|---|---|
| Query | X-Win sends an XDMCP query to "Host Name". "Host Name" must be running XDMCP. |
| Indirect | X-Win sends an XDMCP query to "Host Name" to get another "Host Name" or list. |
| Old Indirect | X-Win sends an XDMCP query to "Host Name" to get another "Host Name" or list. |
| Broadcast | X-Win sends a broadcast XDMCP query onto the network. In effect, it says "I am here, manage me". |

Use "Indirect" if your XDMCP host does not run CHOOSER. Use "Old Indirect" if your XDMCP host runs CHOOSER for your machine. The optimum configuration is to use the (new) Indirect option and not run CHOOSER on the host. Using the "Old Indirect" will cause X-WIN to repeat the XDMCP query when the session is terminated. To stop the query, select another XDMCP session or exit X-WIN.

# Options - Window Mode...




**Panning**
The panning function will allow a selected window that is partially off-screen to be panned on-screen. Moving the cursor to the edge of the screen in the selected X window activates the panning.

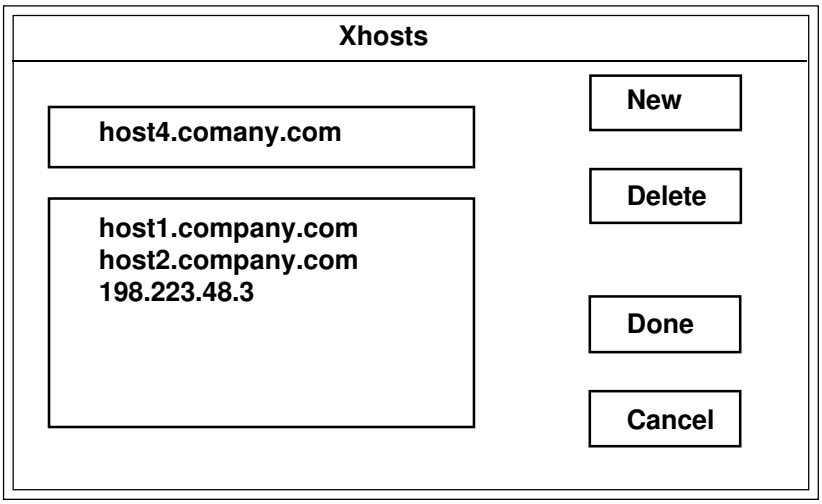
**Single Window Mode (Virtual Root)**
Selecting the Single Window mode will bring up a Virtual Root window the next time the server is started. X windows being created for screen zero on the PC (":0.0") will be created inside the Virtual Root window. The Virtual Root window will be the size of the screen (minus borders), if the width and height are not set

A remote window manager (such as twm, open look, motif, ...) may be run in the Virtual Root window. It is still possible, while in single window mode, to have X windows managed by the Microsoft window manager by selecting "**Enable Screen :0.1**". These window screens would be defined as:

application -display xpc:0.1

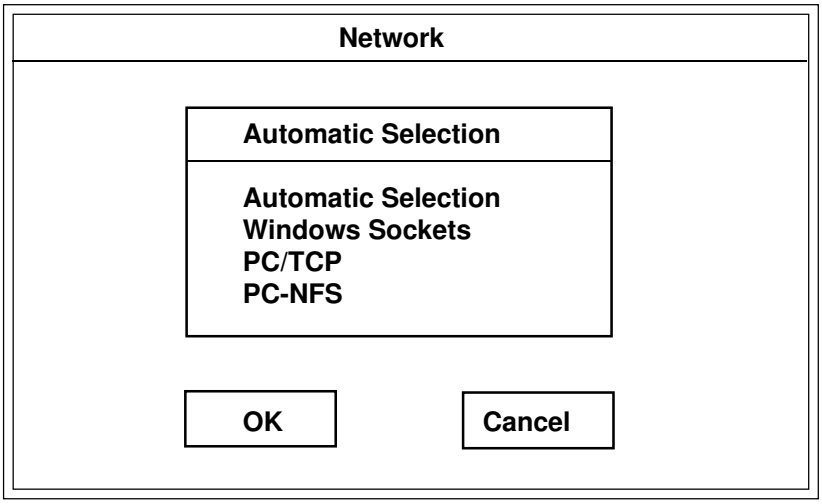
The first screen for xpc is ":0.0", the second screen for xpc is ":0.1".

## Options - Xhosts...




**Xhosts**
Xhosts is a host-based access control of those with access to the local X server. The list is an all or none option. If the list is empty, all hosts may have access to X-Win. If there is at least one entry in the list, then only those hosts who are in the list or those hosts who pass the Magic-Cookie may have access to X-Win.

## Options - Network...




**Network Selection**
X-Win supports:

| | |
|---|---|
| Windows Sockets | Most Mfgs. |
| PC/TCP | FTP Software |
| PC-NFS | Sun Microsystems |

X-Win is shipped in the automatic selection mode. X-Win will search for a tcp/ip stack in the above list order. If Automatic Selection is selected, a message in the X-Win window will inform the user which transport has been found and if it is ready.

## Help

A help menu is provided to give the user information to help in the installation and operation of X-Win.

### Help - About

The About section give the version number of X-Win. It also gives the email address and telephone number for customer support.

### Help - Contents - Search

Help for X-Win is given under Contents or by searching on key words.

## Copy & Paste Text

Text can be cut and pasted to/from MS Windows and the remote host.

From MS Windows to Remote host

The user will use the standard MS Windows command sequence to cut & paste to the Microsoft clipboard. The user may then place the contents of the clipboard into an X window using the middle (or simultaneous left/ right) button.

From Remot host to MS Windows

The user will use the standard sequence (normally holding the left button down and moving the mouse) to cut text from the X window which will be placed into the Microsoft clipboard. The data in the clipboard can be pasted using standard Microsoft paste procedures.

## Copy Graphics

From Remot host to MS Windows Clipboard

Graphics can be copied from an X window into the MS Clipboard. In the selected X window, hold the ALT key down and then the left mouse button to highlight the area to be copied. Releasing the left mouse button causes that area to be copied to the Microsoft Windows Clipboard.

# Appendix A Host Access

## Host Access

When an X client attempts to open an X display, the server checks to see if that client is authorized to connect before it allows the connection. If the client is not authorized, it gives a message such as:

```
Xlib:   Connection to "server:0.0" refused by server
Xlib:   Server is not authorized to connect to host
Error:  Can't open display
```

The X11R3 release gave only one method of authorizing clients to connect. That method is giving access based on the IP address of the host on which the client runs, also known as "xhost". The disadvantage of this method is that when you give access to a host, call it "host1", everyone who has an account on "host1" can access your display. Once they have access, they can move or delete windows, or even worse.

X11R4 introduced a new method of authorizing clients, called X authorization, or MIT-MAGIC-COOKIE-1. When you log in using X11, revision 4, xdm creates a file named ".Xauthority" in your home directory. In this file is a 16-byte key, or cookie, that is sent to the server as part of the connection setup information by X11R4 clients. If your client is running on a host that is not in the "xhost" list, but the client sends the correct cookie, then it will still be allowed to connect. Thus, when using an X11R4 xdm, your "xhost" access list will typically be empty but clients will still be able to connect.

Micro X obtains the "magic cookie" from xdm using XDMCP. The cookie is generated by a random generator in xdm. If Micro X is started this way, the initial "xhost" access list is empty, and access is restricted. If it is not started with XDMCP, then access control is disabled (any client is allowed to connect).

If you use an X11R4 xdm to get your login window, and want to bring up older (R3) clients on your display, you need to add the hosts on which those clients run to your access list. To do this, simply add the host using the xhost command before bringing up the window. You can make a permanent list of hosts that are in the access list of Micro X by adding those hosts to the Xhost list under the Options selection. You may want to do this in two cases:

1. You use Micro X in the non-XDMCP mode (any client can connect), and want to limit the access list to "trusted" hosts.

2. You use it in the XDMCP mode (only R4 clients with correct cookie allowed) and want to allow R3 clients from specific host(s) to connect to your server.

To make this permanent list, change the Xhost table. On each line of this list put an IP address (such as "192.1.1.1").

Clients are granted access if:

XDMCP

1. the client passes the correct MIT-MAGIC-COOKIE-1.

   or

2. the client resides on a host whose IP address is in the Host Access list.

Non-XDMCP

1. there are no entries in the Xhost list.

   or

2. the client resides on a host whose IP address is in the Xhost list.

A client can change the Host Access list (residing in local RAM memory) if its entry in the Xhost list is preceded by a plus sign (+).

# Appendix B XDMCP

Micro X uses the standard protocol specified by the X Consortium for use with X terminals, the X Display Manager Control Protocol, or XDMCP. XDMCP is used by X terminals to control the *xdm* program on a host on the network, The X terminal sends a request to the xdm host, the host and the X terminal send a few XDMCP messages between themselves, and then the xdm program brings up a login window on the X terminal. XDMCP is a part of revision 4 of X version 11 and is available from Sun as part of SunOS 4.1 or from DEC as part of Ultrix 4.2. If you have a host on your network with these versions or later, you should run Micro X in one of the XDMCP modes if you want to use *xdm* to manage your X server.

## xdm goals

A major goal of providing a display manager program is to integrate the X terminal completely into a networked environment. As nearly as possible the “log-in window” should automatically appear after the X server is started.

Once you log in, an automatic initialization procedure should run to bring up applications and position their windows as specified in your personal session “profile” script. After you log out of the X session, all connections should be closed, the terminal should be reset to a known state, and a new log-in window should appear, ready for the next user. This scenario can be achieved by having the X server communicate with a display manager program between user sessions.

If you are running X11R4, you do not need to make any additions to the host. However, if your are running X11R3, you may need to add a line to the “Xservers” file on the host in the directory /usr/lib/X11/xdm. The line you must add is “PC:0 foreign PC” where PC is the name of your personal computer.

# Appendix C Transports

The supported transports should already be configured to run under Microsoft Windows. If it is not running properly, check the following:

## Ftp Software.....PC/TCP

PC/TCP should be run in the 386 enhanced mode.
The following options should be used with the kernel startup:

ethdrv **-t 15 -p 26**

**-t 15** TCP connections =15
**-p 26** packet buffers =26

The following may need to be added to SYSTEM.INI under [386Enh].

```
device=C:\ftp\vpctcp.386
UniqueDOSPSP=TRUE
PSPIncrement=5
```

## Sun.....PC-NFS

The following may need to be added to SYSTEM.INI under [386Enh].

```
InDOSPolling=on
UniqueDOSPSP=true
PSPIncrement=5
TimerCriticalSection=1000
```

## Lanera.....TCP*Open*

The following lines may need to be added to the file PROGMAN.INI in the WINDOWS subdirectory for the TCP*Open* group to appear under MS Windows.

**GroupX=C:\TCPOPEN\BIN\TCP-KERN.GRP**

## IP Address Error

It the error "**I don't know my IP Address**" appears while trying to start-up in any mode, then the IP Address and Name of the PC should be entered into TCPOpen under the DATABASE option into HOSTS.

## WinSock.....Various

Implementations and revisions of WinSock vary. The X server needs to know the IP address of the PC. The above "**IP Address Error**" may appear. It may be necessary for the user to either have:

1. the domain name server specified
   (if the transport does host name resolution)

or

2. put an entry into the local HOSTS table for the PC.
   (The entry should have the PC's name and IP address.
   This file will usually look like the /etc/hosts file.)

# Appendix D Troubleshooting

## No X Window(s)

The Micro X icon was selected, and the Micro X window came up, but no X windows automatically appeared.

1. If one of the XDMCP modes was selected, you must make sure that xdm is running. This can be done by using the rsh/rexec function with the following command:

   **ps -ax | grep xdm**

   Look in the Micro X window for the results. If xdm is not running, check with you system administrator. If xdm is running, determine next if it is the XDMCP version:

   **netstat -an | grep 177**

   If XDMCP is running, the following line will appear in the Micro X window:

   **udp 0 0 *.177**

2. If the XDMCP mode of "None" is selected, then there must be a session with "Auto-Startup" selected. If "Auto-Startup" is not selected in any of the sessions then one will have to be manually selected. This rsh/rexec session must be correct. Check the Micro X window for errors.

3. A session will have to be started by selecting one of the entered sessions. If there are not any entered sessions, then one, or more, will have to be configured. All entries under the Sessions list are started using either RSH or REXEC. The user should make sure that the hosts can accept these commands. RSH may require an entry in .rhosts in that users home directory.

## Exits after XDMCP login window

After you log in to the XLOGIN window, xdm executes the script Xsession, which is usually in /usr/lib/X11/xdm. (Sun's may be in /usr/openwin/lib/xdm).

**Note: If the login session is in failsafe mode (invoked by pressing the F1 key instead of Return after you type your password) Xsession simply runs an xterm.**

If it is in normal mode, Xsession runs the file ".xsession" in your home directory. In all cases, when Xsession exits, because the xterm it runs exits or because the .xsession script exits, xdm will kill all the windows on your display and log you out.

**Problem:**

Setting up a .xsession file with everything running in the background causes .xsession to exit early.

For instance, if your .xsession file looks like this:

```
xrdb ~/.Xdefaults
twm &
sleep 4
xterm &
```

Then immediately after the xterm starts, .xsession will exit which will cause you to be logged out. This will almost always happen before xterm even has time to create a window.

**Solution:**

To fix this problem, change the last line to:

```
exec xterm
```

**Problem:**

Having a .xsession file in which the last program to be executed fails and exits.

This could be for several reasons:

1. Because the program is not in your search path when .xsession is run. To solve this problem make sure your path is set up correctly in .xsession itself. Don't depend on the program which

calls .xsession to set it for you.

2. An X version incompatibility. In version 4 of the X protocol, two things were added. The first was XDMCP. Thus, if you are using XDMCP to get your XLOGIN window, you have at least an X11 R4 version of xdm. The second thing added was the MIT-MAGIC_COOKIE authorization. Under this scheme, a client, upon connecting to the X server, sends some authorization information. This is usually a 128-bit number that the server has chosen and given to xdm using XDMCP. Xdm stores this number in a file called ".Xauthority" in your home directory.

3. If Micro X is not in the Virtual Root (Single Window Mode) and the last program is a window manager, then it will fail because Micro X-WIN uses the Microsoft window manager, which will not allow an X window manager to run.

4. Virtual Root (Single Window Mode) is selected with the "Enable Screen :0.1" selected and olwm is running under Open Windows 3.0.

5. If you are using, for example, xterm from X11 R3 in the last line of your .xsession file. It will not know how to send this authorization information to the server. As a result, the server will refuse the connection, xterm will exit, causing .xsession to exit and your session will be terminated.

**Solution:**

(1 thru 4) To solve the first problems you can start the X server with XDMCP disabled, then log into your host system from a different terminal. Set the environment variable "DISPLAY" to your PC, set your PATH variable to the default (to trouble-shoot problems with the search path), then run your .xsession file by typing "./.xsession". If this terminates and you get the shell prompt again, then something is wrong. Any error messages should have appeared on your screen to help you trouble-shoot the problem.

(5) Use the "Xhost" menu to add the IP address of your host to the list of hosts that can connect without authorization.

## PC-NFS

If communication errors occur while trying to start-up Micro X , then the version of NFS may be the problem. The user should run the NFS UPDATE program.

UPDATE is found in the \NFS subdirectory under the Micro X directory. UPDATE should be run under the DOS environment. UPDATE will update the NFS DLL's if needed. The user will CD to this directory and then run UPDATE. UPDATE will search the current path looking for NFS files that need updating. The user will be given an option when a file is considered for update.

## Connection Refused - Host Name not known

The TCP/IP stack is responsible for resolving host names to IP addresses. The Lanera TCPOpen will require that the host names and IP address be entered into its HOSTS file to use host names. This can be done by using the TCPSETUP program or by ftping a /etc/hosts file from a host that has a list of all the hosts that will be used. The name and IP address of the local PC should be entered into this file also.

## Connection Refused - My IP Address not known

The TCP/IP stack needs to tell the X server the IP address of the PC. In TCPOpen this is entered into the HOSTS file under DATABASES using TCPSETUP.

## Permission Denied

### RSH

A user must have an account on the remote host. A .rhosts file allows a user who has an account on that host to log in from a remote node without supplying a password. The .rhosts file must be in the user's home directory. The format of a .rhosts file entry is:

**hostname [username]**

The hostname is the name of the local node (PC) from which the user wants to log into the remote host. The username is the user's login name on the PC. If you do not specify a user name, the user must have the same login name on both the remote host and PC.

**File**
If a script file is being executed, it must have execution permission. Use

**chmod 775 scriptfilename**

to allow execution and r/w permissions.

## Cannot open display

Usually this error will occur if the display has not been properly defined. As an example, the form of a display statement in an xterm command is:

-d dispname Specifies the display screen on which xterm displays its window. If the display option is not specified, xterm uses the display screen specified by your DISPLAY environment variable. The display option has the format hostname:number. Using two colons (::) instead of one (:) indicates that DECnet is to be used for transport.

-display dispname This option is the same as the -d option.

**xterm -display 192.1.1.23:0**
**xterm -display davepc:0**

## Client not authorized to connect to server

This can happen when an old (R3) client is trying to connect. Putting an entry into the XHOSTS database will allow clients on that host to connect.

## xlock

Micro X requires that the IP address of the host running xlock to be in the XHOST table. Use of the -remote option is also required.

# Appendix E Sample Start-up Script

The user may wish to use a script start-up file in conjunction with the RSH or REXEC commands. This start-up script file would reside on the remote host in the users login directory. This would allow the user to create his own X environment each time the X session is started. The following example will set the display and then provide an xterm, an xclock, and an xlogo each time this file is run.

The session entries may look as follows:

```
    unixhost
    dick                (not needed for PC-NFS)
    Xwin xpc            (using the nickname of the PC)
or
    Xwin 192.1.1.23     (using the IP address of the PC)
```

The start-up script file, which resides on the remote host, may be as follows:

```
#!/bin/sh
if [ "$1" ]; then       (Set the display to the value
DISPLAY=$1:0.0          passed from RSH/REXEC)
export DISPLAY
fi
/usr/bin/X11/xterm -n Login -ls &
/usr/bin/X11/twm &      (Use only if Single Window Mode)
/usr/bin/X11/xlogo &
```

for Sun Sparc's the path may be:

```
/usr/openwin/bin/xterm
```

# Appendix F MXWIN.INI

MXWIN.INI is a text file residing in the \WINDOWS directory which controls the set-up of Micro X.

## MXWIN.INI

```
[MicroX]
SaveUnder=no
directory=c:\XWIN\lib
panning=1
debug=0
single=0
width=1016
height=732
screen1enable=0
KBDfile=us.kbd
network=winsock

[font]
fontpath=c:\XWIN\lib\fonts\misc,c:\XWIN\lib\fonts\75dpi,c:\XWIN\lib\fonts\100dpi

[sessions]
bart_ultrix=1:bart:demo::Xwin dick:0
esix=2:192.1.1.6:demo::./Xwin dick:0
sparc=1:sparc:demo::/usr/openwin/bin/xterm -ls -n sparc -display 192.1.1.13:0 &
sun_360=1:192.1.1.15:dick::Xwin dick:0

[Xhost]
```

## [MicroX]

**SaveUnder=yes**

The saveunder function is enabled (not currently implemeted).

**directory=c:\XWIN\lib**

This directs X-WIN to the subdirectory that contains the keyboard, rgb, and font files.

**panning=1**

One (1) = on and zero (0) = off. Panning will move the selected X window on-screen by moving the cursor to the edge of the window which is off-screen. Panning is not operational in the Virtual Root mode.

**debug=0**

One (1) = on and zero (0) = off.
Debug gives a list of the X requests being processed by the X server (X-Win). These requests are shown in the X-Win window. The X-Win window may be resized to view more past requests.

**single=0**
**width=1016**
**height=732**

One (1) = on and zero (0) = off.
Single controls the Virtual Root Mode. If it is turned on, then a single X window, whose dimensions are described by width and height, is generated. A remote window manager should be used to manage the windows created in this Virtual Root Window (single window).

**screen1enable=0**

One (1) = on and zero (0) = off.
Screen1enable, when turned on, allows the generation of X windows to xpc:0.1, the second screen. This second screen is managed by the Microsoft window manager.

**KBDfile=us.kbd**

This entry tells X-Win which keyboard file to use. The available .kbd files are in \xwin\lib. If this field is not present X-Win checks MS Windows to select the proper keyboard. If it cannot determine the proper .kbd file it will default to the built-in us.kbd file.

**network=winsock**
This is the selection of supported network transports. The possible entries are winsock, pctcp, or pcnfs. If this field is not present, X-Win will default to the automatic mode and search for 1-winsock, 2-pctcp, and 3-pcnfs.

## [font]

This entry contains the font pathing information.

## [sessions]

Named rsh, rexec, or xdmcp sessions.

## [Xhosts]

A list of those hosts having access to X-Win. No entries mean that all hosts have access to X-Win. If one entry is made to allow access, then all hosts that wish to have access to X-Win will either need to pass the magic cookie or be in this list also. It is an all or none type field.

# Appendix G  Keyboard Selection

The default keyboard selection is the US keyboard (US.KBD).

There are two ways of setting the keyboard selection:

1. Auto - Under MS Windows select:

**Program Manager**
**Main**
**Control Panel**
**International**

Now select Keyboard Layout and choose the desired keyboard.

Micro X will automatically use its matching XXXXXX.KBD file for keyboard support.

2. Manually - Modify the MXWIN.INI file which is in your windows directory. Under the heading [MicroX] place an entry for the desired keyboard.

[MicroX]
KBDfile=FINLAND.KBD

This forces Micro X to use the keyboard file XXXXXX.KBD for keyboard support.

The supported keyboards are: BELGIUM, CANADA, DENMARK, ENGLISH, FINLAND, FRANCE, GERMANY, ITALY, LATINAM, NETHERLA, NORWAY, PORTUGAL, SPAIN, SWEDEN, UK, and US.