

XMANAGER 5 User Guide

The Powerful PCX Server for Windows

NetSarang Computer, Inc.

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Xmanager® Manual

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About Xmanager

Xmanager[®] is a powerful, convenient PC X server software package that operates in the Windows[®] environment. Users can bring the UNIX/Linux desktop to their Windows PC via **Xmanager**. Additionally, the X application can be safely executed through SSH (secure shell) even when a user's PC is inside a private network or there is a firewall in between a user PC and remote server.

Xmanager offers diverse functions, such as setting multiple servers, multi-visual, multi-monitor, multiple user settings, multiple XDMCP sessions, and SSH security reinforcement. **Xmanager** provides a variety of premium options for advanced users and a simple user interface for first-time users.

Xmanager comprises **Xmanager**, **Xconfig**, **Xbrowser**, **Xstart** and several other utilities.

- **Xmanager** is an X server program for PC. X client, a graphic remote UNIX/Linux application, can show a screen in Windows through **Xmanager**. **Xstart** and **Xbrowser** run **Xmanager** when running a remote X application or when bringing the whole GUI desktop screen of a remote host.
- **Xconfig** creates and manages **Xmanager** server profile. **Xmanager** profile sets various **Xmanager** options, such as window modes, font catalogs, and colors.
- **Xbrowser** finds a remote UNIX/Linux host and enables connection with the remote host using the XDMCP protocol. **Xbrowser** compositely manages Xstart, Xshell, and Xftp sessions in addition to XDMCP sessions. Users can run several sessions simultaneously and create shortcut icons for each host.
- **Xstart** enables the execution of a remote X application on a user's PC. When connecting with a remote host, it supports SSH, TELNET, RLOGIN, REXEC, RSH and LOCAL protocols. A remote host command can be conveniently executed, on a user's Windows PC via **Xstart**.

Key Functions

This section provides descriptions of the key **Xmanager** functions.

Connection and Startup

- Xbrowser managing Xstart and XDMCP sessions
- Integrated management of Xmanager, Xshell, and Xftp sessions in Xbrowser
- XDMCP, SSH, RSH, REXEC, RLOGIN and TELNET connection protocols
- Up to 128 X client connections per Xmanager session
- Shortcut to Xstart and XDMCP sessions
- Advanced prompt recognition setting and remote command script in Xstart
- Secure XDMCP for XDMCP connection to outside firewall and private network
- IPv6 support
- MIT Kerberos authentication support
- Supports having multi tabs in a single window
- Supports displaying multiple tab groups in a single window

Installation and Distribution

- Supports Windows 2000 SP4 or higher
- Supports Windows terminal server and Citrix MetaFrame for Windows
- Session sharing for Windows terminal service
- Silent Installation
- Multi-user setting
- Simple session and server profile distribution
- User-designated session path

Security

- SSH1/SSH2 protocols supporting public key authentication
- Creates SSH public key
- SSH user authentication agent
- Access control by host
- XDMCP connection using SSH secure tunnel

X Server

- High-performance X11R7 PC X server
- GLX 1.3, OpenGL 1.2 extension protocol (Xmanager Enterprise version)
- X Rendering extension protocol
- Supports RandR Extension
- Multi-server setting
- Multi-user setting
- Multi-monitor
- Multi-network adapter
- Multi-XDMCP sessions
- Automatic display number allocation
- Single & multiple window mode

- Panning and auto-raise in local window manager
- Multi-visual
- 256-color visual in True Color video device
- Automatic color substitution for PseudoColor visual
- Backing Store
- Complete Planemask function for 256-color applications
- Wheel mouse
- 3-button mouse emulation
- GUI keyboard editor
- Real-time keyboard change using shortcut key
- Sound files for XBell requests
- Local resources database
- Window printing in Multiple Window mode
- Automatic copy & paste between X application and Windows application
- Notification area icon

Font

- Font compiler
- Font server
- BDF, PCF font formats
- Automatic font substitution
- Additional fonts packages for various languages and X applications

Recommendations

- **Processor:** Intel® compatible
- **Operating System:** Microsoft Windows® 2000 SP4 or higher
- **Storage Space:** 100MB or more reserve space
- **Network:** TCP/IP network
- **Program:** Internet Explorer® 6.0 or higher

Install and Uninstall

The **Xmanager** installation program was created using InstallShield®. A variety of installation options can be changed during installation. However, it is often sufficient to simply click [Next].

To uninstall **Xmanager**, use the standard Windows add/remove functions. Run [Add/Remove Program] in the control panel and select to uninstall **Xmanager** or **Xmanager Enterprise** from the list. Note that when **Xmanager Enterprise** is uninstalled, other programs, such as **Xshell**, **Xftp** and **Xlpd**, are also removed.

Even when the program is uninstalled, the registry information, log files and data files created by the user are not removed. The information and files are available for reuse when the program is reinstalled. If you want to remove all the files and registry information completely, remove the following explicitly:

Registry Information:

- \HKEY_CURRENT_USER\Software\NetSarang\Xmanager
- \HKEY_CURRENT_USER\Software\NetSarang\Xmanager Enterprise

File and Folder:

- %APPDATA%\NetSarang\Xmanager
- %APPDATA%\NetSarang\Xmanager Enterprise

Start

Xmanager provides **Xbrowser** and **Xstart**, two basic tools for accessing a remote UNIX/Linux host. **Xbrowser** can be conveniently used by most users as it enables to bring the entire remote desktop via XDMCP (X display manager control protocol). **Xstart** is simpler and quicker than an XDMCP connection, as it is a method to run a single remote X application.

When **Xmanager** is successfully installed, **Xstart** and **Xbrowser** programs can be found in the **Xmanager** folder on the desktop.

■ Note

Run **Xmanager - Passive** in the **Xmanager** installation folder for **Xmanager** to enter standby mode for X application connection. Users can then run a remote X application using **Xstart** or other tools.

Run **Xmanager - Broadcast** in the **Xmanager** installation folder and **Xmanager** broadcasts a XDMCP Query message through network. Hosts that respond to the query message are listed in the Chooser window. A host can be selected from the list and a connection to it can be made.

Start with Xbrowser

To use **Xbrowser**, set a remote UNIX/Linux host to support XDMCP service for a remote X server. In general, **dtlogin**, **kdm**, **gdm**, or **xdm** must be running on the host. For details about XDMCP service setting, see manual for the UNIX/Linux concerned.

1. Open **Xmanager** or **Xmanager Enterprise** folder on your desktop.

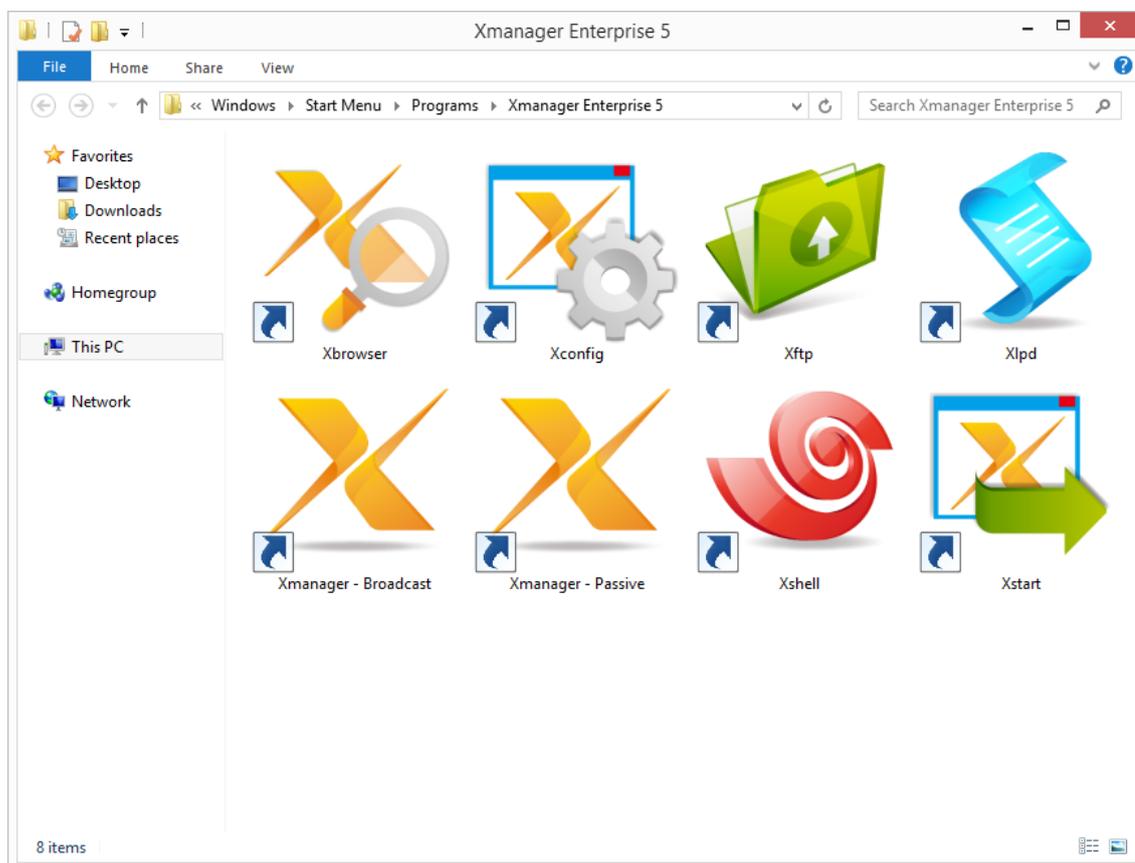


Fig. 1: Xmanager Enterprise Folder

2. Run **Xbrowser**.

Note

Xbrowser automatically finds all UNIX/Linux hosts in the local network. If the UNIX/Linux host to access is on a different network than the user's PC, register the UNIX/Linux host IP address or broadcast address in the **Options** dialog box. For setting details, see 'Automatic XDMCP Session'.

If a UNIX/Linux host is not displayed in the **Xbrowser** window, it means that the host is not prepared for an XDMCP connection.

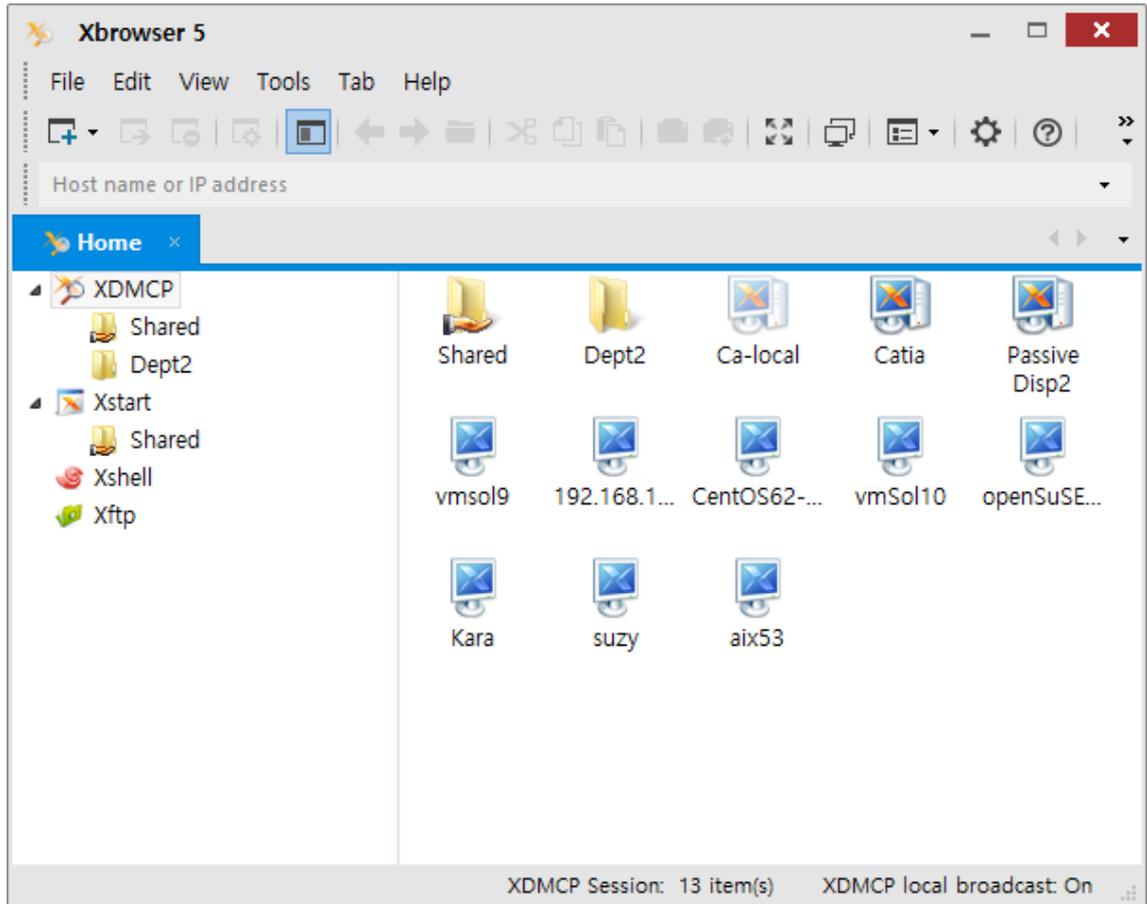


Fig. 2: Xbrowser main window

3. Double-click a host to connect to. Graphic login screen opens.

Note

If graphic login screen is not displayed, it is possible there is a firewall between the user's PC and a remote host.

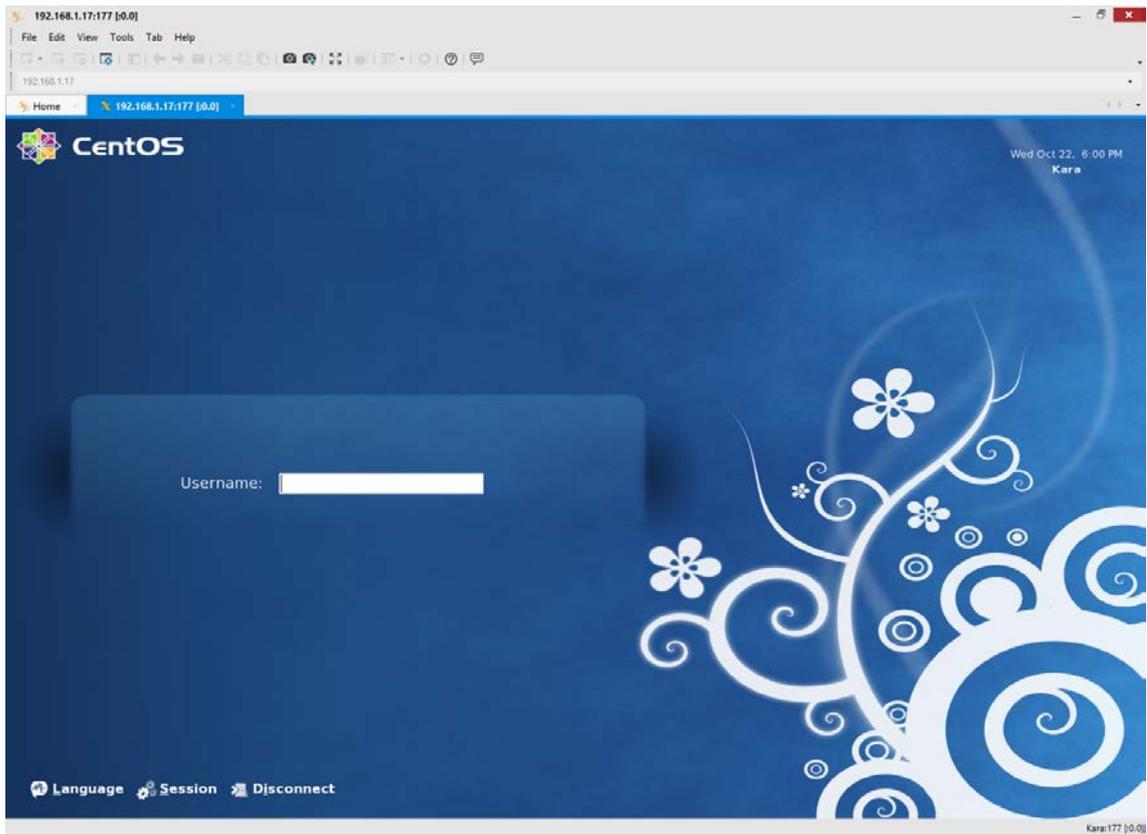


Fig. 3: XDMCP login screen

4. Log in to host by entering the account name and password. Remote desktop opens.

Note

There may be a problem in the user account login shell script if the remote desktop is not displayed after entering account and password.

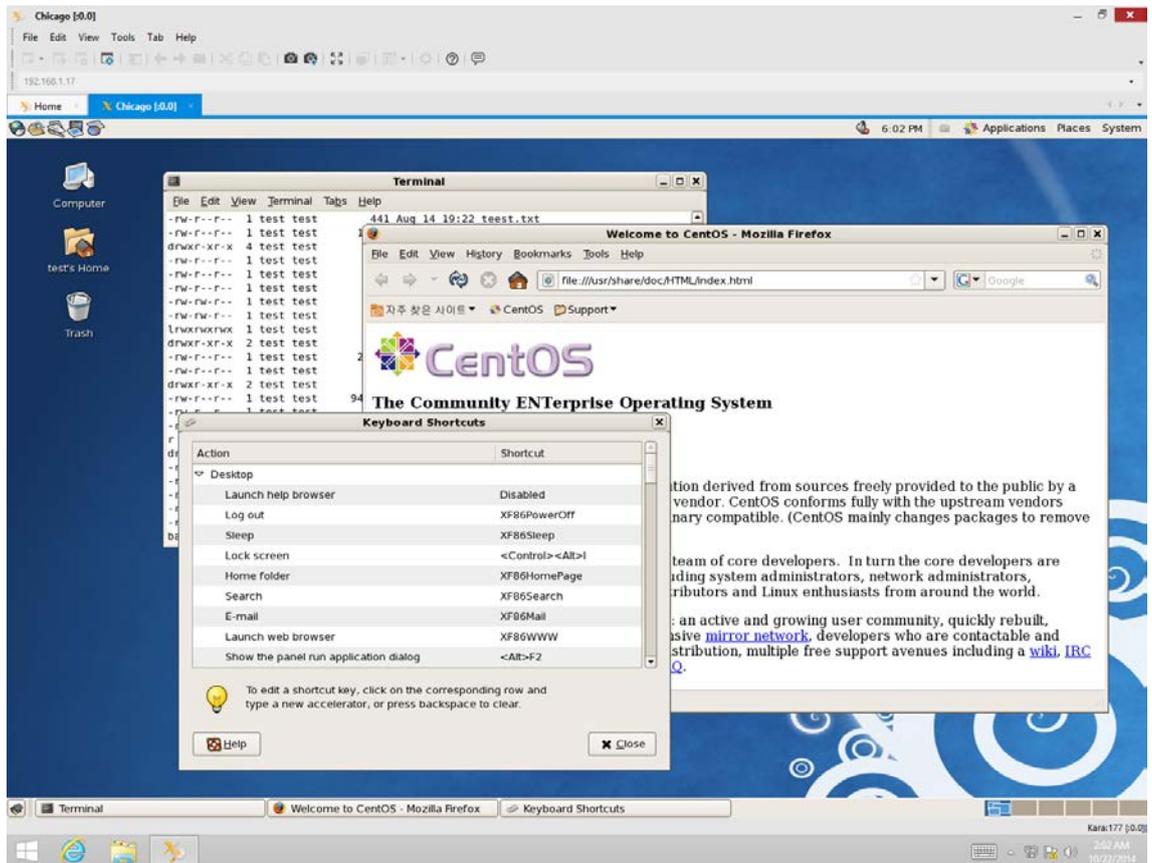


Fig. 4: UNIX desktop executed in Windows

If you experience problems using **Xbrowser**, visit the customer support page in the following address:

<http://www.netsarang.com/support/main.html>

Information about the XDMCP settings in UNIX/Linux server and related tips can be found on the customer support page.

Start with Xstart

Xstart helps run a remote X application. Once an Xstart session is created, the remote X application can be executed by simply clicking it in Windows.

1. Run **Xstart** in **Xmanager** folder.

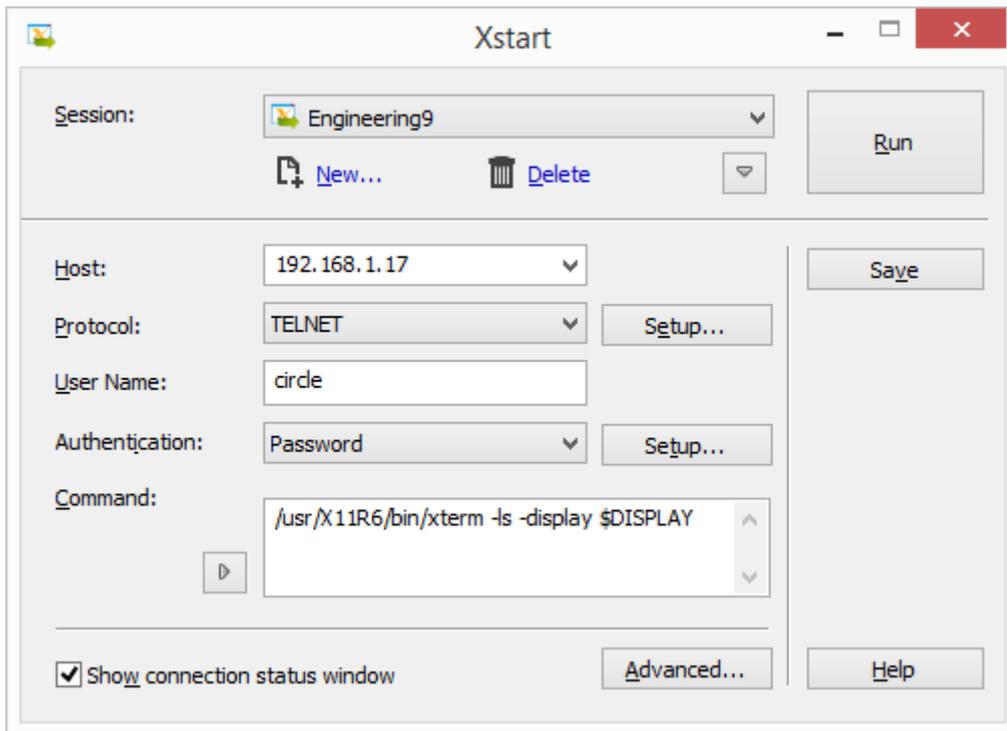


Fig. 5: Xstart main window

2. Click [New]. **New Session** dialog box is displayed.

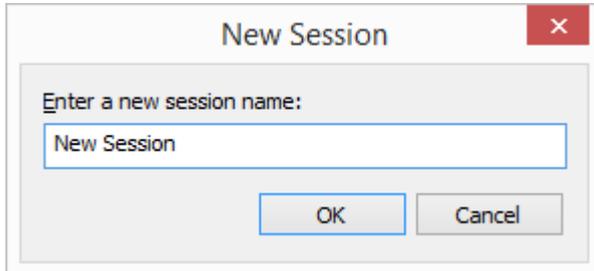


Fig. 6: Xstart New Session dialog box

3. Enter new session name and click [OK].
4. Enter the remote UNIX/Linux host name or IP address in [Host].
5. Select one of the protocols supported by the host from [Protocol].
6. Click [Setup] to set protocol options, such as port or timeout.
7. Enter remote host user account in [User Name].
8. To save user password in session, select [Authentication] as *Password* and click the [Setup] button on the right.
Password Setup dialog box is displayed.

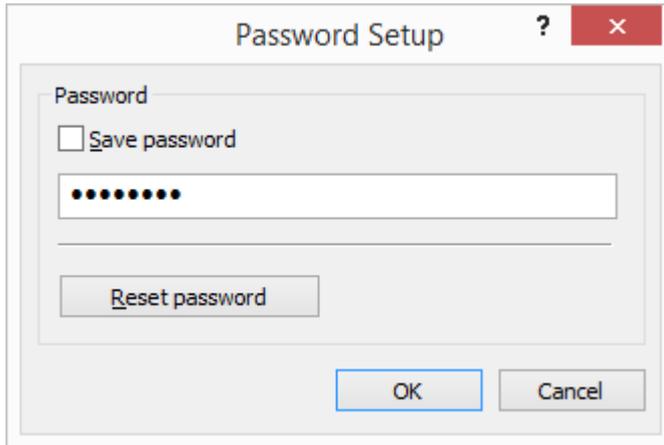


Fig. 7: Password Setup dialog box

9. Enter a command to be executed in a host in [Command]. To run **xterm**, enter the following command:

```
/usr/bin/X11/xterm -ls -display $DISPLAY
```

Note

By pressing the button below the [Command] label, a list of generally used sample xterm commands registered by UNIX/Linux type will be displayed. Select the xterm command suited to UNIX/Linux to connect to, or add/remove frequently used commands by opening **Registered Commands** dialog box.

10. Click [Run]. **xterm** window opens.



Fig. 8: xterm window

If you experience problems using **Xstart**, visit the customer support page in the following address:

<http://www.netsarang.com/support/main.html>

Most problems are caused by a firewall, user PC, or network settings. In some cases, users may have to consult with network or system administrators.

Exit Xmanager

To end a remote X application started by **Xstart** or **Xbrowser**, select [Close] from **Xmanager** system menu. For **Xmanager** system menu, see 'Window Mode'.

To Automatically Exit Xmanager when All Remote X Applications are closed:

1. Select [Properties] from **Xmanager** system menu. **Profile Properties** dialog box is displayed.
2. Select [Exit Xmanager when all connections are closed] from the [General] tab.
3. **Xmanager** is finished when all X application windows are closed.

Note

If [Exit Xmanager when all connections are closed] option is not selected, **Xmanager** becomes initialized when all remote X applications are finished and stands by for a new X application connection.

Session Management

Sessions have connection information to connect to a remote host. Users can designate different options and server profiles for each connection by creating a session.

Session types are divided into automatic XDMCP session, static XDMCP session and Xstart session.

Icon	Session Type	Description
	Automatic XDMCP	Xbrowser sends a broadcast message to local LAN and dynamically finds the hosts. To find another subnet host, enter host IP address in the Options dialog box. All automatic sessions use the same settings. To change session settings, right-click on a session, select [Save As] and save the session. Then, right-click on a newly created session and select [Properties]. In this case, the newly created session becomes a static XDMCP session.
	Static XDMCP	Static session is a session created by a user. Static session can be created by copying an automatic session or using New Session Wizard. If a remote host does not respond to an XDMCP request message, the icon is displayed dimly. Users can create shortcut, change settings for this session and send this session to another user through e-mail.
	Xstart	Xbrowser creates and manages Xstart sessions. Additionally, users can also manage these sessions in Xstart . Xbrowser and Xstart share all Xstart session. By double-clicking Xstart session, users can conveniently run a remote X application in their Windows.

Note

Xstart session is useful when running remote X applications one by one. This session connects to a remote host, automatically executes a designated command, and opens an X application in user's Windows.

XDMCP session is used to bring the GUI login screen and the entire remote host desktop environment. **Xmanager** supports all UNIX/Linux GUI desktop environments including CDE, KDE and GNOME.

Xstart Session

By creating an Xstart session, a remote host X application can be executed in a user's PC. **Xstart** automatically processes the remote host login process and executes remote X applications designated by a user.

Users can create Xstart sessions using **Xstart** and **Xbrowser** programs.

To Create a Session with Xstart:

1. Run **Xstart** in **Xmanager** Folder.
2. Click [New]. **New Session** dialog box is displayed.
3. Enter a new session name and click [OK].
4. Enter the remote UNIX/Linux host name or IP address in [Host].
5. Select one of the host supported protocols from [Protocol].
6. Click [Setup] to set options by protocol, such as port or timeout.
7. Enter remote host user account in [User Name].
8. To save user password in session, select [Authentication] as *Password* and click the [Setup] button on the right. **Password Setup** dialog box is displayed.
9. Enter a command to be executed in a remote host in [Command]. To run **xterm**, enter command as follows:

```
/usr/bin/X11/xterm -ls -display $DISPLAY
```

Note

Press the button below the [Command] label, to see a list of generally used sample xterm commands registered by UNIX/Linux type. Select the xterm suited to UNIX/Linux to connect to or add/remove frequently used commands by opening **Registered Commands** dialog box.

10. Click [Save].

To Create a Session with Xbrowser:

1. Run **Xbrowser** in **Xmanager** Folder.
 2. Point to [New] in the [File] menu and select [Xstart Session]. **New Session Properties** dialog box is displayed.
 3. Enter [Session] name in [General] tab.
 4. Enter the remote UNIX/Linux host name or IP address in [Host].
 5. Select one of the host supported protocols from [Protocol].
 11. Click [Setup] to set options by protocol, such as port or timeout.
 6. Enter remote host user account in [User Name].
 7. Enter password to user account in [Password].
 8. Enter a command to be executed in a remote host in [Execution Command]. For example, enter command as follows to run **xterm**:
- ```
/usr/bin/X11/xterm -ls -display $DISPLAY
```
9. Click [OK].

#### Note

Users can also create Xstart session using **New Session Wizard** provided in **Xbrowser**. If the **Xbrowser** session category is set as **Xstart**, point to [New] in the [File] menu and select [New Session Wizard] to open it.

#### To Create Shortcut to Xstart Session:

1. Run **Xstart**.
2. Select a session from [Session] list.
3. Click the arrow button to view more menus and click [Create Shortcut]. **Browse For Folder** dialog box is displayed.
4. Select a folder in which to create shortcut.

## Automatic XDMCP Session

**Xbrowser** sends an XDMCP Broadcast message to local network or a network designated by a user and shows the hosts that respond to the message. These sessions are automatically created by **Xbrowser** and users do not need to create them by themselves. So, these sessions are called automatic sessions.

In general, all UNIX/Linux systems support XDMCP service, and there should be no problem finding hosts in the **Xbrowser** window. In some cases, a remote host is set not to support XDMCP service and, as a result, it is not displayed in **Xbrowser**. In this case, contact the system administrator of the concerned host so that it supports XDMCP service.

**Xbrowser** provides an option to find hosts in other networks. Additionally, it offers an option to turn off broadcast function in case there are too many hosts in local network.

#### To Find Host in Another Network:

1. Run **Xbrowser**.
2. Select [Options] in the [Tools] menu. **Options** dialog box is displayed.
3. Enter the host name or IP address to find in [Search] section or enter network address to find all hosts available.
4. Click [Add].
5. Click [OK].

#### To Turn off Local Broadcast Option:

1. Run **Xbrowser**.
2. Select [Options] in the [Tools] menu. **Options** dialog box is displayed.
3. Unselect [Search for local hosts (XDMCP Broadcast)].
4. Click [OK].

#### Note

If there are too many hosts in the user's local network and there are a limited number of hosts to use, it is convenient to turn off [Search for local hosts (XDMCP Broadcast)] option and add only the necessary host to the list of search addresses.

## Static XDMCP Session

In addition to automatic session, **Xbrowser** provides static sessions, such as Passive, XDMCP Query, XDMCP Broadcast, XDMCP Indirect and Secure XDMCP. Unlike automatic sessions, static sessions are displayed in **Xbrowser** window at all times and can be created, modified, or deleted by users.

#### To Create Passive Session:

1. Run **Xbrowser**.

2. Select XDMCP in the sessions category on the left.
3. Point to [New] in the [File] menu and select [New Session Wizard]. **New Session Wizard** is displayed.
4. Select *None (Passive)* in [Method] and click [Next].
5. Select a server profile from [X Server Profile] and click [Next].
6. Enter a session name in [Name].
7. Click [Finish].

 **Note**

When a passive session is executed, Xmanager enters a mode to stand by for an X application connection. Then run a remote X application by using Xstart or a terminal program, such as telnet.

**To Create XDMCP Query/Broadcast/Indirect/Secure XDMCP Session:**

1. Run **Xbrowser**.
2. Select XDMCP in sessions category.
3. Point to [New] in the [File] menu and select [New Session Wizard]. **New Session Wizard** is displayed.
4. Select *XDMCP Query*, *XDMCP Broadcast*, *XDMCP Indirect* or *Secure XDMCP* in [Method].

 **Note**

*XDMCP Query* connection is made directly with a designated host and GUI login screen can be brought to a user's window.

*XDMCP Broadcast* connection is a method where Xmanager opens Chooser dialog box and lists hosts available for connection.

*XDMCP Indirect* connection is similar to XDMCP Broadcast connection. However, Chooser dialog box is displayed by a remote host, not Xmanager.

*Secure XDMCP* connection can be used when Xmanager is inside a firewall or a private network and a remote host is outside a firewall or a private network and thus users cannot make a direct XDMCP connection. If SSH server is in operation on this remote host, XDMCP connection with a remote host can be achieved using the SSH tunneling of Secure XDMCP connection.

5. Enter the remote host name or IP address in [Host] and click [Next].
6. Select server profile from [X Server Profile] and click [Next].
7. Enter a session name in [Name].
8. Click [Finish].

**To Create Shortcut to Static Session:**

1. Run **Xbrowser**.
2. Right-click on a session.
3. Select [Create Shortcut].

**To Send Session through E-mail:**

1. Run **Xbrowser**.
2. Right-click on a session.

3. Point to [Send To] and select [E-Mail Recipient].

#### To Bring Session:

1. Drag a session from an external folder.
2. Drop it in **Xbrowser** window.

#### Note

Only static sessions saved in a file can be dragged and dropped. Automatic sessions cannot be brought in.

#### To Share Session with Other Users:

1. Run **Xbrowser**.
2. Right-click on a session.
3. Select [Sharing].

#### Note

This task requires administrative permissions. Shared sessions are moved to a shared folder.

#### To Save Automatic Session as Static Session:

1. Run **Xbrowser**.
2. Select an automatic session and right-click on it.
3. Select [Save As].

## Session Properties Setting

A session has basic connection information, such as a host name and a port. In addition, you can configure XDMCP settings, a connection address, a server profile and a display number.

#### To Change Session Connection Information:

1. Run **Xbrowser**.
2. Right-click on a session.
3. Select [Properties]. **Session Properties** dialog box is displayed.
4. Modify connection information in the [Connection] section of the [General] tab.

#### Note

For details about XDMCP session and Xstart session properties, see 'XDMCP Session Properties' and 'Xstart Session Properties' respectively.

#### To Allocate a Display Number:

1. Start **Xbrowser**.
2. Right-click on a session.
3. Select [Properties]. **Session Properties** dialog box is displayed.
4. Click [X Server] tab.
5. Turn off [Allocate display number automatically].
6. Enter a display number in [Display Number].
7. Click [OK].

#### Note

In case display number is automatically allocated, each session holds an intrinsic display number starting from the default display number set in profile. When several Xmanager sessions are executed, each session gets a unique display number and it is displayed on the title bar of Xmanager such as [:0.0]. The first number is the display number and the second number is the screen number. In Xmanager, the screen number is always 0.

Display number must be a value between 0 and 255. Xmanager obtains TCP port number by adding 6000 to a display number. If a user enters the number 10 in [Display Number], Xmanager communicates with X applications using TCP port 6010. Some UNIX servers cannot recognize a three-digit number. It is thus safe to use a number smaller than 100.

#### To Designate a Specific Profile to Session:

1. Run **Xbrowser**.
2. Right-click on a session.
3. Select [Properties]. **Session Properties** dialog box is displayed.
4. Click [X Server] tab.
5. Select a profile from [Server Profile] list.
6. Click [OK].

## XDMCP Session Properties

The following are descriptions of connection-related items in the XDMCP Session Properties. The items are displayed in the [General] tab of **XDMCP Session Properties** dialog box.

#### Method

The session connection methods are *None (Passive)*, *XDMCP Query*, *XDMCP Broadcast*, *XDMCP Indirect* and *Secure XDMCP*.

For descriptions of each connection method, see 'Static XDMCP Session'.

#### Host

Enter remote host name or IP address for connection.

Check if a display manager is in operation in the remote host. Most UNIX/Linux use **dtlogin**, **kdm**, **gdm**, or **xdm** as the display manager.

#### Port Number

Enter remote display manager port number. The default value is UDP 177.

#### Use Default

Set port number as the UDP 177 default value.

#### Local Address

Select one of the user system IP addresses. This option is used only when user system has several IP addresses.

If *Auto Select* is selected from the list, **Xmanager** finds an IP address appropriate for connection. If **Xmanager** fails to find an appropriate address, open **IP Selector** dialog box for a user to directly select an address.

Display manager on a remote host will connect to the IP address selected by a user. If an inappropriate IP address is selected, display manager cannot connect to **Xmanager** and login screen cannot be displayed.

#### Connection Address

This option is necessary when you connect using port forwarding in a limited network environment such as firewall or proxy server and when automatic connection address does not function properly due to XDM server settings even if *Secure XDMCP* connection is selected. When your Windows resides in a private network with a firewall, Xmanager cannot get a remote login window with an XDMCP connection. It is because that the firewall blocks incoming connections and the remote display manager cannot reach at Xmanager on your Windows. To use this feature, you need to allocate a listening port in the firewall and forward incoming connections to your Windows.

### **Address Type**

Select *User Defined* when using a proxy server or attempting XDMCP connection in an environment blocked by a firewall. In case of *Secure XDMCP*, if *Automatic* of connection address fails, select *IP address of SSH server* or *Loopback Address (127.0.0.1)*.

### **IP Address**

If [Address Type] is selected as *User Defined*, enter proxy server or firewall server IP address. The remote display manager attempts connection using this address and the proxy server forwards the connection to the user's system.

### **Port Number**

If [Address Type] is selected as *User Defined*, designate a TCP port number allocated to a proxy server and standing by for port forwarding.

For example, let's assume that a user's computer uses 192.168.1.100, a private IP address, and firewall server uses 192.168.1.1, a private IP address. Additionally, the firewall uses 210.100.xxx.10, a public IP address, for an external Internet connection, and the UNIX host IP address is 210.100.xxx.100.

In this case, you need to configure the firewall to forward incoming connections (210.100.xxx.10, 6010) to **Xmanager** (192.168.1.100, 6010) on your Windows. This is called port forwarding. For this setting, make an inquiry to the firewall system administrator.

Now, enter 210.100.xxx.100 in the [Host] box of [Connection] field, and select *User Defined* as [Address Type] in [Connection Address]. Then, enter 210.100.xxx.10 in [IP Address] and enter 6010 in [Port Number]. Click [X Server] tab, clear [Allocate display number automatically] option and enter 10 (TCP 6010) in [Display Number].

## **The [Connection Address] setting process when connecting with an external host through a router, is described in 'Connection with MIT Kerberos**

To authenticate with Kerberos using SSH, there are few things that needs to be set up beforehand. Xmanager 5 is tested with MIT Kerberos server version 5 and MIT Kerberos module for Windows. This article assumes that you have working Kerberos server and client.

### **To create a new Kerberos session,**

1. Open **Xstart** and click **New**.
2. Enter a host name in **Host**.
3. Select SSH from **Protocols** list.
4. For **Authentication**, select **Kerberos (MIT Kerberos GSSAPI.dll)**.

5. Enter the **user name**.
6. Click **Save** to save.
7. Select the session file you just created and click Run.

You have finished creating a session that will use the MIT kerberos module. When this session opens, it will try to use the Kerberos credential for the specified user. It has to be the same user you defined in the Network Identity Manager.

Firewall-related Setting'.

## Xstart Session Properties

The following are descriptions of connection-related items in Xstart session properties. The items are displayed in the [General] tab of **Xstart session properties** dialog box.

### Host

Enter the remote UNIX/Linux host name or IP address. It is faster and more stable to enter an IP address than a host name, because Xstart does not have to connect to a name server.

### Protocol

Select a protocol for remote host connection. **Xstart** supports *SSH*, *TELNET*, *RSH*, *REXEC*, *RLOGIN* and *LOCAL* protocols. Before selecting a protocol, be sure to check whether or not the remote host supports the protocol.

**SSH** is a protocol for secure connection with remote host. SSH provides Public Key User Authentication, powerful data encryption and X11 forwarding functions. Using SSH protocol, a remote X application can be executed securely using the powerful encryption, even in a network environment vulnerable to security. Additionally, SSH helps you with convenient connection to a host located on the other side of a firewall. A user on a private network can thus run an X application on another network using X11 forwarding function.

**TELNET** is a legacy protocol for using a remote terminal. It is supported by most servers, such as UNIX, Linux and VMS.

**RSH** is a simple protocol for connecting with a remote host and running a designated command. It does not require a password and be careful in using it for security.

**REXEC** is a protocol for running a command in a remote host. Although the functions are almost similar to those of RSH, REXEC requires a password for connection.

**RLOGIN** is a simple program for connecting with a remote host and obtaining login shells. Although similar to TELNET, RLOGIN authenticates users in a similar method to RSH.

**LOCAL** is for running an X application installed in a user's PC, not a remote host.

#### Note

For RSH, REXEC and RLOGIN, the latest UNIX/Linux versions do not permit connection with the default configurations.

### Setup

Open the **Protocol Setup** dialog box in relation to the protocol selected and set connection port, timeout and options by protocol.

### User Name

Enter remote host user account.

### Execution Command

Enter a command to be executed in a remote host.

For example, if a user executes **xterm**, the execution command is as follows:

```
/usr/bin/X11/xterm -display $DISPLAY
```

The "\$DISPLAY" variable is converted to an appropriate value by **Xstart**. In general, it is converted to "192.168.1.100:0.0" when the IP address of your Windows is "192.168.1.100". To designate the value directly, the following command is executed:

```
/usr/bin/X11/xterm -display 192.168.1.100:0.0
```

Additionally, 'PCADDR' variable and '\$DISPNO' variable can be converted. In this case, the execution command is as follows.

```
/usr/bin/X11/xterm -display $PCADDR:$DISPNO
```

If a user's PC uses several IP addresses, **Xstart** automatically changes them to appropriate values.

### Registered Command (Direction Key Button)

Click this button to select a predefined command on a menu. By selecting a command on the menu, you can enter a long command just with a single click.

Select [Add/Remove] to display **Registered Commands** dialog box. In the dialog box, register the frequently used commands.

### Show connection status window

Select this option to check connection status or messages transferred from a remote host. This option is useful when **Xstart** fails to run an X application.

## SSH Protocol Setting

Set the following SSH-related options for an Xstart session or a Secure XDMCP session for which SSH protocol is selected.

#### Note

To set an SSH protocol, designate protocol as *SSH* in the 'Xstart Session Properties' [General] tab and click [Setup]. Alternatively, designate method as *Secure XDMCP* in the 'XDMCP Session Properties' [General] tab and click [Setup].

### The SSH server host is different from the XDMCP server

Secure XDMCP is a connection method that X clients connects to **Xmanager** of PC through SSH tunneling. If SSH server is not running on XDM host server, a proxy server for SSH tunneling is required. This option is to configure this SSH proxy server.

#### Host

Enter host name or IP address of the proxy server for SSH tunneling. In this case, you need to configure SSH proxy server so that it can bind to not only loopback address (127.0.0.1) but also external connections.

### Preferred Version

Select an SSH protocol version to use. SSH2 is recommended since it provides better security and more functionalities than SSH1.

### Port Number

Enter port number to use in SSH connection.

### Use Default

Set [Port Number] as 22, the SSH protocol default port.

### Send keep alive signal

Send keep alive signal to a remote host. This function is used to prevent disconnection while a user is temporarily absent. In some network environments, a gateway or a firewall system may terminate connections without notice when the connection is idle for a specified period of time.

### Encryption

Encryption algorithms are used to encrypt and decrypt network traffics. Users can select their preferred algorithms from the list. If *<Cipher List>* is selected, several algorithms can be tried in order of preference. To modify *<Cipher List>*, click [Edit].

### MAC

MAC(Message Authentication Code) ensures that data transferred through a network is not changed by a third person. It provides increased security of SSH2 protocol over SSH1. Users can select their preferred MAC algorithms from a list. If *<MAC List>* is selected, several algorithms can be tried in order of preference. To modify *<MAC List>*, click [Edit].

### Compress network data(using ZLIB compression)

Select this option to compress all data traffic with the ZLIB algorithm. Compression will provide better performance in a slow network environment.

### Allocate a terminal before executing the command

This option is selected when you want to allocate a virtual terminal on the remote host and then run a command on the terminal. Virtual terminals are required by several X applications. When virtual terminals are allocated, shell environment variables are set as per the general login environment.

### TCP/IP Forwarding

In [Tunneling] tab, you can list, add and delete TCP/ IP forwarding channels in a session.

## Xbrowser Window Setting

**Xbrowser** is similar to Explorer and consists of menus, standard buttons, an address bar, workspace and a status bar.

Workspace consists of a session category tree and icons list. Session category includes XDMCP session, Xstart session, Xshell session and Xftp session.

An option to show or hide Xshell and Xftp sessions is provided in the **Options** dialog box [Sessions] tab. Additionally, XDMCP session folder and Xstart session folder can be designated. When several users designate a network folder as a session path, all users can use the same sessions.

### To Change Session Path:

1. Run **Xbrowser**.
2. Select [Options] in [Tools] menu. **Options** dialog box is displayed.
3. Click [Sessions] tab.
4. Enter a session folder to change in [XDMCP Sessions] or [Xstart Sessions].

#### Note

To restore the original session path, click [Restore Default Session Path].

## Column Setting

The **Columns** dialog box allows you to adjust the columns of **Xbrowser** when it is in [Details] view.

### To Change Column Information:

1. Run **Xbrowser**.
2. Select [Columns] from [View] menu. **Columns** dialog box is displayed.
3. Select or unselect a column to show or hide.

## Create Session Folder

Users can connect all sessions at once by managing sessions with a folder. Additionally, Using session folder, session management, such as deletion and categorization, can be conveniently achieved.

### To Create a New Session Folder:

1. Run **Xbrowser**.
2. Point to [New] in the [File] menu and select [Folder].
3. Enter folder name.

## Export

Exported sessions are saved into a single convenient file. When this file is imported from another computer where Xmanager is installed, the imported sessions may be used without additional setup.

### To Export Sessions:

1. Run **Xbrowser**.
2. Select [Export] from the [File] menu. The Import/Export Sessions wizard is displayed.
3. Select a product for which to export sessions and click [Next].
4. Select a location to save the exported sessions file and click [Next]. Sessions export results displayed.
5. Click [Finish] to complete sessions export.

## Import

**Xmanager** can import previous version sessions or files exported by other computers.

### To Import Sessions:

To import sessions from the previous version program installed in the same computer:

1. Run **Xbrowser**.
2. Select [Import] from the [File] menu. The Import/Export Sessions wizard is displayed.
3. Select [Import the session of previous version] and click [Next]. List of previous version products installed in the computer and sessions counts are displayed.
4. Select a product for which to import sessions and click [Next]. Sessions are imported and the result is displayed.
5. Click [Finish] to complete sessions import.

To import sessions from a exported file:

1. Run **Xbrowser**.

2. Select [Import] from the [File] menu. The Import/Export Sessions wizard is displayed.
3. Select [Source location].
4. Directly enter file location or click [...] to select a sessions file.
5. Click [next] to move to the next stage. Products included in the file and sessions counts are displayed.
6. Select a product for which to import a session and click [Next]. Sessions are imported and the result is displayed.
7. Click [Finish] to complete session import.

# Connection

**Xmanager** provides **Xbrowser** and **Xstart** for connection to a remote host. In general, **Xbrowser** is used for connection to a remote host using XDMCP protocols. **Xstart** is used when running X applications in a remote host one by one.

## Connect with Xbrowser

**Xbrowser** broadcasts an XDMCP query message to a local network or a designated host and automatically displays hosts that respond to the query message.

### To Connect to XDMCP Host:

1. Run **Xbrowser**. Hosts available for connection are displayed.

 **Note**

To list up hosts available for connection on local network, the [Search for local hosts (XDMCP Broadcast)] option must be turned on. For settings on local host search, see 'Automatic XDMCP Session'.

2. Double-click a host for connection. **Xmanager** is run and the host is connected with XDMCP protocol.

 **Note**

To refresh the list of hosts available for XDMCP connection, click [View] -> [Find Hosts].

### To Connect to Host in Address Bar:

1. Run **Xbrowser**.
2. Enter host name or IP address for connection in the address bar.
3. Press Enter key.

 **Note**

For details on address bar, see 'Xbrowser Address Bar'.

## Xbrowser Address Bar

The rules for addresses entered in address bar are outlined as follows.

```
hostname (or ipaddress)
xdmcp://hostname
xstart://sessionname
xsession://sessionname
ssh://[username[:password]@]hostname[:port][/]
telnet://[username[:password]@]hostname[:port][/]
rlogin://[username[:password]@]hostname[:port][/]
ftp://[username[:password]@]hostname[:port][/]
sftp://[username[:password]@]hostname[:port][/]
```

The usable protocols are *xdmcp*, *xstart*, *xsession*, *ssh*, *telnet*, *rlogin*, *ftp* and *sftp*. The *xdmcp* protocol is used as the default protocol when no protocol is designated. The *xdmcp* protocol uses UDP 177 port as the default port.

Refer to the examples that follow:

| Example                                        | Description                                                                                                                                                                                                                                                  |
|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>foobar.com</i><br><i>xdmcp://foobar.com</i> | Connect to <i>foobar.com</i> using XDMCP protocol.                                                                                                                                                                                                           |
| <i>xstart://mysession</i>                      | Run an Xstart session named <i>mysession</i> .                                                                                                                                                                                                               |
| <i>xsession://cdesession</i>                   | Run a static session named <i>cdesession</i> .                                                                                                                                                                                                               |
| <i>ssh://myhost:22/</i>                        | Run <b>Xshell</b> and connect to <i>myhost</i> port 22 using an SSH protocol. To run this command, <b>Xshell</b> program must be installed in the computer.                                                                                                  |
| <i>telnet://user:pass@myhost</i>               | Run <b>Xshell</b> and connects to <i>myhost</i> using a TELNET protocol. User name and password are automatically transferred after connection. To run this command, <b>Xshell</b> program must be installed in the computer.                                |
| <i>rlogin://user@myhost</i>                    | Run <b>Xshell</b> and connect to <i>myhost</i> using an RLOGIN protocol. User name is automatically transferred after connection. To run this command, <b>Xshell</b> program must be installed in the computer.                                              |
| <i>ftp://anonymous@myhost</i>                  | Run <b>Xftp</b> and connect to <i>myhost</i> using an FTP protocol. User name is automatically transferred after connection. To run this command, <b>Xftp</b> program must be installed in the computer.                                                     |
| <i>sftp://user:pass@myhost/</i>                | Run <b>Xftp</b> and connect to <i>myhost</i> port 22 using an SFTP (secure shell fire transfer protocol). User name and password are automatically transferred after connection. To run this command, <b>Xftp</b> program must be installed in the computer. |

## Secure XDMCP Connection

Using Secure XDMCP connection, a safer and simpler XDMCP connection is possible using SSH protocols. SSH protocols enable not only secure connection but also convenient X11 connection,

in network environments blocked by a firewall, a masquerade server or an NAT gateway.

To use Secure XDMCP, an SSH server must be in operation on a remote server and X11 forwarding function must be activated.

For an OpenSSH server, modify setup file (/etc/ssh/sshd\_config) as follows.

```
X11Forwarding yes
```

For a Secure Shell Communications Security server, modify setup file (/etc/ssh2/sshd2\_config) as follows.

```
AllowX11Forwarding yes
```

#### To Create Secure XDMCP Session:

1. Run **Xbrowser**.
2. Click [XDMCP Session] in [New].
3. Select [Method] as *Secure XDMCP* in **Session Properties** dialog box and enter information necessary in connection.

#### Note

If a host to connect is seen in the list of XDMCP sessions, you can create a Secure XDMCP session by selecting [Save as SSH Connection] in the context menu.

#### To Set Secure XDMCP Session in Case XDMCP Host is Different from SSH Server:

1. Select [Properties] from the context menu of the XDMCP session concerned. **Session Properties** dialog box is displayed.
2. While [Method] is selected as Secure XDMCP, click [Setup] on the right. **Secure XDMCP Setup** dialog box is displayed.
3. Activate [Host] by selecting [The SSH server host is different from the XDMCP server].
4. Enter SSH server host name or IP address in [Host].
5. Enter user information in [User Authentication] field.
6. Click [OK] to save.

#### Note

If SSH server is different from XDMCP host, enter the SSH server host name or IP address for tunneling. In this case, you need to configure SSH proxy server so that it can bind to not only loopback address (127.0.0.1), but also external connections. For OpenSSH, set the GatewayPorts value to yes in the SSH server setup file.

#### To Connect with Secure XDMCP Session:

1. Run **Xbrowser**.
2. Double-click the Secure XDMCP session.

## Connect with Xstart

**Xstart** supports SSH, TELNET, RLOGIN, REXEC, RSH and LOCAL protocols. To use each protocol, the corresponding service daemon must be executed in a remote host. LOCAL protocol is used when an X application is in the user's PC.

#### To Run X Application with SSH Protocol:

1. Run **Xstart**.
2. Click [New]. **New Session** dialog box is displayed.
3. Enter new session name and click [OK].

4. Enter remote UNIX/Linux host name or IP address in [Host].
5. Select *SSH* from [Protocol] list.
6. Click [Setup] to set SSH protocol options, such as port number or encryption options.

 **Note**

For details on SSH Protocol Setting, see 'SSH Protocol Setting'.

7. Enter remote host user account name in [User Name].
8. Select an authentication method in [Authentication] and set password, etc.

 **Note**

For details on setting according to authentication methods, see 'Xstart User Authentication Setting'.

9. Enter a command to run in the remote host in [Command]. To run **xterm**, enter a command as follows:  
/usr/bin/X11/xterm -ls

 **Note**

For SSH connection, DISPLAY variables are automatically set with the values decided by the SSH server.

10. Click [Run].

**To Run Remote X Application with TELNET Protocol:**

1. Run **Xstart**.
2. Click [New]. **New Session** dialog box is displayed.
3. Enter a new session name and click [OK].
4. Enter remote UNIX/Linux host name or IP address in [Host].
5. Select *TELNET* from [Protocol] list.
6. Click [Setup] to set TELNET protocol options, such as port or timeout.

 **Note**

The connection method for RLOGIN, REXEC and RSH protocols is similar to connection with TELNET protocols. Set port and timeout in **Protocol Setup** dialog box.

The default port numbers in each protocol are outlined as follows

|         |     |
|---------|-----|
| TELNET: | 23  |
| REXEC:  | 512 |
| RLOGIN: | 513 |
| RSH:    | 514 |

After a successful login, a shell is allocated by TELNET and RLOGIN server in a remote host and **Xstart** executes the command in the shell prompt. **Xstart** closes connection after the designated timeout and the login shell is ended at the same time. If timeout is 0, connection is not closed while **Xmanager** is in execution. If a shell is closed earlier, X applications executed on the shell may also be ended.

7. Enter remote host user account in [User Name].
8. Only *Password* can be selected in [Authentication]. Click [Setup] to enter password.
9. Enter a command to be executed in a remote host in [Command]. To run **xterm**, enter a

command as follows:  
/usr/bin/X11/xterm -ls -display \$DISPLAY

10. Click [Run].

#### To Run Local X Application with Xstart:

1. Run **Xstart**.
2. Click [New]. **New Session** dialog box is displayed.
3. Enter a new session name and click [OK].
4. Select *LOCAL* from the [Protocol] list.
5. Enter overall local command path in [Command].
6. Click [Run].

## Xstart User Authentication Setting

#### To Set Password:

1. Run **Xstart**.
2. Select *Password* in [Authentication] and click [Setup]. **Password Setup** dialog box is displayed.
3. Enter password.
4. Select [Save password] and click [OK] to save the entered password in session.
5. To remove password, click [Reset password].

#### To Set Public Key:

1. Run **Xstart**.
2. Select *Public Key* in [Authentication] and click [Setup]. **Public Key Authentication Setup** dialog box is displayed.
3. Select a user key to use in authentication.
4. Enter passphrase.

#### Note

For details on public key setting, see 'Public Key User Authentication'.

For security, directly enter a passphrase at each connection without saving it in a session. In this case, 'SSH User Authentication Dialog Box' asking for passphrase is displayed at connection.

## Xstart Command Tag Definition

**Xstart** provides a command tag function to automate repetitive commands. Command tags are entered in [Command].

| Tag                                          | Description                                                                                            |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <%CR%>                                       | Send CR (Carriage Return, \r) character.                                                               |
| <%LF%>                                       | Send LF (Line Feed, \n) character.                                                                     |
| <%SEND=" <i>string</i> "%>                   | Send a character string. Xstart does not convert DISPLAY and PCADDR variables in the character string. |
| <%WAIT=" <i>string1</i>   <i>string2</i> "%> | Stand by for string1 or string2.                                                                       |

| Tag                | Description                                                                              |
|--------------------|------------------------------------------------------------------------------------------|
| <%SLEEP=n%>        | Sleep for n seconds.                                                                     |
| <%POPUP="string"%> | Open <b>Remote execution result</b> window if a designated character string is received. |

All tags are processed in sequence except for the POPUP tag which is valid till the command is completed entirely.

#### Note

Command tags are supported by TELNET and RLOGIN protocols. To use this function in an SSH protocol, select [Allocate a terminal before executing the command] in the [Options] tab of **SSH Protocol Setup** dialog box. When terminal is allocated, shell environment variables are set as per general login environment.

#### Example

1. The following command is an example of a multi-login. Log in to a host with **Xstart**, and connect to another host using **telnet** and run **xterm**:

```
telnet host2<%CR%><%WAIT="login:"%>root<%CR%>
<%WAIT="Password:"%>password<%CR%><%WAIT="$"%>xterm -ls -display
$DISPLAY
```

2. The following command is an example of the display **Remote execution result** window when a character string "assword:" is displayed. This command is useful when password expires in a fixed cycle and a new password must be entered before a command line prompt is displayed:

```
<%POPUP="assword:"%>xterm -ls -display $DISPLAY
```

## Connection with MIT Kerberos

To authenticate with Kerberos using SSH, there are few things that needs to be set up beforehand. Xmanager 5 is tested with MIT Kerberos server version 5 and MIT Kerberos module for Windows. This article assumes that you have working Kerberos server and client.

#### To create a new Kerberos session,

8. Open **Xstart** and click **New**.
9. Enter a host name in **Host**.
10. Select SSH from **Protocols** list.
11. For **Authentication**, select **Kerberos (MIT Kerberos GSSAPI .dll)**.
12. Enter the **user name**.
13. Click **Save** to save.
14. Select the session file you just created and click Run.

You have finished creating a session that will use the MIT kerberos module. When this session opens, it will try to use the Kerberos credential for the specified user. It has to be the same user you defined in the Network Identity Manager.

## Firewall-related Setting

Special settings are required if a remote host is in another network on the opposite side of a

gateway or there is a firewall in between user's PC and a remote host because **Xmanager** is a server program and remote X applications connect to **Xmanager** in a user's PC.

The keep alive option to retain connection, which is supported by SSH protocols, is useful when a firewall forcefully ends a connection that is idle for a set period of time.

Port-forwarding is required for XDMCP connections when you are in a private network and you connect to a remote host over a router. Once you have configured port-forwarding on the router, you should configure connection address for XDMCP connections.

#### To Use Keep Alive Option for SSH Connection in Firewall Environment:

1. Run **Xstart**.
2. Select a session from the [Session] list.
3. Select *SSH* from the [Protocol] list.
4. Click [Setup]. **SSH Protocol Setup** dialog box is displayed.
5. Click the [General] tab.
6. Select [Send keep alive signal].
7. Click [OK].

#### To Set Router Port Forwarding:

1. Connect to a router and move to port forwarding setup page.
2. Forward external router ports TCP 6000 ~ 6010 to the 6000 ~ 6010 ports in the user PC. If the user PC IP address is 192.168.1.2:

| Router Port | PC Port | Address     |
|-------------|---------|-------------|
| 6000        | 6000    | 192.168.1.2 |
| 6001        | 6001    | 192.168.1.2 |
| ...         |         |             |
| 6010        | 6010    | 192.168.1.2 |

#### Note

Router port number does not need to be the same as PC port number. However, X applications attempt connection with the IP address and the corresponding router port. Since router forwards packets to a PC port according to the port forwarding rules, the display number designated in **Xmanager** sessions files must be the same as the port designated in router port forwarding rules. **Xmanager** display number added with 6000 becomes the port number.

3. Save settings.
4. In Xstart session, values relating to `-display` options must be designated as display numbers relevant to the router IP address and port number of the PC designated in the router port forwarding setting. For XDMCP session, [Connection Address] must be set.

#### Note

For port forwarding setting, see router manual.

#### To Set XDMCP Session Connection Address:

1. Run **Xbrowser**.
2. Right-click on a session for which to set connection address.
3. Select [Properties].
4. Click the [General] tab.
5. Select *User Defined* as [Address Type] in the [Connection Address] field.
6. Enter router IP address in the [Connection Address] field [IP Address] box.

7. Enter a port designated in the router port forwarding setting in of the [Connection Address] field [Port Number] box.

 **Note**

The port number is a router side port number which is configured to perform port-forwarding from router to PC.

8. Click the [X Server] tab.
9. Unselect [Allocate display number automatically] in the [Display Number] field.
10. Enter a display number in [Display Number] relevant to the port number of the PC designated in the router port forwarding setting.

 **Note**

The display number is from the PC port number designated for forwarding from the router to a PC. The port number minus 6000 is the display number.

11. Click [OK].

## Solve Connection Problem

Even if the steps listed above are followed, connection with a remote host may not be successful according to user environments. This section briefly introduces the methods to solve connection-related problems.

### To Solve XDMCP Connection Problem:

1. Check the following:
  - Is any of **dtlogin**, **kdm**, **gdm**, or **xdm** being executed in a remote host?
  - Is a login window displayed?
  - Is the remote host in another network?
  - Is there a firewall in between remote host and user's PC?
  - Is a firewall set in user's PC?
  - User's PC address may be incorrectly set in name server.
  - DISPLAY variables may be configured in the user account shell script.
2. Refer to log message.
  - To view an **Xmanager** log file, point to [Log] in the **Xmanager** main window system menu and select [File].
  - If login screen is not displayed in CDE environment, check /var/dt/Xerrors file. If login fails, check \$HOME/.dt/startlog and \$HOME/.dt/errorlog files.

 **Note**

For details on log file, see 'Session Log'.

### To Solve Xstart Connection Problems:

1. Run **Xstart**.
2. Select [Show connection status window].
3. Click [Run]. **Xrcmd: Remote execution result** window opens.
4. Read message and identify causes of the problem.

 **Note**

**Remote execution result** window is a message window showing the connection progress status. A simple command input is possible. However, there are many restrictions in performing tasks, such as terminal emulation. This window only shows the process until a program including an execution command starts, which is the **Xstart** objective.

## Xmanager Command Line Options

**Xmanager** supports command line options to interface with other user applications. When a user directly executes **Xmanager**, the connection methods and display numbers must be designated as options.

The **Xmanager** command line rules are as follows:

```
Xmanager [-query hostname|-broadcast|-indirect hostname] [:digit]
```

| Command                        | Description                                                                                                                                                                                                                                                                          |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Xmanager                       | Run in passive mode using [Default Xstart Profile]. Display number is set as 0, the default value. If it is not available, another value is automatically allocated.                                                                                                                 |
| Xmanager :1                    | Run in passive mode using [Default Xstart Profile]. Display number is set as 1. If it is not available, execution is stopped.                                                                                                                                                        |
| Xmanager -query <i>host</i>    | Connect to a designated host using XDMCP Query connection method. [Default XDMCP Profile] is used. Display number is set as 0, the default value. If it is not available, another value is automatically allocated.                                                                  |
| Xmanager -query <i>host</i> :2 | Connect to a designated host using XDMCP Query connection method. [Default XDMCP Profile] is used. Display number is set as 2. If it is not available, execution is stopped.                                                                                                         |
| Xmanager -broadcast            | Display XDMCP hosts available for connection in <b>Chooser</b> dialog box by forwarding XDMCP Broadcast messages to local network. [Default XDMCP Profile] is used. Display number is set as 0, the default value. If it is not available, another value is automatically allocated. |
| Xmanager -indirect <i>host</i> | Connect to a host using XDMCP Indirect connection method. Remote host opens Chooser window through <b>Xmanager</b> . [Default XDMCP Profile] is used. Display number is set as 0, the default value. If it is not available, another value is automatically allocated.               |

## Xrcmd Command Line Options

**Xstart** provides command line option, which enables advanced users to integrate the program with their applications. In reality, **Xstart** only provides a user interface for sessions creation and management. When a user opens a session using **Xstart**, it executes **Xrcmd.exe** command and forwards the session information. For direct connection, **Xrcmd.exe**, must therefore be used, not **Xstart**. **Xrcmd** is found in a folder where **Xmanager** is installed.

### The Xrcmd Command Line Rules are As Follows:

```
Xrcmd -protocol ssh|telnet|rexec|rsh|rlogin|local -host hostname
 [-user username] [-password password] [-userkey keyname]
 [-passphrase userkeypass] [-shell] [-zlib] [-status]
 [-result] [-dispno nnn] [-timeout nnn] [-port nnn]
 -command remote_command
```

**Note:** *-command* option must be at the end.

### Options:

| Tag                                         | Description                                                                                                                                         |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>-protocol <i>protocol</i></code>      | Designate a connection protocol.                                                                                                                    |
| <code>-host <i>hostname</i></code>          | Designate a remote host.                                                                                                                            |
| <code>-user <i>username</i></code>          | Designate remote host user account.                                                                                                                 |
| <code>-password <i>xxxx</i></code>          | Designate user account password.                                                                                                                    |
| <code>-userkey <i>keyname</i></code>        | Designate user key name. This option is used only for SSH connection.                                                                               |
| <code>-passphrase <i>userkeypass</i></code> | Enter user key passphrase. This option is used only for SSH connection.                                                                             |
| <code>-shell</code>                         | Run a command after shell (terminal) starts. This option is applied only to SSH connection.                                                         |
| <code>-zlib</code>                          | Compress network data using zlib algorithm. This option is applied only to SSH connection.                                                          |
| <code>-status, -result</code>               | Show <b>Remote execution result</b> window.                                                                                                         |
| <code>-dispno <i>nnn</i></code>             | Designate a display number to be used by <b>Xmanager</b> . If this option is not set, <b>Xmanager</b> automatically allocates an appropriate value. |
| <code>-timeout <i>nnn</i></code>            | Close connection after <i>nnn</i> seconds.                                                                                                          |
| <code>-port <i>nnn</i></code>               | Designate connection protocol port number. If this option is not set, the default protocol port number is used.                                     |
| <code>-command <i>command</i></code>        | Designate a command to be executed in a remote host.                                                                                                |

### Ex.:

```
Xrcmd -protocol telnet -host mylinux -user myname -status
 -command /usr/bin/X11/xterm -ls
```

**Xrcmd** connects to *mylinux* using a *telnet* protocol and logs in with *myname*. Then, it executes *xterm* command on a remote host. Connection status can be checked through **Remote execution result** window during the course of connection.

# Server Profile Setting

Server profile contains **Xmanager** options, such as window modes, fonts, colors and security options.

**Xconfig** shows all **Xmanager** profile icons available for use. Users can designate a profile on XDMCP session or Xstart session.

The shared profile is displayed with a hand-shaped icon and can be modified only by users with system administrator permissions. For the default XDMCP profile or the default Xstart profile, the icon is marked with black ticks on top. Double-click icon to modify the properties of each profile.

## Profile Management

When a user creates a session, the default profile is designated to the session. As default profiles, **Xmanager** supports the default Xstart profile and the default XDMCP profile. Default Xstart profile is applied when [Server Profile] is set as *Auto Select* in a Xstart session. Default XDMCP profile is applied when [Server Profile] is set as *Auto Select* in a XDMCP session. All automatic XDMCP sessions use the default XDMCP profile.

### To Create Server Profile:

1. Run **Xconfig**.
2. Select [New] from the [File] menu. A new profile is created in the **Xconfig** window.
3. Double-click the new profile. **Profile properties** dialog box is displayed.
4. Set options.
5. Click [OK].

### To Set Default Xstart Profile:

1. Run **Xconfig**.
2. Right-click on a profile to be used as default **Xstart** profile.
3. Select [Set as default **Xstart** profile].

### To Set Default XDMCP Profile:

4. Run **Xconfig**.
5. Right-click on a profile to be used as default XDMCP profile.
6. Select [Set as default XDMCP profile].

### To Share Profile with Other Users:

1. Run **Xconfig**.
2. Right-click on a profile to share with other users.
3. Select [Sharing]. A hand-shaped icon is added to the server profile icon.

### To Send Profile to Another User through E-mail:

1. Run **Xconfig**.
2. Right-click on a profile.
3. Point to [Send To] and select [E-Mail Recipient]. E-mail Editor opens with the profile attached.

### To Export Profile to Folder:

1. Run **Xconfig**.

2. Drag a profile and drop it in an external folder.

#### To Import Profile to Xconfig:

1. Run **Xconfig**.
2. Drag a profile from an external folder and drop it in **Xconfig**.

## Window Mode

**Xmanager** supports Single Window Mode mainly used in XDMCP sessions and Multiple Window Mode mainly used in Xstart sessions. In Single Window Mode, you can customize the size of the root window and add a scroll bar when the X desktop is larger than your Windows desktop.

In Multiple Window Mode, you can select a window manager and the desktop background. Additionally, you can set panning and auto-raise function to activate a window on mouse focus.

#### Note

In Single Window Mode, Xmanager opens one large main window. Users can open the system menu by clicking Xmanager icon in the title bar.

In Multiple Window Mode, Xmanager icon is created in the notification area. To use Xmanager system menu, right-click on the icon in the notification area.

#### To Use Xmanager in Single Window Mode:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [General] tab.
4. Select *Single Window Mode* from the [Window Mode] list.
5. Click [OK].

#### To Set Root Window Size in Single Window Mode:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [General] tab.
4. Select *Single Window Mode* from the [Window Mode] list.
5. Click [Settings]. **Window Mode Settings** dialog box is displayed.
6. Click the [Single Window Mode] tab.
7. Select an appropriate size from the [Window Size] list.
8. Click [OK].

#### Note

As for *Desktop Size*, run Xmanager as large as the desktop excluding task bar.

For *Full Screen*, run Xmanager as large as the entire screen without title bar and window frame. Windows task bar is also not displayed.

#### To Use Multiple Window Mode:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [General] tab.
4. Select *Multiple Window Mode* from the [Window Mode] list.

5. Click [OK].

#### To Use Panning in Multiple Window Mode:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [General] tab.
4. Select *Multiple Window Mode* from the [Window Mode] list.
5. Click [Settings]. **Window Mode Settings** dialog box is displayed.
6. Click the [Multiple Window Mode] tab.
7. Select [Use Panning].
8. Click [Panning Settings] to set panning options.
9. Set velocity and position in **Panning Settings** dialog box.
10. Click [OK].

#### **Note**

The panning can be used only when local window manager is used.

This option is useful when the window size is larger than the desktop and some window areas are located outside the desktop. Each time mouse pointer moves on a panning position, panning window moves inside the desktop area by pixels designated in panning velocity.

#### To Use Auto-Raise in Multiple Window Mode:

1. Run **Xconfig**.
2. Double-click a profile: **Profile Properties** dialog box is displayed.
3. Click the [General] tab.
4. Select *Multiple Window Mode* from the [Window Mode] list.
5. Click [Settings]. **Window Mode Settings** dialog box is displayed.
6. Click the [Multiple Window Mode] tab.
7. Select [Raise Window Automatically].
8. Click [OK].

#### To Select Background in Multiple Window Mode:

1. Run **Xconfig**.
2. Double-click a profile: **Profile properties** dialog box is displayed.
3. Click the [General] tab.
4. Select *Multiple Window Mode* from the [Window Mode] list.
5. Click [Settings]. **Window Mode Settings** dialog box is displayed.
6. Click the [Multiple Window Mode] tab.
7. Select Background from the [Background] list.
8. Click [OK].

#### **Note**

For *Windows Background*, the background is managed by Windows. In this mode, X root window background cannot be used.

For *X Window Background*, the background is managed by Xmanager. The background changes to the X root window and the mouse pointer changes to an X pointer. In this mode,

Windows icons in the desktop cannot be used.

*X Window Background(Transparent)* operates the same as X Window Background mode. It looks like Windows Background and you can still see the Windows icons on the desktop, but those icons are not active.

#### To Select Window Manager in Multiple Window Mode:

1. Run **Xconfig**.
2. Double-click a profile: **Profile Properties** dialog box is displayed.
3. Click the [General] tab.
4. Select *Multiple Window Mode* from the [Window Mode] list.
5. Click [Settings]. **Window Mode Settings** dialog box is displayed.
6. Click the [Multiple Window Mode] tab.
7. Select a window manager from the [Window Manager] list.
8. Click [OK].

#### **Note**

Window manager manages X applications. It adds a title bar, a frame and system menu to the window. Additionally, it provides functions to change window size, to move window and to close window. Local window manager looks like Windows and adds a title bar and a frame to an X application just like Windows applications. Remote window manager, such as dtwm, mwm and fwm, is executed on a remote host and looks different from local window manager.

Xmanager provides *Automatic Switch*, *Remote Only*, and *Local Only* for the window manager mode.

In *Automatic Switch* mode, window manager is automatically converted. At the beginning, Xmanager runs a local window manager, and when a remote window manager tries to connect to Xmanager, the local window manager is automatically closed. And if the remote window manager is closed by user, the local window manager will run again.

In *Remote Only* mode, local window manager is not executed. Run remote window manager to manage X application windows.

In *Local Only* mode, connection by remote window manager is not permitted. All X application windows are managed in the same way as Windows applications.

## Connection Option Setting

The keep alive function is useful when connection is unexpectedly closed while connection is idle. In some network environments, gateway or firewall system forcefully disconnects with system in case data transfer is not made for a set period of time.

Automatic closing function is to automatically close Xmanager in case user input is not made for a set period of time.

#### To Retain Connection:

1. Select [Send TCP keepalive packets when network is idle].
2. Enter waiting time (seconds) in idle state in [Timeout].

### To Set Automatic Closing:

1. Select [Close session when user is idle].
2. Enter waiting time (minutes) in idle state in [Timeout].

#### Note

When Xmanager closes due to automatic closing setting, all X applications may end unexpectedly and work data may be lost.

## Font Management

**Xmanager** provides fonts necessary in most systems and applications. However, users may need to directly add new fonts.

### To Download and Install Additional Fonts Pack:

1. Go to **Xmanager** download page using the address following:  
**<http://www.netsarang.com/download/font.html>**
2. Download additional fonts pack to install.
3. Run the fonts pack in user's system.
4. Install fonts pack according to the instructions provided by install wizard.

#### Note

When additional fonts pack is installed, a fonts folder is automatically added to all server profiles, so a new fonts folder does not need to be registered separately in each server profile when using Xconfig.

### To Change BDF Font to PCF Font:

1. Run **bdftopcf.exe** program as in the following example:  

```
C:\tmp> %XMANAGER_INSTALL_DIR%\bdftopcf new.bdf -o new.pcf
```

### To Create or Renew FONTS.DIR File Using Mkfntdir.exe Program:

1. Move to fonts folder and run **mkfntdir.exe** program:  

```
%XMANAGER_INSTALL_DIR%\Fonts\NewFonts> ..\..\mkfntdir
```

### To Create and Use Fonts Folder:

1. Create a new folder below the following folder:  

```
%XMANAGER_INSTALL_DIR%\Fonts
```
2. Copy new fonts files to the created folder.
3. Run **mkfntdir.exe** program in the created folder:  

```
%XMANAGER_INSTALL_DIR%\Fonts\NewFonts> ..\..\mkfntdir
```
4. Run **Xconfig**.
5. Double-click a profile to which the new fonts folder is to be added. **Profile Properties** dialog box is displayed.
6. Click the [Font] tab.
7. Click [Add Font Folder]. **Browse For Folder** dialog box is displayed.
8. Select a new font folder.
9. Click [OK].
10. Restart **Xmanager**.

### To Use Font Server:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Font] tab.
4. Click [Add Font Server]. **Add Font Server** dialog box is displayed.
5. Enter the font server name or IP address in [Host].
6. Enter the font server port number in [Port].
7. Click [OK].

#### **Note**

Check if a font server is in execution on a remote server. In general, the font server program name is xfs and the default port number is 7100.

### To Change Default Font:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Font] tab.
4. Enter the name of the font to use as the default font in [Default Font].
5. Click [OK].

#### **Note**

Default font is used when an X application does not designate a font for text display.

### To Replace a Font with another Font when the Font Cannot be Found:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Font] tab.
4. Select [Automatic Font Substitution].
5. Click [OK].

### To Display Font Error Dialog Box:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Font] tab.
4. Select [Show Missing Font Dialog].

#### **Note**

The missing font message is used to find a font when the font used by a remote X application is not available in Xmanager. The missing font information is always recorded in the Xmanager log. Even if a font is unavailable in Xmanager, the missing font message may not be displayed by some X applications. In this case, find the necessary fonts by referring to the log or error messages of the concerned X application.

5. Click [OK].

## Color Management

Visual is a device-independent color system, defining **Xmanager** color format and numbers of colors supported. **Xmanager** supports *PseudoColor*, *StaticColor*, *DirectColor*, *TrueColor*,

*GrayScale* and *StaticGray*, the six visuals defined in X window standard.

In *PseudoColor* visual, all X applications can only use 256 colors and thus application execution may fail due to inadequate numbers of colors. Use [Automatic Color Substitution(PseudoColor)] option to successfully run the application in case color palette is insufficient due to another program.

Windows uses 20 system colors in 256-color mode to display title bars, window frames and icons. In some X applications, the whole 256-color palette is used to display the colors properly. In this case, Windows desktop and icons may blink. Select [Preserve System Colors (20 colors)] option to prevent this.

Additionally, **Xmanager** provides RGB database, which is used to change color names to appropriate RGB values. Users can edit the database using text editor.

#### **To Change Default Server Visual:**

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Color] tab.
4. Select an appropriate visual from the [Choose Default Visual] list.
5. Click [OK].

#### **Note**

If the default visual is set as *Auto Detect*, Xmanager selects an appropriate visual according to the video device. In 256-color (8 bit) mode, it is set as *PseudoColor*. In true color (16 bit or higher) mode, it is set as *TrueColor*. The default visual is used by X root window and most applications.

#### **To Support Exact StoreColor Request (PseudoColor):**

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Color] Tab.
4. Select [Exact StoreColor (PseudoColor)].
5. Click [OK].

#### **Note**

When true color video device operates with *PseudoColor* visual, *StoreColor* request overloads and deteriorates overall performance. Xmanager provides an option to turn off *Exact StoreColor*.

#### **To Operate True Color Video Device with 256-color Visual:**

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Color] tab.
4. Select *PseudoColor* from the [Choose Default Visual] list.
5. Click the [Advanced] tab.
6. Select [When Mapped] in [Backing Store].
7. Click [OK].

#### **Note**

Some old CAD programs operate in 256-color system thus the default visual must be changed to *PseudoColor* to ensure successful execution.

#### To Change to RGB Format in TrueColor Visual:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Color] tab.
4. Select [RGB in Reverse Order(TrueColor)].
5. Click [OK].

#### **Note**

This function is useful when an X application requires a special RGB format.

#### T Change or Edit RGB Color Database:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Color] tab.
4. Click [Change] or [View] in the [Color Database] field.
5. Click [OK].

## Keyboard Setting

Users can create or edit a keyboard file, designate a shortcut key to change a keyboard file real-time and edit the keyboard file using keyboard editor. **Xmanager** provides keyboard files created in advance in relation to most languages and keyboards. Users can thus find and use a keyboard appropriate for their application. If an appropriate keyboard file cannot be found, a similar keyboard file can be selected and conveniently edited.

#### To Add Keyboard File to Keyboards List:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Devices] tab.
4. Click [Keyboard Settings]. **Keyboard Settings** dialog box is displayed.
5. Click [Add]. **Add Keyboard** dialog box is displayed.
6. Select a keyboard file.
7. Click [OK].

#### To Set a Specific Keyboard as Default Keyboard:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Devices] tab.
4. Click [Keyboard Settings]. **Keyboard Settings** dialog box is displayed.
5. Select a keyboard to use as a default keyboard from [Keyboards List].
6. Click [Set as Default].
7. Click [OK].

#### To Change Keyboard File Real-time:

1. Click Ctrl+Alt+K while running **Xmanager**. **Keyboard Selector** dialog box is displayed.
2. Press 'K' key several times while pressing Ctrl+Alt to select a keyboard.
3. Release all keys.

 **Note**

Users may view only those keyboard files in the **Keyboard Settings** dialog box [Keyboards List].

**To Edit Keyboard File:**

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Devices] tab.
4. Click [Keyboard Settings]. **Keyboard Settings** dialog box is displayed.
5. Select a keyboard to edit from [Keyboards List].
6. Click [Edit]. **Keyboard Editor** opens.
7. Double-click a key to edit in keyboard layout. **Edit Key** dialog box is displayed.

 **Note**

In the **Edit Key** dialog box, change the key status and keysym.

*Repeat* continuously generates a same key event when a user presses a key. This function is used in most keys with the exception of auxiliary keys, such as Shift, Alt and Control.

*Latch* generates either a KeyPress or KeyRelease event when the key is pressed and then released. The key must be pressed and released twice to generate KeyPress and KeyRelease events. In general, this function is used for CapsLock key or NumLock key.

In the [Keysym] field, Normal, Shift, ModeSwitch and Shift ModeSwitch keysyms are set to a key.

*Normal* is used when pressing the key while pressing no other auxiliary keys.

*Shift* is used when pressing the key while pressing Shift key.

*ModeSwitch* is used when pressing the key while pressing ModeSwitch key.

*Shift ModeSwitch* is used when pressing the key while simultaneously pressing Shift and ModeSwitch keys.

**To Create New Keyboard File:**

1. Open Keyboard Editor.
2. Select [New] from the [File] menu. **Select Keyboard Type** dialog box is displayed.
3. Select an appropriate keyboard type and click [OK].

 **Note**

In **Select Keyboard Type** dialog box, [Keyboard Type] list shows all keyboard types available to use in Xmanager. Each keyboard has different keyboard layouts and key counts. A keyboard type similar to that being used must be selected.

4. Edit keyboard in the selected keyboard layout.

## Mouse Setting

**Xmanager** provides 3-button emulation, scroll using mouse wheel and changing the middle

and right mouse buttons.

#### To Use 2-button Mouse as 3-button Mouse:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Devices] tab.
4. Click [Mouse Settings]. **Mouse Settings** dialog box is displayed.
5. Select [Click the left and right buttons simultaneously].
6. Adjust the time interval between the left and right buttons in [Click Speed].
7. Click [OK].

#### **Note**

In 3-button emulation mode, mouse operates as if the middle button is pressed when the left and right buttons are pressed simultaneously. Click speed is the standby time from the pressing of one button to the pressing of another.

#### To Scroll in X Application Using Mouse Wheel:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Devices] tab.
4. Click [Mouse Settings]. **Mouse Settings** dialog box is displayed.
5. Select [Use Wheel Mouse].
6. Click [OK].

#### **Note**

For scrolling using a mouse wheel, button4 event is generated when scrolling up and button5 event is generated when scrolling down. Right-clicking may not be available in some X applications, such as CDE desktop.

#### To Change Right and Middle Button Positions:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Devices] tab.
4. Click [Mouse Settings]. **Mouse Settings** dialog box is displayed.
5. Select [Use Right Button as Middle Button].
6. Click [OK].

#### **Note**

Select this option if the middle button is used more frequently than the right button.

#### To Use Color Mouse Pointer:

7. Run **Xconfig**.
8. Double-click a profile. **Profile Properties** dialog box is displayed.
9. Click the [Devices] tab.
10. Click [Mouse Settings]. **Mouse Settings** dialog box is displayed.
11. Select [Use Color at Mouse Pointer].
12. Click [OK].

## Sound Setting

In **Sound Settings** dialog box, select bell types and designate sound files. In **Profile Properties** dialog box, open the dialog box by clicking [Sound Settings] button in the [Devices] tab.

### Bell Type

Select an appropriate audio device for bell request by an X application. Select one from among three bell types: *Sound Card*, *PC Speaker* and *None*.

If *Sound Card* is selected, an appropriate sound file (.wav) must be designated. If *None* is selected, no bell sound is generated.

### Sound File

Show a sound file (.wav) to be used for bell request of X applications.

### Browse

Select a sound file by opening **Open** dialog box.

## Multi-monitor

**Xmanager** enables users to select a monitor for X Window desktop output on a multi-monitor system. **Xmanager** may not operate successfully if a monitor is 8-bit color and other monitors are larger than 8-bit. It is therefore recommended that every color of the monitor is set to 16-bit color or higher.

### To Select Monitor for X Desktop:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Devices] tab.
4. Click [Monitor Settings]. **Monitor Settings** dialog box is displayed.
5. Select a monitor from the [Monitor to use] list.
6. Click [OK].

#### Note

Monitor list shows all monitors available for use including *Auto detect* and *Virtual Screen*.

*Virtual Screen* is a virtual rectangular area that includes all monitors.

When *Auto detect* is selected, Xmanager selects *Virtual Screen* in Multiple Window Mode and the main monitor in Single Window Mode.

### To Use All Monitors as a Single X Desktop:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Devices] tab.
4. Click [Monitor Settings]. **Monitor Settings** dialog box is displayed.
5. Select *Virtual Screen* from the [Monitor to use] list.

 **Note**

*Virtual Screen* is listed only when there are several monitors on a system. The *Virtual Screen* created root window size and workspace are affected by the resolution and layout of each monitor. The root window is the largest rectangle comprising several monitors.

6. Click [OK].

**To Display Select Monitor Window at Startup:**

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Devices] tab.
4. Click [Monitor Settings]. **Monitor Settings** dialog box is displayed.
5. Select [Show the Monitor Selector at startup].
6. Click [OK].

## Advanced Option Setting

# Set X protocol extensions and other advanced options in the [Advanced] tab of Profile Properties dialog box. For copy and paste option usage, see 'Tab Management

**Xbrowser** has powerful tab management feature. You can connect to multiple hosts and compare them side by side from a single window. Powerful tab management is a unique Xbrowser feature that cannot be found in other PC X Servers.

Each tab is associated to a single Xmanager instance and it belongs to a tab group. Tab group is a collection tabs. A single Xbrowser window can have multiple tab groups and organize them any way you want.

## Tab

By default, a new tab opens up when you open an XDMCP session. This allows you to work with multiple remote desktops without living Xbrowser window. You can align tabs vertically or horizontally.

### To Open a Session in a New Tab

1. Click [Tools] from the File menu
2. For the Default Open action, select **Open in Tab**.
3. Double click on a session in Xbrowser.

#### Note

You can manually open a session in a new window by right clicking on a session and then selecting the **Open in a New Window** option. What you select in the context menu will override the default open action setting.

### To close a Tab

4. Click the **x** button on tab.

## Tab Group

Tab group is collection of multiple tabs. Only one tab from the tab group is visible at any given moment. You can manage multiple tab groups in a single Xbrowser and it allows comparing different tabs side by side without switching between applications.

### To Create a New Tab Group

1. Open a new session by right clicking on a session and then selecting **Open in New Tab**.
2. Click on the tab and drag it to a edge of the **Xbrowser** window. This will create a drop zone that indicates how the new tab group will be created.
3. Drop the tab to a edge where you want to create a new tab group.

### To Move a Tab to a Different Tab Group

1. Select a tab you want to move to a new tab group.
2. While holding down the left mouse button, drag the tab to a different tab group.
3. Drop the tab to a new tab group.

### To Close a Tab Group

1. Select a tab group you want to close.
2. Right click on the tab group in the background.
3. Select the **Close This Tab Group** option.

### To Arrange All Tabs Vertically

1. While many tabs open, right click on a tab.
2. Point to **Arrange** and then select **Arrange Tabs Vertically**.

### To Arrange All Tabs Horizontally

1. While many tabs open, right click on a tab.
2. Point to **Arrange** and then select **Arrange Tabs Horizontally**.

### To Arrange All Tabs Stacked

1. While many tabs open, right click on a tab.
2. Point to **Arrange** and then select **Arrange tabs Tiled**.

### To Merge All Tab Groups

1. While more than one tab group is showing on a single window, right click on a tab.
  2. Point to **Arrange** and then select **Merge All Tabs**.
- Copy, Save and Print in X Application'.

### Copy and Paste Automatically

When the option is turned on, **Xmanager** copies and pastes texts or images in between an X application and a Windows application. When an X application copies texts or images, the contents are immediately forwarded to Windows Clipboard. Reversely, when new contents are added to Windows Clipboard, the contents are immediately forwarded to X Selection. Texts and images can be copied to both or either the Cut Buffer or X Selection. Selection of one may also need to be made depending on the X application.

### X Selection

Use X Selection when copying and pasting contents in between Windows and an X application.

### Cut Buffer

Use Cut Buffer when copying and pasting contents in between Windows and an X application.

### Copy and Paste on Changing Focus

Run copy and paste only when a focus changes between **Xmanager** and another Windows application. When the focus is in **Xmanager**, the contents can be copied several times from X applications. Then, the contents are pasted to Windows Clipboard the moment input focus changes to another Windows program. If using this option while using **Xmanager** in Windows terminal, copy and paste may not function properly.

### Notify Display Change

Display a dialog box when Windows desktop color or resolution is changed. If color or resolution is changed, **Xmanager** must be restarted.

### Maximize Performance

**Xmanager** is executed at the maximum performance. **Xmanager** selects the fastest method for complicated drawing operations.

However, some graphic images may not be displayed properly according to user's video device or applications.

### Permit Old X11 Bugs

Select this option when a remote X application is created in earlier versions than X11R6 and thus does not operate successfully in **Xmanager**.

### Accept Esound Request

This is an option to process remote Esound requests. Esound uses TCP 16001 port.

### Detailed Log Message

Use this option for detailed log message if necessary for technical support.

### Backing Store

Select an appropriate Backing Store mode.

The Backing Store is a function to store a hidden window area in memory. When a window is hidden by another window, it must be redrawn when it is revealed later on. By saving the obscured area in memory, **Xmanager** can recover the area faster than the application draws it

once again. In doing so, **Xmanager** reduces data transfer volume in a slow network environment.

**Xmanager** provides four Backing Store modes.

In *Do Not Use* mode, Backing Store function is turned off and the hidden fields are always redrawn.

*When Requested* does not use Backing Store function either. However, when requested by an X application, Xmanager uses Backing Store function limitedly for the X application windows.

In *When Mapped* mode, Backing Store function basically operates in all windows excluding hidden or minimized windows.

In *Always* mode, Backing Store function operates in all windows including hidden or minimized windows. This option requires large system memory capacity and graphic resources.

### **X Extensions**

Select X extensions to use.

**Xmanager** supports BIG-REQUEST, DAMAGE, DEC-XTRAP, DOUBLE-BUFFER, Extended-Visual-Information, MIT-SUNDRY-NONSTANDARD, Multi-Buffering, RandR, RECORD, RENDER, SECURITY, SHAPE, SYNC, TOG-CUP, XC-APPGROUP, XC-MISC, XEVIE, XFIXES, Xinerama, XInput, XKeyboard and XTEST extension protocols. In particular, it supports Render extension protocol and an improved graphic environment for X applications. In **Xmanager Enterprise** version, other protocols, such as GLX(OpenGL) extension protocol are also supported.

### **X Resource Database**

Show path to X resource database to read when **Xmanager** is started.

### **Change**

Display **Open** dialog box to change resource database to another file.

### **View**

View resource database contents using Notepad.

# Security

**Xmanager** supports secure connection by providing host access control and SSH protocols.

Host access control prevents connection from unauthorized hosts. However, network packet between **Xmanager** and an X application is not encoded and is vulnerable to intrusions.

**Xmanager** also supports SSH protocol for security. SSH connection can be used in Xstart and Secure XDMCP sessions.

Host keys and user keys database generated in **Xmanager** can be used **Xshell** and **Xftp** programs. Once a public key is created, it can be used in all programs without additional settings.

## Host Access Control

Host access control manages a list of reliable hosts and enables only X applications from reliable hosts to connect to **Xmanager**. When connection by an unauthorized host is requested, **Xmanager** displays Alert dialog box asking whether to permit the connection.

### To Use Host Access Control Function:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Security] tab.
4. Select [Enable Access Control].
5. Enter a host for which to permit connection from the [Trusted Hosts] list.
6. Click [OK].

### To Display Alert Message for Unpermitted Connection:

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Security] tab.
4. Select [Warn Unauthorized Connections].
5. Click [OK].

## Public Key User Authentication

### To Open User Key Manager:

1. Run **Xbrowser**.
2. Click [User Key Manager] in the [Tools] menu.

#### Note

Export, import, rename, delete and create a user key in 'User Keys Dialog Box'.

### To Create User Key:

1. Run **Xbrowser**.
2. Select [New User Key Wizard] from the [Tools] menu.
3. Create a user key according to the instructions provided by New User Key wizard.

#### Note

Register a public key on a server at the last stage of key creation. Registration methods

vary according to key formats.

- *SSH1*: Copy the public key text and save it to `$HOME/.ssh/authorized_keys` file. Run the following command to turn off the write permission of the files and directories.  
\$ cd  
\$ chmod go-w . .ssh .ssh/authorized\_keys
- *SSH2-OpenSSH*: OpenSSH servers use this format. Copy the public key text and save it to `$HOME/.ssh/authorized_keys2` file. Run the following command to turn off the write permission of the files and directories.  
\$ cd  
\$ chmod go-w . .ssh .ssh/authorized\_keys2
- *SSH2-IETF SECSH*: Some commercial SSH servers, such as ssh.com server, use this format. Save a public key under an intrinsic name, such as `mypublickey.pub` and copy it to `$HOME/.ssh2` directory. Add the following line to `$HOME/.ssh2/authorization` file:  
Key mypublickey.pub  
Run the following command to turn off the write permission of the files and directories.  
\$ cd  
\$ chmod go-w . .ssh2  
\$ chmod go-w .ssh2/authorization .ssh2/mypublickey.pub

#### To Register Public Key in Server:

1. Open **User Keys** dialog box.
2. Select a user key to register.
3. Click [Properties]. **User Key Properties** dialog box is displayed.
4. Click the [Public Key] tab.
5. Select a type that suits a remote SSH server from the [Public Key Format] list.
6. Save public key by selecting [Save as a file] or copy the key contents and register the key in a server using the public key registration method listed above.

#### To Change User Key Passphrase:

1. Open **User Keys** dialog box.
2. Select a user key for which to change passphrase.
3. Select [Properties]. **User Key Properties** dialog box is displayed.
4. Select the [General] tab.
5. Select [Change Passphrase].

## User Keys Dialog Box

**User Keys** dialog box enables to create and manage user keys. Open this dialog box by selecting [User Key Manager] from the [Tools] menu.

#### Import

Select a user key file and import it by opening the **Open** dialog box. At present, **Xmanager** can read the SSH1 protocol RSA key, the OpenSSH SSH2 protocol RSA/DSA key, the SSH.COM key, and NetSarang user key formats.

#### Export

Save a selected user key file by opening the **Save** dialog box. Exported file types are NetSarang user key, OpenSSH SSH2. NetSarang user key format files can be used in

programs developed by NetSarang Computer, Inc.

#### **Delete**

Delete a selected user key from database.

#### **Rename**

Rename a selected user key. Key name must be valid as a file name.

#### **Properties**

Show user key attributes. Type, length, fingerprint and public key can be viewed. Additionally, the key passphrase can be changed.

#### **Generate**

Open **New User Key wizard**.

## **SSH User Authentication Dialog Box**

**SSH User Authentication** dialog box enables users to select appropriate authentication methods. If a passphrase is not saved in a session, this dialog box is displayed in case it is necessary to obtain authentication-related information from the user.

#### **Password**

Password authentication is to permit a user to log in to a server by entering the user account password. Due to security reasons, some servers do not support this authentication method.

#### **Public Key**

Public key authentication requires a user's public key to be registered in a remote SSH server. To log in using this method, select an appropriate user key from the user keys list.

#### **Keyboard Interactive**

Keyboard interactive acts as a server asking questions and the user entering messages.

## **Host Key Management**

A host key is a remote host public key, through which users can verify hosts by their fingerprint. When a connection is made, the remote host sends its public key to **Xmanager**. For a host that is connected with for the first time or when a host key is not saved in database, **SSH Security Warning** dialog box is displayed at connection. If a host key is valid and reliable, save the host key in host key database.

#### **To Open Host Key Manager:**

1. Run **Xbrowser**.
2. Click [Host Key Manager] in the [Tools] menu.

## **SSH Security Warning Dialog Box**

**SSH Security Warning** dialog box is displayed when a remote host key is not saved in the host key database or when the fingerprint of a remote host key differs from the fingerprint of the saved host key.

#### **Accept Once**

Accept a host key for this connection only. The host key is not saved and the same dialog box

opens at the next connection. This function is useful when the server host key changes often or if the server is not frequently connected.

#### **Accept and Save**

Save a host key and continuously process connection. This dialog box does not open for the next connection. This function is useful when a fingerprint is correct and the host is connected with frequently.

#### **Cancel**

A host key is not accepted and connection is cancelled.

## **Host Keys Dialog Box**

The host keys dialog box permits the management of host keys in relation to hosts to which connections are permitted.

#### **Import**

Import a host key by opening **Open** dialog box. The imported host key is saved in the host key database and is displayed in the **Host Keys** dialog box. Files saved in the SECSH public key format can be imported.

#### **Export**

Export a selected host key by opening **Save** dialog box. The exported keys are saved in the SECSH public key format and can be used in other programs.

#### **Delete**

Delete a selected host key from database.

#### **View**

Open a selected host key with Notepad.

# Tab Management

**Xbrowser** has powerful tab management feature. You can connect to multiple hosts and compare them side by side from a single window. Powerful tab management is a unique Xbrowser feature that cannot be found in other PC X Servers.

Each tab is associated to a single Xmanager instance and it belongs to a tab group. Tab group is a collection tabs. A single Xbrowser window can have multiple tab groups and organize them any way you want.

## Tab

By default, a new tab opens up when you open an XDMCP session. This allows you to work with multiple remote desktops without living Xbrowser window. You can align tabs vertically or horizontally.

### To Open a Session in a New Tab

5. Click [Tools] from the File menu
6. For the Default Open action, select **Open in Tab**.
7. Double click on a session in Xbrowser.

#### Note

You can manually open a session in a new window by right clicking on a session and then selecting the **Open in a New Window** option. What you select in the context menu will override the default open action setting.

### To close a Tab

8. Click the **x** button on tab.

## Tab Group

Tab group is collection of multiple tabs. Only one tab from the tab group is visible at any given moment. You can manage multiple tab groups in a single Xbrowser and it allows comparing different tabs side by side without switching between applications.

### To Create a New Tab Group

4. Open a new session by right clicking on a session and then selecting **Open in New Tab**.
5. Click on the tab and drag it to a edge of the **Xbrowser** window. This will create a drop zone that indicates how the new tab group will be created.
6. Drop the tab to a edge where you want to create a new tab group.

### To Move a Tab to a Different Tab Group

4. Select a tab you want to move to a new tab group.
5. While holding down the left mouse button, drag the tab to a different tab group.
6. Drop the tab to a new tab group.

### To Close a Tab Group

4. Select a tab group you want to close.

5. Right click on the tab group in the background.
6. Select the **Close This Tab Group** option.

#### **To Arrange All Tabs Vertically**

3. While many tabs open, right click on a tab.
4. Point to **Arrange** and then select **Arrange Tabs Vertically**.

#### **To Arrange All Tabs Horizontally**

3. While many tabs open, right click on a tab.
4. Point to **Arrange** and then select **Arrange Tabs Horizontally**.

#### **To Arrange All Tabs Stacked**

3. While many tabs open, right click on a tab.
4. Point to **Arrange** and then select **Arrange tabs Tiled**.

#### **To Merge All Tab Groups**

3. While more than one tab group is showing on a single window, right click on a tab.
4. Point to **Arrange** and then select **Merge All Tabs**.

# Copy, Save and Print in X Application

Automatically copy character strings in between an X application and Windows Clipboard using **Xmanager**. Additionally, when using local window manager, X application images can be copied to the Windows Clipboard, saved as bitmap files and printed by a printer.

#### **To Set Automatic Copy and Paste:**

1. Run **Xconfig**.
2. Double-click a profile. **Profile Properties** dialog box is displayed.
3. Click the [Advanced] tab.
4. Select [Copy and Paste Automatically] from the [Settings] list.
5. Click [OK].

#### **To Copy Character String from Xterm to Windows Notepad:**

1. Select a character string to copy from **xterm** window with left mouse button.
2. Start Notepad.
3. Select [Paste] from the [Edit] menu.

#### **To Copy Character String from Windows Notepad to Xterm:**

1. Select a character string to copy from Notepad with left mouse button.
2. Select [Copy] from the [Edit] menu.
3. Run **xterm**.
4. Click the middle mouse button or left and right buttons simultaneously in the **xterm** window.

#### **To Copy X Application Window to Clipboard:**

1. Point to [Copy] in the title bar system menu and select [Window] or [Content]. Window image is copied to clipboard.

#### **Note**

This function can be used when the local window manager is in operation under Multiple Window Mode.

#### **To Save X Application Window as Bitmap File:**

1. Point to [Save] in the title bar system menu and select [Window] or [Content]. **Save As** dialog box is displayed.
2. Enter an appropriate file name in [File Name].
3. Click [OK].

#### **Note**

This function can be used when the local window manager is in operation under Multiple Window Mode.

#### **To Print X Application Window:**

1. Point to [Print] in system menu on title bar and click [Window] or [Content]. **Print** dialog box is displayed.
2. Click [Print].

#### **Note**

This function can be used when the local window manager is in operation under Multiple Window Mode.

# Session Log

**Xmanager** session records debug information as files. When several **Xmanager** sessions are being used simultaneously, each session log is saved under different names, such as X0.LOG and X1.LOG. Number in the log file refer to a display number of the **Xmanager** session. Checking log files can be helpful when problems occur while using **Xmanager**.

## To View Log Files of Current Session:

1. Right-click on the **Xmanager** notification area icon or click the **Xmanager** icon in the **Xmanager** main window title bar.
2. Point to [Log] in system menu and select [File]. A log file is opened with Notepad.

### Note

In Multiple Window Mode, the Xmanager icon is created in the notification area. In Single Window Mode, Xmanager opens a single main window.

## To Open the Folder where All Session Log Files are Saved:

1. Right-click on **Xmanager** notification area icon or press **Xmanager** icon in the **Xmanager** main window title bar.
2. Point to [Log] in system menu and select [Folder]. A log folder opens.

### Note

Open a log folder by selecting [Open Log Folder] from the [File] menu in the **Xbrowser**.

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