

# **Xshell** User Guide

Secure Terminal Emulator

NetSarang Computer, Inc.

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## Xshell® Manual

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# About Xshell

**Xshell** is a powerful SSH, TELNET and RLOGIN terminal emulator software operating on the Windows platform. Windows users can conveniently and securely access UNIX/Linux hosts using **Xshell**. SSH (secure shell) protocols support encryption and user authentication for secure connection on the Internet and can replace legacy protocols, such as TELNET and RLOGIN.

## Key Functions

This section provides descriptions on key functions of **Xshell**.

### General

- Supports SSH1, SSH2, SFTP, TELNET, RLOGIN and SERIAL protocols
- Supports Windows 2000/XP/2003/Vista/2008/7/8
- Supports OpenSSH and ssh.com servers
- Supports having multi tabs in a single window
- Supports displaying multiple tab groups in a single window
- Multi-user setting
- Keep alive option
- SOCKS4/5, HTTP proxy connection
- Custom key mapping
- VB, Perl, Jscript scripting
- Auto reconnect
- IPv6 support
- MIT Kerberos authentication support

### Session Management

- Creates and manages sessions for other hosts
- Supports Sessions dialog box, address bar, local prompt, shortcut to session, and links bar to open sessions
- Provides a default session for quick connection
- Simultaneous connection with multiple sessions
- Address bar supports URL commands and allows connection to a remote host with or without a saved session
- Supports automatic login and login scripts
- Supports folder and tree view in the Sessions dialog box
- Batch update sessions
- Import and export sessions

### Security

- RSA/DSA Public key, Password and Keyboard interactive user authentication
- RSA/DSA New Key Wizard and import/export key

- User authentication using Xagent (SSH user authentication agent)
- AES128/192/256, 3DES, BLOWFISH, CAST128, ARCFOUR and RIJNDAEL encryption algorithms
- SHA1, SHA1-96, MD5, MD5-96 and RIPEMD160 MAC algorithms
- zlib compression
- Host Keys dialog box
- User Keys dialog box
- Supports using master password to encrypt password

### **Terminal**

- Unicode-based terminal buffer
- VT100, VT220, VT320, XTERM, LINUX, SCOANSI and ANSI terminals
- Multi-language output encoding (UTF-8)
- Compose bar to write messages to all sessions simultaneously
- Scroll buffer enabling up to 2,147,483,647 lines to be saved
- Character string search using regular expressions
- Column unit text selection
- Supports multi-byte character strings at copy & paste
- Designates delimiters of double-click word selection in the terminal window
- Triple click selects one line
- Bold font and ANSI color code
- Xterm terminal mouse
- Xterm 256-color mode
- Linux Meta key emulation
- Prints terminal screen
- Sets line spacing and margin in the terminal window

### **Tunneling**

- TCP/IP and X11 forwarding
- Dynamic port forwarding using SOCKS4/5
- Tunneling pane allows you to monitor active forwarding channels and add new rules for the current session.

### **Appearance**

- Convenient and powerful user interface
- Supports custom layout
- Adjustable toolbar
- Color schemes edit/import/export feature
- Changes cursor color and blinking
- Easily changes fonts via the Font button
- Designates frequently used character strings as quick commands
- Customizable Standard Buttons on toolbar
- Security-lock, session selection, and network up/down traffic information display in the



- status bar
- Full screen view (Alt+Enter)
- Transparency options

#### Local Command

- Local shell prompt for advanced users
- Local commands, including open, ssh, telnet, rlogin, sftp, and ftp
- Local Windows commands, such as ping, ipconfig, netstat, and nslookup
- Escapes to the local prompt during connection

#### Interoperability

- Interoperable with Xmanager program for X11 forwarding
- Interoperable with Xagent program for agent authentication and forwarding
- Interoperable with Xftp program for file transfer
- Edits scroll buffer in notepad
- Sequentially selects Xshell window via the menu command

#### File Management

- Sends and receives files via SFTP
- Sends and receives files via ZMODEM
- Sends ASCII files
- Automatic session logging (also saves terminal code)
- Page setting and print preview

## Minimum System Requirements

- **Processor:** Intel® compatible
- **Operating System:** Microsoft Windows® 2000 SP4 or higher
- **Storage Space:** 50MB of available space
- **Memory:** 512 MB
- **Network:** TCP/IP network

## Install and Uninstall

The **Xshell** 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 **Xshell**, use the standard Windows add/remove functions. Run [Add/Remove Program] in the control panel and select to uninstall **Xshell** or **Xmanager Enterprise** from the list. Note that when **Xmanager Enterprise** is uninstalled, programs other than **Xshell** 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\Xshell

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

**File and Folder:**

- `User's Documents folder\NetSarang\Xshell`
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# Start

This section provides descriptions of the methods to create a TELNET/RLOGIN or SSH session and to connect to UNIX/Linux hosts. TELNET sessions are very simple. However, an SSH session occasionally requires a user key registration in the server prior to connection. If you need user key registration for SSH sessions, see 'Public Key User Authentication'.

## Create Session

1. Select [New] from the [File] menu. **New Session Properties** dialog box is displayed.

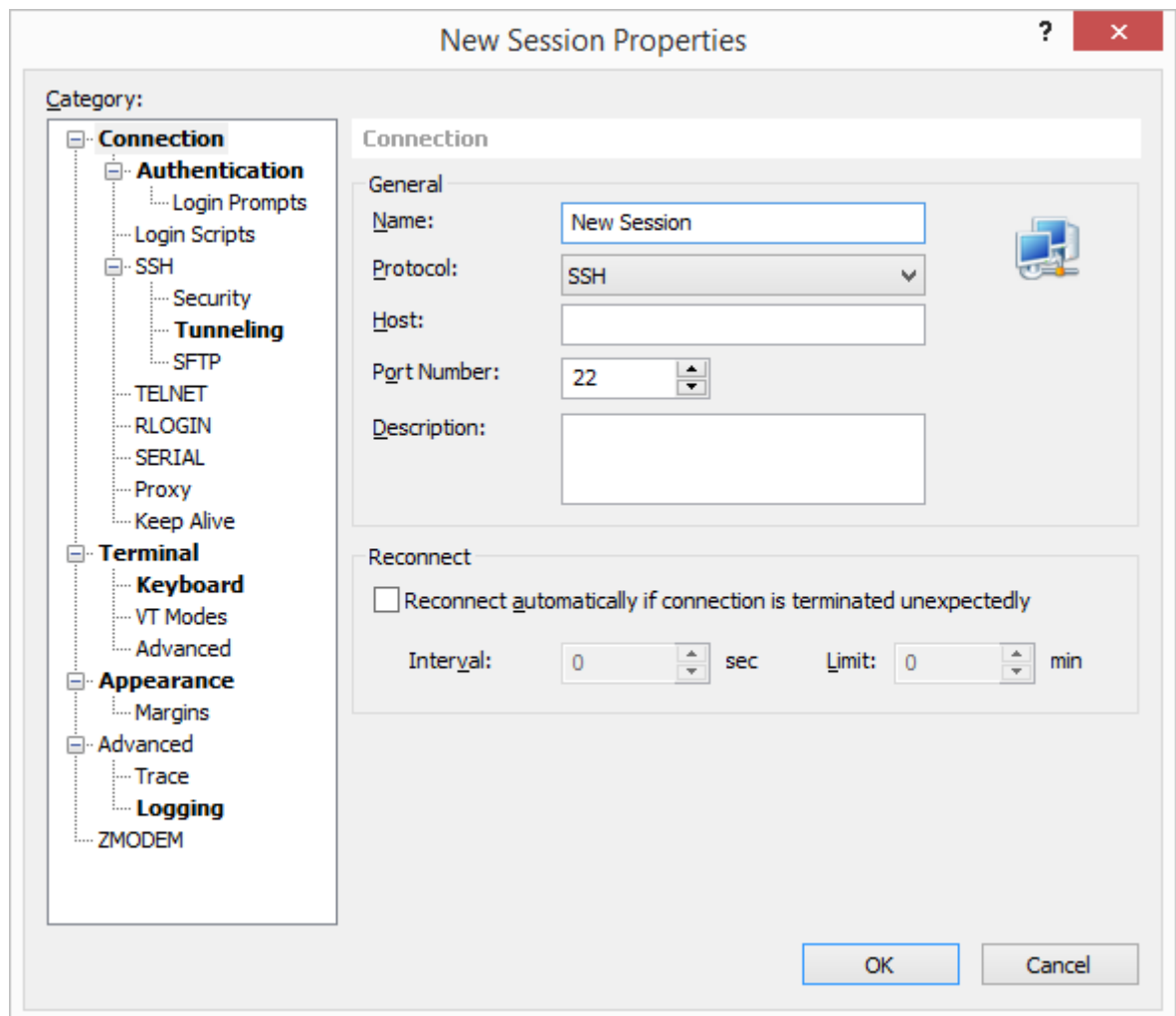


Fig. 1: New Session Properties dialog box

2. Enter a session name in [Name].
3. Select an appropriate protocol from the [Protocol] list.
4. Enter server host name or IP address in [Host].
5. Enter port number used by the remote server in [Port Number].
6. Click [OK].

## Connect to Remote Host

The following is the process for connecting to a remote host via an SSH session. If a session is not available, see 'Create Session'.

1. Select [Open] from the [File] menu. **Sessions** dialog box is displayed.
2. Select session for connection from the sessions list and click [Connect]. **SSH User Name** dialog box is displayed.

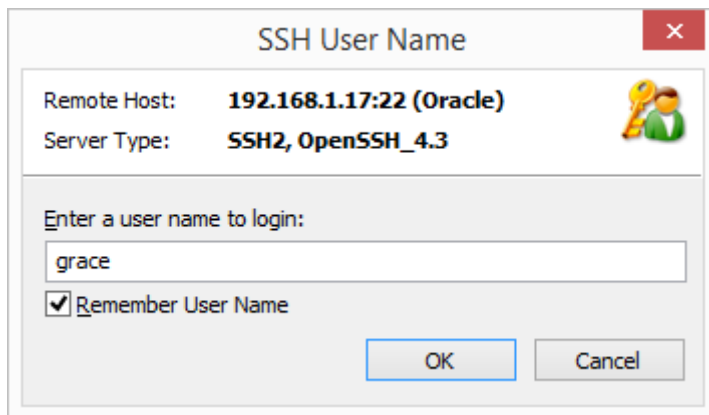


Fig. 1: SSH User Name dialog box

3. Enter user name and click [OK]. **SSH User Authentication** dialog box is displayed.

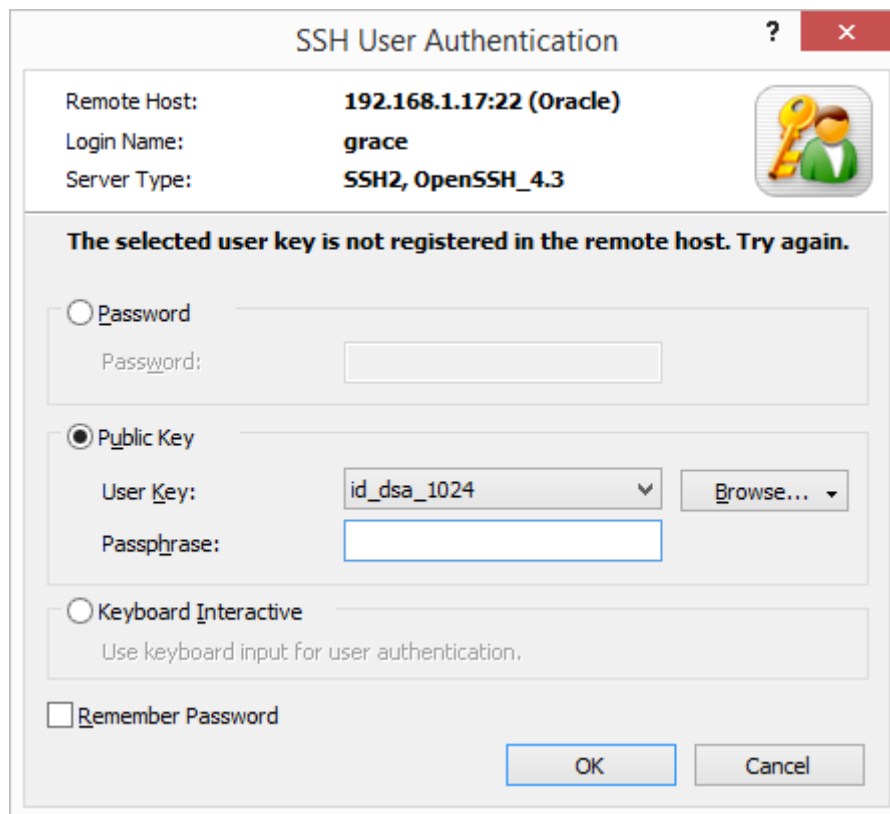


Fig. 2: SSH User Authentication dialog box

4. To attempt *Password* authentication, enter password in [Password] and click [OK].
5. To attempt *Public Key* authentication, first select a user key from the list. Enter [Passphrase] of the selected user key and click [OK].

**Note**

If a user key is not available, see 'Public Key User Authentication'.

6. To attempt *Keyboard Interactive* authentication, click [OK] and answer the questions given during connection process.

## Exit Xshell

To disconnect with a session, enter 'exit' in the terminal screen prompt or select [Disconnect] from the [File] menu.

**Note**

If a session is disconnected with [Revert to local shell when connection is closed] option selected, the session tab remains open and reverts back to local shell. Under local shell status, Xshell prompt is displayed in terminal screen and local commands, such as open, telnet, ssh, and ping can be executed.

To end **Xshell**, select [Exit] from the [File] menu.



# Session Management

Session is a file containing information about remote host connection setup. By creating a session, users can set different options for different remote hosts. The **Sessions** dialog box shows all sessions created and enables to create and edit sessions.

Users can connect to a remote computer without creating a session. For this purpose, **Xshell** provides a default session which is ready to use after installation.

## Session Management

### To Create a New Session:

1. Open the **New Session Properties** dialog box by selecting [New] in the [File] menu.
2. Enter connection information.
3. Click [OK].

### To Open the Sessions Dialog Box:

- Select [Open] in the [File] menu.
- Click the standard [Open] button.

### To Edit a Session:

1. Open the **Sessions** dialog box.
2. Select a session to edit.
3. Click the standard [Properties] button.
4. Click [OK] after completing session editing.

### To Rename a Session:

1. Open the **Sessions** dialog box.
2. Right-click on the session to rename.
3. Select [Rename] in menu.

#### **Note**

Session name must be a valid file name.

### To Copy a Session Under Different Name:

1. Open the **Sessions** dialog box.
2. Select a session to copy under a different name.
3. Click the standard [Save As] button.

### To Delete a Session:

1. Open the **Sessions** dialog box.
2. Select a session to delete.

3. Click the standard [Delete] button.

#### **To Create a Shortcut to Session:**

1. Open the **Sessions** dialog box.
2. Select a session for which to create shortcut.
3. Click the standard [Create Shortcut] button.
4. Select a folder to save shortcut.
5. Click [OK].

#### **To Change Default Session Properties:**

To open the default **Session Properties** dialog box, select one of the following:

- Select [Properties] from the [File] menu in local shell.
- Click the arrow next to the standard [Properties] button in the main toolbar and select [Default Session] from the list.

#### **Note**

Default session is used when connecting with SSH, TELNET, RLOGIN and SFTP using a local prompt or the Address Bar.

To use a connection command in local prompt, see 'Xshell Local Command'. For connection using address bar, see 'Address Bar'.

#### **To Create a New Session Folder:**

1. Open the **Sessions** dialog box.
2. Click an arrow next to the standard [New] button and select [Folder] from the list.
3. Enter folder name.

#### **To Copy a Session file to Another Computer:**

1. Open the **Sessions** dialog box.
2. Click the standard [Open Session Folder] button.
3. Copy a session file (\*.xsh) or email it to another computer.
4. Save session file in the following folder.

'%APPDATA%\NetSarang\Xshell\Sessions'

## **Session Properties**

Open the **Session Properties** dialog box to create a new session or to edit a session.

#### **To Open the Session Properties Dialog Box:**

- Select [New] from the [File] menu.
- Select [Properties] from the [File] menu.
- Click the standard [Properties] button.

## Connection

In connection setting, information about session connections may be set. In most cases, users can connect to a remote host with the connection setting only.

### Name

Enter an intrinsic name for the session. The name becomes the session file name, and must comprise valid characters for a file name.

### Protocol

Select a connection protocol to use when connecting to a remote computer. The protocols supported are SSH, SFTP, TELNET, RLOGIN and SERIAL.

### Host

Enter host name or IP address of the remote computer.

### Port Number

Enter the port number of the protocol selected above. When a protocol is selected from the protocols list, the default protocol port number is automatically entered. If a remote computer is using another port number, the port number must be directly entered. Default port numbers for each protocol are 22 for SSH/SFTP, 23 for TELNET and 513 for RLOGIN.

### Description

## Add a short description about the session. [Connection > Authentication](#)

In user authentication setting, the authentication method, user name, password, user key, and the like may be designated

### Method

Select an authentication method among *Password*, *Public Key*, *Keyboard Interactive* and *Kerberos (MIT Kerberos GSSAPI.dll)*. If the selected authentication method is not supported by the SSH server, a dialog box asking about user authentication method is displayed during connection.

#### Note

Kerberos (MIT Kerberos GSSAPI.dll) uses MIT Network Identity Manager to authenticate user. You must have working MIT Kerberos server and Network Identity Manager on PC in order to use Kerberos.

### User Name

Enter a user name for login. User name is the remote computer login account. If this field is left blank, a dialog box asking for the user name is displayed during connection.

### Password

Enter a remote user account password. This value is valid when *Password* authentication is selected. If this field is left blank, a dialog box asking for the user authentication is displayed during connection. The password is encoded and saved in user's PC. For greater security, leave this field blank.

### **User Key**

Select a user key to use when public key authentication is selected. If this field is left blank, a dialog box asking about user authentication is displayed during connection. If a user key is not in the list, a key must be created and registered in a remote SSH server.

### **Passphrase**

Enter passphrase for the selected user key. The entered key passphrase is encoded and saved in user's PC. For greater security, leave this field blank.

## **Connection > Authentication > Login Prompts**

It is necessary for **Xshell** to recognize the server user name/password prompt in order to automate the login process for TELNET or RLOGIN protocol. In general, the default value is used.

### **TELNET**

Enter user name and password prompt to automate TELNET login process. Note that blanks are recognized as valid characters.

### **RLOGIN**

Enter password prompt for RLOGIN protocol. Password may not be needed according to RLOGIN server settings. Note that blanks are recognized as valid characters.

## **Connection > Login Scripts**

For login script setting, commands to be automatically entered in the terminal may be defined. After successful login to a remote server, commands are sequentially executed in the order displayed in the list. This feature is very useful when you login to another server after the first login to a remote server.

### **Execute the Following Expect and Send Rule**

Select this option to use expect and send rule.

#### **Add**

Open the **Expect and Send Rule** dialog box. When rules editing is complete, the rule is added to the list.

#### **Edit**

Open the **Expect and Send Rule** dialog box and edit the selected rule.

### **Execute script when session starts.**

Set a script file to execute after a session connection.

## **Connection > SSH**

Set general SSH protocol options.

### **Protocol Versions**

Select an SSH protocol version to use. SSH2 is safer than SSH1 and offers more capabilities.

### **Use Xagent (SSH Agent) for Handling Passphrase**

Select this option when using **Xagent**. Using **Xagent**, entering a passphrase is not required during the public key user authentication process.

### **Launch Xagent Automatically**

**Xagent** is automatically executed when necessary. When this option is selected, users do not need to execute **Xagent** in advance.

### **Use ZLIB Compression**

A compression algorithm is used to compress all SSH connection data. In an environment where network speed is slow, use this option to improve the speed.

### **Do Not Allocate a Terminal**

Select this option when not using terminal. Use this option if you want to use tunneling only without terminal access.

## **Connection > SSH > Security**

### **Encryption**

Encryption algorithms are used to encrypt and decrypt network traffics. Users may select preferred encryption algorithm from the list. If *<Cipher List>* is selected from the list, multiple algorithms may be attempted in the order appeared in the list. To edit the list of *<Cipher List>*, click [Edit].

### **MAC (Message Authentication Code)**

MAC is added in SSH2 for greater security and to ensure data integrity. If *<MAC List>* is selected from the list, multiple algorithms are tried in the order appeared in the list. To edit the list of *<MAC List>*, click [Edit].

## **Connection > SSH > Tunneling**

In the tunneling setting, TCP/IP, Dynamic and X11 forwarding rules may be set. These settings are valid only when the SSH protocol is selected in Connection setting.

For details on tunneling setting, see 'Tunneling Service'.

## **Connection > SSH > SFTP**

Set SFTP protocol related options.

### **Startup Folder**

Set a local and remote folder with which to start after successful login via SFTP protocol.

## **Connection > TELNET**

Set TELNET protocol related options.

### **Use XDISPLOC Telnet Option**

Uses XDISPLOC Telnet option to pass display (PC X server) information to server. If you are using a

PC X server such as **Xmanager**, use this option to execute remote X11 applications from a local PC.

### **Display**

Enter the DISPLAY value to pass upon login. \$PCADDR value is translated automatically to IP address of a local PC right before it is passed to server.

## **Connection > RLOGIN**

Set RLOGIN protocol related options.

### **Terminal Speed**

Designate terminal speed to be passed to rlogin server.

## **Connection > SERIAL**

In serial setting, serial connection options may be set. Instead of using the traditional terminal environment, RS232C SERIAL connection lets you use your PC to connect to UNIX machines that has no graphic card support or where direct access to console is not available. To use Serial connection through **Xshell**, serial interface must be installed in the host system.

For details on serial setting, see 'Serial Connection'.

## **Connection > PROXY**

### **Proxy Server**

Select a proxy server to use in this session.

For details on proxy setting, see 'Proxy Setting'.

## **Connection > Keep Alive**

### **Send keep alive messages while this session is connected**

Send keep alive messages to a remote computer. This is useful when connection is unexpectedly closed while connection is idle. In some network environments, the gateway or firewall system forces a disconnection if data transfer is not made for a prescribed period of time.

### **Reconnect automatically if connection is terminated unexpectedly**

Reconnect automatically when a network connection is terminated unexpectedly.

## **Terminal**

In terminal setting, terminal types and other related options may be set.

### **Terminal Type**

Select a terminal type to use. **Xshell** supports VT100, VT102, VT220, VT320, ANSI, SCOANSI, LINUX and XTERM terminals.

### **Use the Following Terminal Size when Connected**

Select this option to designate the terminal size in this session. When this option is selected, terminal size is initialized with columns and rows values when a session is connected. If the option is not selected, terminal size does not change even when a session is connected.

#### **Rows**

Enter row count in terminal. Terminal size is adjusted when a session is connected.

#### **Columns**

Enter column width in terminal. Terminal size is adjusted when a session is connected.

#### **Scroll Buffer**

Designate the row unit scroll buffer size.

#### **Push Erased Screen into Scroll Buffer**

Even when terminal screen is erased with the 'clear' command, the erased content remains in the scroll buffer. The previous screen may thus be viewed via mouse scroll.

#### **Encoding**

Select terminal output encoding. This value must be a language the remote server uses. If *Default Language* is selected, **Xshell** uses the Windows encoding. This option does not change the keyboard input value and, when required, the IME (Input Method Editor) provided by Windows must be appropriately installed.

#### **Treat CJK Ambiguous Characters as Wide Characters**

Recognize ambiguous CJK (Chinese, Japanese, and Korean) characters as wide characters.

## **Terminal > Keyboard**

In the keyboard setting, users may set the character string sent by their PC's keyboard to the server.

#### **Function Key Emulation**

Set function keys appropriate for your terminal type. If *<Default>* is selected, the function key is automatically assigned according to the terminal type designated in the 'Terminal' setting.

#### **Specify an Alternate Key Mapping File**

Using a custom key mapping file, users can manually assign a string to each function key (F1~F20) and it will be sent to server when pressed.

#### **Delete Key Sequence, Backspace Key Sequence**

Select a character string to be sent when user presses the Delete or Backspace key.

#### **Meta Key Emulation**

Enable meta key emulation for application programs which use meta keys, such as Emacs.

## Terminal > VT Mode

Set the initial values for each terminal mode.

### **Auto Wrap Mode (DECAWM)**

Activate auto wrap mode at startup.

### **Origin Mode (DECOM)**

Activate origin mode. When this option is activated, the cursor moves based on the location designated by the server.

### **Reverse Video Mode (DECSCNM)**

Enables Reverse Video Mode when the session starts. When this option is activated, the screen foreground and background colors are reversed.

### **New Line Mode (NLM)**

Enables New Line Mode when the session starts. When this option is activated, both CR and LF are sent when Enter key is pressed. If this option is not selected, Enter key sends CR only.

### **Insert Mode (IRM)**

Enables Insert Mode. When this option is selected, characters received from the remote server are inserted into where the cursor is located and the existing characters are not erased.

### **Echo Mode (SRM)**

When this option is activated, a character string to send to server is displayed on screen and then transferred to server.

### **Initial Cursor Key Mode (DECCKM)**

Set initial cursor key mode value.

### **Initial Numeric Keypad Mode (DECNKM)**

Set default setting for Keypad mode.

## Terminal > Advanced

Set advanced terminal options.

### **Restrict Mouse Use at Terminal with Shift Key**

Some applications such as 'vi' and 'mc' can use mouse click and drag to make selection or change directory. Even in these applications, when this option is selected, press Shift key while using mouse and **Xshell** uses the mouse input to perform actions such as making selection on the screen.

### **Erase Screen Using Background Color**

Use the current terminal background color rather than the background color set in color scheme when erasing screen.

### **Receive LF as CR+LF**



Display both CR and LF in terminal screen when LF is received from server.

### **Scroll to the Bottom when Pressing the Key**

Scroll to the bottom of the terminal screen when a user enters a key.

### **Scroll to the Bottom at Terminal Input/Output**

Scroll to the bottom of the screen when text is displayed on the terminal screen.

### **Enable Destructive Backspace**

Erase a letter to the left of the cursor, when the Backspace key is pressed, and move the cursor to the erased character's position.

### **Disable Blinking Text**

Blinking texts do not blink and are displayed with solid color.

### **Disable Terminal Title Change**

Do not change the **Xshell** title bar. In most cases, the title bar displays the folder and host name according to a request from a remote computer.

### **Disable Terminal Printing Feature**

Display the terminal on screen without printing it when a request for terminal printing is received from server.

### **Disable Switching to Alternate Terminal Screen**

Do not use an alternate screen for certain application programs, such as vi. When an alternate screen is used, and the application is terminated, the terminal area goes back to the screen before the application is started.

### **Disable Terminal Size Change upon Request**

Ignore a terminal size change signal from the server.

## **Appearance**

In the appearance setting, the terminal window colors and fonts may be set.

### **Color Scheme**

Select a color scheme. **Xshell** provides several default color schemes. Add a new color scheme or edit an existing color scheme in the **Select Color Scheme** dialog box.

### **Font Name**

Select a font. Only fixed width fonts are listed. A font may also be selected by pressing the standard [Fonts] button.

### **Font Size**

Select the desired font size.

### **Bold**

Select a method to express bold characters.

### **Cursor**

Designate cursor color, appearance and blinking.

## **Appearance > Margins**

In margins setting, set the margins and spacing in **Xshell** terminal window.

### **Margin**

Set terminal window margins.

### **Spacing**

Set spacing between lines and characters in the terminal window.

## **Advanced**

In advanced setting, set quick command set, tracing, and log options.

### **Quick Command Set**

Select the default quick command set to be used in a session. The selected quick command set is displayed in the quick command bar when the session is started.

### **Disable Shortcut Key to Quick Command**

Ctrl+F1 and Ctrl+F2 keys are not used as shortcut keys to quick commands. The corresponding key values are sent to the server.

## **Advanced > Tracing**

In tracing setting, set protocol tracing options. This feature will be helpful when you want to trace detailed protocol messages to solve a specific problem. A tracing message is displayed in terminal screen.

### **SSH Version, Algorithm Exchange and User Authentication**

Display information about version exchange, encoding algorithm, compression method, and server and user authentication.

### **SSH TCP/IP and X11 Tunneling**

Display port forwarding information on screen.

### **TELNET Option Negotiation**

Display the TELNET option exchange process between **Xshell** and the telnet server on the screen.

## **Advanced > Logging**

In logging setting, set the options related to log creation.

### **Start Logging when Connection is Made**

Logging is automatically started when a session is connected to a remote host. Select one of the following logging options.

- Record printable texts only
- Record terminal codes in addition to printable texts

#### **Automatically Create a New File in Log Folder**

Create a new file in the default folder designated by the program and record log messages. A file name is automatically generated.

#### **Use the Following File**

Save log messages in user designated log file in a user designated folder.

#### **File Path**

Designate the log file path. When a file is created, %n, %d and %t are translated into name, date and time respectively.

#### **Browse Button ([...])**

Open the **Save As** dialog box and select a file to record log contents.

#### **Overwrite when the Specified File Already Exists**

If the specified file already exists, overwrite the log contents on the file. If this option is not selected, serial numbers are added to the end of the file name and an intrinsic name file is created.

#### **Ask when Session Logging Starts**

Open the **Save** dialog box when logging starts so users can select a file in which to save log.

## **ZMODEM**

In ZMODEM setting, set various options relating to ZMODEM file transfer.

#### **Automatically Activate ZMODEM**

Automatically start file send/receive when remote ZMODEM program starts send/receive. If this option is not set, the file must be received by selecting [Send/Receive with ZMODEM] in [File] > [Transfer] menu.

#### **Always Ask Before Download**

Open the Browse For Folder dialog box before receiving files. It allows you to specify a different folder for each download.

#### **Use the Following Download Path**

Save a received file in a designated folder without asking for a folder in which to save the file. If a file of the same name already exists, serial numbers are added to the file name.

#### **Automatically Change Name**

If a file to be received via ZMODEM exists already, the file name is automatically changed. Ex.)  
Before: abc.txt, After: abc (2).txt

### Overwrite

If a file to be received via ZMODEM exists already, the existing file is overwritten.

## Export

Sessions exported by **Xshell** are collected into a single convenient file. When this file is imported from another computer where **Xshell** is installed, the imported sessions may be used without additional setup.

### To Export Session:

1. Select [Export] from the [File] menu. The **Import/Export Sessions** wizard is displayed.
2. Select the position where the exported file is to be saved and click [Next]. Session export results will be displayed.
3. Click [Finish] to complete sessions export.

## Import

**Xshell** can import sessions exported by other computers.

### To Import Session:

1. Select [Import] from the [File] menu. The **Import/Export Sessions** wizard is displayed.
2. Directly enter the file path exported from other computer or click the [...] button to select the exported file and click [Next]. Sessions are imported and the result is displayed.
3. Click [Finish] to complete session import.

# Connection

**Xshell** provides various connection methods, such as **Sessions** dialog box, local prompt, address bar, links bar and shortcut to session.

## Connection without Sessions

### To Connect at the Local Prompt:

1. Enter one of the following commands in the local prompt:

- Xshell:\> telnet hostname
- Xshell:\> ssh hostname
- Xshell:\> rlogin hostname

#### Note

A port number must be designated if a remote host does not use the default port number. For information on commands, see 'Xshell Local Command'.

### To Connect at the Address Bar:

1. Enter one of the following commands in the address bar:

- telnet://hostname
- ssh://hostname
- rlogin://hostname

2. Press Enter or click [Connect].

#### Note

A user name and port number may be entered in the address bar. For details, see 'Address Bar'.

## Connection with Sessions

### To Connect at the Sessions Dialog Box:

1. Open the **Sessions** dialog box.
2. Select a session for connection.
3. Click [Connect].

#### Note

If a remote host connection already exists, a new tab is opened or a new **Xshell** is started.

### To Connect at the Local Prompt:

1. Enter the following command in **Xshell** local prompt.

```
Xshell:\> open session
```

#### To Connect with a Shortcut:

1. Double-click the shortcut icon of a session.

#### Note

To obtain information about shortcut to session, see 'Session Management'.

## Serial Connection

RS232C Serial connection lets you use your PC as a terminal when there is no video card in UNIX system or the console is not directly accessible. To use Serial connection via **Xshell**, serial interface must be installed in the host system.

#### To Make Serial Connection:

1. Select [New] from the [File] menu. **New Session Properties** dialog box is displayed.
2. Enter a session name in [Session].
3. Select SERIAL from [Protocols] list.
4. Select [SERIAL] from [Category].
5. Select the RS232C serial port number connected with PC where **Xshell** is installed from [Port].
6. Select communication speed in [Baud Rate]. The value must match the server value. In general, 9600 is used.
7. Select the transferred data unit bit count in [Data Bits]. It must match the server value.
8. Select number of bits to indicate the end of data unit in [Stop Bits]. Make a selection according to server settings.
9. [Parity] is to verify errors in transferred data. Select one from none, odd, even, mark and space according to server settings.
10. Create a new session by clicking [OK].
11. Make a connection as described in 'Connection with Sessions' with the created session.

## Connection with MIT Kerberos

To authenticate with Kerberos and Xshell, there are few things that needs to be set up beforehand. Xshell 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. Select [New] from the [File] menu
2. Enter a session name in Name].
3. Select SSH from [Protocols] list.
4. Select [Authentication] from [Category].
5. Select Kerberos (MIT Kerberos GSSAPI.dll) from the Method list.

6. Enter the user name.
7. Click OK to save.
8. Select the session file you just created and click Connect.

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.

## Proxy Setting

Proxy server mediates between a network to which a user belongs and an external network to be connected with.

Add, edit and delete a proxy server in **Proxy List** dialog box.

### To Add Proxy Server:

1. In [Connection > Proxy] category of **Session Properties** dialog box, click [Browse] in [Proxy Server].
2. Click [Add] in **Proxy List** dialog box. **Proxy Settings** dialog box is displayed.
3. Enter proxy server name, proxy server type, host information and user information.
4. Press [OK] to add proxy server.

# Security

**Xshell** provides public key user authentication. Host key and user key database created in **Xshell** may be used in **Xmanager** and **Xftp** programs. Once a public key is created, it may be used in other programs without an additional configuration.

## Public Key User Authentication

For public key user authentication, a pair of user keys must be created comprising a public key and a private key. While public key authentication is carried out, the private key is used by **Xshell** to create user signature and the public key is used by SSH server to check the signature.

A user key may be created from SSH server or **Xshell**. If the user key is created from server, the private key must be registered in the **Xshell** private key repository using **Xshell** import. If the user key is created from **Xshell**, the public key must be registered in the server.

### To Create a User Key:

1. Select [New User Key Wizard] from the [Tools] menu.
2. Create a user key according to instructions given by the **New User Key Wizard**.

#### Note

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

- *SSH1*: Copy the public key text and save it to `$HOME/.SSH/authorized_keys` file. Execute 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. Execute 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*: Certain 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
```

Execute 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 the **User Keys** dialog box by selecting [User Key Manager] from the [Tools] menu.
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 an appropriate type from the [Public Key Format] list.
6. Click [Save as a file] to save or copy the key content and register the key to the server according to the public key registration method above.

#### **To Change Passphrase to User Key:**

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

#### **Note**

Import, export, rename, delete and create a user key in the 'User Keys Dialog Box'.

## **User Keys Dialog Box**

The **User Keys** dialog box enables the creation and management of 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, **Xshell** can read the SSH1 protocol RSA key, the OpenSSH SSH2 protocol RSA/DSA key, the SSH.com key and the NetSarang Computer user key formats(\*.pri).

### **Export**

Save a selected user key file by opening the **Save** dialog box. Exported file types are NetSarang user key or OpenSSH SSH2 format. NetSarang Computer user key format files(\*.pri) 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 may be viewed, and the key passphrase may be changed.

### **Create**

Open the **New User Key Wizard**.

## Host Key Management

A host key is a remote host public key, and users can verify the host via its fingerprint. When a connection is made, the remote host sends its public key to **Xshell**. When the host key is valid and you trust it, you can save the host key to the database in **Xshell**. If a host key is not saved in the database, the **SSH Security Warning** dialog box will appear when you try to connect to the host.

### SSH Security Warning Dialog Box

The **SSH Security Warning** dialog box is displayed when a remote host key is not saved in the host key database or the fingerprints of the remote host key and the saved host key are different.

#### Accept Once

Accept host key for this connection only. The host key is not saved and the same dialog box opens at the next connection. This is useful when a server host key changes often or the user rarely connects to the server.

#### Accept and Save

Save host key and continuously process connection. This dialog box does not open on the next connection. This is useful when the fingerprint is correct and the user connects to the host frequently.

#### Cancel

Host key is not accepted and connection is cancelled.

### Host Keys Dialog Box

The **Host Keys** dialog box permits users to manage host keys of remote hosts to which connection is allowed.

#### Import

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

#### Export

Export a selected host key by opening the **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

Xshell 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 Xshell feature that cannot be found in other terminal emulators.

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

## Tab

There are several ways you can create a new tab. You can use any of the following methods:

- Click the [Tab] menu and select [New Tab]
- Double click on the tab bar in the background.
- Use the keyboard shortcut, Shift + Alt + N.

### To close a Tab

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

### To close a tab from Terminal

1. While connect to the remote host, enter 'exit'.
2. In Xshell local shell, type 'exit' again.

#### Note

To close a tab from Terminal, you have not select the [Revert to local shell when connection is closed] option in the [Options] dialog box.

## 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 Xshell and it allows comparing different tabs side by side without switching between applications.

### To Create a New Tab Group

1. Right click on the tab background.
2. Point to [New Tab Group] and select a location you want to create a new tab group.

#### Note

If you want to create a new tab group with an existing tab, you can drag a tab to edge of the terminal until you see the blue marker and drop it.

### 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 Delete 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.

# Tunneling Service

**Xshell** provides TCP/IP and X11 forwarding functions, which creates a secure tunnel between a user's PC and another computer connected across an unreliable network environment and can therefore safely transmit data.

## TCP/IP Port Forwarding

To use port forwarding service via a secure tunnel, define port forwarding rules for each application program.

#### Note

For local forwarding, connection to a local PC's listening port is forwarded to a specific destination host port.

For remote forwarding, connection to the remote host listening port is forwarded to a specific destination host port.

Dynamic forwarding works the same as local forwarding. It automatically determines the host of delivery destination and port according to the SOCKS protocol. The default port number of SOCKS protocol is 1080.

#### To Add New Port Forwarding Rule to Session:

1. Open the **Sessions** dialog box.
2. Select a session for which to edit port forwarding rule.
3. Click the standard [Properties] button.
4. Select [Connection > SSH > Tunneling] from [Category].
5. Click [Add] to open the **Forwarding Rule** dialog box.
6. Select connection type from the [Type] list.
7. Enter localhost or IP address in [Source Host].
8. Enter port number in [Listening Port] or select a service name.
9. Enter the name of the host or IP address where the server program operates in [Destination Host].
10. Enter port number where server program is waiting in [Destination Port].

11. Enter a description of the forwarding rule in [Description].
12. Click [OK].

#### **To Change Forwarding Rule:**

1. Open the **Sessions** dialog box.
2. Select session for which to edit port forwarding rule.
3. Click the standard [Properties] button.
4. Select [Connection > SSH > Tunneling] from [Category].
5. Select a forwarding rule to change.
6. Click [Edit].

#### **To Remove Port Forwarding Rule:**

1. Open the **Sessions** dialog box.
2. Select session for which to edit port forwarding rule.
3. Click the standard [Properties] button.
4. Select [Connection > SSH > Tunneling] from [Category].
5. Select a forwarding rule to remove.
6. Click [Remove].

## **X11 Forwarding**

X11 forwarding is a special TCP/IP port forwarding case. The X11 protocol is used by PC X server software and the connection is established to a user PC from a remote host. It is thus the reverse situation from other client programs, such as email or telnet. Using X11 forwarding, remote X11 application programs can be used in a user's PC via a secure encoding tunnel without complicated port forwarding setting.

To use the X11 forwarding service, you should configure both **Xshell** and SSH server.

#### **To Activate X11 Forwarding in Xshell:**

1. Open the **Sessions** dialog box.
2. Select a session for which to activate X11 forwarding.
3. Click the standard [Properties] button.
4. Select [Connection > SSH > Tunneling] from [Category].
5. Select [Forward X11 Connections to].
6. If **Xmanager**<sup>®</sup> is installed in the user's PC, select [Xmanager]. If another PC X server is used, select [X DISPLAY] and enter an appropriate DISPLAY.
7. Click [OK].

#### **Note**

In Xmanager, Xshell automatically finds X DISPLAY option. In other PC X server programs, the option must be set directly. If PC X server uses TCP 6000 port, DISPLAY is set as 'localhost:0.0'.

#### **To Activate X11 Forwarding in OpenSSH Server:**

1. Open the /etc/ssh/sshd\_config file.

2. Set X11Forwarding option value as follows:  
X11Forwarding                      yes
3. Restart SSH server.

#### To Activate X11 Forwarding in Ssh.com Server:

1. Open the `/etc/ssh2/sshd2_config` file.
2. Set AllowX11Forwarding option value as follows:  
AllowX11Forwarding                      yes
3. Restart SSH server.

## SOCKS4/5 Dynamic Port Forwarding

Dynamic port forwarding is a method to forward a local network connection to an SSH server, where the destination host and port are automatically determined by the SOCKS protocol. Using dynamic port forwarding, **Xshell** can operate as a SOCKS proxy server.

#### To Add New Dynamic Port Forwarding Rule to Session:

1. Open the **Sessions** dialog box.
2. Select a session for which to edit port forwarding rule.
3. Click the standard [Properties] button.
4. Select [Connection > SSH > Tunneling] from [Category].
5. Open the **Forwarding Rule** dialog box by clicking [Add].
6. Select *Dynamic (SOCKS4/5)* from [Type] list.
7. Enter port number in [Listening Port] or select a service name. The SOCKS proxy server default port is 1080.
8. Click [OK].

#### Note

For dynamic port forwarding, the destination host and port do not need to be entered.

## Instant Tunneling

Instant tunneling enables users to add, remove, suspend, and resume a forwarding rule while a session is connected. The current session tunneling status can be checked in the tunneling pane. To view the tunneling pane, select [Tunneling Pane] from the [View] menu.

#### To Add Port Forwarding Rule in Tunneling pane:

1. Click the [Forwarding Rules] tab in tunneling pane.
2. Right-click on the list.
3. Select [Add] from menu. **Forwarding Rule** dialog box is displayed.

#### Note

Newly added rules are applied to the current connection. Unless you save the rules, they are deleted when the connection is closed.

**To Remove Port Forwarding Rule from Tunneling pane:**

1. Click the [Forwarding Rules] tab in tunneling pane.
2. Right-click on a rule to remove from the [Forwarding Rules] list.
3. Select [Remove] from menu.

**To Suspend Port Forwarding Rule:**

1. Click the [Forwarding Rules] tab in tunneling pane.
2. Right-click on a rule to suspend from the [Forwarding Rules] list.
3. Select [Suspend] from menu.

**To Retry Port Forwarding Rule:**

1. Click the [Forwarding Rules] tab in tunneling pane.
2. Right-click on a rule to resume in the [Forwarding Rules] list.
3. Select [Resume] from menu.

 **Note**

Resume can only be executed for a previously suspended rule.

# Terminal Window Operations

**Xshell** provides a succinct and powerful terminal window enabling users to simultaneously use the remote terminal and local prompt command interface. Terminal window provides a range of convenient functions, such as copy & paste, find character string, change font and font color, and advanced terminal options.

## Copy and Paste

### To Select a Character String:

1. Do one of the following:
  - Press the left mouse button at the starting point of an area to select. While pressing the button, move the mouse to the end of the area to be selected and release the button. The selected character string is displayed in an inverted color.
  - Click the left mouse button at the starting point of an area to select. Move mouse to the end of the area. While pressing Shift key, press the left button once again.
  - Double-click a word to select. The double-clicked word is selected.
  - Click a row to select quickly three times. The entire row is selected.

### To Select Character String in Column Unit:

1. Press Alt key.
2. Press the left mouse button at the starting point of an area to select. While pressing the button, move to the end of the area to select and release the button.

### To Copy Selected Character String to Windows Clipboard:

1. Select a character string to copy.
2. Do one of the following:
  - Click the [Smart Selection] button and select [Copy].
  - Select [Copy] from the [Edit] menu.
  - Click the standard [Copy] button.
  - Press Ctrl+Insert key.
  - If [Copy Selected Texts to the Clipboard Automatically] is set in options, the selected text is automatically copied.

### To Copy Selected Character String to Notepad:

1. Select a character string to copy.
2. Do one of the following:
  - Click the [Smart Selection] button and select [To Notepad].
  - Point to [To Notepad] in the [Edit] menu and select [Selected Area].

#### Note

The scroll buffer and current screen may be copied as well as the selected character strings. A



notepad window is automatically displayed with the copied text. This does not copy character strings to the clipboard.

#### To Paste Clipboard Contents to Terminal Screen:

1. Do one of the following:
  - Select [Paste] from the [Edit] menu.
  - Click the standard [Paste] button.
  - Press Shift+Insert key.
  - If *Paste the clipboard contents* is selected for middle or right mouse button operation, click the corresponding mouse button.

#### To Set Xterm Style Copy and Paste:

1. Open the Options dialog box.
2. Click the [Keyboard and Mouse] tab.
3. Select [Mouse] – [Middle Button] operation as *Paste the clipboard contents*.
4. Select [Selection] - [Copy Selected Texts to the Clipboard Automatically].
5. Click [OK].

#### Note

When a character string is selected, xterm program copies it to clipboard. When the middle mouse button is pressed, it is pasted to terminal screen.

## Find String

Search scroll buffer using a specific keyword or a regular expression.

#### To Find with Keyword:

1. Select [Find] from the [Edit] menu.
2. Enter a keyword in **Find** dialog box.
3. Click [Find Next].

#### To Find with Regular Expression:

1. Select [Find] from the [Edit] menu.
2. Enter a keyword in **Find** dialog box.
3. Select [Regular Expression].
4. Click [Find Next].

#### Note

For detailed information on regular expression, see 'Regular Expression'.

## Font Change

In terminal screen, characters must be displayed in rows and columns. In **Xshell**, only fixed width fonts may be selected.

### To Change Terminal Font and the Font Size:

1. Do one of the following:
  - Click the standard [Fonts] button and select a font and the font size.
  - Select [Appearance] in **Session Properties** dialog box and select a font and the font size.

### To Change Bold Text:

1. Open the **Session Properties** dialog box.
2. Select [Appearance] from [Category].
3. Select an option from [Bold] field.

#### **Note**

As for Bold, either colors or bold font or both may be used.

## Font Color and Background Color Setting

In a color scheme, font colors, background colors and ANSI 16 colors are saved. **Xshell** enables users to select/change color schemes anytime while using Xshell. The selected color scheme is applied immediately.

### To Change Terminal Color:

1. Do one of the following:
  - Click the standard [Color Schemes] button to display the **Select Color Scheme** dialog box. Select a color scheme in the dialog box and click [OK].
  - Select [Appearance] from [Category] in **Session Properties** dialog box, select a color scheme from the [Color Scheme] and click [OK].

#### **Note**

**Xshell** provides several default color schemes. Users may edit the existing color schemes or create new color schemes.

### To Create New Color Scheme:

1. Open the **Select Color Scheme** dialog box.
2. Click [New]. A new color scheme is added to the list.
3. Select the new color scheme created.
4. Click [Edit]. **Edit Color Scheme** dialog box is displayed.

### To Edit Color Scheme:

1. Open the **Select Color Scheme** dialog box.
2. Select a color scheme to edit.
3. Click [Edit]. **Edit Color Scheme** dialog box is displayed.
4. Select colors for normal text in [Normal Text].
5. Select colors for bold text in [Bold Text]. In general, colors lighter than the normal text are used for bold text.
6. [ANSI Colors] is used to express ANSI color code in terminal. The colors on top are for normal

text, such as *black*, *red*, *green*, *yellow*, *blue*, *magenta*, *cyan* and *white*, and the colors on the bottom are for bold text.

#### To Export Color Scheme:

1. Open the **Select Color Scheme** dialog box.
2. Select a color scheme to export.
3. Click [Export]. **Save** dialog box is displayed.
4. Select a folder and enter the file name to save.
5. Click [Save].

#### Note

Exported file is in '.xcs' format and may be used in Xshell only. A number of color schemes may be saved in a single file. The color scheme names are also saved in the file.

#### To Import Color Scheme:

1. Open the **Select Color Scheme** dialog box.
2. Click [Import]. **Open** dialog box is displayed.
3. Select a color scheme file (.xcs) to import.
4. Click [Open].

## Cursor Change

#### To Change Cursor Color:

1. Open the **Session Properties** dialog box.
2. Select [Appearance] from [Category].
3. Select [Cursor Color] value.
4. Select [Text Color] value.
5. Click [OK].

#### To Change Cursor Blinking:

1. Open the **Session Properties** dialog box.
2. Select [Appearance] from [Category].
3. Select or deselect [Use blinking cursor].
4. Click [OK].

#### To Change Cursor Blinking Speed:

1. Open the **Session Properties** dialog box.
2. Select [Appearance] from [Category].
3. Check [Use blinking cursor].
4. Enter cursor blinking speed by millisecond in [Speed].
5. Click [OK].

## Window Handling

### To Minimize to Notification Area:

1. Open the **Options** dialog box.
2. Click the [Advanced] tab.
3. Check [Minimize to the notification area] in [Window] options.
4. Save changes by clicking [OK].

### To Minimize to Notification Area at Startup:

1. Open the **Options** dialog box.
2. Click the [Advanced] tab.
3. Check [Minimize to the notification area at Xshell startup] in [Window] options.
4. Save changes by clicking [OK].

### To Exit Xshell when All Connections are Closed:

1. Open the **Options** dialog box.
2. Click the [Advanced] tab.
3. Check [Exit Xshell when all connections are closed] in [Session] options.
4. Click [OK].

### To Exit to Local Shell when Connections are Closed:

1. Open the **Options** dialog box.
2. Click the [Advanced] tab.
3. Check [Revert to local shell when connection is closed] in [Session] options.
4. Click [OK].

### To Create New Xshell Window:

1. Select [New Window] from the [Window] menu.

### To Move to Another Xshell Window:

1. Select [Next] or [Previous] from the [Window] menu.

#### Note

The same function may be executed using Alt+Right and Alt+Left keys.

### To Close All Xshell Windows Simultaneously:

1. Select [Close All] from the [Window] menu.

### To Close All Xshell Windows Except the Current Window:

1. Select [Close All but This] from the [Window] menu.

## Multi-session Handling

'Multi-session' enables users to work and move between sessions using the sessions tab or

sessions bar while maintaining multiple connections in a single **Xshell** window.

**To Open the Multiple Sessions in Single Xshell Window:**

1. Open the **Options** dialog box.
2. Click the [Advanced] tab.
3. Check [Open multiple sessions in a single Xshell window] in [Session] options.
4. Save changes by clicking [OK].

**To Create New Connection in Sessions Tab:**

1. Click the [+ (Add Tab)] button at the far left of the sessions tab.
2. Select one from sessions list. The selected session is opened in a new tab.

**To Create New Connection in Sessions Bar:**

1. Click an icon at the far left of the sessions bar.
2. Select one from the sessions list. The selected session is opened in a new tab.

 **Note**

To create a new connection, use a session as described in 'Session Management' or try a connection without a session.

**To Connect with a Remote Computer by Entering a Command in Local Shell:**

1. To open a local shell, click the [+ (Add Tab)] button of the sessions tab and select [Local Shell] or double-click a blank in the sessions tab.
2. In the local command prompt, connect to a remote computer using commands, such as ssh, telnet and sftp. For details on using command, enter '?'.

 **Note**

For detailed information on local commands, see 'Xshell Local Command'.

**To Move Between Sessions at Multi-session Connection:**

1. Do one of the following:
  - Click a sessions tab.
  - Click a session button from the sessions bar.
  - Use Ctrl+Tab, Shift+Tab or Ctrl+Shift+Tab.
  - Move between sessions using Alt+'session number'.

**To Connect with Session in New Xshell Window:**

1. Select [New Terminal] from the [Window] menu or click the standard [New Terminal] button. A new **Xshell** window opens and connection is attempted with the same session information as the currently connected session.

## Quick Command Sets Setting

By designating frequently used character strings as quick commands, Users can avoid repeated keyboard inputs and use simple mouse clicks to execute the commands. To display quick commands bar, check [Quick Commands] in the [View] menu.

### To Add Quick Command Set:

1. Select [Quick Command Sets] in the [Tools] menu. **Quick Command Sets** dialog box is displayed.
2. Click [New].
3. Enter the new quick command set name.

#### **Note**

To open the **Quick Command Sets** dialog box, click the [Quick Command Set] button (an icon at the far left) in the quick commands bar and select [Browse] from the list.

### To Add Quick Command on Quick Commands Bar:

1. Click an undefined Quick Command button in the quick commands bar or press a shortcut key (Ctrl+F1, etc.). **Edit Quick Command** dialog box is displayed.
2. Enter the quick command name in [Label] and a frequently used command or character string in [Action] area.
3. Click [OK].

#### **Note**

To edit the quick command set displayed in the quick commands bar, click the [Quick Command Set] button (an icon at the far left) on the bar and select [Edit] from the list. **Edit Quick Command Set** dialog box is displayed.

The order of quick commands listed in the quick command bar can be changed by dragging button.

### To Add Quick Command to Quick Command Set:

1. Select [Quick Command Sets] from the [Tools] menu. **Quick Command Sets** dialog box is displayed.
2. Select a quick command set to which a quick command is to be added.
3. Click [Edit]. **Edit Quick Command Set** dialog box is displayed.
4. Select a quick command and click [Edit]. **Edit Quick Command** dialog box is displayed.
5. Enter the quick command name in [Label] and a frequently used command or character string in [Action] area.

#### **Note**

You can use the %HOSTNAME variable to pass the host name of your PC. For example, if the host name for your PC is 'COMPUTER\_A', then if you use 'echo %HOSTNAME', 'echo COMPUTER\_A' will be sent.

6. Click [OK].
7. To add more quick commands, repeat the process from 4 to 6.
8. Click [OK] in **Edit Quick Command Set** dialog box.

#### **Note**

In **Edit Quick Command Set** dialog box, add, delete, and edit quick commands. The order of

quick commands listed in the quick command bar may be changed.

#### To Display Another Quick Command Set in Quick Commands Bar:

1. Click the [Quick Command Set] button(an icon at the far left) in quick commands bar and select a quick command set from the list. The buttons from the selected quick command set are listed.

#### To Select Quick Command Set Displayed when Session is Started:

1. Open the session's **Session Properties** dialog box.
2. Select [Advanced] from [Category].
3. Select a quick command set to be used in session.
4. Press [Browse] and select the quick command set or create a new quick command set in **Quick Command Sets** dialog box.
5. Click [OK].

## Terminal Output Encoding Change

**Xshell** uses the default user language in Windows system. Users can select and use various encodings which differ from the Windows system according to remote host encoding.

#### To Change Session Encoding:

1. Do one of the following:
  - Click the standard [Encoding] button and select an encoding to use.
  - Open the **Session Properties** dialog box and select [Terminal] from [Category] and select an encoding from the [Encoding] list.
2. Display UTF-8 Encoding:
  - If a remote computer is set to support unicode (UTF-8) and to use UTF-8, use '*Unicode (UTF-8)*' as encoding. UTF-8 encoding enables simultaneous output of character sets in various languages.

#### Note

To correctly display the selected encoding, the selected encoding language pack must be installed in the Windows system concerned.

Encoding option does not change keyboard input values. If necessary, install the appropriate IME (Input Method Editor) provided by Windows.

## Advanced Terminal Options Setting

#### To Change Scroll Buffer Size:

1. Open the **Session Properties** dialog box.
2. Select [Terminal] from [Category].
3. Enter number of rows to use in [Scroll Buffer].
4. Click [OK].

 **Note**

Scroll buffer size is a value between 0 and 2,147,483,647. 0 means that scroll buffer is not used.

**To Change Terminal Type:**

1. Open the **Session Properties** dialog box.
2. Select [Terminal] from [Category].
3. Select a terminal type from [Terminal Type].
4. Click [OK].

**To Change Size at Terminal Startup:**

1. Open the **Session Properties** dialog box.
2. Select [Terminal] from [Category].
3. Check [Use the following terminal size when connected] from the [Emulation] area.
4. Enter column size in [Columns].
5. Enter row size in [Rows].
6. Click [OK].

**To Change Keypad Mode:**

1. Open the **Session Properties** dialog box.
2. Select [Terminal > VT Modes] from [Category].
3. Select [Normal] or [Application] from [Initial Numeric Keypad Mode].
4. Click [OK].

## Layout Management

Layout management enables users to save **Xshell** window layout according to their preference. In **Manage Layout** dialog box, change names or delete the saved layouts.

**To Save Layout of the Current Xshell Window:**

1. Select [Layout] from the [View] menu and select [Save As].
2. Enter [New name] in **Save As** dialog box.
3. Click [OK].

**To Change Xshell Window to Another Layout:**

- Select [Layout] from the [View] menu and select one from the layouts list.
- Press Alt+L to select one from the layouts list.

**To Manage Registered Layouts List:**

1. Select [Layout] from the [View] menu and select [Manage].
2. Delete the layout or rename it in **Manage Layout** dialog box.



# Options Setting

In the **Options** dialog box, set global options applied to all sessions. The dialog box may be opened by selecting [Options] in the [Tools] menu.

## Session Folder and Startup Session

The **Xshell** session folder path can be changed. In the **Sessions** dialog box, all sessions of the changed path are displayed. Select a network folder to share sessions with other users.

### To Change Session Folder:

1. Open the **Options** dialog box.
2. Enter [Session Folder Path] in the [General] tab.

### To Register Sessions to Open at Startup:

1. Open the **Options** dialog box.
2. Click [Add] under the [Sessions to open at startup] list in the [General] tab.
3. Select a session file from **Open** dialog box.

## History Clearing and Connection Log

In **Clear History** dialog box, clear history of address bar, compose bar, search keyword, local shell and connection log. In **History Settings** dialog box, designate a file to save connection log settings.

### To Clear History:

1. Open the **Options** dialog box.
2. Click [Clear] in the [General] tab.
3. Select contents to clear from **Clear History** dialog box.
4. Click [Clear].

### To Save Connection Log:

1. Open the **Options** dialog box.
2. Click [History] - [Settings] in the [General] tab.
3. Select [Log connection information on the following file.] from **History Settings** dialog box.
4. Enter a file to save information about connection server, connection protocol, connection time, exit time and connection time.

## Key Mapping Setting

In **Custom Key Mapping** dialog box, currently set shortcut key combinations are listed. The user can add, delete, and edit key combinations.

### To Change Key Mapping:

1. Open the **Options** dialog box.

2. Click the [Keyboard and Mouse] tab.
3. Click [Edit] in [Key Mapping]. **Custom Key Mapping** dialog box is displayed.
4. Select a key combination to change from [Current Key Setting] and click [Edit].
5. Select one from *Menu*, *Send String*, *Run Script* or *Launch Application* in [Type].
6. Enter the selected menu or character string in [Action].
7. Click [OK].

## Mouse Setting

The middle and right mouse button actions can be individually selected. The delimiters to be used when selecting a word by double-clicking can be designated.

### To Change Mouse Button Operation:

1. Open the **Options** dialog box.
2. Select one of the middle mouse button actions from the [Keyboard and Mouse] tab.
  - Do nothing.
  - Open the popup menu.
  - Paste the clipboard contents (default value).
  - Open Properties dialog.
3. Select one of the right button actions. The default action is [Open the popup menu].

### To Change Delimiter for Selection by Double-clicking:

1. Open the **Options** dialog box.
2. Enter a delimiter to use when selecting a word in the [Keyboard and Mouse] tab [Selection] field.

## Transparency Setting

**Xshell** offers transparency setting.

### To Set Window to Appear Transparent:

1. Select [Transparent] from the [View] menu.
2. Open the **Options** dialog box.
3. Set transparency in the [View] tab.
4. Set [Opacity]. The smaller the opacity is, the more transparent the **Xshell** window becomes.
5. If [Make window opaque on mouse over] option is selected, **Xshell** window is displayed opaque while mouse is over the window even when it is set to display **Xshell** window transparent.
6. If [Always on Top when it is transparent] option is selected, **Xshell** window is displayed at the top of all windows.

## Master Password Settings

Master password can be used to save password more securely using the user defined master password. **Xshell** saves all password information in encrypted format. Since password is encrypted using a fixed key, it has a risk of being exploited by hackers. When master password is enabled

and user enters in the master password, it is mixed in during password encryption adding.

Master password uses user defined keyword to encrypt the password section of the session data. When master password is enabled, Xshell asks for the master password everytime a new Xshell instance is started and a session is open. If you fail to provide the correct master password, you have to enter the password manually.

 **Note**

Be sure to remember your master password. If you lose your master password, there is no way to retrieve the password information stored in the session files.

### To Enable Master Password

1. Click on the **Tools** menu and then select **Options**.
2. Select the **Security** tab.
3. Select the **Use a Master Password** option.
4. In the Master Password dialog box, enter a new master password in the **New Password** field.
5. In the **Confirm Password** field, enter the new password one more time.
6. Click **OK** to save the changes.

Once master password enabled, all sessions saved in the default location are re-encrypted using the new master password.

### To Change Master Password

1. Click on the **Tools** menu and then select **Options**.
2. Select the **Security** tab.
3. In the Master Password section, click the Change **Master Password** button.
4. Enter the current password in the **Current Password** field.
5. Enter a new password in the **New Password** field.
6. Enter the new password one more time in the **Confirm Password** field.
7. Click **OK** to save the changes.

### To Disable Master Password

1. Click on the **Tools** menu and then select **Options**.
2. Select the **Security** tab.
3. Clear the **Use a Master Password** option.
4. In the Master Password dialog box, enter the master password.

 **Note**

When you disable Master Password, all sessions in the default location are re-encrypted by using the default encryption algorithm.

## Screen Lock Settings

You can lock terminal screen while you are away from the PC to protect your session from unwanted use. When terminal is locked, terminal screen changes to grey color and user cannot

interact with terminal until correct password is received. Once screen is locked, you cannot pass any data to the terminal. Xshell cannot be closed until correct password is received. However, connection will stay open and data will be still updated in the terminal.

#### To Lock Screen

1. Click on the **View** menu and select **Lock Screen**.
2. Enter new password to use when unlocking the screen.
3. Confirm password.
4. Click OK to save the changes.

## Auto Lock

**Auto Lock** can be used to lock terminal screen automatically after awhile if there is no interaction with the terminal. This feature is especially useful if you are using your computer in an open area.

#### To Enable Auto Unlock

1. Click on the **Tools** menu and then select **Options**.
2. Click on the **Security** tab.
3. In the Screen Lock section, select the **Automatically lock screen** option.
4. Enter number of minutes Xshell should wait before automatically going to lock mode.

## Live Update Settings

Live update allows checking for software update at interval defined by the user. By default, it checks for a new update every 2 weeks. When the [Check for updates automatically] option is enabled, Xshell checks for the updates with NetSarang server when it opens up.

#### To Enable Live Update

1. Click on the **Tools** menu and then select **Options**.
2. Click on the **Update** tab.
3. Select the Check for updates automatically option.
4. Enter the number of days you want to wait until Xshell checks for updates again.
5. Click **OK** to save the changes.

#### Note

You can always check for updates manually by selecting the Check for Updates in the Help menu.

## Advanced Settings

Advanced options can be set in the **Options** dialog box [Advanced] tab.

#### Switch to English input when ESC key is pressed

When ESC key is pressed to move to command mode while entering Korean in certain applications, such as vi and vim, the status is automatically changed to English input mode.

**Disable bell**

Set not to use bell ringers.

**Use the Smart select button for easy copy and file download**

Show or hide the [Smart Selection] button when selecting a terminal area with a mouse.

**Minimize to the notification area**

When **Xshell** is minimized, it is minimized to the notification area.

**Show session tab in full screen mode**

Show the sessions tab in full screen mode.

**Show scroll bar in full screen mode**

Show scroll bar in full screen mode.

**Arrange cascade windows in current window size**

Uses the current window size to cascade Xshell windows. When this option is not selected, Xshell windows are cascaded in default size.

**Run Xshell at Windows startup**

**Xshell** is automatically started when Windows is started.

**Minimize to the notification area at Xshell startup**

Minimize to the notification area when **Xshell** is started.

**Open the Sessions dialog box at Xshell startup**

Open the **Sessions** dialog box when **Xshell** is started.

**Use Alt key to access menu**

Open the menu by pressing Alt key.

**Open the multiple Sessions in a single Xshell window**

Open the multiple sessions in a single **Xshell** window. Move between sessions using the session tab or session bar.

**Confirm to close connection when Xshell is terminated**

Ask whether or not to terminate connected sessions when a program is terminated.

**Make sure whether to disconnect when session is terminated**

Ask whether to disconnect at session termination.

**Revert to local shell when connection is closed**

The session tab is maintained in local shell status when a connection is closed. In a local shell session, the **Xshell** prompt is displayed in terminal screen and local commands, such as *open*, *telnet*, *ssh* and *ping* can be executed. To view a list of commands, execute *help* or *?* in the **Xshell** prompt.

### **Exit Xshell when all connections are Closed**

When all connections are closed, **Xshell** program is ended.

# File Transfer

**Xshell** allows sending or receiving files using SFTP and ZMODEM protocols.

## File Transfer Using SFTP

SFTP is an SSH-based file transfer protocol. Compared to ZMODEM, it supports a safer and faster file transfer.

### To Receive File with SFTP:

1. Connect with a host from which to receive a file using **sftp** command in local prompt.

```
Xshell:\> sftp hostname
```

2. Receive a file using **get** command in sftp prompt.

```
sftp:/home/user21> get filename
```

### To Send File with SFTP:

1. Connect with a host to which to send a file using **sftp** command in local prompt.

```
Xshell:\> sftp hostname
```

2. Send a file using **put** command in sftp prompt.

```
sftp:/home/user21> put filename
```

## File Transfer Using ZMODEM

Files transferred via ZMODEM are saved in a folder designated by a user. Users may designate different folders each time files are received.

### To Receive File with ZMODEM:

1. Execute the following command in a remote host prompt:

```
$ sz file1 file2 ...
```

#### Note

If [Activate ZMODEM automatically] is set in the Session Properties, the file receive process will be started automatically, and the following process in No. 2 and 3 can be omitted.

2. Point to [Transfer] in the [File] menu.
3. Select [Receive with ZMODEM].

#### Note

If the `sz` command does not exist in a remote host, users must install it directly. In most cases, similar commands exist.

#### To Receive File with ZMODEM in Xshell Terminal:

1. Select the name of a file to download in the **Xshell** terminal window. The [Smart Selection] button is displayed around the selected file name.
2. Click the [Smart Selection] button.
3. Select [Download with ZMODEM].

#### To Send File with ZMODEM:

1. Execute the following command in remote prompt:

```
$ rz
```

#### Note

If [Activate ZMODEM automatically] is set in the Session Properties, the file send process will be started automatically, and the following process in No. 2 and 3 can be omitted.

2. Point to [Transfer] in the [File] menu.
3. Select [Send with ZMODEM].
4. Select a file to send.
5. To send a file as ASCII, select [Send File as ASCII].
6. Click [Open].

#### To Send File with ZMODEM Using Drag & Drop:

1. Select a Windows file to upload.
2. Drag the file and drop it in **Xshell** terminal window.  
File transfer is carried out automatically.

#### To Change Default Folder to Save File:

1. Open the **Session Properties** dialog box.
2. Select [ZMODEM] from [Category].
3. Select [Use the following download path] from [Receive folder].
4. Open the **Browse For Folder** dialog box by clicking [...] button of [Download Path] and select a folder where the received files are to be saved.
5. Click [OK].

#### To View Received File:

1. Open the **Session Properties** dialog box.
2. Select [ZMODEM] from [Category].
3. Click [Open] in the [Receive folder] field.

## File Transfer Using Xftp

**Xshell** is interoperable with **Xftp**, a NetSarang Computer Inc. file transfer program to enable fast and convenient FTP/SFTP connection with a host currently connected with **Xshell**.



**To Create a Xftp Connection with a Host Currently Connected via Xshell:**

1. Connect with the host of a file to be transferred using **Xshell**.
2. Select [New File Transfer] from the [Window] menu. Or, click the standard [New File Transfer] button.

 **Note**

If a protocol **Xshell** uses is SSH, **Xftp** attempts SFTP connection. If the protocol used by **Xshell** is TELNET or RLOGIN, **Xftp** attempts FTP connection.

# Session Logging and Tracing

Xshell allows users to log the entire transcript of a session to a file. Trace may be used for debugging.

## Session Logging

### To Log Character Strings Only:

1. Point to [Log] in the [File] menu.
2. Select [Start]. **Save As** dialog box is displayed.
3. Enter the file name where log data is to be saved.
4. Clear [Record terminal code as well as normal text].
5. Click [Save].

#### Note

Logging continues until a session ends. To stop logging without ending a session, select [Stop] from the [File] – [Log] menu.

### To Log Character Strings with Terminal Codes:

1. Point to [Log] in the [File] menu.
2. Select [Start]. **Save As** dialog box is displayed.
3. Enter the file name where log data is to be saved.
4. Check [Record terminal code as well as normal text].
5. Click [Save].

### To Start Logging at Session Connection:

1. Open the **Session Properties** dialog box.
2. Select [Advanced > Logging] from [Category].
3. Select [Start logging upon connection].
4. Designate the folder or file name where the log is to be saved.
5. Click [OK].

## Session Tracing

Using the trace option, trace protocol control data is exchanged with a remote host.

For SSH protocols, user authentication and algorithm exchange details may be displayed on the terminal screen. For TELNET protocols, the exchange of various options can be traced. This is useful when problems occur in connection with a remote host.

### To Turn on or Turn off Trace Function:

1. Open the **Session Properties** dialog box.
2. Select [Advanced > Trace] from the [Category].
3. Select options appropriately.

4. Click [OK].

# Printing

**Xshell** provides the ability to print text in a terminal window via a local printer. **Xshell** uses fonts and colors used in a terminal window for printing. The printing paper margins can be set in the **Page Setup** dialog box.

## **To Set Paper Size and Direction:**

1. Select [Page Setup] from the [File] menu.
2. Select an appropriate paper size and direction.
3. Enter margins.
4. Click [OK] to save changes.

## **To Print:**

1. Select [Print] from the [File] menu.
2. Select printer from the [Name] list.
3. Click [OK].

# Using Xagent

**Xagent** is an SSH authentication agent. **Xagent** holds a user key for public key user authentication and provides it to **Xshell** when a user key is required by **Xshell**.

**Xagent** retains all user key lists and requests a passphrase input when necessary. When a user enters a passphrase, **Xagent** decodes the user key and saves it in memory. Via **Xagent**, users may use the same key several times by entering the passphrase once.

**Xagent** also works as an SSH authentication server for SSH agent forwarding feature. You must use the SSH agent forwarding feature when connecting to a different remote host from the first remote host. Basically your private key is only held in your local PC and an SSH client program on the first server can not connect to a second machine. Using SSH agent forwarding feature, the SSH client program on the first server requests a private key from **Xagent** to enter into the second server.

## Note

When **Xagent** is executed, **Xagent** icon is created in the notification area. Even when the **Xagent** dialog box is closed, **Xagent** is not closed and keeps running. To close **Xagent** or open the **Xagent** dialog box, use menus on icon in the notification area.

## Connecting to Server Through Xagent

### To Set Xshell to Use Xagent:

1. Open the **Session Properties** dialog box.
2. Select [Connection > SSH] from [Category].
3. Select [Use Xagent (SSH agent) for handling passphrase].
4. Click [OK].

### To Connect with SSH Server Through Xagent:

1. Set **Xshell** to use **Xagent**.
2. Execute **Xagent** if **Xagent** is not running.
3. Connect to SSH server.  
In this case, SSH server must support public key user authentication and the public key section of the user key must be registered on the server.
4. **Passphrase** dialog box is displayed. Enter passphrase of the selected user key.

## Note

When selecting [Launch Xagent automatically] in [Connection > SSH] setting, the process in No. 2 above may be omitted. **Passphrase** dialog box is displayed only when the selected key status is *Close*. You can check user key status in **Xagent** user keys list.

## Using the Xagent User Key on a Remote Host

Using **Xagent**, the SSH client on a remote host can use a user key used by **Xshell**, which is a user

key held by **Xagent**. To use an **Xagent** user key on a remote host, both **Xshell** and the remote host SSH server must support agent-forwarding.

#### To Activate Agent-Forwarding on the ssh.com Server:

1. Open the `/etc/ssh2/sshd2_config` file.
2. Set value for `AllowAgentForwarding` option as follows:

```
AllowAgentForwarding    yes
```

3. Restart SSH server.

#### Note

OpenSSH servers automatically enable the agent forwarding feature unless user specifies the **no-agent-forwarding** option.

#### To Use Xagent Key on the Remote Host:

1. Set **Xshell** to use **Xagent**.
2. Execute **Xagent** if **Xagent** is not running.
3. Connect to SSH server and login.

#### Note

If the SSH server supports the agent forwarding feature, the environment variable for agent forwarding (`SSH_AUTH_SOCK` or `SSH2_AUTH_SOCK`) is set to a proper value.

4. Connect to another server, which supports public key authentication, from the remote server.
5. When **Passphrase** dialog box is displayed, enter passphrase to the selected user key.

#### Note

**Passphrase** dialog box is displayed only when the selected key status is *Close*. You can check user key status in **Xagent** user keys list.

# Using Scripts

Script is a file that contains a set of commands to be executed at once. Repetitive tasks are collected in a file and commands may be executed without needing to type them in one by one. The file is written as a Visual Basic script.

## Script Starting and Ending

### To Start a Script File:

1. Point to [Script] in the [Tools] menu and select [Run]. **Open** dialog box is displayed.
2. Select a script file.
3. Click [OK].

### To Stop Script File Execution:

1. Point to [Script] in the [Tools] menu and select [Cancel].

## Script API

**Xshell** provides the following script APIs. Use the APIs to automate repetitive tasks.

### xsh.Session

The following functions and variables can be used in **Xshell** sessions. To use these functions and variables, execute them together with xsh.Session. For example, to use 'Sleep()' function, use 'xsh.Session.Sleep(1000)'.

Functions			
Return Value	Function	Parameter	Description
Void	<b>Open</b> (LPCTSTR lpszSession)	<b>lpszSession</b> A character string of an Xshell session path or URL format of Xshell.	Open a new session or URL. To open a session, place /s option in front of a character string. Ex.) To open the A.xsh session, use '/s \$PATH/A.xsh'.
Void	<b>Close</b> ()		Close the currently connected session.
Void	<b>Sleep</b> (long timeout)	<b>Timeout</b> Millisecond unit time value.	Make Xshell wait for the designated time.
Void	<b>LogFilePath</b> (LPCTSTR lpszNewFilePath)	<b>lpszNewFilePath</b> File name including path	Designate log file.
void	<b>StartLog</b> ()		Start logging for a session. Log is designated with a path specified in LogFilePath(). If a

			log file path is not designated, the default path is used.
void	<b>StopLog()</b>		Stop logging.

Variable		
Name	Type	Description
Connected	BOOL	Check whether current session is connected.
LocalAddress	BSTR	Retrieve the local address.
Path	BSTR	Retrieve the current session file path.
RemoteAddress	BSTR	Retrieve the remote address.
RemotePort	long	Retrieve the remote port.
Logging	BOOL	Check whether current session is recording log file.
LogFilepath	BSTR	Save as a log file.

## xsh.Screen

The following functions and variables can be used when handling of the **Xshell** terminal screen. To use these functions and variables, execute them together with the xsh.Screen. For example, to use 'Clear()' function, use 'xsh.Session.Clear()':

Functions			
Return Value	Function	Parameter	Description
void	<b>Clear()</b>		Clear terminal screen.
void	<b>Send</b> (LPCTSTR lpszStrToSend)	<b>lpszStrToSend</b> Character string to send	Send message to terminal.
BSTR	<b>Get</b> (long nBegRow, long nBegCol, long nEndRow, long nEndCol)	<b>nBegRow</b> Terminal row starting position <b>nBegCol</b> Terminal column starting position <b>nEndRow</b> Terminal row ending position <b>nEndCol</b> Terminal column ending position	Read the character string in the specified terminal section and return the value.
void	<b>WaitForString</b> (LPCTSTR lpszString)	<b>lpszString</b> Character string to be displayed on the terminal.	Wait for message.
Long	<b>WaitForStrings</b> (VARIANT FAR* strArray, long nTimeout)	<b>strArray</b> Character string to be displayed on the terminal	Wait for message until timeout.



		<code>nTimeout</code> Wait time millisecond value <u>Return Value</u> The number of found strings.	
--	--	---	--

Variable		
Name	Type	Description
CurrentColumn	long	Return the current column.
CurrentRow	long	Return the current row.
Columns	long	Retrieve the total columns same as terminal width.
Rows	long	Retrieves the total row same as terminal lines
Synchronous	BOOL	Set screen synchronization (True means synchronize and false means do not synchronize)

## Xsh.Dialog

You can use this to manipulate Xshell terminal screen. To use the following function and variable, execute it with `xsh.Dialog`. For example, if you want to use the `MsgBox()` function, append `xsh.Dialog.MsgBox()` in the front like this: `xsh.Dialog.MsgBox()`.

Functions			
반환값	함수	파라미터	설명
Long	<b>MsgBox</b> (LPCTSTR lpszMsg)	<code>LpszMsg</code> String you want to send.	Open a message box.

## Script Example

Script file
<pre> Sub Main  ' *** Connect the session *** xsh.Session.Open "ssh://192.168.1.17" ' "/s C:\Users\Administrator\AppData\Roaming\NetSarang\Xshell\Sessions\example.xsh"  xsh.Screen.Synchronous = true  xsh.Screen.WaitForString "login: " xsh.Screen.Send "username" xsh.Screen.Send VbCr xsh.Session.Sleep 100 </pre>

```

xsh.Screen.WaitForString "Password: "
xsh.Screen.Send "password"
xsh.Screen.Send VbCr
xsh.Session.Sleep 100

' *** Wait for Prompt Message ***
xsh.Screen.WaitForString "username@password"

' *** Set File Format ***
Dim app, wb, ws
Set app = CreateObject("Excel.Application")
Set wb = app.Workbooks.Add
set ws = wb.Worksheets(1)

xsh.Session.LogFilePath = "c:\example.log"
xsh.Session.StartLog

Dim waitStrs
waitStrs = Array(Chr(10), "username@password") ' make wait message as array

Dim row, screenrow, readline, itmes
row = 1

' *** Send Command ***
xsh.Screen.Send "cat /etc/passwd"
xsh.Screen.Send VbCr
xsh.Session.Sleep 100

Dim result

' *** Read Data and Save it as an EXCEL File ***
Do
While true
    result = xsh.Screen.WaitForStrings(waitStrs, 1000)

    If result = 2 Then
        Exit Do
    End If

    screenrow = xsh.Screen.CurrentRow - 1
    readline = xsh.Screen.Get(screenrow, 1, screenrow, 40)
    items = Split(readline, ":", -1)

    ws.Cells(row,1).Value = items(0)
    ws.Cells(row,2).Value = items(2)

    row = row + 1
Wend

```

```

Loop

wb.SaveAs("C:\chart.xls")           ' save file path
wb.Close
app.Quit

Set ws = nothing
Set wb = nothing
Set app = nothing

xsh.Screen.Synchronous = false

xsh.Session.StopLog

End Sub

```












# References














This section provides referential information about using **Xshell**.

## Standard Buttons

**Xshell** provides standard buttons for the frequently used tasks and commands.

The following are descriptions of the standard buttons.

Button	Name	Description
	New	Create a new session by opening <b>New Session Properties</b> dialog box.
	Open	Open the <b>Sessions</b> dialog box.
	Disconnect	Close connection with the current session.
	Reconnect	Reconnect with the current tab session.
	Properties	Show current session properties. If the session is not opened, default session properties is displayed.
	Copy	Copy the selected field to clipboard.
	Paste	Paste clipboard contents.
	Find	Open the <b>Find</b> dialog box.
	Print	Open the <b>Print</b> dialog box.
	Color Schemes	Select color scheme.
	Encoding	List encodings available with the output language.

Button	Name	Description
	Fonts	List available font names and sizes. Fonts for the currently Open the session can be changed. To change the font for each session, select a session font from the Session Properties dialog box.
	New Terminal	Open the a new <b>Xshell</b> window. Click this button while a connection is being made to attempt connection using the corresponding session's connection information.
	New File Transfer	Execute <b>Xftp</b> if <b>Xftp</b> ™ is installed. Click this button while a connection is being made to start a New File Transfer session with the corresponding session's connection information. If <b>Xftp</b> is not installed, the <b>Xshell</b> File Transfer session itself is started.
	Full Screen	Convert to full screen mode. Screen changes to general window mode when Alt+Enter is pressed.
	Lock	Convert to screen lock mode. User input is not received until password is entered.
	Key Mapping	Open the <b>Custom Key Mapping</b> dialog box.
	Script	Start <b>Xshell</b> script file.
	Start Logging	Start logging.
	Stop Logging	Stop logging.
	Options	Open the <b>Options</b> dialog box.
	User Key Manager	Open the <b>User Keys</b> dialog box.
	Host Key Manager	Open the <b>Host Keys</b> dialog box.
	Xagent	Execute <b>Xagent</b> program.
	Help	Open the <b>Xshell</b> help.

## Address Bar

The address bar grammar is as follows:

```
[protocol://][user[:password]@]hostname[:port][/]
```

The available protocols are *ssh*, *sftp*, *telnet*, *rlogin*, and *serial*. The default protocol is a protocol selected in the default session. Default port numbers by protocol are defined as follows:

- ssh: 22
- sftp: 22
- telnet: 23
- rlogin: 513
- ftp: 21

A number of examples are given below.

Example	Description
foobar.com	Connect to foobar.com using the protocol and port number designated in the default session.
ssh://kay@foobar.com/	Connect to foobar.com using the SSH protocol. User account is 'kay' and default port number is used.
ssh://kay@foobar.com:12345/	Connect to foobar.com port 12345 using the SSH protocol. User account is kay.
telnet://foobar.com/	Connect to foobar.com via telnet protocol. User account is not designated and connection is made with port 23, the default port.
rlogin://kay@foobar.com/	Connect to foobar.com using the rlogin protocol. The user account is 'kay' and connection is made with port 513, the default port.
sftp://kay@foobar.com/	Connect to foobar.com using the SFTP protocol. User account is 'kay' and the default port number is used.
ftp://foobar.com/test.zip	Connect to foobar.com using the ftp protocol and download test.zip file.

## Xshell Local Command

**Xshell** provides local commands for advanced users familiar with the terminal environment.

Basically, **Xshell** prompt is displayed on the terminal screen when a remote host is not connected. When a session is connected, press 'Ctrl+Alt+]' to exit to local prompt. To return to the remote host mode, enter 'exit' or press 'Ctrl+D'.

The following commands can be used.

Command	Description
help ?	Display commands list on the terminal window.
new	Open the <b>New Session Properties</b> dialog box.
open the [session]	Connect with the corresponding session when 'session' is designated. If a session is not designated, Sessions dialog box is opened.
edit [session]	Open the <b>Session Properties</b> dialog box for the corresponding session if 'session' is designated. Open the Session Properties dialog box for the default session if 'session' is not designated.
list	Display a list of directories and information about sessions in the current directory.
cd	Change the current task directory.
clear	Clear local shell command prompt screen, address bar history, and command history.
exit quit	Close <b>Xshell</b> session or return to remote host.
ssh [user@]host [port]	Connect using the SSH protocol.
sftp [user@]host [port]	Connect using the SFTP protocol.
telnet [user@]host [port]	Connect using the telnet protocol.
rlogin [user@]host [port]	Connect using the rlogin protocol.
ftp [user@]host [port]	Connect using the ftp protocol.
ipconfig	Execute Windows ipconfig command.
ping host	Execute Windows ping command.
tracert host	Show packet path to host.
netstat	Execute Windows netstat command.
nslookup	Execute Windows nslookup command.

## Xshell Command Line Option

The following are the command line parameter options recognized by **Xshell**. These parameters can be used when executing **Xshell** from Windows console program or other applications.

Option, Parameter	Description
'session file'	Execute the session. 'Session file' can include a path.
-folder 'session folder'	Execute all folder sessions.
-url [ <i>protocol://</i> ][ <i>user[:password]@</i> ] <i>host[:port]</i>	Connect by directly entering URL, rather than using designated session file. Usable protocols are SSH, SFTP, TELNET, RLOGIN and FTP. When protocol is omitted, use the default protocol designated in the Options dialog box [General] tab. When user and password are omitted, a window for the authentication is displayed. When a connection port is not designated, the connection protocol default port of is used.
-open	Open the <b>Sessions</b> dialog box.
-register	Open the a dialog box for product registration.
-about	Open the Xshell Information dialog box where product version and license information is available.
-prop 'session file'	Open the <b>Session Properties</b> dialog box. 'Session file' can include a path.
-create 'session file'	Create a new session.
-folder 'session folder'	Execute all sessions in the 'Session folder.'
-newwin	Open the a new <b>Xshell</b> window.
-newtab 'tab name'	Create a new tab with 'Tab Name'.

### Example

Execute xdev.xsh session file.

```
Xshell 'c:\users\zoo\AppData\Roaming\NetSarang\Xshell\Sessions\xdev.xsh'
```

Connect to foobar.com with the default protocol.

```
Xshell -url foobar.com
```

Connect to foobar.com with ssh.

```
Xshell -url ssh://foobar.com
```

Connect to foobar.com with ssh. User name and password are 'username' and 'deomopassword' respectively.

```
Xshell -url ssh://username:demopassword@foobar.com
```

Connect to foobar.com port 2300 using telnet protocol.

```
Xshell -url telnet://foobar.com:2300
```

Connect to foobar.com by executing a new **Xshell** window.

```
Xshell -newwin -url foobar.com
```

 **Note**

If the [Open multiple sessions in a single Xshell window] option is set in the [Advanced] tab of **Options** dialog box, All parameters with the exception of the '-newwin' are executed in the last Xshell window or a new tab.

The '-newwin' option can be used with other options. A new Xshell window is started with the options.



## SFTP Command

**Xshell** provides commands similar to UNIX/Linux FTP for advanced users who are familiar with terminal environment. Descriptions of each command are as follows. For details, enter 'help' command in the SFTP prompt.

Command	Description
<code>get file1 [file2] [file3] ...</code>	Download files from the remote host.
<code>put file1 [file2] [file3] ...</code>	Upload files to the remote host.
<code>mv path1 path2</code> <code>rename path1 path2</code>	Move/rename a file or directory on the remote host.
<code>mkdir directory</code>	Create a designated directory on the remote host.
<code>rmdir directory</code>	Delete a designated directory from the remote host.
<code>rm file</code>	Delete a designated file from the remote host.
<code>pwd</code>	Display the working directory of the remote host.
<code>lpwd</code>	Display the working directory of the local host..
<code>cd directory</code>	Change remote host working directory.
<code>lcd directory</code>	Change local host working directory.
<code>ls [directory]</code>	Display remote host files list.
<code>lls [directory]</code>	Display local host files list.
<code>explore [directory]</code>	View the current (or designated) directory via Windows Explorer.
<code>help [command]</code>	Show instructions for using SFTP commands list or designated commands.
<code>bye</code> <code>exit</code> <code>quit</code>	End SFTP connection.

# Regular Expression

This section provides descriptions of the regular expressions used in the **Find** dialog box.

## Pattern Match

Pattern	Description
.	Any one character except newline character
[abs]	One character of a, b or c
[a-z]	One character from a to z
[^ac]	One character excluding a and c
(x)	x, x can be a regular expression.
x*	x is repeated 0 time or more. x can be a regular expression.
x+	x is repeated 1 time or more. x can be a regular expression.
x{n,m}	x is repeated n times or more and m times or less. x can be a regular expression.
x{n}	x is repeated n times exactly. X can be a regular expression.
x{n,}	x is repeated n times or more. X can be a regular expression.
x y	x or y, x and y can be regular expressions.
xy	xy, x and y can be regular expressions.
^	Start of a line
\A	Start of a line
\$	End of a line
\z	End of a line
\Z	End of a line
\<	Start of a word
\b	Start of a word
\>	End of a word
\B	End of a word

## The shorthand of character classes

Class	Description
\w	Characters comprising a word, as in [a-zA-Z0-9_]
\W	Characters not consisting a word, as in [^a-zA-Z0-9_]
\s	Spaces
\S	Characters excluding spaces
\d	Numbers, as in [0-9]
\D	Characters excluding numbers, as in [^0-9]

## POSIX character classes

Class	Description
<code>[:alnum:]</code>	Letters and numbers, as in <code>[a-zA-Z0-9]</code>
<code>[:alpha:]</code>	Letters, as in <code>[a-zA-Z]</code>
<code>[:blank:]</code>	Blanks
<code>[:cntrl:]</code>	Controls
<code>[:digit:]</code>	Numbers, as in <code>[0-9]</code>
<code>[:graph:]</code>	Printable characters (blanks excluded)
<code>[:lower:]</code>	Small letters, as in <code>[a-z]</code>
<code>[:print:]</code>	Characters which are not controls
<code>[:punct:]</code>	Punctuations
<code>[:space:]</code>	Spaces
<code>[:upper:]</code>	Capital letters, as in <code>[A-Z]</code>
<code>[:xdigit:]</code>	Characters used to express a hexadecimal number, as in <code>[0-9a-fA-F]</code>

## Example

Expression	Description
<code>[0-9]+</code>	Pattern where a number is repeated more than once
<code>(foo) (bar)</code>	'foo' or 'bar'
<code>\.html\$</code>	Character string ending with '.html'
<code>^\.</code>	Character string starting with '.'

## Pre-defined Shortcut Key

The list below shows descriptions of shortcut keys defined in **Xshell**.

Shortcut Key	Description
Alt + N	Same as New in the File menu
Alt + O	Same as Open the in the File menu
Alt + C	Same as Disconnect in the File menu
Alt + Enter	Convert to full screen mode
Alt + D	Move keyboard focus to address bar
Alt + L	Change layout
Alt + 1~9	Move session tab
Alt + Right	Same as Next in the Window menu
Alt + Left	Same as Previous in the Window menu
Ctrl + D	Close local shell in the local prompt
Ctrl + Alt + ]	Exit to local prompt during connection
Ctrl + Alt + T	Same as New Terminal in the Window menu
Ctrl + Alt + F	Same as New File Transfer in the Window menu
Ctrl + Tab	Move to the next session tab in a single <b>Xshell</b> window
Shift + Tab	Move to the recently used session tab in a single <b>Xshell</b> window
Shift + Home	To top
Shift + End	To end
Shift + PgUp	Page up
Shift + PgDn	Page down
Shift + Up Arrow	Upward scroll
Shift + Down Arrow	Downward scroll

### Note

Use the standard [Key Mapping] button to change shortcut keys. In the **Custom Key Mapping** dialog box, change shortcut key combinations and allocate key operations such as menu, send character string, execute script, and execute program.

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