

Reflection® Suite for X is a PC X server, NFS client, and terminal emulation software all rolled into one. With this multi-purpose solution, you can connect Windows® users to applications on UNIX, OpenVMS, IBM, Unisys, and Linux systems. You can provide easy access to NFS resources. And you can use the suite's advanced capabilities to cut the complexity of desktop management.

Suite Products

Reflection X

Reflection for UNIX and OpenVMS

Reflection® for IBM®

Reflection NFS Client

Each product is also sold separately.

REFLECTION X

Host Types

ADPS-UX, AIX, Bull, Dynix, EWS-UXV, HP-UX, IRIX, Linux, News-OS, OpenVMS, SCO UNIX, SGI, Siemens, Solaris, and Tru64

Display

NEW X11R6.8 compliance

NEW Support for DOUBLE-BUFFER extension

NEW Support for XF86_BIGFONT extension

NEW Support for multiple X screens

NEW Application-specific icons and configurable foreground color

NEW Support for multiple XDMCP sessions

Multiple X display

Multiple monitor support

GrayScale, PseudoColor, StaticColor, StaticGray, and TrueColor emulation with single or multiple hardware colormap emulation

Color depths: 1, 8, 24, and 32

Support for local and remote window managers:

- Microsoft® Windows or Reflection X local window manager

- All remote window managers used by X desktops (CDE, GNOME, KDE, VUE, and more)

- Embedded Broadway (X11R6.3) window manager for browsers that support plug-ins

Sun X server compatibility settings

Support for up to 1024 display numbers for WTS/Citrix

Support for non-standard-sized color cursors

Motif hints, cascade windows, and X focus policy

Window panning

Virtual screen support through Virtual Desktop Manager¹

Backing store and save unders

X extensions:

- GLX, LBX, SHAPE, XINPUT, BIG-REQUESTS, XC-APPGROUP, SECURITY, EVI, XTEST, MBX, SYNC, TOG-CUP, DEC-XTRAP, XC-MISC, DOUBLE-BUFFER, XF86_BIGFONT, XKB, MIT_SUNDRY_NONSTANDARD, XDIRECTACCESS, GP-MIT-SHM, MIT-SHM, WRQ-ADMIN, and WRQ_XPRINT

Copy and Paste

NEW Automatic image pasting to graphics editor

X Selection, copy (text, area, or window), auto copy/paste, copy on focus loss, and copy to Windows printers

Network Protocols and Functions

XDMCP (direct, indirect, and broadcast)

Telnet, rexec, rsh, rlogin, Secure Shell, Kerberized Telnet, PCX\$SERVER, and local X clients

Automatic multiple network interface support

Transports: TCP/IP, DECNet, and UNIX domain sockets

X11 over IPv6

Multicast (IPv6)

Long host-name support

Built-in VPN functions

Network error logging

SLIP/PPP support and LBX

GLX Support

GLX 1.3, OpenGL 1.4, overlay plane support, stereo support, and accelerated 3-D hardware support

RXPFD (GLX troubleshooting utility)

Font Support

NEW SSH-based font-retrieval function

Support for Windows fonts (including TrueType, ClearType, Microsoft OpenType, FON, and FNT)

Auto-detection of non-running font servers

X11R5/X11R6 font server with local font caching

Automatic font-server connection

Support for BDF, PCF, and compressed PCF/BDF

Font scaling and rotation

Font activity logging

Unicode fonts

Keyboard Support

Graphical keyboard mapping

Customizable mapping

Quick keymap switching

Support for Windows reserved-shortcut keys in X Window environments

International keyboard mapping

Host keyboard emulation: Sun, HP, IBM, SCO, and DEC (including LK450)

Mouse Support

NEW Support for 3Dconnexion SpaceBall 5000 and SpaceMouse Plus

3-button emulation

Wheel-mouse scroll support for buttons 4 and 5; mapping to keyboard events

File Transfer

NEW Management of FTP settings via Reflection Administrator

NEW Support for IPv6 networks in the FTP client

NEW Ability to save FTP client sessions in Layouts

NEW Change UNIX file permissions with FTP client

NEW Move settings to configuration files

NEW SFTP downloads resume after interruption

FTP client:

- Support for a variety of FTP servers (UNIX, NetWare, Unisys, HP 3000, IBM mainframe, AS/400, and OpenVMS)

WHAT'S NEW IN REFLECTION X 13.0?

- Secure troubleshooting capability lets you quickly handle remote-user issues.
- Downloadable templates allow you to instantly configure X server settings and connections (available to WRQ Maintenance customers only).
- Secure Shell enhancements, including a new SSH key agent, simplify user authentication.
- The ability to run more than one XDMCP session, without resetting the X server, increases productivity and reduces help desk calls.
- X Client Wizard support for all connection methods ensures that connection files are built in a fail-safe manner.
- WRQ FTP client enhancements make it easy to configure, deploy, and start FTP sessions.
- Single sign-on provides secure access to all approved hosts and servers with one convenient password.
- Display enhancements, including support for DOUBLE-BUFFER and XF86_BIGFONT extensions, improve user performance.
- Support for 3Dconnexion SpaceBall® 5000 and SpaceMouse® Plus lets CAD/CAM specialists build designs using standard input devices.
- Broad-ranging usability enhancements make desktop tasks easier for users.

- FTP site wizard
- Site-to-site transfer between FTP servers
- Export/import settings in XML format
- Wildcard filters
- Automation tools (script recorder and Microsoft OLE Automation)
- SSL/TLS encryption for FTP file transfers
- Secure file transfer via SFTP
- Kerberos 5 authentication and encryption support
- Drag-and-drop file transfers directly to the desktop
- WRQ proprietary protocol; FTP, Kermit, Xmodem, and Zmodem
- ASCII and binary supported

Accessibility Support

- NEW** Support for XKB extension
- Support for Microsoft Active Accessibility (MSAA)
- Support for JAWS® for Windows
- Support for Microsoft Windows 2000 and XP on-screen keyboard functions
- Integrated support for MAS, SAI's Media Application Server



Security Methods

Host-based security to determine which clients can connect to the X server

User-based security with MIT-MAGIC-COOKIE or XDM-AUTHORIZATION-1

Security Protocols

- NEW SSH key agent
- NEW PKI support in the Reflection Secure Shell Client
- NEW SSH command-line utility
- NEW Easier uploading of users' public keys to SSH servers
- Secure Shell encryption:
 - Connections to SSH1 and SSH2 protocol servers
 - Port forwarding for TCP/IP ports through secure channel
 - Password, keyboard interactive, user key, and Kerberos authentication
 - Key generation and conversion (RSA-1, RSA, and DSA) utility
 - scp and sftp file transfer utilities
 - Standard SSH configurations
- Reflection Kerberos Client:
 - Secure authentication
 - Datastream encryption (DES and 3DES) for Telnet and FTP
 - Supports ticket forwarding and renewal
 - Compatible with Microsoft and Leash32 credentials caches
 - Standard Kerberos configurations
 - Support for Kerberos KDC's using TCP or UDP

Administrative Tools

- NEW Secure troubleshooting for remote configurations
- NEW Downloadable templates (available to WRQ Maintenance customers only)
- NEW Single sign-on
- NEW X Client Wizard enhancements
- X Manager to manage multiple X clients and servers
- Consolidated view of all configuration settings
- X profiler
- X Client Wizard
- Connection wizard
- Quick-start connection templates
- Quick-start server templates
- X performance tuner
- X protocol trace and replay utility with custom filters for troubleshooting, user training, or presentation
- RunRX for customizing X client launching methods (can be used with scripting tools such as Microsoft Visual Basic® for Applications or Perl)
- Customization tools for:
 - Settings and installation files (including MSI)
 - Online help
- Web-based deployment of settings files and updates
- Usage metering
- Support for Windows administration features:
 - Windows Installer
 - Active Directory
 - Roaming user and multiple user profiles

- Group Policy
- Support for Microsoft Windows Terminal Server
- Support for Citrix® MetaFrame™
- Graphical PING
- TimeSync¹

International Support

- Japanese inline input
- Input method: XIM (I18N and XIMP), Microsoft-IME, and LocalFEP
- Ability to switch languages (English, French, German, and Japanese) without restarting
- Support for double-byte fonts, including Chinese

REFLECTION FOR UNIX AND OPENVMS

Host Types

- UNIX (including Linux)
- OpenVMS
- Unisys A Series
- Data General I

Emulation Types

- NEW QNX4
- NEW xterm
- UNIX and OpenVMS:
 - VT520/525, VT500-7, VT500-8, VT420, VT400-7, VT400-8, VT320, VT286, VT220, VT102, and VT52
 - VT-UTF8 and UTF-8 (Unicode) character-set support
 - TVI 950/955, Wyse 50+, Wyse60, ADDS VP2, SCO-ANSI, and BBS-ANSI
 - Linux console, AT386, and IBM 3151
 - Japanese terminal emulation (VT382, VT282, VT100, VT80, and others)
 - ReGIS, sixel, and Tektronix graphics terminal emulation (VT340, VT330, VT241, and Tektronix 4010/4014)
- Unisys:
 - T27
- Data General:
 - Dasher 215

Network Protocols

- NEW Support for IPv6 networks (Telnet, Secure Shell, and OpenSSL)
- NEW Support for SOCKSv5 client
- Extensive Telnet options with support for threaded I/O; Line mode; NAWS (option 31); Local Echo, including Telnet option 45 (Suppress Local Echo)
- Rlogin, TCP/IP, and network-based modems
- Full support for serial connections, including automatic serial-port detection and USB
- Third-party LAT support
- TAPI 3.0 support

File Transfer

- NEW Management of FTP settings via Reflection Administrator
- NEW Support for IPv6 networks in the FTP client
- NEW Ability to save FTP client sessions in Layouts
- NEW Change UNIX file permissions with FTP client

WHAT'S NEW IN REFLECTION FOR UNIX AND OPENVMS 13.0?

- Single sign-on provides secure access to all approved hosts and servers with one convenient password.
- SSH key agent strengthens security while making public-key authentication easier for users.
- PKI support in the Reflection Secure Shell and SSL/TLS clients simplifies user authentication.
- SSH command-line utility makes it possible to use commands, rather than graphical interfaces, for SSH tasks.
- Easier uploading of users' public keys to an SSH server encourages adoption of public-key authentication.
- Support for IPv6 networks and SOCKSv5 allows you to provide host access within your existing network infrastructure.
- Users of the F-Secure SSH Windows Client can migrate to Reflection emulation products without losing their configuration settings.
- WRQ FTP client enhancements make it easy to configure, deploy, and start FTP sessions.
- Session-order feature lets users work in pre-selected sessions while other sessions are loading.
- New emulation options, including QNX4 and xterm, increase your range of access.
- X11 mouse-style support gives Windows users the same feel and functionality as an X11 mouse.
- Enhanced support for Windows Terminal Server APIs improves access to Reflection in WTS environments.
- SFTP downloads resume if interrupted, saving time and conserving network bandwidth.

- NEW Move settings to configuration files
- NEW SFTP downloads resume after interruption
- FTP client:
 - Support for a wide variety of FTP servers (UNIX, NetWare, Unisys, HP 3000, IBM mainframe, AS/400, and OpenVMS)
 - FTP site wizard
 - Site-to-site transfer between FTP servers
 - Export/import settings in XML format
 - Wildcard filters
 - Automation tools (script recorder and Microsoft® OLE Automation)
 - SSL/TLS encryption for FTP file transfers
 - Secure file transfer via SFTP
 - Kerberos 5 authentication and encryption support
 - Drag-and-drop file transfers directly to the desktop
 - WRQ proprietary protocol; FTP, Kermit, Xmodem, and Zmodem
 - ASCII and binary supported



Printing

Windows or host control
Network, local, or print-to-disk
Sixel and color graphics support
Print logging
Fixed pitch TrueType and printer font
Serial device to host communications
Line-drawing characters
Optimized page formatting
LPD

Programming and Automation

NEW Session-order feature
Microsoft Visual Basic® for Applications (VBA 6.4)
VBA-macro output available in VB.NET and C# (.NET)
VBA-macro sharing
Macro recorder for VBA and Visual Basic
Programmatic access to over 400 properties and methods via Reflection API
Microsoft OLE Automation 2.0 Controller and server capability
Reflection Basic and Reflection Command Language
Run Reflection as an ActiveX® control within a VB or VB.NET application
Programmable events

User Interface

NEW F-Secure SSH Windows Client settings-file migration
NEW Support for X11 mouse style
Connection wizard
Customizable toolbars and menus
Dynamic hotspots
Full-screen terminal mode
Graphical keyboard mapping
Mouse mapping (2- and 3-button)
Resizable terminal keyboard
Full color editing
HTML Help in the customization tools

Security

NEW SSH key agent
NEW PKI support in the Reflection Secure Shell Client
NEW SSH command-line utility
NEW Easier uploading of users' public keys to SSH servers
SSL/TLS Telnet encryption:
- Integrated SSL 3.0 and TLS 1.0 Telnet encryption through Reflection OpenSSL Client
Secure Shell encryption:
- Connections to SSH1 and SSH2 protocol servers
- Port forwarding for TCP/IP ports through secure channel
- Password, keyboard interactive, user key, and Kerberos authentication
- Key generation and conversion (RSA-1, RSA, and DSA) utility
- scp and sftp file transfer utilities
- Standard SSH configurations
Reflection Kerberos Client:
- Secure authentication
- Datastream encryption (DES and 3DES) for Telnet and FTP
- Supports ticket forwarding and renewal
- Compatible with Microsoft and Leash32 credentials caches
- Standard Kerberos configurations
- Support for Kerberos KDC's using TCP or UDP

Administrative Tools

NEW Single sign-on
NEW Enhanced support for Windows Terminal Server APIs
Centralized management of settings files using group policy
Usage metering
Customization tools for:
- Settings and installation files (including MSI)
- Online help
Web-based deployment of settings files and updates
Support for Windows administration features:
- Windows Installer (MSI)
- Active Directory
- Roaming user and multiple user profiles
- Group Policy
Support for Microsoft Windows Terminal Server
Support for Citrix® MetaFrame™
Graphical PING
TimeSync¹

International Support

English, French, German, and Japanese versions
Localized keyboards, displays, and printers
Japanese PC-9800 series
Support for Asian input-method editors

REFLECTION FOR IBM

Host Types

IBM mainframe (3270)
IBM AS/400 (5250)

Emulation Types

IBM mainframe:
- 3179, 3179-G, 3180, 3192-G, 3196, 3197, 3270, 3278, 3279, 3472-G, 3476, 3477, 3486, and 3487
IBM AS/400:
- 5250, 5251, 5291, and 5292

Network Protocols

IBM mainframe:
- 802.2 (DLC)
- Coax DFT
- IBM Communication Server
- LUA
- Microsoft® SNA Server
- NetWare® for SAA® via IPX/SPX
- NetWare for SAA via TCP/IP
- SDLC
- LU 6.2 (APPC)
- TN3270 and TN3270E
- HiT ODBC/DB2 Lite driver
IBM AS/400:
- 802.2 (DLC)
- IBM Communication Server
- Microsoft SNA Server
- MPTN (AnyNet)
- NetWare for SAA
- LU 6.2 (APPC)
- TN5250 and TN5250E
- HiT ODBC/400 Lite driver

WHAT'S NEW IN REFLECTION FOR IBM 13.0?

- Single sign-on provides secure access to all approved hosts and servers with one convenient password.
- WRQ FTP client enhancements make it easy to configure, deploy, and start FTP sessions.
- Session-order feature lets users work in pre-selected sessions while other sessions are loading.
- Redesigned user interface simplifies batch-file transfers and improves access to file-transfer settings.
- SSL encryption protects AS/400 LIPI file transfers.
- Screens can be modified to accommodate custom host applications with varying screen sizes (e.g., 60x132).
- Users can browse TSO host-file lists without sending Reflection script files to the host.

File Transfer

NEW File browsing on TSO hosts with no host-side intrusion or modification
NEW SSL encryption for AS/400 LIPI file transfers
NEW Management of FTP client settings via Reflection Administrator
NEW Support for IPv6 networks in the FTP client
NEW Ability to save FTP client sessions in Layouts
NEW Change UNIX file permissions with FTP client
NEW Move settings to configuration files
NEW FTP file transfer in the UI
FTP client:
- Support for a wide variety of FTP servers (UNIX, NetWare, Unisys, HP 3000, IBM mainframe, AS/400, and OpenVMS)
- Site-to-site transfer between FTP servers
- FTP site wizard
- Export/import settings in XML format
- Wildcard filters
- Automation tools (script recorder and Microsoft OLE Automation)
- SSL/TLS encryption for FTP file transfers
- Kerberos 5 authentication
IND\$File, DISOSS, SQL data query, batch-file transfer, and APVUFIL

Printing

3287, 3812, 3912, and 5553 printer emulation
Pre-printed form support
Print screen with consolidated screen-printing utility
Host Print Transform
Duplex printing
LPD

Programming and Automation

NEW Session-order feature
One session file for settings and macros
Microsoft Visual Basic® for Applications (VBA 6.4)
VBA-macro output available in VB.NET and C# (.NET)
VBA-macro sharing

Macro-recorder support for VBA and Visual Basic
Programmatic access to over 400 properties and methods via Reflection API
DOS HLLAPI, HLLAPI, eHLLAPI, WinHLLAPI, IMAPI, CPI-C, and WinAPPC
Microsoft OLE Automation 2.0 Controller and server capability
Reflection Basic
Programmable events
Run Reflection as an ActiveX® control within a VB or VB.NET application
Microsoft Dynamic Data Exchange

User Interface

NEW Redesigned to simplify batch-file transfers and improve access to file-transfer settings

NEW Customizable screen sizes

Font sizing
Removable title bar
3270 word wrap
FTP toolbar button
Connection wizard
Customizable toolbars and menus
Dynamic hot spots
Graphical keyboard mapping
Mouse mapping (2- and 3-button)
Resizable terminal keyboard
Full color editing
HTML Help in the customization tools

Migration Options

Conversion of competitive macros, keyboard maps, and session-configuration files

Security

Integrated SSL 3.0 and TLS 1.0 Telnet encryption through Microsoft security APIs²
Reflection Kerberos Client for secure authentication

Administrative Tools

NEW Single sign-on
Auto-update of device names
Centralized management of settings files using group policy
Usage metering
Customization tools for:
- Settings and installation files (including MSI)
- Online help
Web-based deployment of settings files and updates
Support for Windows administration features:
- Windows Installer
- Active Directory
- Roaming user and multiple user profiles
- Group Policy
Support for Microsoft Windows Terminal Server
Support for Citrix® MetaFrame™
Graphical PING
TimeSync¹

International Support

Support for the Chinese Simplified code page
English, French, German, and Japanese versions
Localized keyboards, displays, and printers
Japanese PC-9800 series
Support for Asian input-method editors

REFLECTION NFS CLIENT

Host Types

UNIX platforms, including Solaris, AIX, HP-UX, IRIX, EWS-UX/V, SCO UNIX, ADPS-UX, News-OS, Tru64, OS/F1, Siemens, Bull, Dynix, OpenBSD, and Linux
Other platforms, including OpenVMS³, HP e3000³, IBM AS/400 (iSeries)³, and IBM mainframe³

File Services

Multi-user password caching
Monitored locks
Support for NFS 3.0
Support for NIS, including Automount
Dynamic or manual sizing of read/write buffer
NFS file and directory caching
Support for case-based file names
Search for server file systems over TCP/IP
OLE file-locking support
Support for the Windows net use command
Symbolic links
FTP client

Printing Services

LPD
Print to NFS printer
Print to file on host
Search for server print queues over TCP/IP

Desktop-Access Options

NEW Automatic reconnection/scripting on startup in non-NIS environments
Access from My Computer and My Network Places
Access from Windows Printers Control Panel
Automatic reconnection/scripting on startup in NIS environments
Command line interface
NFS/NIS password change

Administrative Tools

NEW Support for LDAP
NEW Support for host-access control list
NEW Support for the WNet API
Support for Microsoft® Windows Terminal Server
Microsoft Windows Event Viewer for logging and troubleshooting
Reflection NFS Utility
Export/import settings in XML format
Reflection Customization Manager
Microsoft Windows Installer
Reflection NFS Client API support
Graphical PING
TimeSync¹

WHAT'S NEW IN REFLECTION NFS CLIENT 13.0?

- LDAP support lets you standardize user authentication across the enterprise.
- Support for host-access control list allows you to specify a range of servers that NFS clients can access.
- Enhanced pscript capabilities provide centralized administration and personalized access, even in non-NIS environments.
- Support for the WNet API lets you programmatically automate NFS operations.

International Support

English, French, German, and Japanese⁴ versions

SYSTEM REQUIREMENTS

Any system that meets the recommended requirements for the Microsoft Windows operating system; an additional 64 MB of memory is recommended for better performance

17 MB minimum of disk space

256-color video card; 24-bit color recommended; accelerated OpenGL video card suggested for 3-D CAD/CAM applications

100 mbs network speed suggested for 2-D and 3-D CAD/CAM applications

2-button mouse, 3-button mouse, wheel mouse, 3Dconnexion SpaceBall 5000, or SpaceMouse Plus

OPERATING SYSTEMS

Microsoft Windows XP (32- and 64-bit editions)
Microsoft Windows 2000
Microsoft Windows Server 2003
Microsoft Windows 2000 Server
Microsoft Windows Terminal Server
Citrix MetaFrame⁵

BROWSER SUPPORT (for emulators only)

Use Reflection Web Launch to deploy settings and updates via a web browser

Convert Reflection settings files for use with Reflection for the Web

Run Reflection as an ActiveX control in supported browsers

¹ Not available on Windows XP.

² Available for Windows 2000 and Windows XP desktops only.

³ Third-party NFSD software must be installed on the host system.

⁴ Reflection NFS Utility is available in English.

⁵ Not available for Reflection NFS Client.

ABOUT WRQ

WRQ builds software for accessing and integrating legacy applications. WRQ Reflection[®] software provides a broad range of terminal emulation, PC X server, and SSH security solutions. WRQ Verastream[®] integration server provides a single platform for reusing legacy logic and data in web applications, CRM applications, or portals. Our products help companies get the most from their hosts today as they advance their long-term IT strategy. Learn more about our Reflection and Verastream products at www.wrq.com.



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