

Reflection® for the Multi-Host Enterprise is terminal emulation software that connects Windows® users to applications on multiple hosts—all in one package. It comes in two editions: the Professional Edition and the Standard Edition.

Both editions include advanced administration, security, and customization capabilities to help you cut the complexity of desktop management.

### Professional Edition Products

Reflection® for IBM®

Reflection for HP with NS/VT

Reflection for UNIX and OpenVMS

Reflection NFS Client

### Standard Edition Products

Reflection for IBM

Reflection for UNIX and OpenVMS

Reflection NFS Client

*Each product is also sold separately.*

## 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

### 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 APVUFILE

### 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

## 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.

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

Customizable screen sizes

**NEW** 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 APIs<sup>1</sup>

Reflection Kerberos Client for secure authentication



## REFLECTION FOR HP WITH NS/VT

### Host Types

HP e3000  
HP 9000 (HP-UX)

### Emulation Types

HP e3000:  
- HP 700/98, 700/96, 700/94, 700/92, and 2392A  
HP 9000:  
- VT220, VT102, and VT52  
- UTF-8 (Unicode) host character-set support

### Network Protocols

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

### Printing

Windows or host control  
Network, local, or print-to-disk  
Print logging  
Fixed-pitch TrueType and printer font  
Line-drawing characters  
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 NS/VT or Telnet sessions for Windows 2000 and XP (using Reflection Administrator)
- 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 for easy deployment
- Reflection Kerberos Client for HP 9000 connections:
  - 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

## WHAT'S NEW IN REFLECTION FOR HP WITH NS/VT 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.
- 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.



## REFLECTION FOR UNIX AND OPENVMS

### Host Types

UNIX (including Linux)  
OpenVMS  
Unisys A Series  
Data General

### 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

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  - SSL/TLS encryption for FTP file transfers
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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
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  - 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

## 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.

### 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



## 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 OpenVMS<sup>2</sup>, HP e3000<sup>2</sup>, IBM AS/400 (iSeries)<sup>2</sup>, and IBM mainframe<sup>2</sup>

### 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

## 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.

## ADMINISTRATIVE TOOLS

- NEW** Single sign-on
- NEW** Enhanced support for Windows Terminal Server APIs (Reflection for HP with NS/VT and Reflection for UNIX and OpenVMS only)
- NEW** Support for LDAP (Reflection for NFS Client only)
- NEW** Support for host-access control list (Reflection for NFS Client only)
- NEW** Support for the WNet API (Reflection for NFS Client only)

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<sup>®</sup> MetaFrame<sup>™</sup>

Graphical PING

TimeSync<sup>3</sup>

## BROWSER SUPPORT

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

## INTERNATIONAL SUPPORT

Support for the Chinese Simplified code page (Reflection for IBM only)

English, French, German, and Japanese<sup>4</sup> versions

Localized keyboards, displays, and printers

Japanese PC-9800 series

Support for Asian input-method editors

## SYSTEM REQUIREMENTS

Any system that meets the minimum requirements for the Microsoft Windows operating system

Disk space varies depending on features installed

Network interface card (not required for serial connections)

256-color or higher video-card resolution

2- or 3-button mouse

## OPERATING SYSTEMS

Microsoft Windows XP

Microsoft Windows 2000

Microsoft Windows Server 2003

Microsoft Windows 2000 Server

Microsoft Windows Terminal Server

Citrix MetaFrame<sup>5</sup>

<sup>1</sup> Available for Windows 2000 and Windows XP desktops only.

<sup>2</sup> Third-party NFSD software must be installed on the host system.

<sup>3</sup> Not available on Windows XP.

<sup>4</sup> Reflection NFS Utility is available in English.

<sup>5</sup> Reflection NFS Client is not available for Citrix MetaFrame.

## ABOUT WRQ

WRQ builds software for accessing and integrating legacy applications. WRQ Reflection<sup>®</sup> software provides a broad range of terminal emulation, PC X server, and SSH security solutions. WRQ Verastream<sup>®</sup> 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](http://www.wrq.com).



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