

## Thin Client, Broad Benefits

Reflection® for the Web 2011 Enterprise Edition is terminal emulation software that securely connects web browser users to applications on IBM, HP, UNIX, and OpenVMS hosts. Centrally deployed and managed, Reflection for the Web 2011 offers easier automation, an enhanced user experience, and unrivaled security. With our advanced security features, you can safely connect to fully functioning host applications across the public Internet, and integrate your legacy applications into your modern LDAP-based security infrastructure.

### With Reflection for the Web 2011, you can:

- Securely connect local and remote web browser users to legacy applications running on IBM mainframe, iSeries, UNIX, OpenVMS, and HP hosts.
- Centrally install, deploy, and manage your terminal emulation applications.
- Protect host sessions with patented secure token authorization and AES encryption over SSL/TLS and SSH.
- Support emerging technologies, including Windows 7; Google Chrome; zLinux; and Microsoft, Citrix, and VMware virtualization platforms.
- Take full advantage of scalable, high-performing servers with the automated 64-bit installer for Windows and Linux.
- Use the JavaScript macro recorder to build complex macros that swiftly automate business processes.
- Drag and drop icons to a configurable toolbar with a single click—and even map commands, keyboard actions, and macros to custom buttons.
- Authenticate users with Active Directory, LDAP, X.509 smart cards, Kerberos, and web portal authentication methods.
- Use enterprise directory services, such as Active Directory, to control user access to sensitive data and resources—without making any changes to your LDAP schema or data.
- Facilitate compliance with regulations such as Payment Card Industry (PCI), Sarbanes-Oxley, Gramm-Leach-Bliley, HIPAA, and Basel II.
- Meter thin-client usage in standard desktop or Citrix environments with the Reflection Metering Server.

### What's New in Reflection for the Web 2011 Enterprise Edition?

- Native 64-bit support for Windows and Linux servers, for enhanced performance and scalability.
- Swift automation of business processes with a JavaScript macro recorder.
- Easier administration of user access rights through an LDAP session-access report.
- A configurable toolbar that lets users map file transfer requests, favorite commands, macros, and other actions to custom buttons.
- Bolstered host security, with updates to the Reflection server's Tomcat servlet engine and Java runtime.

### COMPONENTS

Reflection Management Server  
Reflection Security Proxy Server  
Reflection Metering Server  
Reflection ID Management Server  
Reflection Terminal Emulation Thin Clients  
Reflection File Transfer Thin Clients  
Reflection Printing Thin Clients

## Product Highlights

### Centralized Installation, Deployment, and Management

Reflection for the Web is centrally installed and deployed on the web server for instant availability to all browser users. Once you make updates on the server, users automatically download the new version the next time they connect. Costly, time-consuming desktop-to-desktop management is no longer necessary.

### Robust Security Options

Reflection for the Web includes a security proxy server that extends host access to remote users without exposing hosts to Internet threats. The security proxy server works with the management server to control access to terminal emulation and file transfer hosts based on Active Directory or LDAP user and group membership. It uses read-only access to your directory, so you don't need to change your existing LDAP schema.

Reflection for the Web also provides standards-based SSL/TLS and SSH encryption with FIPS 140-2-validated cryptographic modules. These modules, along with Reflection for the Web's audit logging capabilities, facilitate compliance with internal and external security regulations such as Payment Card Industry (PCI), Sarbanes-Oxley, Gramm-Leach-Bliley, HIPAA, and Basel II.

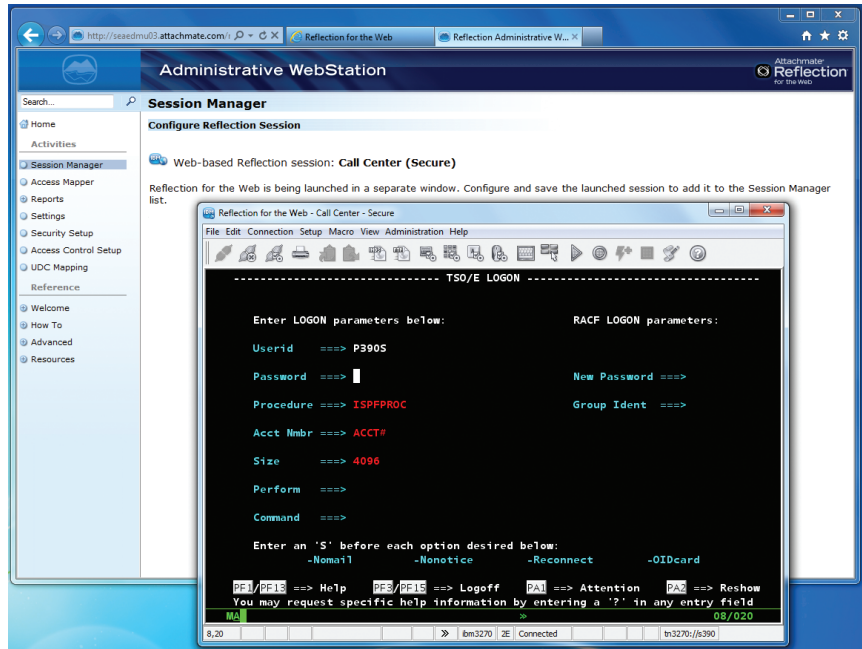
**Extensive Usage Monitoring**

Reflection for the Web enables you to monitor and audit usage at every step of the connection. The management server and security proxy server log critical information such as authenticated users' LDAP distinguished names, sessions run by users, the destination host and port, and client and host IP addresses. And you can also monitor application usage with the metering server.

**Any Browser, Any Operating System**

Reflection for the Web is platform independent. The client runs in any browser—including Internet Explorer, Mozilla Firefox, Google Chrome, and Safari—and on any operating system that supports Java, including Windows 7, Linux, zLinux, and Mac OS X. The Reflection servers also run on any Java-supported operating system, including Windows, Linux, zLinux, UNIX, and z/OS.

Reflection for the Web includes native 64-bit support for Windows and Linux servers, allowing you to leverage their power and scalability. The Reflection servers can also run with native 64-bit support on other platforms that support 64-bit Java, such as zLinux.



Administrators can configure new web-based terminal sessions using the Session Manager.



After configuring a new web-based terminal session, administrators can manage it using the Session Manager, and control end-user access to the session using the Access Mapper.

## TECHNICAL SPECIFICATIONS

### CONNECTION BASICS

#### Emulation Types

- IBM System z (Mainframe):
  - 3179, 3180, 3196, 3197, 3270, 3278, 3477, 3486, and 3487
  - Models 2 (24x80), 3 (32x80), 4 (43x80), and 5 (27x132)
- IBM System i (AS/400):
  - 5250, 5251, and 5291
- UNIX, Linux and OpenVMS:
  - VT52, VT100, VT220, VT320, and VT420
- HP e3000:
  - HP2392 and HP700/9x

#### Network Protocols

- All host types:
  - IPv4/IPv6
- IBM System z:
  - TN3270, TN3270E, and SSL/TLS
- IBM System i:
  - TN5250 and SSL/TLS
- UNIX, Linux, OpenVMS, and HP e3000:
  - Telnet, NS/VT, SSL/TLS, and Secure Shell (SSH2)

#### File Transfer

- SFTP (SSH2) support
- Secure FTP (SSL/TLS-wrapped):
  - Works with any conventional FTP server
  - Secure access to multiple FTP hosts through one firewall port
  - LDAP-based access control using secure token authorization
  - Reflection Security Proxy Server hides the FTP server name/port and protects the host from external exposure
- Standalone FTP client (independent of emulator)
- FTP command line interface
- FTP with automatic detection of ASCII and binary formats and preset file transfer configurations
- IBM System z IND\$FILE file transfer for CMS, TSO, or CICS
- Browse host files for IND\$FILE (for quick access to host file lists)
- NEW** • IBM System i data transfer
- Ability to save frequently used IND\$FILE, FTP, and System i file transfers

#### SECURITY Compliance

- NEW** • Complies with Federal Desktop Core Configuration (FDCC) and United States Government Configuration Baseline (USGCB) security policy requirements

### Authentication

- Microsoft Active Directory single sign-on
- LDAP integration with Microsoft Active Directory, RACF, Novell eDirectory, Sun Java System Directory, IBM Tivoli Directory Server, OpenLDAP, and any other RFC 2256-compliant LDAP server
- Public Key Infrastructure (PKI) support
- Certificate Revocation List (CRL) support
- Online Certificate Status Protocol (OCSP) support
- Certificate policy support
- X.509 certificate support for smart cards
- Automatic Kerberos sign-on (System i)
- Kerberos v5 with Microsoft Active Directory
- Integration with IBM WebSphere Portal, Oracle WebLogic Portal, and CA SiteMinder

### Encryption

- FIPS 140-2-validated cryptographic modules (Certificates #787 and #820)
- SSL/TLS (via the Reflection Security Proxy Server or direct to host)
  - 256- and 128-bit AES, Triple DES, and DES encryption
- Secure Shell (SSH2)
  - 256- and 128-bit AES, Triple DES, and DES encryption (128/192/256 bit; cbc/ctr)

### Authorization (Access Control)

- LDAP integration to restrict terminal, printer, and file transfer session access to authorized users
- Personalization of a wide variety of parameters, such as LU/device name, based on user identity, DNS name, or IP address
- LDAP-based access control through secure token technology
- Dynamic LDAP group support
- Secure terminal and file transfer connections to multiple hosts through a single port in the firewall

### Auditing

- Reflection Management Server log
- Reflection Security Proxy Server log
- Reflection Metering Server log
- Log data tracks usage by LDAP distinguished names

### Key Exchange

- RSA
- DSS/Diffie-Hellman

### PRINTING

- Screen printing, with configurable headers and footers
- IBM 3287
- IBM 3812 (HPT and non-HPT)
- VT logging and controller-mode printing
- HP pass-through printing

### PROGRAMMING AND AUTOMATION

- NEW** • JavaScript macro recorder and editor
- Macro sharing
- Centralized creation and management of macros by administrators
- Macro mapping to keystrokes, mouse triggers, and customizable toolbar buttons
- URL recognition and opening from emulation client
- Password prompt for recorded macros
- Java-based API for scripting applets with JavaScript, VBScript, or Java
- Compatibility with Host Access Class Library (HACL)
- Programmatic access to FTP file transfer
- Keyboard mapping, compatible with any Windows, Linux, or Macintosh keyboard
- Mouse action mapping, compatible with any Windows, Linux, or Macintosh mouse
- NEW** • Customizable toolbar
- NEW** • Toolbar buttons mappable to commands, terminal keys, keyboard actions, macros, file transfer requests
- NEW** • 3270 and 5250 light pen support

### WEB-BASED ADMINISTRATIVE TOOLS

- Management Server:
  - Automated management server data replication for load-balanced environments
  - Step-by-step configuration for web-based host sessions
  - Session creation and management for certain Reflection Windows-based and PC X server products\*
- NEW** • LDAP-based control of host access
- Metering Server:
  - Usage logging
  - Session number limitation
  - License enforcement

### INTERNATIONAL SUPPORT

- English, French, German, and Italian language support
- Extensive international code page and keyboard support, including Eastern European and Cyrillic code pages and character sets
- ROECE Latin code page (Eastern Europe) for IBM System z and IBM System i

### SERVER INSTALLATION SUPPORT

- Can be installed on any operating system that supports Java, including Windows, Linux, zLinux, UNIX, and z/OS
- Automated installer for Windows, Linux, zLinux, and Solaris, with all necessary components including Tomcat servlet engine and Oracle (Sun) Java Runtime Environment



## TECHNICAL SPECIFICATIONS

- NEW** • Includes native 64-bit installer support for 64-bit versions of Windows and Linux
- WAR file installer for J2EE application servers

### SYSTEM REQUIREMENTS

- Reflection for the Web Clients:
  - Web browser enabled for Java 1.5+
  - TCP/IP network connection
  - Any hardware system that meets the minimum requirements for the Java Runtime Environment
  - Supported browsers include Internet Explorer 6.0+, Mozilla Firefox 1.5+, Safari 1.3+, Google Chrome 1.3+, and Java Web Start 5.0+
- Reflection Administrative WebStation:
  - Installs on web server; runs on any workstation in web browser that supports Java 1.5+
  - Any hardware system that meets the minimum requirements for the Java Runtime Environment
  - Supported browsers same as terminal emulation client
- Reflection Management Server:
  - Java Servlet 2.3-compliant servlet engine and Java Server Pages (JSP) 1.2, JDK 1.4+
  - Will run on any J2EE-compliant servlet engine or application server, including Tomcat, Oracle WebLogic, IBM WebSphere, or Sun Java System Application Server
- Reflection ID Management Server and Reflection Metering Server:
  - Java Servlet 2.3-compliant servlet engine and Java Server Pages (JSP) 1.2, JDK 1.5+
  - Will run on any J2EE-compliant servlet engine or application server, including Tomcat, Oracle WebLogic, IBM WebSphere, or Sun Java System Application Server
- Reflection Security Proxy Server:
  - Any server running Java Runtime Environment 1.5+

\* This feature requires the purchase of an optional component.

### About Attachmate

Attachmate delivers advanced software for terminal emulation, legacy modernization, managed file transfer, and enterprise fraud management. With our technologies, more than 65,000 businesses worldwide are putting their IT assets to work in new and meaningful ways. [www.attachmate.com](http://www.attachmate.com)



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