Reflection for the Web
Installation Guide

12.3 SP1 Update 2
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Reflection for the Web 12.3 SP1 Update 2 Installation Guide

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Reflection for the Web 12.3 SP1 Update 2 Installation Guide

Reflection for the Web 12.3 SP1 Update 2 includes Management and Security Server version 12.5.2 to configure and manage secure web-based sessions to a variety of hosts.

Your license also entitles you to the Security Proxy (except the Limited Edition) and the Terminal ID Manager.

What's New
As a reminder
If you are evaluating

What’s New

At a glance, here’s what’s new in version 12.3 SP1 Update 2:

• Replaced Oracle Java with OpenJDK on the server side
• Updated Management and Security Server to 12.5.2
• Updated Apache Tomcat to 9.0.12
• Added elliptic curve algorithms

See the Reflection for the Web 12.3 SP1 Update 2 Release Notes for details.

As a reminder

Changes that began in version 12.3 SP1 also apply to version 12.3 SP1 Update 2.

Installation options
Administrative Console
Reference Guide

Installation options

Reflection for the Web is installed independently of Management and Security Server.

• **Automated installation.** The automated installer provides the option to install both Reflection for the Web and Management and Security Server.

  Or, you can use an existing installation of Management and Security Server, provided it is version 12.5.0 or higher).

• **Manual installation.** Reflection for the Web can be installed using a .war file.
NOTE: When manually upgrading Management and Security Server, you must install the rweb-client.war file separately. See Installing the rweb-client web application context.

Administrative Console

In Management and Security Server, the Administrative Console replaced the Administrative WebStation as the user interface to create, manage, and secure sessions.

See the Management and Security Server Administrator Guide for details.

Reference Guide

The Reflection for the Web Reference Guide includes the Scripting, HTML examples, and other advanced topics that were previously in the Administrative WebStation. The Reference Guide is a separate document available from the documentation site.

If you are evaluating

If you are running an evaluation copy, the product will be fully functional for 120 days. During that time you can install, configure, and test Reflection for the Web.

Follow the installation steps in this guide, and then walk through the evaluation scenario presented in Evaluating Reflection for the Web.

Please contact Micro Focus or your authorized reseller to obtain the full-use version of the software.
1 Introduction

Reflection for the Web version 12.3 SP1 Update 2 is a web application that requires Management and Security Server to create, secure, and manage terminal sessions.

**NOTE:** Reflection for the Web 12.3 SP1 Update 2 includes Management and Security Server (MSS) version 12.5.2, and is compatible with MSS 12.5 or higher.

The Reflection for the Web automated installer looks for a compatible installation of Management and Security Server. If detected, you can use the existing one. If not, install Management and Security Server as part of the Reflection for the Web installation.

**Reflection for the Web Overview**

Reflection for the Web provides Java-based applets to deploy web-based terminal emulation sessions to your users. Reflection for the Web’s terminal sessions are centrally managed and secured using Management and Security Server’s Administrative Server.

Using Reflection for the Web and Management and Security Server, you can configure secure web-based terminal emulations sessions that connect to host applications located inside or outside the firewall.

Briefly, here’s how it works:

1. An administrator installs Reflection for the Web on a server and either installs or uses an existing installation of Management and Security Server.
2. The administrator uses the Administrative Console (in Management and Security Server) to create, configure, and secure terminal emulation sessions. Optional security settings can be configured on a per-session basis.
3. The Reflection for the Web launcher is downloaded to the user’s workstation.
4. A user clicks a link to start a terminal session.
5. The user connects to and communicates with the host system using the downloaded emulation applet.
The diagram below depicts the interaction between Reflection for the Web, Management and Security Server (the Administrative Server), and the optional Security Proxy Server to provide enhanced security.

1. Reflection for the Web user connects to the Administrative Server.
2. User authenticates to a directory server (LDAP/Active Directory) or other identity management system – optional.
3. Directory server provides user and group identity - optional.
4. The Administrative Server sends the emulation session to the authenticated client.
5. When the optional Security Proxy Server is configured for use by a session, emulation applet makes a TLS connection to Security Proxy Server and sends it a signed token.
6. When present, the Security Proxy Server validates session token and establishes a connection to the host:port it specifies.
7. When no Security Proxy Server is present or a session is not configured to use it, an authenticated user connects directly to the host.

**Administrative Server**

Management and Security Server’s Administrative Server includes the Administrative Console and terminal emulation files, which are installed together on a web server.

After you install (or point to an existing) Management and Security Server, you can open the Administrative Console, which is a self-contained web application. Use the Administrative Console to manage and configure web-based terminal sessions. With Reflection for the Web, Java-based applets deploy terminal emulation sessions to your users.
Optional Components

Your Reflection for the Web license entitles you to these optional components in Management and Security Server:

- **Metering Server** monitors the use of terminal sessions.
- **Security Proxy Server** * acts as a proxy for terminal sessions, routing encrypted network traffic to and from user workstations. (The Security Proxy is not included with the Reflection for the Web Limited Edition.)
- **Terminal ID Manager** * spools terminal IDs, tracks ID usage, and manages inactivity timeout values for specific users.

* Your Reflection for the Web license (except the Limited Edition) includes the Security Proxy and Terminal ID Manager, which are Add-On Products to Management and Security Server.

For information about installing, configuring, and using these components, see the Management and Security Server Installation Guide.
Preparing to Install

Reflection for the Web is a web application that requires Management and Security Server.

**NOTE:** Reflection for the Web 12.3 SP1 Update 2 includes Management and Security Server (MSS) version 12.5.2, and is compatible with MSS 12.5 or higher.

During installation, the Reflection for the Web automated installer looks for a compatible installation of Management and Security Server on your machine, and presents several options:

- Install Management and Security Server on the same machine where Reflection for the Web will be installed.
- Use the existing local installation of Management and Security Server on your system.
- Use a remotely hosted installation of Management and Security Server.

**NOTE:** For initial testing, you can install Reflection for the Web and Management and Security Server on a workstation; however, we recommend installing on a server operating system for production.

In this section:

- Prerequisites
- System Requirements

Prerequisites

Before installing Reflection for the Web 12.3 SP1 Update 2, be sure that:

- Your version of Management and Security Server is 12.5 or higher.

  The Reflection for the Web automated installer provides the option to upgrade Management and Security Server when both products are on the same machine. If Management and Security Server is installed on a different machine (remotely hosted), be sure to upgrade it to version 12.5 or higher.

- Any Reflection for the Web or Management and Security Server component currently running is shut down.

  If an earlier version was installed with an automated installer, the 12.3 SP1 Update 2 automated installer will close the components for you.

- The necessary account permissions to install components on the target server are available.

  If you plan to use X.509 client certificates or secure LDAP access control, make sure the account used to run the Administrative Server has permission to write to the Java SDK certificate authority certificates file (`cacerts`). The default location in Windows is:
  
  `C:\Program Files\Micro Focus\MSS\jre\lib\security`

**Note:** Optional components, including Metering Server, Security Proxy Server, and Terminal ID Manager can be installed along with Reflection for the Web or added later.
System Requirements

Reflection for the Web components can be installed on a single server or on separate servers. Check the requirements for each component:

- Server Requirements
- Management and Security Server Requirements
- Terminal Session (client) Requirements

Server Requirements

- Server-class operating system
  
  For production, a server-class system is required.
  
  For initial testing or evaluation, a workstation could be used.

- Server or Application Server running JRE1.8 or higher
  
  JRE 1.8.0_192 is installed by the automated installer.

Management and Security Server Requirements

The system requirements for Management and Security Server are specified in the Management and Security Server Installation Guide.

Terminal Session (client) Requirements

Reflection for the Web requires a browser using JRE 1.8 or higher that can run trusted applets. The browser requirements vary according to the version of Java.

Depending on your version, note these requirements:

- Java 1.8.<n>
- Java 1.9 or higher
- Unlimited Strength Jurisdiction Policy Files

Java 1.8.<n>

- Supported browsers: Internet Explorer 11 and Mozilla Firefox ESR 32-bit
- Unlimited Strength Jurisdiction Policy Files

NOTE: Beginning with Java 1.8.0_162, the Java Cryptography extension (JCE) unlimited strength policy files are installed by default. No further configuration is needed.

If you are using an earlier version, you may need to install the policy files. See Unlimited Strength Jurisdiction Policy Files

Java 1.9 or higher

- Supported browser: Internet Explorer 11 (64-bit)
- Unlimited Strength Jurisdiction Policy Files
As noted, the policy files are installed by default. No further action is required.

- Internet Explorer configuration
- TLS connections

**Internet Explorer configuration**

Java 1.9 (or higher) requires these settings.

1. In Internet Explorer 11 (64-bit), open **Internet Options** to the **Security** tab.
2. Check **Enable Protected Mode** (requires restarting Internet Explorer) for **each** zone:
   - Internet
   - Local intranet
   - Trusted sites
   - Restricted sites

Click **Apply**.

3. Click the **Advanced** tab.
4. Scroll to the **Security** section, and check **Enable Enhanced Protected Mode**.
5 Click Apply and OK. Close Internet Explorer.
6 Restart your computer for the changes to take effect.

TLS connections

To make TLS connections with Java 1.9 or higher, apply this configuration:

1. Open the Java 9 Control Panel to the Desktop Settings tab.
   One or more JREs are listed.
2. In the Runtime Parameters column, add this text to each line:
   --illegal-access=warn
3. Click Apply.
Unlimited Strength Jurisdiction Policy Files

For TLS connections to your host, Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files may be required.

Unlimited strength policy files contain no restrictions on cryptographic strengths, in contrast to the strong but limited cryptography policy files bundled in a JRE.

To apply the JCE Unlimited Strength Jurisdiction Policy Files

Beginning in Java 1.8.0_151, changes were made to the way the policy files are provided and enabled. Follow the steps for your version of Java.

<table>
<thead>
<tr>
<th>Java version</th>
<th>Required action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.8.0_162 or higher</td>
<td>Unlimited strength policy files are enabled by default. No further configuration is needed.</td>
</tr>
<tr>
<td>1.8.0_151 or 1.8.0_152</td>
<td>The policy files are included but must be enabled.</td>
</tr>
<tr>
<td></td>
<td>1. Open jre\lib\security\java.security.</td>
</tr>
<tr>
<td></td>
<td>2. Search for the line #crypto.policy=unlimited and remove the # character to uncomment the line.</td>
</tr>
<tr>
<td>earlier than 1.8.0_151</td>
<td>The policy files must be downloaded and installed.</td>
</tr>
<tr>
<td></td>
<td>Continue with the steps to apply the JCE policy files.</td>
</tr>
</tbody>
</table>

To apply the JCE policy files (for Java versions prior to 1.8.0_151):

1. Download the Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files from Oracle or IBM. Be sure to download the correct files for your version of Java:
2. Uncompress and extract the downloaded file. The download includes a Readme.txt and two .jar files with the same names as the existing policy files.
3. Locate the two existing policy files:
   - local_policy.jar
   - US_export_policy.jar
   - On UNIX, look in <java-home>/lib/security/
   - On Windows, look in C:\Program Files\Java\jre<version>\lib\security/
4. Replace the existing policy files with the unlimited strength policy files you extracted.

NOTE: The JCE Unlimited Strength Jurisdiction Policy Files must be applied each time you upgrade your JRE.
3 Using the Automated Installer

Installing Reflection for the Web by using the automated installer is the simplest way to get up and running. You can use the automated installer on Linux and Windows. For Solaris, use the Installing with no JRE option.

In this section:

- Installing Reflection for the Web 12.3 SP1 Update 2
- B. Use an existing installation of Management and Security Server on the same machine.
- C. Use an existing installation of Management and Security Server on a different machine.

Installing Reflection for the Web 12.3 SP1 Update 2

Follow these steps to install Reflection for the Web with either a new or existing installation of Management and Security Server.

1. Run the Reflection for the Web 12.3 SP1 Update 2 automated installer for your edition and platform. For example:

   rwebenterprise-12.3.<nnn>-prod-wx64.exe
   rwebairlines-12.3.<nnn>-prod-linuxx64.sh

   **NOTE**
   1. To install on Solaris, use the "no JRE" installer: unix-nojre-automated.sh. See Installing with no JRE.
   2. You can run the automated installer in console mode, using a -c parameter.
      This option, frequently for non-Windows systems, uses a command line for input and output rather than a graphical interface. All screens present the information on the console and allow you to enter the same information as in the automated installer.

2. Click Next to install Reflection for the Web.

3. The Reflection for the Web automated installer detects whether Management and Security Server is installed on the same machine and provides options for installation.

   Continue with the instructions for your installation scenario (A, B, or C):

   A. Install Management and Security Server on the same machine where Reflection for the Web will be installed.
   B. Use an existing installation of Management and Security Server on the same machine where Reflection for the Web will be installed.
   C. Use an existing installation of Management and Security Server on a different machine.
A. Install Management and Security Server on the same machine.

This scenario is for a new installation of both Reflection for the Web and Management and Security Server on the same machine. When the automated installer does not detect an installation of Management and Security Server on the machine where you are installing Reflection for the Web, this prompt displays:

1. Select Install MSS.
2. Click Next to start the installation of Management and Security Server (MSS).
   When prompted, run the Initial Configuration Utility to configure Management and Security Server.
3. Proceed through the Initial Configuration Utility until Done.
4. When prompted, you have the option to Start the services that were installed.
5. When the MSS Installation is Complete, the installed components are listed. Click Finish and return to the Reflection for the Web installer.
6. Next, the Reflection for the Web application will be installed into Management and Security Server. The default [Windows] location is
Using the Automated Installer

7 If prompted, restart the MSS server.
8 When the Reflection for the Web installation is Complete, click Finish.

Next steps

At this point, Reflection for the Web is installed. You can begin using the Administrative Console to create and configure sessions.

Refer to the Management and Security Server Installation Guide to

Manage Sessions
Assign Access
Set up Metering
Set up Security Proxy
Set up Terminal ID Manager
Set up Management and Security Server Add-Ons

B. Use an existing installation of Management and Security Server on the same machine.

When the automated installer detects an installation of Management and Security Server, you are prompted as follows:

![Micro Focus Reflection for the Web 12.3 SP1]

**Micro Focus Host Access Management and Security Server is required**

Host Access Management and Security Server (MSS) is required for use with Reflection for the Web.

Select from one of the available options below.

- Upgrade existing local MSS installation
- Use existing local MSS installation as-is (do not upgrade)
- Use remotely hosted MSS

**NOTE:** If the existing version of Management and Security Server is earlier than 12.5, select the option to Upgrade existing local MSS installation.

Continue with the automated installer.

1 Select Use existing local MSS installation. Click Next.
   The upgraded version of Management and Security Server will be installed first. Follow the prompts to install Host Access Management and Security Server.
2 When the MSS installation is complete, click Finish to proceed with the Reflection for the Web installation. (The MSS dialog closes.)
3 Click Next to install Reflection for the Web 12.3 SP1 Update 2. The default [Windows] location is
4 If prompted, restart the MSS server.
5 When the Reflection for the Web installation is complete, click Finish.

Next steps

At this point, Reflection for the Web 12.3 SP1 Update 2 and Management and Security Server 12.5.2 are installed. You can begin using the Administrative Console to create and configure sessions.

Refer to the Management and Security Server Installation Guide to perform these tasks.

Manage Sessions
Assign Access
Set up Metering
Set up the Security Proxy
Set up Terminal ID Manager
Install and set up Management and Security Server Add-Ons

C. Use an existing installation of Management and Security Server on a different machine.

If you select the option to Use remotely hosted MSS with a new installation of Reflection for the Web 12.3 SP1 Update 2, be aware of these requirements:

- The version of Management and Security Server must be 12.5 or higher. An earlier version must be upgraded.
- CAUTION: If you use MSS to manage multiple Micro Focus products that run on remote servers, be sure to check the MSS version requirements for all of those products, before upgrading MSS. MSS must be version-compatible with all of the client products being managed.
- When Reflection for the Web and Management and Security Server (MSS) are installed on separate machines, or when using the RWeb WAR in a separate servlet runner, we recommend that all web applications are accessed through the machine running Reflection for the Web.

For example: https://rwebhost/mss

When ready, proceed with Step 1.

NOTE: If you are upgrading from version 12.2

If you are upgrading from Reflection for the Web 12.2 and want to switch to a multi-server solution (where Management and Security Server and Reflection for the Web are on separate servers), proceed as follows:

1 On the machine where Reflection for the Web 12.2 is installed, upgrade to Management and Security Server 12.5.2:
   1a Run the MSS installer, found in the mss directory where you downloaded your product.
   1b For assistance, see the Host Access Management and Security Server Installation Guide.
2 Continue with Step 1 to install Reflection for the Web 12.3 SP1 Update 2 on a different machine.
Step 1. Install Reflection for the Web 12.3 SP1 Update 2 on a different machine.

On a different machine, install Reflection for the Web 12.3 SP1 Update 2 as a stand-alone product, using the automated installer. The automated installer installs a default web application container and performs some basic configuration.

1. Run the automated installer for your Reflection for the Web edition.
2. When prompted, select Use remotely hosted MSS.

Click Next. and enter the location where Management and Security Server is installed.

3. The Reflection for the Web automated installer installs:
   - a JRE
   - Server-side components, including a web proxy for handling /mss URLs, a redirector for handling /rweb URLs, and the rweb emulator client
4. Secure the connection between Reflection for the Web and Management and Security Server. Enter your settings:
   - Host or DNS name, or IP address.
   - Port. The default is 443.
   - Management Servlet context.
   - Protocol. The default is HTTPS.
5. When the Reflection for the Web installation is complete, click Finish.
6. Continue with Step 2 to install the activation file.

Step 2. Install the Reflection for the Web activation file.

The Reflection for the Web activation file is required for Management and Security Server to interact with Reflection for the Web on a different machine.

To install the activation file:

2. Click Activate New and Browse* to the location where you downloaded the Reflection for the Web automated installer. The activation file has this format:
Using the Automated Installer

activation.rweb_<product>_edition-12.3.1.jaw

3  Click the file and it is automatically uploaded to Management and Security Server.
4  Then refresh or restart your browser.

The Product Activation panel lists your Reflection for the Web edition and version.

* Or, download the activation file from the site where you downloaded Reflection for the Web, and then Browse to that location.

Next steps

At this point, Reflection for the Web 12.3 SP1 Update 2 is installed. You can begin using the Administrative Console to create and configure sessions.

Refer to the Management and Security Server Administrator Guide to perform these tasks.

Manage Sessions
Assign Access
Configure Settings
Although automated installation is recommended, you can manually install Management and Security Server. A war file is available for Reflection for the Web.

Use a manual installation when any of the following is true:

- You want to use a servlet runner other than the one automatically installed with the product.
- You are installing on a platform for which an automated installer is not supported.
- You cannot run the automated installer for any other reason.

In this section:

- Prerequisites and System Requirements
- Manual Installation Procedures
- Installation Variations

Prerequisites and System Requirements

- For a manual installation, Reflection for the Web must be installed on either a different host or in a different servlet runner than Management and Security Server.
- Host Access Management and Security Server 12.5 or higher must be installed and accessible from Reflection for the Web's servlet runner.
- A JRE version 1.8 or higher must be installed.
  
  The JRE includes the server JVM.

*NOTE:* If your system requires a JRE other than the default, you can use this manual installation on z/OS, Mac, HP-UX, and other Linux systems.

Manual Installation Procedures

To manually install and configure Reflection for the Web, you need to extract, edit, and deploy the component war files, and then activate the product.

- Step 1. Download and extract the product file.
- Step 2. Edit and deploy the component war files.
- Step 3. Install the Reflection for the Web activation file.
- Step 4. Copy other activation files to the correct locations.
- Step 5. Optional: Install add-on products.

Step 1. Download and extract the product file.

1 From the product Download site, download the file for your Reflection for the Web edition and your platform.
Step 2. Edit and deploy the component war files.

To configure the Reflection for the Web web application, you must edit the web.xml file to replace the <placeholder> values in the mss.war and rweb.war files. Then, each war file needs to be deployed.

NOTE: When Reflection for the Web and Management and Security Server (MSS) are installed on separate machines, or when using the Reflection for the Web war in a separate servlet runner, we recommend that all web applications are accessed through the machine or application running Reflection for the Web. For example: https://rwebhost/mss

A. Edit and deploy adminconsole.war

The adminconsole.war file

1 Extract adminconsole.war.

2 Open WEB-INF, and then open web.xml in a text editor.

3 Locate and replace the three trust-store [placeholder] entries:
   - trust-store-file
   - trust-store-type
   - trust-store-password

4 Deploy adminconsole.war to your servlet runner.

B. Edit and deploy mss.war

The mss.war file is the mss web proxy, which is required for Reflection for the Web to interact with Management and Security Server.

1 Extract mss.war.

2 Open WEB-INF, and then open web.xml in a text editor.

3 Locate the three trust-store [placeholder] entries. The trust-store entries are required to put a certificate into the trust store.
   - trust-store-file
4 Replace each trust-store [placeholder] value with the value for your configuration.
5 Locate the [mss-url] placeholder and replace it with the URL of the MSS server.
   For example: https://msshost/mss
6 Deploy mss.war to your servlet runner.

C. Edit and deploy rweb.war

The rweb.war file redirects client requests from the /rweb URL path, used in Reflection for the Web and Management and Security Server versions prior to 12.2, to the current /mss URL path.

Edit the trust-store placeholders in the rweb.war file:
1 Extract rweb.war.
2 Open WEB-INF, and then open web.xml in a text editor.
3 Locate and replace the three trust-store [placeholder] entries:
   - trust-store-file
   - trust-store-type
   - trust-store-password
4 Deploy rweb.war to your servlet runner.

D. Deploy rweb-client.war

1 Copy rweb-client.war to this MSS webapps folder:
   <MSS install directory>\server\web\webapps
   The servlet runner will expand the war file and an rweb-client context will be created.
2 Start (or restart) the MSS Server.
3 Continue with Step 3. Install the Reflection for the Web activation file.

Step 3. Install the Reflection for the Web activation file.

The Reflection for the Web activation file is required for Management and Security Server to interact with Reflection for the Web on a different machine.

To install the activation file:
1 Open Management and Security Server > Administrative Console > Configure Settings > Product Activation.
2 Click Activate New and Browse* to the location where you downloaded the Reflection for the Web automated installer. The activation file has this format:
   activation.rweb_<product>_edition-12.3.1.jaw
3 Click the file and it is automatically uploaded to Management and Security Server.
4 Then refresh or restart your browser.
   The Product Activation panel lists your Reflection for the Web edition and version.
5 Continue with Step 4. Copy other activation files to the correct locations.
Step 4. Copy other activation files to the correct locations.

If you use these components, copy the activation file for each in the following directories.

- **Security Proxy:** MSS\securityproxy\lib\modules
- **Terminal ID Manager:** MSS\server\web\webapps\tidm\WEB-INF\lib\modules
- **Metering:** MSS\server\web\webapps\meter\WEB-INF\lib\modules

Continue with Step 5. Optional: Install add-on products.

Step 5. Optional: Install add-on products.

If you purchased any add-on products, such as Automated Sign-On for Mainframe, you need to install its activation file.

To install the activation file:

1. Download the activation file for the add-on product, which has this format:
   
   `activation.<product_name>.jaw`

2. Copy the activation file into the `rweb-client.war` file at this location:

   `ex\modules`

3. Restart the web application.

Installation Variations

- Installing with no JRE
- Installing Individual Components

Installing with no JRE

If you prefer to use your existing JRE, or if you are installing Reflection for the Web on Solaris, use the "nojre" installation package. The JRE must be Java 1.8 or higher.

1. To use any of the `-unix-nojre-` installation packages, confirm that a Java Runtime Environment appropriate for your platform is already installed.

   For example, to install Reflection for the Web on a z/Linux machine, download the JRE from this location: [http://www.ibm.com/developerworks/java/jdk/linux/download.html](http://www.ibm.com/developerworks/java/jdk/linux/download.html)

2. Expand the package you want to use, such as

   `rwebenterprise-prod-unix-nojre-manual.tar.gz`

Installing Individual Components

The following components are part of Management and Security Server. To install a component manually, see the Management and Security Server Installation Guide.

- Metering Server
- Terminal ID Manager
- Security Proxy
Upgrading to version 12.3 SP1 Update 2

As a best practice, we recommend that you upgrade both Reflection for the Web and Management and Security Server at the same time to be sure the versions are compatible.

The Reflection for the Web automated installer provides the option to upgrade both products seamlessly.

To prepare for your upgrade, refer to the appropriate section:

- Upgrading from Reflection for the Web 12.1 or higher
- Upgrading from earlier versions
- Update the Activation Files for Components and Add-On Products
- Use of JSP templates to customize pages or sessions
- Upgrading Custom Static Sessions
- Installing the rweb-client web application context

Upgrading from Reflection for the Web 12.1 or higher

To upgrade Reflection for the Web to 12.3 SP1 Update 2 from version 12.3, 12.2, or Reflection for the Web 2014 R2 (version 12.1):

1 Run the Reflection for the Web 12.3 SP1 automated installer.
   The installer detects the existing Management and Security Server installation and provides the option to upgrade.

2 When selected, the Reflection for the Web installer launches the Management and Security Server installer, which upgrades Management and Security Server to version 12.5.2.

3 When the Management and Security Server installation is Complete, you are returned to the Reflection for the Web installer to complete the installation of Reflection for the Web 12.3 SP1 Update 2.

4 Remember to update the activation files for the components and add-on products.
Upgrading from earlier versions

Upgrading from Reflection for the Web 2014 R1 (version 12.0) or earlier requires a multi-step upgrade:

1 First, you must upgrade to Reflection for the Web 12.2, which includes Management and Security Server 12.2. For assistance, see Knowledge Base article 7022345.

**NOTE:** As of version 12.2, several Management and Security Server components were renamed:

- Management Server is called **Administrative Server**.
- ReflectionData folder is called **MSSData**.
- ID Manager is called **Terminal ID Manager**.

The default installation path (on Windows) is C:\Program Files\Micro Focus\MSS.

2 Then, proceed with Upgrading from Reflection for the Web 12.2.
3 Remember to update the activation files for components and add-on products.

For assistance, contact Technical Support.

Update the Activation Files for Components and Add-On Products

After installing Reflection for the Web, you need to update specific activation files to ensure continued operation of your installed components and add-on products. Management and Security Server checks for version compatibility and may block operation until the activation files are updated.

The Reflection for the Web components and the Management and Security Server add-on products include:

- Security Proxy
- Terminal ID Manager
- Automated Sign-On for Mainframe Add-On
- Micro Focus Advanced Authentication Add-On

To upgrade:

1 From your download location, download the current activation files for your components and add-on products.
2 Place the activation files in the same directory as the Reflection for the Web installer.
3 Run the Reflection for the Web installer.

The activation files will be propagated to the expected locations for both Reflection for the Web and Management and Security Server.

**NOTE:** When the activation files are in the installer directory, you do not need to use the Administrative Console to install the activation file, as described when installing the product.
Use of JSP templates to customize pages or sessions

If you used JSP templates to customize your login page or links list page, or to customize Reflection for the Web embedded sessions, you may need to make some modifications. Changes to the applet tag are needed to accommodate the changes to the Reflection for the Web and Management and Security Server installation locations.

For more information about syntax changes, see the templates.txt file. Sample templates are available in templates/samples.

Other references:

Reflection for the Web Reference Guide
Knowledge Base article 702239: Using Templates in Reflection for the Web
Knowledge Base article 7022214: Programming with Reflection for the Web

Upgrading Custom Static Sessions

When terminal sessions are created or modified using the Administrative Console > Manage Sessions, the protected sessions are upgraded during the upgrade procedures when using an automated installer or during startup (when the default web server is started) after a manual installation.

Because Reflection for the Web and Management and Security Server are separate products (beginning in version 12.3), the custom static session pages may need to be manually updated to load the Reflection for the Web applet from its new installation location. This update may require modifying applet attributes and parameters such as codebase, archive, and cache_archive.

If any of these conditions exist, follow the steps to upgrade static sessions.

- The sessions were not saved using Manage Sessions.
- The HTML
- your session was manually modified.
- You want to upgrade the static sessions for any reason.

NOTE: If you have keyboard map files that are not contained within a configuration file, then you must upgrade these files before you upgrade the sessions.

To upgrade static sessions:

1. Open a Command Prompt, and change directories to find the location below. For Windows, the location is:

   [installation path]\apache-tomcat\webapps\rweb\WEB-INF\lib

2. On the same command line, on one continuous line, enter the appropriate syntax (displayed below) to upgrade your specified configuration files:

   - Language. On the command line, include the language you want to use: German (de), English (en), or French (fr).
   - Name of relative or absolute directory or file that contains the configuration files. (You must be able to access this file or directory from the machine where you are upgrading.)
Enter this command as one continuous line:
```
java -classpath RWebServlet.jar com.wrq.util.upgrade.ConfigUpgrade -locale <de|en|fr> <file name|directory>
```

**Example.** To upgrade the configuration files in the session directory for use with the English version, follow these steps.

1. In the Command Prompt, change directories to arrive at this location in Windows:
   ```
   C:\Program Files\Micro Focus\MSS\server\web\webapps\rweb-client\WEB-INF\lib
   ```
2. Enter the following command on a single line:
   ```
   java -classpath RWebServlet.jar com.wrq.util.upgrade.ConfigUpgrade -locale en "C:\Program Files\Micro Focus\MSS\server\web\webapps\rweb"
   ```

### Installing the rweb-client web application context

When you manually upgrade Management and Security Server to version 12.5 or higher, you must install the `rweb-client.war` file to complete the upgrade.

**To install rweb-client.war:**

1. In your Reflection for the Web download location, open the `install_manual\components` directory.
2. Locate and copy `rweb-client.war` to this MSS `webapps` folder:
   ```
   <MSS install directory>\server\web\webapps
   ```
   The servlet runner will expand the war file and an `rweb-client` context will be created.
3. Start (or restart) the MSS Server.
Uninstalling version 12.3 SP1 Update 2

To uninstall:

- **On Windows:**
  
  Use Control Panel > Programs and Features to uninstall Micro Focus Reflection for the Web.

  If MSS is on the same machine, you have the option to uninstall it as well.

- **On Linux or UNIX systems:**
  
  Run the uninstaller found in the Reflection for the Web installation directory.

  If Management and Security Server is on the same machine, the Reflection for the Web uninstaller is found in this directory: mss/server/web/webapps/rweb-client.

  You also have the option to uninstall MSS.
Terms

Java Cryptography Extension (JCE). The Java Cryptography Extension (JCE) provides a framework and implementations for encryption, key generation and key agreement, and Message Authentication Code (MAC) algorithms.

Java Runtime Environment (JRE). The JRE is a subset of the JDK for end-users. It includes a Java Virtual Machine and a Java interpreter and provides a unified interface to Java programs, regardless of the underlying operating system.

Java Server Pages (JSP). A Java technology that helps software developers serve dynamically generated web pages based on HTML, XML, or other document types.

Java Software Development Kit (JDK). The JDK (previously called the Java SDK) is the software development environment for writing Java applets or applications; it is a superset of the Java Runtime Environment and the Java Virtual Machine.

Java Virtual Machine (JVM or VM). The JVM is the part of Java that interprets Java bytecode. Because the JVM is part of the JDK, it has the same version number. When a browser supports a specific version of the JDK, this includes the JVM.

OpenJDK. Open Java Development Kit is a free and open-source implementation of the Java Platform, Standard Edition (Java SE). OpenJDK produces a number of components: the virtual machine (HotSpot), the Java Class Library and the Java compiler (javac), and does not include the web-browser plugin or Web Start.