IBM SPSS Collaboration and Deployment Services Remote Process Server 8.3

Installation Instructions



Note Before using this information and the product it supports, read the information in "Notices" on page 35.

Product Information

This edition applies to version 8, release 3, modification 0 of IBM® SPSS® Collaboration and Deployment Services and to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. Overview

IBM SPSS Collaboration and Deployment Services Remote Process Server enables remote execution of native operating system commands in IBM SPSS Collaboration and Deployment Services jobs. Remote Process Server must be installed on a remote host.

To install Remote Process Server:

- 1. Verify that all requirements have been met.
- 2. Obtain the installation files.
- 3. Configure the Installation Manager repository preferences or the Passport Advantage® account preferences.
- 4. Install Remote Process Server using Installation Manager.
- 5. Start Remote Process Server.

Chapter 2. Installation requirements

Before you install IBM SPSS Collaboration and Deployment Services Remote Process Server, review the installation requirements and set up the resources in your environment.

For current system requirements information, refer to the software product compatibility reports on the IBM Technical Support site at: http://publib.boulder.ibm.com/infocenter/prodguid/v1r0/clarity/softwareReqsForProduct.html

In addition, the following conditions must be satisfied:

- The system must have Java 7 installed and available to the user who is installing and running Remote Process Server.
- The system must be reachable over the network at the designated TCP port. Verify that the port is available and no port conflicts exist. If necessary, adjust you firewall and network settings.
- The user has sufficient level of permissions to install and run Remote Process Server.
- Installation Manager must be installed on the system.

If Installation Manager is not already present on the system, it is automatically installed when you start the installation. If you have an older version of Installation Manager, you are required to update it as part of the installation.

If Installation Manager is not installed automatically, and it is not present on the system, install Installation Manager 1.9.1 from the IBM Corp. support site (http://www.ibm.com/support). For download location and user information, see the Installation Manager documentation: https://www.ibm.com/docs/en/installation-manager.

Important:

- IBM SPSS Collaboration and Deployment Services Remote Process Server supports remote execution only from IBM SPSS Collaboration and Deployment Services Repository 8.3.0. Older versions of IBM SPSS Collaboration and Deployment Services Repository are not supported.
- The IBM SPSS Collaboration and Deployment Services Remote Process Server has a default thread pool
 core size of 16, which allows a maximum of 16 concurrent jobs to be executed on a single remote
 process server. Any concurrent jobs in excess of 16 must wait in the queue until the available thread
 pool has free resources. To manually configure the IBM SPSS Collaboration and Deployment Services
 Remote Process Server thread pool core size, add the following JVM option (with a user defined value)
 to the remote process server's start-up script: prms.thread.pool.coresize=<user defined
 value>

For more information regarding the start-up script, see <u>Chapter 7</u>, "Starting and stopping the remote process server," on page 25



Chapter 3. Installation files

Before installing, you must obtain the installation files.

To obtain the installation files do one of the following:

- Download the files from the Passport Advantage site, and use local installation: Licensed customers with a Passport Advantage ID and password can download the necessary product repositories from the Passport Advantage site.
- Access the live repositories, and use web-based installation: If you have a Passport Advantage ID and password, you can use Installation Manager to install the product directly from IBM hosted repositories.



Chapter 4. Getting started with Installation Manager

Installing, updating, or uninstalling the product can be performed by using IBM Installation Manager in wizard, console, or silent mode. However, you must configure an IBM Installation Manager repository or Passport Advantage preferences before performing these tasks.

For complete information about Installation Manager, see the IBM Installation Manager documentation.

Wizard mode

In wizard mode, you run Installation Manager from a graphical user interface.

Most of the time, you start Installation Manager with the default shortcuts that are installed with your version of Installation Manager.

From the installation location of Installation Manager, you can run the IBMIM application file to start in wizard mode manually.

The default IBMIM location for the operating system varies depending on the installation type (administrator, nonadministrator, or group).

Table 1. Default installation locations for IBMIM					
Operating system Administrator Nonadministrator			Group		
Windows XP Professional	C:\Program Files \IBM\Installation Manager	C:\Documents and Settings\user\IBM \Installation Manager\eclipse	Not available.		
Windows Vista, Windows 2008, Windows 7, Windows 8, and Windows 2012	C:\Program Files [(x86)]\IBM \Installation Manager\eclipse	C:\Users\user\IBM \Installation Manager\eclipse			
Linux® and UNIX	/opt/IBM/ InstallationManage r/eclipse	/ user_home_director y/IBM/ InstallationManage r/eclipse	/ user_home_directory /IBM/ InstallationManager _Group/eclipse		

Console mode

Use console mode when you do not have a graphics display device available or when you want to run Installation Manager without the graphical user interface. Installation Manager supports installing in an ASCII text-based mode that is called the console mode. Console mode is interactive text-based user interface to Installation Manager. For example, use console mode for server-side deployments when no graphical user interface is present, or for running the installation from a remote host.

To start console mode:

- 1. Open a command line.
- 2. Go to the tools subdirectory.
- 3. Run the command that is appropriate for the operating system:
 - Windows: imcl.exe -c
 - Linux, UNIX, and z/OS®: ./imcl -c

The default tools location varies depending on the operating system and installation type (administrator, nonadministrator, or group). For more information, see the Installation Manager documentation.

Table 2. Default installation locations for the tools subdirectory				
Operating system	erating system Administrator Nonadministrator		Group	
Windows XP Professional	C:\Program Files \IBM\Installation Manager\eclipse \tools	C:\Documents and Settings\user\IBM \Installation Manager\eclipse \tools		
Windows Vista, Windows 2003, Windows 2008, Windows 7, Windows 8, Windows 10, and Windows 2012	C:\Program Files [(x86)]\IBM \Installation Manager\eclipse \tools	C:\Users\user\IBM \Installation Manager\eclipse \tools		
Linux and UNIX	/opt/IBM/ InstallationManager /eclipse/tools	/ user_home_directory /IBM/ InstallationManager /eclipse/tools	/ user_home_directory /IBM/ InstallationManager _Group/eclipse/ tools	

Silent mode

Use silent installations to deploy software to multiple systems, or to an enterprise. Silent installations are defined by a response file and started from the command line or a batch file. The response file is provided with the product distribution. For more information, see "Installing silently by using a response file" on page 18.

Repository preferences

An IBM Installation Manager repository is a location that stores data for installing, modifying, rolling back, or updating packages.

Before you install, modify, or update packages, obtain the installation repository location from your administrator or from IBM.

Note: To successfully access an installation repository, the repository location path must not contain an ampersand (&).

The following topics provide instructions for setting repository preferences in wizard and console mode.

Setting repository preferences in wizard mode

You can add, edit, or remove repositories and modify the repository order in the repository table using wizard mode.

About this task

You can clear credentials for a repository or test a connection to a repository. You might find both a diskTag.inf file and a repository.config file in the IBM product installation files. Use the diskTag.inf file when you select a repository location.

Procedure

To add, edit, or remove a repository location:

- 1. Start Installation Manager in wizard mode by using IBMIM. For more information, see <u>Chapter 4</u>, "Getting started with Installation Manager," on page 7.
- 2. Click File > Preferences > Repositories.

The **Repositories** page opens and shows available repositories, repository locations, and the connection status for the repositories.

- 3. Click Add Repository.
- 4. Enter the repository location or click **Browse**. When you browse, go to the repository location and select the diskTag.inf file, the repository.config file, the .zip file, or the .jar file as appropriate for your environment.
- 5. Click OK.

If you provided an HTTPS or restricted FTP repository location, you are prompted to enter a user ID and password.

The new repository location is added to the list. If the repository is not connected, a red box shows in the **Connection** column.

- 6. Optional: Select **Search service repositories during installation and updates**. Installation Manager searches the service repositories at IBM.com for updates to installed packages.
- 7. Click **OK** to close the **Preference** page.

Setting repository preferences in console mode

You can use console mode to add, remove, open, move, or close repositories.

About this task

A selected option is indicated by an X in brackets: [X]. Options that are not selected are indicated by empty brackets: []. You can press **Enter** to select the default entry or select a different command. For example, [N] indicates that the default selection is **N** for the **Next** command.

Procedure

To add a repository:

- 1. Start Installation Manager in console mode by using imcl -c. For more information, see <u>Chapter 4</u>, "Getting started with Installation Manager," on page 7.
- 2. Enter P: Preferences.
- 3. Enter 1: Repositories.
- 4. Enter D: Add repository.
- 5. Enter a repository location such as C:\installation_files\repository.config.

If you add a repository that requires credentials, you are prompted to provide the required credentials.

Use the correct case when you enter the repository location. If the correct case is not used, the package is not shown in the list of available packages for installation.

- a) Enter P: Provide credentials and connect.
- b) Enter the *user_name* and press **Enter**.
- c) Enter the *password* and press **Enter**.
- d) Enter 1 to save the password.
- e) Enter 0: Ok.
- 6. Enter A: Apply Changes and Return to Preferences Menu.
- 7. Enter R: Return to Main Menu.

Passport Advantage preferences

IBM Installation Manager can access installation packages from Passport Advantage. Passport Advantage is a centralized online location for the acquisition of IBM software offerings.

Before you install, modify, or update packages, obtain valid Passport Advantage credentials.

The following topics provide instructions for setting Passport Advantage preferences in wizard and console mode.

Setting Passport Advantage preferences in wizard mode

You can set the Installation Manager Passport Advantage preferences to connect to Passport Advantage using wizard mode.

About this task

Important: If you share an instance of Installation Manager with other users, see the <u>Installation</u> Manager documentation for information on installing as an administrator, nonadministrator, or group.

Procedure

To set Passport Advantage preferences:

- 1. Start Installation Manager in wizard mode by using IBMIM. For more information, see <u>Chapter 4</u>, "Getting started with Installation Manager," on page 7.
- 2. Click File > Preferences > Passport Advantage.
- Select the Connect to Passport Advantage check box to connect to the Passport Advantage repository.

The **Password Required** window opens.

- 4. Enter a user name and password for Passport Advantage.
- 5. Select **Save password** to save the user name and password credentials.

If you do not save the user name and password credentials, you are prompted for these credentials each time you access Passport Advantage.

- 6. Click **OK** to close the **Password Required** window.
- 7. Click **OK** to close the **Preferences** window.

What to do next

To delete saved user name and password credentials:

- 1. Click File > Preferences > Passport Advantage.
- 2. Click Clear Credentials.
- 3. Click **OK** in the **Confirm Clear Credentials** window.

Setting Passport Advantage preferences in console mode

You can set the Installation Manager Passport Advantage preference to connect to Passport Advantage in console mode.

Procedure

- 1. Start Installation Manager in console mode by using imcl -c. For more information, see <u>Chapter 4</u>, "Getting started with Installation Manager," on page 7.
- 2. Enter P: Preferences.
- 3. Enter 6: Passport Advantage.
- 4. Enter 1: Connect to Passport Advantage.

A selected option is indicated by an X in brackets: [X].

- 5. Enter P: Provide credentials and connect.
- 6. Enter the user name for the Passport Advantage account.
- 7. Enter the password.

If you do not save the user name and password credentials, you are prompted for these credentials each time you access Passport Advantage.

- a) Optional: If you entered a password, enter 1: Save password if valid.
- 8. Enter **0**: OK to save the credentials.

Chapter 5. Installing IBM SPSS Collaboration and Deployment Services Remote Process Server

You can install in wizard, console, or silent mode.

Installing in wizard mode

You can install IBM SPSS Collaboration and Deployment Services Remote Process Server by using IBM Installation Manager in wizard mode.

Before you begin

Before you can install, IBM Installation Manager must have access to the repository that contains the package.

- If you have an IBM Passport Advantage account, you can install packages from the Passport Advantage site. For more information about connecting to a Passport Advantage repository, see <u>"Setting Passport Advantage preferences in wizard mode"</u> on page 10.
- If you are installing from a repository that is not on the Passport Advantage site, you must specify the repository in the preferences before you install. For more information, see "Setting repository preferences in wizard mode" on page 8.

Procedure

- 1. Start Installation Manager in wizard mode by using IBMIM. For more information, see <u>Chapter 4</u>, "Getting started with Installation Manager," on page 7.
- 2. In Installation Manager, click Install.
 - Installation Manager searches the defined repositories for available packages. If no available packages are found, verify that you specified the repository correctly. See "Setting repository preferences in wizard mode" on page 8.
- 3. If a new version of Installation Manager is found, you might be prompted to confirm the installation. Click **Yes** to proceed. Installation Manager automatically installs the new version, restarts, and resumes.
- 4. The **Install** page of Installation Manager lists all the packages that were found in the repositories that Installation Manager searched. Only the most recent version of the package is shown. To show all versions of a package that Installation Manager finds, select **Show all versions**.
 - Click a package version to show the package description in the **Details** pane. If more information about the package is available, a **More info** link is included at the end of the description text.
 - If you are running Installation Manager in group mode, you can install only packages that are enabled for installing in group mode. If the package is not enabled for installing in group mode, you receive an error and cannot continue with the package installation in group mode.
- 5. Select the IBM SPSS Collaboration and Deployment Services Remote Process Server package. Click **Next**.
- 6. On the **Licenses** page, read the license agreements for the selected package. After you accept the license agreement, click **Next** to continue.
- 7. On the **Location** page, enter the path for the shared resources directory in the **Shared Resources Directory** field. The shared resources directory contains resources that can be shared by multiple package groups. Click **Next**.
- 8. On the **Location** page, either choose a package group into which to install the packages or create a package group.
 - A package group is a directory that contains resources that packages share with other packages in the same group. The first time that you install a package, you must create a package group. If you

select more than one package to install, verify that the packages can be installed in the same package group by checking the documentation for the packages. For packages that cannot be installed in the same package group, install one package in one package group. After the installation completes, install the second package in a different package group.

Option	Description
Use the existing package group	Select a package group into which to install the packages. If the packages being installed are not compatible with the selected group, an alert reports the conflict. If a group is not compatible, either select a different group or create a new group.
Create a new package group	Click Browse to specify the installation directory for the packages. If you are installing on a 64-bit operating system, select the architecture for the installation as either 32-bit or 64-bit.

Click Next to continue the installation.

- 9. On the **Features** page, select the package features to install.
 - a) Optional: To see the dependency relationships between features, select **Show Dependencies**.
 - b) Optional: Click a feature to view its brief description under **Details**.
 - c) Select or clear features in the packages. Installation Manager automatically enforces dependencies with other features and shows updated download size and disk space requirements for the installation.

To restore the default features that are selected for the packages, click **Restore Default**.

- 10. Click **Next** to continue the installation.
- 11. Specify the configuration information that enables the remote process service and the IBM SPSS Collaboration and Deployment Services Repository to communicate with each other.
 - a) Select Service Information.
 - b) Specify a name for the IBM SPSS Collaboration and Deployment Services Remote Process Server.
 - c) For the Service Listen Port, specify the local port number for accepting work requests.
 - d) To encrypt communication between IBM SPSS Collaboration and Deployment Services Remote Process Server and IBM SPSS Collaboration and Deployment Services Repository, select **Connect to the service using SSL**.

Additional configuration is needed after the installation to enable SSL. For more information, see Chapter 6, "SSL for secure communications," on page 21.

- e) Select Base Repository Information.
- f) Specify the connection information for the IBM SPSS Collaboration and Deployment Services Repository that will initiate work requests.

The URL includes the following elements:

- The connection scheme, or protocol, as either *http* for hypertext transfer protocol or *https* for hypertext transfer protocol with the secure socket layer (SSL)
- · The host server name or IP address

Note: An IPv6 address must be enclosed in square brackets, such as [3ffe:2a00:100:7031::1].

- The port number. If the repository server is using the default port (port 80 for http or port 443 for https), the port number is optional.
- An optional custom context path for the repository server

Table 3. Example URL specifications . This table lists some example URL specifications for server connections.

URL	Schem e	Host	Port	Custom path
http://myserver	HTTP	myserver	defa ult (80)	(none)
https://9.30.86.11:443/spss	HTTPS	9.30.86.11	443	spss
http:// [3ffe:2a00:100:7031::1]:9080/ibm/ cds	HTTP	3ffe:2a00:100:7031 ::1	9080	ibm/cds

Contact your system administrator if you are unsure of the URL to use for your server.

g) Click Next to continue the installation.

Note: The IBM SPSS Collaboration and Deployment Services Remote Process Server connection is not validated by the wizard. Make sure you enter the correct information for your system. If the information is incorrect, IBM SPSS Collaboration and Deployment Services Remote Process Server must be uninstalled and reinstalled.

12. On the **Summary** page, review your choices before you install the packages.

On Windows, Installation Manager checks for running processes. If processes are blocking the installation, a list of these processes is shown in the Blocking Processes section. You must stop these processes before you continue the installation. Click **Stop All Blocking Processes**. If there are no processes that must be stopped, you do not see this list. The running processes lock files that must be accessed or modified by Installation Manager.

13. Click Install.

When the installation process completes, you receive a confirmation message.

Results

IBM SPSS Collaboration and Deployment Services Remote Process Server is installed in the specified directory.

What to do next

If you elect to encrypt the communication between IBM SPSS Collaboration and Deployment Services Remote Process Server and IBM SPSS Collaboration and Deployment Services Repository, configure your environment to support SSL. Otherwise, start the IBM SPSS Collaboration and Deployment Services Remote Process Server.

Installing in console mode

You can install IBM SPSS Collaboration and Deployment Services Remote Process Server by using IBM Installation Manager in console mode.

Before you begin

Before you can install, Installation Manager must have access to the repository that contains the package.

• If you have an IBM Passport Advantage account, you can install packages from the Passport Advantage site. For more information about connecting to a Passport Advantage repository, see <u>"Setting Passport Advantage preferences in console mode"</u> on page 10.

• If you are installing from a repository that is not on the Passport Advantage site, you must specify the repository in the preferences before you install. For more information, see "Setting repository preferences in console mode" on page 9.

About this task

A selected option is indicated by an X in brackets: [X]. Options that are not selected are indicated by empty brackets: []. You can press **Enter** to select the default entry or select a different command. For example, [N] indicates that the default selection is **N** for the **Next** command.

Some options may include a status prefix of **[Error]** or **[Incomplete]**. This status indicates that IBM Installation Manager does not currently have valid values for the parameters included in that option. You must select any options having this status and specify values for the parameters.

Procedure

To install in console mode:

1. Start Installation Manager in console mode by using imcl -c.

The default **imc1** location varies depending on the operating system and installation type (administrator, nonadministrator, or group). For more information, see <u>Chapter 4</u>, "Getting started with Installation Manager," on page 7.

2. Enter 1: Install - Install software packages.

Packages that can be installed are listed.

If you have repositories that require credentials and you did not save the credentials, you are prompted to provide these credentials

3. Enter 1: [] package_name.

To select a package, enter the number that is next to the package. This example selects the first package listed. If the selected package requires a later version of Installation Manager, you are prompted to install the later version.

- 4. On the Select screen, enter the number that is next to the package that you want to install.
 - **1**: Choose version *package_version* for installation. This option shows when you chose a package that is not selected for installation.
 - The **1**: Do NOT install version *package_version* option shows when you chose a package that is selected for installation.
 - 2: Show all available versions of the package.
- 5. Optional: Enter 0: Check for Other Versions, Fixes, and Extensions. Installation Manager searches available repositories for other versions, fixes, or extensions of the selected package.
 - For Installation Manager to search the default repository for the installed packages, the Search service repositories during installation and updates preference must be selected. This preference is selected by default. To access this preference, go to the Repositories preference page.
 - Typically, Internet access is required.
 - The **Check for Other Versions, Fixes, and Extensions** option indicates the number of other versions, fixes, or extensions found but does not list the found items. To see available versions, enter the number that is next to the package then enter **2**: Show all available versions of the package.
- 6. Enter N: Next
- 7. Options for the Licenses screen:
 - 1: product_name License Agreement. To view a license agreement, enter the number that is next to the product name. This example selects the first license agreement listed.
 - A: [] I accept the terms in the license agreement.

- **D**: [] I do not accept the terms in the license agreement. If you decline the license agreement, the installation is stopped. To continue the installation, you must accept the license agreement.
- a) Enter A to accept the license agreement.
- b) Enter N: Next.
- 8. To enter a different value for the shared resources directory, enter M: Shared Resources Directory. To accept the default value for shared resources directory or to continue after you enter a different value, enter N: Next.

Important: You can specify the shared resources directory only the first time that you install a package. Select the drive with enough available space to ensure adequate space for the shared resources of future packages. You cannot change the location of the shared resources directory unless you uninstall all packages.

9. Optional: To enter a different value for the package group location, enter M: Change Location. To accept the default values or to continue after you enter a different value, enter N: Next.

A package group is a directory that contains resources that packages share with other packages in the same group. The first time that you install a package, you must create a package group. If you select more than one package to install, verify that the packages can be installed in the same package group by checking the documentation for the packages. For packages that cannot be installed in the same package group, install one package in one package group. After the installation completes, install the second package in a different package group.

10. Enter the number that is next to the feature to add or remove the feature from the list of features that are installed. Enter N: Next.

This screen is not shown when your product does not have any features.

- 11. On the Common configuration page, enter 1 to specify the configuration information for the remote process service.
- 12. Enter the configuration settings for the remote process service.
 - a) Optional: Enter 1 to use SSL to encrypt communication between IBM SPSS Collaboration and Deployment Services Remote Process Server and IBM SPSS Collaboration and Deployment Services Repository.

If this option is selected, you can enter 1 to unselect it.

- b) Enter 2 to specify the remote process service name.
- c) Enter 3 to specify the local port number for accepting remote process service work requests.
- 13. Enter N: Next
- 14. Enter the configuration settings for the base IBM SPSS Collaboration and Deployment Services Repository.
 - a) Enter 1 to specify the URL for the repository server.

The URL includes the following elements:

- The connection scheme, or protocol, as either *http* for hypertext transfer protocol or *https* for hypertext transfer protocol with the secure socket layer (SSL)
- The host server name or IP address

Note: An IPv6 address must be enclosed in square brackets, such as [3ffe:2a00:100:7031::1].

- The port number. If the repository server is using the default port (port 80 for http or port 443 for https), the port number is optional.
- An optional custom context path for the repository server

Table 4. Example URL specifications . This table lists some example URL specifications for server connections.

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https://9.30.86.11:443/spss	HTTPS	9.30.86.11	443	spss
http:// [3ffe:2a00:100:7031::1]:9080/ibm/ cds	HTTP	3ffe:2a00:100:7031 ::1	9080	ibm/cds

Contact your system administrator if you are unsure of the URL to use for your server.

- b) Enter 2 to specify the username to use for connecting to the repository server.
- c) Enter 3 to specify the password to use for connecting to the repository server.
- 15. Enter N: Next.
- 16. On the Summary screen, review your selections before you install the package.

Optional: To generate a response file, enter G: Generate an installation response file. Enter the name of the response file and use .xml as the file extension. Response files are XML files. You can include a directory location when you enter the response file name to save the file to a different location.

- 17. Enter I: Install.
- 18. When the installation completes, enter F: Finish.

Results

IBM SPSS Collaboration and Deployment Services Remote Process Server is installed in the specified directory location.

What to do next

If you elect to encrypt the communication between IBM SPSS Collaboration and Deployment Services Remote Process Server and IBM SPSS Collaboration and Deployment Services Repository, configure your environment to support SSL. Otherwise, start the IBM SPSS Collaboration and Deployment Services Remote Process Server.

Installing silently by using a response file

You can use a response file to install in silent mode.

Before you begin

Locate the SilentInstallOptions response file provided in the installation package.

Procedure

Run the **imcl** command:

- Windows: imcl.exe input response_file -log log_file
- Linux and UNIX: ./imcl input response_file -log log_file

The default **imc1** location will vary depending on the operating system and installation type (administrator, nonadministrator, or group). For more information, see <u>Chapter 4</u>, "Getting started with Installation Manager," on page 7.

Results

When the installation is complete, a status of θ is returned. If the installation cannot be completed, a non-zero number is returned.

A log file is available. For more information, see the Installation Manager documentation.

Example

Table 5. Install commands by operating system			
Operating system	Command		
Windows	<pre>imcl.exe input c:\response_files\install.xml -log c:\mylog \install_log.xml -acceptLicense</pre>		
Linux, UNIX	<pre>./imcl input /response_files/install.xml -log /mylog/ install_log.xml -acceptLicense</pre>		

Enclose file paths that include spaces with double quotation marks.

Chapter 6. SSL for secure communications

Secure Sockets Layer (SSL) is a protocol for encrypting data transferred between two computers. SSL ensures that communication between the computers is secure.

SSL relies on the server's public and private keys, in addition to a public key certificate that binds the server's identity to its public key.

- 1. When a client connects to a server, the client authenticates the server with the public key certificate.
- 2. The client then generates a random number, encrypts the number with the server's public key, and sends the encrypted message back to the server.
- 3. The server decrypts the random number with its private key.
- 4. From the random number, both the server and client create the session keys used for encrypting and decrypting subsequent information.

The public key certificate is typically signed by a certificate authority. Certificate authorities, such as VeriSign and Thawte, are organizations that issue, authenticate, and manage security credentials contained in the public key certificates. Essentially, the certificate authority confirms the identity of the server. The certificate authority usually charges a monetary fee for a certificate, but self-signed certificates can also be generated.

Keystores and truststores contain the keys and certificates used in SSL. A keystore is a file that contains the private key for a server. Servers present identity information as certificates from their keystores to clients. A truststore, on the other hand, is a file that contains certificates from trusted servers. When a server sends a public key certificate from its keystore, it is compared to the corresponding certificate in the truststore to verify the server identity. If the two certificates match, the connection to the server is validated. To maintain security for keys and certificates, keystore and truststore files are password protected.

<u>Figure 1 on page 22</u> illustrates the general architecture for SSL encryption of communication between IBM SPSS Collaboration and Deployment Services Remote Process Server and IBM SPSS Collaboration and Deployment Services Repository.

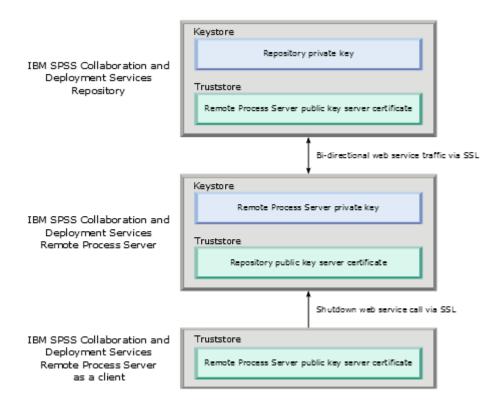


Figure 1. SSL architecture for IBM SPSS Collaboration and Deployment Services Remote Process Server

For IBM SPSS Collaboration and Deployment Services Repository, the keystore contains the private key for the repository server. The truststore contains the public key server certificate for IBM SPSS Collaboration and Deployment Services Remote Process Server. When the repository server connects to the remote process server, the certificate sent from the remote process server is validated against this certificate.

For IBM SPSS Collaboration and Deployment Services Remote Process Server, the keystore contains the private key for the remote process server. The truststore contains the public key server certificate for IBM SPSS Collaboration and Deployment Services Repository. When the remote process server connects to the repository server, the certificate sent from the repository server is validated against this certificate.

When you shut IBM SPSS Collaboration and Deployment Services Remote Process Server down, a separate JVM connects to the server and issues the command. To allow this command, the truststore for the remote process server must also include the public key server certificate for IBM SPSS Collaboration and Deployment Services Remote Process Server.

When you configure IBM SPSS Collaboration and Deployment Services Remote Process Server, you can use a single file as both the keystore and the truststore. In this case, the private key and trusted certificates are stored together in a single password-protected file.

Configuring SSL

Configuring SSL for IBM SPSS Collaboration and Deployment Services Remote Process Server communications involves importing public key server certificates into the appropriate truststore files.

About this task

When you configure SSL for IBM SPSS Collaboration and Deployment Services Remote Process Server, the following options for storing the private key and public key server certificates are available:

- Place the private key and public key server certificates in a single file that acts as both a keystore and a truststore
- Place the private key in a keystore file and place the public key server certificate in a separate truststore file

The structure that you use determines how options are specified when you start the server. For more information, see Chapter 7, "Starting and stopping the remote process server," on page 25.

To work with keystore and truststore files, you can use any tool that is designed to export and import public key server certificates. The examples here use the Java **keytool** utility to illustrate the process. For complete **keytool** documentation, see the documentation for your version of Java.

Procedure

1. Create a keystore for the remote process server and generate a public/private key pair in it for the server.

The following example uses the Java **keytool** utility to create a keystore that is named mystore.jks in the current directory. This keystore contains an entry that is referenced as *rps* that contains the private key and a self-signed public key certificate.

```
keytool -keystore mystore.jks -genkeypair -alias rps
```

After you run the command, the utility prompts you to define a keystore password. After you specify a value, enter the information that is needed for the keys. This information includes the server common name (CN), your organizational unit name (OU), your company name (O), your city name (L), your state (ST), and your country (C).

Important: If the tool that you use to generate keys requests your given name and surname, enter the fully qualified domain name of the remote process server instead of your name.

2. Export the public key server certificate for the remote process server from the keystore. The following example uses the exportcert command of **keytool** to create the rps.cert certificate file from the mystore.jks keystore, which has a password of mypwd.

```
keytool -exportcert -file rps.cert -keystore mystore.jks -storepass mypwd -alias rps
```

3. Create a truststore for the remote process server and import the remote process server public key server certificate.

The following example creates the truststore rpstrust.jks and imports the certificate rps.cert.

```
keytool -importcert -file rps.cert -keystore rpstrust.jks -storepass mypwd -alias rpscert
```

When the certificate is imported, an Entry type: trustedCertEntry entry is created. This is different from the generated private key, which is Entry type: PrivateKeyEntry.

To simplify file management, you can use the keystore from step "1" on page 23 as a truststore.

4. If the application server that is hosting IBM SPSS Collaboration and Deployment Services Repository does not have a keystore and a truststore, create the store artifacts by using the tools available for your application server.

For more information, see your application server documentation.

5. Using the tools available for your application server, import the remote process server public key server certificate into the repository server truststore.

For more information, see your application server documentation.

6. Using the tools available for your application server, export the public key server certificate for the repository server from the repository server keystore.

For more information, see your application server documentation.

7. Import the repository server public key server certificate into the remote process server truststore.

The following example imports the certificate repository.cert into the rpstrust.jks truststore.

 $\verb|keytool -importcert -file repository.cert -keystore rpstrust.jks -storepass mypwd -alias repository.cert|\\$

To simplify file management, you can use the keystore from step "1" on page 23 as a truststore.

Results

The repository server truststore contains the public key server certificate for the remote process server. The remote process server truststore contains the public key server certificates for the repository server and the remote process server.

What to do next

Start the IBM SPSS Collaboration and Deployment Services Remote Process Server.

Chapter 7. Starting and stopping the remote process server

After IBM SPSS Collaboration and Deployment Services Remote Process Server is installed on the target host system, it must be started.

The *<installation directory>*/bin directory contains the scripts for starting and stopping IBM SPSS Collaboration and Deployment Services Remote Process Server.

Starting the remote process server

To start the server, run the following command:

· Windows:

```
startserver.bat
```

· UNIX and Linux:

```
startserver.sh
```

To enable a secure connection that uses SSL, add parameters to the start command. In the following examples, kstore and tstore are keystore and truststore files that are stored in the config folder of the installation. The password for these files is *mypwd*. Replace these arguments with values that correspond to your system.

· Windows:

```
startserver.bat "-Djavax.net.ssl.keyStore=../config/kstore" "-
Djavax.net.ssl.keyStorePassword=mypwd"
"-Djavax.net.ssl.trustStore=../config/tstore" "-Djavax.net.ssl.trustStorePassword=mypwd"
```

UNIX and Linux:

```
startserver.sh "-Djavax.net.ssl.keyStore=../config/kstore" "-
Djavax.net.ssl.keyStorePassword=mypwd"
"-Djavax.net.ssl.trustStore=../config/tstore" "-Djavax.net.ssl.trustStorePassword=mypwd"
```

If you use a single file as both a keystore and a truststore, supply the full path to that file for both the javax.net.ssl.keyStore and javax.net.ssl.trustStore parameters.

If you have problems with establishing connections, you can debug the SSL handshaking by including the javax.net.debug parameter with a value of ssl:handshake:trustmanager when you start the server:

```
startserver.bat "-Djavax.net.ssl.keyStore=../config/kstore" "-
Djavax.net.ssl.keyStorePassword=mypwd"
"-Djavax.net.ssl.trustStore=../config/tstore" "-Djavax.net.ssl.trustStorePassword=mypwd"
"-Djavax.net.debug=ssl:handshake:trustmanager"
```

After you review the output, identify issues, and correct problems, remove the parameter from the start command to eliminate future debug messages.

Note: The remote process server periodically validates the connection to the repository server. If the connection is successful, the remote process server accepts incoming connections. If a repository server connection cannot be completed, the remote process server stops accepting incoming connections until a repository connection is successful. As a result, if the repository server stops running, the remote process server suspends request processing until the repository server becomes available.

Stopping the remote process server

To stop the remote process server, run the following command:

· Windows:

```
shutdown.bat
```

UNIX and Linux:

```
shutdown.sh
```

To stop a remote process server that uses SSL, add parameters to the shutdown command:

· Windows:

```
shutdown.bat "-Djavax.net.ssl.keyStore=../config/kstore" "-
Djavax.net.ssl.keyStorePassword=mypwd"
"-Djavax.net.ssl.trustStore=../config/tstore" "-Djavax.net.ssl.trustStorePassword=mypwd"
```

· UNIX and Linux:

```
shutdown.sh "-Djavax.net.ssl.keyStore=../config/kstore" "-
Djavax.net.ssl.keyStorePassword=mypwd"
   "-Djavax.net.ssl.trustStore=../config/tstore" "-Djavax.net.ssl.trustStorePassword=mypwd"
```

You can also stop the server from the command line that is running the remote process server by using the control+C keyboard combination to send a stop signal to the Java process.

Logging

You can verify that IBM SPSS Collaboration and Deployment Services Remote Process Server is running by examining the *<installation directory>*/log/server.log log file.

Tip: You can customize logging for your IBM SPSS Collaboration and Deployment Services Remote Process Server by modifying the *<installation directory>/config/log4j2.xml* file. For more information, see the repository server documentation.

What to do next

To verify that IBM SPSS Collaboration and Deployment Services Remote Process Server is working properly, useIBM SPSS Deployment Manager to set up a job that includes a general job step, and run the job on the IBM SPSS Collaboration and Deployment Services Remote Process Server you installed. For more information, see the IBM SPSS Deployment Manager User's Guide.

Chapter 8. Configuring access to IBM SPSS Collaboration and Deployment Services Remote Process Server

By default, any user who can access the IBM SPSS Collaboration and Deployment Services Repository that is associated with IBM SPSS Collaboration and Deployment Services Remote Process Server can also submit tasks to the remote process server. To restrict access to the remote process server, you can configure the server to validate users against a security provider group that has access.

Before you begin

Create a group in your security provider for users who can run IBM SPSS Collaboration and Deployment Services Remote Process Server tasks. Assign users to this group as needed. For more information, see the security provider documentation.

Restriction: You cannot restrict access to extended groups.

About this task

If IBM SPSS Collaboration and Deployment Services Remote Process Server is configured for restricted group access, when the server receives a task, the server requests all of the security provider groups that contain the credentials that are associated with the task. If that list contains the group that the server is configured to allow, the submitted task is accepted. If the list does not include the allowed group, the task is rejected.

The *<installation directory>/*config/spssservice.xml file contains the settings for configuring group access. Specifically, the server definition must include a group name property that specifies the name of the group that can access the server. If the server definition does not include this property, restricted group access is disabled.

Procedure

- 1. Stop the IBM SPSS Collaboration and Deployment Services Remote Process Server.
- 2. Open the spssservice.xml file in a text editor.
- 3. For the **ns1:managedServer** element, add a child **ns1:propertyValue** element that defines the group name.

The property must have the following characteristics:

- A ns1:name attribute with a value of groupName
- A ns1:typeCode attribute with a value of string
- A child **ns1:value** element with a value corresponding to the name of the group that has access to the remote process server

The following example defines a group name property for the rps_access group:

```
<ns1:propertyValue ns1:typeCode="string" ns1:name="groupName">
     <ns1:value>rps_access</ns1:value>
</ns1:propertyValue>
```

4. Save the file and close the text editor.

Results

The spssservice.xml file contains a property that defines the security group that can access the IBM SPSS Collaboration and Deployment Services Remote Process Server. Users in this group can successfully submit tasks to the server. Users who are not in this group must submit tasks to a different remote process server.

What to do next

Start the IBM SPSS Collaboration and Deployment Services Remote Process Server.

Chapter 9. Modifying the connection credentials

If needed, you can change the credentials that are used by IBM SPSS Collaboration and Deployment Services Remote Process Server to connect to IBM SPSS Collaboration and Deployment Services Repository.

Before you begin

Stop IBM SPSS Collaboration and Deployment Services Remote Process Server.

About this task

When you install IBM SPSS Collaboration and Deployment Services Remote Process Server, you define credentials for connecting to IBM SPSS Collaboration and Deployment Services Repository. If those credentials become invalid at some point, you need to update the configuration information for IBM SPSS Collaboration and Deployment Services Remote Process Server. For example, if the password for the repository server credentials changes in accordance with a security policy, you need to update the password that is used by the remote process server.

The <installation directory>/config/spssservice.xml file contains the settings for connecting to the IBM SPSS Collaboration and Deployment Services Repository server. Specifically, the credential information is specified by the ns1:username and ns1:password attributes of the ns1:spssService element, as illustrated by the following example:

```
<ns1:spssService ns1:enabled="true" ns1:ssl="false"
ns1:password="[abd919f50b414290583effc832a5a9ab04]"
ns1:username="admin" ns1:port="8080" ns1:host="cdsserver" xmlns:ns1="http://xml.spss.com/cop">
```

Procedure

- 1. Open the spssservice.xml file in a text editor.
- 2. Change the value for the **ns1:username** attribute of the **ns1:spssService** element to the new login name.
- 3. Change the value for the **ns1:password** attribute of the **ns1:spssService** element to the new password in cleartext.
 - When you restart IBM SPSS Collaboration and Deployment Services Remote Process Server, the server automatically updates the password value in the file with its encrypted version.
- 4. Save the file and close the text editor.

Results

The spssservice.xml file contains updated credentials for connecting to the IBM SPSS Collaboration and Deployment Services Repository server.

What to do next

Start the IBM SPSS Collaboration and Deployment Services Remote Process Server.

Chapter 10. Uninstalling IBM SPSS Collaboration and Deployment Services Remote Process Server

You can uninstall in wizard or console mode.

You must log in with a user account that has the same privileges as the account that was used to install IBM SPSS Collaboration and Deployment Services Remote Process Server.

Important: Certain files in the IBM SPSS Collaboration and Deployment Services Remote Process Server program directory (for example, program data) cannot be deleted by IBM Installation Manager. You must manually delete the program directory to completely remove all IBM SPSS Collaboration and Deployment Services Remote Process Server files from the system after you uninstall it with IBM Installation Manager.

Uninstalling by using wizard mode

You can use IBM Installation Manager in wizard mode to uninstall IBM SPSS Collaboration and Deployment Services Remote Process Server.

Before you begin

You must log in with a user account that has the same privileges as the account that was used to install the packages that you want to uninstall.

Procedure

To uninstall IBM SPSS Collaboration and Deployment Services Remote Process Server:

- 1. Close programs that you installed with Installation Manager.
- 2. Start Installation Manager in wizard mode by using IBMIM.

The default **IBMIM** location will vary depending on the operating system and installation type (administrator, nonadministrator, or group). For more information, see <u>Chapter 4</u>, "Getting started with Installation Manager," on page 7.

- 3. In Installation Manager, click **Uninstall**.
- 4. In the **Uninstall** wizard, select the IBM SPSS Collaboration and Deployment Services Remote Process Server package.
- 5. Click Next.
- 6. On the **Summary** page, review your selections. Click **Back** to change your selections. If you are satisfied with your choices, click **Uninstall**.
 - On Windows, Installation Manager checks for running processes. If processes are blocking the uninstall process, a list of these processes is shown in the Blocking Processes section. You must stop these processes before you continue the uninstall process. Click **Stop All Blocking Processes**. If there are no processes that must be stopped, you do not see this list. The running processes lock files that must be accessed or modified by Installation Manager.
- 7. When the uninstallation process finishes, the **Complete** page opens and confirms the uninstallation process.

Uninstalling by using console mode

You can use IBM Installation Manager in console mode to uninstall IBM SPSS Collaboration and Deployment Services Remote Process Server.

Before you begin

You must log in with a user account that has the same privileges as the account that was used to install the packages.

About this task

A selected option is indicated by an X in brackets: [X]. Options that are not selected are indicated by empty brackets: []. You can press **Enter** to select the default entry or select a different command. For example, [N] indicates that the default selection is **N** for the **Next** command.

Procedure

To uninstall IBM SPSS Collaboration and Deployment Services Remote Process Server:

- 1. Close programs that you installed with Installation Manager.
- 2. Start Installation Manager in console mode by using imcl -c.

The default **imc1** location will vary depending on the operating system and installation type (administrator, nonadministrator, or group). For more information, see <u>Chapter 4</u>, "Getting started with Installation Manager," on page 7.

- 3. Enter 5: Uninstall Remove the installed software packages.
- 4. To select the IBM SPSS Collaboration and Deployment Services Remote Process Server package group, enter the number that is next to the package group.
- 5. Enter N: Next to continue.
- 6. To select the package, enter the number that is next to the package.
 - Optional: To select all packages to uninstall, enter A: Select all packages. The **A**: Unselect all packages option shows when all packages are selected for uninstall.
- 7. In the Summary panel, review your selections before you uninstall. Enter U: Uninstall.
- 8. When the uninstall process completes, enter F: Finish.

Chapter 11. Deprecated features

If you are migrating from an earlier release of IBM SPSS Collaboration and Deployment Services, you should be aware of the various features that have been deprecated since the last version.

If a feature is deprecated, IBM Corp. might remove this capability in a subsequent release of the product. Future investment will be focused on the strategic function listed under the recommended migration action. Typically, a feature is not deprecated unless an equivalent alternative is provided.

No features have been deprecated in this release. For reference purposes, the following table indicates features that were deprecated in recent previous versions of the product. Where possible, the table also indicates the recommended migration action.

Table 6. Features deprecated in previous versions	
Deprecation	Recommended migration action
Security Provider: Active Directory with local override, which supports extended groups and allowed users	Use the standard Active Directory security provider with any necessary groups added
IBM SPSS Collaboration and Deployment Services Enterprise View	Use the Analytic Data View feature
IBM SPSS Collaboration and Deployment Services Enterprise View Driver	Use the Analytic Data View feature
Scenario files	Scenario files (.scn) are no longer supported. Enterprise View source nodes cannot be modified in Deployment Manager. Old scenario files can be modified in IBM SPSS Modeler client and resaved as stream files. Also, scoring configurations that used a scenario file must be deleted and recreated based on a stream file.
Web Install for IBM SPSS Deployment Manager	Use the standalone installer
BIRT Report Designer for IBM SPSS	None
BIRT Report Designer for IBM SPSS viewer	None
IBM SPSS Collaboration and Deployment Services Portlet	Use the IBM SPSS Collaboration and Deployment Services Deployment Portal directly, or use the web services APIs
IBM SPSS Collaboration and Deployment Services Web Part	Use the IBM SPSS Collaboration and Deployment Services Deployment Portal directly, or use the web services APIs
Scoring Service V1 API	Scoring Service V2 API
Scheduling Server Service	None
Reporting Service	None
Authentication Service login operation	Authentication Service doLogin operation
Search Service search operation	Search Service search2.5 operation
SPSS AXIS/Castor web services client jar	Use the tools provided with the Java Runtime Environment, Integrated Development Environment, or Eclipse Web Tools Platform (WTP)

Table 6. Features deprecated in previous versions (continued)		
Deprecation Recommended migration action		
clemrtl_setLogFile() API function	None	

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