

Kofax RPA

Desktop Automation Service Configuration Guide

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The KOFAX logo is displayed in a bold, blue, sans-serif font. The letters are thick and closely spaced, with a slight shadow effect behind the text.

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Preface

This guide describes how to configure the Desktop Automation Service required to use Desktop Automation on a remote computer.

Related Documentation

The documentation set for Kofax RPA is available here:¹

https://docshield.kofax.com/Portal/Products/RPA/11.2.0_ea1ydbmwk9/RPA.htm

In addition to this guide, the documentation set includes the following items:

Kofax RPA Release Notes

Contains late-breaking details and other information that is not available in your other Kofax RPA documentation.

Kofax RPA Technical Specifications

Contains information on supported operating systems and other system requirements.

Kofax RPA Installation Guide

Contains instructions on installing Kofax RPA and its components in a development environment.

Kofax RPA Upgrade Guide

Contains instructions on upgrading Kofax RPA and its components to a newer version.

Kofax RPA Administrator's Guide

Describes administrative and management tasks in Kofax RPA.

Help for Kofax RPA

Describes how to use Kofax RPA. The Help is also available in PDF format and known as *Kofax RPA User's Guide*.

Kofax RPA Best Practices Guide for Robot Lifecycle Management

Offers recommended methods and techniques to help you optimize performance and ensure success while using Robot Lifecycle Management in your Kofax RPA environment.

¹ You must be connected to the Internet to access the full documentation set online. For access without an Internet connection, see the *Installation Guide*.

Kofax RPA Getting Started with Robot Building Guide

Provides a tutorial that walks you through the process of using Kofax RPA to build a robot.

Kofax RPA Getting Started with Document Transformation Guide

Provides a tutorial that explains how to use Document Transformation functionality in a Kofax RPA environment, including OCR, extraction, field formatting, and validation.

Kofax RPA Developer's Guide

Contains information on the API that is used to execute robots on RoboServer.

Kofax RPA Application Programming Interface documentation

Contains information about the Kofax RPA Java API and the Kofax RPA .NET API, which provide programmatic access to the Kofax RPA product. The Java API documentation is available from both the online and offline Kofax RPA documentation, while the .NET API documentation is available only offline.

Note The Kofax RPA APIs include extensive references to RoboSuite, the original product name. The RoboSuite name is preserved in the APIs to ensure backward compatibility. In the context of the API documentation, the term RoboSuite has the same meaning as Kofax RPA.

Training

Kofax offers both classroom and computer-based training to help you make the most of your Kofax RPA solution. Visit the Kofax Education Portal at <https://learn.kofax.com/> for details about the available training options and schedules.

Also, you can visit the Kofax Intelligent Automation SmartHub at <https://smarthub.kofax.com/> to explore additional solutions, robots, connectors, and more.

Getting help with Kofax products

The [Kofax Knowledge Base](#) repository contains articles that are updated on a regular basis to keep you informed about Kofax products. We encourage you to use the Knowledge Base to obtain answers to your product questions.

To access the Kofax Knowledge Base, go to the [Kofax website](#) and select **Support** on the home page.

Note The Kofax Knowledge Base is optimized for use with Google Chrome, Mozilla Firefox or Microsoft Edge.

The Kofax Knowledge Base provides:

- Powerful search capabilities to help you quickly locate the information you need.
Type your search terms or phrase into the **Search** box, and then click the search icon.

- Product information, configuration details and documentation, including release news.
Scroll through the Kofax Knowledge Base home page to locate a product family. Then click a product family name to view a list of related articles. Please note that some product families require a valid Kofax Portal login to view related articles.
- Access to the Kofax Customer Portal (for eligible customers).
Click the **Customer Support** link at the top of the page, and then click **Log in to the Customer Portal**.
- Access to the Kofax Partner Portal (for eligible partners).
Click the **Partner Support** link at the top of the page, and then click **Log in to the Partner Portal**.
- Access to Kofax support commitments, lifecycle policies, electronic fulfillment details, and self-service tools.
Scroll to the **General Support** section, click **Support Details**, and then select the appropriate tab.

Chapter 1

Desktop Automation Service Configuration

Desktop Automation Prerequisites

All Desktop Automation requirements and prerequisites are listed in the "Dependencies and Prerequisites" chapter of the Kofax RPA *Installation Guide*.





Note Desktop Automation service relies on Windows UI Automation API. Do not run any UI Automation API clients on the same computer simultaneously with Desktop Automation Agent.


Note There is no hard-coded limit to the number of elements that the Desktop Automation Service can read in the automated application tree. The depth is limited by the stack thread size, while the total number of nodes is limited by the available memory. Use the **Max Depth** and **Max Siblings** settings in the Tree Modes setting to prevent any device issue errors and limit the number of elements to be loaded.

Configure the Desktop Automation Service

Once your computers meet all the necessary requirements for Desktop Automation, you can install and configure the Desktop Automation Agent.

1. If you need to automate Java applications, install Java 32-bit (JRE or JDK) on remote devices and check that the Java Access Bridge is enabled on your devices. See [Check Java Access Bridge](#) for details.
2. Download and run the Kofax RPA Desktop Automation installer on your device.
3. Start the Desktop Automation Service from the Start menu. Once the service starts, you can see its status by looking at the icon in the notification area.

Icon	Status
	Desktop Automation Service is starting and trying to connect to the configured Management Console.
	Desktop Automation Service is running and either connected to a Management Console or running in single user mode depending on configuration.
	Desktop Automation Service is running and in use by RoboServer or Design Studio.
	Desktop Automation Service is not running.

Icon	Status
	Desktop Automation Service is not running due to an error.

- To edit the Desktop Automation Service parameters, right-click the Desktop Automation Service icon in the notification area and select **Configure**. This opens the Desktop Automation Service window. After changing the options, click **Save and Restart**.

To manually edit the options, open the `server.conf` file on your automation desktop. The file is located in Users > UserName > AppData > Local > Kofax RPA 11.2.0 folder where UserName is the name of the user the service is running under.

- Check that the device is registered in the Management Console under the **Admin > Devices** section.

The following is a Desktop Automation Service configuration window. Refer to the table later in this section for detailed information on the available Desktop Automation Agent options.

Host name

Command port

Stream port

CA file

Timeout

Single User

Management Console **Single User** Certificates Windows OCR System

MC Path

User name

Password

Cluster

Labels

Ping interval (ms)

Use proxy to connect to Management Console

Proxy host name

Proxy host port

Proxy user name

Proxy password

As soon as the Desktop Automation Service connects to the Management Console, the Management Console tests the connection to the Desktop Automation Service. If it is successful, the status "ready" is shown.

Configuration Window Option	server.conf Option	Value and Description
Single User Select for direct connection to the automation desktop from Design Studio or when using the RDP connection.	"singleUser"	Cleared (default) Leave empty to automatically register the Desktop Automation Agent with the specified Management Console. For direct connection to the automation desktop, select the option and specify a token.*
Host Name	"hostName"	Name or local IP address of the computer running the Desktop Automation Agent. If a computer has multiple names or IP addresses, specify the one that RoboServers and Design Studio contact this Desktop Automation Agent with. That is, the host name or IP address must be reachable from RoboServers and Design Studio.
Command port	"commandPort"	49998 (default) If the Desktop Automation Service is started without being manually configured, it uses the default configuration and listens on the default 49998 port. Reassign this port to the automation desktop if necessary.
Stream port	"streamPort"	49999 (default) This port is used to send data between Design Studio and the Desktop Automation Agent. If set to "0", the Desktop Automation Agent selects a random port number. You might need to assign the stream port if there is a firewall between Design Studio and the automation desktop.

Configuration Window Option	server.conf Option	Value and Description
CA file	"caFile"	<p>Empty (default)</p> <p>You can communicate with the Management Console using SSL. If the default certificate in <code>node.js</code> is not used, you can specify a path to another certificate file using this parameter. Note that you need to have a root certificate for this to work. To save a root certificate in a file from a Google Chrome browser, do the following.</p> <ol style="list-style-type: none"> 1. Right-click the lock icon in the address bar, and click Certificate (valid). 2. On the Certificate Path tab, select the top most (root) certificate and click View Certificate. 3. On the Details tab, click Copy to File and then complete the wizard to export the root certificate as a base-64 encode X.509 certificate. <p>Now you can specify the path to the file with exported certificate.</p>
timeout	"commandTimeout"	<p>This option specifies the timeout for command execution in seconds. A command is an instruction sent to the automation desktop, such as <i>click mouse button</i>, <i>open application</i>, <i>add a location found guard</i>, and so forth. If a command cannot be completed in a specified time, the service sends a notification and execution of the robot stops.</p> <p>Note that in case of a Guarded Choice step, this setting applies to invoking the guard in the workflow, but waiting for the guard to be satisfied is not bound to this timeout and can wait forever. A similar situation occurs when using the Move Mouse and Extract steps. The commands must be invoked on the device with the timeout specified in this field, but the robot waits for up to 240 seconds for the commands to complete.</p> <p>The command timeout for automating terminals or browsing websites in Robots is set either on the Desktop Automation tab of the Design Studio Settings window for executing the workflow in Design Studio, or in the Automation Device section on the Security tab of the RoboServer Settings window for RoboServer execution.</p>

Configuration Window Option	server.conf Option	Value and Description
Token on Single User tab	"token"	Empty (default) If the Single User option is set selected, leave this option empty. If you use the direct connection to the automation desktop (Single User is not selected), specify a token. It can be any token you define.

Configuration Window Option	server.conf Option	Value and Description
<p>Certificates tab</p> <p>Remote hub</p> <p>Private Key File <input type="text" value="kapowremote.das.pem"/></p> <p>Public Key File <input type="text" value="kapowremote.das.cert.pem"/></p> <p>Folder with own CA files</p> <p><input type="text" value="/serverCa"/></p> <p>Local hub</p> <p>Private Key File <input type="text" value="kapow.local.das.pem"/></p> <p>Public Key File <input type="text" value="kapow.local.das.cert.pem"/></p>	<p>"tlsServerConfig"</p>	<p>Kofax RPA provides TLS communication between the automation desktop and the RoboServer or Design Studio. The communication uses certificates for encrypting the communication. The following is a <code>server.conf</code> file code extract. For more information, see "Use TLS Communication" in the Kofax RPA help.</p> <pre> "tlsServerConfig": { "key": "kapow.remote.das.pem", "cert": "kapow.remote.das.cert.pem", "ca": "./serverCa" }, </pre>
<p>Windows tab</p>	<p>"automationnative"</p>	<ul style="list-style-type: none"> • Use legacy Java-Access-Bridge In some situations, the Java Access Bridge does not work and it can help to switch to legacy mode. By default, the option is not selected. • Installed packages Lists Desktop Automation Service packages installed on this computer. Starting from version 10.7.0, new version packages are installed automatically if the Lock package option below is not selected. The packages in ZIP files are installed to <code>C:\ProgramData\Kofax RPA</code> on the automated computer. The appropriate package is selected automatically depending on the RoboServer version. If you want to specify only one version package to be used, select Lock package and select one of the installed packages. • Lock package When selected you can choose a version package as the only one to work with. A RoboServer with a different version cannot connect to this service. By default, the option is not selected. Select this option or change the setting to <code>true</code> in the <code>server.conf</code> file to run robots with triggers. • Map RFS share to drive letter The Windows drive that the Robot File System file share is available in. When the file share is mapped to a Windows drive, other Windows applications can also access this file share.

Configuration Window Option	server.conf Option	Value and Description
OCR	"ocrConfig"	Specifies one or more languages and an engine to perform an OCR operation on the automated desktop. You can choose from Tesseract (default) and OmniPage OCR engines. To use the OmniPage engine, select Use Kofax OmniPage OCR (only for packages version 11.1 or later) on the OCR tab. Specify OCR languages in the Enabled OCR languages field. For example, if you want to use the Japanese language, either replace <code>eng</code> (default) with <code>jpn</code> or, if you want to use more than one language, add <code>jpn</code> using the plus sign, such as <code>eng+jpn</code> . For Tesseract, Kofax RPA installs only the English language. See Change Default OCR Language for Desktop Automation below for language installation instructions.
System tab		This tab helps you open and examine the log file for any errors, or to view the version and location of the service file. Using this tab, you can check whether Java Access Bridge is properly installed on the computer where the service is running. See Check Java Access Bridge for details.
Management Console Options		
MC Path Connection protocol, name or IP address, port number, and path of the Management Console the device must register with. The format is as follows: <code>http://10.10.0.136:50080.</code>	"hostName"	Name or IP address of the Management Console the device must register with.
	"port"	Connection port of the specified Management Console.
	"schema"	Connection protocol of the specified Management Console.
	"path"	Empty (default) The part of the path to the standalone Management Console after the port number. For example, if your Management Console is deployed on Tomcat at <code>http://computer.domain.com:8080/ManagementConsole/</code> , specify <code>"/ManagementConsole/"</code> in this parameter. Leave this parameter empty for the embedded Management Console installation.
User Name	"user"	Empty (default) User name to authenticate on the specified Management Console.
Password	"password"	Empty (default) Password to authenticate on the specified Management Console.

Configuration Window Option	server.conf Option	Value and Description
Cluster	"cluster"	Production (default) Cluster name on the specified Management Console.
Labels	"labels"	"label1,label2" (default) Labels to distinguish the automation devices.
Ping interval (ms)	"pingInterval"	5000 (default) Time interval for the Desktop Automation Service to ping the Management Console.
Use proxy to connect to Management Console	"useProxy"	<p>Select this option for the Desktop Automation Service to use proxy when connecting to Management Console. All necessary parameters are specified in the following fields.</p> <p><input checked="" type="checkbox"/> Use proxy to connect to Management Console</p> <p>Proxy host name <input type="text" value="proxyhost.com"/></p> <p>Proxy host port <input type="text" value="9000"/></p> <p>Proxy user name <input type="text" value="username"/></p> <p>Proxy password <input type="password" value="●●●"/></p> <p>Under Linux, you can set up proxy parameters in the managementConsole section of the server.conf file.</p> <pre>"useProxy": true, "proxyHostName": "proxyhost.com", "proxyPort": 9000, "proxyUserName": "username", "proxyPassword": "pwd"</pre>

* The direct connection to the automation desktop is recommended only for creating and debugging a robot in Design Studio as well as for using with an RDP connection. See "Use RDP Connection" in Kofax RPA help.

Logging for Desktop Automation Service

Kofax RPA collects usage information on specific Desktop Automation Service events, which may be useful to improve the service performance.

- If the Desktop Automation Service is connected to a Management Console, the events are stored in the RoboServer Log Database of the Management Console. To view the events, on the **Log view** page, select **DAS messages**.

Note When the connection parameters for the Management Console are specified in the Desktop Automation Service configuration window, the events are always logged to the Management Console, even if the Single User mode is selected, that is, the connection to the automation desktop is established directly, without the Management Console.

- If the Desktop Automation Service cannot connect to a Management Console (as Management Console is not configured), it writes the events to the **Desktop Automation Service Usage.csv** log file, which resides in: `{path}\AppData\Local\Kofax RPA\<version number>\Logs\`
The file location can be configured in the **log4net.xml** file.

The information for each event includes:

- Time that the event occurred (in UTC).
- Type of event: start, stop, connect, disconnect, suspend, or lock screen.
- Identification of Desktop Automation Service, consisting of an ID in the form `host:port`, the user account running the service, and the labels defined for the service.
- Name of the robot and the execution ID (only for connect and disconnect).
- Severity indication (always "Info").
- Message (always empty).

Configure Proxy Servers in Desktop Automation

All Desktop Automation Service robots can use the Kofax RPA global proxy settings. The Desktop Automation Service uses the same proxy settings as Design Studio and Management Console. There are two ways to configure proxy server settings.

Important The local proxy settings of the built-in browser in the Desktop Automation Service have a higher priority than the Kofax RPA global proxy settings configured in Design Studio > Design Studio Settings. Make sure that the robot uses the Kofax RPA global proxy settings, unless the task requires it to use local proxy settings. For more information, see *Help for Kofax RPA*.

Also, the `cef.cfg` file should not be used to configure proxy settings, but if it is used, it has a higher priority than all of the above proxy settings.

1. For all robots running in the Desktop Automation Service, in the Design Studio Settings dialog box, on the Proxy Servers tab, complete the following Proxy Server details.
 - Host
 - Port number

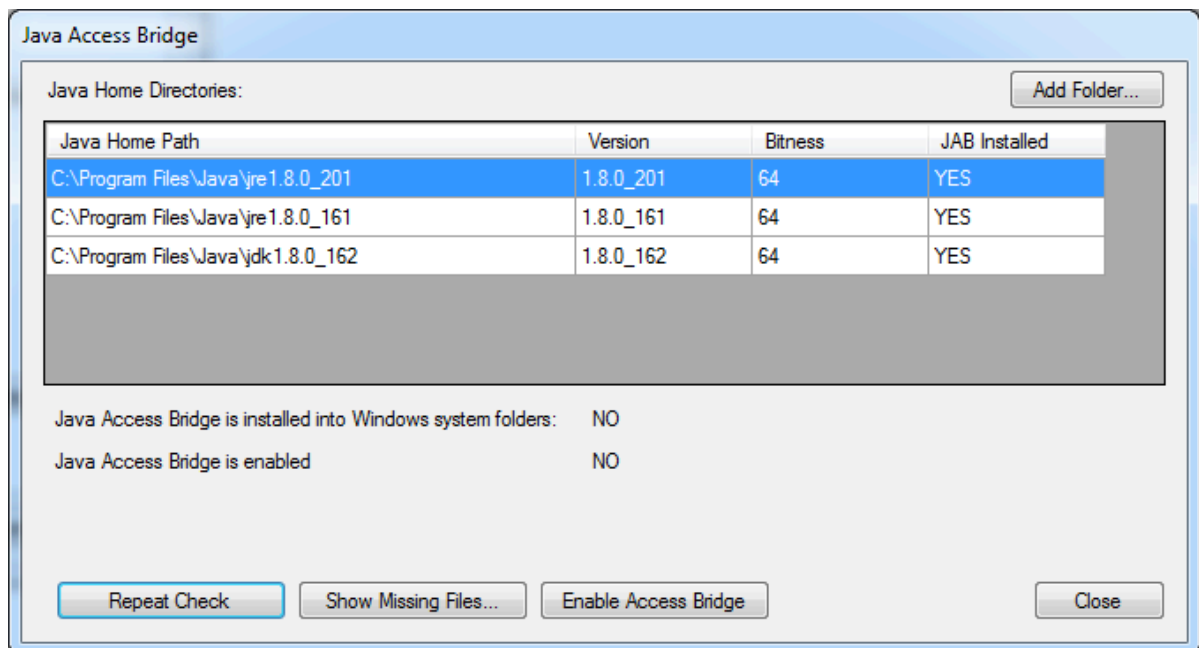
- Username
 - Password
 - Excluded hosts
2. For all deployed robots, on the Management Console > Admin > RoboServers > Cluster settings > "Proxy servers" tab, select New proxy and complete the following proxy server details.
 - Host name
 - Port number
 - User name
 - Password
 - Excluded host names

Check Java Access Bridge

Java Access Bridge is an essential component to automate your Java applications. Depending on the Java version, some necessary files may be missing in system folders and Java Access Bridge may be disabled on the computer where the Desktop Automation Service is installed. To check your Java Access Bridge installation, perform the following steps.

1. Right-click the Desktop Automation icon in the notification area and select **Configure**.
2. Click the **System** tab and click **Check Java Access Bridge files**.

The **Java Access Bridge** dialog box opens showing installed Java versions and Java Access Bridge installation status for each version. If **JAB Installed** column, **Java Access Bridge is installed into Windows system folders**, and **Java Access Bridge is enabled** show **Yes**, Java Access Bridge is properly installed and enabled on the computer.



3. If your implementation of Java is not listed under **Java Home Directories**, click **Add Folder** and specify a home folder with installed Java files.
4. If any of the files are missing, such as **JAB Installed** column shows **No**, click **Show Missing Files**. The **Java Access Bridge Missing Files** dialog box shows files that must be copied to specified folders. Click **Install Missing Files** to install the latest version of the Java Access Bridge files supplied by Kofax RPA in the Desktop Automation Service installation.
5. If **Java Access Bridge is enabled** shows **No**, click **Enable Access Bridge**.

Change Default OCR Language for Desktop Automation

Kofax RPA uses either the Tesseract or OmniPage OCR engines to capture text from images. For Tesseract, Kofax RPA installs only the English language, while OmniPage includes all supported languages in the installation. When your robot performs text recognition in the Extract Text From Image Step using Desktop Automation Service, the service uses the language selected on the **OCR** tab of the Desktop Automation Service window. To change the default language for OCR, perform the following steps.

1. Right-click the Desktop Automation icon in the notification area and select **Configure**.
2. Click the **OCR** tab and type the language code of the language you want to use for OCR in the **Enabled OCR languages** field. The language code must be in ISO 639-3 or ISO 639-1 format. To use more than one language, add another language using the plus sign, such as `eng+jpn`.

Note Using more than one language simultaneously for screen recognition slows down robot execution and deteriorates recognition results.

3. Click **Save and Restart**.

If you use Tesseract for text recognition of the language other than English, you must first download and copy necessary language packs as follows.

- Download the `.traineddata` file for the required language from the <https://github.com/tesseract-ocr/tessdata>. For example, the file for the French language is `fra.traineddata`.
- Copy the downloaded trained data file to `Kofax RPA\<version>\lib\tessdata` in the **ProgramData** folder. Example:

```
C:\ProgramData\Kofax RPA\11.2.0.0.110\lib\tessdata
```

You can train Tesseract to recognize your character set using either TTF fonts or UI screen shots. See the *Train Tesseract* topic in *Help for Kofax RPA* for more information.

Activate the virtual input driver

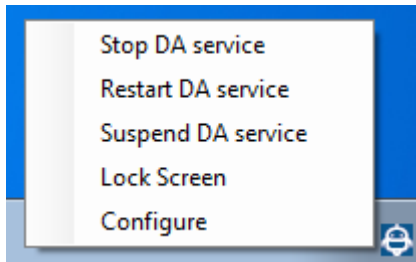
Virtual input driver is a Windows device driver capable of simulating a hardware keyboard. For the operating systems supported by the driver, see the *Kofax RPA Technical Specifications* document [available on the documentation site](#). See the *Kofax RPA Installation Guide* for information on installing the driver.

Note The virtual input drivers do not function when the desktop of the automated computer is being locked, such as by the Lock Screen function or an RDP step.

To use the driver, set the environment variable "KAPOW_KEYBOARD_INPUT_METHOD" to "VIRTUAL_KEYBOARD" on the automated device. To cancel the virtual input driver usage, remove the environment variable.

Manage Remote Desktop

You can perform the following actions using the Desktop Automation Service shortcut menu.



Manage the Desktop Automation Service

The following commands help you manage the Desktop Automation Service running on a remote computer.

- **Stop DA service:** Stops the service, which makes the remote device unavailable. The computer running the Desktop Automation Service is removed from the list in the Management Console.
- **Restart DA service:** Stops and starts the service. A robot or Design Studio loses the connection to the device and must be reloaded to restore it.
- **Suspend DA service:** Suspends the device. If suspended, the service is displayed as suspended in the Management Console. To restore the service operation, a user or an administrator needs to manually start the Desktop Automation Service on the device.

The suspended state makes the DA service unavailable for robots to use, but the state information is sent to the Management Console via the ping mechanism and the device is displayed in the **Admin > Devices** section. This command is useful if for some reason the service or the computer running it needs some configuration changes.

- **Lock Screen:** Locks the screen on the remote device.
- **Configure:** Opens the Desktop Automation Service configuration dialog box.