Kofax RPA
Installation Guide

Version: 11.5.0

Date: 2023-10-02

KOFAX

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Preface

This guide, which explains how to install Kofax RPA in a development environment, covers both interactive and "silent" installation procedures for Windows, as well as standard and "headless" procedures for Linux.

> ⓘ If you plan to install Kofax RPA in a production environment, see the *Administrator's Guide*.

In a production environment, we strongly recommend deployment of the Management Console on a stand-alone Tomcat server. This recommendation is based on, but not limited to the following.

- Derby is used as a system database in embedded mode, which is not recommended for production environment.
- Management Console on Tomcat:
  - Can use an enterprise class database for improved performance and data security.
  - Can integrate with LDAP and SAML.
- Tomcat can be configured to customer requirements.

This guide describes:

- How to install Kofax RPA, either interactively or "silently" (without user interaction).
- How to enter license information so that you can start Kofax RPA.
- How to configure Kofax RPA.
- How to set up Kofax RPA server applications to start automatically when the computer restarts.

Related Documentation

The documentation set for Kofax RPA is available here:[1]

https://docshield.kofax.com/Portal/Products/RPA/11.5.0-nlfihq5gwr/RPA.htm

You can also access individual guides and online help directly from Kofax RPA. When you click the help button in Design Studio, Management Console, Desktop Automation Service and Process Discovery, online documentation appears in a new browser window.

> ⓘ If the security policy for your organization restricts Internet access or the Internet connection is not stable, you can access the documentation in offline mode while using the product.

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

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[1] You must be connected to the Internet to access the full documentation set online.

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 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.

Kofax RPA Help

Describes how to use Kofax RPA. The Help is also available in PDF format under the title of *Kofax RPA User's Guide*.

Kofax RPA Best Practices Guide

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

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, classification, extraction, field formatting, and validation.

Kofax RPA Desktop Automation Service Guide

Describes how to configure the Desktop Automation Service required to use Desktop Automation on a remote computer.

Kofax RPA Developer's Guide

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

Kofax RPA Integration API 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.

ⓘ 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.

Offline Documentation

To make the documentation available for use in offline mode, obtain the documentation files from the Kofax RPA product package that you downloaded from the Kofax Fulfillment Site. The product package includes the following documentation files for offline use:

- KofaxRPADocumentation_11.5.0_EN.zip

  Contains the entire Kofax RPA documentation set in English.
- KofaxRPADocumentation_11.5.0_JA.zip

  Contains the entire Kofax RPA documentation set in Japanese.
- KofaxRPADocumentation_11.5.0_FR.zip

  Contains the entire Kofax RPA documentation set in French.
- KofaxRPAManagementConsoleDocumentation-11.5.0.zip

  Contains the documentation for Management Console and Kapplets in English, Japanese, and French.

After you install the Kofax RPA product, follow these steps:

1. Extract the contents of the KofaxRPADocumentation ZIP file for the language you require to a location on your computer.

   Then, rename the extracted folder to either EN, JA, or FR, depending on the language code specified in the .zip file name. For example, **KofaxRPADocumentation_11.5.0_EN** must be renamed to **EN**.

   The extracted folder for each language contains the following folders:
   - api
   - help
   - print
   - Resources

2. Extract the contents of the KofaxRPAManagementConsoleDocumentation ZIP file to a location on your computer.

   You do not need to rename the extracted folder.

   The extracted folder contains the KofaxRPAManagementConsoleDocumentation.war file that includes the documentation in all of the three languages.

When the offline documentation is installed for an RPA component according to the instructions below, the component will use the offline version of the documentation by default, even if an active Internet connection exists.

Offline API documentation

The api folder that you extracted from either of the KofaxRPADocumentation ZIP files contains the API references in English. You can access the RoboSuite Java and RoboSuite .NET API documentation from this folder.

Offline documentation for Design Studio

1. Navigate to the location where you renamed the extracted documentation folder.

2. Copy the `EN`, `JA`, or `FR` folder to the `documentation` folder inside the product files:
   Example: `C:\Program Files\Kofax RPA 11.5.0.0\documentation`

3. Start Design Studio and navigate to **Settings** > **Design Studio Settings**.

4. On the **General** tab, in **Documentation location**, select **Offline** on the list.

5. Save the changes.

To switch to online mode, select **Online** in **Design Studio Settings** and save the changes.

> ℹ️ If you try to access the online documentation from Kofax RPA without Internet access, the **Retrieving help and documentation** warning is displayed. If you select **Do not show this notification again** and later you want to reset this option, select **Show documentation retrieval notifications** on the **General** tab in **Design Studio Settings**.

Offline documentation for Management Console

1. Navigate to the location that contains the extracted `KofaxRPAManagementConsoleDocumentation.war` file.
   The .war file includes the documentation in all of the three languages, and the documentation to use will depend on the language that the Management Console is set to.

2. Copy the file to:
   `C:\<Tomcat installation folder>\Tomcat <version>\webapps`

3. Start the Management Console.

4. Open **Settings** > **General** > **Base URL**.

5. Select **Use local documentation**. In **Local documentation base URL**, specify the URL to the Tomcat website containing the documentation.
   Example: `http://localhost:8080/KofaxRPAManagementConsoleDocumentation`

6. Save the changes.

You may need to refresh the Management Console for the changes to take effect.

To switch to online mode, clear **Use local documentation** in the Base URL settings and save the changes.

Offline documentation for Desktop Automation Service

1. Navigate to the location where you renamed the extracted documentation folder.

2. Copy the `EN`, `JA`, or `FR` folder to the `documentation` folder inside the product files:

    Example: `C:\Program Files\RPA DesktopAutomation 11.5.0.0\documentation`

To switch to online mode, delete or move the `documentation` folder from the `RPA DesktopAutomation 11.5.0.0` folder.

Offline documentation for Process Discovery

1. In each of the installation folders, create a new folder called `documentation`. The actual path to the folders may be different.
    - **Example**: `C:\Program Files (x86)\Kofax RPA Process Discovery Agent 11.5.0.0`
    - **Example**: `C:\Program Files (x86)\Kofax RPA Process Discovery Analyzer 11.5.0.0`

2. Navigate to the location where you renamed the extracted documentation folder.

    Copy the `EN`, `JA`, or `FR` folder to the newly created `documentation` folders.

To switch to online mode, rename, delete or move the `documentation` folder from the `Kofax RPA Process Discovery Agent 11.5.0.0` and `Kofax RPA Process Discovery Analyzer 11.5.0.0` folders.

Offline documentation for Kapplets

The offline documentation for Kofax RPA Kapplets is contained in the KofaxRPAManagementConsoleDocumentation.war file that you have already copied to the Tomcat installation folder. To use the Kapplets documentation in offline mode, follow these steps.

1. Depending on whether Kapplets are installed in embedded mode, on Tomcat, or on Docker, configure the required properties in the respective configuration file. For information on each installation scenario, see "Install Kapplets" in the *Kofax RPA Installation Guide*.
    - Embedded mode. Create an `application-help.properties` file using the following template and place it next to the `application.properties` file in the folder where Kapplets are run.

```
kapplets.services.mc.connection.url=http:// <host-url>:<port>/ManagementConsole
kapplets.services.mc.connection.username=<username>
kapplets.services.mc.connection.password=<password>
kapplets.services.help.languages-map[en]=EN
kapplets.services.help.languages-map[ja]=JA
kapplets.services.help.languages-map[fr]=FR
kapplets.services.help.base-url=http://:/KofaxRPAManagementConsoleDocumentation/
@@language@@/help/rpa_help/help_main/kapplets
kapplets.services.help.landing-url=http://:/
KofaxRPAManagementConsoleDocumentation/@@language@@/help/rpa_help/help_main/
kapplets/c_rpakappletsmain.html
```

> ⓘ In this scenario, the offline documentation can be used only if the Management Console is deployed on Tomcat.

- On Tomcat. To the `kapplets.xml` file, add the following properties at the end of the file.

```
<Environment name="kapplets.services.help.languages-map[en]" value="EN"
 type="java.lang.String" override="false"/>
<Environment name="kapplets.services.help.languages-map[ja]" value="JA"
 type="java.lang.String" override="false"/>
<Environment name="kapplets.services.help.languages-map[fr]" value="FR"
 type="java.lang.String" override="false"/>
<Environment name="kapplets.services.help.base-url" value="http://
<hosturl>:<port>/KofaxRPAManagementConsoleDocumentation/@@language@@/help/
rpa_help/help_main/kapplets" type="java.lang.String" override="false"/>
<Environment name="kapplets.services.help.landing-url" value="http://
<hosturl>:<port>/KofaxRPAManagementConsoleDocumentation/@@language@@/help/
rpa_help/help_main/kapplets/c_rpakappletsmain.html" type="java.lang.String"
 override="false"/>
```

- On Docker. In the `docker-compose.yml` file, add the following properties at the end of the file.

```
 - KAPPLETS_SERVICES_HELP_LANGUAGES-MAP[en]=EN
 - KAPPLETS_SERVICES_HELP_LANGUAGES-MAP[ja]=JA
 - KAPPLETS_SERVICES_HELP_LANGUAGES-MAP[fr]=FR
 - KAPPLETS_SERVICES_HELP_BASE-URL=http://<host-url>:<port>/
KofaxRPAManagementConsoleDocumentation/@@language@@/help/kap_help/kapplets
 - KAPPLETS_SERVICES_HELP_LANDING-URL=http://<host-url>:<port>/
KofaxRPAManagementConsoleDocumentation/@@language@@/help/kap_help/kapplets/
c_rpakappletsmain.html
```

2. Save the file. If Kapplets are installed on Tomcat and you adjusted the `kapplets.xml` file, you may need to restart the Tomcat server for the changes to take effect.

To switch to online mode, delete the added properties from the configuration file, save the changes, and restart the server.

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 Portal repository contains articles that are updated on a regular basis to keep you informed about Kofax products. We encourage you to use the Knowledge Portal to obtain answers to your product questions.

To access the Kofax Knowledge Portal, go to https://knowledge.kofax.com.

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

The Kofax Knowledge Portal 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.

   To locate articles, go to the Knowledge Portal home page and select the applicable Solution Family for your product, or click the View All Products button.

From the Knowledge Portal home page, you can:

- Access the Kofax Community (for all customers).

   On the Resources menu, click the **Community** link.
- Access the Kofax Customer Portal (for eligible customers).

   Go to the Support Portal Information page and click **Log in to the Customer Portal**.
- Access the Kofax Partner Portal (for eligible partners).

   Go to the Support Portal Information page and click **Log in to the Partner Portal**.
- Access Kofax support commitments, lifecycle policies, electronic fulfillment details, and self-service tools.

   Go to the Support Details page and select the appropriate article.

Chapter 1

Dependencies and Prerequisites

This chapter lists components and required configuration settings to use different Kofax RPA features. For information on supported platforms and versions, see the *Kofax RPA Technical Specifications* document on the Kofax RPA Product Documentation site: https://docshield.kofax.com/Portal/Products/RPA/11.5.0-nlfihq5gwr/RPA.htm.

Real-time data: If you have a solution where users are waiting for results in real-time, CPU speed is normally the bottleneck, and you should buy the fastest CPU available for your hardware platform.

Dedicated hardware: For best performance, we recommend that you always run RoboServer, Management Console, or Document Transformation Service each on dedicated hardware. That means that you should not run database servers and other services on the same hardware with your RoboServer, Management Console, or Document Transformation Service.

Any email field in Kofax RPA can contain up to 255 characters. Do not exceed the number of characters in the email field.

Windows installation prerequisites

If you get the error: "Module <modulename> not found," install the following update.

https://support.microsoft.com/en-us/kb/2999226

Note that <modulename> can be "`automationnative`", "`cef`" or any other Kofax RPA module name.

If the Windows update is not available on your system, use the following workaround.

1. Create a `c:\temp\976571` folder.

2. Use the following command to extract the contents of the MSU file:

   ```
   Expand -F:* c:\kb976571\Windows6.1-KB976571-v2-x64.msu c:\temp\976571
   ```
   This command extracts multiple files, from `Windows6.1-KB976571-v2-x64.cab`.

3. Run the following command:

   ```
   DISM.exe /Online /Add-Package /PackagePath:c:\temp\976571\Windows6.1-KB976571-v2-x64.cab
   ```

For more information, see *How to use DISM to install a hotfix from within Windows* on the Microsoft Technet website https://blogs.technet.microsoft.com.

If text shows as boxes in Kofax RPA applications, you are missing the fonts required to render this text. Windows installs only a limited set of fonts based on the language of the installation media. Additional fonts must be enabled as *Supplemental Font* features through the *Manage Optional Features* tool.

> 🛈 To display Thai script correctly, enable both the *Thai Supplemental Font* feature and the *Lao Supplemental Font* feature.

Linux installation dependencies

Currently, Ubuntu version 20.04 LTS is supported.

Design Studio and RoboServer require the following packages to be installed:

- libc6
- libglib2.0-0
- libnss3
- libnspr4
- libatk1.0-0
- libatk-bridge2.0-0
- libcups2
- libdrm2
- libx11-6
- libxcomposite1
- libxdamage1
- libxext6
- libxfixes3
- libxrandr2
- libgbm1
- libexpat1
- libxcb1
- libxkbcommon0
- libdbus-1-3
- libpango-1.0-0
- libcairo2
- libasound2
- libatspi2.0-0
- libgcc-s1
- libffi7
- libpcre3
- zlib1g
- libmount1
- libselinux1
- libxrender1
- libxau6
- libxdmcp6
- libsystemd0

- libblkid1
- libpcre2-8-0
- libbsd0
- liblzma5
- liblz4-1
- libgcrypt20
- libgpg-error0
- xvfb
- libsqlite3-0
- libglx0
- libglvnd0
- libgl1
- libgssapi-krb5-2

Also, make sure that you install all the necessary fonts on a headless Linux server for the WebKit-based browser robots to work.

Databases

⚠ Create and maintain the Kofax RPA product databases according to the recommendations in the product documentation. If you are considering database modifications or customizations, do not proceed without consulting Kofax; otherwise, the results are unpredictable and the software may become inoperable.

You can use Microsoft SQL Server with integrated Windows Authentication as a logging (logdb) database only in the following cases:

⚠ Microsoft SQL Server with integrated Windows Authentication cannot be used as a logging (logdb) database when you run Management Console and RoboServer in embedded mode.

Also, make sure that SQL Server Authentication of the Microsoft SQL Server is disabled.

- Both Management Console and RoboServer must run only on a Windows platform.
- Management Console must be installed on a Tomcat server.
- The JDBC driver, including DLLs, must be manually installed into both Management Console and all RoboServer installations without using the JDBC distribution mechanism in the Management Console.

Oracle Connection URL must use `${ServerName}:${Schema}`. Using `${ServerName}:${ServiceName}` is not supported.

Be aware that loss of data may occur when storing data in Oracle, Sybase or MySQL. On Oracle, an empty string is converted to null. On Sybase, an empty string is converted to " " (a single space). On MySQL, millisecond precision is lost when storing dates. For details, see the ObjectKey Caveats section in the Storing Data in Databases topic in the Kofax RPA Help.

ⓘ While MySQL provides two types of SHA-256 hashing for user account passwords, sha256_password and caching_sha2_password, caching_sha2_password is not supported with Kofax RPA.

ⓘ For correct display of data in the Kofax Insight Dashboard, make sure Java correctly sets the time according to your time zone on RoboServers and computers running Management Consoles. See the *Timezone Data Versions in the JRE Software* on the Oracle web site for the latest updates in time zones. If necessary, use the *Timezone Updater Tool* to update the time zone information.

Document Transformation prerequisites and limitations

Install all the latest Windows updates before installing and using Kofax RPA Document Transformation.

Prerequisites

The maximum document size for transformation is 100 MB. Kofax RPA imposes a file size limit for a transformed document to enable protection against the denial-of-service attacks. You can lower the file size value to protect against such an attack. To change the document size limit, edit the following parameter in the `Web.config` file in the `Kofax DTS\Transformation Services` directory in the Kofax RPA installation folder.

`<httpRuntime targetFramework="4.5.1" maxRequestLength="104857600"/>`

The following are other requirements you need to observe.

- Do not install Kofax RPA Document Transformation on the computer running Kofax Transformation or Kofax TotalAgility.
- You can re-use existing KTM, KTT, and RTTI projects version 6.2 or earlier.
- You cannot re-use KTA projects, because KTA does not provide a way to export a KTA Extraction/Classification group to a complete `.fpr` file.

Limitations

The following features are not supported.

- Rich client user modules (Doc Review, Validation, Verification, Correction)
- ThinClient user modules other than validation (Verification and Correction)
- Multiple steps of Validation
- Configuration Sets for migration between systems
- A2iA engines
- Reporting settings

Desktop Automation requirements and prerequisites

The following sections list components that must be installed and configured on the automation devices (remote computers you want to automate) before you can use the Desktop Automation feature in Kofax RPA.

Remote computer requirement

The Desktop Automation Service must be installed on a different computer than the RoboServer that it connects to. If the RoboServer and Desktop Automation Service are installed on the same computer, only one robot can run at a time.

Java Access Bridge

To automate Java programs or Java applets on remote devices with Kofax RPA, install Java version required by the application being automated on your device and enable the Java Access Bridge in the Java Runtime Environment used by the application. We recommend using the latest available Java version.

For JRE 7 or newer

To enable Java Access Bridge for Java version 7 or newer, navigate to the `bin` directory in the Java installation directory and run the following command.

```
jabswitch -enable
```

For JRE6

Follow this procedure to install Java Access Bridge 2.0.2. For older applications that require Java version 1.6, copy the following files to the specified destination directories, where %WINDOWSHOME% is the directory where Microsoft Windows is installed (for example, C:\WINDOWS), and %JAVAHOME% is the directory where your JDK or JRE is installed. The following are examples of directory names for Java SE 6 Update 24.

- `JDK: C:\Program Files\Java\jdk1.6.0_24\jre`
- `JRE: C:\Program Files\Java\jre6`

The following table lists Java Access Bridge Windows libraries and related files.

Java Access Bridge File	Destination Directory
`WindowsAccessBridge-32.dll`	`%WINDOWSHOME%\SysWOW64`
`WindowsAccessBridge-64.dll`	`%WINDOWSHOME%\SYSTEM32`
`JavaAccessBridge.dll`	`%JAVAHOME%\bin`
`JAWTAccessBridge.dll`	`%JAVAHOME%\bin`
`accessibility.properties`	`%JAVAHOME%\lib`
`access-bridge.jar`	`%JAVAHOME%\lib\ext`
`jaccess.jar`	`%JAVAHOME%\lib\ext`

For more information, search the Downloads page on the Oracle website (http://www.oracle.com/technetwork/java/javase/downloads/) to locate and download jab-2-0-2.

Perform the following to test that you have installed Java Access Bridge properly.

1. Run the SwingSet2 application and then run the JavaMonkey.exe application.

2. Select **File** > **Refresh Tree** in the Java Monkey application and the SwingSet2 application should appear.

Alternatively, you can use the JavaFerret.exe application.

WebDAV Redirector

When using the Robot File System on a computer where the Desktop Automation Service is installed, to be able to connect to the service, you require the WebDAV Redirector. Some operating systems do not include WebDAV by default, so you need to manually install it.

For a Windows Server 2022, check the WebDAV Redirector option.

Requirements for Linux-based platforms

Make sure your computer has all the necessary packages and libraries installed. To do so, see "Kofax RPA Design Studio and RoboServer for Linux" in the *Kofax RPA Technical Specifications*.

Prerequisites for Microsoft Edge in Internet Explorer mode
If you use Microsoft Edge in Internet Explorer mode, check the following requirements to automate Internet Explorer 11.

- Check that a `FEATURE_BFCACHE` subkey with a `DWORD` value named `iexplore.exe` is present in the registry on the target computer. This subkey enables the driver to maintain a connection to the instance of Internet Explorer it creates. For 64-bit Windows, examine the `HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Internet Explorer\Main \FeatureControl\FEATURE_BFCACHE` key. If the `FEATURE_BFCACHE` subkey is not present, create it and create a `DWORD` value named `iexplore.exe` with the value "0" in the key.
- Set the browser zoom level to 100% to align the native mouse events with the correct coordinates.

SAP prerequisites
To automate an SAP application, enable scripting on both the server and the client sides.

- On the client, go to **SAP GUI Options** and enable scripting. Also, turn off notifications, because they interrupt the automation process.
- To enable scripting on the SAP server, perform the following steps. Note that you must have administrative privileges to change the `sapgui/user_scripting` parameter.

  1. Log in to your SAP server.

  2. Run transaction RZ11. Specify the parameter name `sapgui/user_scripting` and click **Display**. If `Parameter name is unknown` appears in the status bar, it indicates that you are missing the current support package. Check your installed packages.

  3. Change the value to `TRUE`.

  4. Click **Save**.

Note that some elements, such as scroll bars, are only available if you run the SAP client on a machine with a Windows Classic desktop theme.

Enable integration with SAP

To work with the SAP application in Robots, from the product installation files, download and save the RegSAPSurrogate.reg file on the computer running the Desktop Automation Service. Run it accepting any warnings and then restart the Desktop Automation Service agent. The file resides in the {path}\DesktopAutomationService\bin folder.

Install Kofax RPA

This chapter describes how to install Kofax RPA on a single computer in a developer environment. See the *Administrators Guide* for installation and deployment in a production environment.

The complete installer is delivered as a `.zip` file. For the Windows platform, Kofax RPA has five installers that install different components of the software:

- Kofax RPA Design Studio installer: Installs Design Studio, but does not install RoboServer, Management Console or API. Use this installer if you have a central Management Console/License Server and need a separate copy of Design Studio.
- Kofax RPA RoboServer installer: Installs RoboServer only and does not install Management Console or Design Studio. This installer is useful, if you need to set up dedicated RoboServer machines.
- Configurable full Kofax RPA installer: Installs all of the core components, including Git Synchronizer, or selected components that you specify.
- Kofax RPA Desktop Automation installer: Installs the Desktop Automation Agent to automate remote devices.
- Kofax RPA DTS (Document Transformation Service) installer: Installs the Kofax RPA Document Transformation components.

  This installer contains the following components required to run:

  - Document Transformation Project Builder
  - Kofax Licensing Server
  - Document Transformation Services
  - Document Transformation Thin Client Server
  - Document Transformation Standard Projects
  - Document Transformation Service Scheduler

Prerequisite: Prior to unzipping the software archive file, right-click the .zip file and unblock it to prevent issues during installation. Disregard this step if the **Unblock** option is not displayed.
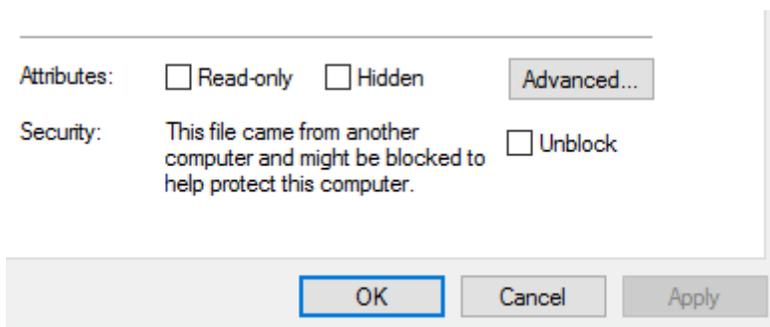
Silent Installation

As another option, you can perform a silent installation. If you run a silent installation of the full installer, you get the "Typical" install. See Silent Installation on Windows for details.

For Linux, Kofax RPA provides a full installer as well as the DEB package for installing RoboServer as a service. See Install on Linux for details.

Upgrade from Earlier Versions

In the interest of stability, different versions of Kofax RPA may be installed side by side on the same computer without interfering with each other (except that they must be configured to use different port numbers for the Management Console if run simultaneously). This means that you can install a newer version and get acquainted with it while still doing your daily work with the older version.

You can copy important data such as uploaded robots, execution schedules and so on from one version of Management Console to another by making a backup of the old installation and "restoring" it into the new one. Making a backup varies in different versions of Kofax RPA, so check help or *User's Guide* to learn how to create a backup.

For more information about upgrade procedures, see the *Kofax RPA Upgrade Guide*.

> ⓘ Effective since Kofax RPA version 10.3, any admin user can restore a backup created by any other admin user.

Install on Windows

The complete Kofax RPA installer provides the following installation options. Optional items are listed with an asterisk.

- Design Studio: Installs Design Studio and its required components
- RoboServer: Installs RoboServer
  - Embedded Management Console: Installs components needed to run an embedded Management Console on the RoboServer
- Management Console: Creates the WAR file for manual installation of the Management Console
- SQL scripts for database tables
- API*: Installs necessary API components

The following files install separate Kofax RPA components.

- If you are installing Design Studio only, download and save the `KofaxRPADesignStudio-11.5.0.0.msi` file to your hard disk. After the download is completed, run the file to start the installation and follow the installer prompts.
- To install a RoboServer, download and save the `KofaxRPARoboServer-11.5.0.0.msi` file to your hard disk. After the download is completed, run the file to start the installation and follow the installer prompts.
- To install the Desktop Automation Service, download and save the `KofaxRPADesktopAutomationService-11.5.0.0.msi` file. After the download is completed,

run the file on the computer you want to automate and follow the installer prompts. For more information, see Install Desktop Automation Service.

As another option, you can use the silent installation to automate the installation process.

ⓘ You need administrator rights to install Kofax RPA on Windows.

Install Desktop Automation Service

To install the Desktop Automation Service, download and save the `KofaxRPADesktopAutomationService-11.5.0.0.msi` file to your hard disk. After the download is completed, run the file on the computer you want to automate to start the installation. The Desktop Automation Service is installed in autostart mode. Note that you do not need to install the Desktop Automation Service to automate terminals.

ⓘ To avoid a conflict of resources, do not install the Desktop Automation Service on the same local computer as Design Studio, unless you intend to use the Local Desktop Automation feature, which is primarily for demonstration purposes. For more information, see "Configure local Desktop Automation Service" in the *Kofax RPA Help*.

ⓘ Do not install the Desktop Automation Service on the same computer as the RoboServer that it connects to. If the RoboServer and Desktop Automation Service are installed on the same computer, only one robot can run at a time.

Install the virtual input driver

During the Desktop Automation Service installation, you can install the virtual input driver, which is a Windows device driver that simulates hardware keyboard and mouse. To install it, select **Install the virtual input driver** on the **Virtual input driver** step of the installer. The driver is supported by 64-bit versions of Windows 8.1 and Server 2012 or later.

The driver is not installed by default. To install the virtual input driver from command-line, such as during the silent installation, specify the `INSTALLINPUTDRIVER=1` parameter. Note that when the driver is installed for the first time, Windows prompts to confirm a device installation even when running as Administrator. To avoid this prompt during an unattended installation, add the certificate to the Windows Trusted Publishers store beforehand. You can install the certificate from the `InputDriver.cat` file, located in the `DesktopAutomationService\bin\inputdriver` directory under the Kofax RPA Desktop Automation Service installation directory.

To enable the virtual input driver for keyboard and mouse operations on the automated computer, set the environment variable `KOFAX_RPA_VIRTUAL_INPUT` to `Y`. To cancel the virtual input driver usage, set the environment variable to `N`.

For compatibility, the variable `KAPOW_KEYBOARD_INPUT_METHOD`, which was used to enable the keyboard, is preserved, but `KOFAX_RPA_VIRTUAL_INPUT` should be used instead.

To uninstall the driver and its devices, uninstall the Desktop Automation Service. Do not modify, disable or remove the devices through Windows Device Manager, as it may cause issues during robot runs.

> ⚠ The Desktop Automation Service version must match the version of other Kofax RPA components, such as Design Studio and Management Console.
>
> The Desktop Automation Service creates two firewall rules:
> - "Kofax RPA DA Service" that opens port 49998
> - "Kofax RPA DA Service Stream" that opens port 49999
>
> 49998 is the default command port and 49999 is the stream port. If the Desktop Automation Service is started without being manually configured, it uses the default configuration and listens on the default 49998 port. Reassign the ports if necessary and edit the Desktop Automation Service configuration to use the appropriate ports. See Configure Desktop Automation Service in *Kofax RPA Help* or in the *Desktop Automation Service Guide* for details.
>
> When the Desktop Automation Service saves its configuration, the WebClient windows service is checked and, if necessary, the service is started and its startup type is changed to "auto."

Automatic Desktop Automation Service upgrade

Starting from version 10.7, new Desktop Automation Service version packages are installed automatically if the **Lock package** option is not selected on the **Windows** tab of the Desktop Automation Service window. The first time a newer version of Management Console (or Design Studio if a direct connection is used) tries to connect to the Desktop Automation Service, a new service version package is installed. The packages in ZIP files are installed to `C:\ProgramData\Kofax RPA` on the automated computer. The appropriate package is selected automatically depending on the Kofax RPA component version. For details see Windows tab options in the Configure Desktop Automation Service topic in *Kofax RPA Help* or in the *Desktop Automation Service Guide*.

Install Components for Desktop Automation Service

Desktop Automation Service is designed to automate any work process involving computer applications on Windows systems. The following components and configuration steps are required for the Desktop Automation Service to access applications on Windows.

Make sure that the latest Windows operating system updates are installed. For Windows 7, 8, and 8.1, the KB2999226 update is required. If this update is not installed on your system, download it from the Microsoft website and install according to the provided instructions.

To work with Java applications, check the following.

- Install the latest Oracle Java 32-bit (JRE or JDK) that installs the Java Access Bridge 32-bit dlls. The Java applications started by the robots can run in a 64-bit JVM, but the 64-bit installer does not include the 32-bit dlls. If your corporate policy does not allow upgrading the Oracle Java, manually install the files needed for Java Access Bridge support as follows.

    Java Access Bridge Installation on Windows 64-bit

    1. Download Java Access Bridge 2.0.2 from the Java Access Bridge download page at the following URL:

        http://www.oracle.com/technetwork/java/javase/downloads/jab-2-0-2-download-354311.html

    2. Extract the Java Access Bridge to a folder in your drive and copy `WindowsAccessBridge-64.dll` to `[WINDOWSHOME]\SYSTEM32` and

`WindowsAccessBridge-32.dll` to `[WINDOWSHOME]\SysWOW64`. Where `[WINDOWSHOME]` is the Microsoft Windows installation directory, for example, `C:\WINDOWS`.

> ⓘ For detailed Java Access Bridge installation instructions, see Installing Java Access Bridge on the Oracle website.

- Enable the Java Access Bridge by selecting the Enable Java Access Bridge option in the **Control Panel** > **Ease of Access Center** > **Use the computer without a display** or by running the following command prompt command in the `bin` subdirectory of the Java JRE installation directory: `jabswitch.exe /enable`.

Install Document Transformation Components

This section describes how to install Kofax RPA Document Transformation components on one computer. See the Kofax Transformation product documentation for installation and configuration details.

> ⓘ Document Transformation Service product version corresponds to the Kofax RPA product version.
>
> Kofax Transformation Toolkit product version used with Kofax RPA 11.5.0 is 7.0.0.

This Document Transformation installer contains the following components required to run. Before installing these components, you need to have Kofax RPA installed.
- Project Builder
- Kofax Licensing Server
- Transformation Services
- Thin Client Server
- Standard Projects
- DTS Scheduler

To access each component documentation, see the Related Documentation section in this document. See the Troubleshooting section below for resolving common issues.

By default, the Document Transformation folders are located in `C:\Document Transformation`.

> ⚠ Kofax RPA Document Transformation Service and Document Transformation Thin Client Server require IIS (Internet Information Services) and ASP.NET to be installed. Depending on the version of Windows, these components are either a Windows feature that can be enabled in the Control Panel, or they are available as separate downloadable components. For installation and configuration instructions, see the *Kofax Transformation Toolkit Thin Client Server Developer's Guide*.

Requirements
- You must have administrator rights on the computer where the Kofax RPA is installed. Disable User Account Control (UAC) to minimize installation issues.

- Some Windows operating systems disable *localhost* mapping. Prior to starting this installation, either enable it by modifying your *hosts* file or use 127.0.0.1 where *localhost* is referenced. If you choose to keep the *localhost* mapping disabled, modify the `Web.config` files in the Document Transformation subfolders after installation is complete.
- Executing the PowerShell script, EnableDocumentTrasformation.ps1, requires PowerShell version 3 or later. You can install the required PowerShell version using the Windows Update. For more information on the script, see later in this section.
- Both IIS services, Kofax RPA Document Transformation Service and Document Transformation Thin Client Server, must have modification privileges on the folders used by the Document Transformation Service. The PowerShell script EnableDocumentTrasformation.ps1 attempts to set these privileges automatically. If the script is not used or fails to assign the privileges, the IIS application pool users must be explicitly assigned access to the Document Transformation folders.
- .NET version 4.8 and DirectX are required for the Document Transformation Service.
- The sentiment analysis and named entity extraction features require .NET version 4.8 or higher on Windows 10 and Windows Server 2019.
- 32-bit support must be enabled for the Document Transformation Service application pool.

1. Run the Document Transformation installer, read and accept the terms in the license agreement, and then enable all components (default) and let the installer run until you see the Kofax License Utility window.

2. Switch to the Kofax License Utility window and select **File** > **Activate**. In the **Activate** window, enter the serial number and product code that you have, and click **Automatic**.
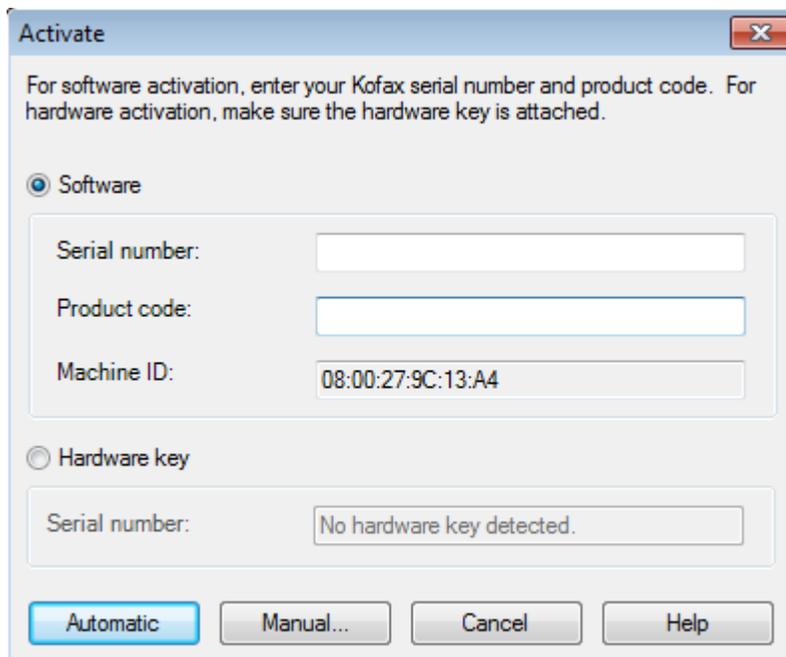
The Kofax License Utility is refreshed to list the available licenses. Close the window.

3. Let the installer wizard run until it is finished and click **Finish** on the last step.

4. To enable the Document Transformation Service, run the PowerShell script.

> ℹ️ This script sets up the IIS services required to host the Thin Client. Optionally, you can manually configure the Thin Client Server by using the procedures in Install Thin Client Server.

The script is located in the Kofax DTS installation folder (by default `c:\Program Files (x86)\Kofax DTS`): **EnableDocumentTrasformation.ps1**.

You need administrator rights to run the script. Perform the following steps to install the Document Transformation Service:

    a. Start Windows PowerShell with administrator rights.

    b. To allow script execution, run `Set-ExecutionPolicy remotesigned` in the PowerShell.

    c. Change the folder to `c:\Program Files (x86)\Kofax DTS`

    d. Execute the appropriate script.

The following text is displayed after the script is executed.

```
Name  : Kofax RPA Document Transformation Service
State : Started


Name         : Kofax RPA Document Transformation Service
ID           : 2
State        : Started
PhysicalPath : C:\Document Transformation\Service
Bindings     : Microsoft.IIs.PowerShell.Framework.ConfigurationElement


Name  : Kofax RPA Document Transformation Client
State : Started


Name         : Kofax RPA Document Transformation Client
ID           : 3
State        : Started
PhysicalPath : C:\Document Transformation\Client
Bindings     : Microsoft.IIs.PowerShell.Framework.ConfigurationElement

*** 4) Starting the Server Scheduler service
WARNING: Waiting for service 'Document Transformation - Server Scheduler Service (Server Scheduler)' to
start...


PS C:\Program Files (x86)\Kofax DTS>
```

5. Restart your computer.

> ℹ️ If you need the Document Transformation Thin Client for manual document validation after transformation, see Use the Thin Client locally.

For Kofax RPA you need to configure two websites using the Internet Information Services (IIS) Manager: one for the Document Transformation Service and the other for the Document Transformation Thin Client Server.

Default Web server locations:

- `C:\Document Transformation\Client`
- `C:\Document Transformation\Service`

Both websites have a `Web.config` file you need to modify.

Document Transformation Service Web.config

Edit the following settings:

- `BatchValidationFolder` specifies where to put documents for validation. This must correspond to the `BatchFolder` setting in the `Web.config` file for the Document Transformation Thin Client Server.
- `ProjectsFolder` specifies where the service looks for Document Transformation projects.
- `ValidationService` is the default location for the Document Transformation Thin Client Server and it is used if you have not specified it in the settings for the Document Transformation step.
- In the `Web.config` file, replace `localhost` with `127.0.0.1` if it is not mapped for your operating system.

  Optionally, you can change the `TransformationService` and `ValidationService` port numbers.

`Web.config` file example:

```
<TransformationService.Properties.Settings>
      <setting name="BatchValidationFolder" serializeAs="String">
        <value>C:\Document Transformation\Batch\Validation</value>
      </setting>
      <setting name="TransformationService" serializeAs="String">
        <value>http://localhost:50081</value>
      </setting>
      <setting name="ValidationService" serializeAs="String">
        <value>http://localhost:50082</value>
      </setting>
      <setting name="ProjectsFolder" serializeAs="String">
        <value>C:\Document Transformation\Project</value>
      </setting>
  </TransformationService.Properties.Settings>
</applicationSettings>
```

The maximum document size for transformation is 100 MB. Kofax RPA imposes a file size limit for a transformed document to enable protection against the denial-of-service attacks. You can lower the file size value to protect against such an attack. To change the document size limit, edit the following two parameters in the `Web.config` file.

`<httpRuntime targetFramework="4.5.1" maxRequestLength="104857600"/>`

`<requestLimits maxAllowedContentLength="104857600"/>`

Document Transformation Thin Client Server Web.config

In the Document Transformation Thin Client Server configuration file, edit the following settings:

- `BatchFolder` specifies where the server looks for documents that are sent for validation.
- `SharedSecretFile` specifies a path to the file that contains the shared secret to authenticate with the Management Console.
- `SharedSecret` contains shared secret to authenticate with the Management Console (only used when `SharedSecretFile` is empty or the file cannot be read).

To get the shared secret, open the Management Console and go to **Admin** > **Service authentication**. Click the context menu for **DTS**, select **Show shared secret**, and copy the shared secret to clipboard.

`Web.config` file example:

```
<Kofax.KTS.Backend.Kapow.Properties.Settings>
<setting name="ReportingEnabled" serializeAs="String">
<value>False</value>
</setting>
<setting name="BatchFolder" serializeAs="String">
<value>C:\Document Transformation\Batch</value>
</setting>
<setting name="SharedSecret" serializeAs="String">
<value>5XVPObyR2jC0BeWMN0fnob7AjYaGvcDVh7MD0CwgBY8AOQLdg22m_bn2nfNFICgXoqHA4zLwym05yUwnbyp6tw</value>
</setting>
<setting name="SharedSecretFile" serializeAs="String">
<value/>
</setting>
</Kofax.KTS.Backend.Kapow.Properties.Settings>
```

After installation, the built-in projects are located here:

`C:\Document Transformation\Projects`

Remove unnecessary batches

If the Batch folder has accumulated too many unneeded batches or documents, you can manually delete them from the system. You can also remove batches and documents from the Error folder or resubmit them for validation and further processing by moving them to the Batch\Validation folder.

Multiple Management Consoles

If there is only a single Management Console instance used with Document Transformation Service, it is sufficient to insert the shared secret directly in the `Web.config` file or create a file that contains this shared secret.

If there are multiple Management Console instances that can be contacted, the Document Transformation Service Client must be able to distinguish between the different instances. To do so, each shared secret should be prefixed with the host identification in the following format:

`<host>:<port>#<secret>`, where

- `<host>` is the DNS or IP address of the system the Management Console is installed on. It must exactly match the Management Console URL setting in Design Studio or RoboServer configuration that runs robots that use DTS.
- `<port>` is the port on which Management Console is connected. This must be provided even if Management Console uses default `HTTP (80)` or `HTTPS (443)` ports.
- `<secret>` is the Document Transformation Service shared secret for this Management Console instance.

Multiple shared secrets must be separated by line breaks or `;` characters.

If the Client service fails to look up the Management Console based on the URL, it will default to the first configuration that has no `...#` prefix.

Example for a single Management Console instance:

```
<setting name="SharedSecret" serializeAs="String">
            <value>-ZJ61T82PdU7QGeVcDNyse98MEeQJcMPIr4rETesFE46SDzaBM2LIzi-
JK3SLx9_4S-9QMpYqeT0x9Yz9lIUgQ</value>
        </setting>
```

Example for two Management Console instances:

```
<setting name="SharedSecretFile" serializeAs="String">
        <value>C:\Document Transformation\ManagementConsoleSecrets.txt</value>
        </setting>
```

where the file `C:\Document Transformation\ManagementConsoleSecrets.txt` contains the
following lines:

```
localhost:50080#-ZJ61T82PdU7QGeVcDNyse98MEeQJcMPIr4rETesFE46SDzaBM2LIzi-
JK3SLx9_4S-9QMpYqeT0x9Yz9lIUgQ
127.0.0.1:50080#-ZJ61T82PdU7QGeVcDNyse98MEeQJcMPIr4rETesFE46SDzaBM2LIzi-
JK3SLx9_4S-9QMpYqeT0x9Yz9lIUgQ
192.168.19.134:50080#-ZJ61T82PdU7QGeVcDNyse98MEeQJcMPIr4rETesFE46SDzaBM2LIzi-
JK3SLx9_4S-9QMpYqeT0x9Yz9lIUgQ
production.domain.corp:8080#7kKmke0HKYhkhVEoRPQSQcuPJY-gpGtlGO-
rAaJhFPahYnz28e9ZNtsRMsKxcBfz-2Nq1bf04zVAfyORn5Zlug
```

to configure shared secrets for two Management Console instances, where the first (local) instance
is configured in three different ways.

Test configuration

Now you are ready to verify that everything works. The Examples folder in the default Kofax RPA
project contains a robot to test the Document Transformation Service.

1. Start the Management Console by selecting **Start Management Console** 11.5.0.0 from the
   Start menu. Make sure that `HTTP Connector started on port 50080` displays in the
   command window. The Management Console acts as a license server for Design Studio that
   uses the license you activated earlier.

2. Open Design Studio by selecting **Design Studio 11.5.0.0** from the Start menu.

   In the **Enter License Information** window, enter the URL for the license server, and click OK.
   A Management Console that acts as a license server opens in your selected browser. After
   authenticating to the Management Console, you can start working with your projects in Design
   Studio.

3. In the **My Projects** view, expand **Projects** > **11.5.0.0** > **Examples** > **Robots** and double-click the
   TestDocumentTransformationServiceBasic robot to open it.

4. To allow execution for the robot, click **Prepare Execution** ⚡ .

   Select the **CLICK HERE FIRST** step, and after reading the message, select **THEN CLICK HERE**.

   If you see the "Congratulations, it works!" message in the main window, Document
   Transformation is configured correctly on your computer. If you do not see that message,
   Kofax Technical Support is available to help you identify the cause. See the Troubleshooting
   section in this document.
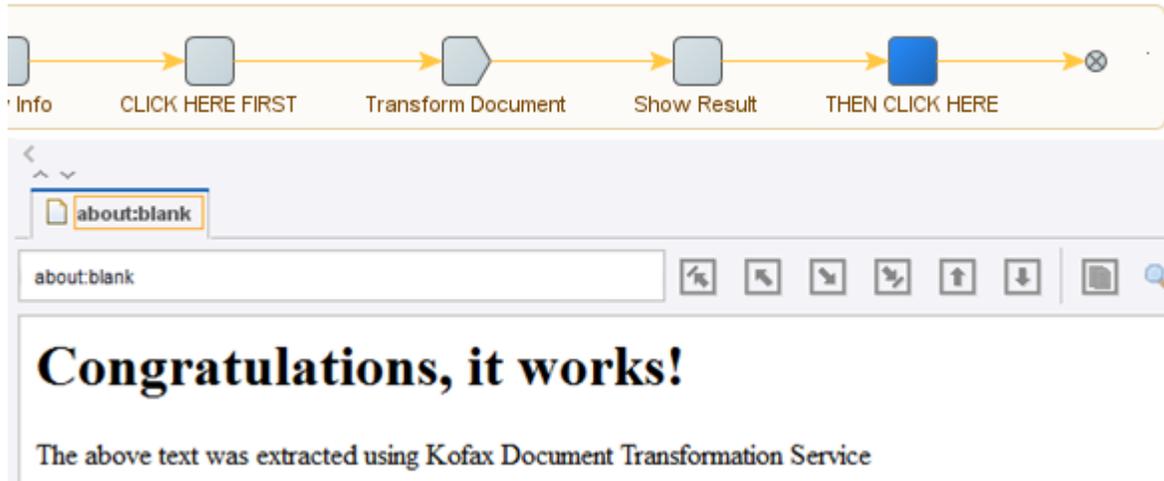
Use the Thin Client locally

To get the Document Transformation Thin Client to work, add a local user group `KTSUsers` by following these steps:

1. Open the Run window by selecting **Start** > **Accessories** > **Run**.

2. In the Run window, type `compmgmt.msc` and click **OK**.

3. Expand **Local Users and Groups** in the left pane, right-click **Groups**, and select **New Group**.

4. Type **KTSUsers** in the **Group name** field, and click **Add** under members.

5. Add your own user into the new local group.

Now you should be able to log in to the Document Transformation Thin Client with the added user credentials.
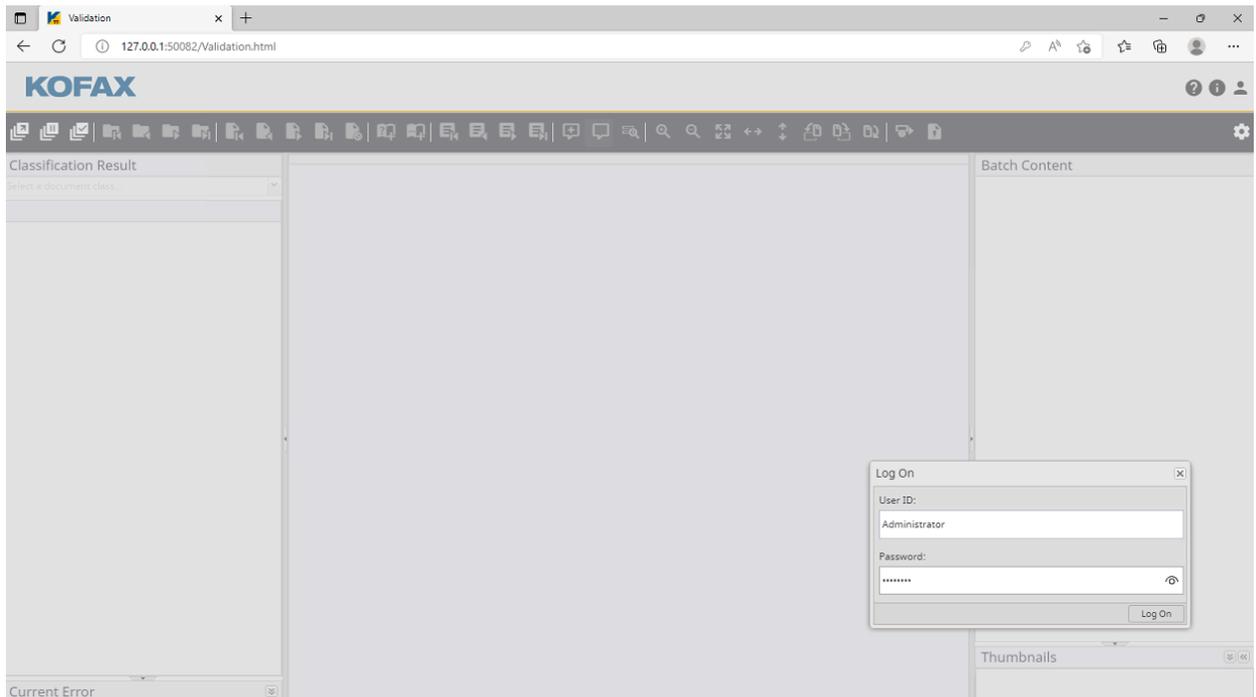
Path to local Thin Client
The Thin Client is installed automatically and bound to IP address `127.0.0.1` port `50082`.
If you want to use the Thin Client option in the **Document Transformation** step, enter
`http://127.0.0.1:50082` in the **Thin Client URL** property when creating or editing this step in
the Robot workflow.
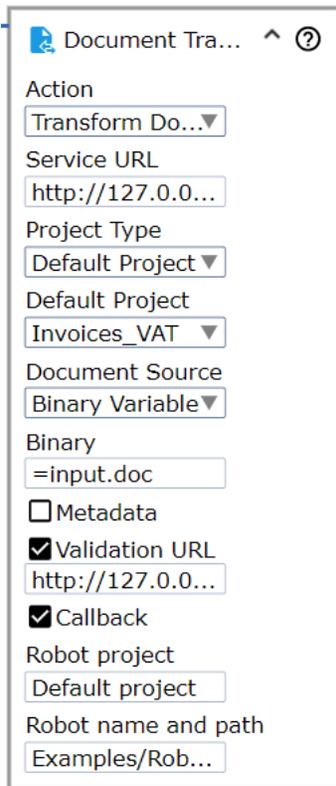
Configure Single Sign-On (SSO) authentication

Single sign-on authentication lets you skip the default login screen by utilizing the Windows credentials of the current user. To enable SSO using your active Windows account, modify the `Web.config` file.

1. Go to the Document Transformation Client folder and open the `Web.config` file.

2. Find the sections marked with comments about SSO and apply the following changes:

   a. Find the `windowsAuthentication` node and change the `enabled` attribute to `true`:
   ```
   <windowsAuthentication enabled="true"
   ```

   b. Under the `webHttpBinding` node, find the `transport` node, and change the `clientCredentialType` attribute to `Windows`:
   ```
   <transport clientCredentialType="Windows" />
   ```

   c. Under the `customBinding` node, find the `httpTransport` node, and change the `authenticationScheme` attribute to `Negotiate`:
   ```
   <httpTransport authenticationScheme="Negotiate"
   ```

   d. Change the `AuthenticationWithSingleSignOn` setting value to `True`:
   ```
   <setting name="AuthenticationWithSingleSignOn" serializeAs="String">
      <!-- Use 'False' for the non-SSO case, and 'True' for SSO. -->
     <value>True</value>
   ```

e. Change the `ShowLoginDialog` setting value to `False`:

```
<setting name="ShowLoginDialog" serializeAs="String">        <!-- Use 'True'
 for the non-SSO case, and 'False' for SSO. -->        <value>False</value>
```

To disable SSO authentication, change the above mentioned attributes and values to their defaults.

> ⓘ After you enable SSO, the currently logged in Windows account is used, which means that it is impossible to change users. In case you access the Client from a different computer than the one on which server is running, make sure that your Windows account is in the correct domain on the server.

Set up Online Learning

The Document Transformation Service provides a method of using unsuccessful extraction results to improve documents processed in the future. This feature is based on training the system to "remember" the layout of a sample document, such as an invoice. By using automatic field completion, manually typing or selecting the correct value in the transformed document, you can "train" the system to improve extraction results for a similar document next time.

You can configure this functionality on the **General** tab in the Document Transformation Service Project Settings. By default, this functionality is already enabled for the default invoice projects included in your installation package. When setting up the path to a folder to store training documents, ensure that the location already exists. If it does not exist, you need to create it. For your custom projects, you need to create such a folder for each project with Online Learning enabled. If the Document Transformation Service is installed on multiple servers, we recommend that you specify a network shared directory, so the documents can be accessed by all of the servers. Alternatively, you can make the default "Document Transformation" folder a shared folder and configure the Document Transformation services, Kofax RPA Document Transformation Service and Kofax RPA Document Transformation Client, to use the UNC path.

Also, the Document Transformation Service allows you to manually update a project by importing collected extraction or classification Online Learning data. For more information on Online Learning, see the Kofax Transformation documentation.

> ⓘ For validation purposes, when creating a new project to use with the Document Transformation Service, we recommend that you add a version number to the project name, such as Project_1. After importing collected Online Learning data, save this project as Project _2, and so on. This approach will allow the system to keep using the older project, Project_1, for the document validation. Afterward, update the respective robots to use the new project (Project_2).
>
> When the validation is completed, you can delete the older project and continue using the newer one until a new set of learned data is imported.

Troubleshooting

License Utility-related errors
Check to make sure the Kofax License Server service is running. Also try starting the Kofax License Utility and verify your license information displays without errors.

Transformation Failed or Timed Out error after clicking "THEN CLICK HERE" step of robot

This section lists possible causes of the error.

- Document Transformation Service Scheduler is not running.
- Kofax Licensing Server is not running.
- `Web.config` file was not properly configured as described in the "Document Transformation Service Web.config" section of this document.
- Incorrect license was specified for your version.

Installation log files

Kofax RPA creates installation log files in `C:\Users\{UserAccount}\AppData\Local\Temp`. Review them for additional help or provide them to Kofax Technical Support when opening a Support Case.

Install Thin Client Server

The following section provide instructions on how to manually install Kofax Transformation Thin Client Server, which may be required if you do not want to install a default setup described in Install Document Transformation Components. For the prerequisites, see the *Kofax Transformation Modules Thin Client Server Installation Guide*.

Install on Windows Server 2022

This section provides instructions for installing the Thin Client Server on a Windows Server 2022.

1. Start the installation by running **KofaxRPA_DocumentTransformationService-<version>.msi** in the product files folder. If you are running the installation from removable media, the installation should start automatically.
2. Click **Next** to install the software.
   If IIS is not yet installed, a message is displayed. You can ignore this for now and install IIS at a later time.
3. Read the End-User License Agreement and, if you agree with the terms, select the **I accept the terms in the License Agreement** option, and click **Next**. Otherwise, click **Cancel** to exit.
4. If necessary, change the default installation location or folder name, and click **Next**.
   a. Click **Change**.
   b. Browse to, or type the new location, and click **OK**.
5. Click **Install**.
6. When the installation is complete, click **Finish**.
7. Configure the Thin Client Server feature delegation using the **Internet Information Services (IIS) Manager.**
   a. In the **Connections** pane, select the Home node for your server.
      The central panel is updated to include a list of settings for your Home node.
   b. In the central panel, under the **Management** group, double-click **Feature delegation**.

The Feature Delegation page is displayed.

    c. In the **Group by** drop-down list at the top of the page, select **Delegation**.
The list of settings is updated and the authentication settings are read-only.

    d. From the list of read-only settings, select **Authentication - Windows**.

    e. A list of settings for the selection is displayed in the right panel .

    f. Select **Read/Write**. The setting is moved to the Read/Write category.

8. Configure the Thin Client Server web site using the **Internet Information Services (IIS) Manager**.

    a. In the **Connections** pane, expand the **Sites** folder.

    b. Right-click the Default Web Site and select **Add Application** from the menu. This launches the Add Application window.

    c. Type an Alias for your application, such as "ThinClientServer."

    d. Select an Application pool. The "DefaultAppPool" is selected by default and click **OK**.

    e. Browse to the location where you installed the Thin Client Server earlier in step 4 to set the path for this website, and click **OK**.

9. From the left **Connections** pane, select your newly added site a second time. A list of features is displayed in the middle pane.

    a. From the IIS section, double-click the **Authentication** feature. A list of authentication types is displayed in the middle pane.

    b. Select the ASP.NET Impersonation option and ensure it is **Disabled**.

    c. Restart the World Wide Web Publishing Service.

10. From the list of features, double-click the **Mime Types** in the **IIS** group, and scroll down to confirm that the .json extension is included in the mime types. If the .json extension is not in the list, follow these steps to add the missing extension.

    a. In the Actions pane, click **Add**.
The Add MIME Type window is displayed.

    b. Enter **.json** in the **File name extension** field.

    c. Enter **application/json** in the **MIME Type** field.

    d. Click **OK**.

The .json MIME extension is now available.

11. Click the **Application Pools** setting from the Connections pane. A list of application pools is displayed on the right.

    a. Right-click the application pool you selected when adding your application and select **Advanced settings**.
The **Advanced settings** window is displayed.

    b. In the **General** group, set **Enable 32-Bit Applications** to True.

    c. In the **Process Model** group, set the **Maximum Worker Processes** option to **1**. This is the default setting.

d. Optionally, if you are using an encrypted file system, you also need to click the **Identity** setting from the Process Model group and change it to a custom account. This custom account needs to have the same permissions as the NetworkService account.

Click the button to the right of Identity value. The **Application Pool Identity** window is displayed.

Select the Custom account setting, and click **Set**.

Type a User name, Password, and Confirm password, and click **OK**.

Click **OK** to close the Application Pool Identity window, and again to close the Advanced Settings window.

e. Double-click the selected application pool.

The **Edit Application Pool** window is displayed.

f. From the .NET CLR version list, select **.NET Framework v4.0.30319**.

g. Click **OK** to close the **Edit Application Pool** window.

12. Ensure that the IIS user account `IUSR` is part of the `IIS_IUSRS` group.

13. Open **Services** and ensure that the **World Wide Web Publishing Service** is set to start automatically.

Install Kapplets

This section provides instructions for adding Kofax RPA Kapplets to your system, including information about configuring settings and databases.

- Configure general settings
- Configure the database
- Add to a Tomcat server installation
- Add to a Docker installation
- Add to an Embedded mode installation

Configure general settings

The `application.properties` file serves as a template for all possible properties for the Kapplets application. The most commonly used settings are described in this section. Depending upon the installation scenario, use these properties as needed for your Kapplets configuration files.

The `application.properties` file is under:

```
C:\Program Files\Kofax RPA 11.5.0.0\WebApps\kapplets.war
```

ℹ Settings added using properties have precedence over the settings configured in the user interface.

The following steps provide an overview of general settings that might apply to your installation scenario. Configure the settings that apply, and adjust the syntax and format according to your installation scenario.

1. Configure Management Console settings.
   - Configure the connection settings and credentials:

```
kapplets.services.mc.connection.url=http://<ip_adress>:8080
kapplets.services.mc.connection.proxy.host=<ip_adress>
kapplets.services.mc.connection.proxy.port=8888
kapplets.services.mc.connection.proxy.username=<proxy-user>
kapplets.services.mc.connection.proxy.password=<password>
kapplets.services.mc.connection.proxy.enabled=false
```

   ⓘ Do not use `localhost` or `127.0.0.1` as a Management Console IP address even if Kapplets and Management Console are located on the same server. Always use an IP address that a RoboServer can use to connect to the Management Console.

   - Configure the auto-refresh-functions in seconds.

     The following functions cache a list of robots and projects to ensure quicker access to it. Values in the functions must be the same. If you specify zero (0), caching is disabled and each user query to get a robot list is sent directly to the Management Console, which greatly increases the load.

```
kapplets.services.mc.caching.descriptions.life-time=300
kapplets.services.mc.caching.robots.life-time=300
```

     The following auto-refresh function reloads the list of robots and projects to keep it up-to-date. Do not alter its value without consulting with Kofax support.

```
kapplets.services.mc.caching.auto-fetch-interval=10
```

2. Configure URLs for redirecting Kapplets users between Kapplets and Management Console in a browser at login.
   - URL to Kapplets:

```
kapplets.services.mc.connection.service.kapplets-base-url=https://<host>:<port>/
kapplets
```

   - URL to Management Console:

```
kapplets.services.mc.connection.service.mc-base-url=https://<host>:<port>/
ManagementConsole
```

3. Configure the Kapplets shared secret in one of the following ways.

   A secret is required to connect Kapplets to Management Console. The secret is saved to the database and used by the Management Console. See also "Service authentication" in the *Kofax RPA User's Guide* or *Help*.

   - To use an existing shared secret, perform the following steps.

     ⓘ You must configure the shared secret before the initial startup of Management Console and/or Kapplets and before creating tables in their databases.

     a. Navigate to `C:\Program Files\Kofax RPA 11.5.0.0\WebApps\kapplets.war \WEB-INF\classes`.

    b. Open the `application.properties` file and specify the shared secret in either of the following variables.

- `kapplets.services.mc.connection.service.shared-secret-file=<filepath>`,

  where `filepath` is in the format `C:/clientsecret.txt` to the file that contains the secret in plain text.

- `kapplets.services.mc.connection.service.shared-secret=<shared-secret-in-plain-text>`.

  where `shared-secret-in-plain-text` is the secret in plain text.

    c. Navigate to `C:\Program Files\Kofax RPA 11.5.0.0\WebApps\ManagementConsole.war\WEB-INF`.

    d. Open the `Configuration.xml` file and specify the following variable `<property name="kappletsSharedSecret" value="<shared-secret-in-plain-text>"/>`,

  where `shared-secret-in-plain-text` contains the secret in plain text.

    e. Start the Management Console and Kapplets applications.

- To use an automatically generated token from the Management Console:

    a. Click **Admin** > **Service authentication**, select Kapplets, and click **Show shared secret**.

    b. Copy the shared secret.

    c. Paste the shared secret into the field that appears on the start page when you launch Kapplets for the first time after installation.

    d. Click Update.

4. Configure Kapplets execution watching service settings in minutes.

- Maximum Kapplet execution time to mark the execution failed:

```
kapplets.services.execution.watcher.timeout=190
```

- Automatically clean all execution records older than set amount of days:

```
kapplets.services.execution.purge.timeout=365
```

5. Configure password encryption properties.

The underlying mechanism is similar to that used in Management Console, as described in "Password Encryption" in the *Kofax RPA Administrator's Guide*. By default, the mechanism uses the keystore included with the installation, but we strongly recommend that you provide your own keystore with the RSA asymmetric key-pair.

- For the keystore included with the installation, configure the following properties.

```
kapplets.keystore.current.password=changeit
kapplets.keystore.current.password-file=<path to file>
kapplets.keystore.current.location=/kapplets.p12
kapplets.keystore.current.alias=kapplets
```

- When upgrading the keystore, configure the following properties for the previous keystore.

```
kapplets.keystore.previous.password=changeit
kapplets.keystore.previous.location=/kapplets.p12
kapplets.keystore.previous.alias=kapplets
```

6. Configure the execution priority.

```
kapplets.services.execution.request.priority=MEDIUM
```

The possible values are `MINIMUM`, `LOW`, `MEDIUM`, `HIGH`, and `MAXIMUM`.

7. Configure timeout in seconds.

```
kapplets.services.execution.request.timeout=600
```

8. Configure Excel export format settings for English and the other languages (Japanese in this example).

```
kapplets.services.result.xls-export-formats[ja].number-format=#,##0.00
kapplets.services.result.xls-export-formats[ja].integer-format=#,#
kapplets.services.result.xls-export-formats[ja].date-format=yyyy/m/dd h:mm:ss

kapplets.services.result.xls-export-formats[en].number-format=#,##0.00
kapplets.services.result.xls-export-formats[en].integer-format=#,#
kapplets.services.result.xls-export-formats[en].date-format=mm/dd/yyyy h:mm:ss
```

9. Configure the Kapplets execution queue settings.
  - Number of robots executing simultaneously:

```
kapplets.services.execution.max-pool-size=100
```

  - Maximum number of robots waiting for the execution on Kapplets server:

```
kapplets.services.execution.task-queue-limit=1000
```

Configure the database

Supported database versions change periodically, and some older versions are no longer supported with newer releases of Kofax RPA Kapplets. For a list of supported databases and versions, see "Kofax RPA Kapplets in an application server" in the Technical Specifications document.

1. Determine which option to use in your configuration.
  - Automatic initialization: Occurs on application start when a database user has access privileges and a database exists.
  - Manual initialization: Performed by using SQL scripts when a Kapplets server database user has no access privileges and a database structure does not exist.

2. The Kapplets platform database follows the same requirements as the Management Console platform database.

Consider recommendations described in "Create a New Database" in the *Kofax RPA Administrator's Guide* document.

3. Configure the database.

> ℹ️ The following excerpts are configuration examples only. A full database configuration contains other settings.

  - **Example MySQL database:**

```
spring.datasource.username=<username>
spring.datasource.password=<password>
spring.datasource.url=jdbc:mysql://database-service:3306/<database-name>?
autoReconnect=true
spring.datasource.driverClassName=com.mysql.cj.jdbc.Driver
spring.jpa.database-platform=org.hibernate.dialect.MySQL8Dialect
```

  - **Example Oracle database:**

```
spring.datasource.username=<username>
spring.datasource.password=<password>
spring.datasource.url=jdbc:oracle:thin:@database-service:1522:<database-name>
spring.datasource.driverClassName=oracle.jdbc.driver.OracleDriver
spring.jpa.database-platform=org.hibernate.dialect.Oracle12cDialect
```

- **Example SQL Server database:**

```
spring.datasource.username=<username>
spring.datasource.password=<password>
spring.datasource.url=jdbc:sqlserver://database-service:1433;database=<database-
name>;SelectMethod=cursor
spring.datasource.driverClassName=com.microsoft.sqlserver.jdbc.SQLServerDriver
spring.jpa.database-platform=org.hibernate.dialect.SQLServer2012Dialect
```

- **Example PostgreSQL database:**

```
spring.datasource.username=<username>
spring.datasource.password=<password>
spring.datasource.url=jdbc:postgresql://database-service:5432/<database-name>?
currentSchema=<schema-name>
spring.datasource.driverClassName=org.postgresql.Driver
spring.jpa.database-platform=org.hibernate.dialect.PostgreSQL10Dialect
spring.quartz.properties.org.quartz.jobStore.driverDelegateClass=\
org.quartz.impl.jdbcjobstore.PostgreSQLDelegate
```

- **Example JNDI database:**

```
spring.datasource.jndi-name=jdbc/kapow/kapplets
```

4. Go to one of the following sections to add Kofax RPA Kapplets and customize settings for your installation.
    - Add to a Tomcat server installation
    - Add to a Docker installation
    - Add to an Embedded mode installation

Add to a Tomcat server installation

Before proceeding with this installation, you must install and configure all of the following, or verify that they are installed and configured:

- Tomcat server
- Kofax RPA on the Tomcat server
- Kofax RPA Management Console
- Database (See Configure the database.)

> ℹ To install Kapplets with a different name than the default "kapplets," customize the file names of the `.xml` and `.war` files to match.

Perform the following steps to add Kofax RPA Kapplets to a Tomcat server installation and customize the parameters.

1. Create a `kapplets.xml` file using the following code excerpt as an example.

```
<Context useHttpOnly="true">
  <!-- Default set of monitored resources -->
  <WatchedResource>WEB-INF/web.xml</WatchedResource>

  <Resource name="jdbc/kapow/kapplets"
```

```
     auth="Container"
     type="javax.sql.DataSource"
     initialSize="5"
     maxTotal="100"
     maxIdle="10"
     maxWaitMillis="-1"
     validationQuery="/* ping */"
     testOnBorrow="true"
     testWhileIdle="true"
     username="<username>"
     password="<password>"
     driverClassName="com.mysql.cj.jdbc.Driver"
     url="jdbc:mysql://<ip_address>/kapplets?
autoReconnect=true&amp;useSSL=false&amp;useLegacyDatetimeCode=false&amp;serverTimezone=UTC"
     factory="org.apache.tomcat.jdbc.pool.DataSourceFactory"/>

     <Environment name="spring.datasource.jndi-name"
     value="jdbc/kapow/kapplets" type="java.lang.String" override="false"/>

     <Environment name="spring.jpa.database-platform"
     value="org.hibernate.dialect.MySQL8Dialect" type="java.lang.String"
     override="false"/>

     <Environment name="kapplets.services.mc.connection.url"
     value="http://<ip_address>:<port>/ManagementConsole/"
     type="java.lang.String" override="false"/>

     <!-- url user can access with browser -->
     <Environment name="kapplets.services.mc.connection.service.kapplets-base-url"
     value="http://<ip_address>:<port>/kapplets/"
     type="java.lang.String" override="false"/>

     <!-- url user can access with browser -->
     <Environment name="kapplets.services.mc.connection.service.mc-base-url"
     value="http://<ip_address>:<port>/ManagementConsole/"
     type="java.lang.String" override="false"/>
</Context>
```

2. Save the `kapplets.xml` file in:

   `C:\Program Files\Apache Software Foundation\Tomcat 8.5\conf\Catalina \localhost`

3. If you want to run Kapplets with a different name than the default "kapplets," change the file name.

   Example: `kapplets13.xml`

4. If needed, add general settings using the `application.properties` file as a template, and edit the `kapplets.xml` file to match your settings.

   For detailed information about general settings, see Configure general settings.

   • Edit the IP address, credentials, and general settings.

   • If you are using excerpts from the `application.properties` file, you must translate the syntax.

   Example:

   From the `application.properties` file:

   `kapplets.services.execution.request.priority=MEDIUM`

   `kapplets.services.execution.watcher.timeout=190`

   To the `kapplets.xml` file:

```
<Environment name="kapplets.services.execution.request.priority"
value="MEDIUM" type="java.lang.String" override="false"/>
<Environment name="kapplets.services.execution.watcher.timeout"
value="190" type="java.lang.Integer" override="false"/>
```

- Save the `kapplets.xml` file.

5. Navigate to `C:\Program Files\Kofax RPA 11.5.0.0\WebApps`.

6. Copy the `kapplets.war` file to:

   `C:\Program Files\Apache Software Foundation\Tomcat 8.5\webapps`

7. If you customized the name of the `kapplets.xml` file, rename the default `kapplets.war` to match the file name of the `.xml` file.

   Example: `kapplets13.war` to match `kapplets13.xml`

8. Place a relevant JDBC connector that corresponds to the database in:

   `C:\Program Files\Apache Software Foundation\Tomcat 8.5\lib\`

9. Open the database and create a "kapplets" schema.

10. Start or restart the Tomcat server.

11. Navigate to the Kofax RPA Kapplets page using default URL:

    `http://<ip_adress>:8080/kapplets`

Add to a Docker installation

Before proceeding with this installation, you must install and configure all of the following, or verify that they are installed and configured:
- Docker
- Kofax RPA Design Studio
- Database (See Configure the database.)

Perform the following steps to add Kofax RPA Kapplets to a Docker installation and customize the parameters.

1. Create a docker-compose file using the following examples.

```
# example docker-compose file,that brings up a MySQL instance
# and a Kapplets server
version: '2'
networks:
  net:
services:
  mysql-service:
    image: mysql:5
    environment:
      - MYSQL_ROOT_PASSWORD=<root-password>
      - MYSQL_DATABASE=<kapplets-database>
      - MYSQL_USER=<kapplets-user>
      - MYSQL_PASSWORD=<kapplets-user-password>
    networks:
      - net
  kapplets-service:
    build:
    context: .
    dockerfile: docker/kapplets/Dockerfile
```

```
      image: kapplets: 11.5.0.0
      depends_on:
        - mysql-service
      networks:
        - net
      ports:
        - 8080:8080
      environment:
        - SPRING_JPA_DATABASE_PLATFORM=org.hibernate.dialect.MySQL5InnoDBDialect
        - SPRING_DATASOURCE_DRIVERCLASSNAME=com.mysql.jdbc.Driver
        - SPRING_DATASOURCE_URL=jdbc:mysql://mysql-service:3306/<kapplets-database>?
autoReconnect=true
        - SPRING_DATASOURCE_USERNAME=<kapplets-user>
        - SPRING_DATASOURCE_PASSWORD=<kapplets-user-password>
        - KAPPLETS_SERVICES_MC_CONNECTION_URL=http://<managementconsole-service-url>
        # URLs user can access with browser
        - KAPPLETS_SERVICES_MC_CONNECTION_SERVICE_KAPPLETSBASEURL=http://<external-
host>:8080/
        - KAPPLETS_SERVICES_MC_CONNECTION_SERVICE_MCBASEURL=http://<external-
host>:<port>/
        # same secret as in MC (SERVICE_AUTHENTICATION_KAPPLETS_SHARED_SECRET)
        - KAPPLETS_SERVICES_MC_CONNECTION_SERVICE_SHAREDSECRET=<secret>
        - SLEEP_DELAY=30s
```

> ℹ In the example, the `com.mysql.jdbc.Driver` class name is for JDBC connectors in the 5.1 version. This line would change based on the version. For comparison, JDBC connectors in the 8.0 version would be `driverClassName=com.mysql.cj.jdbc.Driver`. Make sure you customize this line for the driver version you are using.

2. If needed, add general settings using the `application.properties` file as a template, and make the required edits to characters.

   • Convert configuration property names to uppercase.

   • Replace all "**.**" period characters with "_" underscore characters.

   • Remove all hyphens.

   Example:

   `kapplets.services.mc.connection.service.kapplets-base-url`

   Must be changed to:

   `KAPPLETS_SERVICES_MC_CONNECTION_SERVICE_KAPPLETSBASEURL`

   For detailed information about general settings, see Configure general settings.

3. Customize the connection settings and credentials.

4. To provide a delay between starting the database and Kapplets containers, configure the – `SLEEP_DELAY` setting.

   The – `SLEEP_DELAY` specifies how many seconds to wait before starting containers after the database launches. This time delay makes launching more predictable and avoids the scenario when Kapplets try to connect to a database that is not running.

5. Save the file.

6. Run the docker-compose file.

7. Navigate to the Kofax RPA Kapplets page using the default URL:

   `http://<ip_address>:8080/`

Add to an Embedded mode installation

Before proceeding with this installation, you must install and configure all of the following, or verify that they are installed and configured:

- Kofax RPA
- Kofax RPA Management Console
- Database (See Configure the database.)

Perform the following steps to add Kofax RPA Kapplets to an embedded mode installation and customize the parameters.

1. Create a destination folder on your computer.

   Example: `C:\Kapplets`

2. Copy the `application.properties` file under:

   `C:\Program Files\Kofax RPA 11.5.0.0\WebApps\kapplets.war`

3. Save the file to your destination directory.

4. Navigate to `C:\Program Files\Kofax RPA 11.5.0.0\WebApps`.

5. Copy the `kapplets.war` file to your destination folder.

6. Configure the general settings using the `application.properties` file.

   For detailed information about general settings, see Configure general settings.

7. In the `application.properties` file, verify that the connection settings and credentials for Kofax RPA Kapplets connect to the Management Console and to the configured database.

   Example:

```
spring.datasource.url=jdbc:mysql://<db-host>:<port>/<db-name>?autoReconnect=true
spring.datasource.username=<db-user-name>
spring.datasource.password=<db-user-password>
spring.datasource.driverClassName=com.mysql.cj.jdbc.Driver
spring.jpa.database-platform=org.hibernate.dialect.MySQL8Dialect

#e.g. http://<mc-host>:8080/ManagementConsole
kapplets.services.mc.connection.url=<mc-url>

# URLs user can access with browser
kapplets.services.mc.connection.service.kapplets-base-url=https://<host>:<port>/
kapplets.services.mc.connection.service.mc-base-url=https://<host>:<port>/
ManagementConsole
kapplets.services.mc.connection.proxy.host=<proxy-host>
kapplets.services.mc.connection.proxy.port=8888
kapplets.services.mc.connection.proxy.username=<proxy-user>
kapplets.services.mc.connection.proxy.password=
kapplets.services.mc.connection.proxy.enabled=false

# maximum robot execution time, in minutes
kapplets.services.execution.watcher.timeout=190

# days to keep the old executions for
kapplets.services.execution.purge.timeout=365

# Set to enable debug logs.
# debug=true
```

```
logging.file.name=logs/kapplets.log
```

8. Create a `standalone_run.bat` file that includes the following line to execute Kapplets.

```
java -jar kapplets.war
```

> ℹ️ Alternatively, you can execute Kapplets by typing the same line in a Command Prompt.

9. Create `C:\Kapplets\lib`.

10. Place a JDBC driver for the database in `C:\Kapplets\lib`.

11. Navigate to `C:\Program Files\Kofax RPA 11.5.0.0\documentation\sql\kapplets`, then load the database with the following scripts:
   - `create-kapplets.sql`
   - `create-quartz.sql`
   - `create-session.sql`

   Each database has scripts located in the corresponding folder under:

   `C:\Program Files\Kofax RPA 11.5.0.0\documentation\sql\kapplets`

12. Start the `standalone_run.bat`.

13. Navigate to the Kofax RPA Kapplets page using the default URL:

   `http://<ip_adress>:8080/`

Install on Linux

Kofax RPA provides two installers for Linux:
- A tar.gz file containing all the components.
- Kofax RPA RoboServer installer: Installs the RoboServer service only.

Full Installation

The installation is performed by extracting the contents of the tar.gz file. In most Linux distributions, this can be done by right-clicking the file and selecting the appropriate extraction option. The file can also be extracted from the command line as follows:

```
$tar xzf KofaxRPA-11.5.0.0.tar.gz
```

Alternatively, to extract the file to a specific directory, use the following command:

```
$tar xzf KofaxRPA-11.5.0.0.tar.gz -C /destination_directory
```

When the file is extracted, run the following commands as a user with root privileges. The commands help manage chrome-sandbox file permissions and set the creator and owner of chrome-sandbox as the root to enable SUID mode.

The chrome-sandbox file resides in: `.../KofaxRPA-<build number>/nativelib/hub/linux-x64/<build number>/node_modules/cef/chrome-sandbox`
- `chown root:root chrome-sandbox`
- `chmod 4755 chrome-sandbox`

Proceed to enter license information as described in Provide License Information.

> ⓘ You can install Kofax RPA as an unprivileged user on Linux.

Running RoboServer Installer

The RoboServer-only installers are created for the DEB package. The default installation folder for this package is `/opt/Kofax RPA/`.

Each of the RoboServer packages contains a RoboServer launcher that is used to run RoboServer as a Linux `/etc/init.d` service. This makes it automatically start on system boot.

The packages create a Kofax RPA user and group in the system used when running the RoboServer `/etc/init.d` service. The configuration files (most importantly `roboserver.settings`) for the RoboServer service are located in the Kofax RPA users home directory (`/home/<username>/`) under the hidden directory `.Kofax RPA/<version>`.

The `roboserver.settings` file can also be accessed through `/etc/opt/Kofax RPA/RoboServer.conf`.

To see all available commands, just run RoboServer from `/etc/init.d` without any arguments.

By default, the RoboServer starts with an SSL port listening (the port number is defined in the `roboserver.settings` file). Keep in mind that this is a RoboServer only installation; it is not possible for the service to be configured to start a Management Console, such as with the -MC parameter, which is done via the full installation of Kofax RPA.

To run `roboserver` as a `init.d` service:

1. Install the DEB package.

2. Change the RoboServer configuration (optional).

3. Run `#service RoboServer start`, or restart the machine to start the service automatically.

Silent Installation on Windows

A silent installer runs without user interaction. This is convenient if, for instance, you need to automate the installation process in a script.

Using Full Installer

To perform a silent installation of Kofax RPA, run the following command with administrative rights.

```
msiexec /qn /i KofaxRPA-11.5.0.0.msi
```

This command installs the program to the default location. To specify another location, use a command as follows:

```
msiexec /qn /i KofaxRPA-11.5.0.0.msi INSTALLDIR="dir"
```

where `"dir"` is the location where you want to install. For example:

```
 msiexec /qn /i KofaxRPA-11.5.0.0.msi INSTALLDIR="C:\Kofax RPA 11.5.0.0\"
```

> ⚠ If installing Kofax RPA to a custom folder, the installation folder and all parent folder names must be compliant with the system locale of the Windows installation. The system locale settings can be found in the Region settings under "Language for non-Unicode programs."

To specify a file to log the installation process, use the following parameter:

```
msiexec /qn /i KofaxRPA-11.5.0.0.msi /l msilog.txt
```

After installation, proceed to enter license information as described in Provide License Information.

Using Limited Installers

The following are examples of using different installers in silent mode.

```
msiexec /qn /i KofaxRPADesignStudio-11.5.0.0.msi
```

```
msiexec /qn /i KofaxRPARoboServer-11.5.0.0.msi
```

```
msiexec /qb /i KofaxRPADesktopAutomationService-11.5.0.0.msi
```

Install and Configure CyberArk

This section describes how to install and configure a CyberArk application.

To install the components of CyberArk, see the CyberArk documentation for end users, admins and security professionals.

To configure a CyberArk application, perform the following steps:

1. Obtain two keystores, each containing a certificate and a private key. These keystores (one keystore for each purpose) are intended to be used for the Central Credential Provider web service and for Kofax RPA (the client).

   To generate a keystore, you can use, for example, a Java Runtime Environment `keytool` or an OpenSSL library.

   > ⊗ Always use strong passwords for the keystores to ensure maximum security of your data.

   Then, extract the certificates from the keystores for further configuration.

2. Install the CyberArk Central Credential Provider application. See the CyberArk Central Credential Provider Implementation guide for more information on how to install the application.

   By default, an instance of the installed application is titled *AIMWebService* and looks similar to the following:
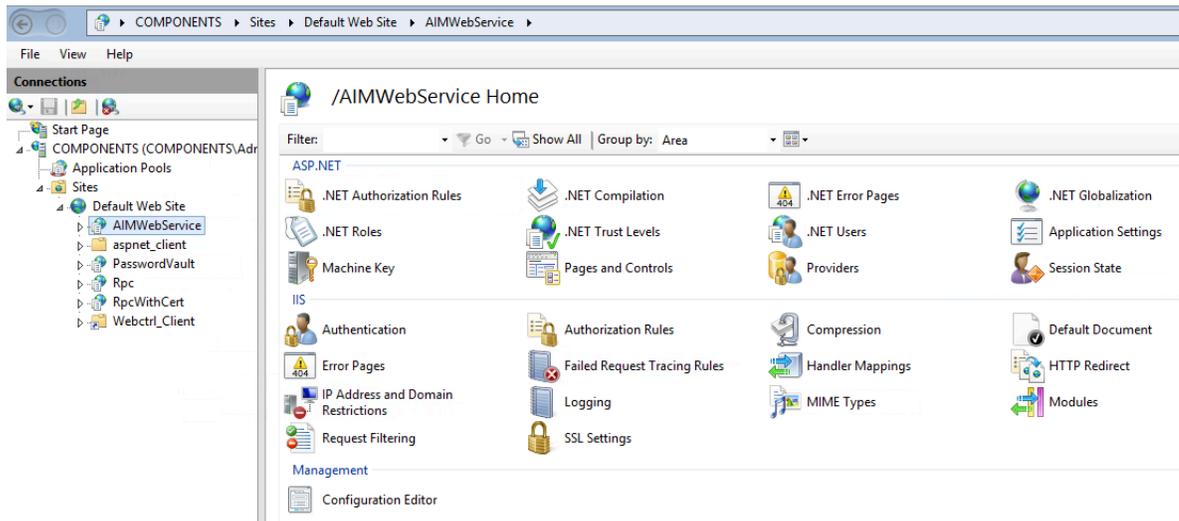
Note that Kofax RPA communicates with Central Credential Provider through TLS (SSL) using client authentication for Kofax RPA.

3. Configure the CyberArk Password vault. For example, you can configure it on the Password vault page of the CyberArk web interface.

Add an application to use with Kofax RPA. Navigate to the Applications tab and click **Add Application** in the upper right corner of the page to add an application.
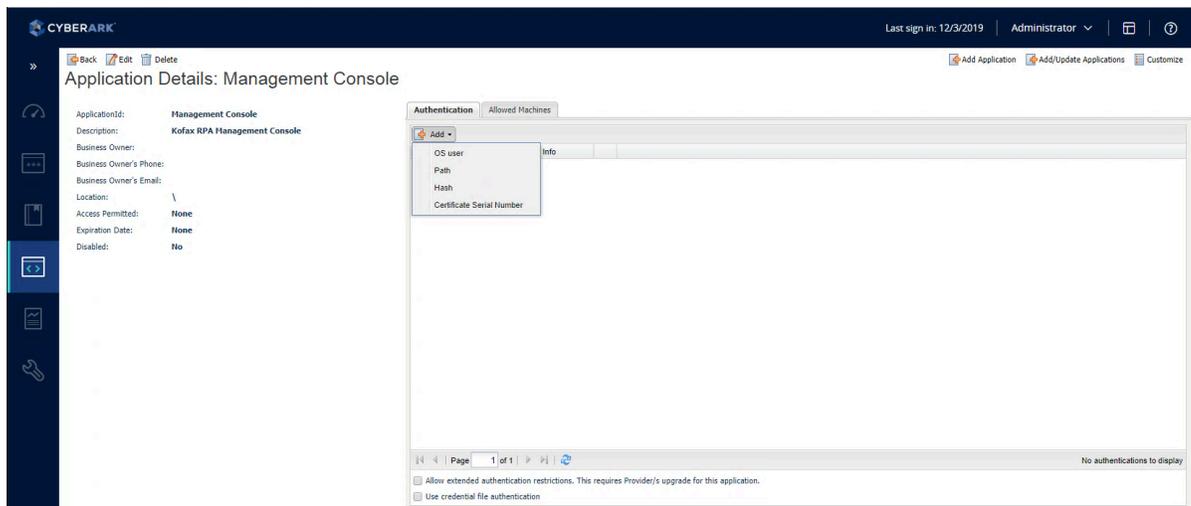

CyberArk provides the following application authentication methods. We recommend that you use one of these authentication methods or both methods together:

- Client certificates: A signed certificate that enables Kofax RPA authentication of the requesting application against the Central Credential Provider web service. Applications can authenticate with either a self-signed certificate or a certificate signed by a Certificate Authority.
- Allowed machines: The list of allowed machines, based on IP or DNS, from where an application can run. Multiple addresses can be specified for a single application ID, which

enables multiple instances of a single application to run on different machines and use the same application ID. The Central Credential Provider verifies the specified addresses each time it receives a request from the application.

Each application needs access rights to the account entry safe. To grant the rights, navigate to **Policies** > **Access Control (Safes)** and select an application to grant access rights to.
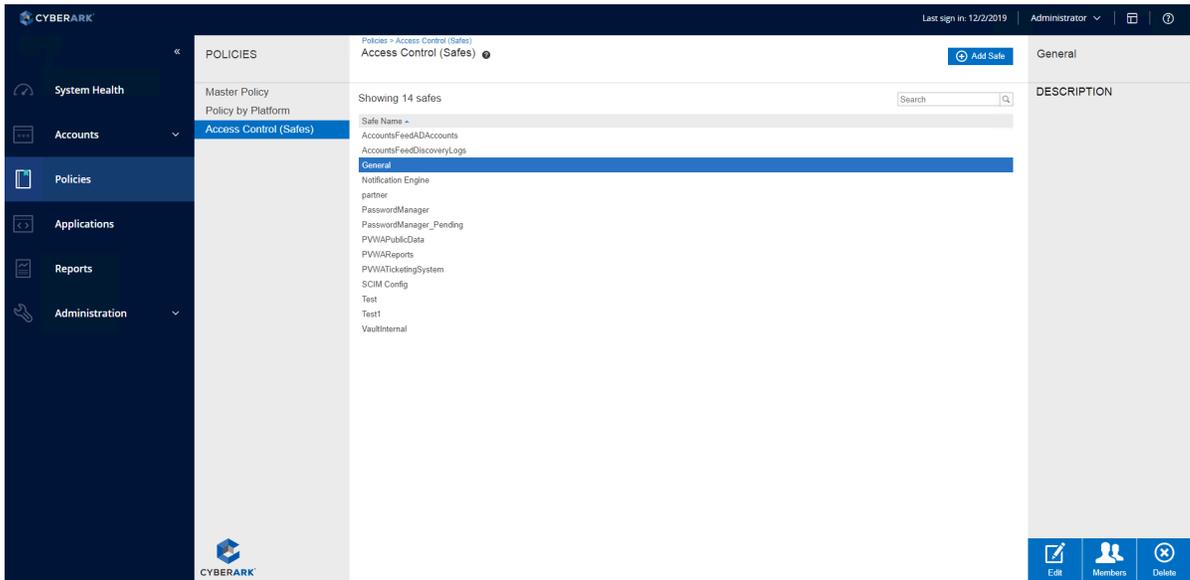
Click **Members** in the lower right corner of the page to provide a credential provider identificator for the safe record. Use the provider user name that you specified in the Credentials Provider installation. Then, provide the Application IDs to grant access rights to.
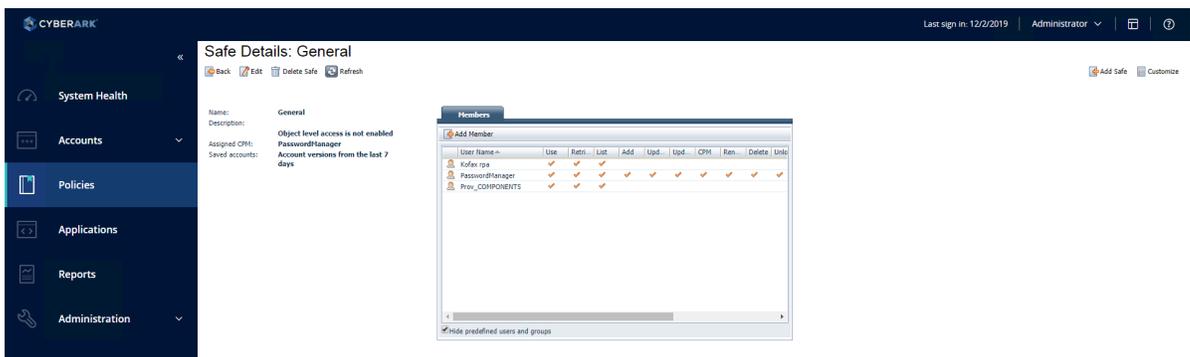
4. Finally, edit the `Configuration.xml` file located under `/WEB-INF` to use CyberArk as an external password manager instead of the Kofax RPA built-in password manager.

    By default, the configuration is as follows:

```
<bean id="passwordStore" class="java.lang.String">
      <constructor-arg value="STANDARD"/>
   </bean>
```

Change it to:

```
<bean id="passwordStore" class="java.lang.String">
      <constructor-arg value="CYBERARK"/>
```

```
            </bean>
```

Save the `Configuration.xml` file to complete the configuration.

> ℹ️ The **Account Name** of a CyberArk account, which corresponds to the **Account Name** field in the Management Console, is displayed on the **Accounts > Accounts View (Classic UI)** tab of the CyberArk web interface.
>
> See *Kofax RPA Help* for more details.

For further information on using CyberArk with Kofax RPA, see *Kofax RPA Help*.

When Kofax RPA is deployed using Docker, specify the following variables in the environment section of the Management Console service of docker-compose file:

```
environment:
- CONFIG_PASSWORDSTORE=CYBERARK
- SETTINGS_CYBERARK_URL=https://localhost
- SETTINGS_CYBERARK_PORT=443
- SETTINGS_CYBERARK_IISAPPLICATIONNAME=AIMWebService
```

For the configuration with a self-signed certificate, specify the following additional environment variable:

```
environment:
- SETTINGS_CYBERARK_CERTIFICATEPATH=/usr/local/tomcat/root.cer
```

Important Folders in Kofax RPA

We recommend that you become familiar with the folders and files described in this section.

Installation Folder

The installation folder is the folder where Kofax RPA is installed. On Windows, the installation folder defaults to:

```
C:\Program Files\Kofax RPA 11.5.0.0
```

> ⚠️ If installing Kofax RPA to a custom folder, the installation folder and all parent folder names must be compliant with the system locale of the Windows installation. The system locale settings can be found in the Region settings under Language for non-Unicode programs.

On Linux it will be a directory named `KofaxRPA-11.5.0.0` in the directory where you extracted the archive.

The installation folder contains the following important folders:

bin

Contains all executable programs for Kofax RPA.

API

Contains files related to the Kofax RPA Integration APIs.

lib on Windows and lib/jdbc on Linux

Contains the installed JDBC database drivers. These drivers are always available in Kofax RPA applications. Normally, you should manage JDBC drivers as described in the Database Drivers topic in the Management Console section of the *Kofax RPA Help*.

Project Folder

The project folder contains your library of robots and types, as described in the Design Studio help topic. Configure the location of the project folder with the Settings application as described in the Working with Projects and Libraries topic of the Design Studio *Kofax RPA Help*. On Windows, the default location is similar to the following, depending on your Windows version:

```
C:\Documents and Settings\username\My Documents\My Robots\11.5.0.0
```

```
C:\Users\username\Documents\My Robots\11.5.0.0
```

Default project directory location for Linux:

```
~/Kofax RPA/11.5.0.0
```

The project directory must contain a single subdirectory named Library.

Application Data Folder

The application data folder contains files that are private to the Kofax RPA but which differ for different users of the same computer. On Windows, the application data folder is (depending on your Windows version):

```
C:\Documents and Settings\username\Local Settings\Application Data\Kofax RPA
\11.5.0.0
```

```
C:\Users\username\AppData\Local\Kofax RPA\11.5.0.0
```

Application data directory for Linux:

```
~/.Kofax RPA/11.5.0.0
```

To change the location of the application data folder, you can edit the `common.conf` file in the `installation\bin` folder. Add the following two lines:

- `wrapper.java.additional.<NUMBER>=-Dkapow.applicationDataFolder="Folder containing Configuration folder"`
- `wrapper.java.additional.<NUMBER>.stripquotes=TRUE`
  Where `<NUMBER>` is a unique integer.

Make sure that the user running Kofax RPA has read and write access to the folder.

Under normal circumstances, you should never modify or delete files or folders within this folder directly; the GUI tools should be used instead. The application data folder contains the following important folders:

Certificates

Contains the HTTPS certificates known by Kofax RPA. See the "Certificates" section in the *Administrator's Guide* for more information.

Configuration

Contains configuration files, which are maintained as described in the section Configuring Kofax RPA.

Data

Contains the embedded Derby database used by the Management Console (except when installed as a web application in a Tomcat web server). See "Management Console on Tomcat" chapter in the *Administrator's Guide*.

DemoDatabase

Contains the Development Database that you can also use in "toy projects" during your introduction to Kofax RPA.

Logs

Contains log files.

White-label Kofax RPA

Use the following procedure to white-label Kofax RPA, which is intended for use by the OEM partners only.

Requirements

- A ZIP file provided by Kofax containing files required for white-labeling
- A Design Studio or a complete MSI installer
- A set of images for replacement as listed below
- PowerShell version 5 installed
- Java Development Kit with jar.exe

1. Create a working directory. The new directory needs to be located close to the root directory because file paths may get close to Windows limits.

2. Extract the ZIP file to the new directory.

3. Edit the **updateMsi.ps1** file in the following way:
   - `$msiFile` variable must point to the MSI file to white-label.
   - `$wdir` variable must point to the working directory.
   - `$pathtojarexe` variable must point to jar.exe in your JDK installation.
   - `$imagesjar` variable must point to a JAR file containing images (for the specification, see the Word document included in the ZIP file).
   - `$pathToBanner` variable must point to a BMP file of size 493x58 to use in the installer.
   - `$pathToDialog` variable must point to a BMP file of size 493x312 to use in the installer
   - `$help_logo` variable must point to an image to use for the online documentation (both Design Studio and Management Console)
   - `$favicon` variable must point to an ICO image to use for Management Console.
   - `$mclogo` variable must point to a logo to use for Management Console.
   - `$companyName` and `$companyUrl` variables replace the company name and URL in the About dialog boxes.

4. Execute the following PowerShell script to update the MSI file:
   ```
   .\updateMsi.ps1
   ```

Kofax RPA is now white-labeled. Additionally, use the custom library of robots provided in the product for the white-labeling purpose.

Provide License Information

This chapter is for users with the following roles: Administrator and Project Administrator.

The next task after installing the Kofax RPA product is to enter and configure the license.

To configure licensing in the Kofax RPA user interface, use the **Management Console** > **Admin** > **License** section. See "Licenses" in the *Kofax RPA Help*.

It is not necessary to enter license information in RoboServers, as they automatically receive the necessary license information from Management Console.

To use the Desktop Automation feature, obtain a separate license for this feature from Kofax.

License keys

Two types of license keys are available:

Production key
Permits production use of the Kofax RPA system.

Non-Production key
Permits use of the Kofax RPA system for non-production purposes, such as testing and staging.

Each type of license key describes which Kofax RPA features you have and how many robots can run in a cluster.

If you have both a production key and a non-production key, you may install them in the same Kofax RPA Management Console. Also, you may choose to set up one system for each key. In both cases, you need to set up at least two different clusters (either on the single system or one cluster on each of the two systems), configured as production and non-production, respectively. The KCUs in your licenses can then be assigned to these clusters.

Do not use the same key in more than one Management Console.

Kofax TotalAgility license servers

For environments where Kofax RPA is installed and used with Kofax TotalAgility and other Intelligent Automation products, configuring a license server unifies all the product licensing. This configuration applies only to Kofax RPA installations with Kofax TotalAgility.

Note the following limitations for a unified license server configuration.

- Only one connection to a TotalAgility instance can be configured.
- Use one licensing method, either license server or license key. Both cannot be active at the same time.

    You can switch your system from one license method to the other. Use cases might be switching from license keys to a Kofax TotalAgility license server. If the Kofax TotalAgility system has issues, switching to license keys allows users to continue working until the issues are resolved.

- In an HA cluster, all Management Console instances must use the same license server and the same License API key.
- If Management Console instances are independent, they must use a different License API Key for each Management Console.

Use one of the following options to configure a license server:

- The Kofax RPA user interface **Management Console** > **Admin** > **License server**.

    This option is useful for smaller and medium-scaled environments. This option allows you to add and modify the license details within the same tab. The configuration is stored in the database. The licensing configuration can only be changed at runtime.

- The properties in the `configuration.xml` file or a Docker file.

    This option is useful in large-scale and enterprise environments. Also, this option is useful in cloud and HA deployments. This option takes precedence over any user interface settings and license configuration in the databases. On the "License server" tab, details will be read-only. Changes can only be made through the configuration file. The Kofax RPA application starts without prompting for a license. If a connection to the license server is not available at startup, an error message appears and Management Console does not start.

> ⓘ For the reserve and maximum values, you may want to leave those unconfigured in the properties file. Leaving them out of the properties configuration allows you to change them in the user interface. This approach allows for flexibility to change the reserve and maximum values without a restart.

Configuration inputs

To configure the license server for a Management Console, the following inputs are needed.

- The URL of the Kofax TotalAgility installation acting as the license server.

    This is the base URL, without the API endpoint. The URL is automatically appended by the system when you configure the license using the "License server" tab.

- Kofax TotalAgility License API Key. Generate keys in TotalAgility Designer: **KTA** > **System** > **System settings** > **License Servers**.

    License consumption is recorded per License API key. When generating keys, be aware of the following requirements.

    - All Management Console instances that act as one tenant or are part of an HA cluster must use the same license API key.
    - Different Management Console instances that have their own database and user base that act as different tenants must each use a unique License API key.

- The number of production CRE licenses that the Management Console instances reserve on startup.

  Each Management Console reserves a fixed CRE number (if available), which are then distributed to each RoboServer.

- The number of non-production CRE licenses to reserve.

  If unlimited CRE licenses are available, this number is ignored and the unlimited number is used instead.

- Maximum number of users that the Management Console can use.

  This serves as a hard limit, regardless if more licenses are available. The purpose is to distribute licenses if multiple Management Console clusters use the same license and license server. If not specified, the user number is unlimited.

- Maximum number of Design Studio seats that the Management Console can use.

  (Works the same as the maximum number of users.)

High availability considerations

If you are licensing for an HA environment, consider the following before configuring a Kofax TotalAgility unified license server.

- All Management Console instances in the HA cluster must be configured to use the same TotalAgility License API Key. The License API key is a requestor identifier for TotalAgility and the method that license data are managed.
- Usage values do not sum up.

  All usage values reported are referred to the same client. Different instances of Management Console must use different license API keys, because the license usage refers to a different user base/tenant. This rule applies to multi-tenant, test, and production environment configurations.

- Only one connection to a TotalAgility server is supported for each Management Console tenant or cluster.
- A backup TotalAgility server is not configurable. Backups can be covered by setting up an HA TotalAgility cluster, which is reached by a single URL.

Configuring via properties file

To configure the license server in the properties instead of the user interface, locate the `configuration.xml` file for the following bean:

```
<bean class="com.kapowtech.mc.config.LicenseServerConfiguration"
id="licenseServerConfiguration">.
```

Set the license server values described in the following table.

Property	Description
licenseType	Type "`SERVER`" as the licensing method.
ktaServerUrl	Enter the license server URL. The base URL for the TotalAgility instance, with the programmatically added " `/Services/Sdk/LicenseClient/`..." part.
licenseApiKey	Enter the license API key generated in TotalAgility.

Property	Description
productionCreReserved	Set the number of production CREs to reserve.
nonProductionCreReserved	Set the number of non-production CREs to reserve.
	If set, this limits the maximum number of users the instance accommodates. Set this value to prevent overuse in a multi-tenant environment.
maxUsers	Set the maximum number of users to allow.
maxDesignStudioSeats	Set the maximum number of Design Studio seats.
	If set, this limits the maximum number of Design Studio seats the instance accommodates. Set this value to prevent overuse in a multi-tenant environment.

Configuring via a Docker file

Set following environment variables when running the Management Console in a Docker container.

Set the license server values described in the following table.

Property	Description
CONFIG_LICENSESERVER_LICENSETYPE	Type "SERVER" as the licensing method.
CONFIG_LICENSESERVER_KTASERVERURL	Enter the license server URL.
	The base URL for the TotalAgility instance, with the programmatically added " /Services/ Sdk/LicenseClient/..." part.
CONFIG_LICENSESERVER_LICENSEAPIKEY	Enter the license API key generated in TotalAgility.
CONFIG_LICENSESERVER_PRODUCTIONCRERESERVED	Set the number of production CREs to reserve.
CONFIG_LICENSESERVER_NONPRODUCTIONCRERESERVED	Set the number of non-production CREs to reserve.
	If set, this limits the maximum number of users the instance accommodates. Set this value to prevent overuse in a multi-tenant environment.
CONFIG_LICENSESERVER_MAXUSERS	Set the maximum number of users to allow.
CONFIG_LICENSESERVER_MAXDESIGNSTUDIOSEATS	Set the maximum number of Design Studio seats.
	If set, this limits the maximum number of Design Studio seats the instance accommodates. Set this value to prevent overuse in a multi-tenant environment.

Management Console server functionality

In an enterprise environment, Management Console and RoboServer server functions can be provided by the same server program. Refer to "Start Servers Automatically" in the *Kofax RPA Administrator's Guide*.

Concurrent Robot Execution (CRE) licensing

The Kofax RPA Concurrent Robot Execution (CRE) licensing centers around a Kofax RPA Robot license, where the Kofax RPA Robot license controls how many robots can execute on a Kofax RPA RoboServer concurrently. For example, if an organization is licensed for five Kofax RPA Robots, then five robots can be executed concurrently.

There is no limit to the number of robots that can be designed and deployed into production, and robots can be as simple or complex as they need to be. For example, a robot can consist of a few or many steps that execute a set of business workflow actions, such as inputting and outputting data, transforming data, writing data to an Excel worksheet or calling a RESTful Service API.

When you add a CRE-based license, you need to assign licenses to a cluster. To adjust the number of CREs, in Management Console > **Admin** > **RoboServers**, click **Assign CRE to Clusters**. This action opens the Assign license units pane where you can adjust the number of license units and see how many units are available in total and how many remain. Depending on the selected license distribution mode, licenses are distributed between RoboServers as in the following table.

Option	Description
Static	In this mode, CREs in a cluster are distributed evenly between online RoboServers in the cluster. A CRE is an integral unit, and you cannot split one CRE among multiple RoboServers. For example, if you have 9 licenses that you assigned to a cluster and there is one RoboServer in the cluster, the RoboServer can run nine robots. If there are two RoboServers, they can run four robots each, because a CRE license cannot be split. If you start three RoboServers, each can run three robots. ⓘ The number of CREs in a cluster must be equal to or bigger than that of RoboServers. If you assign fewer CREs to a cluster than the number of RoboServers present in the cluster, the cluster is disabled.

Option	Description
Dynamic	In this mode, RoboServers receive the licenses from the cluster per request. A RoboServer can get as many licenses as it requests if they are available. In this mode, RoboServers communicate only with the Management Console and block other requests, such as API calls. ⓘ In the Dynamic license distribution mode, license units are distributed automatically. This overrides the `licenseLimit` parameter. Dynamic license distribution mode can not be applied to a high availability setup. ⊗ Dynamic license distribution mode is supported by Kofax RPA version 10.3 and later. Version 10.7 and later support this mode immediately after installation. To use dynamic license distribution, in versions 10.3 to 10.6, install the latest fix pack for the corresponding version. See Enable Dynamic License Distribution Mode in the *Kofax RPA Upgrade Guide*.

Kofax RPA licensing is available on a perpetual or annual term basis. Kofax RPA licensing is independent of the target hardware environment and physical CPUs, and a robot license is not tied to a physical desktop or virtual machine, allowing you the flexibility to choose cloud-based or on-premise, as well as virtualized or physical CPU environments.

Learn more about Kofax RPA licensing at https://www.kofax.com/

Kofax RPA Compute Units (KCU) licensing

Another way to license Kofax RPA is to use capacity-based pricing based on Kofax RPA Compute Units (KCUs). This pricing model is completely independent of the chosen hardware configuration.

What are KCUs?

A KCU is a Kofax RPA Compute Unit and is defined as a unit of measure for how many operations (or steps) a Kofax RPA RoboServer can perform in one second (which is unrelated to underlying server capacity).

A step is the smallest unit of action that can be performed within a RoboServer. Examples of steps are loading a web page, writing a data record to a database, or performing a transformation on a data element.

One KCU represents a total of 5000 KCU points per second. The number of Kofax RPA steps that make up one (1) KCU depends on the type of Kofax RPA steps involved, as each step consumes a different amount of the KCU. The steps are divided into groups, and the most important groups are listed here:

1. Steps that both do I/O and execute JavaScript that cost 10,000 KCU points, such as 2 page loads per second with 4 KCUs

2. Steps that do either I/O or execute JavaScript (but not both) that cost 1000 KCU points, such as 20 Call REST Web Service Steps per second with 4 KCUs

3. Extraction and transformation steps that cost 1 KCU point, such as 40,000 extract or assign steps per second with 4 KCUs

4. Call Robot step that costs 5000 KCU points.

5. Looping in Robots that costs 5000 KCU points per iteration.

The complete KCU list is available in Design Studio by clicking **Help** > **Show KCU Information**.

You should have enough CPU power and sufficiently low response time from the source server.

> ⓘ We have empirically measured the average page load time to be 6.7 seconds on a powerful CPU over the 23,000 most visited web sites.

The total number of KCUs a robot uses can be seen in the Design Studio Debugger Summary information after running the robot.

Deploying and Assigning KCUs

With KCUs we can deliver the needed computing capacity independent of the target hardware environment and physical CPUs. This approach allows the flexibility of choosing cloud-based or on-premise, virtualized or physical CPU environments without the need to control the number of allocated CPUs.

The available KCUs are assigned to the RoboServer clusters in Management Console and automatically distributed among the RoboServers available within the cluster.

To adjust the number of KCUs, in Management Console > **Admin** > **RoboServers**, click **Assign KCU to Clusters**. This action opens the Assign license units pane where you can adjust the number of license units and see how many units are available in total and how many remain.

Design Studio licensing

If Design Studio is not already started, do as follows:

Windows

Use the **Design Studio** item from the Start menu.

To start Design Studio from the command line, run the following command in the bin subfolder of the installation folder.

```
DesignStudio
```

Linux

Start Design Studio from the command line by launching the `DesignStudio` program in the bin directory under the installation directory (see Important Folders in Kofax RPA) as follows:

```
$./DesignStudio
```

On the next screen, enter your license information.

License Server

The central license server (Management Console) administers the license for all Design Studio users. Enter the URL for that server provided by your administrator and click **OK**. After

authenticating to the Management Console that opens in your selected browser, you can start working with your projects in Design Studio. If you shut down your Design Studio for more than four days, you need to authenticate again.

If you enter the URL without specifying a port, the default port 80 or 443 will be used for HTTP or HTTPS, respectively.

The license server must be running and have available Design Studio seats for you to use Design Studio.

See the *Administrator's Guide* for information on using Management Console as a license server.

Design Studio displays the **Enter License Information** dialog box only the first time it is started.

To add another Management Console and use it as a license server:

1. Select **File** > **Configure License Server**.

    The **Design Studio Settings** dialog box opens.

2. On the **Management Consoles** tab, deselect the **Use as License Server** option for the current Management Console that acts as a license server.

3. Click the plus sign, add a new Management Console and select the option to use it as a license server.

To switch users when using Design Studio:

1. If the browser has an active Management Console session: In Design Studio, right-click the required Management Console that acts as a license server and select **Open**.

    Log out of your current Management Console that opens in the browser.

2. In Design Studio, right-click the Management Console, select **Disconnect**, and then select **Refresh**.

    Enter the required user name and password to authenticate with Management Console.

To view which user you are logged in with, right-click the Management Console in Design Studio and select **Open**. This is valid for cases when the browser has an active Management Console session.

Switch Display Language for Management Console and Design Studio

Follow this procedure to change the display language for Management Console and Design Studio. The examples in this procedure use the Japanese language.

> ℹ On your computer, ensure that the language setting for non-Unicode programs is set to the applicable language. The steps to take depend on your operating system.

- If Management Console is run as an embedded component, follow these steps:

    1. In the folder `{path}\<Kofax RPA_installed_folder>\bin`, locate and create a backup copy of the file **common.conf**. Open the file with a text editor, such as Notepad. You may need to run the text editor as an administrator.

    2. Locate the setting `Wrapper Localization`, scroll down to the section `Java Additional Parameters`, and then make the following changes as applicable to the desired display language.

    ```
    # Wrapper Localization
    #*****************************************************************
    # Specify the locale which the Wrapper should use.  By default the system
    #  locale is used.
    # Supported languages: en_US, ja_JP and fr_FR
    wrapper.lang=ja_JP

    # Java Additional Parameters

    wrapper.java.additional.2=-Duser.country=JP
    wrapper.java.additional.3=-Duser.region=JP
    wrapper.java.additional.4=-Duser.language=ja
    ```

    3. Save the changes.

- If Management Console is installed on a stand-alone Tomcat server that runs via startup/shutdown scripts, follow these steps:

    1. In your Tomcat installation, locate and open the file **catalina.bat**. You may need to run the text editor as administrator.
        - Optionally, you can use the setenv.bat file to keep the customizations separate as recommended by Tomcat.

    2. Locate the setting `CATALINA_OPTS` and then make the following changes as applicable to the desired display language.

```
set CATALINA_OPTS="-Duser.language=ja" "-Duser.region=JP" "-Duser.country=JP"
```

- If you are editing the setenv.bat file, you need to add the `CATALINA_OPTS` setting to the file and assign it the required value as shown in the example above.

3. Save the changes.

- If Management Console is installed on a stand-alone Tomcat server that runs as a windows service, do the following:

    1. Run `tomcat9w.exe` from the `bin` subfolder of the Tomcat installation folder.

    2. In the Apache Tomcat Properties window, select the **Java** tab and add the following options to the **Java Options** section:

    ```
    -Duser.language=ja
    -Duser.region=JP
    -Duser.country=JP
    ```

    Click **OK**.

    3. Restart the server for the changes to take effect.

From the Kofax RPA 11.5.0 folder, run the following shortcuts: **Start Management Console** and **Start Development Database** in the Development Database folder. Leave the Command Prompt windows open while the applications are running.

When you start Management Console and Design Studio, the display language is changed to the desired display language. To switch back to English, close both Command Prompt windows. If required restore the backup copy of `common.conf`, and then restart both shortcuts.

Chapter 5

Kofax RPA Initial Configuration

After installing Kofax RPA, configure the installation to suit your needs. Some configuration is done using the Settings application as described in the "RoboServer Configuration" section in the *Kofax RPA Administrator's Guide*.

For Management Console, the common.conf file can be used to perform initial configuration, which includes the display language to use. Any subsequent configuration must be performed with the Management Console user interface. Configuration tasks that are relevant for administrators of the Kofax RPA system, can also be done with Management Console, more specifically in the **Admin > RoboServers** and **Projects** sections. It is especially important to set up the necessary RoboServers and clusters in the **RoboServers** section. See the Management Console chapter in *Kofax RPA Help* for more information on these sections.

Quick Start Guide

This chapter explains how to start using Kofax RPA.

Prerequisites
- The examples below use an embedded Management Console (NOT deployed on Tomcat) and RoboServer that are on a different computer than Design Studio.
- This chapter assumes you have at least a non-production key for running Management Console.

Install the software

1. Make sure that the system requirements are met based on the information in Dependencies and Prerequisites.

2. Install the Kofax RPA software on the computer where you will use Management Console and RoboServer. Follow the instructions in Install Kofax RPA as applicable for your operating system.

3. Install Design Studio on the applicable computers. Use the installer for the Design Studio component, as described in the Install Kofax RPA chapter. In this chapter, Management Console is used for licensing.

Start Management Console and RoboServer

Before you start an embedded Management Console, configure the RoboServer. See Configure Management Console settings for details.

To start a Management Console, either run **Start Management Console** from the Start menu on Windows or run the following command from the `bin` folder of the Kofax RPA installation folder.
- **On Windows:** `RoboServer.exe -p 50000 -MC -mcUrl http://localhost:50080`
- **On Linux:** `./RoboServer -p 50000 -MC -mcUrl http://localhost:50080`

Notes
- All RoboServer command parameters are listed in the Runtime chapter in the *Kofax RPA Administrator's Guide*.
- You can reach Management Console on `http://<ServerNameOrIP>:<port>`. Additional settings (different port, HTTPS usage, and so on) are available in the **RoboServer Settings** application from the Start menu.

- You can start RoboServer on different ports (default is 50000). By default, Kofax RPA registers the RoboServer on the port specified in the command for this Management Console.
- It is possible to start Management Console and RoboServer in separate JVMs by running the RoboServer command with separate parameters.
  See the RoboServer parameters in the *Kofax RPA Administrator's Guide*.
  `RoboServer -MC` command starts Management Console only.
  `RoboServer -p 50000 -mcUrl http://<ServerName>:<port> -ss <MC Shared Secret> -cl "Production"` command starts a RoboServer on port `50000` and registers it to the Management Console at `ServerName:port` under the Production cluster with the specified shared secret.
- A Kofax RPA environment always has one Management Console that can control multiple RoboServers. Do not configure multiple Management Consoles to control the same RoboServer.
- It is possible to configure Kofax RPA Management Console and RoboServers to start automatically. See the Kofax RPA Initial Configuration chapter for more information.

Access Management Console and enter license key

Use your browser to open Management Console.

Example: `http://MCServer:50080`

The first time you open Management Console and log in using the default credentials, it prompts for the license key. Make sure that the keys and the company name match exactly the data you received from Kofax. The license data can later be replaced in the Management Console > **Admin** > **License**.

> ℹ Click the Help icon ❷ in any section to get more information about the opened section. The icon is usually located in the top right corner.

Configure Management Console settings

Management Console security settings are configured on the Management Console tab of the **RoboServer Settings** application. You can open the application from the Start menu or from the `bin` folder in the Kofax RPA installation folder.

Set the RoboServer to register to this Management Console as described in Start Management Console and RoboServer.

> 🛑 It is very important to run the RoboServer Settings application as the same user that runs Management Console. Otherwise, the changes are not applied.

Change Management Console port: change "HTTP Port Number"

To change the default port number, on the **Management Console** tab in the **RoboServer Settings** application, edit the **HTTP Port Number** property.

Upload JDBC driver

The JDBC Driver Upload option changes the way the JDBC drivers are uploaded. By default, only an admin user is allowed to upload a JDBC driver and only while accessing the Management Console on the computer it is running (localhost). If you are accessing Management Console from a different computer and if you need to upload JDBC drivers (to use with databases), change this option to **Admin from any host**.

More detailed information, including information about the other tabs in the RoboServer Settings application, is available in the "Runtime" section in the *Kofax RPA Administrator's Guide*.

> 🛑 Management Console and RoboServer must be restarted for changes done in the RoboServer Settings application to take effect.

Management Console authentication

Management Console prompts you for a user name and password when you connect to it. Either use the default `admin` superuser password or the one you set on the **Users & groups** page under **Admin** in the Management Console. When you are logged in, the user name is shown in the top right corner. For details, see "Users & groups" in *Kofax RPA Help* or the *Kofax RPA User's Guide*.

Change the admin user password

Management Console provides the default `admin` superuser password for logging in (name - `admin`, password - `admin`). To change the `admin` user password, perform the following steps.

1. Expand **Admin** on the left pane and click **Users & groups**.

2. On the **Users** tab, select the admin user and click 🔏 above the tab.

3. Type the new password, type it again to confirm, and click **OK**.

Create users and groups

Create new users and groups (or assign users to groups) from Management Console > **Admin** > **Users & groups**.

Note that there is no connection between users/groups and your Active Directory/LDAP/SAML/ Domain users and groups. If users change their domain password, it has no effect on the user credentials for the Management Console.

Although it is possible to integrate Kofax RPA Management Console with LDAP, this is an advanced configuration that works when Management Console is deployed as a stand-alone application in a Tomcat web server. For details, see the Tomcat Management Console topic in the *Kofax RPA Administrator's Guide*.

Add users to groups

There are two ways to add users to groups.

- Select a user, click **Edit** from the ⋮ context menu and type the name of groups the user should be a member of.
- Select a group, click **Edit** from the ⋮ context menu and select users that should be members of this group.

Assign privileges to users

> 🛑 A user created in the Management Console is able to log in to the Management Console **only if** the user is part of a group that has been assigned rights to at least one project.

To assign a privilege to access projects, follow these steps:

1. Go to **Management Console** > **Admin** > **Projects**.

2. Create a project or open the existing project properties by clicking **Edit** from the ⋮ context menu.

3. On the **Permissions** tab, click the plus sign.

4. Select a project role in the **Project role** drop-down list.

    For a description of built-in roles, see "Users & groups" in *Kofax RPA Help* or in the *Kofax RPA User's Guide*.

5. Select a group in the **Security group** drop-down list.

6. Add other groups if needed and click **OK**.

Configure Management Console before running robots

JDBC database drivers

Kofax RPA has a default database for logging (`logdb`) and for robots to store data (`objectdb`).

To use this database, start it from the Kofax RPA program group under Start > Programs using Start Development Database. Also, an executable is available in the `bin` subfolder of your installation.

Oracle JDBC drivers are supported when they are installed on the embedded Management Console, RoboServer, and Design Studio machines.

To use a custom database (recommended, even when testing), do the following.

1. Check Dependencies and Prerequisites to see the database systems that Kofax RPA supports.

2. Get the JDBC driver for the database.

    Kofax RPA does not provide these drivers, but you can download them from the database provider, such as Microsoft, Oracle, and others.

3. If installing an Oracle JDBC driver:

> ℹ️ Do not upload Oracle JDBC drivers to the Management Console.

    a. To install an Oracle JDBC driver on embedded Management Console, RoboServer, and Design Studio machines, copy the `jar` file to the Kofax RPA install folder under the `lib \thirdparty` folder.

    b. To work with a Tomcat setup of Management Console, copy the `jar` file to the Kofax RPA install folder under the `Tomcat\lib` folder.

4. For other JDBC drivers, upload the JDBC driver in the **Management Console** > **Settings** > **Database drivers** by clicking the **Upload driver JAR** button, then clicking **Save**.

After you save the JDBC driver in Management Console, you can view it in the list under Database drivers.

5. If the Upload driver JAR button is disabled, see "Upload JDBC driver" in the Configure Management Console settings and perform the following steps.

A common reason the Upload driver JAR button is disabled is because you are accessing the Management Console from a different computer than the one on which it is running, and you have not changed the setting to allow the driver to upload from a different computer.

    a. Change the "JDBC driver upload" to "Admin from any host. "

    b. Restart Management Console (the process itself).

        Now the Upload driver JAR button should be enabled.

To use multiple database types in the same Management Console, upload the additional drivers they use.

RoboServer log database

By default, the RoboServer log database is set to `logdb` (which can be accessed if you start the Development database only).

You can configure the RoboServer log database as a custom database. If the user you provide has rights to create tables in this database, Kofax RPA creates all the tables it needs.

If the user cannot create tables, a database administrator has to create them before the database is configured as a RoboServer log database. See "Scripts for Creating Database Tables" in *Kofax RPA Help* or the *Kofax RPA User's Guide* to get the queries needed to create the log tables (make sure to get the one that applies to your database type).

Your user must be able to write to these tables.

After the RoboServer Log Database is configured, you can see all the logs in Management Console > **Log view**.

Harvest database

Robots can store data in databases or query tables for data. By default, `objectdb` is used (Development Database). To use a custom database, follow these steps:

1. In Management Console, go to **Admin** > **RoboServers > Cluster settings** from the cluster ⋮ context menu.

2. On the **Databases** tab, click **New database**.

3. Fill in the information, click **Test** to make sure Management Console connects to the database.

> ℹ The **Name** field here is the name of the mapping, not the database (you specify the actual database name in the Schema option). The mapping name differs from the database name and you can keep it different if you do not want robot developers to know the real name of the database. If security is not a concern, you can keep the mapping name the same as the database name (less confusion).

Data stored by robots in this database can be viewed from **Management Console** > **Data view** page. Only tables created from types are shown. If a table is created in SQL Manager, you will not see it in Management Console (even if you have robots configured to query it or add/change data in it).

Shared databases (between Management Console and Design Studio)

Management Console can push database mappings created in the cluster settings to Design Studio instances. If you have multiple clusters, only one cluster can push database mappings.

To configure shared databases, follow these steps.

1. Select which clusters will push the databases: go to **Management Console** > **Settings** > **Design Studio** and select the required cluster.

2. Create your database mappings in the cluster settings (see the "Harvest database" section above for details).

3. Assign database mappings to projects as follows:

   a. Go to **Management Console** > **Repository** > **Database mappings** and click the plus sign in the upper left corner to create a new database mapping.

   b. Fill in the information.
      - **Mapping name**: It can be the same as the name given when creating the mapping in cluster settings (it can be different too, but might cause more confusion).
      - **Project**: Set to the project where this mapping will be used.

        > ℹ Keep in mind project permissions when using authentication (see Management Console authentication for details). If a mapping is assigned to a project, only users with rights to that project will be able to use it (and see its data when opening Management Console > Data view).

      - **Cluster**: Must be the same as the one you already set in **Settings** > **Design Studio**.
      - **Database**: Select the mapping created in the cluster settings from the drop-down list.

4. After you save these settings, the users that have Design Studio connected to this Management Console can right-click the Management Console connection under **My Projects**, refresh the data, and see the new mapping available.

Build Robots

Robots are built in Design Studio. See Design Studio licensing for more information on how to start Design Studio and configure a license for it.

In Design Studio, you can click the Help button to open the *Kofax RPA Help* and read more information about specific steps and configuration.

Design Studio also has a default project (its name is the name of the version, such as 11.5.0.0) where you can find robot examples for common operations.

Upload Robots

To upload a robot from Design Studio, right-click the robot under **My Projects** and select **Upload**. In the **Upload to Management Console** dialog box, select the Management Console and the project where the robot should be uploaded.

Notes

- You cannot create a project from this dialog box; it must be created in Management Console in advance.
- When using this option, you only need to select the robot. Design Studio automatically sends all the types and snippets that it uses.
- You can share a project between Management Console and Design Studio by selecting **Remember this (as a shared project)**.You can find more information about shared projects and how to work with them in the "Projects and Libraries" topic in *Kofax RPA Help*.
- You can also upload the robot files directly in Management Console but you have to select the robot and each type and snippet one by one. In the Management Console, in **Repository**, you can use the plus sign in each section to add robots, types, snippets, and so on.

Run robots

Run robots from Management Console

Each robot in **Repository** > **Robots** has a **Run now** option in the ⋮ context menu. However, only robots that do not require input can be run this way. If your robots require input, they can only be run by a schedule (by Management Console), API, or REST/SOAP services. See the next sections for more information.

If you have multiple clusters, you will be asked to select a cluster on which to run.

Run robots from a schedule
You can create a schedule from the Management Console > **Repository** > **Robots** by right-clicking a robot and selecting **Create schedule** from the ⋮ context menu.

This action automatically adds the robot to the schedule. The other option (easier to use when you want to add multiple robots to a schedule) is to create a schedule using the plus sign in the Management Console > **Schedules** section.

Run robots via API
In the Management Console > **Repository** > **Robots** section, you can see the **API** option in the ⋮ context menu for a robot.

Clicking this option opens the sample code for Java and .NET APIs that you can use to call this robot. More information is available in the *Kofax RPA Developer's Guide*.

Run robots using REST/SOAP
In the Management Console > **Repository** > **Robots** section, from the ⋮ context menu for a robot, click **REST** or **SOAP** to get a service example that you can use to call that specific robot.