

Kofax RPA

Getting Started with Document Transformation

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Preface

This 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.

The instructions provided in this document assume that you have successfully downloaded and installed Kofax RPA on your computer. After you start the Management Console and Development Database from the Kofax RPA product group, ensure that "Document Transformation - Server Scheduler Service" is started in the Windows Services panel.

Related Documentation

The documentation set for Kofax RPA is available here:¹

https://docshield.kofax.com/Portal/Products/RPA/10.4.0_rp4hrvtqrq/RPA.htm

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

Kofax RPA Release Notes

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

Kofax RPA Installation Guide

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

Kofax RPA Administrator's Guide

Describes administrative and management tasks in Kofax RPA.

Help for Kofax RPA

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

Kofax RPA Getting Started with Desktop Automation Guide

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

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

Kofax RPA Desktop Automation Service Configuration 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 RoboServer.

Training

Kofax offers both classroom and computer-based training to help you make the most of your Kofax RPA solution. Visit the Kofax website at www.kofax.com for details about the available training options and schedules.

Getting help for Kofax Products

Kofax regularly updates the Kofax Support site with the latest information about Kofax products.

To access some resources, you must have a valid Support Agreement with an authorized Kofax Reseller/ Partner or with Kofax directly.

Use the tools that Kofax provides for researching and identifying issues. For example, use the Kofax Support site to search for answers about messages, keywords, and product issues. To access the Kofax Support page, go to www.kofax.com/support.

The Kofax Support page provides:

- Product information and release news
Click a product family, select a product, and select a version number.
- Downloadable product documentation
Click a product family, select a product, and click **Documentation**.
- Access to product knowledge bases
Click **Knowledge Base**.
- Access to the Kofax Customer Portal (for eligible customers)
Click **Account Management** and log in.

To optimize your use of the portal, go to the Kofax Customer Portal login page and click the link to open the *Guide to the Kofax Support Portal*. This guide describes how to access the support site, what to do before contacting the support team, how to open a new case or view an open case, and what information to collect before opening a case.

- Access to support tools
Click **Tools** and select the tool to use.
- Information about the support commitment for Kofax products
Click **Support Details** and select **Kofax Support Commitment**.

Use these tools to find answers to questions that you have, to learn about new functionality, and to research possible solutions to current issues.

Chapter 1

Tutorial

This step-by-step tutorial shows how the Document Transformation robot called `DocumentTransformationInvoiceExample`, which is included in your installation, is created. The robot already contains a .tif file to transform. You can use this tutorial to closely examine the existing robot or create a similar robot from scratch.

Create a Transformation robot and types

Note You can test the `DocumentTransformationInvoiceExample` robot provided with the product without creating a new robot and types. In Design Studio, in the **Examples** folder, simply open the robot, open the types `invoice` and `DocumentTransformationInput`, and then follow this guide to see how the robot is built.

If you decide to create a new robot from scratch, use the procedure in this guide and be sure to assign the robot and types unique names that differ from the examples.

1. Create a robot

- a. In **Design Studio**, click **File > New Robot**.
- b. Name the robot `DocumentTransformationInvoiceExample`, select a project, and then click **Next > Next**.
- c. Click **Finish**.
By default, the End step is selected in the created robot.

2. Create new types

To store the extracted data, create the following types.

- a. Click **File > New Type**.
- b. Name the type `invoice`, select a project, and then click **Next**.
- c. Click the plus sign to add new attributes to the type. Add the following attributes and specify their types:

Name	Attribute Type
VendorID	Short Text
InvoiceNumber	Short Text
InvoiceDate	Short Text
Total	Number

Document Transformation provides a string and date format for dates, and string and number formats for numbers.

- d. Create another type called **DocumentTransformationInput**.
- e. Add the following attribute and specify its type:

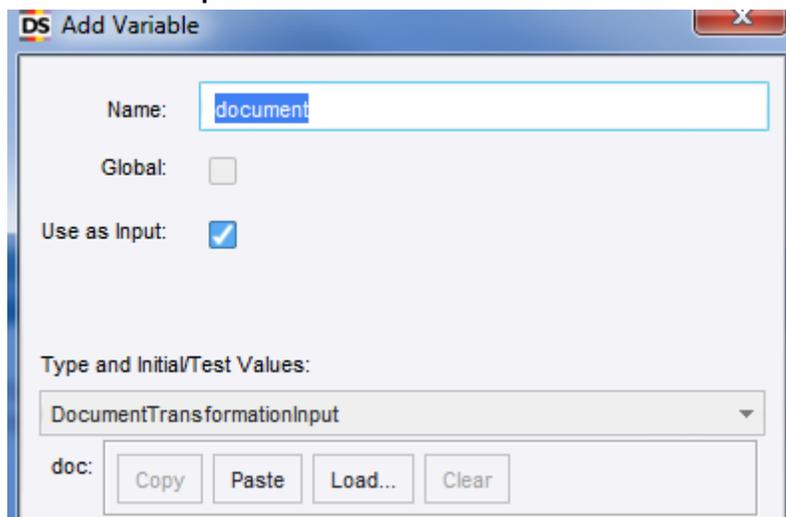
Name	Attribute Type
doc	Binary

- f. Save the changes.

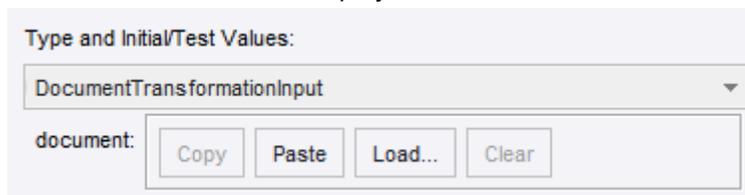
When finished, proceed to the next section.

Add variables to the transformation robot

- 1. In **Design Studio**, in the bottom right corner, right-click in the **Variables** field and click **Add Variable of Complex Type > DocumentTransformationInput**.
 - a. In the new dialog box, rename the **DocumentTransformationInput** variable to **document** and select **Use as Input**.

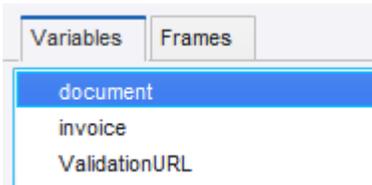


- b. Click **Load** and open the invoice document to transform. In the **Projects** view, in the **Examples** folder, select the file **InvoiceExampleDocument.tif**. This invoice will be read with the built-in Invoice VAT Transformation project.



Save the changes.

2. Right-click in the **Variables** field and click **Add Variable of Complex Type > invoice**.
3. Right-click in the **Variables** field and click **Add Variable of Simple Type > Short Text (simple)**. Name the new variable **ValidationURL**.
4. Save the changes.



When finished, proceed to the next section.

Upload the robot to Management Console

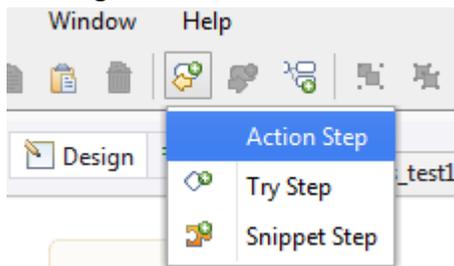
1. In the Projects tree view, right-click the **DocumentTransformationInvoiceExample** robot and click **Upload** to upload it to the Management Console.
2. Open the URL for Management Console and open the tab **Repository > Robots**.
In this tutorial, we use `http://127.0.0.1:50080` as the URL for Management Console.
3. Select the **DocumentTransformationInvoiceExample** robot.
4. Scroll to the right of the line and double-click  under **REST**.
5. Copy the URL. You will need it later to configure Document Transformation.

When finished, proceed to the next section.

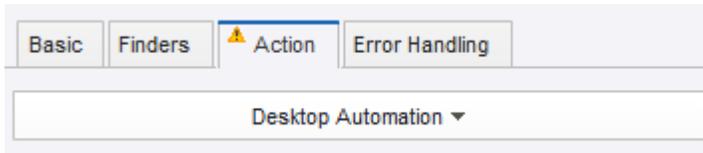
Add a Desktop Automation step

To create a Document Transformation workflow, you need to add a Desktop Automation step to your transformation robot.

1. In **Design Studio**, insert an **Action Step** in the **DocumentTransformationInvoiceExample** robot.

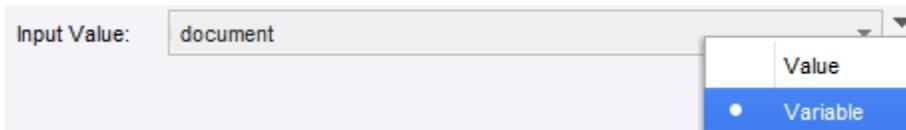


2. To make it a Desktop Automation step, on the **Action** tab on the right, click **Select an Action** and then select **Desktop Automation**.



Rename the step to **Transform Document**.

3. In the **Input Value** section, click the plus sign.
In the drop-down list, click **Variable** and select **document**.

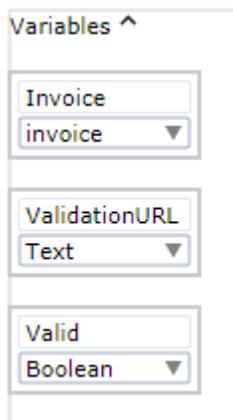


4. Click **OK**.
5. In the **Output Mapping** section, add the **invoice** and **ValidationURL** variables in the same way.

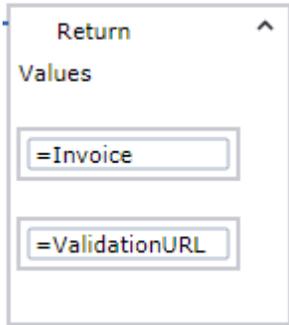
When finished, in the Desktop Automation step of the robot, in the **Workflow** property, click **Edit** to start designing the automation workflow. When the Desktop Automation Editor appears, proceed to the next section.

Create the Document Transformation workflow

1. In the **Automation Workflow**, in the **Variables** box, add the following variables and specify their types.



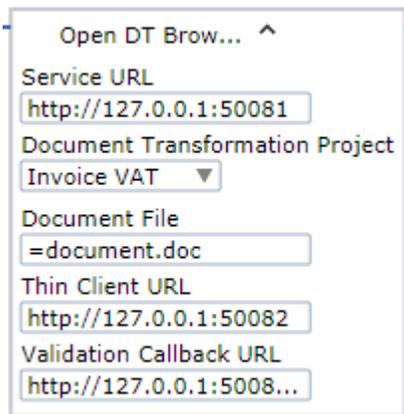
2. Expand the **Return** step and add the following variables:
 - a. **Invoice**. Ensure that you start the name with a capital letter.
 - b. **ValidationURL**.



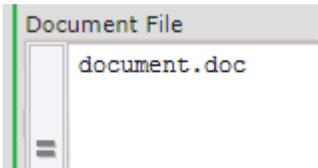
3. Right-click the program point (small circle) before the **Return** step and click **Open Document Transformation Browser step**.

The **Open DT Browser** step is inserted in your workflow.

4. Set the properties as follows.



In **Document File**, type **document.doc** and then click the gray bar on the left so the equal sign appears, and the variable can be evaluated.



In **Validation Callback URL**, paste the REST URL that you copied in [Upload the robot to Management Console](#).

Note The rest URL starts with 127.0.0.1 by default. If the Management Console runs on a different computer than the Document Transformation service, specify the correct URL for the service to access the Management Console.

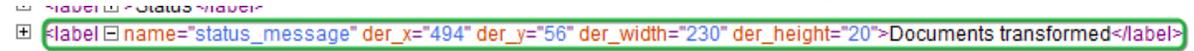
5. Click **Step Over**  to execute this step.

The status is changed to "Waiting for transformed document..." Wait until it changes to "Documents transformed."

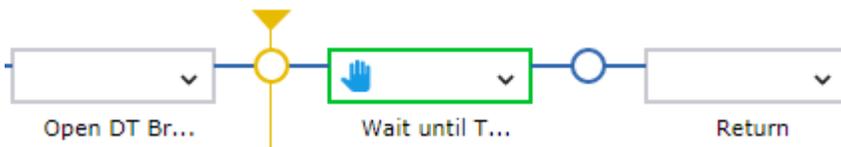
- To add a guard, click **Documents transformed**.



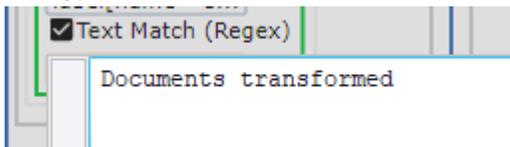
- To ensure that the guard looks for the correct text, expand the following label in the XML tree.



- Right-click the text "Documents transformed" and click **Guard > Location Found**. The Guard step is inserted in your workflow. Rename it to **Wait until Transformed**.



- In the **Wait until Transformed** step, expand the **Location Found** guard, select **Text Match (Regex)** and type **Documents transformed**.



- Click **Step Over** to execute this step.

When finished, proceed to the next section.

Check the transformed document validity

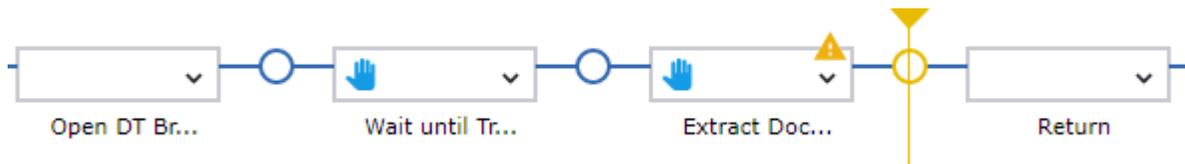
You can check if the transformed document is valid. If it is invalid, it can be sent to human validation.

- In the XML tree, expand the **document** element, right-click it and click **Extract Value From > Attribute > valid Into > Valid: Boolean**.



A new step is inserted in your workflow. Rename it to **Extract Document.valid**.

- Click **Step Over** to execute this step.

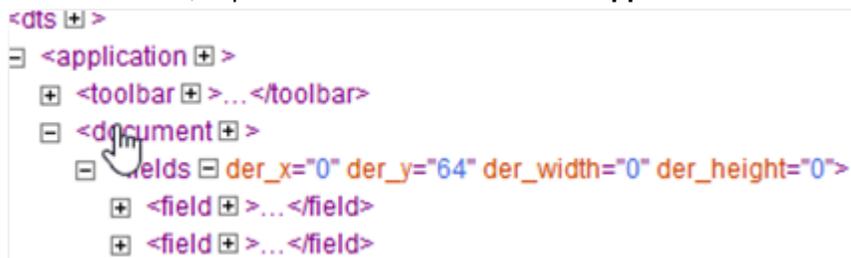


When finished, proceed to the next section.

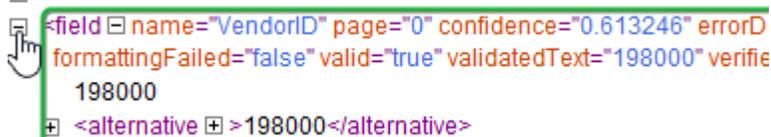
Extract data

To extract data from the invoice document, follow these steps.

1. In the XML tree, expand the **fields** element under **application/document**.



2. Expand the second field, which is for **VendorID**, to see its values and alternatives.
3. Right-click the **field** element and click **Extract Value From > Attribute > validatedText Into > Invoice: invoice > VendorID: Text**.



Note Ensure that you do **not** click the text 198000.

A new Extract Value step is inserted in your workflow. Rename it to **Extract Vendor ID**.

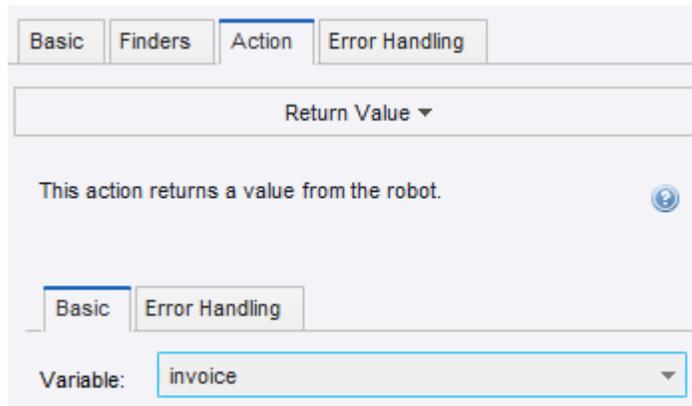
4. Repeat this action for field 17, **Invoice Number**, and for field 18, **Invoice Date**.
New Extract Value steps are inserted in your workflow. Rename them to **Extract Invoice Number** and **Extract Invoice Date**, respectively.
5. Right-click the third from the last field, **TotalAmount**, and click **Extract Value From > Attribute > doubleValue Into > Invoice: invoice > Total: Number**.
The transformation project has a number formatter on this field, and converts it to a numerical value. Another Extract Value step is inserted in your workflow. Rename it to **Extract Total Number**.
6. Click **Start Execution** to execute the workflow to the end.
After the Extract Value steps are executed, you can check the extracted values. In the **Workflow State** pane on the right, expand the **Variables** branch.

7. Save the changes and close the Desktop Automation Editor.

Your Document Transformation robot now has all of the available invoice details. Check the **invoice** variable in the **Variables** section in Design Studio.

8. In the editor, add another **Action Step** to the robot and make it a **Return Value** step. On the toolbar, click **Insert Step After Selected Step**  > **Action Step** and then select **Return Value** on the **Action** tab.

In the **Variable** list, select **invoice**.



This way the robot debugger or Kapplet will show the invoice parameters.

9. Save the changes and upload the robot to the Management Console.

You now have a valid robot that runs in the Management Console. You may add it to a Kapplet. This robot will be called by the Document Transformation Client after a human has completed validating the document.

Important Ensure that you have a copy of your document before the transformation is completed. If the transformation is completed or an error occurs, the document and data are not stored.

When finished, proceed to the next section.

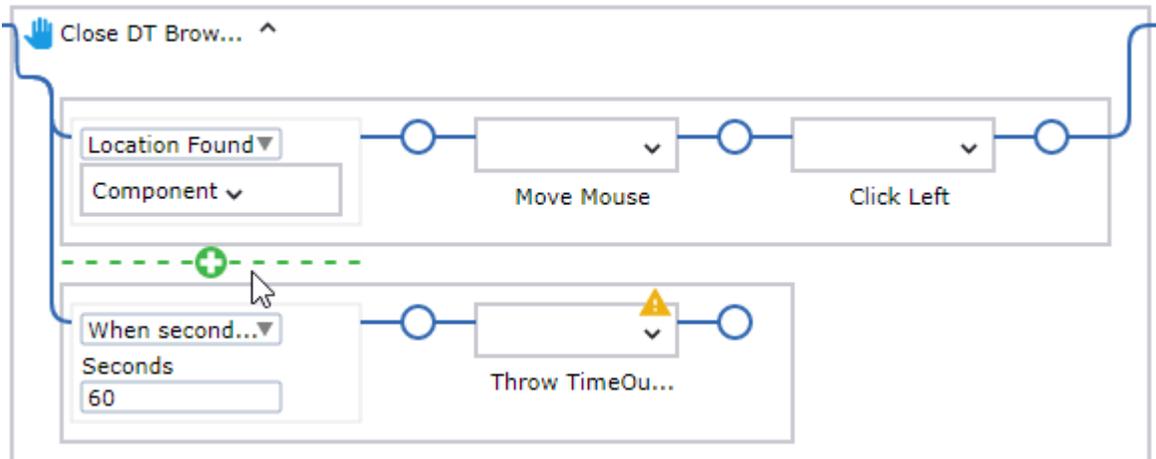
Configure human validation

Follow this procedure to create a step responsible for validation interaction with a human.

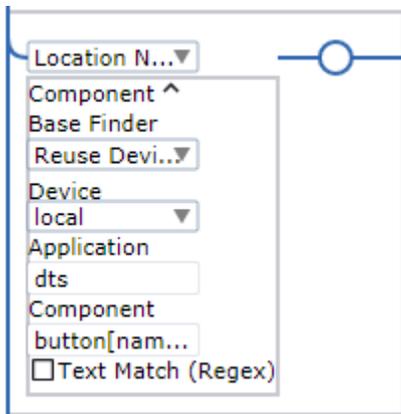
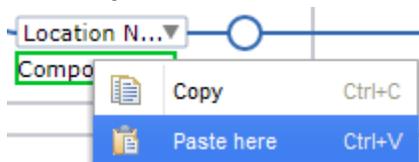
In this part, you need to open the Desktop Automation step of your Document Transformation robot again. Before doing so, refresh the robot to ensure that the Document Transformation Browser window opened in the previous robot run is now closed.

Tip: Alternatively, you may add a Click step to close the browser window after the robot finishes executing. To do so, in the **Desktop Automation Editor**, right-click the Close button for the browser and click **Click > Left**. A new step is added to the workflow.

Expand the new step, click the green plus icon in the middle, and add a new **Guard**.



Set the new guard to **Location Not Found** and copy the **Component** from the **Location Found** guard to the **Component** box for the **Location Not Found** guard.



The created step closes the DT Browser immediately if it is open, or continues to run. Rename the step to **Close DT Browser**.



When finished, proceed to the following steps to configure human validation. In this procedure, we handle the case where the validated document is returned through the Validation Callback from the Document Transformation Client.

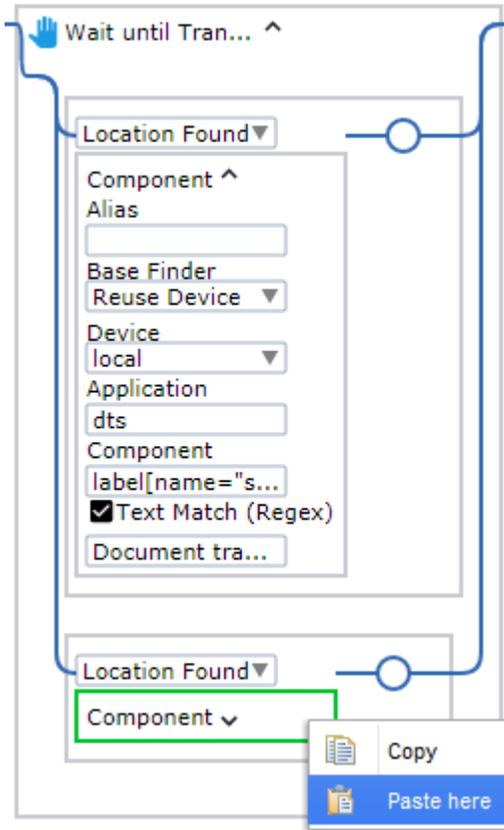
1. Double-click the program point after the **Open DT Browser** step.

The **Location Found** guard in the **Wait until Transformed** step is waiting for the transformed document. When Document Transformation Client calls `http://127.0.0.1:50080/rest/run/Default project/Examples/Transform/DocumentTransformationInvoiceExample.robot` after human validation, it passes it as a ZIP file to **document.doc** in the robot. The ZIP file looks similar to the following:

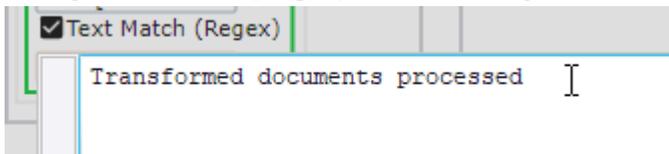
 config.xml	XML Document	1 KB
 document.tif	TIFF image	38 KB
 document.xdc	Kofax Transformation XD...	39 KB
 page1.png	PNG image	43 KB
 page2.png	PNG image	35 KB
 tree.dat	DAT File	16 KB

When the Document Transformation Browser opens the ZIP file, the status is changed to "Transformed document processed."

2. In the **Wait until Transformed** step, create an additional **Location Found** guard and then copy the **Component** box of the first **Location Found** guard and paste it in the **Component** box for the second guard.

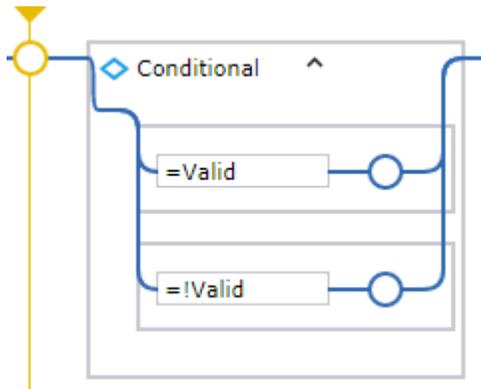


Change **Text Match (Regex)** of the second guard to **Transformed documents processed**.



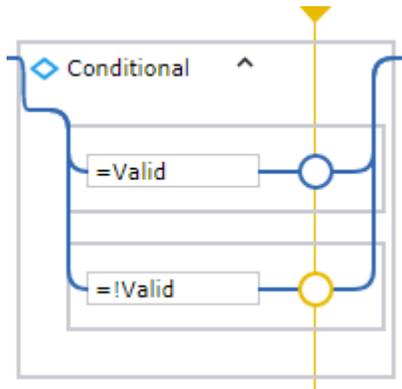
The workflow now handles two scenarios: with human validation and without it.

3. Double-click the program point after the **Extract Document.valid** step to execute to this point.
4. Add a special branch for human validation. Right-click the program point and click **Conditional Step**. A new step is inserted in your workflow.
5. Add the following two conditions to the **Conditional** step.

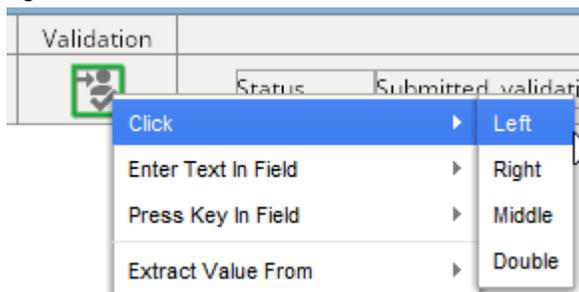


The exclamation mark in **=!Valid** denotes "not" ("invalid").

- Click **Step Into**  to step into the **Conditional** step.
As the document in the robot is not valid at this point, the second condition (branch) is executed.



- Now you need to send the document to the Document Transformation Client. In the **Recorder View**, right-click the validation button and click **Click > Left**.

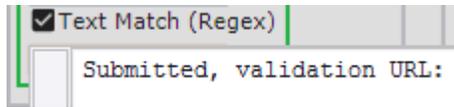


A new step is inserted in the second branch of the **Conditional** step. Rename it to **Send to Validation**. Click **Step Over**  to execute it.

- When the status is changed to **Submitted, validation URL:**, click it, and then click **Guard > Location Found**.

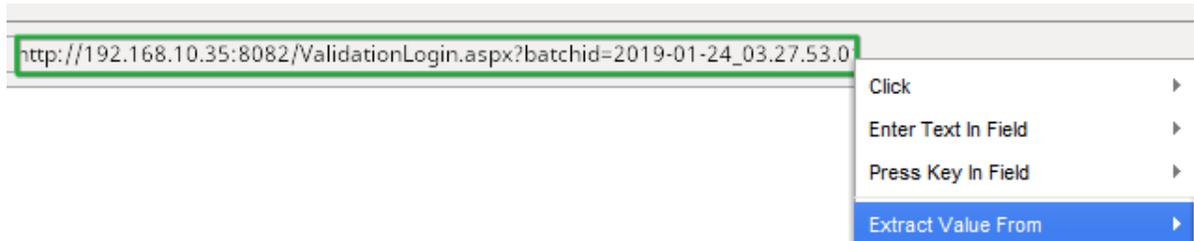
A new step is inserted in the second branch of the **Conditional** step. Rename it to **Wait for URL**.

- In the **Wait for URL** step, expand the **Component** box, select **Text Match (Regex)** and type **Submitted, validation URL:**

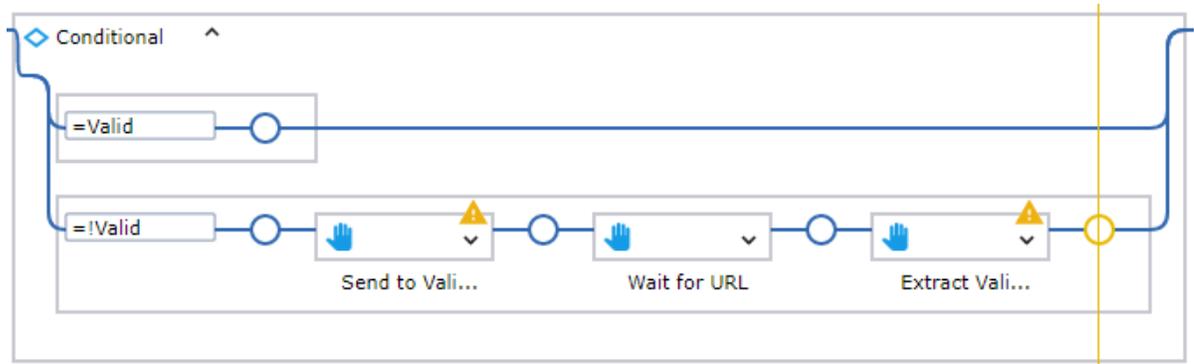


Click **Step Over** .

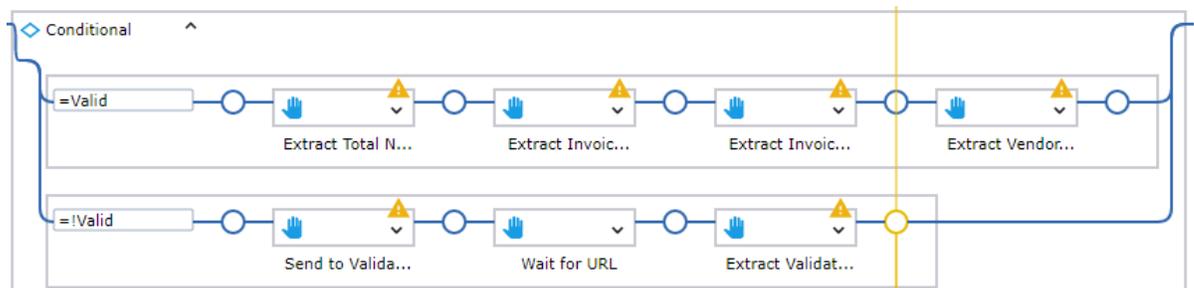
- Right-click the following URL and click **Extract Value From > Text Into > ValidationURL: Text**.



The Extract Value step is inserted in the **Conditional** step. Rename it to **Extract Validation URL** and then execute it.



- Select the four **Extract Value** steps after the **Conditional** step, and then cut and paste them into the **=Valid** branch of the **Conditional** step.



Your Transformation workflow is finished. Click **Start Execution**  to run the workflow to the end. There are now three possible paths in the workflow:

- New document is sent to Document Transformation Service for extraction and classification and returns "Valid." The document does not require to be sent to human validation.

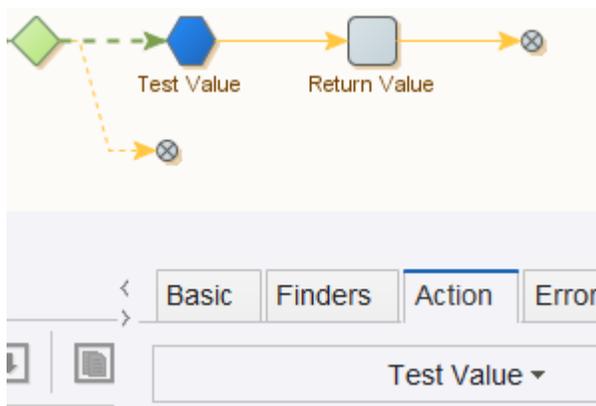
- New document is sent to Document Transformation Service for extraction and classification and returns "Invalid." The document must be sent to human validation.
- Document ZIP package is sent from Document Transformation Client after human validation and returns "Valid." The ValidationURL is retrieved.

When finished, upload the robot to the Management Console. Close the Desktop Automation Editor.

Configure the robot to handle invalid and valid documents

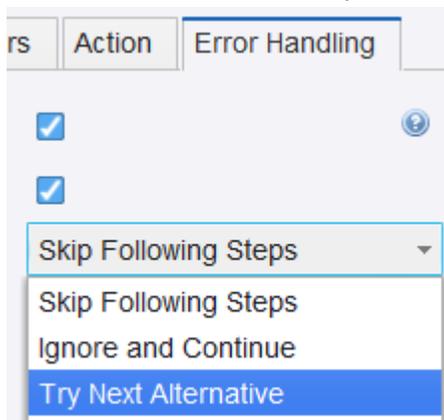
You can configure the robot to handle invalid and valid documents.

1. In Design Studio, add a **Try Step** after the Desktop Automation step. Click the Desktop Automation step, and on the toolbar, click **Insert Step After Selected Step** > **Try Step**.
2. On the first branch, add an **Action Step** and then make it a **Test Value** step. Right-click the **Return Value** step, click **Insert Step Before Selected Step** > **Action Step** and then select **Test Value** on the **Action** tab.

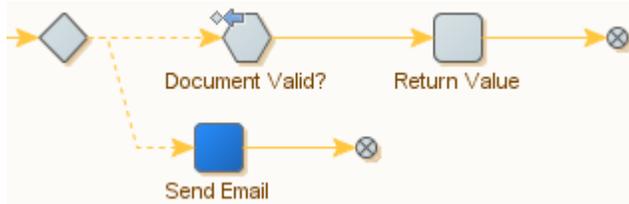


In the **Condition** section, type **ValidationURL==""**. Use straight quotation marks. Rename the **Test Value** step to **Document Valid?**.

3. To the **Document Valid?** step, add **Error Handling** set to **Try Next Alternative**.



- On the second branch, add an **Action Step** and then make it a **Send Mail Step**. On the toolbar, click **Insert Step After Selected Step**  > **Action Step** and then select **Output** > **Send Email** on the **Action** tab.



- Set the **Message** field for this step to **Expression** and add the following expression: `>><a href="<<+ValidationURL+>>">Click me!<<`
Set **Message Type** to **HTML**.

Send Email ▾

This action sends an email. Note that the email is not sent during execution in Design mode in Design Studio. ⓘ

Message | Server | Attachment

FROM Address: robot@company.com ▾

TO Address: human@company.com ▾

CC Address: ▾

Subject: Please validate this invoice ▾

Message: >><a href="<<+ValidationURL+>>">Click me!<< ▾

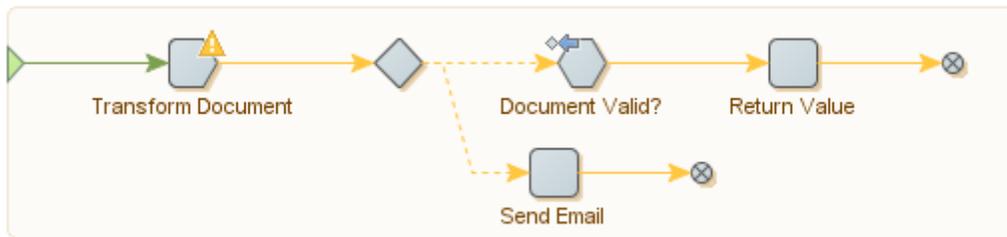
Expression ▾ Edit...

Message Type: HTML ▾

- On the **Server** tab, configure your SMTP server settings and save the changes.

Note The **Send Email** step cannot be run in Design mode and you need to execute it in Debug mode. To switch to this mode, on the toolbar, click **Debug**  and then click **Single Step** .

The robot workflow is now ready for use, and it looks similar to the following:



Upload it to the Management Console. You can now test your robot in Design Studio, a schedule, or a Kapplet.

All available documents that require validation can be now found at the following URL:

<http://127.0.0.1:50082/Validation.aspx>