

# IBM Cloud Pak for Business Automation Demos and Labs 2024

## Lab Guide – Automation Document Processing

V 2.2.9 (for CP4BA 23.0.2 IF002)

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# 1 Overview

## 1.1 Icons

The following symbols appear in this document at places where additional guidance is available.

Icon	Purpose	Explanation
	Important!	This symbol calls attention to a particular step or command. For example, it might alert you to type a command carefully because it is case sensitive.
	Information	This symbol indicates information that might not be necessary to complete a step but is helpful or good to know.
	Trouble-shooting	This symbol indicates that you can fix a specific problem by completing the associated troubleshooting information.

## 1.2 Abstract

Set up a capture solution in minutes. Introduce technical sellers to IBM Automation Document Processing. In this session, students will configure their own capture project. They will learn how to use machine learning classification for their sample documents, define fields for extraction, create validation rules, and use deep learning (subject to environment configuration) to automate data extraction.

## 1.3 Introduction

Welcome to the Automation Document Processing lab. This lab will introduce you to Document Processing and provide you with an understanding how you can configure it for your customer opportunities.

Automation Document Processing provides a tailored solution that reads your documents (in English, French, Spanish, German, Dutch, Portuguese), extracts data, and refines and stores the data for use.

With the right business knowledge, you can design deep learning models without being a data scientist. The Document Processing Designer includes pre-trained deep learning models that you can use as a base for your own model. The pre-trained document types include bills of lading, invoices, and utility bills.

You can extract text, check boxes, forms, tables, barcodes, signature detection and even free text. With no or low code options, you can create an application that processes documents, extracts data, flags issues, and stores your documents and data. And the data enrichment capabilities ensure that the extracted data is standardized and ready for use in downstream integrations.

This lab will not cover all the available functionality available due to time constraints. It is intended as an entry point.

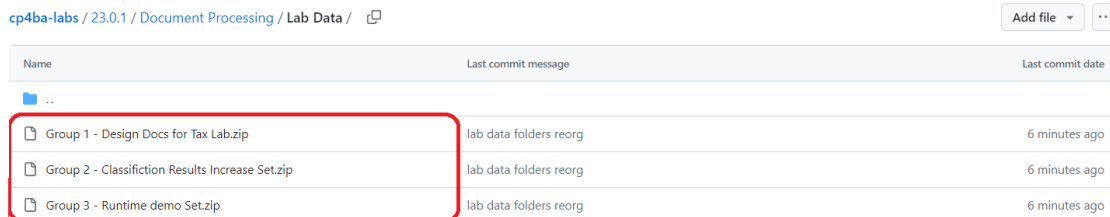
## 2 Getting started

Download the sample documents in the zip file. We will be using these sample documents during the labs You can find them here:

<https://github.com/IBM/cp4ba-labs/tree/main/23.0.2/Document%20Processing/Lab%20Data>

\_1. **Click** on “Group1 – Design Docs for Tax Lab.zip”.

\_2. Then **Click** on **Download**



\_3. **Repeat** above steps “**Group 2 – Classification Results Increase Set.zip**” and “**Group 3 – Runtime Set.zip**”

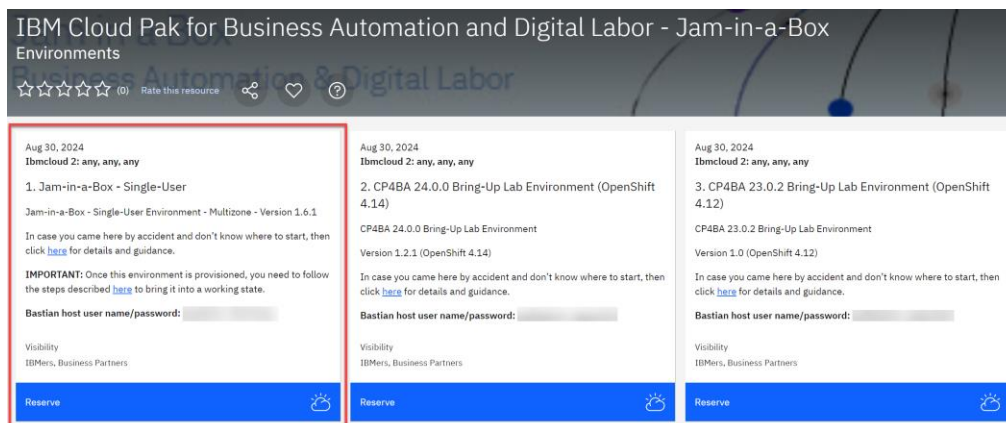
\_4. **Unzip** the files and keep them in their designated folder.

You will notice the images are in various unique folders that will be referenced specifically in the different labs later. Please keep them in their proper folders.

### 2.1 Reserving an environment

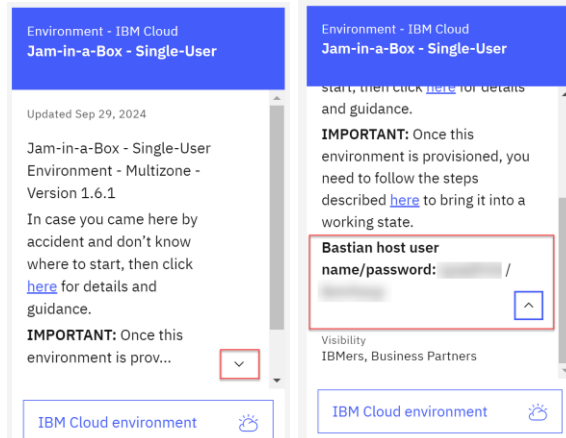
Below you’ll find a description of how to reserve a Jam-in-a-Box environment from IBM TechZone. In case you don’t have access to TechZone or have your own CP4BA environment with the appropriate version and ADP installed, you should be able to also perform the lab. Depending on the environment the name of the object store may differ.

\_1. Navigate to [IBM Cloud Pak for Business Automation and Digital Labor - Jam-in-a-Box](#)

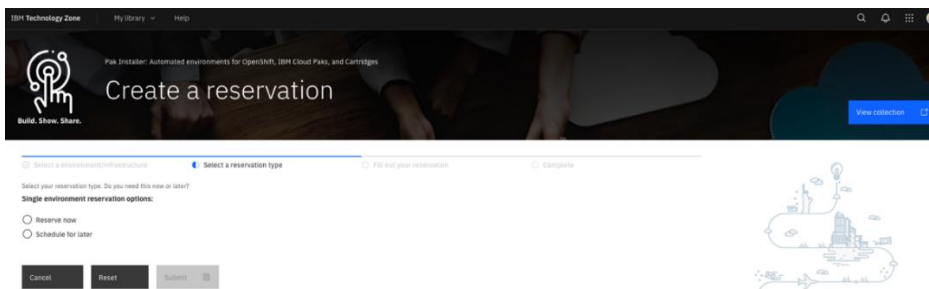


Note the **user name** and **password** provided at the bottom of the **1. Jam-in-a-Box - Single-User** tile. These are later required to log on to the bastian host when you connect to it via RDP as described in section 2.2.

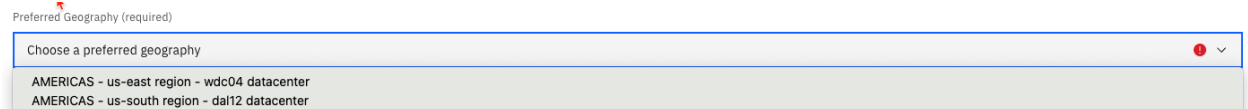
In case you don't see it, click on the little twisty in the bottom right to expand the text and display the bastian host user name/password as shown below.



- \_2. Click **Reserve** for the **1. Jam-in-a-Box – Single-User** tile
- \_3. On **Create a reservation – Select a reservation type** screen **select option** for when to start provisioning



- \_4. On **Create a reservation – Fill out your reservation** screen select a **purpose**.  
The selected purpose defines how long the environment is available, how many times it can be extended and if you need a Sales Opportunity number or not.
- \_5. **Enter <some description>** in the **Purpose description** box.
- \_6. For **Preferred Geography** (required) select your preferred data center location



## \_7. Do enable the VPN access option

IBM Technology Zone My library Help

Rapid on-creation build that proves IBM technologies can deliver business value to clients' end users. Serves as a foundation to build a production solution. Automatically captures a Technical Sales Activity in IBM Sales Cloud on the Opportunity code provided.

Please ensure to select the correct purpose as this can NOT be updated or changed after this reservation has been created. Review the [Reservation Duration Policy](#) to understand default durations allowed for specific infrastructures based on purpose.

Sales Opportunity number  
Enter an opportunity number

Purpose description  
To learn ADP

What are you doing? Why do you need that? What are you trying to accomplish?

Preferred Geography  
R20ware - AMERICAS - any region - any datacenter

End date and time  
Select a date  
08/24/2024  
Select a time  
8:48 AM  
America/Toronto

Reservation policy: Recommended 2 days, but can be reserved up to 2 days on this reservation form. Extended later for 2 days increments up to 4 days total. Max time 6 days total.

VPN Access  
Enable

## \_8. On the right hand pane, click on the option "I agree" and click on the "Submit" button.

IBM Technology Zone My library Help

Create a reservation  
IBM Cloud Pak for Business Automation and Digital Labor - Jam-in-a-Box

Select an environment/infrastructure Select a reservation type Fill out your reservation Complete

Name  
Jam-in-a-Box - Single-User

Name this reservation. This will help identify it in your reservation list.

Purpose  
Demo: Deliver a client specific demonstration based on discovery with the client and aligns to the identified architecture. Automatically captures a Technical Sales Activity in IBM Sales Cloud on the Opportunity code provided.  
Education: Gaining experience with specific technology, product, or solution.  
Pilot: Rapid on-creation build that proves IBM technologies can deliver business value to clients' end users. Serves as a foundation to build a production solution. Automatically captures a Technical Sales Activity in IBM Sales Cloud on the Opportunity code provided.  
Test: Need to test a specific function, configuration, or customization.

Please ensure to select the correct purpose as this can NOT be updated or changed after this reservation has been created. Review the [Reservation Duration Policy](#) to understand default durations allowed for specific infrastructures based on purpose.

Sales Opportunity number  
Enter an opportunity number

Providing an IBM Sales Cloud opportunity number, Sales Activity Relationship ID, or a Project Work ID will allow you to extend your reservation date.

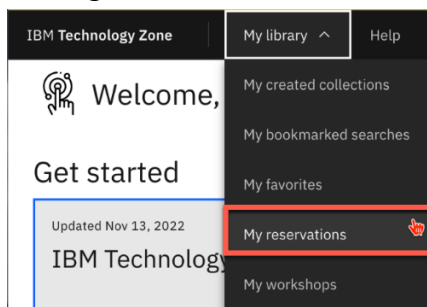
Purpose description  
To learn ADP

I agree to IBM Technology Zone's [Terms & Conditions](#) and [End User Security Policies](#)

Submit

## \_9. After about 1.5 to 2 hours, you should receive an email that your environment is ready. This is preceded by an email saying that the environment is provisioning.

## \_10. Once you get the email from the IBM Technology Zone site, you can access your environment reservation(s) by clicking on the My library then My Reservations, or by clicking the link in the email.

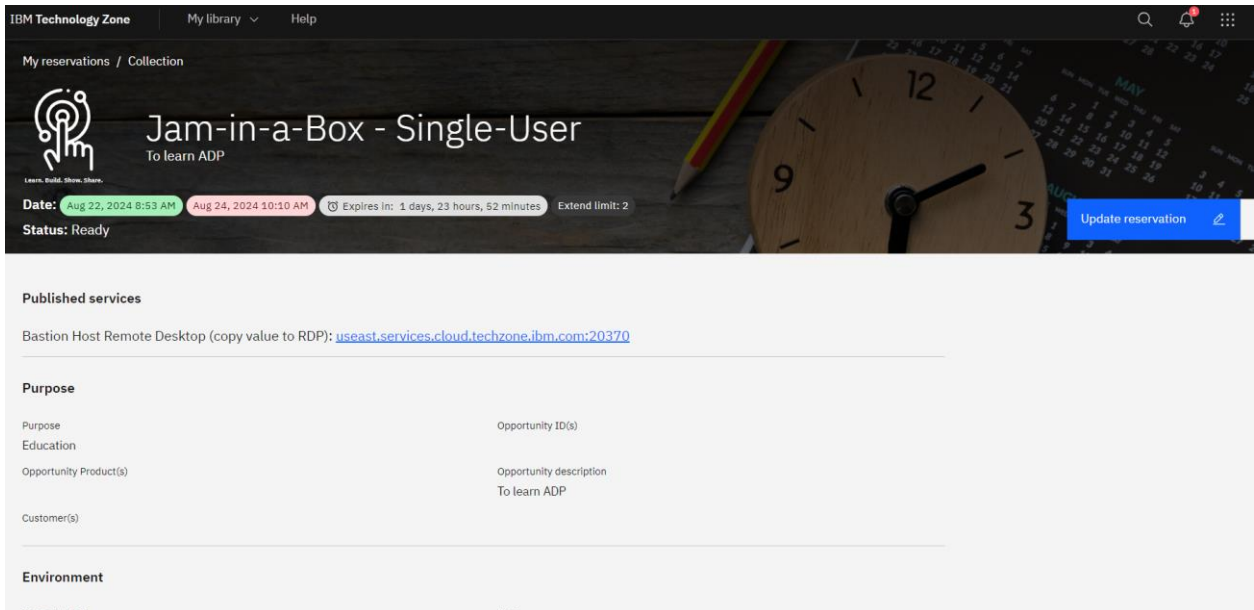


You can also access directly using the link below

<https://techzone.ibm.com/my/reservations>

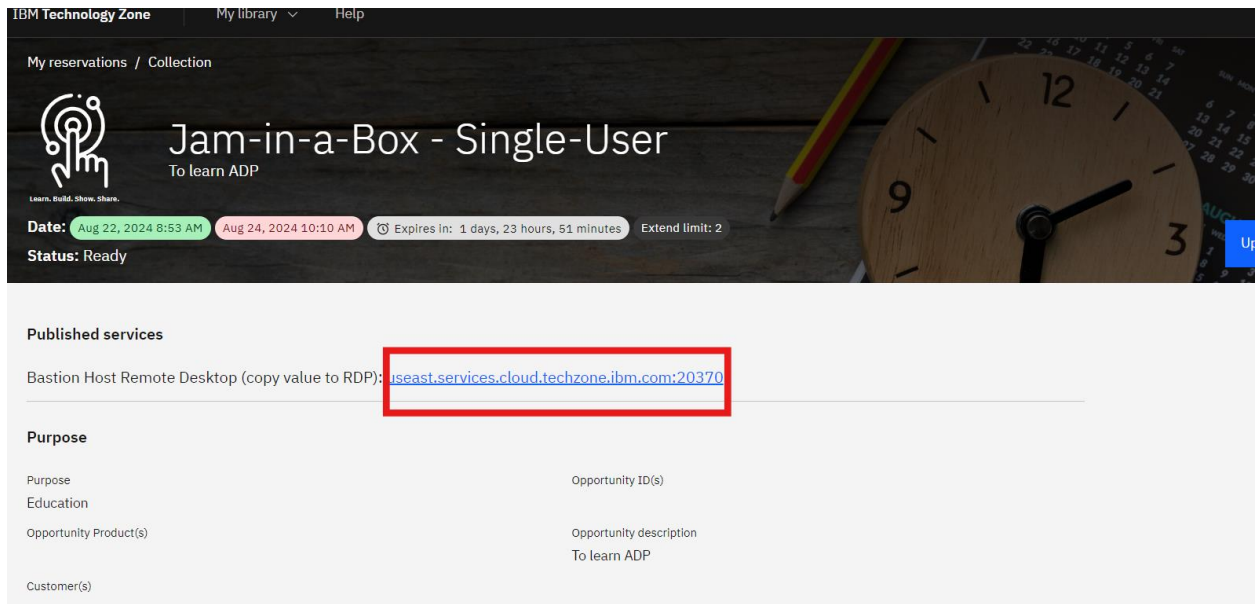
## 2.2 Open your IBM Cloud Environment

- \_1. Once the environment is created, you can open the reservation and you shall find the screen below



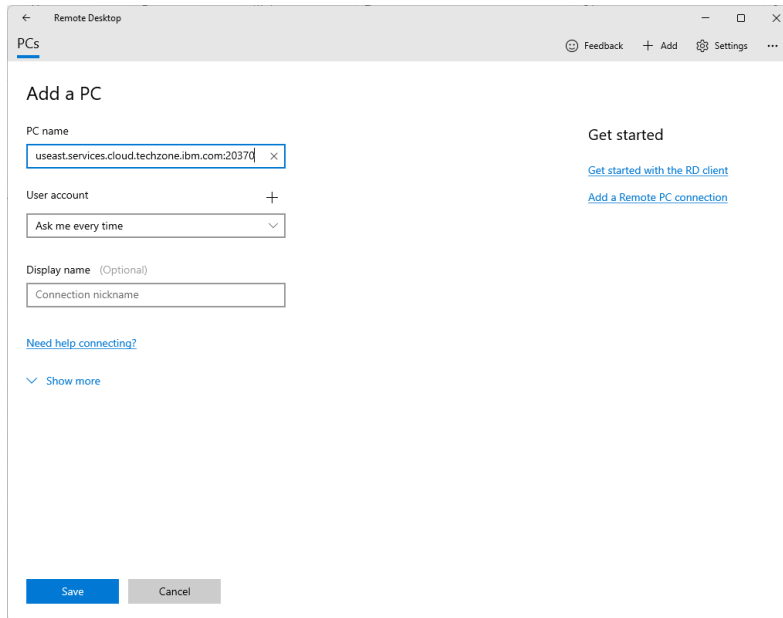
The screenshot shows the IBM Technology Zone interface. At the top, there's a navigation bar with 'IBM Technology Zone', 'My library', and 'Help'. Below this, the page title is 'My reservations / Collection'. The main header features the 'Jam-in-a-Box - Single-User' logo and the text 'To learn ADP'. Below the header, there's a section for 'Date' with two dates: 'Aug 22, 2024 8:53 AM' and 'Aug 24, 2024 10:10 AM'. There's also an 'Expires in' section showing '1 days, 23 hours, 52 minutes' and an 'Extend limit: 2'. The status is 'Ready'. A blue 'Update reservation' button is visible. Below this, there's a 'Published services' section with a link to 'Bastion Host Remote Desktop (copy value to RDP): [useast.services.cloud.techzone.ibm.com:20370](https://useast.services.cloud.techzone.ibm.com:20370)'. The 'Purpose' section includes 'Purpose: Education', 'Opportunity Product(s)', and 'Customer(s)'. The 'Environment' section is also visible.

- \_2. Here you would notice the remote desktop url to the bastion host. Use the Microsoft remote desktop feature or a Remote Desktop client of your choice to connect to the highlighted URL.

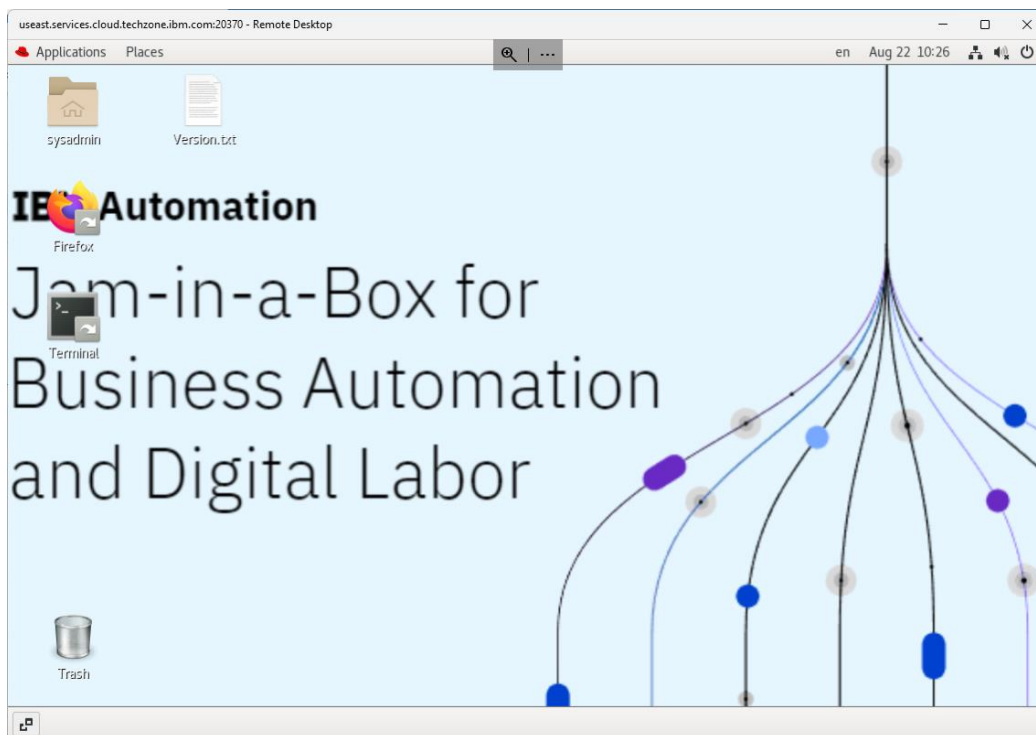


This screenshot is identical to the one above, but with a red rectangular box highlighting the URL 'useast.services.cloud.techzone.ibm.com:20370' in the 'Published services' section. The rest of the page content remains the same.

- \_3. Open the remote desktop app and paste the rdp url to the hostname as shown below

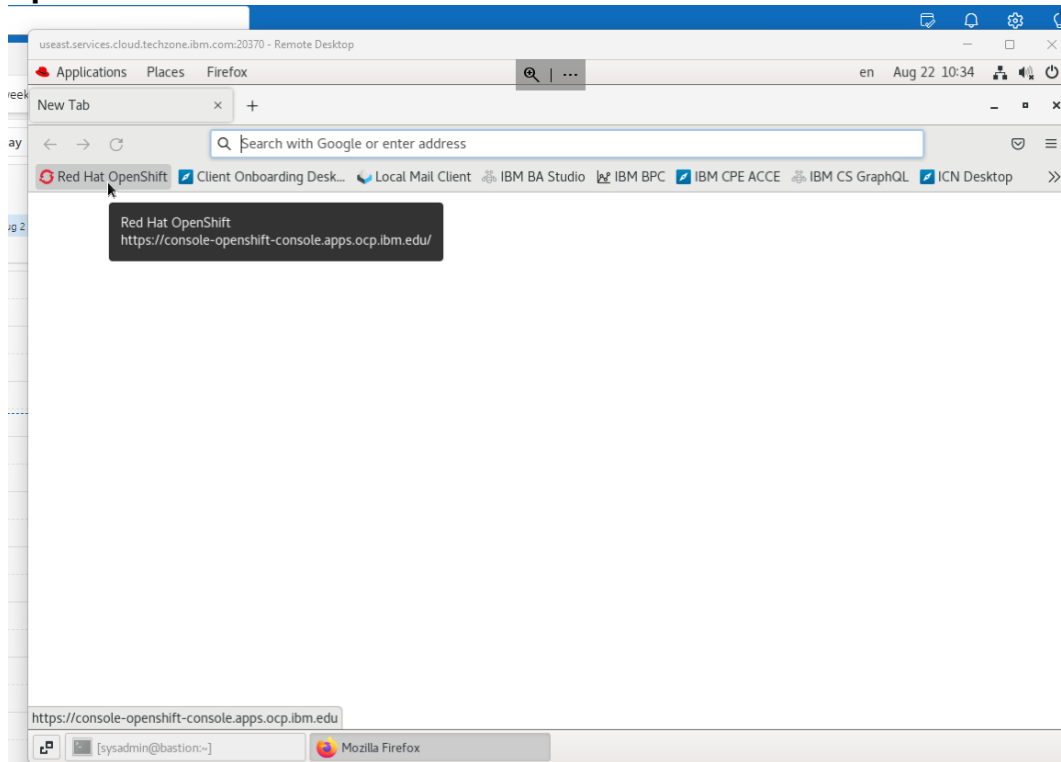


- \_4. Logon using the user and password that you found on the tile when you reserved an environment (see step 1 of \_12.1). This will take you to the bastion host screen.

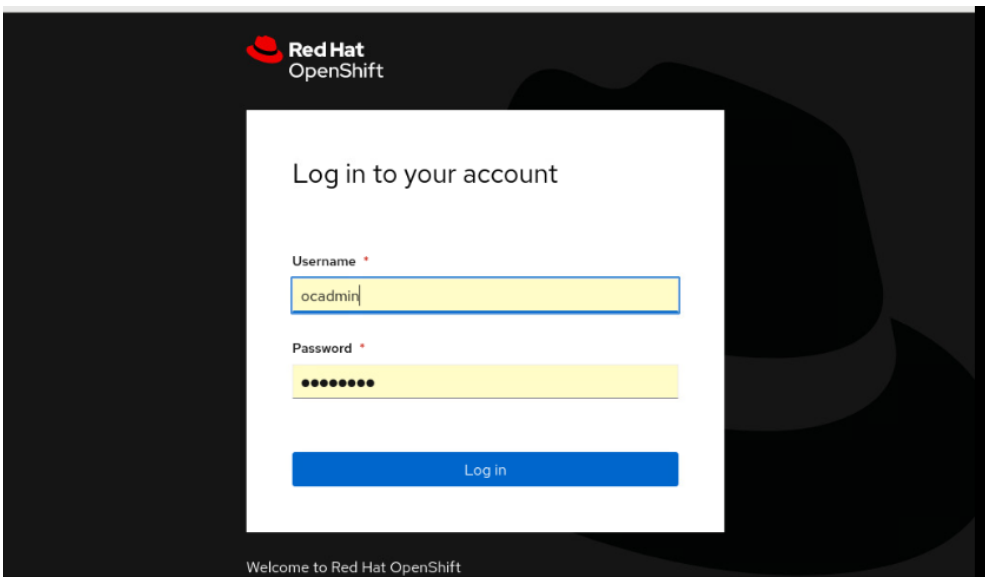


## 2.1 Preparing your Jam-in-a-Box environment

- \_5. **Open the Firefox browser from the desktop and click the first bookmark Red Hat OpenShift Console.**



- \_6. Use the populated screen for the credentials and continue to log on.





\_7. Once logged in, on the top right corner of the window, click the **dropdown** for the **ocadmin** and select the **Copy login command**.

The screenshot shows the Red Hat OpenShift console interface. At the top right, the user 'ocadmin' is logged in. A dropdown menu is open, showing the following options: 'Copy login command', 'User Preferences', and 'Log out'. The 'Copy login command' option is highlighted. Below the dropdown, the 'Overview' page is visible, showing details about the cluster, including the Cluster API address, Cluster ID, OpenShift version, and a status section with various indicators.

\_8. After potentially logging in again and then clicking on **Display Token** on the page that opened, copy the command below **Log in with this token** (line highlighted below).

The screenshot shows the 'Display Token' page in the Red Hat OpenShift console. The page displays the API token and the command to log in with the token. The command is highlighted in a red box.

**Your API token is**

sha256~aTXjUbnzi2oYr1kj79ND926q7R\_7hMFQ9zQjis00M0k

**Log in with this token**

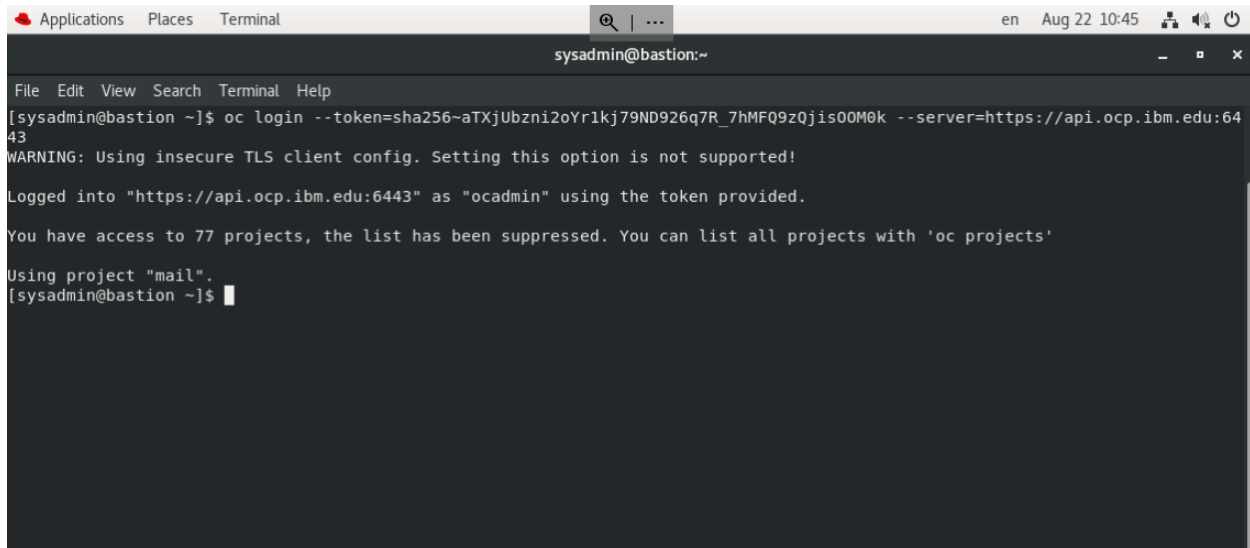
```
oc login --token=sha256~aTXjUbnzi2oYr1kj79ND926q7R_7hMFQ9zQjis00M0k --server=https://api.ocp.ibm.edu:6443
```

**Use this token directly against the API**

```
curl -H "Authorization: Bearer sha256~aTXjUbnzi2oYr1kj79ND926q7R_7hMFQ9zQjis00M0k" "https://api.ocp.ibm.edu:6443/apis/user.openshift.io/v1/users/~"
```

[Request another token](#)

\_9. Open a terminal window from the desktop and paste the copied line and hit enter.

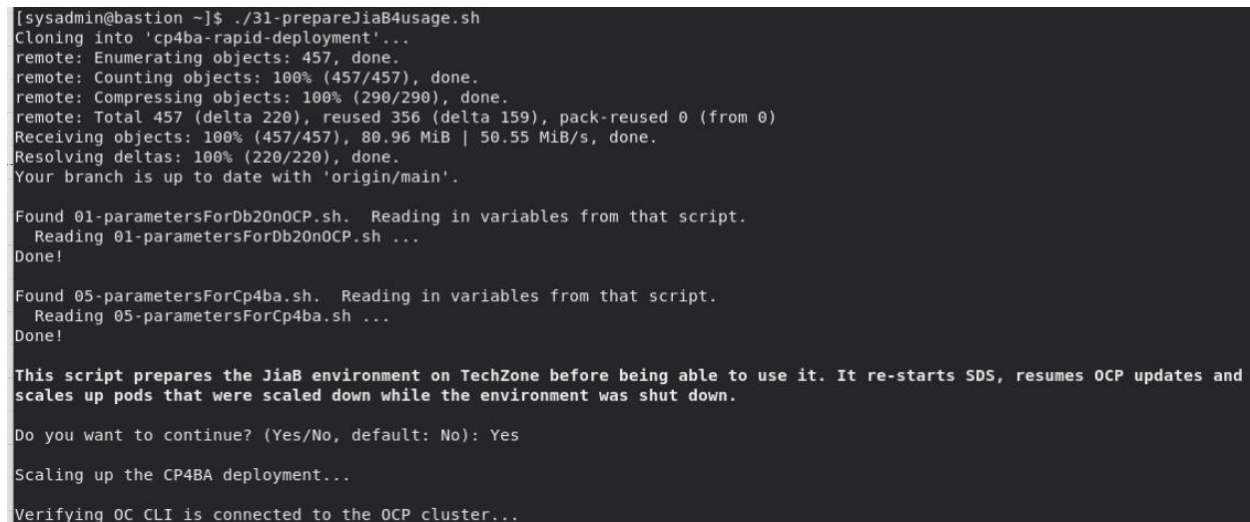


```

Applications  Places  Terminal
sysadmin@bastion:~
File Edit View Search Terminal Help
[sysadmin@bastion ~]$ oc login --token=sha256~aTXjUbnzi2oYr1kj79ND926q7R_7hMF09zQjis00M0k --server=https://api.ocp.ibm.edu:6443
WARNING: Using insecure TLS client config. Setting this option is not supported!
Logged into "https://api.ocp.ibm.edu:6443" as "ocadmin" using the token provided.
You have access to 77 projects, the list has been suppressed. You can list all projects with 'oc projects'
Using project "mail".
[sysadmin@bastion ~]$

```

\_10. Now type **./31-prepareJiaB4usage.sh** (including the dot at the beginning) and press **Enter** to execute the script that prepares the environment for usage.



```

[sysadmin@bastion ~]$ ./31-prepareJiaB4usage.sh
Cloning into 'cp4ba-rapid-deployment'...
remote: Enumerating objects: 457, done.
remote: Counting objects: 100% (457/457), done.
remote: Compressing objects: 100% (290/290), done.
remote: Total 457 (delta 220), reused 356 (delta 159), pack-reused 0 (from 0)
Receiving objects: 100% (457/457), 80.96 MiB | 50.55 MiB/s, done.
Resolving deltas: 100% (220/220), done.
Your branch is up to date with 'origin/main'.

Found 01-parametersForDb20n0CP.sh. Reading in variables from that script.
  Reading 01-parametersForDb20n0CP.sh ...
Done!

Found 05-parametersForCp4ba.sh. Reading in variables from that script.
  Reading 05-parametersForCp4ba.sh ...
Done!

This script prepares the JiaB environment on TechZone before being able to use it. It re-starts SDS, resumes OCP updates and
scales up pods that were scaled down while the environment was shut down.

Do you want to continue? (Yes/No, default: No): Yes

Scaling up the CP4BA deployment...

Verifying OC CLI is connected to the OCP cluster...

```

When the script asks you if you want to continue, enter **y** (or Y or Yes or YES) and hit enter. Allow the script to complete and continue.

\_11. **Click** on the fourth bookmark **IBM BA Studio** in Firefox. This would take you to the Cloud Pak login page.

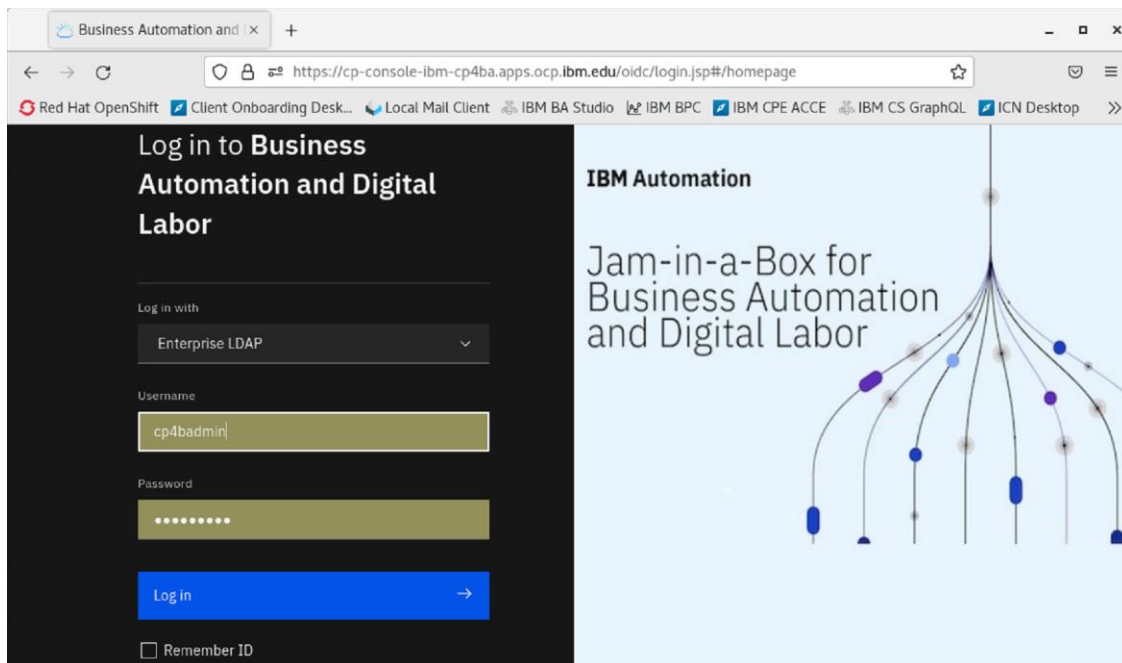


*It might happen that:*

- *the login does not work or shows "Error 502 - Bad Gateway". In this case, please wait for some more time (about 15 minutes), then the log-in should work and the requested page is shown.*
- *the login results in "404 Page not found" error. In this case, please wait for some more time, then the log-in should work and the requested page is shown.*

*These issues are the result of restarting some pods, which may take a different amount of time depending on the resources available on TechZone.*

\_13. On the login page, if not already selected, choose **Enterprise LDAP** under **Log in with**. Select the entry for **cp4badmin** from the list of saved logins that shows up as soon as you click into the Username field. This will also populate the password. Finally, **click Log in**.



\_14. You will be presented with the “Welcome! Let’s get started” screen. In case you are offered to take a tour, **click** the **Maybe later** button.



*Note you will see this screen several times throughout the lab. You can always select Maybe later while doing this lab.*

### 3 Lab Overview

The lab will focus on the design time tasks for Automation Document Processing (ADP). Despite the push for the digitization of content for many years, there are still a lot of paper documents that require workers to read and interpret the information – whether it is structured data, such as tax forms, or semi-structured data, such as invoices, utility bills, and so on. This lab describes how to set up an automate document processing pipeline using ADP.

#### 3.1 How does ADP work?

##### **Document Processing Designer**

You use the Designer interface to create a set of document types and related fields that comprise your Document Processing project. Document Processing Designer combines an intuitive interface with a set of AI and deep learning tools that identify and learn the document types that matter to your organization. For each document type, you designate which pieces of information to extract as data for that document to be used by downstream applications. You can also apply tools to clean up and standardize the data as it is extracted.

##### **Deployment tools**

After you build the Document Processing project in the Designer, you deploy the project to make it available for building your document processing application. The deployment process is also used to configure the repository to receive the processed documents from your end-user application by making the capabilities and artifacts available for integration into an application and into the destination repository.

##### **Application templates and toolkits**

You use the no- or low-code application building capabilities of Application Designer, customized templates and toolkits, and the AI model of your Document Processing project to create a document processing end-user application. This application recognizes your documents, extracts your relevant data, and presents issues to fix before sending the documents to storage and using the data in other systems.

##### **Document processing application and document management**

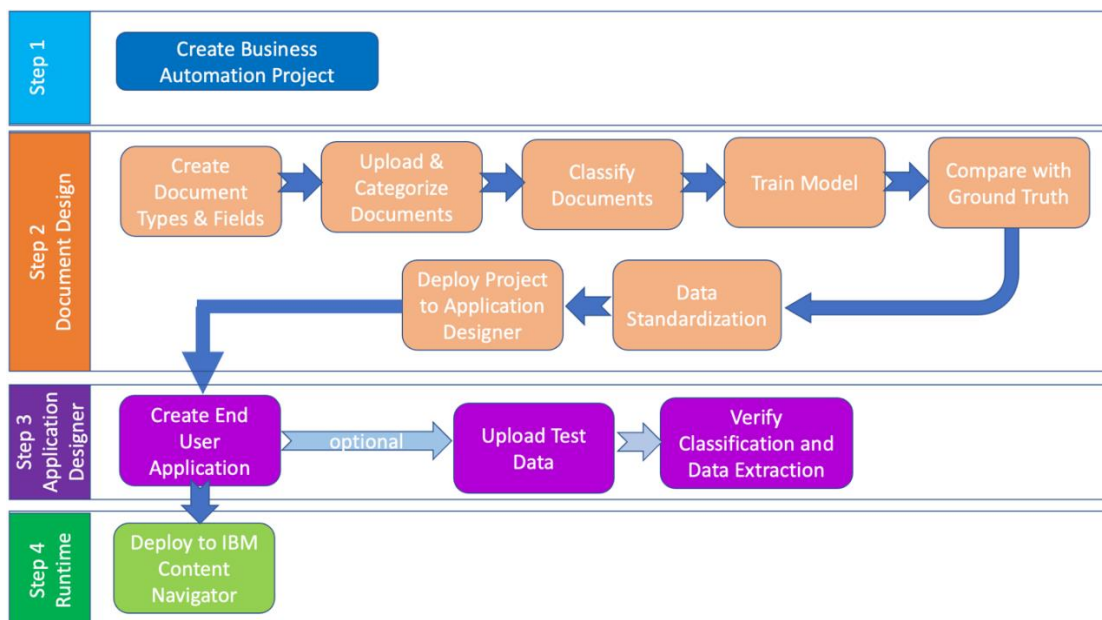
The application that you build uses AI and deep learning to automatically detect, extract, and standardize the data in all your documents. Any anomalies are flagged according to your customized model and the priority that you set so that your document processing user can correct issues before the documents are finalized.

When you deploy your document processing application, you connect it to a content repository that manages the document types and the extracted data for each document. The solution is fully integrated with IBM FileNet® Content Manager, simplifying document and data storage by applying your existing filing architecture and business rules to each processed document. The content and metadata are automatically saved in FileNet within the appropriate document class.

### End result

Your document types are stored in the content repository, with appropriate retention and access controls. An associated JSON file reflects all the extracted data for the document. Properties are set on the document with the data definition-controlled values. Your extracted data is cleaned, standardized, and ready for use in other applications.

The following diagram shows the tasks required to configure and deploy a new ADP project.



### Step1 – Create an ADP Business Automation Project

Each document processing project requires a separate repository in your Git organization. Coordinate with your Git administrator to create the repository for your project.

### Step 2 – Document Design

This step shows the high-level tasks that will be needed to complete to train the system to recognize document types, successfully extract fields and tables, configure the fields in FileNet and finally deploying your ADP project to the application designer so you can configure the end-user interfaces.

**Step 3 – Application Designer**

The application designer is where you would configure end-user interfaces such as the classification and verification screens. The lab will not go in a lot of details on how to configure the interfaces. It will instead show you how to create an application, and test processing a batch of documents through the system. To get more information on creating/using the Business Automation Application (BAA) look at the Lab for Business Automation Application.

**Step 4 – Runtime**

End-users would be using the runtime IBM Content Navigator interface to process documents or batches, classify document and verify extracted field data in the verification screen.

## 4 Create Document Processing Project

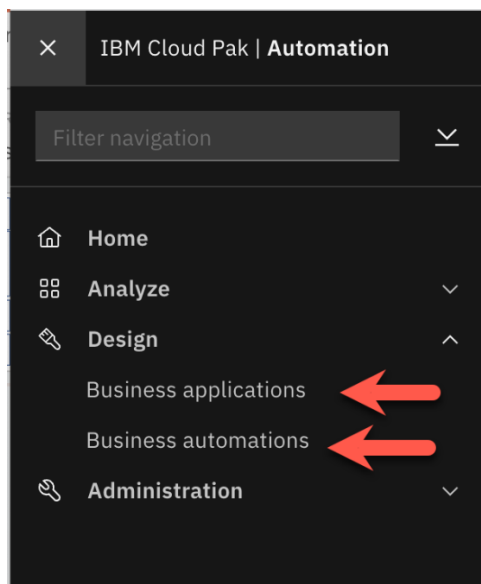
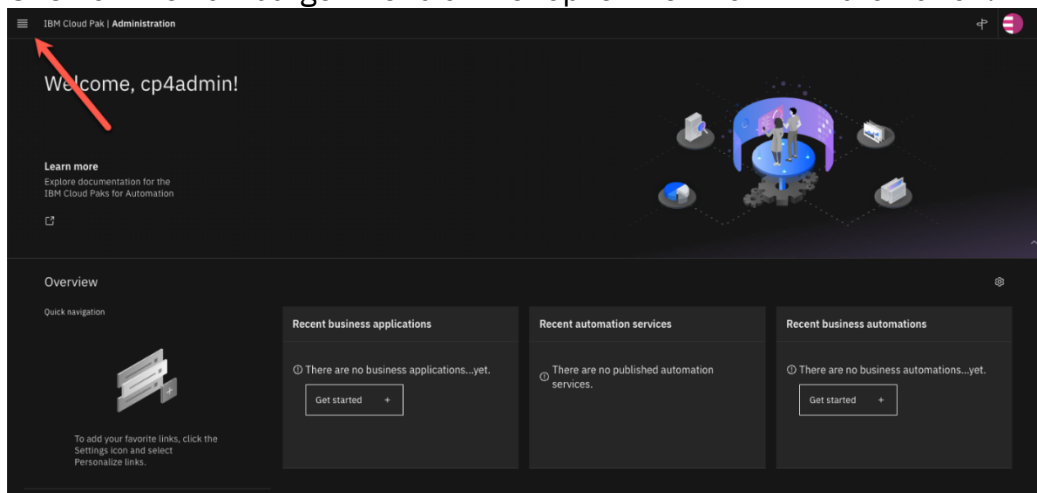
Step 1

Create Business  
Automation Project

Cloud Pak for Business Automation Studio is the single authoring and development environment for the IBM Cloud Pak for Business Automation platform that accelerates digital transformation. Business Automation Studio provides an entry point to various designers to help you reach your goals.

There are two distinct parts to the Business Automation Studio configuration.

\_1. **Click** on the hamburger menu at the top left next to IBM Automation.



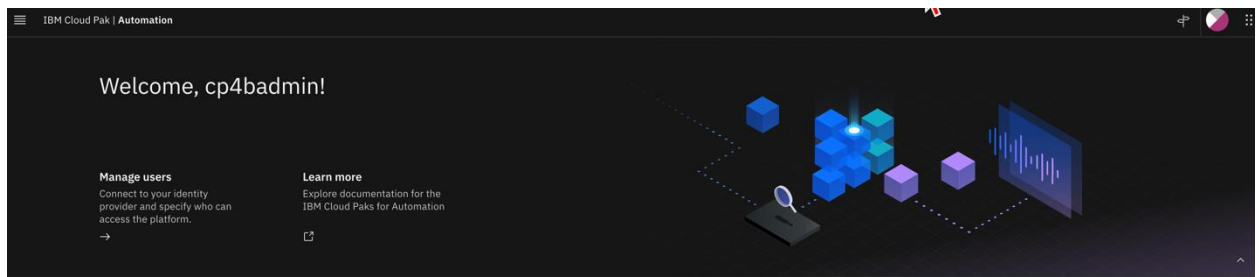
**Business automations** provides access to the designer of the Document Processing configuration of the document classes, and **Business applications** provides access to the designer for the user interfaces.

Within the *Business automations* you can create or reuse automations. An automation is a collection of artifacts that fulfills a business purpose. You can publish some automation artifacts as automation services that you can be called and reused in a consistent way. Also in Business Automation, you use the **Document Designer** interface within Automations to create a set of document types and related fields that comprise your Document Processing project.

The Document Processing Designer combines an intuitive interface with a set of AI and deep learning tools that identify and learn the document types that matter to an organization. For each document type, you designate which pieces of information to extract as data for that document to be used by downstream applications. You can also apply tools to clean up and standardize the data as it is extracted.

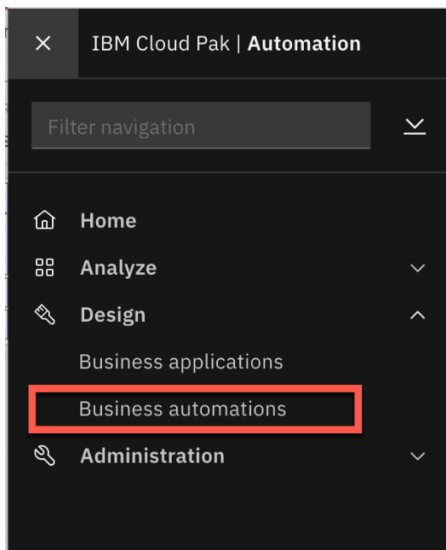
Within *Business applications* you can quickly create user interfaces that integrate tasks, data, and automations. You can start with a template to ensure consistency. You can also use toolkits to share artifacts from existing applications.

We will start with the Business Automations. Once logged in to the IBM Automation Server, you should see the Welcome screen.

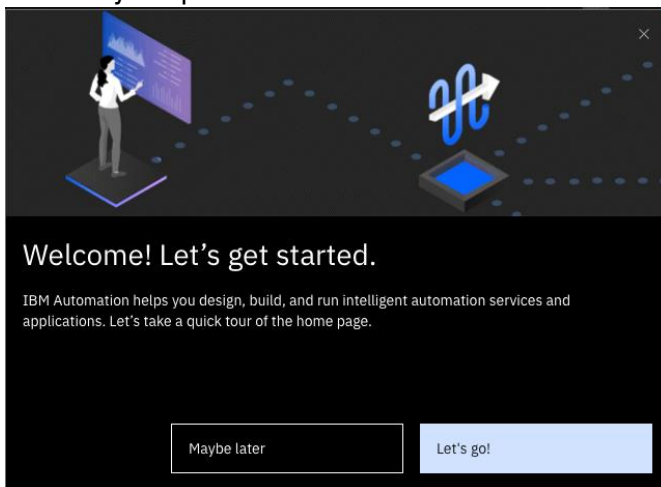




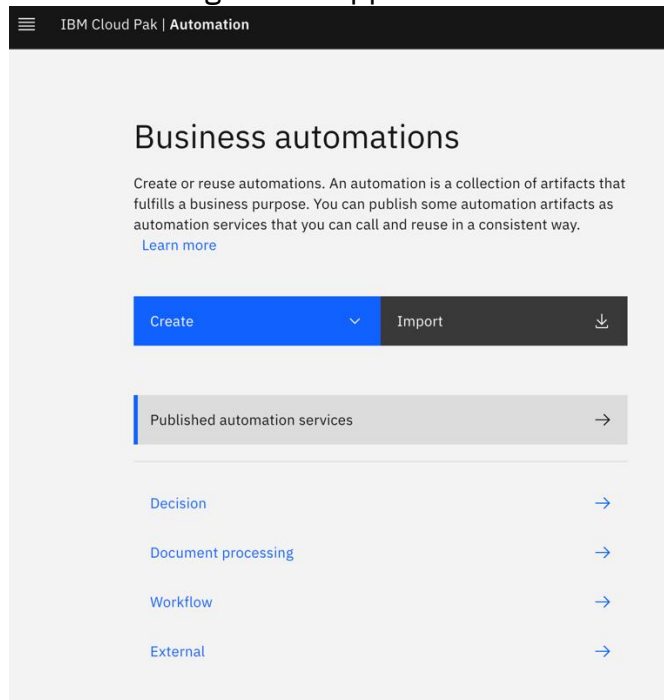
\_2. Click on **Drop down arrow** next to Design then **Select Business automations**.



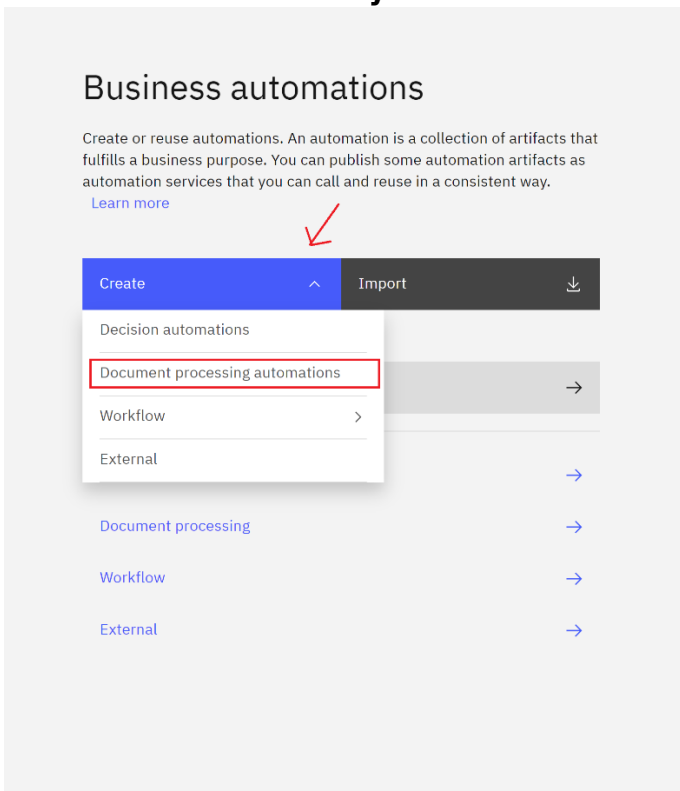
You may be presented with an overview screen. **Select Maybe Later.**



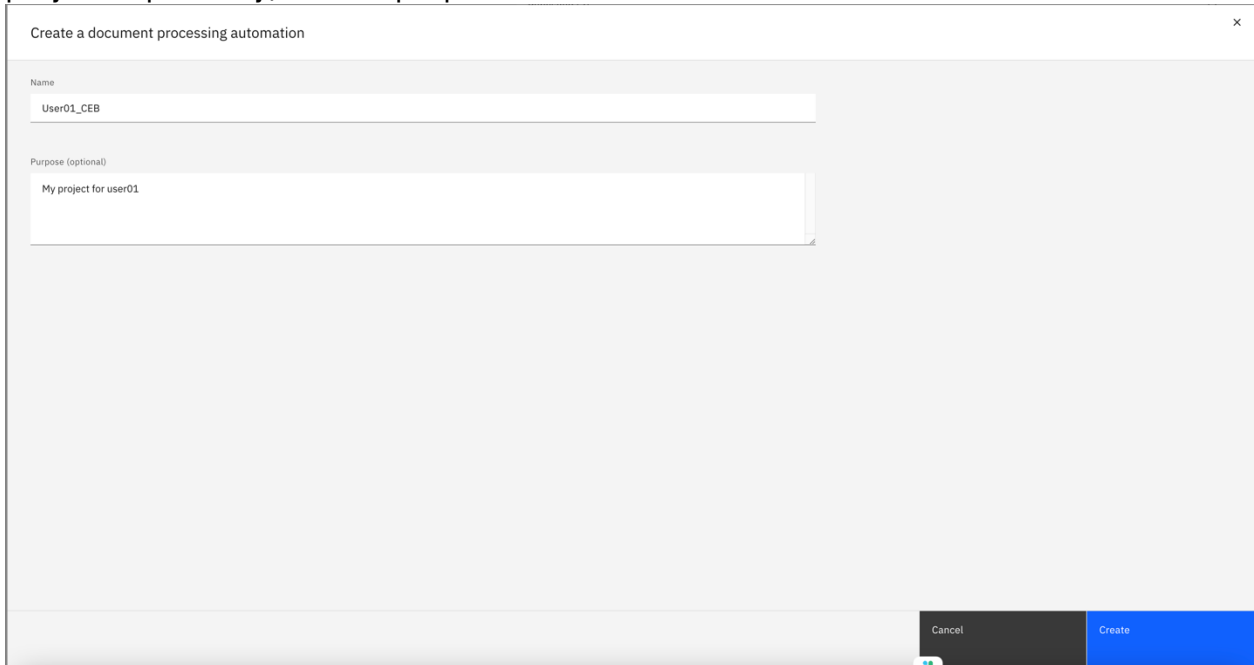
Then following screen appears.



\_7. **Click** on the **Create twisty** and select **Document processing automations**.



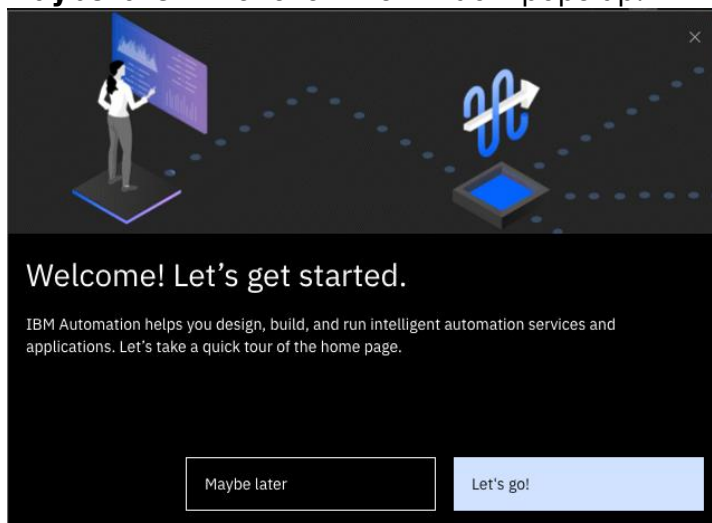
- \_8. In the Create a document processing automation window **enter a name** for the project. Optionally, enter a purpose.



- \_9. **Click** on **Create** in the lower right-hand corner.



You may see the *Welcome Let's get started* throughout the lab simply **click Maybe later** whenever this window pops up.



## 4.1 Reviewing the interface

Business automations / User01\_CEB

Build Enrich Configure

Component	Status	Count	Value
Document types and samples Upload sample documents to define the types of documents you want the system to process.	Ready	3 types	29 samples on average
Classification model Train the model to classify your documents.	Ready	3 types trained	100% accuracy
Extraction model Train the model to extract the data from your documents.	Ready	3 types trained	96% accuracy
Data standardization Map fields to new or existing data definitions.	Not ready		
Document retention Determine how long you want documents to stay in your content repository.	Ready	3 types reviewed	

**Service warning**  
To resolve this, you must enter valid credentials in the Git server configuration dialog, under the Configuration tab.

Upon opening the project, there are three major sections: **Build** tab, **Enrich** tab, and **Configure** tab.

On the top right, you initially see a yellow Service warning. This is because in your environment ADP is not yet connected to a Git repository. Close this warning, you will take care of it in section 4.1.3.

Once closed, the **Share** and **Version/ Deploy** buttons will be completely visible.

---

Share

Latest version | not yet

Deployed | not yet

Version / Deploy

Latest version | not yet

Deployed | not yet

---

The **Share** button is used to save your configuration to your GitHub repository.

The **Version / Deploy** button is used to create a snapshot, or version of your configuration. Like the **Share** button, the **Version** button will save your configuration, but will also create a version of it while retaining your previous version.

Once you have created a version of your configuration, you can also use this button to **Deploy** your version to the Business Applications area of ADP. You need to do this before you can go into the Business Application tile and configure your user interfaces.

### 4.1.1 Build Tab

This is what you will be spending most of your time on. The Build tab shows the guided configuration for building a Document Processing project. It shows the five steps required.

Document types and samples: Here you will define the document types that can be recognized by this automation and upload sample documents for training. By default, any project will be pre-populated with three pre-trained document types (Bill of Lading, Invoice, and Utility Bill).

Classification model: Here you will teach the system how to recognize the different document types.

Extraction model: Here you will teach the system how to extract information for each document type based on the classification.

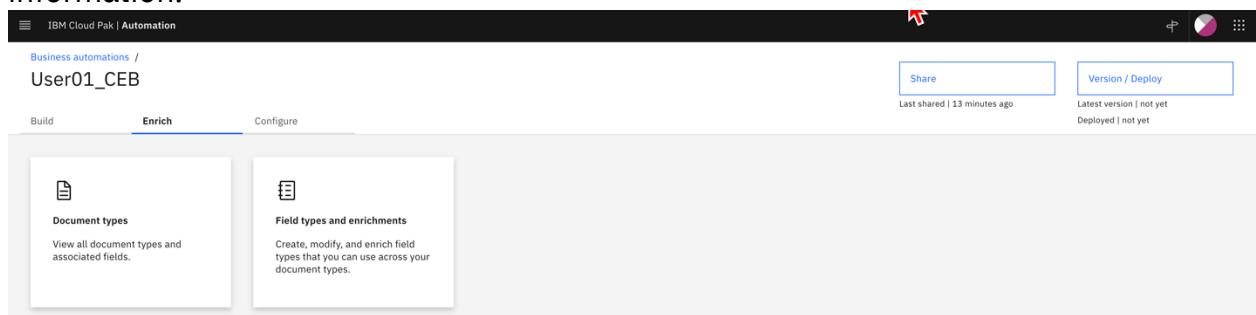
Data Standardization: This allows further refinement of the extracted information. For example, we want to standardize all dates to be formatted as YYYY/MM/DD. Having a standardized data format will help with any subsequent automation process.

Document retention: This allows us to define how long we want our documents to be kept in the system. Documents that have exceeded the retention period will be automatically expunged. This could be important for regulatory compliance or for managing the overall storage size.

### 4.1.2 Enrich Tab

#### \_1. Click on the **Enrich** tab

Enrich provides a quick way to define your document types and the fields you wish to extract. In this section, we can define additional enrich rules. An example of an enrich rule is to specify the expected format for an invoice number (all numerical) or a driver's license. The more we can tell document processing about how different data will be formatted, the higher the chance it will recognize the information.



- \_2. Click on **Field types and enrichments** to begin. In this tile, you will see some of the pre-configured fields in the *SYSTEM LIBRARY* (sys). Customers can use these fields in their document type field definitions as needed.

Field type libraries

- sys
- OMT
- CBP

Natural language extractors

- All libraries
- NamedEntityRecognition

Field types

Field type	Value type
Address block	String
Address information	Composite
Addressee	String
Boolean	Boolean
Building number	String
City	String
Country	String
Country code	String
Country name	String
Currency	Composite
CurrencyCode Object Type	String
Date	Date
Date Range	Composite
Decimal	Decimal

**Address block** [View](#)

**General**

Display name	Address block
Symbolic name	AddressBlock
Value type	String
Description	Address block
Other possible names	
Required by default	Not required
Sensitive by default	Not sensitive

**Validator**

Validators	4
------------	---

**Value format**

**Text**

Extractors	None
Formatters	3
Converters	None

- \_3. Click on **<your project name>** in the bread crumb trail at the top to go back to the Enrich tab.

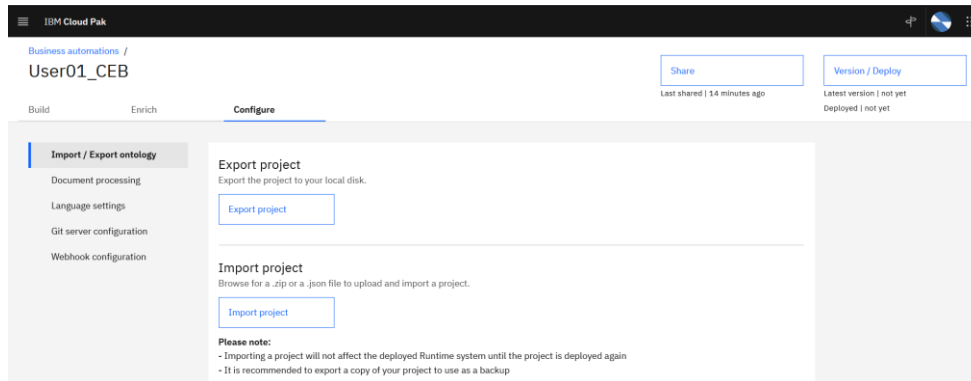
Business automations / [User01\\_CEB](#) / Field types and enrichments

### 4.1.3 Configure Tab

- \_4. Click on **Configure** tab

This is where we can configure other operational aspects of the project.

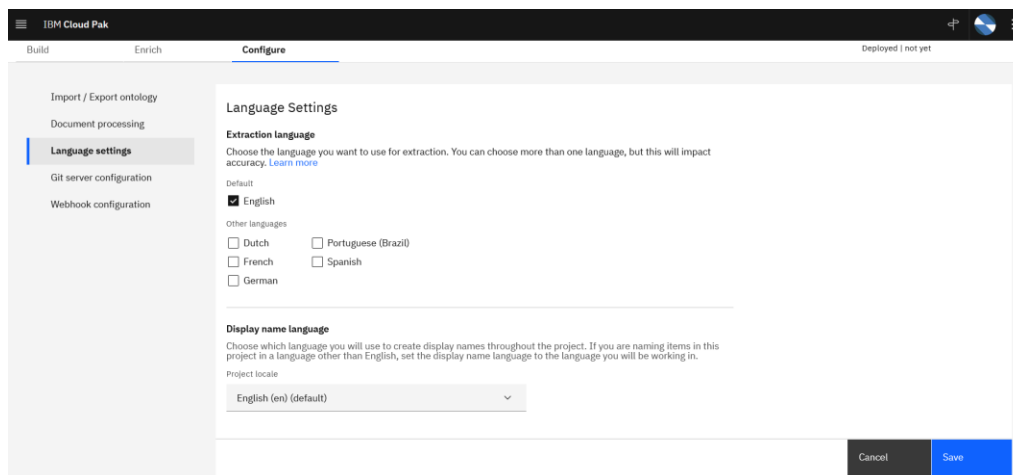
On the default tab **Import / Export project**, the **Export project** creates a .zip file that contains the document types, field types and enrichments, which you can use to start training with new sample files. You can also decide to include the training model and the sample training files in your export if you want to move your entire project to a new instance of Document Processing for example. You can import a project by clicking **Import project** selecting the .zip file to import. When you import a .zip file you have two options: overwrite the existing project or merge the existing project. If you merge the existing project, document types, field types, enrichments, and sample training files are imported unless there is a conflict. Models are not imported.



On the **Language settings** tab under **Extraction language**, you select which languages are used in the documents that you plan to process. You can choose English, Dutch, French, German, Brazilian Portuguese, or Spanish. Make sure to choose only the language or languages that are likely to be used in your document sets. Choosing more than one language can affect the accuracy of your document processing model.

In Display name language, select the language that you use to enter display names for fields and document types. These are the names that are displayed in the Designer and in the applications.

The display name language is also used in the Content Engine as the localized string locale setting for document classes and properties. Document Processing project deployment supports only one language per project. If your organization has multiple projects with different language settings, these projects cannot be deployed to the same Content Engine server if they share common properties. For example, when you define data definitions during data standardization, you cannot map a field to an existing data definition that was created in a different language.



On the **Git server configuration** tab, you create a connection to the Git server for the first project that you create in Document Processing Designer. This setting applies to all subsequent projects that you create.

Fill out the form with the following values:

- **Git vendor:** Gitea
- **Git server organization URL:**  
https://simple-gitea-gitea.apps.ocp.ibm.edu/Automation-SWAT
- **Git server REST API URL:**  
https://simple-gitea-gitea.apps.ocp.ibm.edu/api/v1
- **Username:** select **cp4badmin** from the list of saved logins
- **Type of credentials:** Password
- **Credentials:** will be auto populated when you select cp4badmin from the list of saved logins

Make sure to copy the URLs above as is without any extra spaces etc.!

First **click** on the “**Test**” button, which should result in a **Test connection successful** message being shown in green.

Once successful, click on the “**Save**” button, this should also succeed.

After that in the top right server corner **click** on the “**Share**” button. This is required to be able to create a version later.

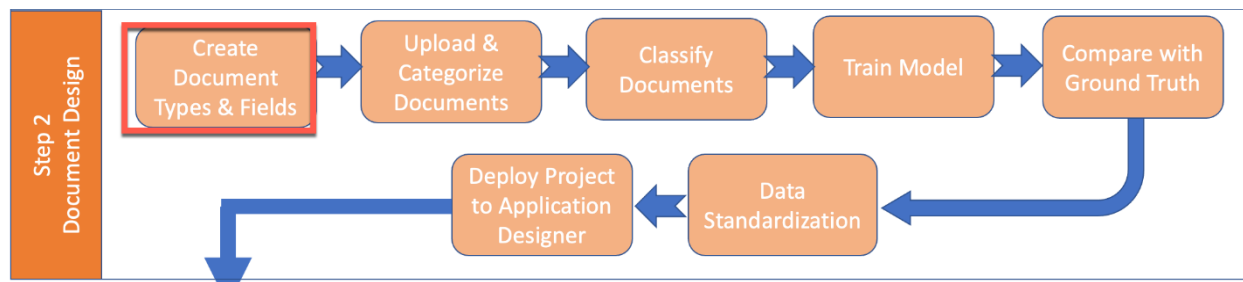
The screenshot shows the 'Configure' tab of the Document Processing Designer interface. On the left, a sidebar lists navigation options: 'Import / Export project', 'Document processing', 'Language settings', 'Git server configuration' (which is highlighted with a blue bar), and 'Webhook configuration'. The main area displays the 'Git server configuration' form. At the top, it states: 'In order to share, version and deploy, you need to establish a connection to your organization's Git server.' The form contains the following fields and options:

- Git vendor:** A dropdown menu with 'Gitea' selected.
- Git server organization URL:** A text field containing 'https://simple-gitea-gitea.apps.ocp.ibm.edu/Automation-SWAT'.
- Git server REST API URL:** A text field containing 'https://simple-gitea-gitea.apps.ocp.ibm.edu/api/v1'.
- Username:** A text field containing 'cp4badmin'.
- Type of credentials:** Two radio buttons; 'API key' is unselected, and 'Password' is selected.
- Credentials:** A text field filled with dots, indicating a password.

At the bottom of the form are two buttons: 'Test' (outlined in blue) and 'Save' (solid blue).



## 5 Configure a Wage and Tax document type

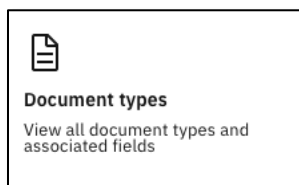


Before we use the guided configuration, you will configure some additional document types and fields used to extract data prior to uploading sample documents.

To do this lab, we will use the *Enrich* tab to add fields to a newly created Wage and Tax document type.

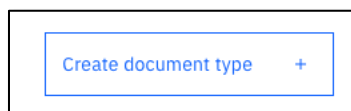
### 5.1 Create Wage and Tax document type

- \_1. **Click** on the **Enrich** tab
- \_2. **Click** on **Document types**



You will now create a document type for Wage and Tax documents and fields to extract data from them.

- \_3. **Click** on the **Create document type +** button in the top right corner



- \_4. The *Add document type* window pops up. **Enter “Wage and Tax”** for the display name. There is no need to enter a symbolic name, ADP will use the display name as a base and remove the spaces. There’s no need to add description in this lab unless you want to.

Add document type
×

Display name
12/50

Wage and Tax

This is the name that will show up for you in the system. You can use characters from any language.

Symbolic name
10/50

WageandTax

This name will be used to identify the document type in the code.

Classification confidence threshold %

70 - +

Set a confidence level to be aware of documents that fall under the desired threshold. Documents under this threshold will show a warning.

Description (optional)
0/512

Enter a description for this document type

☐ Fixed format ⓘ

☐ Feedback documents ⓘ

Percentage of corrected documents to use in retraining ⓘ

10 - +

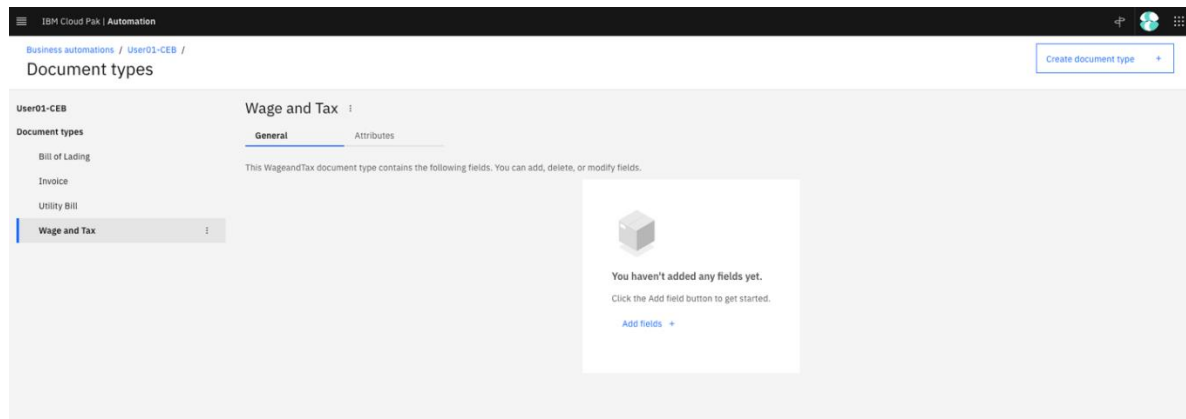
Cancel
Add



**Note:** Notice the option for “Fixed-format document type”. If your form is static in nature or has a fixed structure that does not change, select this option so you will not have to provide as many samples. In our use case Wage and Tax documents have a variety of formats and are not static.

#### \_5. Click the **Add** button

You should now see your new document type (class) in the list of classes on the left.

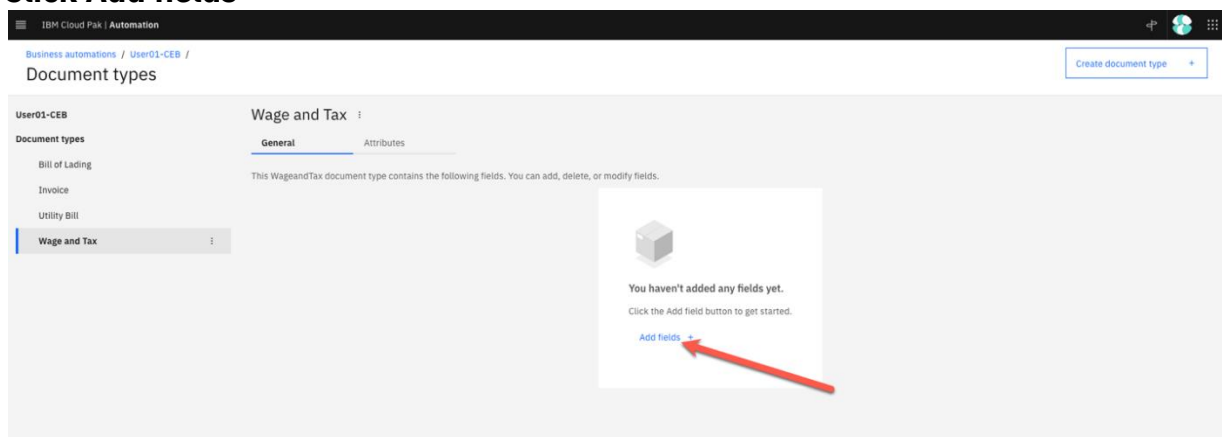


\_6. **Select** your **Wage and Tax** doc type. On the right, you should see an empty table of fields.

## 5.2 Create Field

We can now add some fields to the class. From examination of the forms, we can see there are different fields names, or they are not consistent across the forms. We'll need to add these different "aliases" during this process.

\_1. **Click Add fields +**



**Enter** the following values under the **General Settings** header

IBM Cloud Pak | Automation

Business automations / User01\_CEB / Document Types /

Create field

Document type: Purchase Orders

General | Field patterns | Value settings

General Settings

Display name 0/50  
Ex. Employee's name, Le nom de l'employé  
This is a required field

Description (optional) 0/512  
Enter a description for this field

Symbolic name 0/50  
Enter a name  
This name will be used to identify the field in the code.

Field type  
sys:String

Aliases 0/50  
Enter an alternative name  
Enter an alternative name and press the "Enter" key

☐ This field is required ⓘ

☐ This field contains sensitive information ⓘ

- Display name: **Federal Income Tax Withheld**
- Field type:
  - **Sys:Decimal**
- This field is required: **Yes**
- In Aliases enter other possible names. Case and punctuation are very important when creating aliases. Enter the alias listed below. These are representations of what it looks like on the different forms. **Press** the "+" after entering each one or **press Enter** key:
  - **2 Federal income tax withheld**
  - **2. Federal income tax**



*Note: In the second case, the number two has a period after it!*

You should now see the following:

IBM Cloud Pak | Automation

Business automations / User01\_CEB / Document Types /

Federal Income Tax Withheld

Document type: Wage and Tax

General | Field patterns | Value settings

General Settings

Display name 27/50  
Federal Income Tax Withheld  
This is the name that will show up for you in the system. You can use characters from any language.

Description (optional) 0/512  
Enter a description for this field

Symbolic name 24/50  
FederalIncomeTaxWithheld  
This name will be used to identify the field in the code.

Field type  
sys:Decimal

Aliases 0/50  
Enter an alternative name  
Enter an alternative name and press the "Enter" key

☒ This field is required ⓘ

☐ This field contains sensitive information ⓘ

2 Federal income tax withheld × 2. Federal income tax ×

- \_2. Click the **Next** button.



Field patterns are regular expressions that can be associated with a field to help identify and extract fields. A regular expression is a sequence of characters that define a search pattern. The use of regular expression patterns and extractors is optional. Regular expression patterns can provide extra information to potentially improve the accuracy in extracting the correct fields. Python syntax is used for defining the regular expressions. You will not be adding any field patterns in this lab.

- \_3. Click **Next** again on the Field patterns screen. You should now be on the **Value settings** page. This is where you can set up validators, formatters, and converters.



Value Settings for a specific field; if the potential values follow a rule that can be expressed in a regular expression, you can specify an extractor. This pattern can match all the variations of your values. For example, the expected value for a Start Date field might be in a date format. You can create a regular expression pattern for `US Date` and then associate the extractor of `US Date` to your field.

Also, sometimes you want to extract a value that does not have a corresponding key in the document, but you know the pattern of the value. You can define the extractor and denote that the value might be anywhere in the document without attaching to the field name. This designation allows for the presence of a field name to be optional. For example, you want to extract the employee ID number, which can be described with a regular expression pattern. However, some documents show the employee number with a field name Employee ID, while other documents show the employee number without a corresponding field. You can specify the Extractor and be able to extract the employee ID number in both types of documents.

- \_4. The decimal data type can contain only integers to the left and right of a decimal point. But some of our data may contain commas between the integers and we only need two integers after the decimal point. Let's add a converter that will remove all extra punctuation and limit the number of integers after the decimal point to two. Click on the **Edit** button in the **Value format** section.

IBM Cloud Pak

Business automations / User01\_CEB / Document Types / Federal Income Tax Withheld

Document type: Wage and Tax

General | Field patterns | Value settings

Value settings

Provide more information about the field value to help the system accurately extract and format your data.

Value format

Add value format +

Text	Extractors (0)	Formatters (0)	Converters (1)		Edit
	0	0	1		

Value validators

Enter criteria to help the system verify if a value is correct or incorrect. If a value doesn't meet this criteria, the system will flag it. [Learn more](#)

Add +

Validator details
<p>Validator name: Low Confidence Validator</p> <p>Description: Low Confidence Validator</p>
<p>Validator name: Datatype Mismatch Validator</p> <p>Description: Low Confidence Validator</p>

Delete Edit

\_5. Click on **Converters** tab then click on the blue **Add converter +** button

IBM Cloud Pak

Business automations / User01\_CEB / Document Types / Federal Income Tax Withheld / Set up field enrichments

Cancel Done

Federal Income Tax Withheld / Text value format

Add field enrichments to help the system extract the right data and reformat extracted values that might differ between documents. [Learn more](#)

Extractors(0) Formatters(0) Converters(0)

No converters were added

Add converter +

\_6. You will be presented with the Add converter screen. Click on **Select existing**. This populates the converter name, description, Decimal point, and Max digits after decimal point for you. If you wanted to change the decimal point from a period to a comma you could do it here as they do in other countries outside the United States. Click the blue **Add** button.

IBM Cloud Pak

Business automations / User01\_CEB / Document Types / Federal Income Tax Withheld /

Set up field enrichments

Federal Income Tax Withheld / Text value format

Add field enrichments to help the system extract the right data and reformat extracted values that might differ between documents. [Learn more](#)

Extractors(0) Formatters(0) **Converters(0)**

Add +

1 New Converter

**Add converter**

How do you want to create a new converter?

☐ Create new ☒ **Select existing**

Converter

Decimal Converter

Converter name

Decimal Converter

Description (optional)

Decimal Converter

Decimal point

.

Max digits after decimal point

2

Cancel Add

\_7. You will then be presented with the Converter details information screen. On this screen you can also test your converters to make sure they are behaving like you intended. **Click** on **Done** at the top right. Refer [Enrichments-Converters](#) for more details.



**Note:** For Decimal cleans values such as currency to remove extra non-numeric characters and convert to the decimal format that you want. Available for the Decimal field type.

IBM Cloud Pak

Business automations / User01\_CEB / Document Types / Federal Income Tax Withheld /

Set up field enrichments

Federal Income Tax Withheld / Text value format

Add field enrichments to help the system extract the right data and reformat extracted values that might differ between documents. [Learn more](#)

Extractors(0) Formatters(0) **Converters(1)**

Add +

1 Decimal Converter

**Converter details**

Converter name

Decimal Converter

Description

Decimal Converter

Type

Decimal Converter

Decimal point

.

Max digits after decimal point

2

Inherited from

sys.Decimal

**Test all converters**

Sample value

Enter the sample value to test the converters with

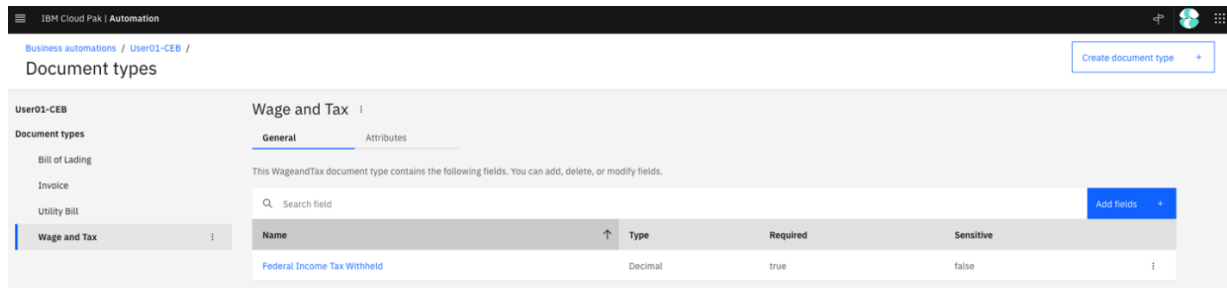
Test

Converted result

No results yet

Converted result will be displayed here after clicking the Test button.

\_8. **Click Create** in the top right. Once it is created you will be taken back to the Document type page. Your screen should look like this with your first field created.



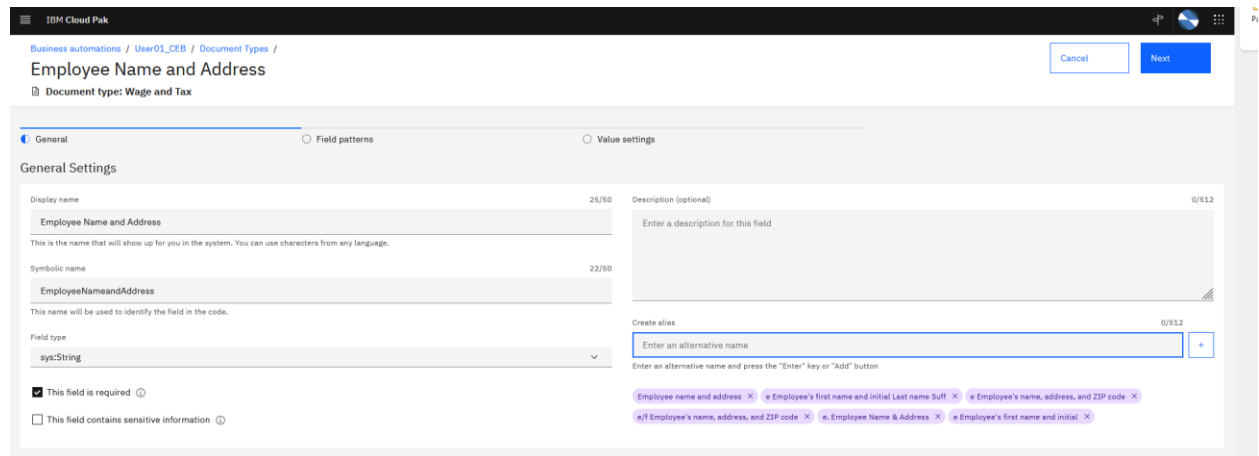
## 5.3 Create the Employee Name Address field

### \_1. Click Add fields +

Give it the following parameters:

- Display name: **Employee Name and Address**
- Field type = **sys:String**
- This field is required = **yes**
- Enter the following other possible names (aliases):
  - ***Employee name and address***
  - ***e Employee's first name and initial Last name Suff***
  - ***e Employee's name, address, and ZIP code***
  - ***e/f Employee's name, address, and ZIP code***
  - ***e. Employee Name & Address***
  - ***e Employee's first name and initial***

By default, the system will use the field name as an alias. So, you do not have to add it. For example, below, Employee Name and Address (field name), would be automatically used as an alias even if you do not add it to the list.



\_2. **Click Next** no field patterns will be created

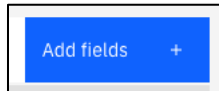
\_3. **Click Next** no value settings will be created



\_4. **Click Create** to finish creating the Employee Name and Address

## 5.4 Create Employee Social Security Number Field

\_1. **Click on Add fields +**



Enter the following values in the GENERAL page.

- Display name: **Employee Social Security Number**
- Field type: **sys:Social Security Number**
- This field is required: **Yes**
- Other possible names (aliases). Remember, press RETURN or hit the '+' button on your keyboard between each entry:
  - **a Employee's social security number**
  - **a Employee's social security no.**
  - **a Employee's SSA number**
  - **a. Employee Social Security Number**
  - **Employee social security number**

Your screen should now look like the image below:

IBM Cloud Pak

Business automations / User01\_CEB / Document Types / Employee Social Security Number

Document type: Wage and Tax

Cancel Next

General Field patterns Value settings

General Settings

Display name 31/50  
Employee Social Security Number  
This is the name that will show up for you in the system. You can use characters from any language.

Description (optional) 0/512  
Enter a description for this field

Symbolic name 28/50  
EmployeeSocialSecurityNumber  
This name will be used to identify the field in the code.

Field type  
sys:Social security number

☒ This field is required ⓘ

☐ This field contains sensitive information ⓘ

Create alias 0/512  
Enter an alternative name  
Enter an alternative name and press the "Enter" key or "Add" button

a Employee's social security number X a Employee's social security no. X a Employee's SSA number X a. Employee Social Security Number X Employee social security number X

\_2. **Click Next**

\_3. **Click Next** again on the Field patterns screen

\_4. **Click Create** on the Value settings

\_5. **Create** the following **additional fields**

The following table contains the values to use when adding the additional fields.

Follow the steps from the previous section to add the following fields. **Don't forget to add your converter for datatypes of Sys:Decimal.**

Display Name	Description	Type	Mandatory	Aliases
Employer Identification Number		sys:String	N	<ul style="list-style-type: none"> <li>• b Employer identification number (EIN)</li> <li>• b Employer's FED ID number</li> <li>• b. Employer ID number</li> <li>• Employer identification number</li> </ul>
Employers Name and Address		sys:String	N	<ul style="list-style-type: none"> <li>• c Employer's name, address, and ZIP code</li> <li>• c Employer's Name &amp; Address</li> <li>• Employers name and address</li> </ul>
Social Security Wages		sys:Decimal	N	<ul style="list-style-type: none"> <li>• Social security wages</li> <li>• 3 Social security wages</li> </ul>
Wages Tips Other Compensation		sys:Decimal	N	<ul style="list-style-type: none"> <li>• 1 Wages, tips, other compensation</li> <li>• Wages, tips, other comp.</li> <li>• 1 Wages, tips, other comp.</li> <li>• 1. Wages tips, other comp</li> <li>• Wages tips other compensation</li> </ul>

Reference for various field types:



**Note:** The basic default field types included in ADP are found here in the documentation

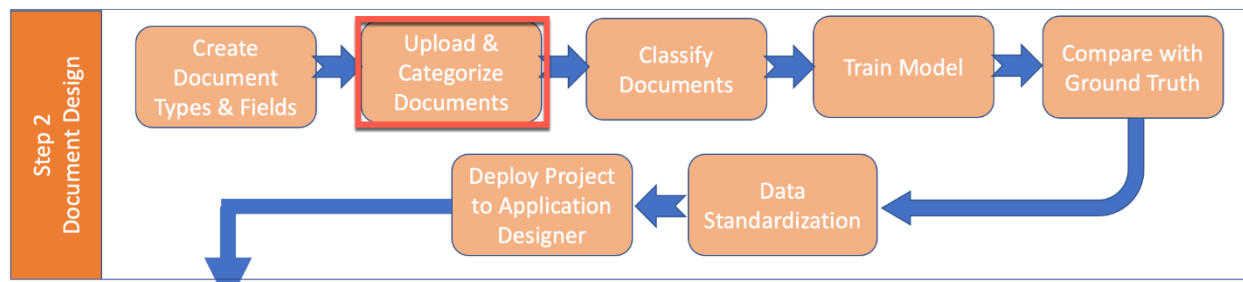
<https://www.ibm.com/docs/en/cloud-paks/cp-biz-automation/24.0.0?topic=enrichments-field-types-document-processing>

- \_6. **Click** on the **<name of your project>** in the breadcrumb link in the top left of your screen. In the following example the name of the project is **<User01\_CEB>**. This will take you back to the **Enrich** tab, then **click** on the **Build** tab.

The screenshot shows the IBM Cloud Pak interface. In the top left breadcrumb, 'User01\_CEB' is highlighted with a red box. The main area displays the 'Wage and Tax' document type configuration. A table lists the fields included in this document type.

Name	Type	Required	Sensitive
Employee Name and Address	String	true	false
Employee Social Security Number	SocialSecurityNumber	true	false
Employer Identification Number	String	false	false
Employers Name and Address	String	false	false
Federal Income Tax Withheld	Decimal	true	false
Social Security Wages	Decimal	false	false
Wages Tips Other Compensation	Decimal	false	false

## 6 Document Types and Samples Overview



At this point in the process, we have created a new document type and configured the field names we want to extract off the document. For the system to know what to extract from your documents, it needs to be able to classify the documents. In this part of the lab, we will teach the system to recognize the various document types on your system.

In the first part of the classification section, you will explore the system's ability to automatically group similar documents together. This can be used to discover document types in a file share for example. You can also upload documents and have the system tell you what it finds. You would then use this information to create document types so you can classify the documents and data extract fields.

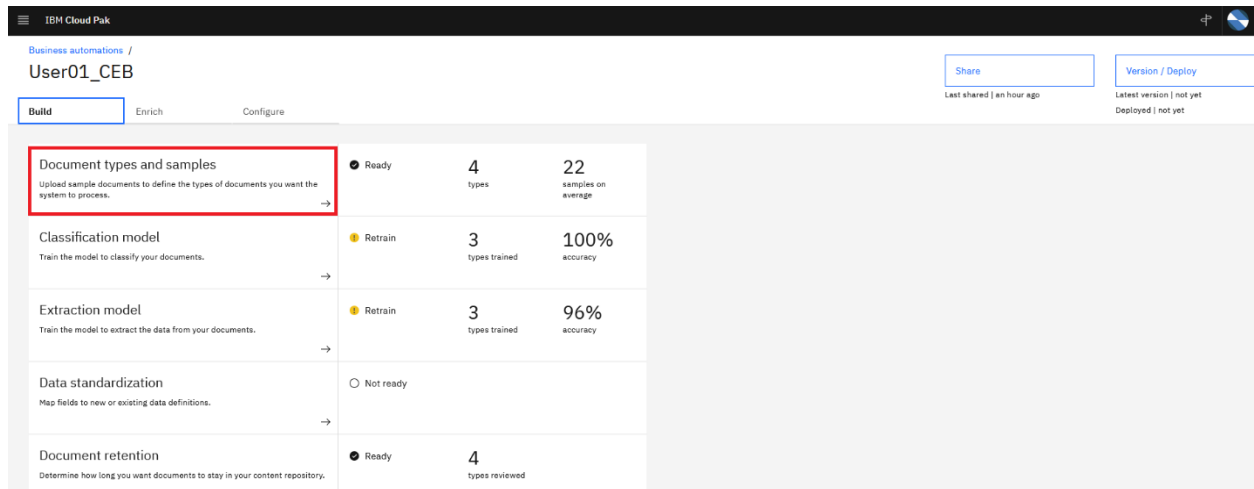
The project template comes pre-loaded with three document types: Bill of Lading, Invoice, and Utility Bill. In the last section we added a new document type *Wages and Tax*. In the *Build* tab of your project, you should now be seeing 4 document types. The three pre-loaded documents already have documents in them. You will be adding documents to the Wage and Tax document type. Your actual screen may vary from the screenshot below.

You will be asked to review the document categories the system finds and create the appropriate document types as needed.

## 6.1 Categorize documents

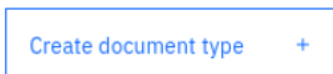
For categorizing, we will have the system help us group similar documents together. To get started,

\_1. **Click anywhere** in the Document types and samples box.

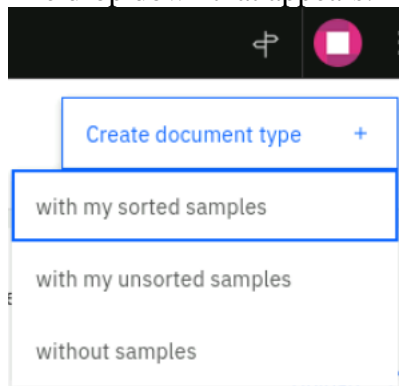


The *categorize* feature analyzes each document and tries to find similarities between them. Based on these similarities, the system will divide the samples into categories for you to review. You can add documents or entire categories into either an existing document class or create new classes as needed. Let's see what that looks like.

\_2. **Click on Create document type** in the top right of the screen



The drop down that appears:

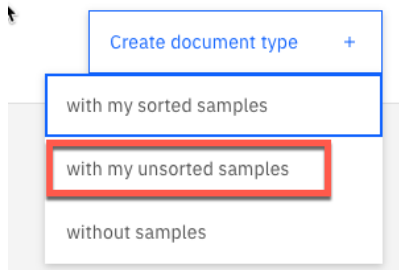


If you have the same document types already separated into folders, you can choose the first option, *with my sorted samples*. The system would simply ingest

the documents from each folder into a different group.

For this exercise, we will select the second option, *with my unsorted samples* and let the system sort the documents for us. Use this option when you don't know how many different document types there are.

**\_3. Select the second option titled **with my unsorted samples**.**



You should have already downloaded the files from [Section 2](#) to your laptop. You can select upload and grab all the files from where they were downloaded to on your laptop. Make sure you have already unzipped them.

**\_4. Click Upload to get document samples.**

From the downloaded sample documents open the folder name *Group 1 – Design Docs for Tax Lab.*

**Note:** This will take several minutes, good time for some coffee or a stretch. Make sure to check ALL documents have been uploaded there are two pages or 12 items to verify.

At the bottom of the window, you can select the number of items to display in the window or click on the arrows to move to the next page.

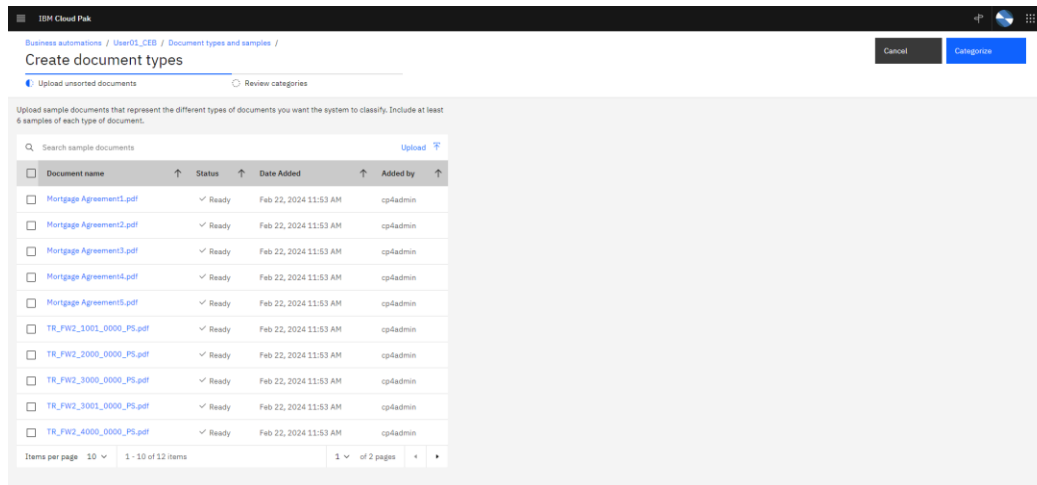
Upload sample documents that represent the different types of documents you want the system to classify. Include at least 6 samples of each type of document.

Search sample documents Upload

<input type="checkbox"/>	Document name	↑	Status	↑	Date Added	↑	Added by	↑
<input type="checkbox"/>	Mortgage Agreement1.pdf		✓ Ready		Feb 22, 2024 11:53 AM		cp4admin	
<input type="checkbox"/>	Mortgage Agreement2.pdf		✓ Ready		Feb 22, 2024 11:53 AM		cp4admin	
<input type="checkbox"/>	Mortgage Agreement3.pdf		✓ Ready		Feb 22, 2024 11:53 AM		cp4admin	
<input type="checkbox"/>	Mortgage Agreement4.pdf		✓ Ready		Feb 22, 2024 11:53 AM		cp4admin	
<input type="checkbox"/>	Mortgage Agreement5.pdf		✓ Ready		Feb 22, 2024 11:53 AM		cp4admin	
<input type="checkbox"/>	TR_FW2_1001_0000_PS.pdf		✓ Ready		Feb 22, 2024 11:53 AM		cp4admin	
<input type="checkbox"/>	TR_FW2_2000_0000_PS.pdf		✓ Ready		Feb 22, 2024 11:53 AM		cp4admin	
<input type="checkbox"/>	TR_FW2_3000_0000_PS.pdf		✓ Ready		Feb 22, 2024 11:53 AM		cp4admin	
<input type="checkbox"/>	TR_FW2_3001_0000_PS.pdf		✓ Ready		Feb 22, 2024 11:53 AM		cp4admin	
<input type="checkbox"/>	TR_FW2_4000_0000_PS.pdf		✓ Ready		Feb 22, 2024 11:53 AM		cp4admin	

Items per page 10 ▾ 1 - 10 of 12 items 1 ▾ of 2 pages

\_5. Click on the blue **Categorize** button on the top right corner



**Note:** The results may vary based on the documents uploaded, what the system already has learned, the version of ADP and more. Please look at this lab exercise from a high level. The categories you will be presented are the system's best guess on how they should be separated.

You will need to:

- Review the categories to see if the documents were separated correctly
- Move documents into either a NEW document type or into an EXISTING document type
- There should be 3 types in the samples you were provided
  - Wage and Tax
  - Utility bills
  - Mortgage Agreements
- You will need to assign either an entire category (i.e., all sample documents) or individual documents in each category to the Wage and Tax and Utility bills document types which already exist on your system
- You will need to create a new document type for Mortgage Agreements

After a few seconds, the system will mark the documents with a status of ready as seen in the above image.

- \_6. **Click on each of the categories** to see what was grouped together as shown below.

The order of the categories shown in the screenshots below may differ from the order in your environment.

You can click on any document to see a preview of it. This will help ensure the documents are correctly grouped.



**Note:** *The names of the files are not used in any way in this process. The files were merely named this way to make it easier for you to quickly ascertain whether the documents were grouped correctly.*

IBM Cloud Pak  
Business automations / User01\_CEB / Document types and samples / Create document types

Update categories Back Finish

Upload unsorted documents Review categories

Review each category, verify the documents, and assign each category to a new or pre-trained document type. [Learn more](#)

Categories (3)  
Category 1  
Category 2  
Category 3

Document types (4)  
Bill of Lading  
Invoice  
Utility Bill  
Wage and Tax

Category 1 sample documents (2)

Search sample documents Upload

Document name	Status	Date Added	Added by
<a href="#">UBILLCable_081_1.1.1.pdf</a>	✓ Ready	Feb 22, 2024 11:53 AM	cp4admin
<a href="#">UBILLCable_082_1.1.1.pdf</a>	✓ Ready	Feb 22, 2024 11:53 AM	cp4admin

IBM Cloud Pak  
Business automations / User01\_CEB / Document types and samples / Create document types

Update categories Back Finish

Upload unsorted documents Review categories

Review each category, verify the documents, and assign each category to a new or pre-trained document type. [Learn more](#)

Categories (3)  
Category 1  
Category 2  
Category 3

Document types (4)  
Bill of Lading  
Invoice  
Utility Bill  
Wage and Tax

Category 2 sample documents (5)

Search sample documents Upload

Document name	Status	Date Added	Added by
<a href="#">Mortgage Agreement1.pdf</a>	✓ Ready	Feb 22, 2024 11:53 AM	cp4admin
<a href="#">Mortgage Agreement2.pdf</a>	✓ Ready	Feb 22, 2024 11:53 AM	cp4admin
<a href="#">Mortgage Agreement3.pdf</a>	✓ Ready	Feb 22, 2024 11:53 AM	cp4admin
<a href="#">Mortgage Agreement4.pdf</a>	✓ Ready	Feb 22, 2024 11:53 AM	cp4admin
<a href="#">Mortgage Agreement5.pdf</a>	✓ Ready	Feb 22, 2024 11:53 AM	cp4admin



IBM Cloud Pak

Business automations / User01\_CEB / Document types and samples /

Create document types

Upload unsorted documents | Review categories

Review each category, verify the documents, and assign each category to a new or pre-trained document type. [Learn more](#)

Categories (3)

- Category 1
- Category 2
- Category 3

Document types (4)

- Bill of Lading
- Invoice
- Utility Bill
- Wage and Tax

Category 3 sample documents (5)

Document name	Status	Date Added	Added by
TR_FW2_1001_0000_PS.pdf	✓ Ready	Feb 22, 2024 11:53 AM	cp4admin
TR_FW2_2000_0000_PS.pdf	✓ Ready	Feb 22, 2024 11:53 AM	cp4admin
TR_FW2_3000_0000_PS.pdf	✓ Ready	Feb 22, 2024 11:53 AM	cp4admin
TR_FW2_3001_0000_PS.pdf	✓ Ready	Feb 22, 2024 11:53 AM	cp4admin
TR_FW2_4000_0000_PS.pdf	✓ Ready	Feb 22, 2024 11:53 AM	cp4admin



At the time of writing this documentation ADP was able to categorize the sample set into each category. This is not always the case, sometimes document types will be combined into one category, so it's very important to look at each category and verify documents.

For each of the three categories perform the following steps:

- \_7. If all documents within a category are correct as illustrated in the following screen shot, **Click** on the **3 dots** at the end of the category name.

IBM Cloud Pak

Business automations / User01\_CEB / Document types and samples /

Create document types

Upload unsorted documents | Review categories

Review each category, verify the documents, and assign each category to a new or pre-trained document type. [Learn more](#)

Categories (3)

- Category 1
- Category 2
- Category 3

Document types (4)

- Bill of Lading
- Invoice
- Utility Bill
- Wage and Tax

Category 1 sample documents (2)

Document name	Status	Date Added	Added by
UBILLCable_081_1_1.1.pdf	✓ Ready	Feb 22, 2024 11:53 AM	cp4admin
UBILLCable_082_1_1.1.pdf	✓ Ready	Feb 22, 2024 11:53 AM	cp4admin

- \_8. Select Assign to document type

IBM Cloud Pak

Business automations / User01\_CEB / Document types and samples /

Create document types

Upload unsorted documents | Review categories

Review each category, verify the documents, and assign each category to a new or pre-trained document type. [Learn more](#)

Categories (3)

- Category 1
- Category 2
- Category 3

Document types (4)

- Bill of Lading
- Invoice
- Utility Bill
- Wage and Tax

Category 1 sample documents (2)

Document name	Status	Date Added	Added by
UBILLCable_081_1_1.1.pdf	✓ Ready	Feb 22, 2024 11:53 AM	cp4admin
UBILLCable_082_1_1.1.pdf	✓ Ready	Feb 22, 2024 11:53 AM	cp4admin

\_9. If the documents are either of type **Utility Bill** or **Wage and Tax**:

**Select Existing Document type** then the appropriate **document type** from the drop-down list.

The image shows two side-by-side "Assign documents" dialog boxes. Both dialogs have the title "Assign documents" and a close button (X) in the top right corner. The left dialog is for "Assign documents of Category 1 to" and the right dialog is for "Assign documents of Category 3 to". Both dialogs have two radio buttons: "New document type" and "Existing document type". In both, "Existing document type" is selected. Below the radio buttons is a dropdown menu for "Document types". In the left dialog, the dropdown shows "Utility Bill" selected with a checkmark. In the right dialog, the dropdown shows "Wage and Tax" selected. At the bottom of each dialog are "Cancel" and "Assign" buttons. Red arrows point to the "Existing document type" radio button and the selected document type in both dialogs.

**Click Assign** to close the dialog box.

If the documents are of type **Mortgage Agreement**:

**Select a New Document Type.** Since we have not defined a mortgage agreement document type yet.

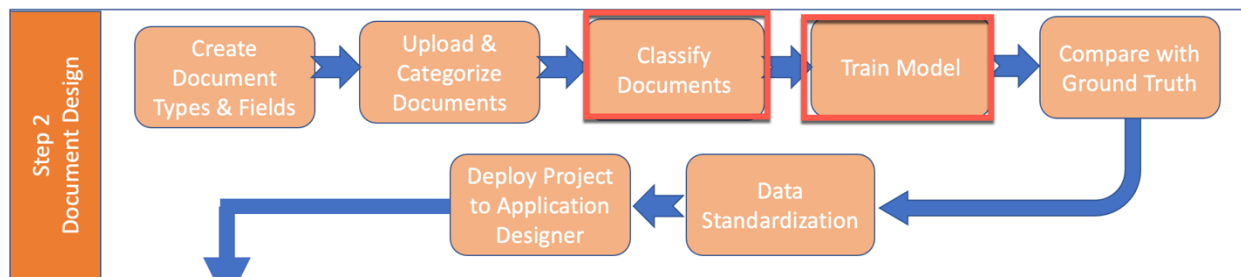
**Enter Mortgage Agreement** in the field

The image shows an "Assign documents" dialog box for "Assign documents of Category 2 to". It has two radio buttons: "New document type" (selected) and "Existing document type". Below the radio buttons are two input fields. The first is "Document type display name" with a character count of 18/50, containing the text "Mortgage Agreement". Below this field is a note: "This is the name that will show up for you in the system. You can use characters from any language." The second input field is "Document type symbolic name" with a character count of 17/50, containing the text "MortgageAgreement". At the bottom are "Cancel" and "Assign" buttons.

**Click Assign** to have the system automatically rename and move the category into the Document Types section.

\_10. Click the **Finish** button in the top right corner

## 7 Train classification



Now that we have documents uploaded in the system, we are ready to train the classification. Note that although you don't need a ton of document samples to train (minimum of 5), you are going to get better accuracy if the system has a deeper understanding of the documents, so more could be better.

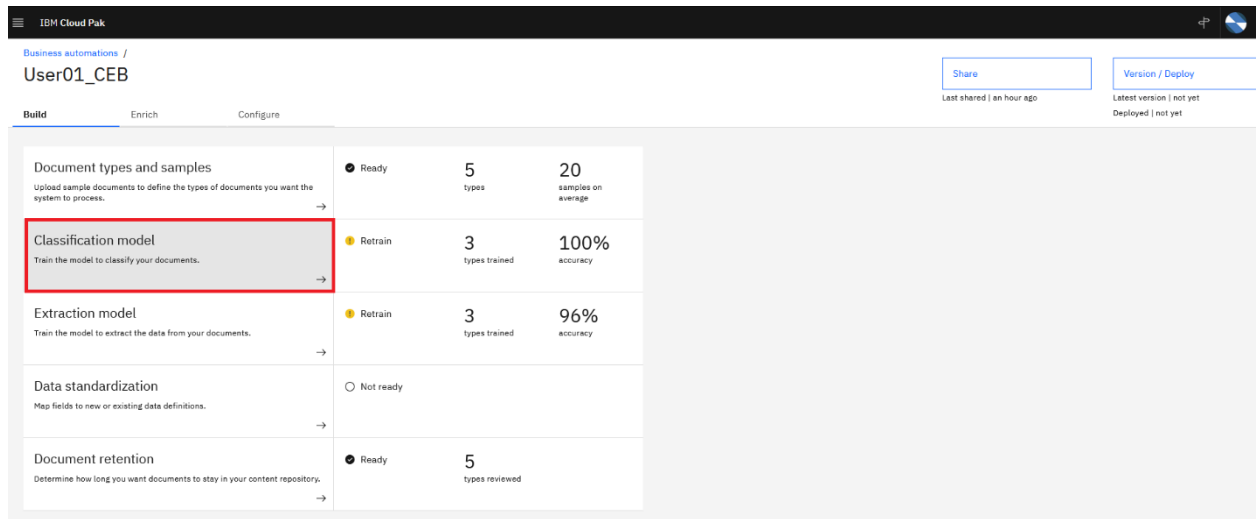
In this lab, we curated some document samples for you. In normal circumstances, you would need to do this yourself. Make sure the documents you upload to train classification are good documents:

- Clean documents
- High resolution
- Representative of the document type(s)
- Accurately grouped and uploaded to Document Processing

This is NOT the time to try and trick the system. Uploading a document that doesn't get recognized well would not help the system recognize the types of words, phrases, and concepts it needs to learn to classify documents correctly.

The most common error is introducing a sample document into the incorrect document type, usually by uploading them to the wrong document type. If that happens, you are introducing conflict into the classification. For example, an invoice added to Tax Forms may confuse the system and result in it thinking invoices are tax forms and vice versa. Once that happens, you need to clean your documents and retrain the system.

- \_1. **Click** on **<your project name>** in the bread crumb trail to return to the start page
- \_2. **Click** anywhere in the **Classification model** line



Once we open the classification model, we will be presented with details on how to perform the retraining. There are four basic steps – Confirm inputs, Review Samples, Review Training Results, and Test Trained model.

On the *Confirm inputs* screen here we can confirm all the documents that will be used in this training exercise. We can also use the opportunity to remove documents that are no longer relevant or upload additional documents.

- \_3. **Click Next** this will move from the **Confirm inputs** to the **Review Samples** step. Notice three document types have green icons next to them. These green icons show these documents have test samples already assigned. The new document types (Mortgage Agreement and Wage and Tax) do not have any test samples assigned yet therefore there's no green icons since we haven't assigned test sets yet.

IBM Cloud Pak | Automation

Business automations / User01-CEB / Classification model

Last trained: a day ago Accuracy 84.8%

Confirm inputs Review samples Review training results Test trained model Optional

Changes were made since you last trained your model. Retrain the model to get updated training results and accuracy.

**Document types**

- Bill of Lading 21 samples
- Invoice 21 samples
- Mortgage Agreement 2 samples**
- Utility Bill 21 samples
- Wage and Tax 5 samples

This document type will not be trained because you have no documents in the test set. Please make sure you have at least 1 document in each set.

Review your training and test sets. A good practice is to assign 70% of your samples to the training set and 30% to the test set. The test set is used to generate the model training results. [Learn more](#)

Mortgage Agreement sample documents (5) Training/test ratio in % 100/0 Auto generate 70/30 split

**Training set (5)** 100% of total samples

Search training set sample documents

- Mortgage Agreement1.pdf
- Mortgage Agreement2.pdf
- Mortgage Agreement3.pdf
- Mortgage Agreement4.pdf
- Mortgage Agreement5.pdf

**Test set (0)** 0% of total samples

Search test set sample documents

There are no documents in the test set. Include at least 1 document in the test set to view training results.

\_4. For the Mortgage Agreement move two documents to the Test set by **checking** and **click** on the **arrow** in between columns.

IBM Cloud Pak | Automation

Business automations / User01-CEB / Classification model

Last trained: a day ago Accuracy 84.8%

Confirm inputs Review samples Review training results Test trained model Optional

Changes were made since you last trained your model. Retrain the model to get updated training results and accuracy.

**Document types**

- Bill of Lading 21 samples
- Invoice 21 samples
- Mortgage Agreement 2 samples**
- Utility Bill 21 samples
- Wage and Tax 5 samples

Review your training and test sets. A good practice is to assign 70% of your samples to the training set and 30% to the test set. The test set is used to generate the model training results. [Learn more](#)

Mortgage Agreement sample documents (5) Training/test ratio in % 60/40 Auto generate 70/30 split

**Training set (3)** 60% of total samples

Search training set sample documents

- Mortgage Agreement3.pdf
- Mortgage Agreement4.pdf
- Mortgage Agreement5.pdf

**Test set (2)** 40% of total samples

Search test set sample documents

- Mortgage Agreement1.pdf
- Mortgage Agreement2.pdf

## \_5. Select Wage and Tax on the Document types. This time let the ADP system **Auto generate** the 60/40 split to the test set. Click **Auto generate split**

IBM Cloud Pak | Administration

Classification model Accuracy 100% Last trained: 5 months ago Back Train

Confirm inputs Review samples Review training results Test trained model Optional

Changes were made since you last trained your model. Retrain the model to get updated training results and accuracy.

**Document types**

- Bill of Lading 28 samples ✓
- Invoice 24 samples ✓
- Mortgage Agreement 5 samples ✓
- Utility Bill 31 samples ✓
- Wage and Tax** 5 samples ✓

**Wage and Tax sample documents (5)** Training/test ratio in % 100/0 Auto generate 70/30 split

Review your training and test sets. A good practice is to assign 70% of your samples to the training set and 30% to the test set. The test set is used to generate the model training results. [Learn more](#)

**Training set (5)** 100% of total samples

Search training set sample documents

- TR\_FW2\_1001\_0000\_PS.pdf ☐
- TR\_FW2\_2000\_0000\_PS.pdf ☐
- TR\_FW2\_3000\_0000\_PS.pdf ☐
- TR\_FW2\_3001\_0000\_PS.pdf ☐
- TR\_FW2\_4000\_0000\_PS.pdf ☐

**Test set (0)** 0% of total samples

Search test set sample documents

There are no documents in the test set. Include at least 1 document in the test set to view training results.



*The suggested split is 60/40 – that is, 60% of the available sample documents should be used for training, and we will validate the training results with 40% of the sample documents. This split is only a suggestion, and we can adjust it, but 60/40 is a good starting point.*

IBM Cloud Pak | Automation

Business automations / User01-CEB / **Classification model** Accuracy 84.8% Last trained: 3 days ago Back Train

Confirm inputs Review samples Review training results Test trained model Optional

Changes were made since you last trained your model. Retrain the model to get updated training results and accuracy.

**Document types**

- Bill of Lading 28 samples ✓
- Invoice 24 samples ✓
- Mortgage Agreement 5 samples ✓
- Utility Bill 31 samples ✓
- Wage and Tax** 5 samples ✓

**Wage and Tax sample documents (5)** Training/test ratio in % 60/40 Auto generate 70/30 split

Review your training and test sets. A good practice is to assign 70% of your samples to the training set and 30% to the test set. The test set is used to generate the model training results. [Learn more](#)

**Training set (3)** 60% of total samples

Search training set sample documents

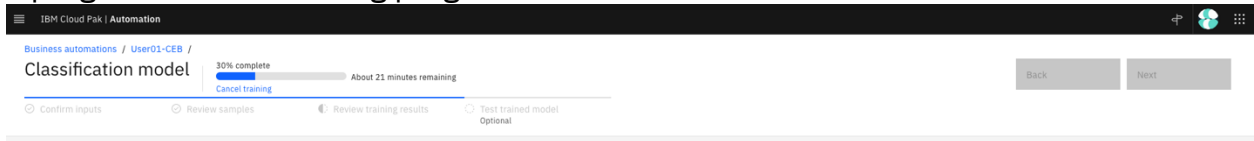
- TR\_FW2\_3000\_0000\_PS.pdf ☐
- TR\_FW2\_3001\_0000\_PS.pdf ☐
- TR\_FW2\_4000\_0000\_PS.pdf ☐

**Test set (2)** 40% of total samples

Search test set sample documents

- TR\_FW2\_1001\_0000\_PS.pdf ☐
- TR\_FW2\_2000\_0000\_PS.pdf ☐

- \_6. **Click on Train** to launch the training. This may take a several minutes. You will see a progress bar has training progresses.



Once complete, you will be able to see the training results.



*What's happening: All the samples are run through multiple machine learning algorithms. These machine learning algorithms learn from the ground truth, the association between the sample documents (the OCR text) and the document types. The yielding models are then evaluated with the documents in test set. The model-predicted document types on these documents are compared with the human-provided answers to compute the accuracy. The top three accurate models are presented to the user, with the most accurate one being selected by default.*

You should see something like the following:

**Model trained successfully!**  
Accuracy has been updated to reflect the latest changes.

Changes were made since you last trained your model. Retrain the model to get updated training results and accuracy.

**Training results**  
These documents are used to test classification. After the classification model is trained, each of these documents is tested to see whether the system can correctly determine the document type. If a document has an incorrect classification result or a confidence warning, review the inputs, add similar documents, and retrain the model.

Search sample documents

Document	Classified as	Classification result	Confidence
BOL_005_2_1.pdf	Bill of Lading	Correct	96.06%
BOL_009_2_1.1.pdf	Bill of Lading	Correct	91.63%
BOL_015_2_1.1.pdf	Bill of Lading	Correct	95.23%
BOL_027_2_1.1.pdf	Bill of Lading	Correct	95.68%
BOL_041_2_1.1.pdf	Bill of Lading	Correct	94.72%
BOL_051_2_1.1.pdf	Bill of Lading	Correct	93.37%
BOL_054_2_1.1.pdf	Bill of Lading	Correct	96.14%

- \_7. **Close** the green **notification**. **Click** on each of the document types. Notice the confidence levels. You can notice either or both Mortgage Agreement or Wage and Tax have a confidence of low. Low Confidence means we probably need to add more documents to our document class to get better confidence values.



You can easily see where the system may be struggling with Wage and Tax and Mortgage Agreement. You should look for document types that don't match the actual file or have a low confidence. Remember the more documents you give to train, the better the results.

\_8. **Click on Next.** This is the **Test trained model** page. Here you can try and test other documents to see if they classified correctly. This step is optional but would be useful to try out the AI model to determine whether additional samples are necessary.

\_9. **Click Done**

## 7.1 How do I improve my results?

### 7.1.1 Option 1 – Add more samples

To improve results, you would normally want to add more samples of the document ensuring they are clean and representative document to improve the system's understanding of the document.

- \_1. **Click** anywhere on **Document Types and Samples**
- \_2. **Click** on **Wage and Tax** type
- \_3. **Click** on **Upload**
- \_4. From the zip files you downloaded and unzipped earlier upload all the files from the directory **Group 2 - Classification Results Increase Set**. Wait until the status for all documents is Ready.
- \_5. Go back to the **Build** tab then let's retrain the **Classification module** again
- \_6. **Click** anywhere on **Classification model**
- \_7. **Click on Wage and Tax**

IBM Cloud Pak

Business automations / User01\_CEB /

Document types and samples Create document type +

**Document types**

- Bill of Lading 20 samples
- Invoice 24 samples
- Mortgage Agreement 5 samples
- Utility Bill 23 samples
- Wage and Tax 5 samples**

**Wage and Tax sample documents (5)**

Review your existing and pre-trained document types. You can upload sample documents to refine each document type or create new document types. [Learn more](#)

Search sample documents

<input type="checkbox"/>	Document name	Status	Date Added	Added by
<input type="checkbox"/>	TR_FW2_1001_0000_PS.pdf	✓ Ready	Sep 19, 2023 11:18 PM	cp4admin
<input type="checkbox"/>	TR_FW2_2000_0000_PS.pdf	✓ Ready	Sep 19, 2023 11:18 PM	cp4admin
<input type="checkbox"/>	TR_FW2_3000_0000_PS.pdf	✓ Ready	Sep 19, 2023 11:18 PM	cp4admin
<input type="checkbox"/>	TR_FW2_3001_0000_PS.pdf	✓ Ready	Sep 19, 2023 11:18 PM	cp4admin
<input type="checkbox"/>	TR_FW2_4000_0000_PS.pdf	✓ Ready	Sep 19, 2023 11:18 PM	cp4admin

**Upload**



\_8. **Click Next** button. Also **click** on the **Auto generate split**.

The screenshot shows the IBM Cloud Pak Administration interface for a 'Classification model'. The top navigation bar includes 'Business automations / Clandis Baker Project / Classification model'. The model's accuracy is 100%, and it was last trained an hour ago. The interface has four tabs: 'Confirm inputs', 'Review samples', 'Review training results', and 'Test trained model (Optional)'. A notification banner states: 'Changes were made since you last trained your model. Retrain the model to get updated training results and accuracy.' The left sidebar lists document types: 'Bill of Lading' (28 samples), 'Invoice' (24 samples), 'Mortgage Agreement' (1 sample), 'Utility Bill' (35 samples), and 'Wage and Tax' (31 samples). The main area shows 'Wage and Tax sample documents (10)' with a 'Training/test ratio in %' of '70/30'. It features two panels: 'Training set (7)' (70% of total samples) and 'Test set (3)' (30% of total samples). Each panel has a search bar and a list of documents with checkboxes. A red box highlights the 'Auto generate 70/30 split' link in the top right corner of the main area.

\_9. **Click Train** button and wait until the training is complete

\_10. Now look at the confidence score for **Wage and Tax**. They should have improved considerably compared to before you added new documents.

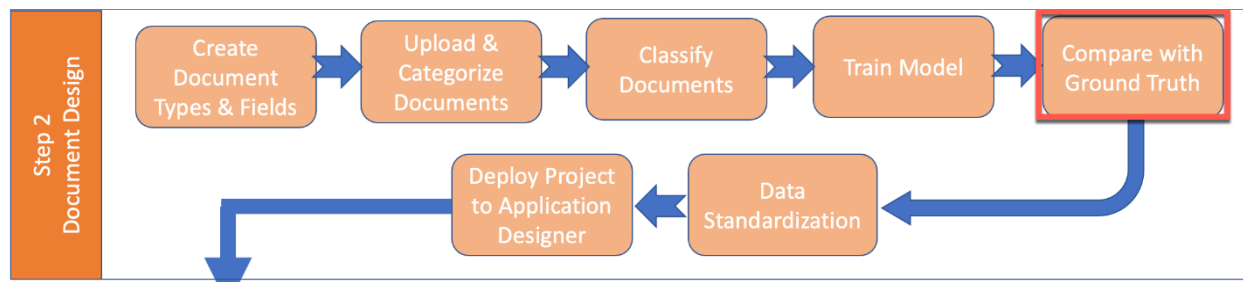
\_11. **Click Next** and then **Click Done**

### 7.1.2 Option 2 – Review all uploaded samples

As pointed out before, the quality of the sample documents determines the quality of the results. Therefore in general:

- Remove those that are not a clear representation
- Remove those that are poor quality documents
- Carefully confirm that none of the samples contain multiple document types in the file. This is a common occurrence. A document is listed as a Purchase Order, but in the back pages, also contains other document types in that same file. This confuses the system.

## 8 Data extraction



At this point, we have defined a document type, told the system which fields we want off the document and trained the system on how to recognize (classify) the document. In the Data Extraction portion of the lab, we will upload new Wage and Tax documents to Document Processing and see how our earlier configuration of the document type and related fields are working. This is comparing a new document extracted elements with the ground truth.

Once we open Extraction model, we will be presented with details on how to perform the retraining. There are five basic steps – Review samples, Add fields, Teach the model, Review the trained model, and Test the model.

\_1. From the guided configuration screen, **Click** anywhere in the **Extraction model** box



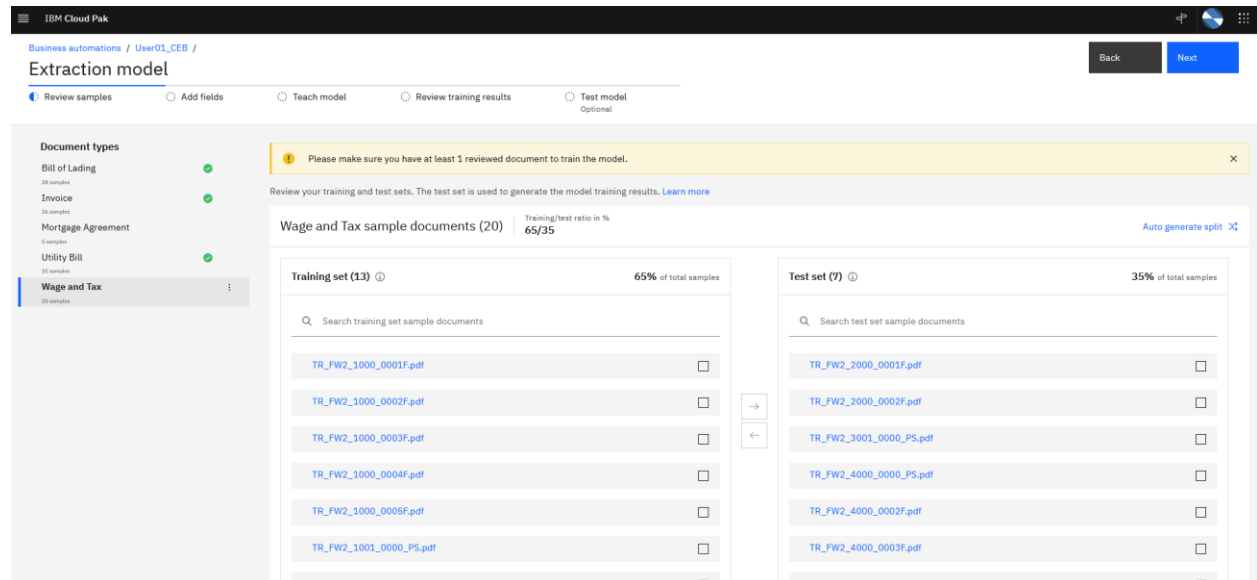
**Note:** The status will be reset to Retrain if ADP detects something may have changed. This is just a reminder that if you indeed changed something, you may benefit from retraining the model.

<b>Extraction model</b> Train the model to extract the data from your documents.	Retrain	<b>3</b> types trained	<b>90%</b> accuracy	<a href="#">Open →</a>
---	---------	---------------------------	------------------------	------------------------

\_2. Next **Click** on the **Wage and Tax** document type under the Document Types section

Like in the classification step, ADP needs to have the documents divided into a training and test sets. In general, *deep learning*-based AI requires a larger number of sample documents to achieve a reasonable result. But since our environment does not have GPU, deep learning is not turned on.

You should have something that looks like what you see in the following screen shot.



\_3. Again, lets train with a Auto generate split. **Click Auto generate split.**

\_4. **Click** on the **Next** button at the top



You will now be on the *Add fields* step. If there were more fields to add we could do it here. But since we have already added all the fields needed, proceed to the next step.

\_5. **Click** the **Next** button. You are now at the *Teach model* step.

Teach the model is where you will spend most of your time. We can see that our documents are “not ready”, so we’ll need to teach the model with new documents.

## \_6. Click on Teach Samples

Business automations / User01\_CEB / Extraction model

Review samples Add fields **Teach model** Review training results Test model Optional

Document types

- Bill of Lading 58 training samples
- Invoice 56 training samples
- Mortgage Agreement 2 training samples
- Utility Bill 23 training samples
- Wage and Tax 12 training samples**

Please make sure you have at least 1 reviewed document to train the model.

Wage and Tax sample documents (12)

Annotate each of these documents to teach the model how to extract the fields you added in the previous step.

Search sample documents

Upload Reanalyze

Document name	Status	Fields reviewed	Date added
✓ TR_FW2_1000_0004F.pdf	Not ready	0/7	Sep 19, 2023 11:47 PM
✓ TR_FW2_1000_0005F.pdf	Not ready	0/7	Sep 19, 2023 11:47 PM
✓ TR_FW2_1001_0000_PS.pdf	Not ready	0/7	Sep 19, 2023 11:18 PM
✓ TR_FW2_2000_0000_PS.pdf	Not ready	0/7	Sep 19, 2023 11:18 PM
✓ TR_FW2_2000_0004F.pdf	Not ready	0/7	Sep 19, 2023 11:47 PM
✓ TR_FW2_2000_0005F.pdf	Not ready	0/7	Sep 19, 2023 11:47 PM
✓ TR_FW2_3000_0000_PS.pdf	Not ready	0/7	Sep 19, 2023 11:18 PM
✓ TR_FW2_3001_0000_PS.pdf	Not ready	0/7	Sep 19, 2023 11:18 PM
✓ TR_FW2_4000_0000_PS.pdf	Not ready	0/7	Sep 19, 2023 11:18 PM



**Note:** Your individual results may vary based on the exact documents you upload, how you configure your fields etc. Therefore, general guidance is given here versus exact step by step instructions.

## \_7. We will now review the fields that were extracted, correct any that may be wrong and add others.

You should now see the field data extracted by the system. Nothing has been trained yet. All it is doing is using the field name and aliases we entered when we created the document class to locate data. Now, you need to correct and improve the model.

IBM Cloud Pak Administration

Back TR\_FW2\_1001\_0000\_PS.pdf Not ready

Show detected fields Keyboard shortcuts on

Match data underlined in blue to the selected field or draw your own boxes around data in the document.

Sort by: Date created

Field Name	Value Captured
Federal Income Tax Withheld	Required
Field label (optional)	Captured field label
Field value	Captured field value

Printing phases: View all phases

None

Mark this document as ready for training

Previous sample Next sample



**Note:** You may see different results than shown on the image above. Depending on how the algorithms interpreted the results you could see either type of extraction.

The screenshot displays the IBM Cloud Pak Administration interface. On the left, a W-2 form for 2020 is shown. The form includes fields for Employer identification number (14-023285), Employee's name, address, and ZIP code (Test and Rest Inc., 563 Stoney Brook Rd, Minneapolis, MN 55411), Control number (210220 A13), Employee's first name and initial (Benjamin P. Charles), Last name (Aldrich), and Address (4326 Aldrich Rd, Minneapolis, MN 55412). The form also shows various tax amounts, including Federal income tax withheld (1800.00). On the right, a panel titled 'Field Name' and 'Value Captured' displays the extracted data. The panel shows a list of recommended matches for the field 'Federal Income Tax Withheld'. The first match is 'Federal income tax withheld' with a value of 1800.00. The second match is '2 Federal income tax withheld' with a value of 1800.00. The panel includes buttons for 'Edit selection', 'Dismiss', and 'Save selection'.

Field Name	Value Captured
Federal Income Tax Withheld	1800.00
2 Federal income tax withheld	1800.00

Let's spend some time showing how to go about correcting these issues to help the system learn how to extract the values accurately.

## 8.1 Correcting extracted values

Let's start with the Federal Income Tax withheld field (i.e., the first one in the 'Fields to extract' list). Again, you may see different results based on your forms and how the different algorithms behaved on that particular document during extraction.

- \_1. ADP may have already preselected the first field like in the first screen shot below. But ADP can also show the characters it recognized on the page with blue lines (second screen shot below) If your result is like the first screen shot then **Click** blue button **Save section**. Otherwise, if you got blue lines **Click** on the **number** below the heading "**Federal Income tax withheld**" in the image.

IBM Cloud Pak | Administration

← Back TR\_FW2\_1000\_0001F.pdf | Not ready

Show detected fields Keyboard shortcuts on

22222		a Employee's social security number 577-22-3048		OMB No. 1545-0008	
b Employer identification number (EIN) 14-023285		1 Wages, tips, other compensation 18000.00		2 Federal income tax withheld 1800.00	
c Employer's name, address, and ZIP code Test and Rest Inc. 563 Stoney Brook Rd Minneapolis, MN 55411		3 Social security wages 17700.00		4 Social security tax withheld 1113.33	
		5 Medicare wages and tips 18000.00		6 Medicare tax withheld 261.00	
		7 Social security tips 400.00		8 Allocated tips 400.00	
d Control number 210220 A13		9		10 Dependent care benefits 543.21	
e Employee's first name and initial Benjamin P. Charles		11 Nonqualified plans 300.00		12a A 256.00	
Last name 4326 Aldrich Rd Minneapolis, MN 55412		13 Statutory employee Retirement plan Third-party sick pay [X] [X] [X]		12b D 20000.00	
		14 Other Test form		12c DD 532.00	
				12d AA 425.00	
f Employee's address and ZIP code		15 State Employer's state ID number MN 795037		16 State wages, tips, etc. 18000.00	
		17 State income tax 1260.00		18 Local wages, tips, etc. 17700.00	
				19 Local income tax 500.00	
				20 Locality name MPLS	

Form **W-2 Wage and Tax Statement** 2020 Department of the Treasury—Internal Revenue Service  
Copy 1—For State, City, or Local Tax Department

Field Name Value Captured

Federal Income Tax Wit... Required Text

Recommended matches

Matches are ranked in order of confidence. Choose one and save or dismiss to draw your own.

Field label Field value

Federal income tax withheld 1800

2 Federal income tax withheld 1800.00

Federal income tax withheld 1800.00

Local income tax 500.00

Edit selection Dismiss Seeing duplicates?

Pending aliases View all aliases (3)

Detected alias already exists

Save selection

Employee Name and A... Required

Mark this document as ready for training.

Previous sample Next sample

IBM Cloud Pak | Administration

← Back TR\_FW2\_1001\_0000\_PS.pdf | Not ready

Show detected fields Keyboard shortcuts on

22222		a Employee's social security number 577-22-3048		OMB No. 1545-0008	
b Employer identification number (EIN) 14-023285		1 Wages, tips, other compensation 123456789.99		2 Federal income tax withheld 123456789.99	
c Employer's name, address, and ZIP code Long Lengthy Name The Corporation 56334 Full Sized Avenue Unit 1234 Minneapolis, Minnesota 55411-1234		3 Social security wages 123456789.99		4 Social security tax withheld 123456789.99	
		5 Medicare wages and tips 123456789.99		6 Medicare tax withheld 123456789.99	
		7 Social security tips 123456789.99		8 Allocated tips 123456789.99	
d Control number 123456 A78		9		10 Dependent care benefits 123456789.99	
e Employee's first name and initial Michael Robert David Smithson III		11 Nonqualified plans 123456789.99		12a A 123456789.99	
Last name 56334 Full Sized Avenue Unit 1234 Minneapolis, Minnesota 55411-1234		13 Statutory employee Retirement plan Third-party sick pay [X] [X] [X]		12b D 123456789.99	
		14 Other AAA BBB CCCC 12345678.90 AAA BBB CCCC 12345678.90		12c DD 123456789.99	
				12d AA 123456789.99	
f Employee's address and ZIP code		15 State Employer's state ID number MN 123456789		16 State wages, tips, etc. 123456789.99	
		17 State income tax 123456789.99		18 Local wages, tips, etc. 123456789.99	
				19 Local income tax 123456789.99	
				20 Locality name ABCDEFGH	

Form **W-2 Wage and Tax Statement** 2020 Department of the Treasury—Internal Revenue Service  
Copy 1—For State, City, or Local Tax Department

Field Name Value Captured

Federal Income Tax Wit... Required Text

Field label (optional)

Draw Captured field label

Field value

Draw Captured field value

Pending aliases View all aliases (3)

None

Save selection

Employee Name and A... Required

Employee Social Secur... Required Text

Employer Identification... Required Text

Employers Name and A... Required Text

Mark this document as ready for training.

Previous sample Next sample

\_2. Again, depending on your specific results. If ADP was able to find the field and will ask if you want to save match of value captured along with the field label. **Select Save Selection.** Otherwise, if your results were the recognized characters with blue lines then in the pop-up window that comes up **select Save match.**

IBM Cloud Pak | Administration

← Back TR\_FW2\_1001\_0000\_PS.pdf | Not ready

Show detected fields Keyboard shortcuts on

22222	a Employee's social security number 577-22-3048	OMB No. 1545-0008
b Employer identification number (EIN) 14-023285	1 Wages, tips, other compensation 123456789.99	2 Federal income tax withheld 123456789.99
c Employer's name, address, and ZIP code Long Lengthy Name The Corporation 56334 Full Sized Avenue Unit 1234 Minneapolis, Minnesota 55411-1234	3 Social security wages 123456789.99	4 Social security tax withheld 123456789.99
d Control number 123456 A78	5 Medicare wages and tips 123456789.99	6 Medicare tax withheld 123456789.99
e Employee's first name and initial Last name Michael Robert David Smithson III 56334 Full Sized Avenue Unit 1234 Minneapolis, Minnesota 55411-1234	7 Social security tips 123456789.99	8 Allocated tips 123456789.99
f Employee's address and ZIP code 15 State Employer's state ID number MN 123456789	9	10 Dependent care benefits 123456789.99
16 State wages, tips, etc. 123456789.99	17 State income tax 123456789.99	18 Local wages, tips, etc. 123456789.99
19 Local income tax 123456789.99	20 Locality name ABCDEF	

Form **W-2 Wage and Tax Statement** 2020 Department of the Treasury—Internal Revenue Service  
Copy 1—For State, City, or Local Tax Department

Match data underlined in blue to the selected field or draw your own boxes around data in the document.

Sort by: Date created

Field Name	Value Captured
Federal Income Tax Withheld Required	123456789.99
Field label (optional)	2 Federal income tax withheld
Field value	123456789.99
Pending aliases	View all aliases (3)
None	
Employee Name and Address Required	
Employee Social Security Number Required	
Employer Identification Number Required	
Employers Name and Address Required	

Save selection

Mark this document as ready for training.

Previous sample Next Sample

Notice a green check mark signifies this field is complete.

IBM Cloud Pak | Administration

← Back TR\_FW2\_1001\_0000\_PS.pdf | Not ready

Show detected fields Keyboard shortcuts on

22222	a Employee's social security number 577-22-3048	OMB No. 1545-0008
b Employer identification number (EIN) 14-023285	1 Wages, tips, other compensation 123456789.99	2 Federal income tax withheld 123456789.99
c Employer's name, address, and ZIP code Long Lengthy Name The Corporation 56334 Full Sized Avenue Unit 1234 Minneapolis, Minnesota 55411-1234	3 Social security wages 123456789.99	4 Social security tax withheld 123456789.99
d Control number 123456 A78	5 Medicare wages and tips 123456789.99	6 Medicare tax withheld 123456789.99
e Employee's first name and initial Last name Michael Robert David Smithson III 56334 Full Sized Avenue Unit 1234 Minneapolis, Minnesota 55411-1234	7 Social security tips 123456789.99	8 Allocated tips 123456789.99
f Employee's address and ZIP code 15 State Employer's state ID number MN 123456789	9	10 Dependent care benefits 123456789.99
16 State wages, tips, etc. 123456789.99	17 State income tax 123456789.99	18 Local wages, tips, etc. 123456789.99
19 Local income tax 123456789.99	20 Locality name ABCDEF	

Form **W-2 Wage and Tax Statement** 2020 Department of the Treasury—Internal Revenue Service  
Copy 1—For State, City, or Local Tax Department

Match data underlined in blue to the selected field or draw your own boxes around data in the document.

Sort by: Date created

Field Name	Value Captured
Federal Income Tax Withheld Required	123456789.99
Field label (optional)	2 Federal income tax withheld
Field value	123456789.99
Pending aliases	View all aliases (3)
None	
Employee Name and Address Required	
Employee Social Security Number Required	
Employer Identification Number Required	
Employers Name and Address Required	
Social Security Wages Required	

Save selection

Mark this document as ready for training.

Previous sample Next Sample

The 3 ellipses next the green check mark allow you to clear the data or update ADP to there is no field with this data in the current view.

3. Move to Employee Name and Address field by clicking in the grey area on that field name. In our two possible outcomes depending on the algorithms. ADP did pick up the name but missed the address. Or the algorithm may have picked up the address and not the name. Or it may have gotten the correct field. If the field is not correct **Click** on the **Dismiss** button. Now under the Field label **select Draw** button and using your mouse grab or lasso around **"Employee's first name and initial"**.



IBM Cloud Pak | Administration

← Back TR\_FW2\_1000\_0001F.pdf | Not ready

Show detected fields Keyboard shortcuts on

22222	a Employee's social security number 577-22-3048	OMB No. 1545-0008
b Employer identification number (EIN) 14-023285	1 Wages, tips, other compensation 18000.00	2 Federal income tax withheld 1800.00
c Employer's name, address, and ZIP code Test and Rest Inc. 563 Stoney Brook Rd Minneapolis, MN 55411	3 Social security wages 17700.00	4 Social security tax withheld 1113.33
d Control number 210220 A13	5 Medicare wages and tips 18000.00	6 Medicare tax withheld 261.00
e Employee's first name and initial Benjamin P. Charles	7 Social security tips 400.00	8 Allocated tips 400.00
f Employee's address and ZIP code 4326 Aldrich Rd Minneapolis, MN 55412	9	10 Dependent care benefits 543.21
	11 Nonqualified plans 300.00	12a A 256.00
	13 Statutory employee [X] Retirement plan [X] Third-party sick pay [X]	12b D 20000.00
	14 Other Test form	12c DD 532.00
		12d AA 425.00
15 State Employer's state ID number MN 795037	16 State wages, tips, etc. 18000.00	17 State income tax 1260.00
	18 Local wages, tips, etc. 17700.00	19 Local income tax 500.00
		20 Locality name MPLS

Form **W-2 Wage and Tax Statement** 2020 Department of the Treasury—Internal Revenue Service  
Copy 1—For State, City, or Local Tax Department

Recommended matches

Matches are ranked in order of confidence. Choose one and save or dismiss to draw your own.

Field label Field value

e Employee's first name and initial 4326 Aldrich Rd Minneapolis, MN 55412

f Employee's address and ZIP code

f Employee's address and ZIP code 4326 Aldrich Rd Minneapolis, MN 55412

f Employee's address and ZIP code

Edit selection Dismiss Seeing duplicates?

Subfields 16 items, 0 required items Capture subfields

Pending aliases View all aliases (6)

None

Mark this document as ready for training.

Previous sample Next sample

If you got the blue lines, you would notice that only the “e Employee’s first name and initial” have blue marks. In this case the values for name and address were not located. Using Draw button and using your mouse grab or lasso around **“Employee’s first name and initial”**.

- \_4. We are interested in getting the “Employee’s First Name” data and address for the field value. **Click** on the **Draw** button under Field value. Using your mouse select the appropriate values for Name and address (green box), then **Click Save selection**

IBM Cloud Pak | Administration

← Back TR\_FW2\_1000\_0001F.pdf | Not ready

Show detected fields Keyboard shortcuts on

22222	a Employee's social security number 577-22-3048	OMB No. 1545-0008
b Employer identification number (EIN) 14-023285	1 Wages, tips, other compensation 18000.00	2 Federal income tax withheld 1800.00
c Employer's name, address, and ZIP code Test and Rest Inc. 563 Stoney Brook Rd Minneapolis, MN 55411	3 Social security wages 17700.00	4 Social security tax withheld 1113.33
d Control number 210220 A13	5 Medicare wages and tips 18000.00	6 Medicare tax withheld 261.00
e Employee's first name and initial Benjamin P. Charles	7 Social security tips 400.00	8 Allocated tips 400.00
f Employee's address and ZIP code 4326 Aldrich Rd Minneapolis, MN 55412	9	10 Dependent care benefits 543.21
	11 Nonqualified plans 300.00	12a A 256.00
	13 Statutory employee [X] Retirement plan [X] Third-party sick pay [X]	12b D 20000.00
	14 Other Test form	12c DD 532.00
		12d AA 425.00
15 State Employer's state ID number MN 795037	16 State wages, tips, etc. 18000.00	17 State income tax 1260.00
	18 Local wages, tips, etc. 17700.00	19 Local income tax 500.00
		20 Locality name MPLS

Form **W-2 Wage and Tax Statement** 2020 Department of the Treasury—Internal Revenue Service  
Copy 1—For State, City, or Local Tax Department

Field Name Value Captured

Federal Income Tax Wit... Required 1800

Employee Name and A... Required

View matches

Draw

Field value

Draw

Benjamin P. Charles  
4326 Aldrich Rd  
Minneapolis, MN 55412

Subfields 16 items, 0 required items Capture subfields

Pending aliases View all aliases (6)

None

Save selection

Employee Social Secur... Required

Mark this document as ready for training.

Previous sample Next sample



- \_5. For the Employee Social Security field if it looks good, **Click on Save selection.** Or if the blue lines are present instead **select** the value displayed to populate the field and **Click Save match** then **Click on Save selection.**
- \_6. Continue to process for the remaining fields, using either method as described above, clicking on the *Save selection* if ADP picked up the correct field label and field value or select the blue line values to populate both the field label and field value or finally if both fields are wrong use the *Dismiss* and use blue lines if Key Value Pair (KVP) is correct or drawing a box around needed label or value.
- \_7. Once complete **check the box** next to “**Mark this document as ready for training**” at the bottom

The screenshot displays the IBM Cloud Pak Administration interface. On the left, a W-2 form for the year 2020 is shown, with fields for Employer identification number (EIN), Employer's name, address, and ZIP code, Control number, Employee's first name and initial, Last name, Social security number, State wages, tips, etc., State income tax, Local wages, tips, etc., Local income tax, and Locality name. The form is titled "Form W-2 Wage and Tax Statement 2020" and "Copy 1—For State, City, or Local Tax Department".

On the right, a sidebar shows a list of detected fields and their values. A "Recommended matches" dialog box is open, showing a list of matches for the field "Wages, tips, other compensation". The matches are ranked in order of confidence. The first match is "1 Wages, tips, other compensation" with a value of "18000.00". The second match is "1 Wages, tips, other compensation" with a value of "18000.00". The dialog box has buttons for "Edit selection", "Dismiss", and "Seeing duplicates?".

At the bottom of the sidebar, there is a checkbox labeled "Mark this document as ready for training." which is checked. Below this checkbox are buttons for "Previous sample" and "Next sample".



- \_8. Review ALL other fields carefully. **Do not leave any incorrect values.** You can adjust or delete values as needed by clicking on Edit selection. If you leave incorrect values, the system will assume they are correct and LEARN them as if they were good values.
- \_9. Repeat **steps for Next Sample**  
Over the course of next few samples you may find that ADP has extracted the wrong results, perhaps getting a value that is above when it should have been below. If this is the case and you pick you a blue underline data, but the results are wrong. Simply use the draw box for the Field Label and Field Value.



**Note:** When completing the remaining documents, you may run across ADP finding the fields but perhaps on the second image or third image on the page. Try to keep all Key Value Pairs (KVP) on the same image.

\_10. Once complete review of all the sample documents **Click on the Back link**

The screenshot shows the IBM Cloud Pak Administration interface. At the top, there's a navigation bar with 'Back' and 'Ready for training' status. Below this, the document 'Form W-2 Wage and Tax Statement' is displayed. The document contains fields for Employee Social Security Number, Employer ID number, Control number, Employee Name & Address, and various tax amounts. On the right side, there's a list of detected fields with checkboxes for selection. The fields include 'Federal Income Tax Withheld', 'Employee Name and Address', 'Employee Social Security Number', 'Employer Identification Number', 'Employee's Name and Address', 'Social Security Wages', 'Wages Tips Other Compensation', 'Field label (optional)', 'Field value', and 'Pending aliases'. The 'Field label (optional)' field is set to 'Wages tips, other comp' and the 'Field value' is '21 0000.00'. The 'Pending aliases' field is set to 'None'. At the bottom, there's a 'Mark this document as ready for training' button and a 'Previous sample' button.

## 8.2 Train extraction model

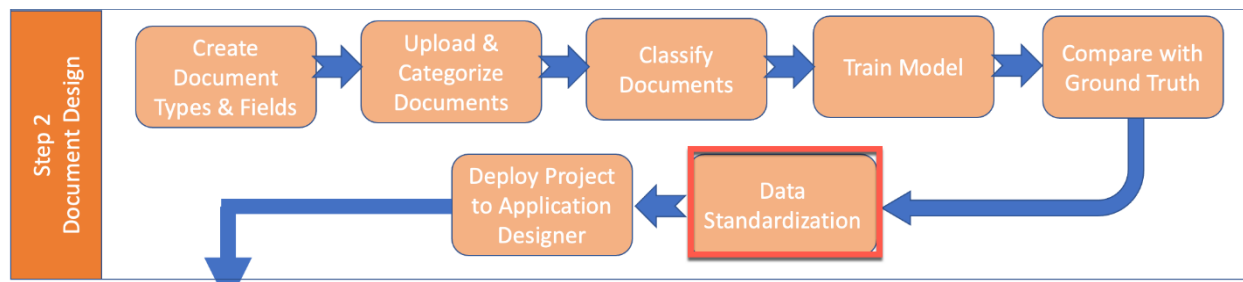
We will be performing the **fast training** in this lab due not having a GPU available in the environment. A GPU is only needed in a development environment and is not needed in either a production or runtime environment. The Deep Learning capabilities have been disabled on this training environment. You can find instructions in the Appendix for when you have access to a server with it enabled.

\_1. **Click Train model button**

In the **Confirm training** dialog coming up, switch **Fast training** on before clicking the **Confirm** button. Then the training will take several minutes (good time for a break). If fast training is not switched on it could take days without a GPU.

The screenshot shows the IBM Cloud Pak Administration interface with the 'Confirm training' dialog box open. The dialog box has a title bar 'Confirm training' and a close button. Below the title bar, there's a message: 'Training the model can take several hours or multiple days depending on how many document types you are training. If you have other models in the queue, training starts after those models are complete.' There are two toggle switches: 'Fast training' (which is turned on) and 'Feedback documents' (which is turned off). At the bottom of the dialog box, there are 'Cancel' and 'Confirm' buttons. The 'Confirm' button is highlighted in blue. In the background, the 'Extraction model' page is visible, showing a list of document types and a table of training results.

## 9 Data standardization

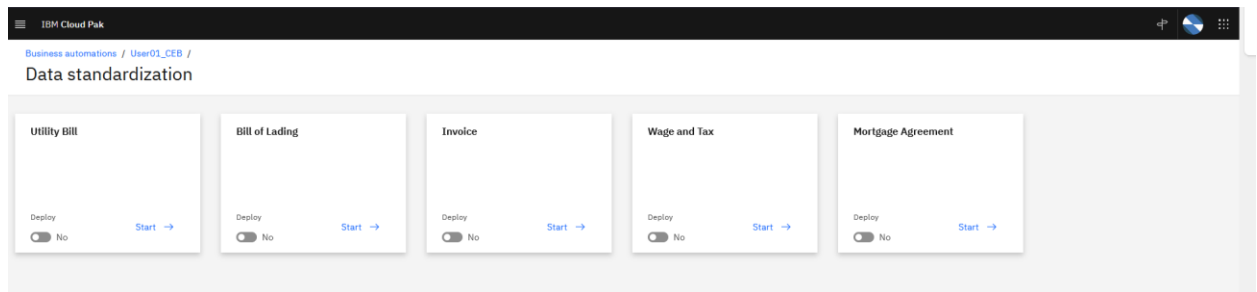


Next, we may need to standardize the data that will be presented in the user interface and how it will be stored in the FileNet repository for example. Data standardization is the process of defining attributes for a data field in a standardized way. This is done using data definitions. These definitions can be used across projects, and across different applications within the Cloud Pak for Automation. Each data definition has a title, description, and a datatype. We can also set a data definition as required or not. When a document is ingested into ADP, it results in a list of Key Value Pairs' (KVP) for that document. The Designer maps some of these KVP's to fields and teaches the model on how to extract the fields from the full list of KVP's. The designer then maps some of those fields to data definitions for a particular document type. Only the fields that have been mapped to data definitions will become Content Process Engine properties.

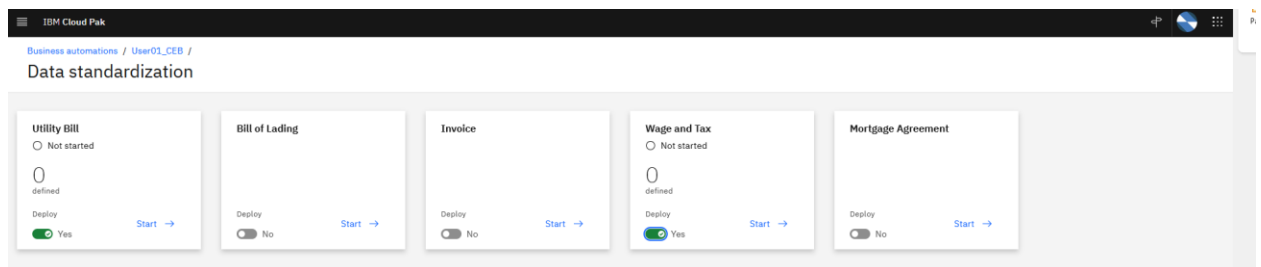
\_1. Return to the guided configuration flow and **Click** anywhere in the **Data standardization** box

Step	Status	Types	Accuracy / Samples
Document types and samples	Ready	5 types	23 samples on average
Classification model	Retrain	5 types trained	100% accuracy
Extraction model	Ready	4 types trained	
<b>Data standardization</b>	Not ready		
Document retention	Ready	5 types reviewed	

Here, you will see a list of available document types. Only the ones which have **Deploy** turned on will be visible in the verify interface and will have fields stored in FileNet.



\_2. Ensure the **Utility Bill** and **Wages and Tax** and **Deploy** is toggled to **Yes**

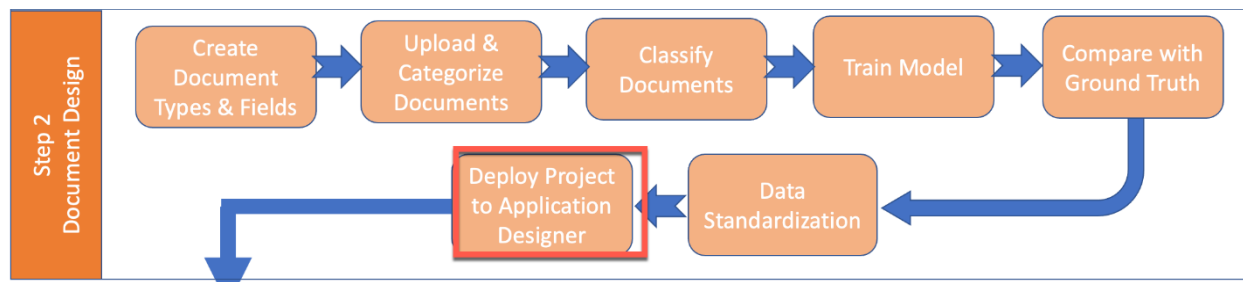


\_3. **Click** on **Start** on either of the selected deployments

This is where we begin defining the data field attribute definitions. You could create a new data definition and configure them. We will NOT be creating/defining any data fields for this lab.

\_4. Return to the guided configuration screen by **Clicking** on **<your project>** name at the top of the screen

## 10 Version and deploy your project



At this point in our project, we have defined a document type, labeled the fields we want from the document, trained (classified) the system to recognize the document type, reviewed the extracted fields we wanted and standardized (mapped) the document fields to our output.

Now that we completed the configuration of the content extraction project, we need to save and deploy the design project to the application side. This will allow you to test your project using a client runtime interface.

- \_1. If not already there, return to the guided home screen by clicking on your project name. Then **Click Version / Deploy**.

IBM Cloud Pak

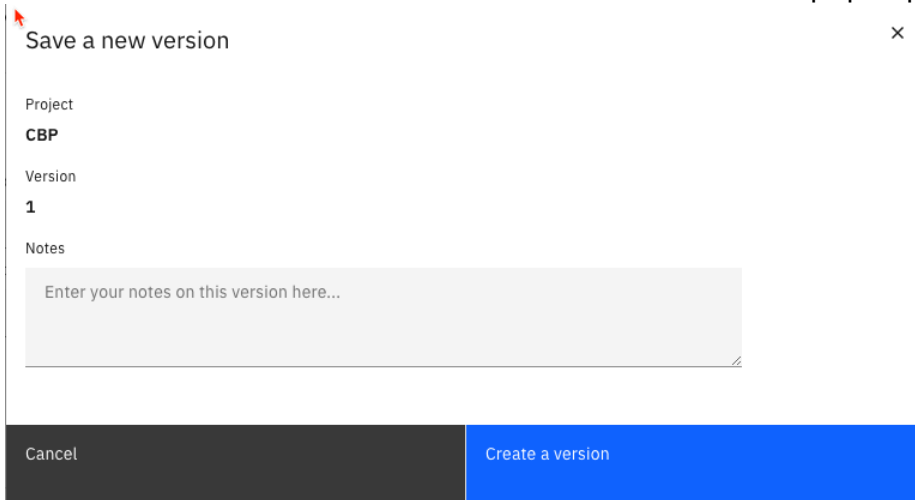
Business automations / User01\_CEB

Share | Version / Deploy

Last shared | 6 hours ago | Latest version | not yet Deployed | not yet

Build	Enrich	Configure
<b>Document types and samples</b> Upload sample documents to define the types of documents you want the system to process.	<input checked="" type="radio"/> Ready	5 types 23 samples on average
<b>Classification model</b> Train the model to classify your documents.	<input checked="" type="radio"/> Retrain	5 types trained 100% accuracy
<b>Extraction model</b> Train the model to extract the data from your documents.	<input checked="" type="radio"/> Ready	4 types trained
<b>Data standardization</b> Map fields to new or existing data definitions.	<input type="radio"/> Not ready	0 types reviewed
<b>Document retention</b> Determine how long you want documents to stay in your content repository.	<input checked="" type="radio"/> Ready	5 types reviewed

\_2. Click **Save a new version**. A *Save a new version* window pops up.



Save a new version

Project  
**CBP**

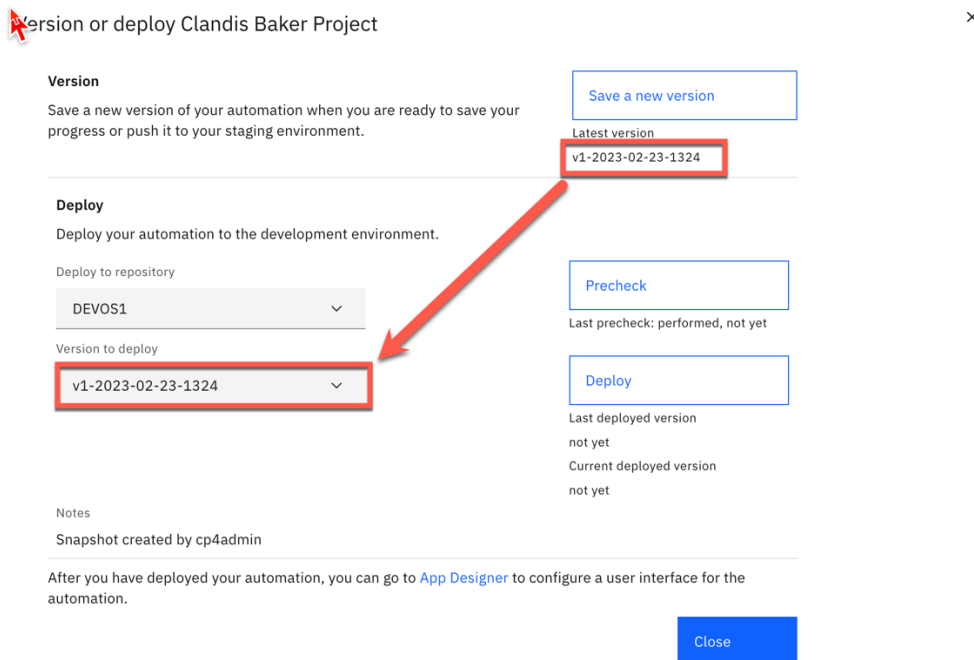
Version  
**1**

Notes  
Enter your notes on this version here...

Cancel Create a version

\_3. Click on **Create a version**

\_4. Once the version is saved, you should see the version in the Version to deploy drop down list



Version or deploy Clandis Baker Project

**Version**  
Save a new version of your automation when you are ready to save your progress or push it to your staging environment.

**Deploy**  
Deploy your automation to the development environment.

Deploy to repository  
DEVOS1

Version to deploy  
v1-2023-02-23-1324

Notes  
Snapshot created by cp4admin

After you have deployed your automation, you can go to [App Designer](#) to configure a user interface for the automation.

Save a new version

Latest version  
v1-2023-02-23-1324

Precheck

Last precheck: performed, not yet

Deploy

Last deployed version  
not yet

Current deployed version  
not yet

Close

... also, in the top corner has the “Latest Version.”

\_5. Click on the **Deploy button**. This will also take a minute or two to deploy.

Once completed, you should have a notice that the project was deployed.

Version or deploy Clandis Baker Project

**Version**  
Save a new version of your automation when you are ready to save your progress or push it to your staging environment.

[Save a new version](#)  
Latest version  
v1-2023-02-23-1324

**Deploy**  
Deploy your automation to the development environment.

Deploy to repository  
DEVOS1

Version to deploy  
v1-2023-02-23-1324

[Precheck](#)  
Last precheck: performed, 02/23/2023

[Deploy](#)  

Last deployed version  
v1-2023-02-23-1324  
Current deployed version  
v1-2023-02-23-1324

**Notes**  
Snapshot created by cp4admin

After you have deployed your automation, you can go to [App Designer](#) to configure a user interface for the automation.

[Close](#)



Note that you do not have to remain in the deploy screen while it is versioning or deploying. You can always click the button and then go back into any other screen if you like. It will run in the background. If you do this, just keep an eye on the top right of your screen for deployment status.

## \_6. Click Close button

Once deployed, proceed to the next steps.

From the home screen you can see the latest version and deployment

IBM Cloud Pak

Business automations /  
User01\_CEB

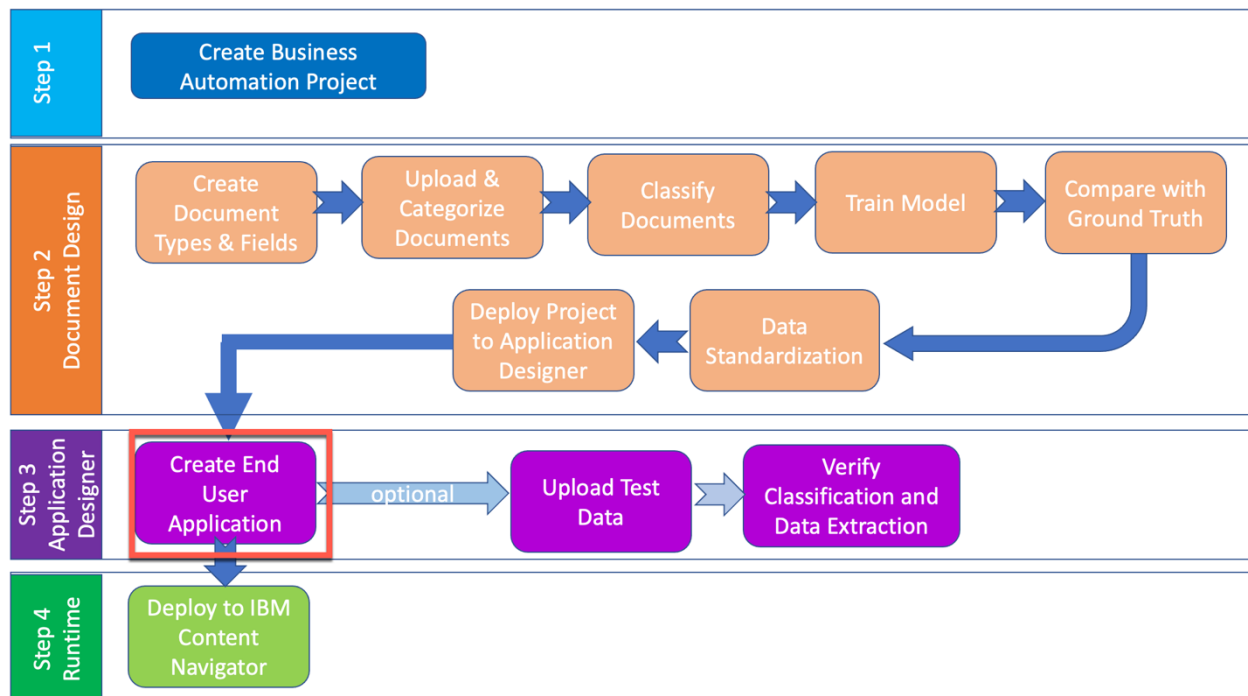
[Share](#)  
Last shared | a few seconds ago

[Version / Deploy](#)  
Latest version | v1 | 3 minutes ago  
Deployed | v1 | a minute ago

**Build**
Enrich
Configure

<b>Document types and samples</b> Upload sample documents to define the types of documents you want the system to process.	● Ready	5 types	23 samples on average
<b>Classification model</b> Train the model to classify your documents.	● Retrain	5 types trained	100% accuracy
<b>Extraction model</b> Train the model to extract the data from your documents.	● Ready	4 types trained	
<b>Data standardization</b> Map fields to new or existing data definitions.	○ Not ready	0 types reviewed	
<b>Document retention</b> Determine how long you want documents to stay in your content repository.	● Ready	5 types reviewed	

## 11 Application designer



At this point we have designed or built a project that consists of document types, data or filed types and methods to extract the desired data. The next major section of this lab is to build the user interface using the Application Designer. IBM provides two application templates for Document Processing

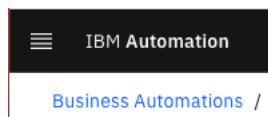
1. Batch Document Processing template – used to process batches of documents
2. Document Processing Template – used to process single documents

The lab will have you create a new batch processing application. We will quickly explore the various tabs in the interface, preview what the IBM Content Navigator (ICN) client would look like using the Preview feature and then publish our application to ICN where we will process a batch of documents.

Changes to the application itself will not be in the scope of this lab.

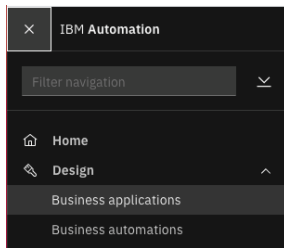
### 11.1 Create your Runtime Application.

\_1. Return to the starting screen by **clicking** the **hamburger** in the top left

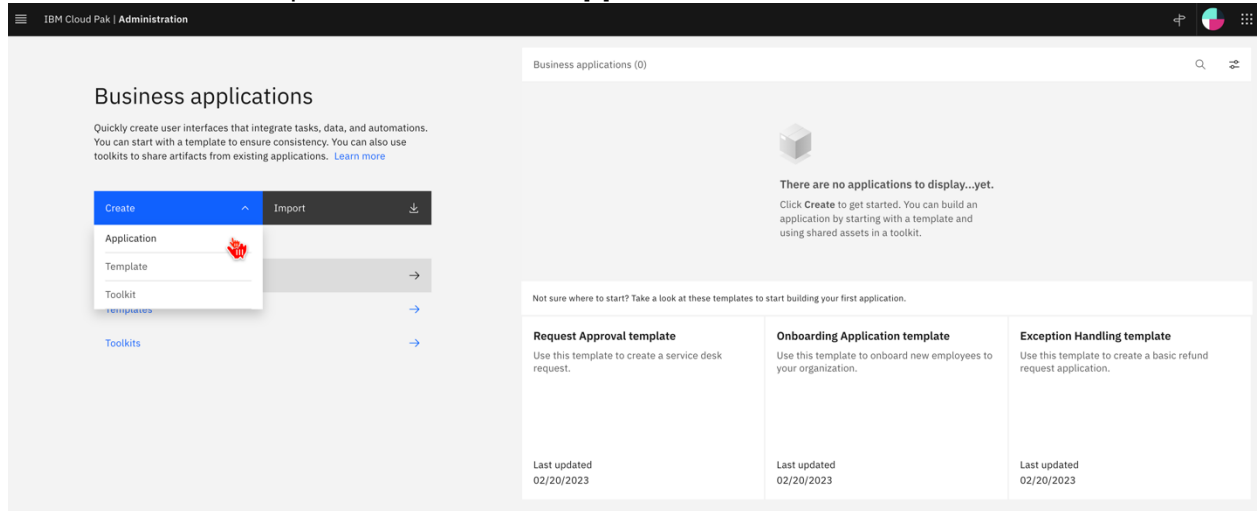


and selecting **Business Applications**





\_2. From the **Create** drop down list, **select Application**



\_3. Select **Enter your <application name>** in the Name field

\_4. In the Create Form Template in drop down **select Batch Document Processing template (BCAT)**

Create a business application

Name  
user01 Application

Purpose (optional)  
Describe the purpose of the application

Create from template (optional)

- Batch Document Processing template (BCAT)
- Exception Handling template (EHT)
- Onboarding Application template (OAT)
- Request Approval template (RAT)
- Document Processing template (CAT)
- Batch Document Processing template (BCAT) ✓

Cancel Next



You could have selected the Document Processing Template if you only wanted to process a single document at a time, but in this lab, you will process several documents in a batch.

\_5. Click **Next**

\_6. You will be presented with the Create an application window. In the **Select repository** pick **DEVOS1**

Create an application

Batch document processing application

Select repository

- ✓ DESIGN
- TARGET
- DEVOS1
- CONTENT

Project ID cannot be empty. Select a repository that contains configured projects.

Back Create

\_7. In the Project ID drop down **pick <your project name>**.

Create an application

Batch document processing application

Select repository

DEVOS1

Project ID

User01\_CEB

Back Create



**Note:** It may take a minute or two before this update and you can see your project.

\_8. Click **Create**

You should now be in the *Application Designer*

IBM Cloud Pak

Business applications / user1 Application / user2 Application

Page: Start

Content Grid

Learn more about document processing

Review batch issues

Document type and page order issues

Data extraction issues

Batches

Content List

Name	Size	Modified by	Last modified	Version
My Document1	2 KB	User1	6/1/2023, 01:10 AM	1
My Document2	1 MB	User2	6/2/2023, 02:20 AM	2
My Document3	90 B	User3	6/3/2023, 03:30 AM	3
My Document4	1.2 MB	User4	6/4/2023, 04:40 AM	4

Items per page: 100 Items 1-4

Drag a component to your page

All views

Search

Add batch model

Add document model

Add folder model

Batch content

OK

Button

Check box

Collap... panel

Content list

Content properties

Custom HTML

Data ver...

Data/time picker

Decimal

Delete object model

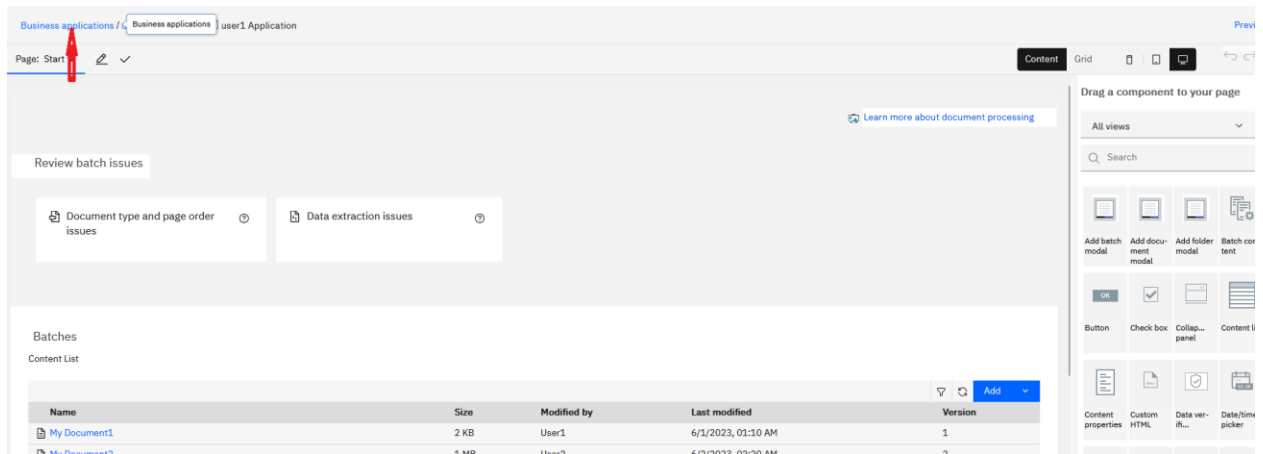
Display text

Document correction



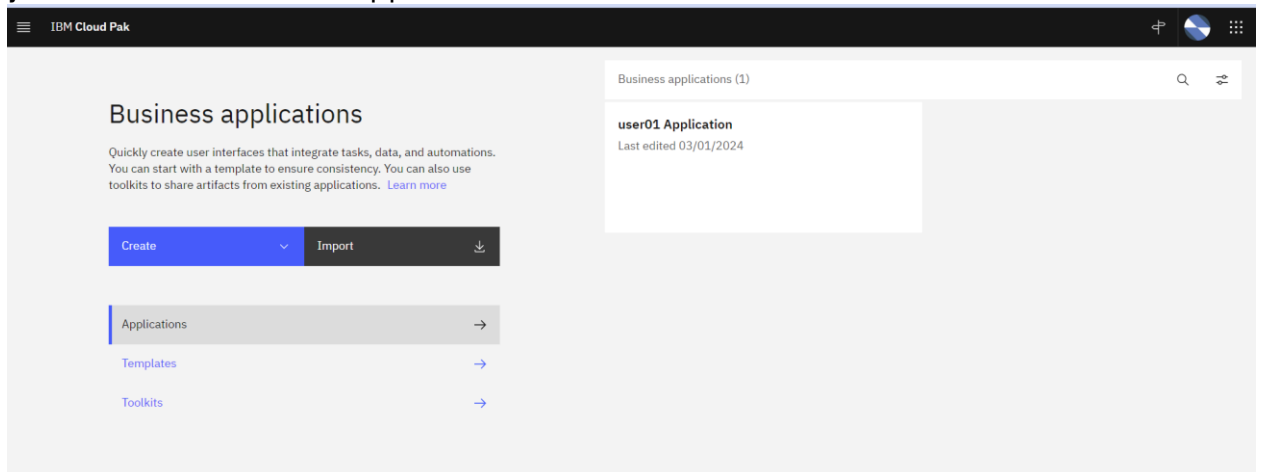
Batch Document Processing template (BCAT) has all the necessary pages and configuration to start using the application. Using this designer user interface, you have the option to further customize the application, such as its page design or actions, to fit your requirements.

\_9. Click on **Business applications** breadcrumb at the top

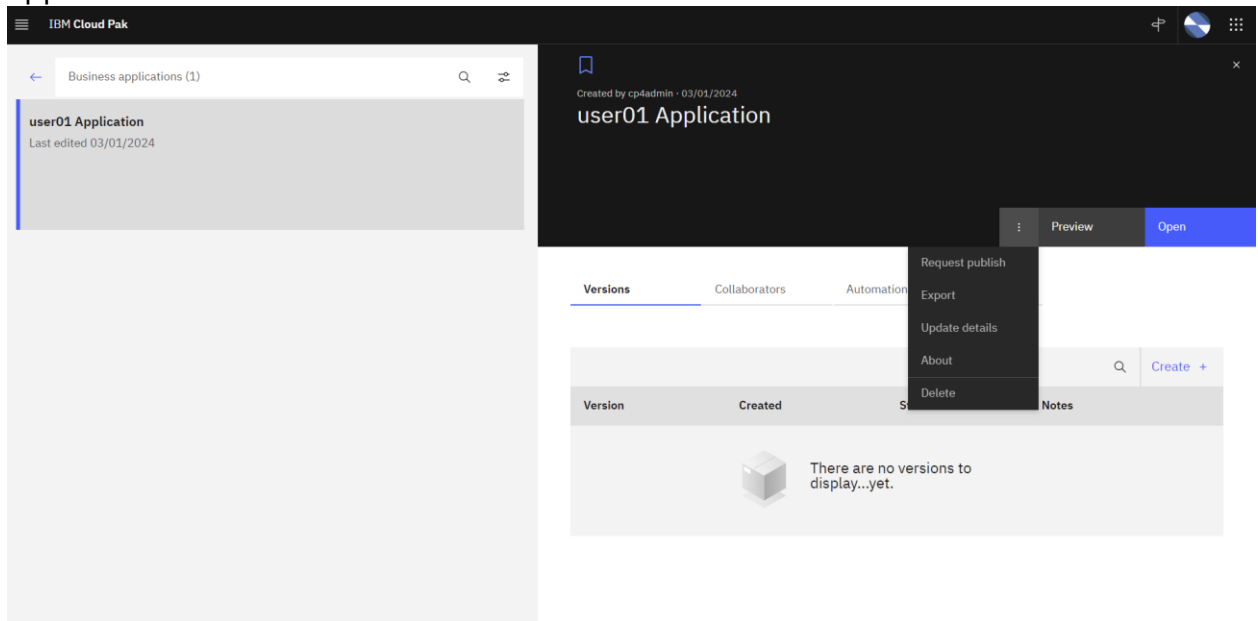


**Note:** It may take several seconds up to multiple minutes to build and display the current configuration of the interface. In case the screen does not load properly the first time, try to reload the whole browser window.

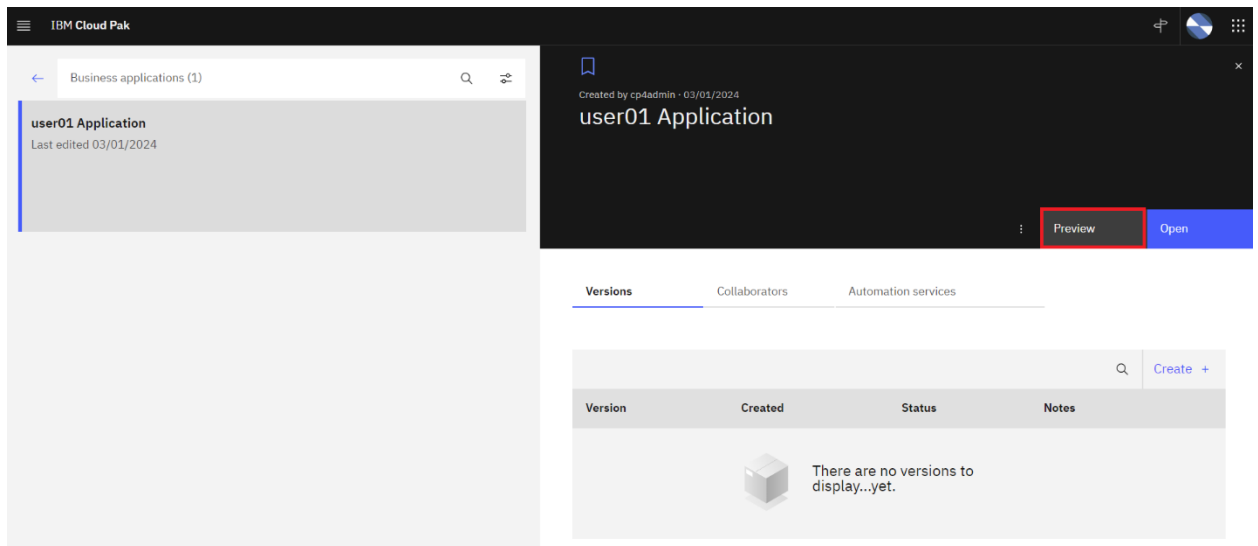
\_10. If you hover over any of the applications on the right, the respective box will turn grey, and a Preview and Open link will become visible. Clicking Preview would let you test the pre-configured interface. Clicking Open would open the designer for the application where you can modify the look and feel and modify its features. **Click anywhere into the grey box**, but not the Preview or Open link. This brings you to the details of the application.



\_11. From this screen if you **click** on the **3 dots** you could for example export the application or delete it



\_12. Now **click** on **Preview**



**Note:** You may have a popup blocker turned on in your browser. Your browser will need to have this option off for the Preview.

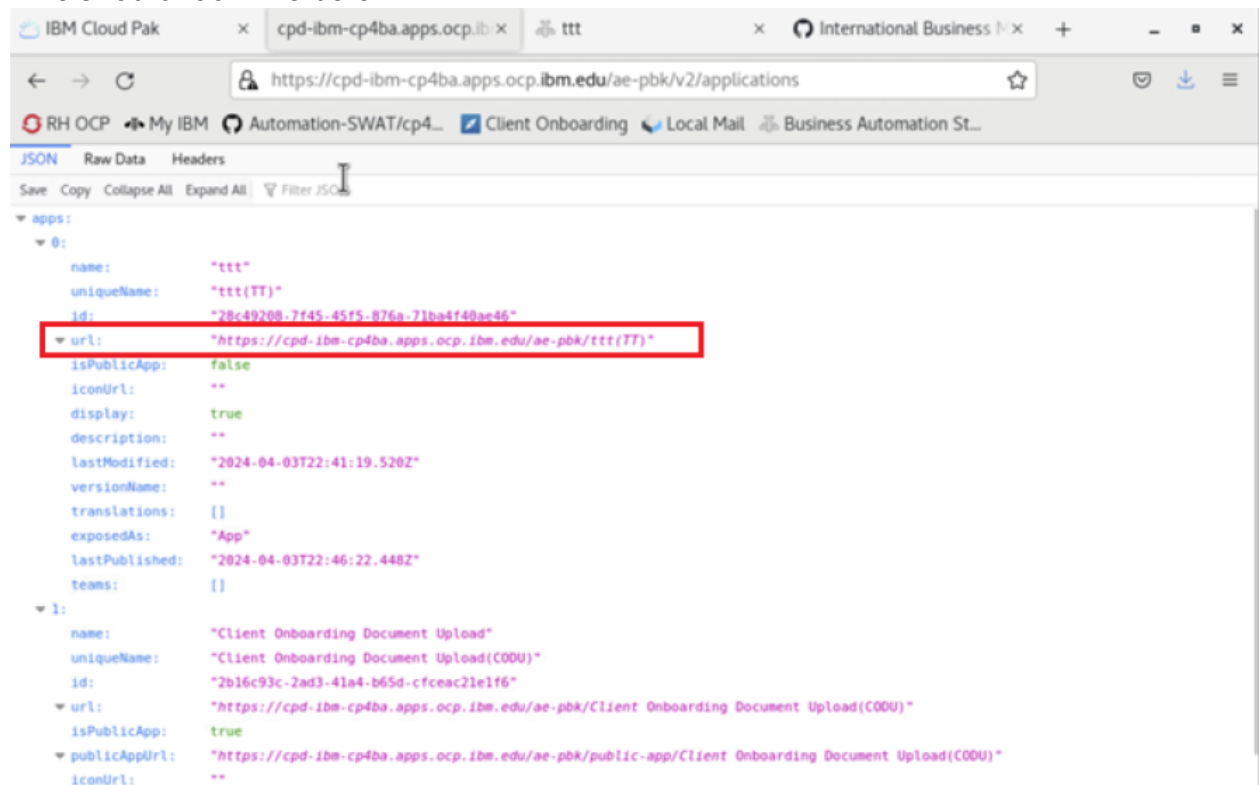
The Preview allows you to validate the execution behavior of your application.

Previewing your application is a vital step in the creation process. You can preview your application at various points throughout your development. Maybe you want

to preview a small interaction within your application or test the entire experience of your application after you complete development.

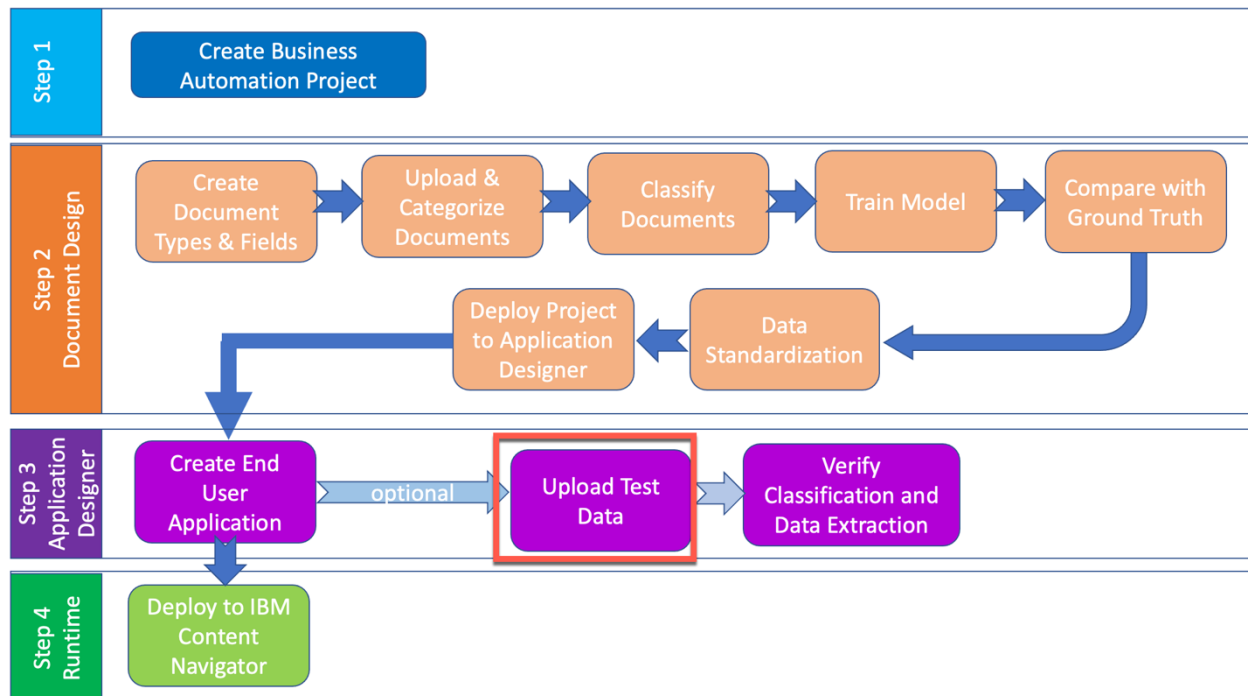
- \_13. In case the Preview takes time more than about 9 minutes or throws an exception like “Unable to connect to server”, open a new browser and type the URL -> <https://cpd-ibm-cp4ba.apps.ocp.ibm.edu/ae-pbk/v2/applications>

This should look like below –

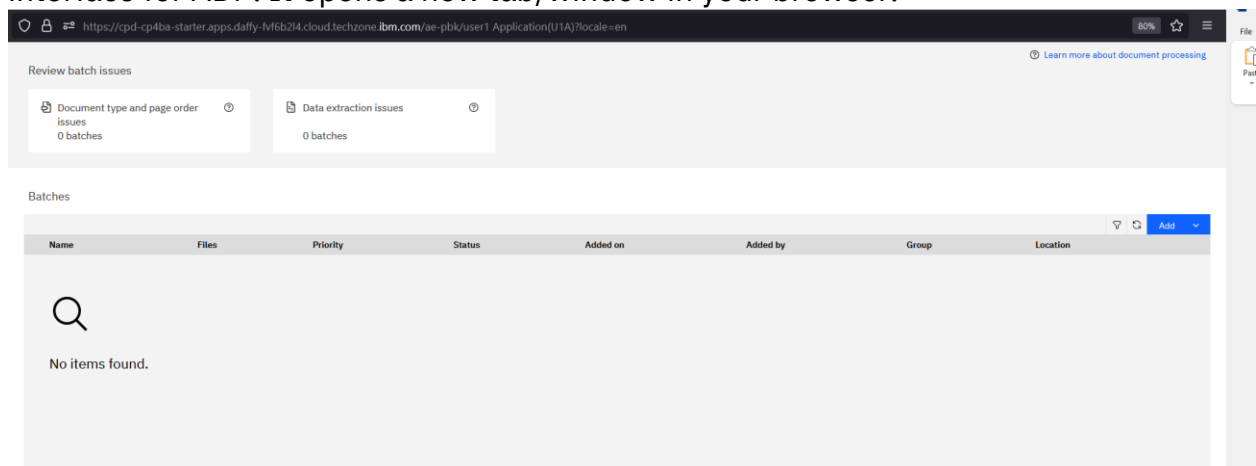


Here you can observe the ADP application that you created. When you refer to the above snapshot, you can see that there is an application called “ttt” and notice the URL. Copy the URL and paste it into a new browser window.

## 11.2 Upload documents for processing

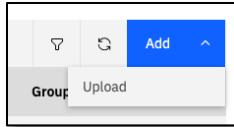


- \_1. Below pasted snapshot is the preview of the application. Normally, this preview should work in “incognito mode” of Chrome or “In Private mode” window of an Edge browser. Additionally, any popup blocker must be disabled or configured to allow open the pop-up window. You should be in the default application user interface for ADP. It opens a new tab/window in your browser.



There are two key screens you will work with: “*Document type and page order issues*” and the “*Data extraction issues*”. First, we need to upload some test documents and have them processed.

- \_2. **Click** on **Add**, then **Upload**



- \_3. Enter a **name** for your batch in the **Display Name** field and set the **Priority** to **High** as seen in the image below

Upload new batch

\* Display Name

Batch 1

Description

Priority

High

- \_4. Click **Select files**

Navigate to the samples folder previously downloaded from [Section 2](#) and use the **Group 3 - Runtime Demo Set** folder documents. **Select all the files** in the folder.

- \_5. Click **Open**

You will see a window that will give the operator a chance to manually classify the documents before they are ingested. By clicking on one of the files you will be presented with an option to manually classify the documents. The example below shows you how you would manually classify a document.

**Add Files**

To manually specify document type, first select the files in the table. Use the classify option, to assign the document type for selected file(s). If a file is not manually classified, the system will auto-classify it.

1 items selected		Classify ▾	Auto Classify	Deselect
<input type="checkbox"/>	File Name	Document Type		
<input checked="" type="checkbox"/>	B_PO_5.pdf	Auto Classify		
<input type="checkbox"/>	DE_FW2_1000_0001F.pdf	Auto Classify		
<input type="checkbox"/>	DE_FW2_4000_0011F.pdf	Auto Classify		
<input type="checkbox"/>	DE_FW2_4001_0001S.pdf	Auto Classify		
<input type="checkbox"/>	DE_FW2_4001_0010F.pdf	Auto Classify		

Cancel Add

We are not going to do this but instead let ADP auto classify them.



## Add Files

To manually specify document type, first select the files in the table. Use the classify option, to assign the document type for selected file(s). If a file is not manually classified, the system will auto-classify it.

<input type="checkbox"/>	File Name	Document Type	
<input type="checkbox"/>	B_PO_5.pdf	Auto Classify	
<input type="checkbox"/>	DE_FW2_1000_0001F.pdf	Auto Classify	
<input type="checkbox"/>	DE_FW2_4000_0011F.pdf	Auto Classify	
<input type="checkbox"/>	DE_FW2_4001_0001S.pdf	Auto Classify	
<input type="checkbox"/>	DE_FW2_4001_0010F.pdf	Auto Classify	

Cancel
Add

## \_6. Click on the **Add** button

Review batch issues

Document type and page order issues  
0 batches

Data extraction issues  
0 batches

Learn more about document processing

Batches

Name	Files	Priority	Status	Added on	Added by	Group	Location
Batch01	5	High	3 of 5 files processed	02/23/2023, 10:49 AM	cp4admin		

Items per page: 100
1-1 of 1 items

A progress bar will be displayed indicating when all documents have been uploaded.

## \_7. Click the **3 dots** at the end of the line

Review batch issues

Document type and page order issues  
0 batches

Data extraction issues  
0 batches

Learn more about document processing

Batches

Name	Files	Priority	Status	Added on	Added by	Group	Location
Batch01	5	High	Documents uploaded	02/23/2023, 10:49 AM	cp4admin		

Items per page: 100
1-1 of 1 items

## \_8. Click **Submit**

In the screen shot below, you see the status of the batch job is marked as having Document issues. Matching with that we now have 1 batch in the “Document type and page order issue” tile.

Review batch issues [Learn more about document processing](#)

Document type and page order issues  
1 batches

Data extraction issues  
0 batches

Batches

Name	Files	Priority	Status	Added on	Added by	Group	Location
Batch01	5	High	Document issues	03/27/2023, 01:45 PM	cp4admin		

Items per page: 100 1-1 of 1 items

## 11.3 Correct any classification errors

\_1. Click on the **Document type and page order issues** tile to get to the respective batches

Batch Document Processing Application / Document type and page order issues

Name	Priority	Status	Added on	Added by	Group	Location
Batch 1	High	Document issues	01/13/2021, 08:44 am	CEAdmin		

Items per page: 100 1-1 of 1 items

\_2. Click on **<your batch name>** to open it

You should now see all the documents you uploaded in your batch. The ones with issues will have

- a **red checkmark** for documents that have a **low confidence** document type
- a **red exclamation** mark for documents that **could not be classified**

Batch01 [Cancel](#) [Save changes](#) [Submit](#)

Documents (5) [Add +](#)

Issues (1 of 1)

Document name	Document type
ll_PO_5.pdf	Undefined
BAD_FW2_1000_0003F.pdf	Wage and Tax
TR_FW2_1000_0003F.pdf	Wage and Tax
TR_FW2_2000_0003F.pdf	Wage and Tax
TR_FW2_4000_0003F.pdf	Wage and Tax

1

**PURCHASE ORDER**

**RUBE'S Meat Co.**

VENDOR: Chicken Run Ranch  
24 Quay Street  
Nelson Village NE23 4DD  
UK  
079 2054 8488

SHIP TO: Rube's Meat Co.  
44 Penryn Road  
Burton, Leamard NE23 2SU  
UK  
079 7878 2017

QTY	ITEM #	DESCRIPTION	JOB	UNIT PRICE	LINE TOTAL
238	PCH	01	White Chickens	£1.80	£428.80
180	Pch	02	One Day Old Chick	£1.08	£198.80
TOTAL					£627.60

- \_3. Most of the document types are correct but it looks like a Purchase order (PO) got mixed into our batch. **Click** on the **Trash can** to delete it from the batch and **select OK** to finally delete it.


Batch01 Cancel Save changes Submit

Documents (5)

Issues (1 of 1)

Document name	Document type
Review document type	
B_PO_S.pdf	Undefined
BAD_FW2_1000_0003F.pdf	Wage and Tax
TR_FW2_1000_0003F.pdf	Wage and Tax
TR_FW2_2000_0003F.pdf	Wage and Tax
TR_FW2_4000_0002F.pdf	Wage and Tax

Edit actions for .PDF and .TIFF



1

**RUBE'S Meat Co. PURCHASE ORDER**

P.O. No.: 71238  
DATE: 18 March 2020  
CUSTOMER ID: 48273CD

**VENDOR:**  
Chicken Run Ranch  
24 Quarry Street  
Nelson Village NE23 6DD  
UK  
078-2054-6486

**SHIP TO:**  
Rube's Meat Co.  
64 Pendoyall Road  
Burton, Leicestershire LE19 1SU  
UK  
078-7875-2017

SHIPPING METHOD		SHIPPING TERMS		DELIVERY DATE	
AIR		C.I.F.		29 March 2020	
QTY	ITEM #	DESCRIPTION	JOB	UNIT PRICE	LINE TOTAL
230 PCS	01	Whole Chicken		£1.50	£345.00
150 Packs	02	One Day Old Chick		£1.05	£157.50
TOTAL					£502.50

- \_4. Review all documents to ensure everything is correct. If the system no longer detects any issues, you should see a green checkmark near the top of the document list.

Documents (5)

Issues (0)

- \_5. **Click Save Changes** and then **Submit** to save your changes and have the batch processed

The system will start reprocessing the documents now that they have been classified correctly.

- \_6. **Click** on the blue **Batch Document Processing Application** link at the top to return to the previous preview menu.

[Batch Document Processing Application](#) /  
Document type and page order issues

## 11.4 Correct extraction issues

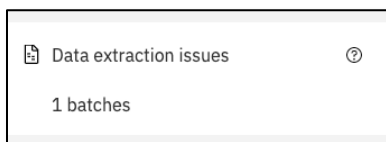
The following instructions are based on a pre-trained sample application. Not what you will see in your untrained application.



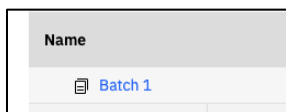
**Important Note:** The project you are using for this has been configured but NOT run through the training (Deep Learning). So, the results will not reflect what they should be. IN A NORMAL SCENARIO, ON A CLUSTER WITH GPU AND DEEP LEARNING ENABLED, YOU WOULD HAVE TRAINED YOUR MODEL BEFORE DEPLOYING IT AND WOULD BENEFIT FROM HIGHER EXTRACTION RATES. The purpose of this lab is to teach you the tools but won't show you the trained results.

It may take a few seconds for your batch to advance to the next step. If your batch needs further attention, you will see it appear in the Data extraction issues tile.

\_1. **Click** on the **Data extraction issues** tile to open it



\_2. **Click** on **<your Batch name>** to open



After opening we see all the documents that have been processed but one looks to have extraction issues.

Batch Document Processing Application / Batches with data extraction issues /

Batch01

Submit →

Name	Issues	Status	Modified on	Modified by
BAD_FW2_1000_0003F.pdf	1	⚠ Data issues	03/04/2023	cp4admin
TR_FW2_1000_0003F.pdf		Issues reviewed	03/04/2023	cp4admin
TR_FW2_2000_0003F.pdf		Issues reviewed	03/04/2023	cp4admin
TR_FW2_4000_0002F.pdf		Issues reviewed	03/04/2023	cp4admin
Items per page: 100   1-4 of 4 items				

\_3. **Click** on the bad document to open it. Zoom in a bit to get a better picture of the document.

BAD\_FW2\_1000\_0003F.pdf | Document type: Wage and Tax

Cancel Save changes Done and next Done

1

2020

W-2 Wage and Tax Statement  
Copy 1 - For State, City or Local Tax Department

Department of the Treasury - Internal Revenue Service

Extracted data

All Fields

1 Federal Income Tax Withheld

Federal Income Tax Withheld

9000.00

Similar fields 3

Validation error

Employee Social Security Number \*

(none)

Employer Identification Number

(none)

Employers Name and Address

Bricks and Mortar 343 Jackson Ave Costa Mesa, CA 90394

Social Security Wages

75000.00

Wages Tips Other Compensation

(none)

Employee Name and Address \*

Last name Suff. Stella K. James 343 Twisting Way Red Beach, CA 90354 f Employee's address and ZIP code

Take a moment to discover the image viewer features.

### Image viewer features at top:

DE\_FW2\_4001\_0010F.pdf | Document type: Wage and Tax

Cancel Save changes Done and next Done

1

Form W2 Wage and Tax Statement  
Copy 1 - For State, City or Local Tax Department

Year 2020  
OMB No. 1545-0008

Employee social security number  
334-91-3068

Employee name & address  
Francis A. Halliwell  
487 Chelsea Place  
New York, NY 10023

1. Wages tips, other comp  
183439.33

2. Federal income tax  
44025.44

3. Social security wages  
132099.00

4. Social security tax withheld  
83239.80

5. Medicare wages and tips  
163439.33

6. Medicare tax withheld  
2369.87

7. Social security tips  
800.00

8. Allocated tips  
800.00

9

10. Dependent care benefits

11. Nonqualified Plans

12a. Code (see instructions)  
C

2531.00

13. (Mark x)  
Statutory employee  
Retirement plan  
Third party sick pay

14. Other

15b. Code  
D

20000.00

12c. Code  
DD

421.00

15. State  
IL

16. State wages, tips, etc  
183439.33

17. State income tax  
12840.75

18. Local wages, tips, etc

19. Local income tax

20. Locality name

Department of the Treasury - Internal Revenue Service This information is being furnished to the Internal Revenue Service

Extracted data

Fields with issues

5

Issue types

Validation warning

Employee Name and Address \*

Organization

(none)

Name

Name

Email

(none)

Phone

(none)

Postal mail address

Building number

457

Street name

Chelsea Place

Unit

(none)

- Rotate image
- Visual effect adjustment
- Invert

## Image viewer features at bottom:

BAD\_FW2\_1000\_0003F.pdf | Document type: Wage and Tax

Cancel Save changes Done and next Done

Extracted data [Learn more](#)

All Fields 1

**1.20 Federal Income Tax Withheld**

Federal Income Tax Withheld

9000.00

Similar fields 3

**Validation error**

**abc Employee Social Security Number \***

(none)

**abc Employer Identification Number**

(none)

**abc Employers Name and Address**

Bricks and Mortar 343 Jackson Ave Costa Mesa, CA 90394

**1.20 Social Security Wages**

75000.00

**1.20 Wages Tips Other Compensation**

(none)

**abc Employee Name and Address \***

Last name Suff. Stella K. James 343 Twisting Way Red Beach, CA 90354 f Employee's address and ZIP code

1

W-2 Wage and Tax Statement 2020

Form Copy 1 - For State, City, or Local Tax Department

Department of the Treasury - Internal Revenue Service

1 / 1

- Page and thumbnail's view
- Fit to window
- Zoom and Magnify

## Field features

BAD\_FW2\_1000\_0003F.pdf | Document type: Wage and Tax

Cancel Save changes Done and next Done

Extracted data [Learn more](#)

All Fields 1

**1.20 Federal Income Tax Withheld**

Federal Income Tax Withheld

9000.00

Similar fields 3

**Validation error**

**abc Employee Social Security Number \***

(none)

**abc Employer Identification Number**

(none)

**abc Employers Name and Address**

Bricks and Mortar 343 Jackson Ave Costa Mesa, CA 90394

**1.20 Social Security Wages**

75000.00

**1.20 Wages Tips Other Compensation**

(none)

**abc Employee Name and Address \***

Last name Suff. Stella K. James 343 Twisting Way Red Beach, CA 90354 f Employee's address and ZIP code

1

W-2 Wage and Tax Statement 2020

Form Copy 1 - For State, City, or Local Tax Department

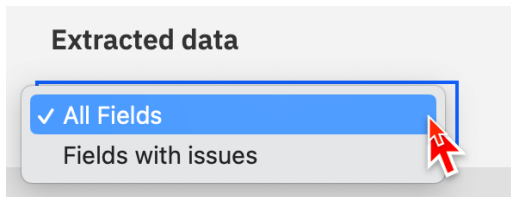
Department of the Treasury - Internal Revenue Service

1 / 1

- Show all fields.
- Show fields with issues.

Also note that fields that do have issues have a notification icon next to them. For example, Wages Tips Other Compensation field picked up correctly but has a low confidence based on the extraction results.

\_4. Under Extracted data **click** on the **drop down twisty**



\_5. **Click** on the **All Fields**

This view shows all the fields that we defined earlier. Fields with an asterisk are mandatory fields.

**Change** the Extracted data back to **Fields with issues**



*The Employee Social Security Number is a mandatory field. For purposes of this lab it was changed to “Bad SSN”. Since you did not make that phrase an alias ADP was not able to pick it up.*

\_6. **Click** on **Employee Social Security Number** and with your mouse **select** the **SSN** under “**Bad SSN**”

Document type: Wage and Tax

Extracted data

Fields with issues

Issue types

Employee Social Security Number \*

Employee Social Security Number

183-94-7103

Required value is missing.

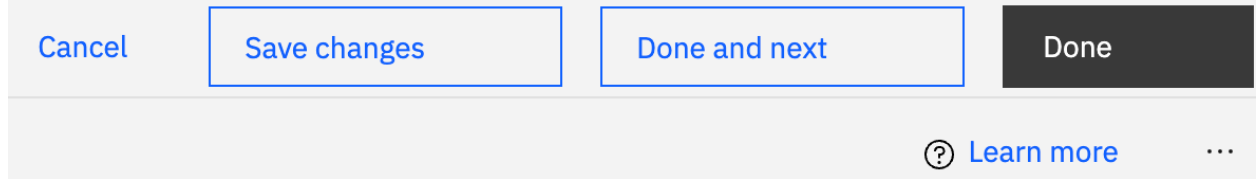
W-2 Wage and Tax Statement 2020

From: Department of the Treasury - Internal Revenue Service

Copy 1 - For State, City, or Local Tax Department

Also the Wages Tips Other Compensation did not have a correct alias defined. But since it was not a required field, you can continue to process.

- \_7. **Click** on **Save Changes** box at the top



The image shows a horizontal bar with four buttons: 'Cancel', 'Save changes', 'Done and next', and 'Done'. The 'Save changes' and 'Done and next' buttons are highlighted with blue borders. Below this bar is a secondary bar containing a question mark icon, the text 'Learn more', and a three-dot menu icon.

- \_8. For the remaining fields there are no extraction issues that ADP picked up for mandatory fields. You may see some low confidence characters. If so, **Click** on Dismiss for each field with a yellow validation warning.
- \_9. **Click** on **Done and next**
- \_10. All documents have been processed **Click** on **Submit** at the top to complete the batch

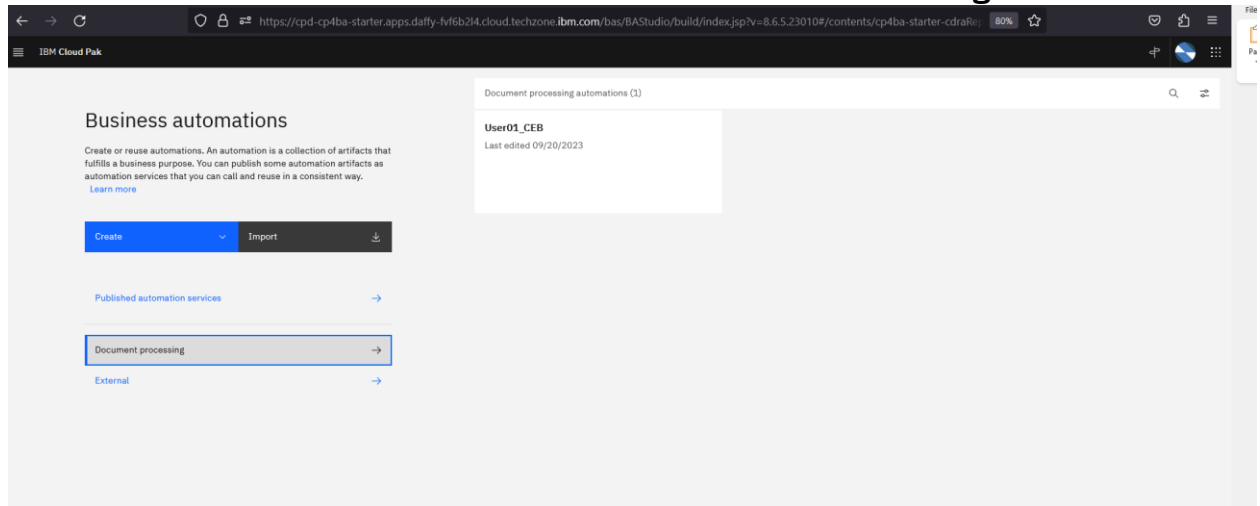


## 12 Export/Import Project (Optional)

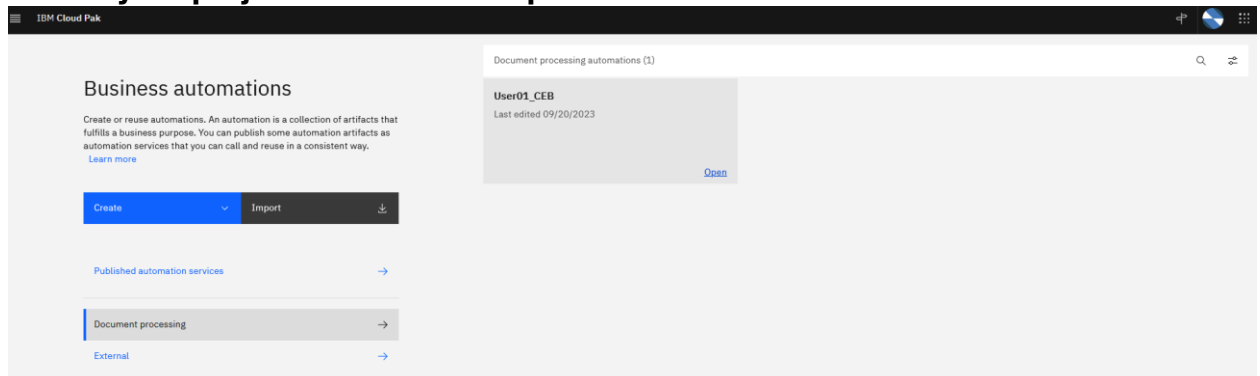
If you would like to save your project and perhaps use it later, you can perform the steps in this chapter.

From the Business Automations

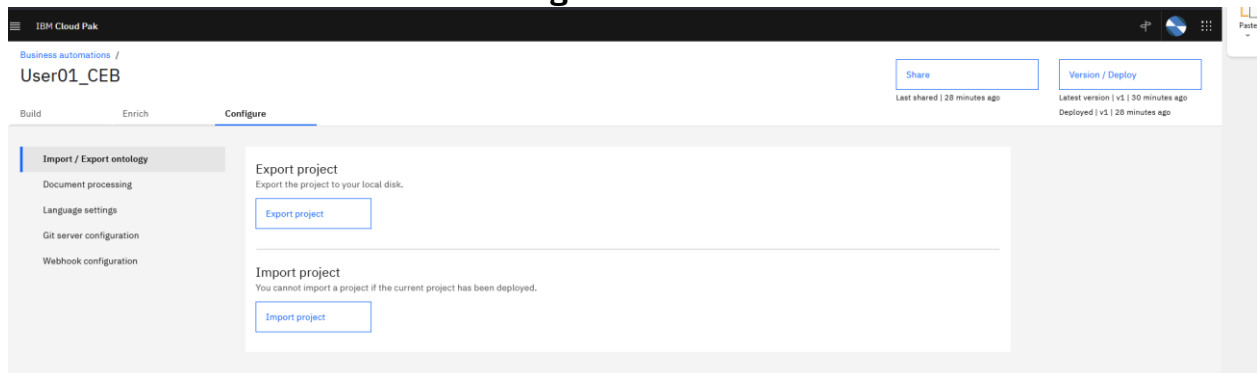
### \_1. From the Business Automations screen **select Document Processing**



### \_2. **Select <your project name>. Click open**

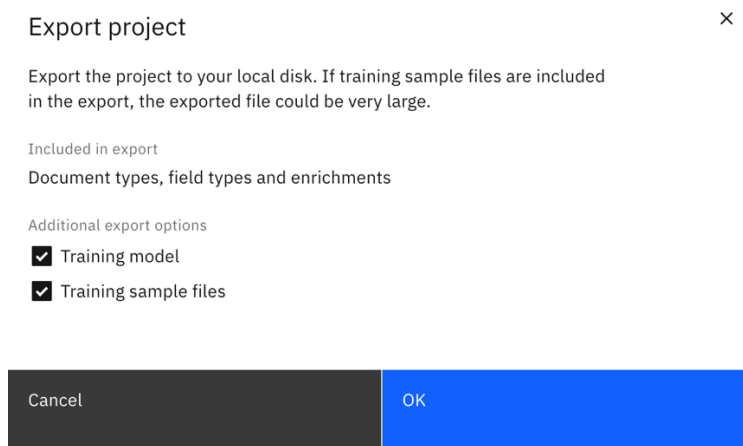


### \_3. From the main screen **select the Configure tab**



### \_4. **Select Export Project**

\_5. On Export Project window **check Training modul** and **Training sample files**



\_6. **Click on OK**

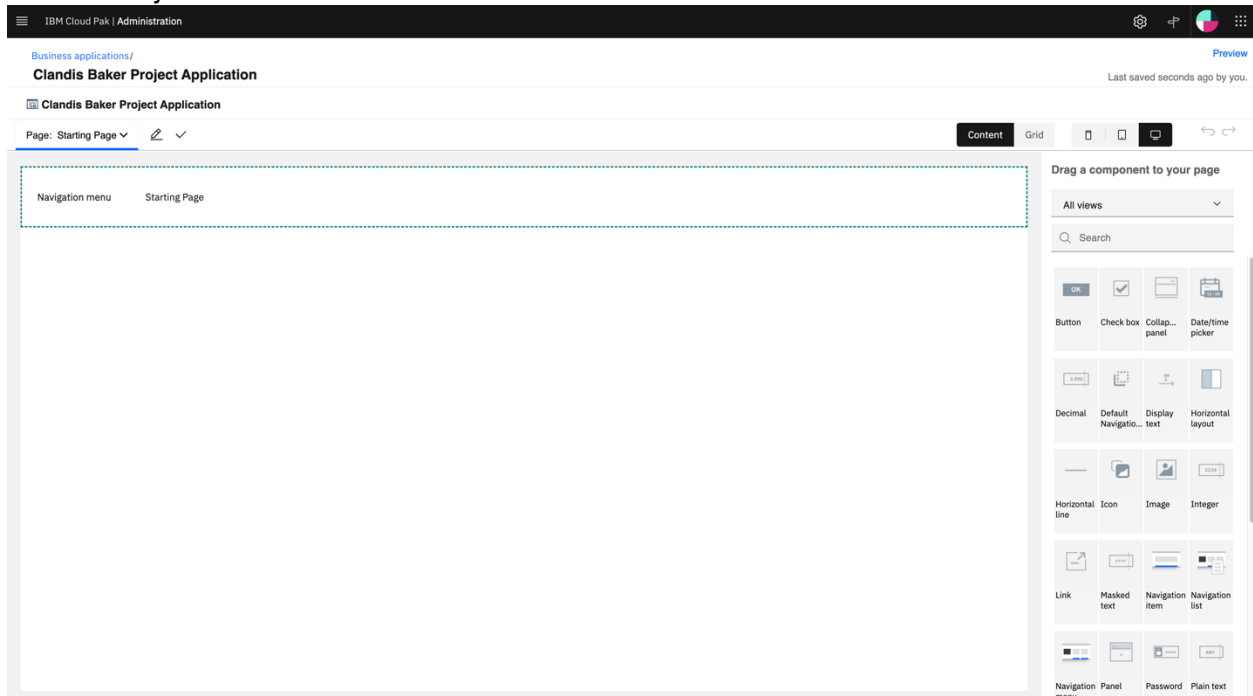
\_7. A project-export-*<date-time>*.zip will be download via browser to local machine.

You have successfully completed the Automation Document Processing lab.  
Congratulations and well done!

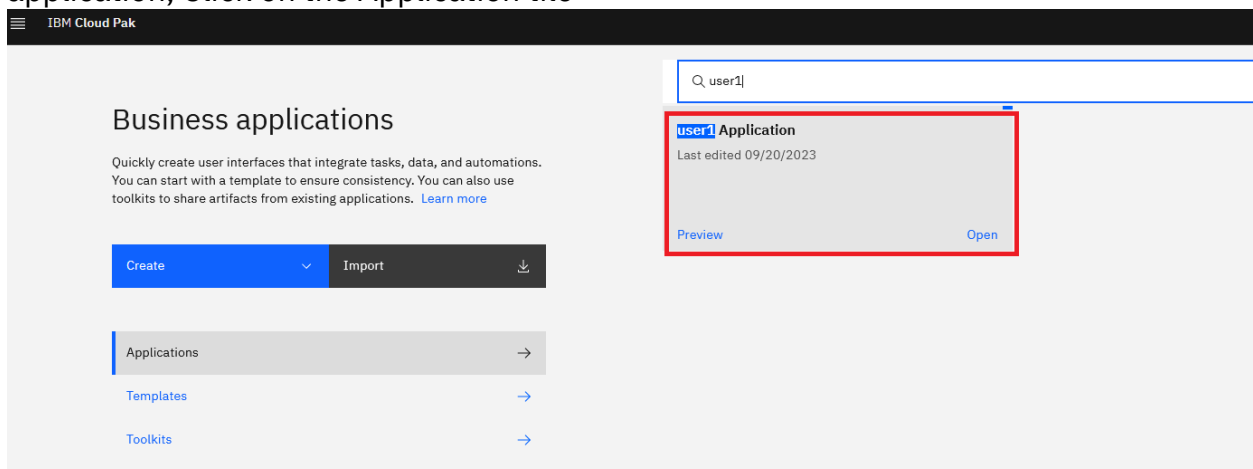
## Appendix A - Troubleshooting

### Application Blank

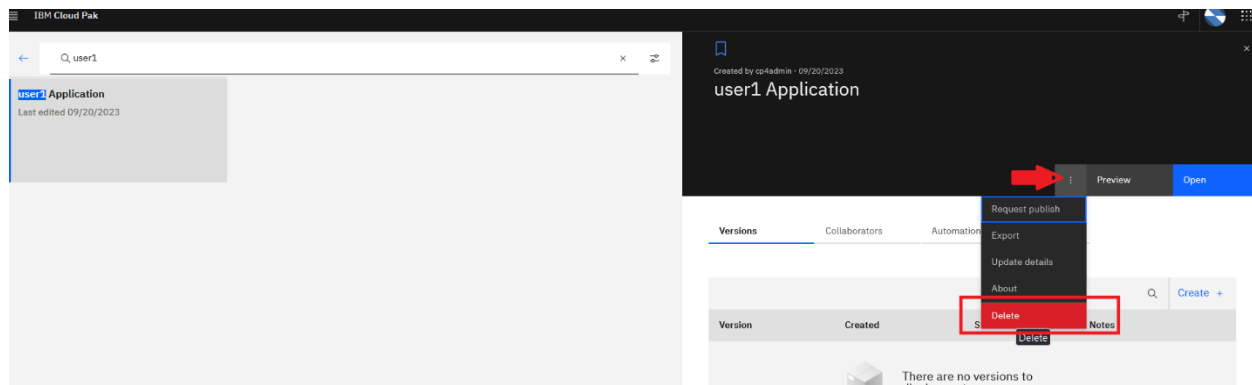
During creating of Business Application setup, sometimes on first time after project has been deployed. The Starter page remains blank or shows the loading animation indefinitely.



First try to reload the whole editor page and wait for the UI to be loaded. If this remains unsuccessful, delete the application and try again. To delete the application, Click on the Application tile

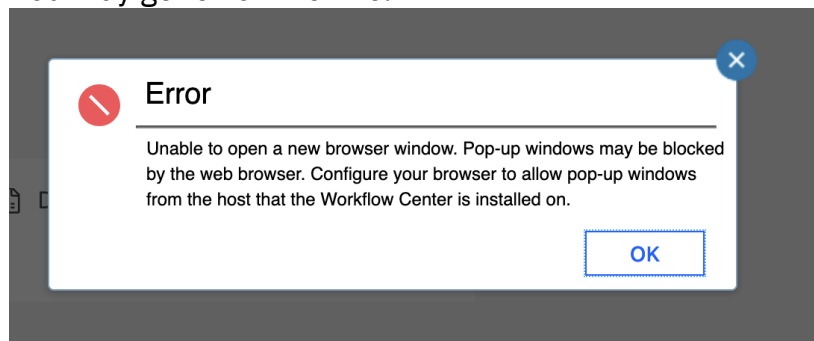


Then click on the 3 dots and select Delete.



## Popup Blocked when trying to Preview Application

You may get error like this:



You will need to grant access to pop up windows in your browser.

## Appendix B - BAW & ADP Integration Sample

For the End-to-End demo, BAW was integrated with ADP. This link explains how to accomplish <https://github.com/IBM/baw-adp-integration-sample>.