

# CP4WatsonAIOps CP4WAIOPS v3.3

Demo Environment Installation - Short Track 🚀



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# **! THIS IS WORK IN PROGRESS**

Please drop me a note on Slack or by mail [nikh@ch.ibm.com](mailto:nikh@ch.ibm.com) if you find glitches or problems.

# Installation

## Demo Installation

Those are the steps that you have to execute to install a complete demo environment:

1. [AI Manager Installation](#)
2. [AI Manager Configuration](#)
3. [AI Manager Post Install Configuration](#)
4. [AI Manager Finalize Configuration](#)
5. [Slack integration](#)
6. [Demo the Solution](#)

 ! You can find a PDF version of this guide here: [PDE](#).

## TLDR - Fast Track

These are the high level steps that you need to execute to install the demo environment

1. Install AI Manager

```
ansible-playbook ./ansible/01_aimanager-base-install.yaml -e ENTITLED_REGISTRY_KEY=<REGISTRY_TOKEN>
```

2. [AI Manager Configuration](#)

3. Launch Post Install

```
ansible-playbook ./ansible/02_aimanager-post-install.yaml
```

4. [AI Manager Post Install Configuration](#)

5. Launch Finalize Install

```
ansible-playbook ./ansible/03_aimanager-finalize-install.yaml
```

6. [AI Manager Finalize Configuration](#)

7. [Slack integration](#)

# In-depth documentation

- Info
  - [Changelog](#)
  - [Demo Architecture](#)
  - [Detailed Prerequisites](#)
  - [Troubleshooting](#)
- Installation
  - [Event Manager Install](#)
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- Configuration
  - [Manual Runbook Configuration](#)
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- Install additional components
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  - [Installing ELK](#)
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  - [Installing ServiceMesh/Istio](#)
  - [Installing AWX/AnsibleTower](#)

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# 1 Introduction

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This document is a short version of the full [README](#)  that contains only the essential steps.

This is provided **as-is**:

- I'm sure there are errors
- I'm sure it's not complete
- It clearly can be improved

**! This has been tested for the new CP4WAIOPS v3.3 release on OpenShift 4.8 on ROKS**

So please if you have any feedback contact me

- on Slack: Niklaus Hirt or
- by Mail: [nikh@ch.ibm.com](mailto:nikh@ch.ibm.com)

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# 2 AI Manager Installation

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## 2.1 Get the code

Clone the GitHub Repository

From IBM internal:

```
git clone https://<YOUR GIT TOKEN>@github.ibm.com/NIKH/aiops-install-ansible-fvt-33.git
```

Or my external repo (this is updated less often than the IBM internal one):

```
git clone https://github.com/niklaushirt/cp4waiops-public.git
```

## 2.2 Prerequisites

### 2.2.1 OpenShift requirements

I installed the demo in a ROKS environment.

You'll need:

- ROKS 4.8
- 5x worker nodes Flavor **b3c.16x64** (so 16 CPU / 64 GB)

You **might** get away with less if you don't install some components (Event Manager, ELK, Turbonomic,...) but no guarantee:

- Typically 3x worker nodes Flavor **b3c.16x64** *for only AI Manager*

## 2.2.2 Tooling

You need the following tools installed in order to follow through this guide:

- ansible
- oc (4.7 or greater)
- jq
- kafkacat (only for training and debugging)
- elasticsearchdump (only for training and debugging)
- IBM cloudctl (only for LDAP)

### 2.2.1 On Mac - Automated (preferred)

Just run:

```
./10_install_prerequisites_mac.sh
```

### 2.2.2 On Ubuntu - Automated (preferred)

Just run:

```
./11_install_prerequisites_ubuntu.sh
```

## 2.3 Pull Secrets

### 2.3.1 Get the CP4WAIOPS installation token

You can get the installation (pull) token from <https://myibm.ibm.com/products-services/containerlibrary>.

This allows the CP4WAIOPS images to be pulled from the IBM Container Registry.

## 2.4 Install AI Manager

### 2.4.1 Start AI Manager Installation

1. Start the Easy Installer with the token from 2.3.1:

```
./01_easy-install.sh -t <REGISTRY_TOKEN>
```

2. Select option  01 to install a base **AI Manager** instance.

Or directly run:

```
ansible-playbook ./ansible/01_aimanager-base-install.yaml -e ENTITLED_REGISTRY_KEY=<REGISTRY_TOKEN>
```

This takes about an hour.

After completion Easy Installer will exit, open the documentation and the AI Manager webpage (on Mac) and you'll have to restart it for the next step.

You now have a full, basic installation of AI Manager with:

- AI Manager
- Open LDAP
- RobotShop demo application

If you want to install the complete demo content, please continue with the next steps.

## 2.5 Configure AI Manager

There are some minimal needed configurations that you have to do to fully configure the demo environment.

Those are covered in the following chapters.

### Minimal Configuration

Those are the minimal configurations you'll need to demo the system and that are covered by the flow above.

#### Basic Configuration

1. Configure LDAP Logins

#### Configure Topology

1. Create REST Observer
2. Create Topology (automatic with script)

#### Models Training

1. Train the Models (automatic with script)
2. Create Integrations

#### Advanced Configuration

1. Enable Story creation Policy
2. Create AWX Connection
3. Create AI Manager Runbook (automatic with script)
4. Create Runbook Policy

#### Configure Slack

1. Setup Slack

# 3. AI Manager Configuration

! Make sure the playbook **01** has completed before continuing

You have to do the following:

1. Login to AI Manager
2. Create REST Observer
3. Create Kubernetes Observer
4. Run option **02** to run AI Manager post installation

## 3.1 First Login

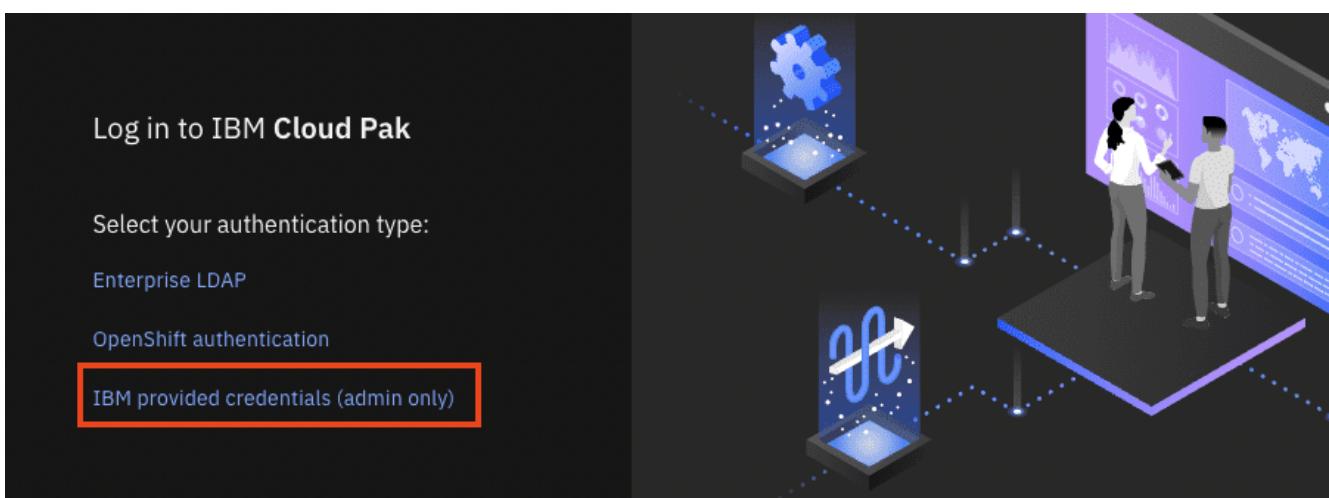
After successful installation, the Playbook creates a file **./LOGINS.txt** in your installation directory.

i You can also run **./tools/20\_get\_logins.sh** at any moment. This will print out all the relevant passwords and credentials.

- Open the **LOGINS.txt** file that has been created by the Installer in your root directory

```
*****  
*****  
CloudPak for Watson AIOps  
*****  
  
-----  
AI Manager  
-----  
  
AI Manager  
-----  
URL: https://cpd-cp4waiops.itzroks-270003bu3k-q580lw-6ccd7f378ae819553d37d5f2ee142bd6-0000.eu-gb.containers.appdomain.cloud  
User: demo  
Password: P4ssw0rd!  
  
User: admin  
Password: XoFT1bfIu5Ng4EUJWEM7Mq8rIAi1QIHN
```

- Open the URL from the **LOGINS.txt** file
- Click on **IBM provided credentials (admin only)**



- Login as **admin** with the password from the **LOGINS.txt** file

Log in to IBM Cloud Pak

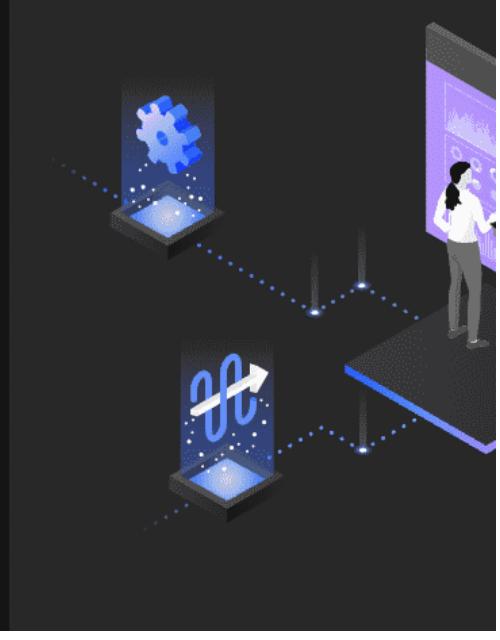
Enter your username and password.

Username

Password

**Log in**

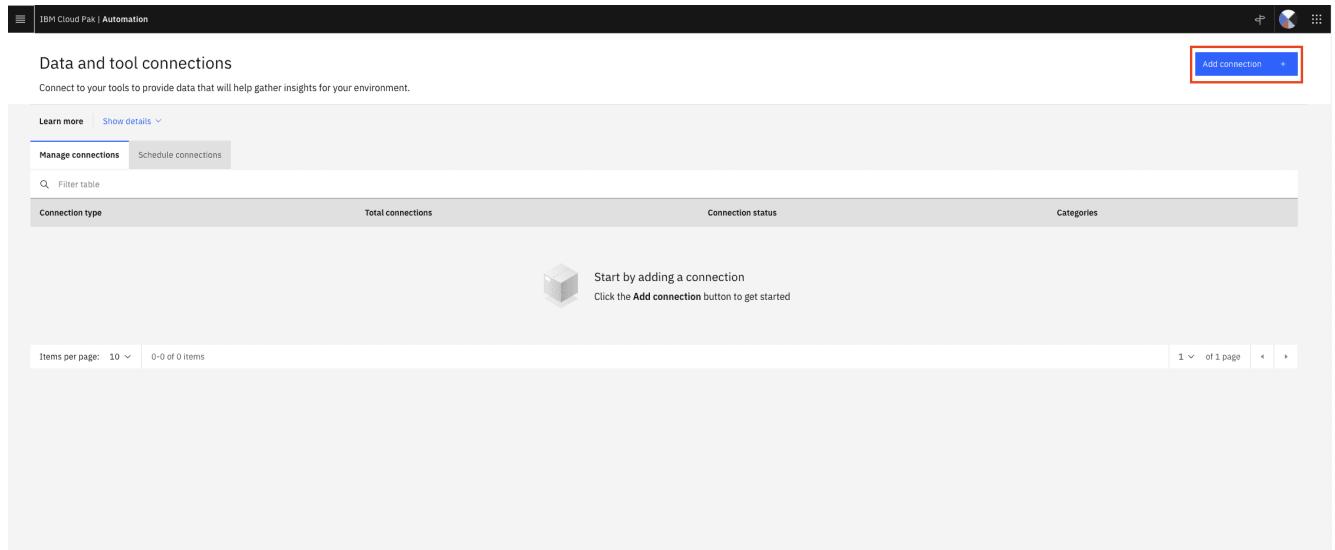
[Change your authentication method](#)



## 3.2 Create Connections

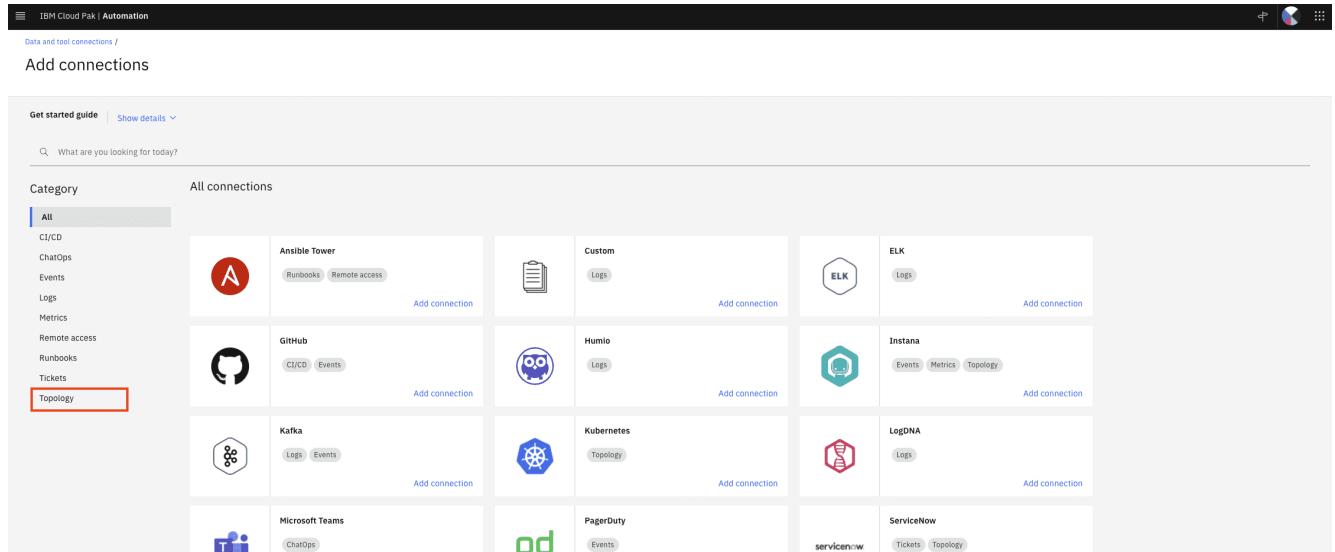
### 3.2.1 Create REST Observer to Load Topologies

- In the **AI Manager** "Hamburger" Menu select **Operate / Data and tool integrations**
- Click **Add connection**



The screenshot shows the 'Data and tool connections' page. At the top, there's a header with 'IBM Cloud Pak | Automation'. Below it, a section titled 'Data and tool connections' with the sub-instruction 'Connect to your tools to provide data that will help gather insights for your environment.' A 'Learn more' link and a 'Show details' dropdown are also present. The main area has tabs for 'Manage connections' and 'Schedule connections'. A search bar labeled 'Filter table' is below these tabs. A table header includes columns for 'Connection type', 'Total connections', 'Connection status', and 'Categories'. In the center, there's a message: 'Start by adding a connection' with a 'Click the Add connection button to get started' link. At the bottom, there are pagination controls: 'Items per page: 10' and '0-0 of 0 items'.

- On the left click on **Topology**



The screenshot shows the 'Add connections' page for the 'Topology' category. The sidebar on the left lists categories: All, CI/CD, ChatOps, Events, Logs, Metrics, Remote access, Runbooks, Tickets, and Topology, with 'Topology' highlighted. The main area is titled 'All connections' and shows a grid of connection types. Each entry includes a logo, the name of the service, and buttons for 'Add connection'. The entries are: Ansible Tower (Ansible Tower icon), Custom (Custom icon), ELK (ELK icon), GitHub (GitHub icon), Humio (Humio icon), Instana (Instana icon), Kafka (Kafka icon), Kubernetes (Kubernetes icon), LogDNA (LogDNA icon), Microsoft Teams (Microsoft Teams icon), PagerDuty (PagerDuty icon), and ServiceNow (ServiceNow icon). Each service entry also has a small list of associated tags like 'Logs', 'Events', 'Metrics', etc.

- On the top right click on **You can also configure, schedule, and manage other observer jobs**

Get started guide Show details ▾

What are you looking for today?

**Topology** X

Category Topology

As part of the standard connection process, observers for VMware vCenter Server, ServiceNow, and Kubernetes are configured. You can also [configure, schedule, and manage other observer jobs](#).

All	Instana	Kubernetes	ServiceNow
CI/CD	Events Metrics Topology	Topology	Tickets Topology
ChatOps	Add connection	Add connection	Add connection
Events			
Logs			
Metrics			
Remote access			
Runbooks			
Tickets			
<b>Topology</b>			

- Click on **Add a new Job**

IBM Cloud Pak | Automation

Data and tool connections

### Observer jobs

[View IBM Docs](#)

Search for an observer job...

**Existing jobs**

listen_github cp4waiops-cartridge.github	listen_instana cp4waiops-instana	load_instana cp4waiops-instana	<b>Add a new job</b>
Running	Running	Ready	
On	On	Run	

Add a new job

- Select **REST / Configure**

IBM Cloud Pak | Automation

Data and tool connections

### Observer jobs

[View IBM Docs](#)

Search for an observer job...

**Existing jobs**

File	Kubernetes	<b>REST</b>	ServiceNow	VMware vCenter	cp4waiops-cartridge.github
Configure	Configure	<b>Configure</b>	Configure	Configure	Configure
cp4waiops-instana					
Configure					

- Choose `bulk_replace`
- Set Unique ID to `restTopology` (important!)
- Set Provider to whatever you like (usually I set it to “restTopology” as well)

```
! [K8s CNI](./doc/pics/doc19.png)
```

- `Save`

## 3.2.2 Create Kubernetes Observer for the Demo Applications



Do this for your applications (RobotShop by default)

- In the **AI Manager** "Hamburger" Menu select **operate / Data and tool integrations**
- Click **Add connection**

The screenshot shows the 'Data and tool connections' interface. At the top, there's a navigation bar with the title 'IBM Cloud Pak | Automation'. Below it is a header with 'Data and tool connections' and a 'Learn more' link. A prominent 'Add connection' button with a '+' icon is located in the top right corner of the main content area. The main area has tabs for 'Manage connections' and 'Schedule connections'. It includes a search bar and a filter table. A central message says 'Start by adding a connection' and 'Click the Add connection button to get started'. At the bottom, there are pagination controls and a note about items per page.

- On the left click on **Topology**

The screenshot shows the 'Add connections' page under the 'Topology' category. The sidebar on the left lists categories: All, CI/CD, ChatOps, Events, Logs, Metrics, Remote access, Runbooks, Tickets, and Topology (which is highlighted with a red box). The main area displays a grid of connection options: Ansible Tower, Custom, ELK, GitHub, Humio, Instana, Kafka, Kubernetes, LogDNA, Microsoft Teams, PagerDuty, and ServiceNow. Each item has a small icon, a name, and a brief description. An 'Add connection' button is present next to each item.

- On the top right click on **You can also configure, schedule, and manage other observer jobs**

Get started guide Show details ▾

What are you looking for today?

**Topology** X

**Category**

**Topology**

As part of the standard connection process, observers for VMware vCenter Server, ServiceNow, and Kubernetes are configured. You can also [configure, schedule, and manage other observer jobs](#).

All	Instana	Kubernetes	ServiceNow
CI/CD	Events Metrics Topology	Topology	Tickets Topology
ChatOps	Add connection	Add connection	Add connection
Events			
Logs			
Metrics			
Remote access			
Runbooks			
Tickets			
<b>Topology</b>			

**VMware**

Topology

Add connection

- Click on **Add a new Job**

IBM Cloud Pak | Automation

Data and tool connections

### Observer jobs

[View IBM Docs](#)

Search for an observer job...

**Existing jobs**

listen_github cp4waiops-cartridge.github	listen_instana cp4waiops-instana	load_instana cp4waiops-instana	<b>Add a new job</b>
Running	Running	Ready	
On	On	Run	

Add a new job

- Select **Kubernetes / Configure**

Data and tool connections

### Observer jobs

[View IBM Docs](#)

Search for an observer job...

**Existing jobs**

**Add a new job**

File	Kubernetes	REST	ServiceNow	VMware vCenter	cp4waiops-cartridge.github
Configure	<b>Configure</b>	Configure	Configure	Configure	Configure
cp4waiops-cartridge.instana					
Configure					

- Choose **local** for Connection Type
- Choose **robot-shop** for **Unique ID**
- Choose **robot-shop** for **data\_center**

[Observer jobs](#)

## New observer job: Kubernetes

[Learn more ▾](#)

**Observer job parameters** ^

Populate the parameters with the relevant information and choose **Save** to get it running.

Choose your job type to begin populating the required job parameters.

local ▼

Can only observe the local kubernetes environment.

**Unique ID**

robot-shop

Be sure to give your job a unique name so you can recognise it in future.

**data\_center**

robot-shop

The name of the data center that the Kubernetes instance is running in. If the data center is running more than one Kubernetes instance and there are duplicate pods or nodes names, then disambiguate them via this parameter. e.g. ICP1, ICP2

---

**Additional parameters (optional)** ▼

**Observer job description (optional)** ▼

**Job schedule (optional)** ▼

Click **Save** to begin reading information about your environment into the topology database.

i **Job schedule.** The job will run once, straight away.

Cancel
Save

- Under **Additional parameters**
- Set **Terminated pods** to **true**
- Set **Correlate** to **true**
- Set **Namespace** to **robot-shop**

Additional parameters (optional)

Terminated pods

**true**

Choose whether the observer job should hide pods that have been terminated.

API query timeout (milliseconds)

5000

Specify the timeout when querying the Kubernetes REST API. Value must be in milliseconds and greater than zero. Default value is 5000

Correlate

**true**

Set this to true to enable Event Analytics correlation on the namespace groups created by this job

Names of the custom resource definitions

A number of custom resource definitions (CRDs) queryable from Kubernetes API

Role permission token

**false**

Determine whether the provided token is a role token. Defaults to false for cluster role permissions.

Namespace

**robot-shop**

With cluster role permissions, specify the Kubernetes namespace to observe or "\*" to observe all. Leaving blank will observe the namespace in which the observer pod is deployed.

- Under **Job schedule**
- Set **Time interval Period** to **Minutes**
- Set **Number of Minutes** to **5**

```
![K8s CNI](./doc/pics/doc59.png)
```

- Click **Save**

## 3.3 Launch Post Install

1. Restart the Easy Installer:

```
./01_easy-install.sh
```

2. Select option  02 for **AI Manager** post installation.

Or directly run:

```
ansible-playbook ./ansible/02_aimanager-post-install.yaml
```

This will:

1. Load Topology and Rules
2. Train the models (Load the training data, Create the training definitions, Launch the trainings)
3. Install AWX (Open Source Ansible Tower) for Runbook Automation

Training will be done for:

- Log Anomaly Detection (Logs)
- Temporal Grouping (Events)
- Similar Incidents (Service Now)
- Change Risk (Service Now)

This takes about 30-45 minutes

# 4. AI Manager Post Install Configuration

! Make sure the playbook **02** has completed before continuing

You have to do the following:

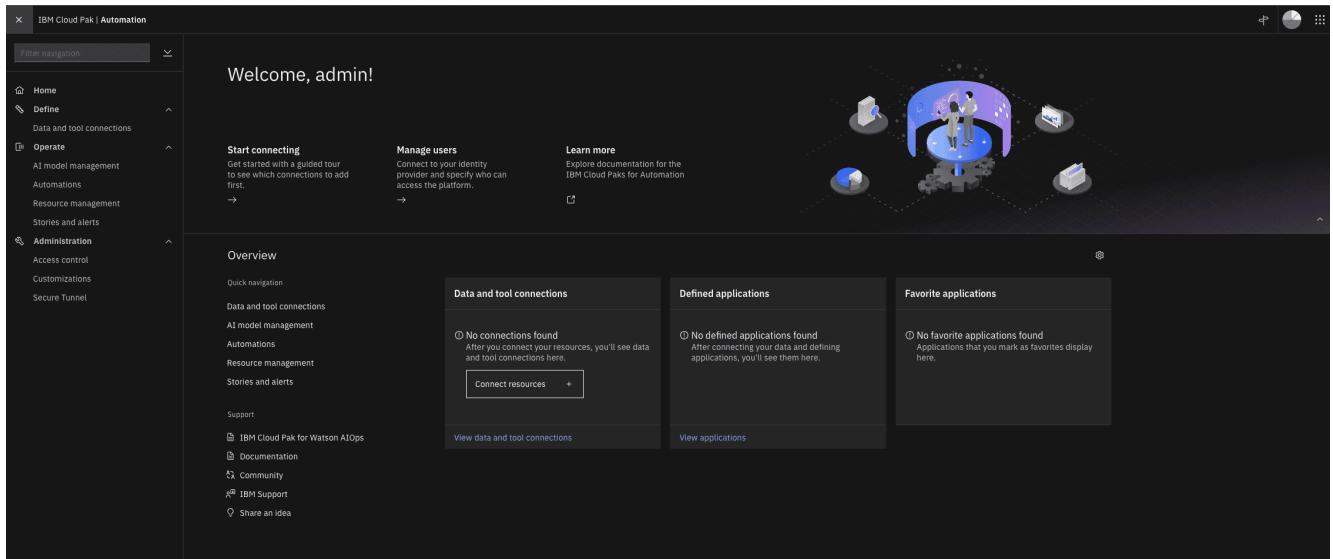
1. Manually re-run the Kubernetes Observer
2. Add LDAP Logins to CP4WAIOPS
3. Enable Story creation Policy
4. Create Kafka ELK Log Inception Integration
5. Create Kafka Netcool Inception Integration
6. Create AWX Connection
7. Run option **03** to finalize AI Manager demo installation

## 4.1 Manually re-run the Kubernetes Observer

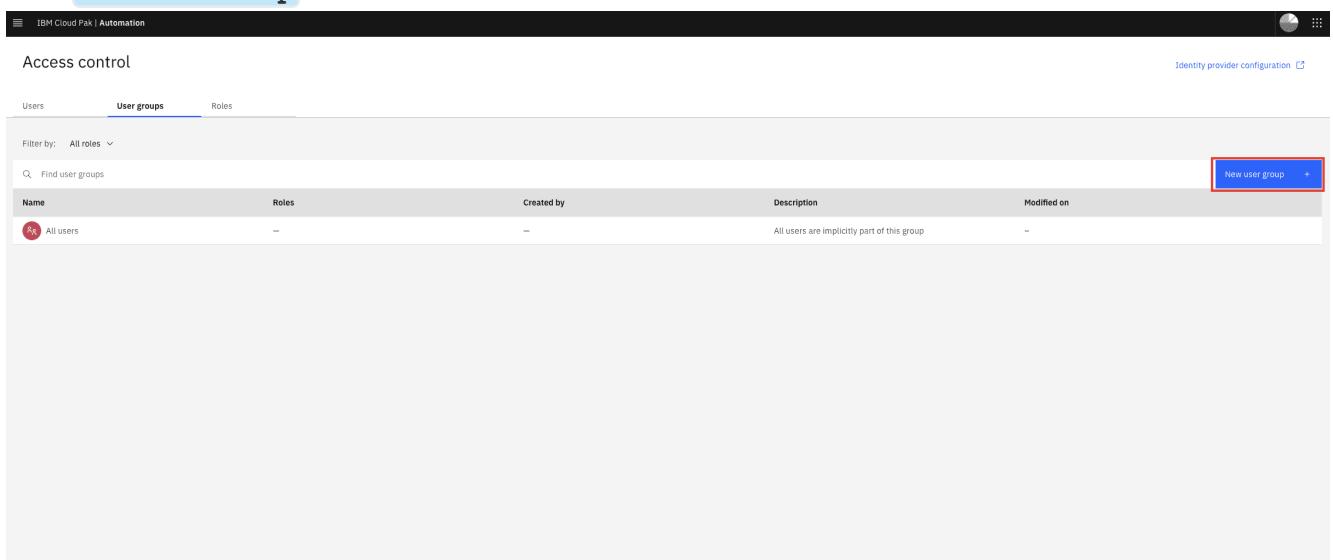
! Please manually re-run the Kubernetes Observer to make sure that the merge has been done.

## 4.2 Add LDAP Logins to CP4WAIOPS

- Go to **AI Manager** Dashboard
- Click on the top left "Hamburger" menu
- Select **Access Control**



- Select **User Groups** Tab
- Click **New User Group**



- Enter demo (or whatever you like)

#### New user group

Form groups of users to widely administer permissions.

Details  
Specify the following information for this user group.

Name: demo

Description (optional): What's the purpose of this group?

Cancel Back Next

- Click Next
- Select **Identity Provider Groups**
- Search for **demo**
- Select **cn=demo,ou=Groups,dc=ibm,dc=com**

#### New user group

Form groups of users to widely administer permissions.

Users  
Select users to be added to the user group. You can also add users or groups of users directly from your connected identity providers.

Existing users Identity provider users Identity provider groups

Selected: None

Search for the identity provider groups you want to add to this user group.

Q demo 1 result returned cn=demo,ou=Groups,dc=ibm,dc=com

Cancel Back Next

- Click Next
- Select Roles (I use Administrator for the demo environment)

#### New user group

Form groups of users to widely administer permissions.

Roles  
Assign at least one role to this new user group. You can also [create a new role](#) and return to this form.

Q Find roles

**Administrator**

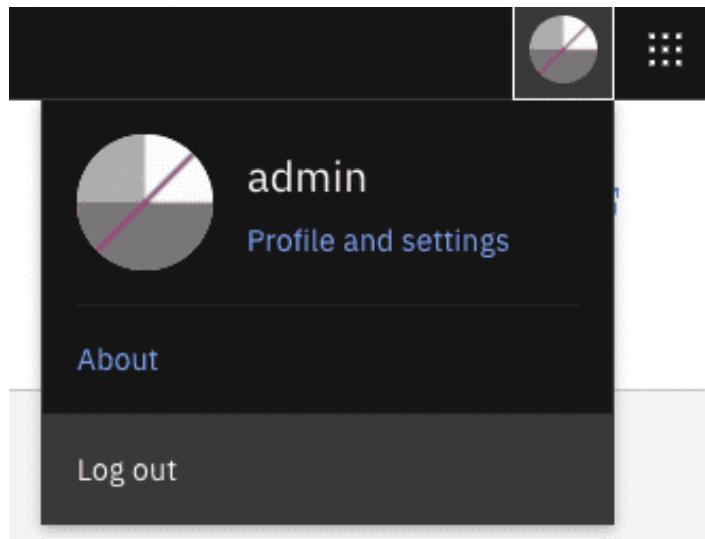
Automation Administrator  
 Automation Analyst  
 Automation Developer  
 Automation Operator  
 Service Administrator  
 User

**Administrator**  
Description: Administrator role  
Modified on: Mar 11, 2022 11:27 AM  
28 permissions, 121 actions [Expand all](#)

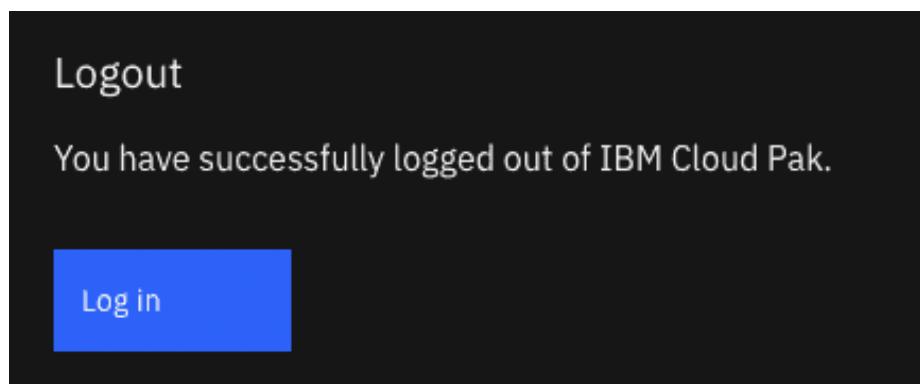
Administer platform  
Administer runbooks and runbook application  
Author and manage runbooks  
Author runbooks  
Create service instances  
Delete operational policies  
Edit operational policies

Cancel Back Next

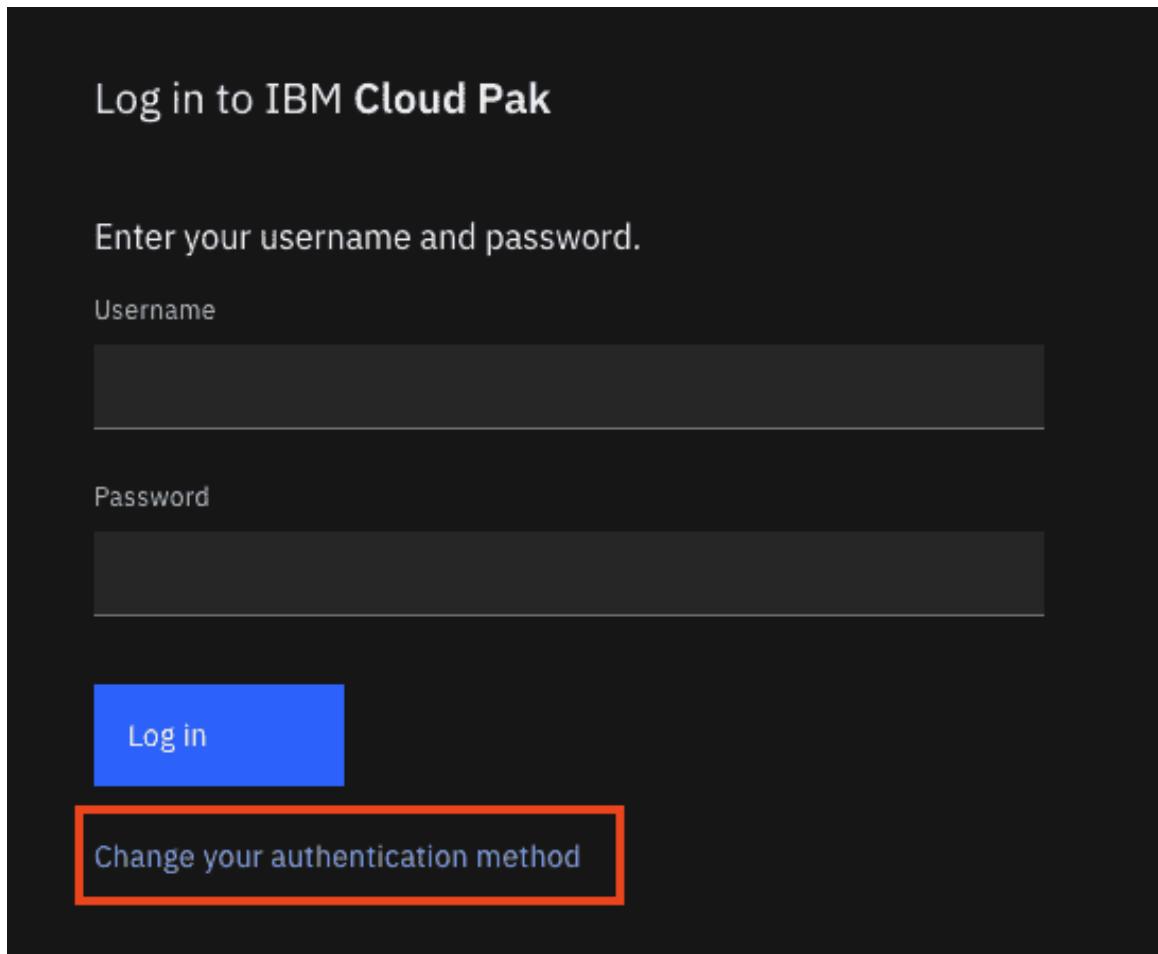
- Click Next
- Click Create
- Click on the top right image
- Select **Logout**



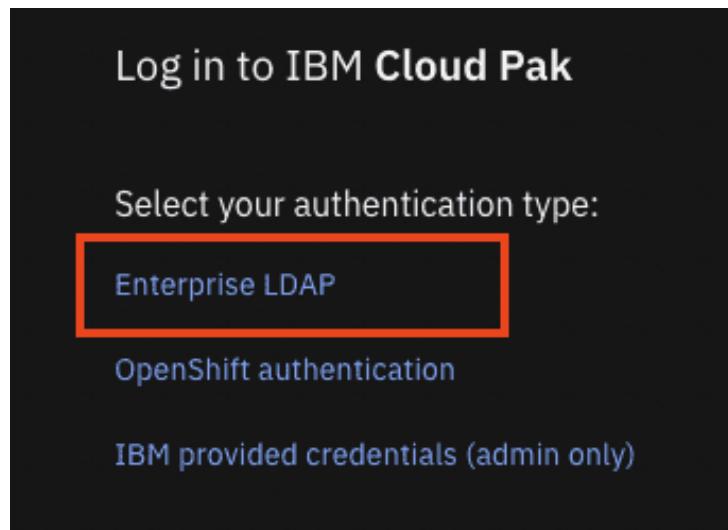
- Click **Log In**



- Select [Change your Authentication method](#)

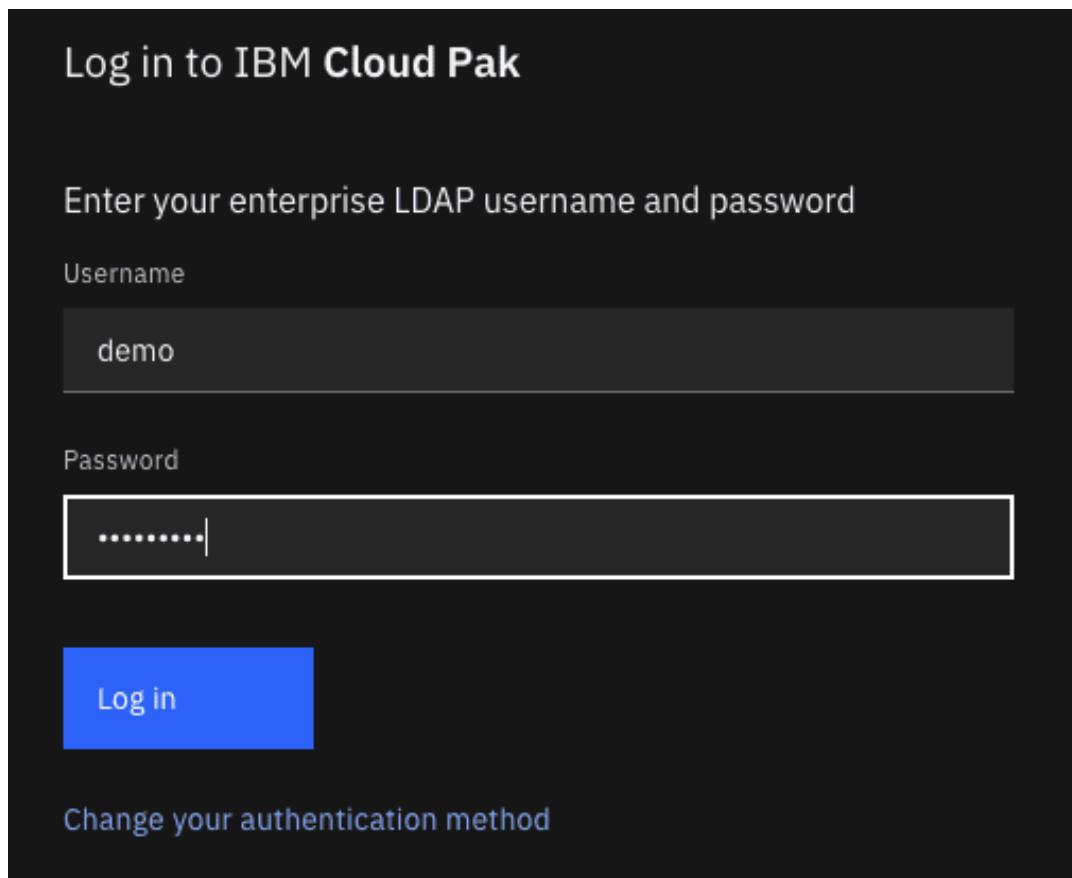


- Select [Enterprise LDAP](#)



- Login with the demo credentials

- User: demo
- Password: P4ssw0rd!



The image shows the 'Log in to IBM Cloud Pak' interface. It features a dark background with white text and light gray input fields. At the top, it says 'Log in to IBM Cloud Pak'. Below that is a placeholder text 'Enter your enterprise LDAP username and password'. There are two input fields: 'Username' containing 'demo' and 'Password' containing several dots ('.....'). A blue button labeled 'Log in' is at the bottom left. At the bottom right, there is a link 'Change your authentication method'.

Log in to IBM Cloud Pak

Enter your enterprise LDAP username and password

Username

demo

Password

.....

Log in

Change your authentication method

## 4.3 Enable Story creation Policy

- In the **AI Manager** "Hamburger" Menu select **Operate / Automations**
- Under **Policies**
- Select **Stories** from the **Tag** dropdown menu

The screenshot shows the 'Policies' tab selected in the 'Automations' section of the IBM Cloud Pak interface. A search bar at the top is empty. Below it, there are two policy entries:

Policy name	Execution priority	Tags	Last modified	Last run	Automatic updates	State
Default story creation policy for high severity alerts	50	Preset   Story	3/11/2022, 11:46:30 AM	No	No	Disabled
Default story creation policy for all alerts	50	Preset   Story	3/11/2022, 11:46:30 AM	No	No	Disabled

A context menu is open over the third row, specifically over the 'Story' tag. The menu items are: Analytics, Preset, Runbooks, Story (which is checked), and User.

- Enable **Default story creation policy for high severity alerts**
- Also enable **Default story creation policy for all alerts** if you want to get all alerts grouped into a story

The screenshot shows the same 'Policies' tab in the 'Automations' section. The context menu from the previous screenshot has been closed. Both policies now have their 'Automatic updates' and 'State' columns set to 'Enabled'.

Policy name	Execution priority	Tags	Last modified	Last run	Automatic updates	State
Default story creation policy for high severity alerts	50	Preset   Story	3/11/2022, 12:38:19 PM	No	Enabled	Enabled
Default story creation policy for all alerts	50	Preset   Story	3/11/2022, 12:38:19 PM	No	Enabled	Enabled

! Wait for the playbook to complete before continuing

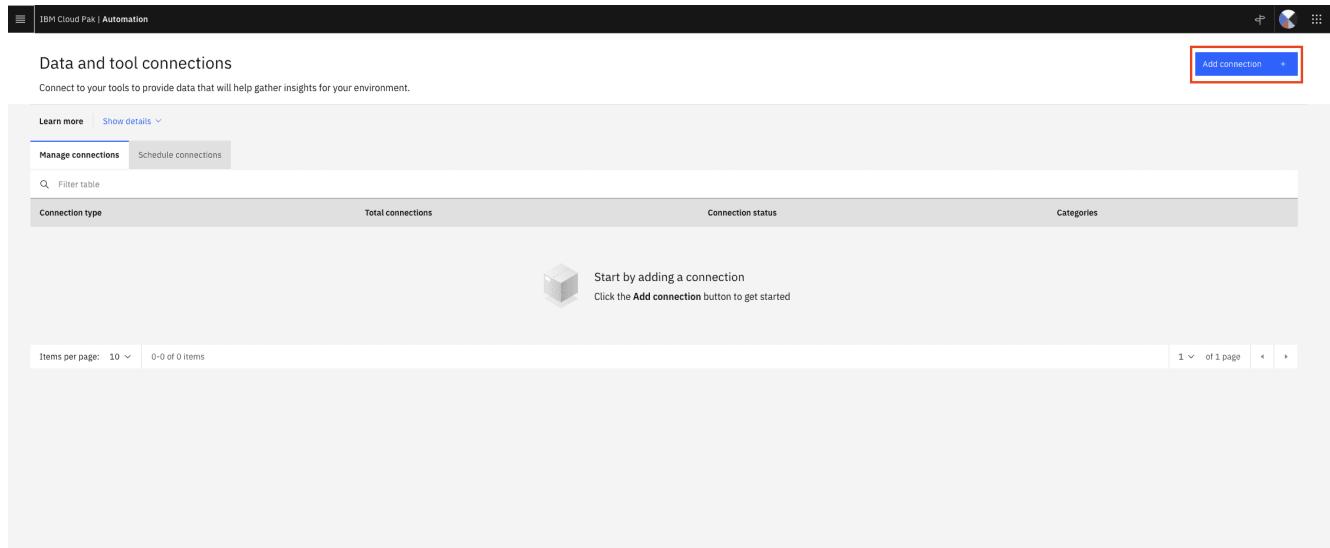
# 4.5 Create Integrations

## 4.5.1 Create Integrations

! Do this only after the training has completed!

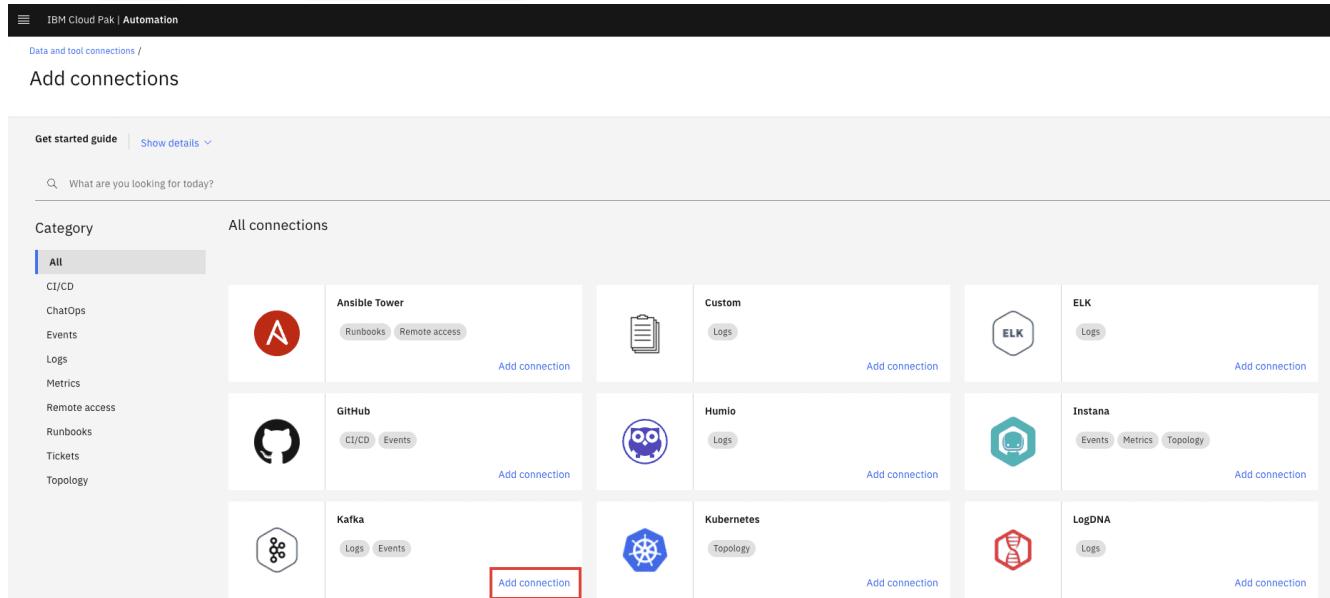
### 4.5.1.1 Create Kafka ELK Log Inception Integration

- In the **AI Manager** "Hamburger" Menu select **Define / Data and tool integrations**
- Click **Add connection**



The screenshot shows the 'Data and tool connections' interface. At the top right, there is a prominent blue button labeled 'Add connection'. Below it, a large central area says 'Start by adding a connection' with a 'Click the Add connection button to get started' subtitle. On the left, there's a sidebar with 'Manage connections' and 'Schedule connections' tabs, and a search bar. The main table has columns for 'Connection type', 'Total connections', 'Connection status', and 'Categories'. At the bottom, there are pagination controls and a note about items per page.

- Under **Kafka**, click on **Add Connection**



The screenshot shows the 'Add connections' page for the Kafka category. On the left, there's a sidebar with various connection categories like CI/CD, ChatOps, Events, Logs, Metrics, Remote access, Runbooks, Tickets, and Topology. The main area shows a grid of connection types. The 'Kafka' row is highlighted with a red box around its 'Add connection' button. Other visible connections include Ansible Tower, Custom, ELK, GitHub, Humio, Instana, Kubernetes, and LogDNA, each with their respective icons and connection status buttons.

- Click **Connect**
- Name it **ELKInception**

- Set **Base Parallelism** to **5**

Kafka

Add connection

Name: ELKInception

Description (optional): Enter description.

Kafka partitions (1-500): 1

Specify the number of Kafka partitions. The default value is 1. When editing the form, you can only increase the partitions.

Base parallelism (1-500): 5

Specify the number of requests that can run in parallel. The default value is 1.

Cancel Next

- Click **Next**
- Select **Data Source** / **Logs**
- Select **Mapping Type** / **ELK**

- Paste the following in **Mapping** (the default is **incorrect!**):

```
{
  "codec": "elk",
  "message_field": "message",
  "log_entity_types": "kubernetes.container_image_id, kubernetes.host,
kubernetes.pod_name, kubernetes.namespace_name",
  "instance_id_field": "kubernetes.container_name",
  "rolling_time": 10,
  "timestamp_field": "@timestamp"
}
```

### Kafka

The screenshot shows the 'Field mapping' configuration for a Kafka connection. The 'Logs' radio button is selected under 'Data source'. The 'ELK' radio button is selected under 'Mapping type'. The 'Live data for continuous AI training and anomaly detection' checkbox is checked. A JSON mapping block is present, containing the provided code. A red box highlights the 'ELK' selection in the mapping type section.

**Field mapping**

Data source  
 Events  Logs

Mapping type  
 None  ELK  Humio  LogDNA  Custom  Splunk

Mode  
 Live data for continuous AI training and anomaly detection  Live data for initial AI training

Topic  
 cp4valogs-cartridge-logs-elk-873u53ry

Field mapping  
 Map source fields to standard fields to improve searches.

Mapping

```
{
  "codec": "elk",
  "message_field": "message",
  "log_entity_types": "kubernetes.container_image_id, kubernetes.host, kubernetes.pod_name, kubernetes.namespace_name",
  "instance_id_field": "kubernetes.container_name",
  "rolling_time": 10,
  "timestamp_field": "@timestamp"
}
```

Valid JSON configuration

Cancel Back Next

- Click **Next**
- Toggle **Data Flow** to the **ON** position

### Kafka

The screenshot shows the 'AI training and log data' configuration for a Kafka connection. The 'On' radio button is selected under 'Data flow'. A red box highlights the 'On' selection in the data flow section.

**AI training and log data**

Define how AI training and log data is collected. Additional setup may be required before enabling data flow. [Learn more](#)

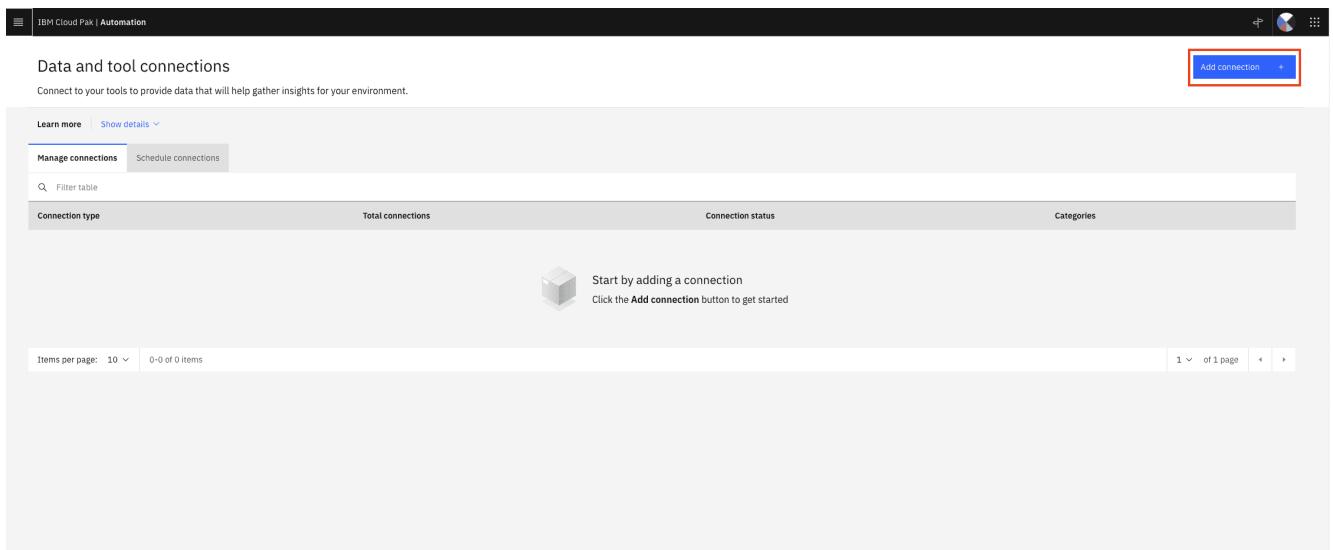
Data flow  
 On

Cancel Back Done

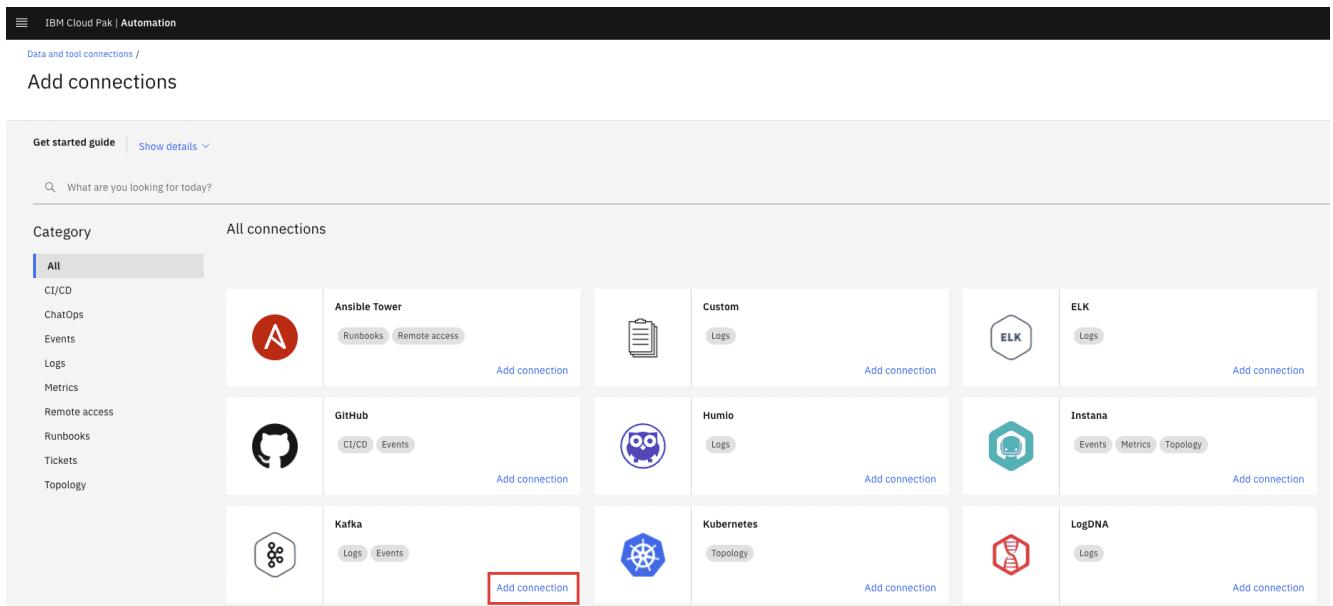
- Select **Live data for continuous AI training and anomaly detection**
- Click **Save**

## 4.5.1.2 Create Kafka Netcool Inception Integration

- In the **AI Manager** "Hamburger" Menu select **Operate / Data and tool integrations**
- Click **Add connection**



- Under **Kafka**, click on **Add Connection**



- Click **Connect**

- Name it **EventManagerInception**

Kafka

Add connection

Name NOI

Description (optional)

Enter description.

Kafka partitions (1-500)  
1

Specify the number of Kafka partitions. The default value is 1. When editing the form, you can only increase the partitions.

Base parallelism (1-500)  
1

Specify the number of requests that can run in parallel. The default value is 1.

Cancel Next

- Click **Next**

- Select **Data Source / Events**

- Select **Mapping Type / NOI**

Kafka

Add connection

Field mapping

Data source  
 Events  Logs

Mapping type  
 None  PagerDuty  NOI

Topic cp4waiops-cartridge-alerts-noi-5owfwihl

Cancel Back Next

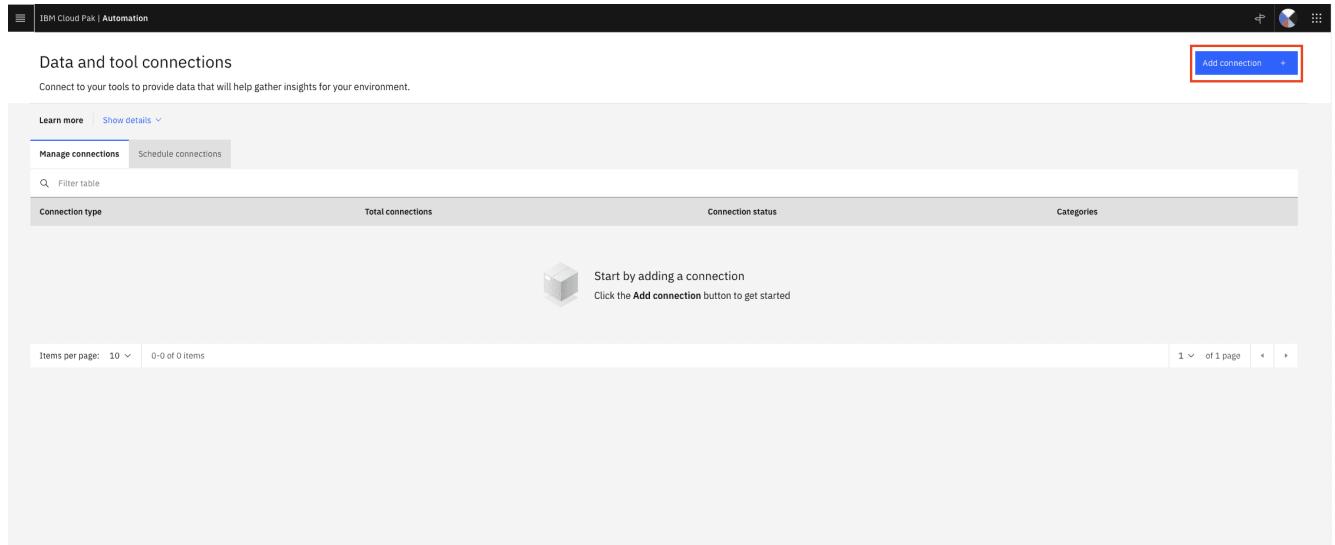
- Click **Next**

- Toggle **Data Flow** to the **ON** position

- Click **Save**

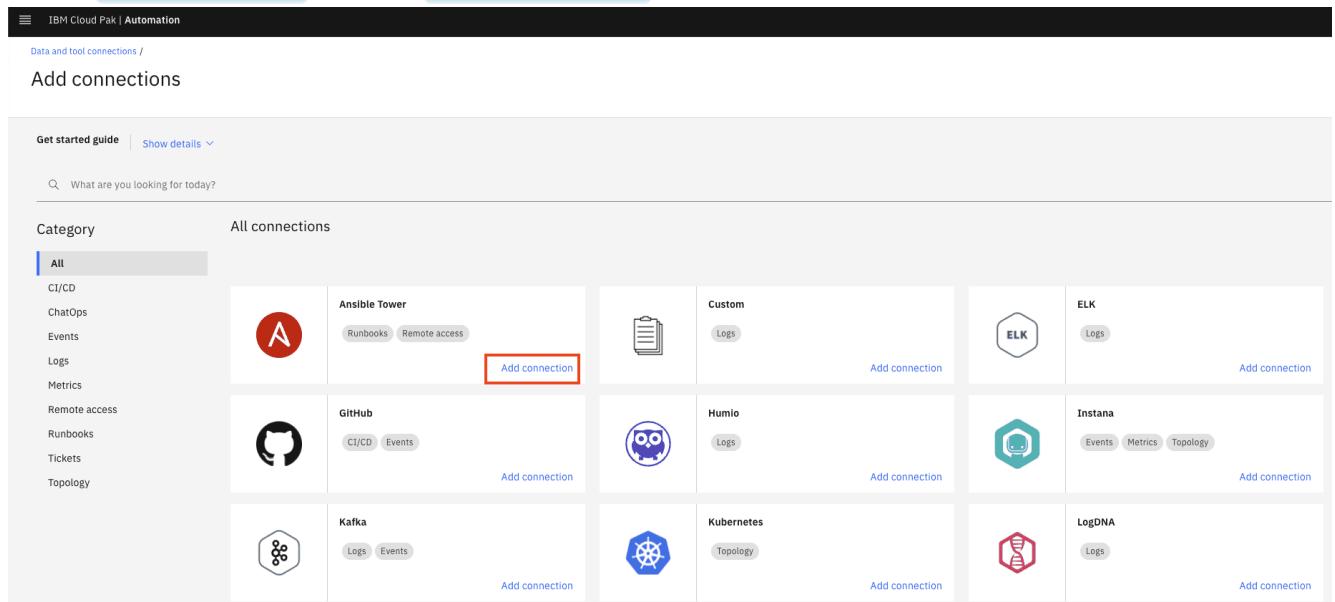
## 4.6 Create AWX Connection

- In the **AI Manager** "Hamburger" Menu select **Define / Data and tool integrations**
- Click **Add connection**



The screenshot shows the 'Data and tool connections' page. At the top right, there is a blue button labeled 'Add connection' with a '+' icon, which is highlighted with a red box. Below the header, there are tabs for 'Manage connections' and 'Schedule connections'. A search bar labeled 'Filter table' is present. The main area has columns for 'Connection type', 'Total connections', 'Connection status', and 'Categories'. A central message says 'Start by adding a connection' and 'Click the Add connection button to get started'. At the bottom, there are pagination controls: 'Items per page: 10' and '0-0 of 0 items'.

- Under **Ansible Tower**, click on **Add Connection**



The screenshot shows the 'Add connections' page under the 'Ansible Tower' category. On the left, there is a sidebar with categories: All, CI/CD, ChatOps, Events, Logs, Metrics, Remote access, Runbooks, Tickets, and Topology. The 'All' tab is selected. The main area displays a grid of connection types: Ansible Tower (selected), GitHub, Kafka, Custom, Humio, Kubernetes, ELK, Instana, and LogDNA. Each item has a small icon, a name, and a 'Logs' or 'Events' badge. Below each item is an 'Add connection' button, with the one for Ansible Tower being highlighted with a red box.

- Click **Connect**

- Open the `LOGINS.txt` or the `installAIManager.log` file that has been created by the Installer in your root directory

```
*****
***** Additional Components *****
***** *****

----- AWX -----



----- AWX : -----



  URL: https://awx-awx.itzroks-270003bu3k-oso4e5-6ccd7f378ae819553d37d5f2ee142bd6-0000.eu-de.containers.appdomain.cloud
  User: admin
  Password: QUKcbA9GBXSCE2Ftg8t1j2EQ1nENNPkt
```

- Fill in `URL` with the URL from `LOGINS.txt`
- Fill in `User ID` with `admin`
- Fill in `Password` with the password from `LOGINS.txt`

Ansible Tower

Add connection

View IBM docs [View IBM docs](#)

URL for REST API  
https://awx-awx.itzroks-270003bu3k-oso4e5-6ccd7f378ae819553d37d5f2ee142bd6-0000.eu-de.containers.appdomain.cloud

Authentication type  
 User ID/Password  API Token

User ID  
admin

Password  
\*\*\*\*\*

Ansible Tower server certificate (optional)  
Enter Ansible Tower server certificate

Cancel Done

- Click `Save`

## 4.7 Create AI Manager Runbook

1. Restart the Easy Installer:

```
./01_easy-install.sh
```

2. Select option  03 to finalize **AI Manager** installation.

Or directly run:

```
ansible-playbook ./ansible/03_aimanager-finalize-install.yaml
```

# 5. AI Manager Finalize Configuration

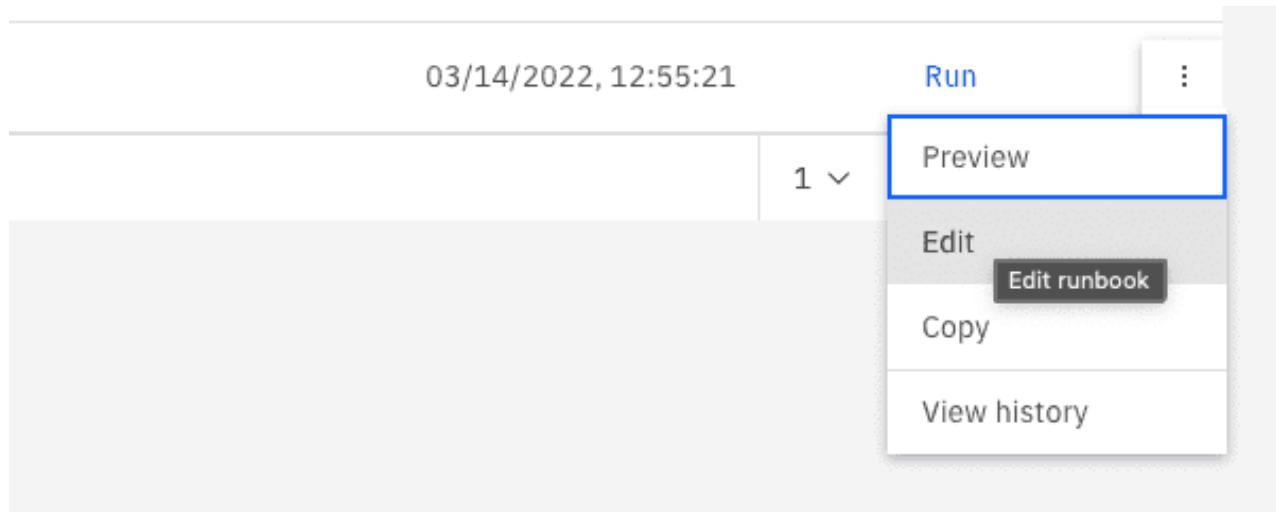
! Make sure the playbook **03** has completed before continuing

You have to do the following:

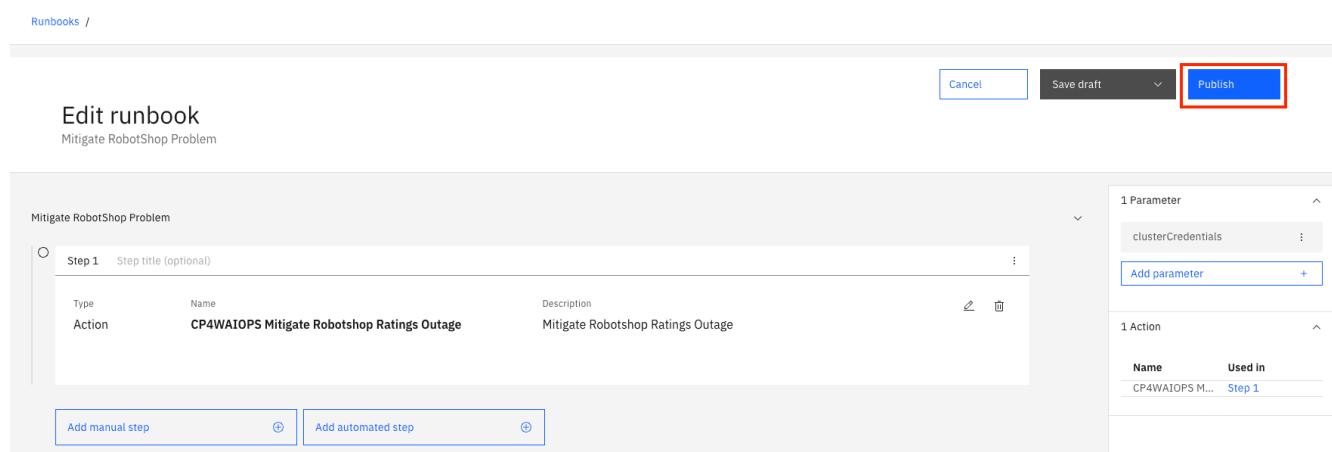
1. Publish Runbook
2. Create Runbook Policy
3. Now you can create the Slack Integration

## 5.1 Publish Runbook

- In the **AI Manager** "Hamburger" Menu select **Operate / Automations**
- Select **Runbooks** tab
- For the **Mitigate RobotShop Problem** click on the three dots at the end of the line
- Click **Edit**



- Click on the blue **Publish** button



## 5.2 Create Runbook Policy

- In the **AI Manager** "Hamburger" Menu select **Operate / Automations**
- Under **Policies**, click **Create Policy**

Automations

Policies      Runbooks      Actions

Learn more | Show details ▾

Policies 2

Q Search on policy name.

Policy name	Execution priority ⓘ	Tags	Last modified	Last run	Automatic updates	State
Default story creation policy for high severity alerts	50	Preset Story	3/11/2022, 12:38:19 PM		No	<input checked="" type="checkbox"/> Enabled
Default story creation policy for all alerts	50	Preset Story	3/11/2022, 12:38:19 PM		No	<input checked="" type="checkbox"/> Enabled

**Create policy**  

- Select **Assign a runbook to alerts**

Automations /

### Policy templates

#### Assign a runbook to alerts

Assign a runbook to alerts for easier automated resolution.

Runbook

**Create →**

#### Promote alerts to a story

Create actionable stories from alerts to improve insights into your issue.

Create story

**Create →**

- Name it **Mitigate RobotShop**

Assign a runbook to alerts

Policy  Enabled

User Runbooks

**Details**

**Condition set 1**

**Actions**

**RobotShop Mitigation**

Brief description of your policy

Policy name: RobotShop Mitigation

Description (optional): Enter a brief description.

You can type a maximum of 450 characters.

Execution priority: 100

Very high: 0 Policies

High: 0 Policies

Medium: 10 Policies

Low: 1 Policy

Very low: 0 Policies

- Under **Condition set 1**

- Select **resource.name** (you can type **name** and select the name field for resources)

Property	Operator	Matches
name	equal to	only

If this condition is met:

Then take action:

- alert
  - sender
    - name
  - hostname
- resource
  - name
  - hostname

- Set Operator to **contains**

Condition set 1

If this condition is met:

Property	Operator	Matches	Value
Value of: alert.resource.name	contains	only	Enter a value.

- And for **value** you type **mysql** (select **String: mysql**)

Condition set 1

If this condition is met:

Property	Operator	Matches	Value
Value of: alert.resource.name	contains	only	mysql

Add condition +

Then take the following action:

**Assign a runbook**

**Runbooks**

Select one or more runbooks to assign.

Filter table

Name	Type	Rating
Items per page: 5	0–0 of 0 items	

Runbooks selected (0)

- Under Runbooks
- Select the **Mitigate RobotShop Problem** Runbook

Condition set 1

If this condition is met:

Property	Operator	Matches	Value
Value of: alert.resource.name	contains	only	String: mysql

Add condition +

Then take the following action:

**Assign a runbook**

**Runbooks**

Select one or more runbooks to assign.

1 item selected		Cancel		
	Name	Type	Rating	Success rate
▼ <input type="checkbox"/> Create RobotShop Problem	Create RobotShop Problem	Automatic	★★★★★	
▼ <input checked="" type="checkbox"/> Mitigate RobotShop Problem	Mitigate RobotShop Problem	Automatic	★★★★★	

Items per page: 5 1–2 of 2 items

Runbooks selected (1)

Mitigate RobotShop Problem

1 parameter

- Under **Select Mapping Type**, select **use default parameter value** (this has been prefilled by the installer)

1 item selected | Cancel

Name	Type	Rating	Success rate
Create RobotShop Problem	Automatic	☆☆☆☆☆	
<b>Mitigate RobotShop Problem</b>	Automatic	☆☆☆☆☆	

Items per page: 5 1–2 of 2 items 1 of 1 page ▲ ▼

**Runbooks selected (1)**

Mitigate RobotShop Problem 1 parameter

**clusterCredentials** (optional)  
Cluster Credentials encoded as JSON..

Type: string

Select mapping type:

Choose from alert  Enter static value  Choose at runtime  Use default parameter value

Default parameter value:  

```
{ "my_k8s_apiurl": "https://c100-e.eu-de.containers.cloud.ibm.com:3024" }
```

Pre-defined default value for this parameter

---

Automatically run this runbook

- Click **Create Policy**

---

## 6. Slack integration

---

For the system to work you need to follow those steps:

1. Create Slack Workspace
2. Create Slack App
3. Create Slack Channels
4. Create Slack Integration
5. Get the Integration URL
6. Create Slack App Communications
7. Slack Reset

## 6.1 Create your Slack Workspace

1. Create a Slack workspace by going to <https://slack.com/get-started#/createnew> and logging in with an email **which is not your IBM email**. Your IBM email is part of the IBM Slack enterprise account and you will not be able to create an independent Slack workspace outside of the IBM slack service.

The screenshot shows the initial sign-in screen for creating a Slack workspace. At the top is the Slack logo. Below it, the text "First, enter your email" is displayed in large, bold, black font. A sub-instruction "We suggest using the email address you use at work." follows. There are two main sign-in options: a blue button with the Google "G" icon labeled "Continue with Google" and a text input field containing "name@work-email.com". Below these is a purple "Continue" button. At the bottom, there is a link for users who already have an account: "Already using Slack? Sign in to an existing workspace".

2. After authentication, you will see the following screen:



# Create a new Slack workspace

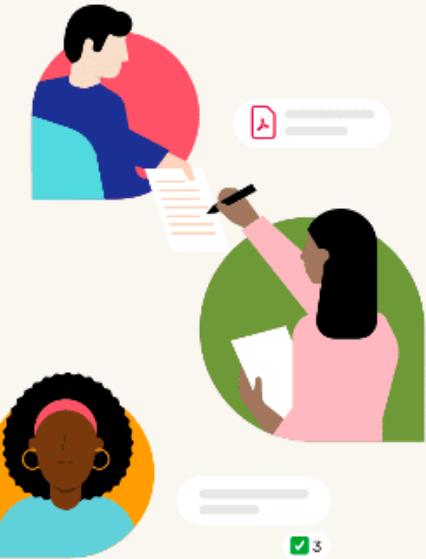
Slack gives your team a home — a place where they can talk and work together. To create a new workspace, click the button below.

**Tip:** Use the email you use for work. That makes it easy to get the rest of your team on Slack. [Change email](#)

**Create a Workspace →**

It's okay to send me emails about Slack.

By continuing, you're agreeing to our Customer Terms of Service, Privacy Policy, and Cookie Policy.



3. Click **Create a Workspace** →
4. Name your Slack workspace

Step 1 of 3

## What's the name of your company or team?

This will be the name of your Slack workspace — choose something that your team will recognize.

Ex: Acme Marketing or Acme Co

255

**Next**

Give your workspace a unique name such as aiops-<yourname>.

5. Describe the workspace current purpose

Step 2 of 3

## What's your team working on right now?

This could be anything: a project, campaign, event, or the deal you're trying to close.

Ex: Q4 budget, autumn campaign

80

Next

This is free text, you may simply write "demo for Watson AIOps" or whatever you like.

- 6.

Step 3 of 3

## Who do you email most about demo-environment?

To give Slack a spin, add a few coworkers you talk with regularly.

Ex. ellis@gmail.com

[+ Add another](#)

[🔗 Get a shareable invite link instead](#)

[Add Teammates](#)

Skip this step

You may add team members to your new Slack workspace or skip this step.

At this point you have created your own Slack workspace where you are the administrator and can perform all the necessary steps to integrate with CP4WAOps.

The screenshot shows the Slack interface for the '#demo-environment' channel. The left sidebar has a dark purple background with the workspace name 'watson-lops' and a user icon. The main area has a white background with a light gray header bar at the top. The header bar includes the channel name '#demo-environment', a 'Search watson-lops' input field, and a refresh icon. Below the header, there's a message 'Add a topic'. The main content area shows a message from 'Robert Barron' at 6:25 PM stating 'joined #demo-environment.' Below this, there are two message bubbles: one from 'Hello, team!' and another from 'First order of business...'. At the bottom, there's a message input field with placeholder text 'Send a message to #demo-environment' and a set of rich text editing icons.

#demo-environment

Add a topic

Browse Slack

Channels

# demo-environment

# general

# random

+ Add channels

Direct messages

R Robert Barron you

+ Add teammates

This is the very beginning of the **#demo-environment** channel

This channel is for working on a project. Hold meetings, share docs, and make decisions together with your team. [Edit description](#)

Today

R Robert Barron 6:25 PM joined #demo-environment.

Hello, team! First order of business... x

Send a message to #demo-environment

V B I <> ⌂ ⌃ ⌄ ⌅ ⌆ ⌇

**Note :** This Slack workspace is outside the control of IBM and must be treated as a completely public environment. Do not place any confidential material in this Slack workspace.

## 6.2 Create Your Slack App

1. Create a Slack app, by going to <https://api.slack.com/apps> and clicking **Create New App**.

The screenshot shows the 'Your Apps' section of the Slack API documentation. On the left, there's a sidebar with various links like 'Start learning', 'Authentication', 'Surfaces', etc. The main area has a search bar and a table titled 'Your Apps' with columns for 'App Name', 'Workspace', and 'Distribution Status'. The table lists several apps:

App Name	Workspace	Distribution Status
Humio	hirt.us	Not distributed
CP4WAIOPSTEST	hirt.us	Not distributed
AIOpsTEST	hirt.us	Not distributed
AIOPS-TEST	hirt.us	Not distributed
AIOps	AIOps	Not distributed
CP4WAIOPS	AIOps	Not distributed
Watson AI Manager (3.1)	TEC Europe	Not distributed

At the bottom, it says 'Don't see an app you're looking for? Sign in to another workspace.'

2. Select **From an app manifest**

### Create an app X

Choose how you'd like to configure your app's scopes and settings.

#### From scratch

Use our configuration UI to manually add basic info, scopes, settings, & features to your app. >

#### From an app manifest BETA

Use a manifest file to add your app's basic info, scopes, settings & features to your app. >

Need help? Check our [documentation](#), or [see an example](#)

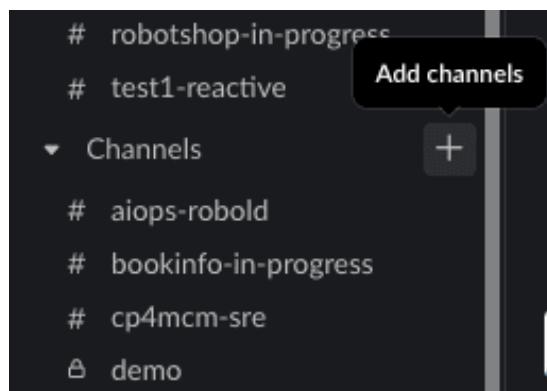
3. Select the appropriate workspace that you have created before and click **Next**
4. Copy and paste the content of this file [./doc/slack/slack-app-manifest.yaml](#).  
Don't bother with the URLs just yet, we will adapt them as needed.
5. Click **Next**

6. Click **Create**
7. Scroll down to Display Information and name your CP4WAIOPS app.
8. You can add an icon to the app (there are some sample icons in the ./tools/4\_integrations/slack/icons folder.)
9. Click save changes
10. In the **Basic Information** menu click on **Install to Workspace** then click **Allow**

## 6.3 Create Your Slack Channels

1. In Slack add a two new channels:

- o aiops-demo-reactive
- o aiops-demo-proactive



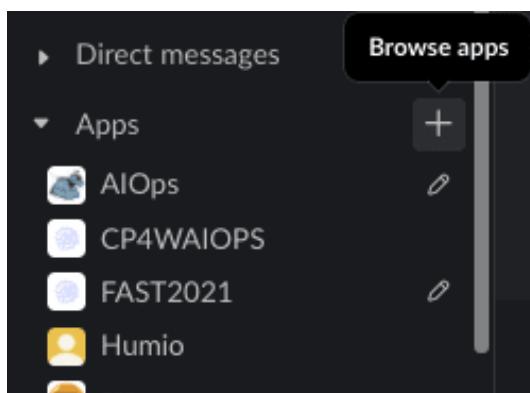
2. Right click on each channel and select **Copy Link**

This should get you something like this <https://xxxx.slack.com/archives/C021QOY16BW>

The last part of the URL is the channel ID (i.e. C021QOY16BW)

Jot them down for both channels

3. Under Apps click Browse Apps



4. Select the App you just have created

5. Invite the Application to each of the two channels by typing

```
@<MyAppname>
```

6. Select **Add to channel**

You should get a message from saying **was added to #<your-channel> by ...**

## 6.4 Integrate Your Slack App

In the Slack App:

1. In the **Basic Information** menu get the **Signing Secret** (not the Client Secret!) and jot it down

App Credentials	
These credentials allow your app to access the Slack API. They are secret. Please don't share your app credentials with anyone, include them in public code repositories, or store them in insecure ways.	
<b>App ID</b>	<b>Date of App Creation</b>
A02MJTPE7M2	November 16, 2021
<b>Client ID</b>	
1624757694871.2732941483716	
<b>Client Secret</b>	
*****	<button>Show</button> <button>Regenerate</button>
You'll need to send this secret along with your client ID when making your <a href="#">oauth.v2.access</a> request.	
<b>Signing Secret</b>	
a119c076bbc1cc074c17bc79dc5312	<button>Show</button> <button>Regenerate</button>
Slack signs the requests we send you using this secret. Confirm that each request comes from Slack by verifying its unique signature.	
<b>Verification Token</b>	
woBhrC5m0IZg2X0CgfShrTLV	<button>Regenerate</button>
This deprecated Verification Token can still be used to verify that requests come from Slack, but we strongly recommend using the above, more secure, signing secret instead.	

2. In the **OAuth & Permissions** get the **Bot User OAuth Token** (not the User OAuth Token!) and jot it down

**Settings**

- Basic Information
- Collaborators
- Socket Mode
- Install App
- Manage Distribution

**Features**

- App Home
- Org Level Apps
- Incoming Webhooks
- Interactivity & Shortcuts
- Slash Commands
- Workflow Steps

**OAuth & Permissions**

- Event Subscriptions
- User ID Translation
- App Manifest NEW
- Beta Features

**Submit to App Directory**

- Review & Submit

Give feedback

Slack ❤️

## OAuth & Permissions

### Advanced token security via token rotation

Recommended for developers building on or for security-minded organizations – opting into token rotation allows app tokens to automatically expire after they're issued within your app code. [View documentation](#).

⚠️ At least one redirect URL needs to be set below before this app can be opted into token rotation

[Opt in](#)

---

## OAuth Tokens for Your Workspace

These tokens were automatically generated when you installed the app to your team. You can use these to authenticate your app. [Learn more](#).

**User OAuth Token**

xoxp-1624757694871-1639736885955-2723982398998-593c61defc81d2a8
 [Copy](#)

Access Level: Workspace

**Bot User OAuth Token**

[Copy](#)

Access Level: Workspace

[Reinstall to Workspace](#)

In the AI Manager (CP4WAIOPS)

1. In the **AI Manager** "Hamburger" Menu select **Define / Data and tool integrations**
2. Click **Add connection**

IBM Cloud Pak | Automation

Data and tool connections

Connect to your tools to provide data that will help gather insights for your environment.

[Learn more](#) [Show details](#)

[Manage connections](#) [Schedule connections](#)

[Filter table](#)

Connection type	Total connections	Connection status	Categories
	Start by adding a connection Click the Add connection button to get started		

Items per page: 10 ▾ 0-0 of 0 items

1 ▾ of 1 page ▶

### 3. Under **Slack**, click on **Add Connection**

The screenshot shows the 'Data and tool connections / Add connections' section of the IBM Cloud Pak | Automation interface. A grid of icons and names for various tools like Runbooks, Remote access, GitHub, Kafka, Microsoft Teams, Slack, VMware, Humio, Kubernetes, PagerDuty, Splunk, ELK, Instana, LogDNA, ServiceNow, and SSH. The 'Slack' row is selected, and its 'Add connection' button is highlighted with a red box.

4. Name it "Slack"

5. Paste the **Signing Secret** from above

6. Paste the **Bot User OAuth Token** from above

Slack

Add connection

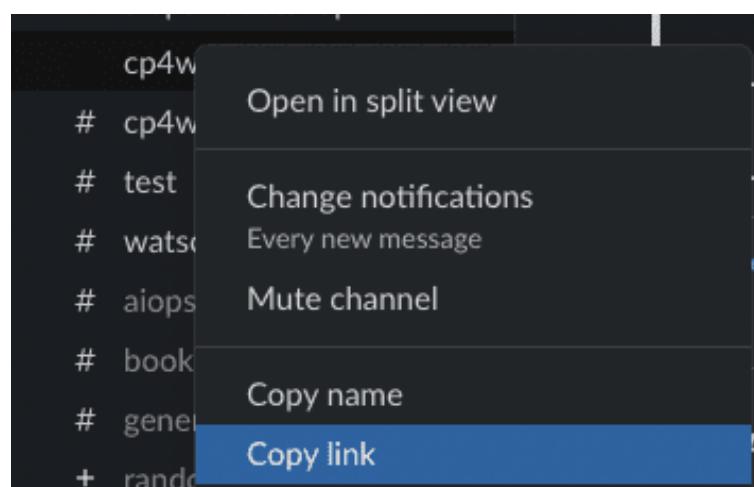
Name: Slack

Description (optional): <https://aiops-try2953.slack.com/archives/C035U4C0NCV>

Signing secret:

Bot token:

7. Paste the channel IDs from the channel creation step in the respective fields



Proactive channel

C035U4CONCV

Enter a proactive channel for the connection.

Reactive channel

C035U4CAAA

Enter a reactive channel for the connection.

[Test connection to slack.com](#)

 Test succeeded

8. Test the connection and click save

## 6.5 Create the Integration URL

In the AI Manager (CP4WAIOPS)

1. Go to **Data and tool integrations**
2. Under **Slack** click on **1 integration**
3. Copy out the URL

The screenshot shows the IBM Automation AI Manager interface. On the left, there's a sidebar with categories: Standard, Advanced, and Optional. Under Standard, there are sections for Category (All, Inventory, Tickets, Logs, Events, ChatOps), Custom Logs (0 integrations), ELK (0 integrations), Kubernetes (1 integration), ServiceNow (0 integrations), and a summary for Tickets, Inventory, and ChatOps. On the right, a modal window titled 'Slack' is open, showing the 'Manage integrations with Slack environments.' section. It has a search bar and a table with one item: 'Slack' with the URL <https://cpd-aiops.apps.ocp46.tec.uk.ibm.com/aimanager/instances/0000000000000000/api/slack/events>. The URL is highlighted with a yellow box.

This is the URL you will be using for step 6.

## 6.6 Create Slack App Communications

Return to the browser tab for the Slack app.

### 6.6.1 Event Subscriptions

1. Select **Event Subscriptions**.
2. In the **Enable Events** section, click the slider to enable events.
3. For the Request URL field use the **Request URL** from step 5.  
e.g: `https://<my-url>/aiops/aimanager/instances/xxxxx/api/slack/events`
4. After pasting the value in the field, a *Verified* message should display.

The screenshot shows the 'Event Subscriptions' section of the Slack app configuration. At the top right is a green 'On' toggle switch. Below it is a heading 'Enable Events' with a descriptive text: 'Your app can subscribe to be notified of events in Slack (for example, when a user adds a reaction or creates a file) at a URL you choose.' A 'Learn more' link is provided. Underneath is a 'Request URL' field containing 'https://[REDACTED]' with a 'Verified' badge and a 'Change' button. A note below explains that HTTP POST requests will be sent to this URL when events occur, mentioning the challenge parameter and a 'Learn more' link.

If you get an error please check 5.7

5. Verify that on the **Subscribe to bot events** section you got:
  - o `app_mention` and
  - o `member_joined_channel` events.

## Subscribe to bot events

Apps can subscribe to receive events the bot user has access to (like new messages in a channel). If you add an event here, we'll add the necessary OAuth scope for you.

Event Name	Description	Required Scope	
app_mention	Subscribe to only the message events that mention your app or bot	app_mentions:read	
member_joined_channel	A user joined a public or private channel	channels:read or groups:read	

[Add Bot User Event](#)

6. Click **Save Changes** button.

### 6.6.2 Interactivity & Shortcuts

7. Select **Interactivity & Shortcuts**.
8. In the Interactivity section, click the slider to enable interactivity. For the **Request URL** field, use the URL from above.

There is no automatic verification for this form

## Interactivity & Shortcuts

### Interactivity

**On**

Any interactions with shortcuts, modals, or interactive components (such as buttons, select menus, and datepickers) will be sent to a URL you specify. [Learn more](#).

#### Request URL

`https://[REDACTED].0000.tl`

Slack will send an HTTP POST request with information to this URL when users interact with a shortcut or interactive component.

9. Click **Save Changes** button.

## 6.6.3 Slash Commands

Now, configure the `welcome` slash command. With this command, you can trigger the welcome message again if you closed it.

1. Select `Slash Commands`
2. Click `Create New Command` to create a new slash command.

Use the following values:

Field	Value
Command	/welcome
Request URL	the URL from above
Short Description	Welcome to Watson AIOps

3. Click `Save`.

## 6.6.4 Reinstall App

The Slack app must be reinstalled, as several permissions have changed.

1. Select `Install App`
2. Click `Reinstall to Workspace`

Once the workspace request is approved, the Slack integration is complete.

If you run into problems validating the `Event Subscription` in the Slack Application, see 5.2

## 6.7 Create valid CP4WAIOPS Certificate (optional)

Installer should already have done this.

But if there still are problems, you can directly run:

```
ansible-playbook ./ansible/31_aimanager-create-valid-ingress-certificates.yaml
```

## 6.8 Slack Reset

### 6.8.1 Get the User OAUTH Token

This is needed for the reset scripts in order to empty/reset the Slack channels.

This is based on [Slack Cleaner2](#).

You might have to install this:

```
pip3 install slack-cleaner2
```

#### Reset reactive channel

In your Slack app

1. In the **OAuth & Permissions** get the **User OAuth Token** (not the Bot User OAuth Token this time!) and jot it down

In file `./tools/98_reset/13_reset-slack.sh`

2. Replace **not\_configured** for the **SLACK\_TOKEN** parameter with the token
3. Adapt the channel name for the **SLACK\_REACTIVE** parameter

#### Reset proactive channel

In your Slack app

1. In the **OAuth & Permissions** get the **User OAuth Token** (not the Bot User OAuth Token this time!) and jot it down (same token as above)

In file `./tools/98_reset/14_reset-slack-changerisk.sh`

2. Replace **not\_configured** for the **SLACK\_TOKEN** parameter with the token
3. Adapt the channel name for the **SLACK\_PROACTIVE** parameter

### 6.8.2 Perform Slack Reset

Call either of the scripts above to reset the channel:

```
./tools/98_reset/13_reset-slack.sh  
or  
./tools/98_reset/14_reset-slack-changerisk.sh
```

# 7. Demo the Solution

---

## 7.1 Simulate incident - Command Line

Make sure you are logged-in to the Kubernetes Cluster first

In the terminal type

```
./tools/01_demo/incident_robotshop.sh
```

This will delete all existing Alerts/Stories and inject pre-canned event and logs to create a story.

 Give it a minute or two for all events and anomalies to arrive in Slack.