

# Getting started with IBM Event Streams

- Install and configure Event Streams
- Exploring the Event Streams console
- Work with a sample application

# Installing IBM Event Streams

# Installing Event Streams on IBM Cloud Private

Ensure you have set up your environment [according to the prerequisites](#)

The Event Streams installation process creates and runs jobs in the target namespace, and in the kube-system namespace

Plan for installation: create required persistent volumes, and ConfigMap for Kafka static configuration

You will need:

- Master host and port of your IBM Cloud Private cluster
- SSH password

Make sure that your proxy address uses lowercase characters (otherwise, you must make the appropriate changes to your configuration)


Make sure that the IBM Cloud Private monitoring service is installed.


# Installation overview

1. Create a target namespace for Event Streams
2. Download the IBM Event Streams installation image file, and make it available in your catalog
3. Create an image pull secret for the Event Streams namespace
4. Create an image policy for the internal Docker repository
5. Install the Event Streams chart
6. Verify installation





# Creating a namespace

 IBM Cloud Private

Create resourceCatalogDocsSupport

## Namespaces

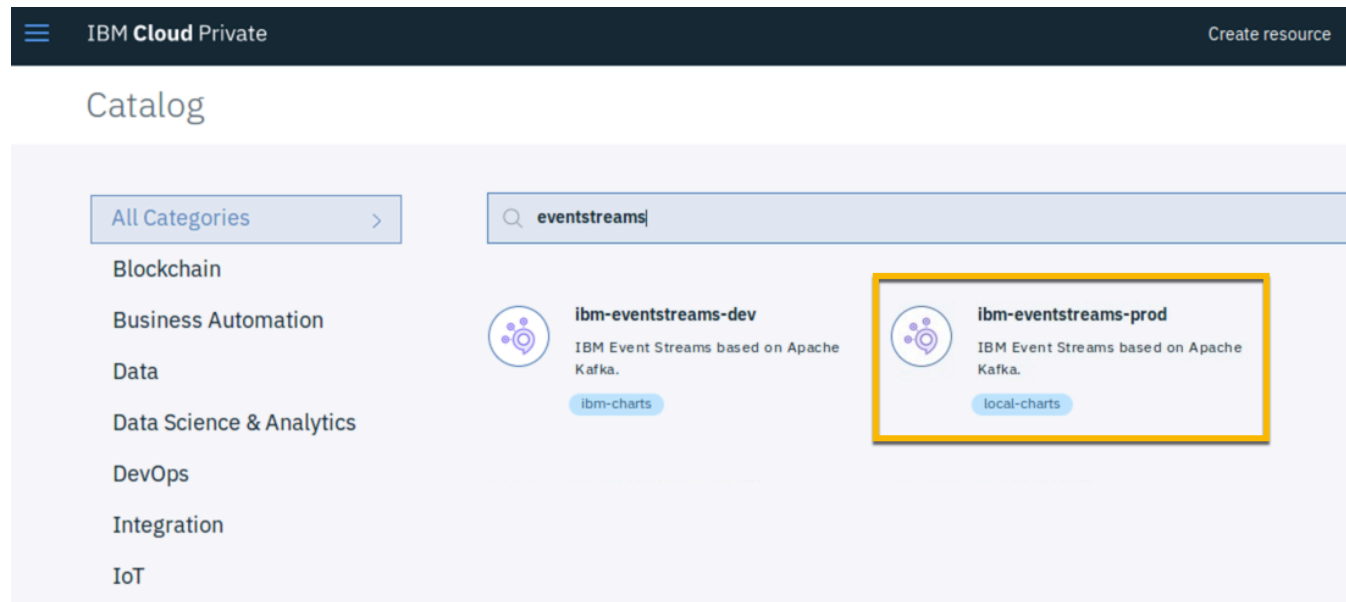
 Search

Create Namespace 

Name	Status	Pod Security Policy
cert-manager	Active	ibm-anyuid-hostpath-ppsp
default	Active	default, ibm-anyuid-hostaccess-ppsp, ibm-anyuid-hostpath-ppsp, ibm-anyuid-ppsp, ibm-privileged-ppsp, ibm-restricted-ppsp, privileged
es	Active	ibm-anyuid-hostpath-ppsp, ibm-restricted-ppsp
ibmcom	Active	ibm-anyuid-hostpath-ppsp
istio-system	Active	ibm-anyuid-hostpath-ppsp, ibm-privileged-ppsp

# Using the IBM Cloud Private Catalog

1. Download the Event Streams archive
2. Log in to IBM Cloud Private (`cloudctl login`), and Docker (`docker login`)
3. Load the Event Streams Helm chart in to the IBM Cloud Private Catalog (`cloudctl catalog`)



# Image pull secret and image policy

Creating an image pull secret (kubectl create secret)

```
student@master:~/Downloads$ sudo kubectl create secret docker-registry regcred -  
-docker-server=mycluster.icp:8500 --docker-username=admin --docker-password=admin  
-n es  
secret/regcred created
```

Creating an image policy

```
apiVersion: securityenforcement.admission.cloud.ibm.com/v1beta1  
kind: ImagePolicy  
metadata:  
  name: image-policy  
  namespace: es  
spec:  
  repositories:  
    - name: docker.io/*  
      policy: null  
    - name: mycluster.icp:8500/*  
      policy: null
```

# Installing the Helm chart

1. Sync repositories
2. Select the chart from the Catalog and click Configure
3. Enter a name and target namespace, and any other relevant information (for example, the image pull secret)
4. Click Install

The screenshot shows the 'Configuration' page for the 'IBM Event Streams' Helm chart in the IBM Cloud Private console. At the top, there is a 'Pod Security Warning' indicating that the cluster is running all namespaces unrestricted by default. The configuration section includes three main fields: 'Helm release name' with the value 'eslab', 'Target namespace' with the value 'es', and a 'License' section where the checkbox 'I have read and agreed to the License agreement' is checked. Below these, the 'Pod Security' section states that a namespace with an 'ibm-restricted-psp' policy is required for deployment. The 'Parameters' section at the bottom provides additional context and a link to view all parameters. At the bottom right, there are 'Cancel' and 'Install' buttons.

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**Pod Security Warning** Your ICP cluster is running all namespaces Unrestricted (ibm-anyuid-hostpath-psp) by default. This could pose a security risk.

### Configuration

IBM Event Streams based on Apache Kafka. Edit these parameters for configuration.

**Helm release name \*** eslab

**Target namespace \*** es

**License \*** ☒ I have read and agreed to the License agreement

### Pod Security

To deploy correctly this chart requires a Namespace with an **ibm-restricted-psp** pod security policy.

**Target namespace policies**

ibm-anyuid-hostpath-psp, ibm-restricted-psp

### Parameters

To install this chart, some additional configuration is recommended in Quick Start. If further customization is desired, view All parameters.

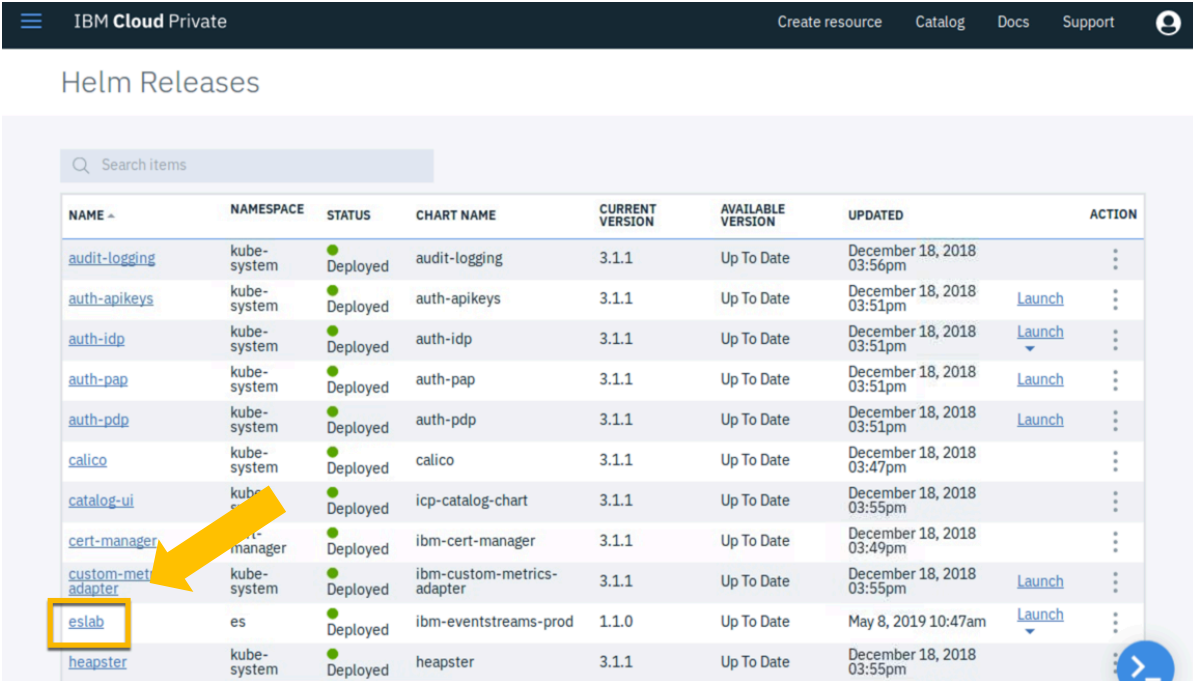
Cancel Install



# Verifying the installation

In the IBM Cloud Private console, select **Workload** > **Helm Releases**

Click the release name to see more details

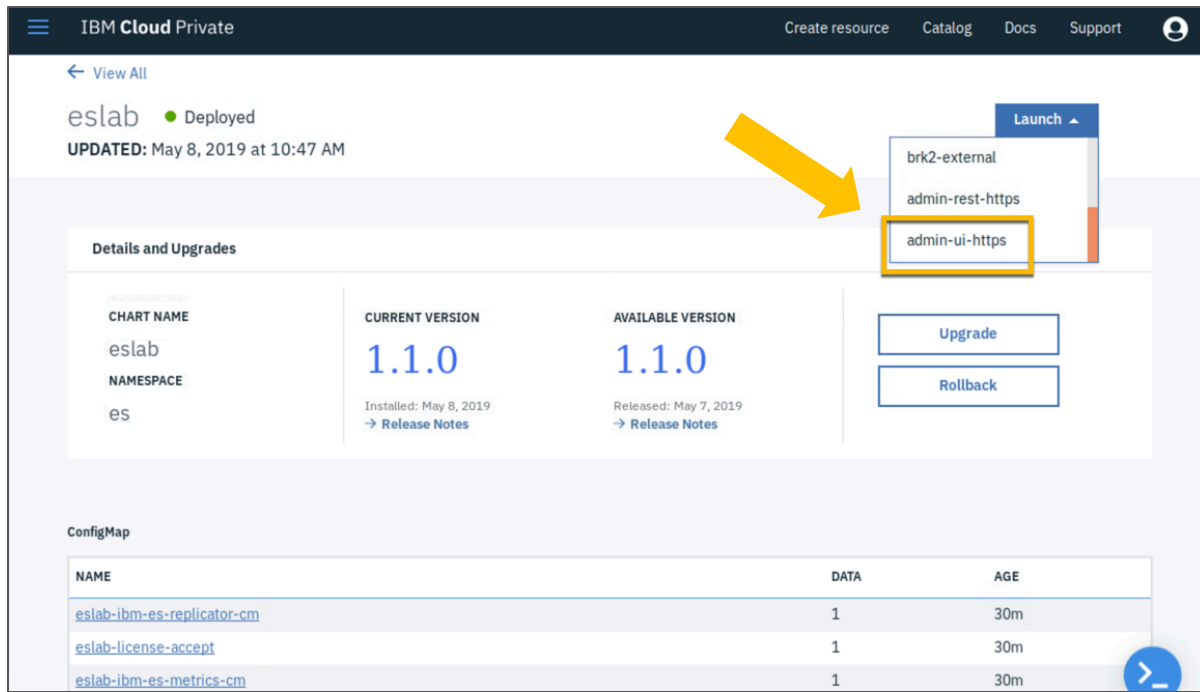


NAME ^	NAMESPACE	STATUS	CHART NAME	CURRENT VERSION	AVAILABLE VERSION	UPDATED	ACTION
<a href="#">audit-logging</a>	kube-system	Deployed	audit-logging	3.1.1	Up To Date	December 18, 2018 03:56pm	⋮
<a href="#">auth-apikeys</a>	kube-system	Deployed	auth-apikeys	3.1.1	Up To Date	December 18, 2018 03:51pm	<a href="#">Launch</a> ⋮
<a href="#">auth-idp</a>	kube-system	Deployed	auth-idp	3.1.1	Up To Date	December 18, 2018 03:51pm	<a href="#">Launch</a> ⋮
<a href="#">auth-pap</a>	kube-system	Deployed	auth-pap	3.1.1	Up To Date	December 18, 2018 03:51pm	<a href="#">Launch</a> ⋮
<a href="#">auth-pdp</a>	kube-system	Deployed	auth-pdp	3.1.1	Up To Date	December 18, 2018 03:51pm	<a href="#">Launch</a> ⋮
<a href="#">calico</a>	kube-system	Deployed	calico	3.1.1	Up To Date	December 18, 2018 03:47pm	⋮
<a href="#">catalog-ui</a>	kube-system	Deployed	icp-catalog-chart	3.1.1	Up To Date	December 18, 2018 03:55pm	⋮
<a href="#">cert-manager</a>	kube-system	Deployed	ibm-cert-manager	3.1.1	Up To Date	December 18, 2018 03:49pm	⋮
<a href="#">custom-metrics-adapter</a>	kube-system	Deployed	ibm-custom-metrics-adapter	3.1.1	Up To Date	December 18, 2018 03:55pm	<a href="#">Launch</a> ⋮
<a href="#">eslab</a>	es	Deployed	ibm-eventstreams-prod	1.1.0	Up To Date	May 8, 2019 10:47am	<a href="#">Launch</a> ⋮
<a href="#">heapster</a>	kube-system	Deployed	heapster	3.1.1	Up To Date	December 18, 2018 03:55pm	⋮

# Exploring the Event Streams console

# Accessing the Event Streams console

To access the Event Streams admin console, click **Launch** in the upper right corner of the release page, and then select **admin-ui-https**.



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← View All

eslab ● Deployed  
UPDATED: May 8, 2019 at 10:47 AM

Launch

brk2-external  
admin-rest-https  
admin-ui-https

Details and Upgrades

CHART NAME	CURRENT VERSION	AVAILABLE VERSION	
eslab	1.1.0	1.1.0	
NAMESPACE	Installed: May 8, 2019 → <a href="#">Release Notes</a>	Released: May 7, 2019 → <a href="#">Release Notes</a>	<a href="#">Upgrade</a> <a href="#">Rollback</a>

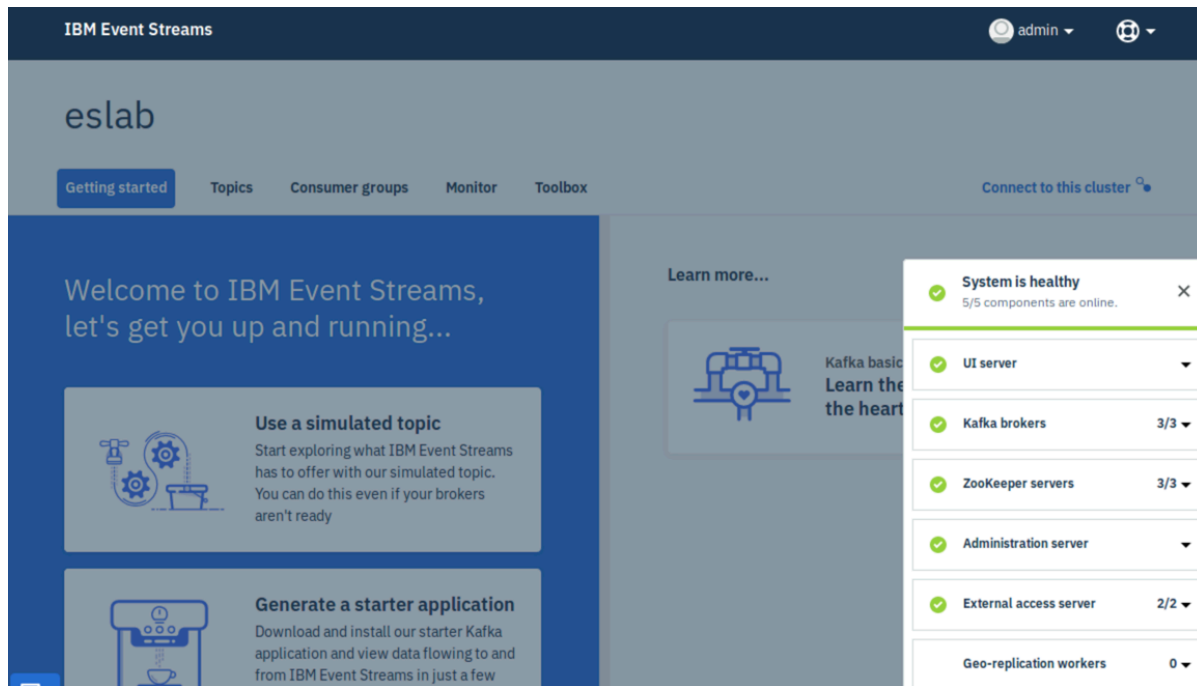
ConfigMap

NAME	DATA	AGE
<a href="#">eslab-ibm-es-replicator-cm</a>	1	30m
<a href="#">eslab-license-accept</a>	1	30m
<a href="#">eslab-ibm-es-metrics-cm</a>	1	30m

# Welcome page

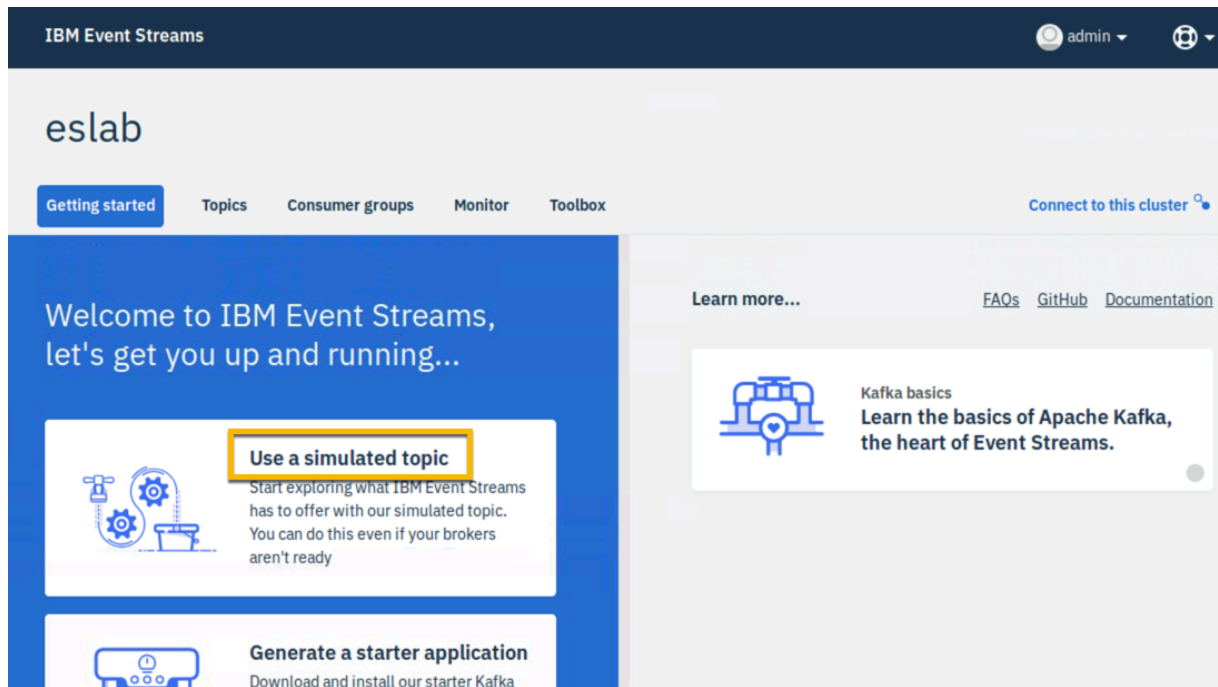
Event Streams status  
is displayed in the  
lower right corner

Click to expand the  
status bar



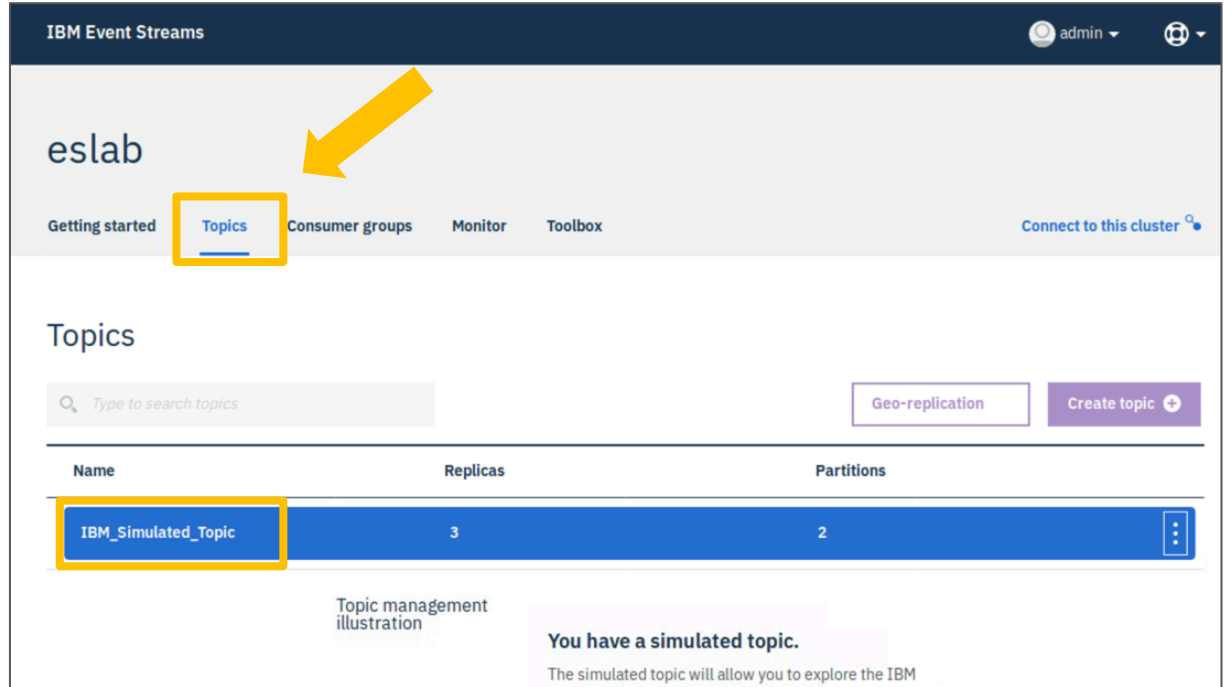
# Create a simulated topic

In the Event Streams console, click **Use a simulated topic**



# Viewing topics

Select the Topics tab



The screenshot shows the IBM Event Streams console interface. At the top, the header bar displays "IBM Event Streams" on the left and "admin" with a dropdown arrow on the right. Below the header, the "eslab" logo is on the left, and a navigation bar contains the following tabs: "Getting started", "Topics" (highlighted with a yellow box and a yellow arrow pointing to it), "Consumer groups", "Monitor", and "Toolbox". To the right of the navigation bar is a link "Connect to this cluster" with a small icon. Below the navigation bar, the main content area is titled "Topics". It features a search bar with the placeholder text "Type to search topics" and two buttons: "Geo-replication" and "Create topic +". Below these elements is a table with the following structure:

Name	Replicas	Partitions
IBM_Simulated_Topic	3	2

The "IBM\_Simulated\_Topic" row is highlighted with a yellow box. To the right of the table, there is a vertical ellipsis icon. Below the table, there is a text block that reads "Topic management illustration" and a pink callout box that says "You have a simulated topic. The simulated topic will allow you to explore the IBM".

# Topic details

On the Topics page, click a topic to view more details about it

The screenshot shows the 'IBM Event Streams' interface. At the top, the header 'IBM Event Streams' is visible along with a user profile 'admin'. Below the header, a blue banner states 'This is a simulated topic with generated data'. The main heading is 'IBM\_Simulated\_Topic'. There are two tabs: 'Messages' (selected) and 'Consumer groups'. A 'Connect to this topic' link is on the right. Below the tabs, a dropdown menu shows 'All partitions' and a status 'Showing 17 message(s) across all partitions'. A 'Find message' link is on the right. A notification box says 'This is a simulated topic'. Below this, a 'Show messages from date:' section includes a calendar for May 2019 with the 8th selected. To the right is a table with columns 'Kafka timestamp', 'Partition', and 'Offset'. The table contains four rows of simulated data. At the bottom right, a green checkmark indicates 'System is healthy'.

IBM Event Streams

This is a simulated topic with generated data

Topics

## IBM\_Simulated\_Topic

Messages Consumer groups Connect to this topic

All partitions Showing 17 message(s) across all partitions Find message

This is a simulated topic

Show messages from date:

5/8/2019

MAY 2019

Kafka timestamp	Partition	Offset
5/8/2019, 2:11:09 PM	0	0
5/8/2019, 2:11:09 PM	1	0
5/8/2019, 2:11:11 PM	0	1
5/8/2019, 2:11:13 PM	0	

System is healthy

# Creating a topic

On the Topics page,  
click **Create Topic**

Click **Advanced** to  
expand and review the  
configuration  
parameters that are  
available

Click **Next** to proceed  
through the remaining  
options, and then  
click **Create Topic**

The screenshot shows the 'Create topic' configuration page in the IBM Event Streams console. The page has a dark blue header with 'IBM Event Streams' and a light gray sidebar with a 'Topics' link. The main content area is titled 'Create topic' and features a progress indicator with four steps, the fourth of which is active. Below this is a toggle for 'Advanced' settings, which is currently turned off. The 'Replicas' section is expanded, showing three radio button options for replication factor and minimum in-sync replicas. The second option, 'Replication factor: 3' and 'Minimum in-sync replicas: 2', is selected. Below these are two dropdown menus for 'Replication factor' (set to 3) and 'Minimum in-sync replicas' (set to 2). A callout box explains that the replication factor is the number of copies made for high availability. At the bottom right, there are 'Back' and 'Create topic' buttons; the 'Create topic' button is highlighted with a yellow border and a yellow arrow points to it.

IBM Event Streams

← Topics

## Create topic

Advanced ☐

Replicas

☐ Replication factor: 1  
Minimum in-sync replicas: 1

☒ Replication factor: 3  
Minimum in-sync replicas: 2

Replication factor

☐ 3

Minimum in-sync replicas

2

This is how many copies of a topic will be made for high availability.  
The partitions of each topic can be replicated across a configurable number of brokers.

Back Create topic



# Connecting to a topic

On the topic page,  
click Connect to this  
topic

The address and port  
of the bootstrap server  
is displayed

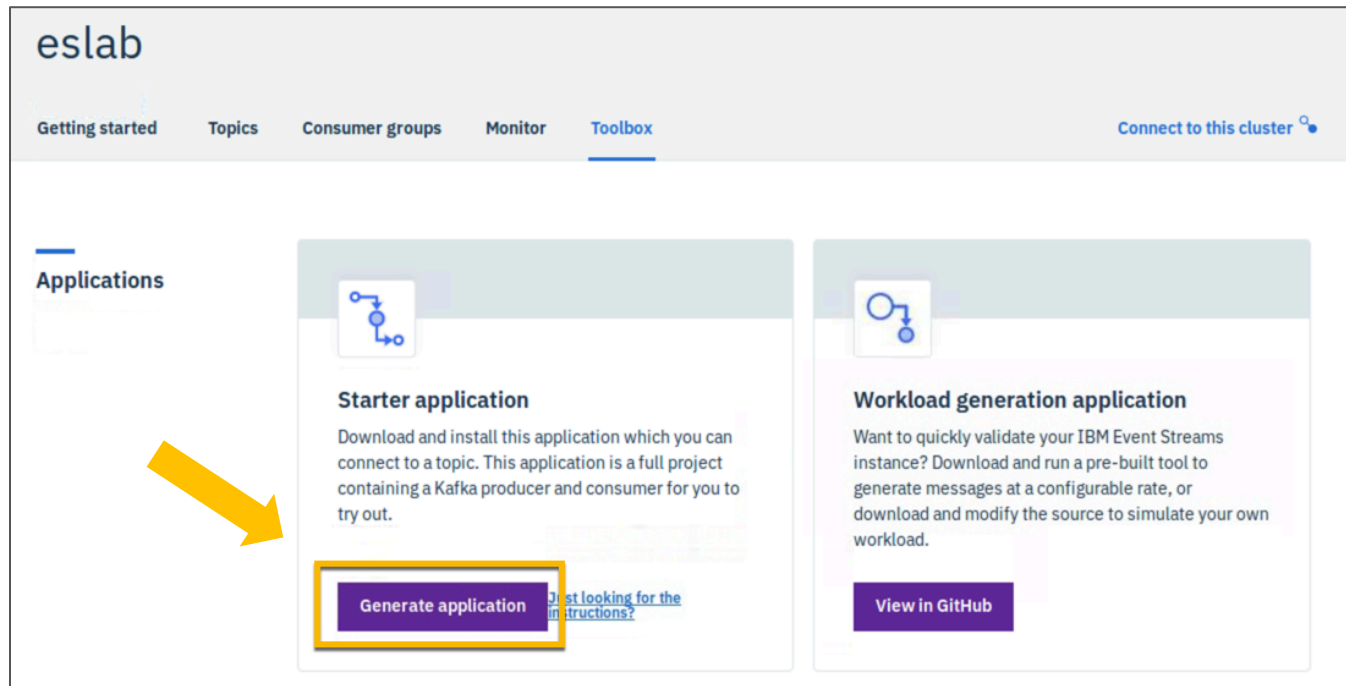
The screenshot shows the IBM Event Streams console interface. At the top, the header reads 'IBM Event Streams' with a user profile 'admin' and a settings icon. Below the header, the breadcrumb 'Topics' is visible. The main content area shows the topic 'eslab' with tabs for 'Messages' and 'Consumer groups'. A dropdown menu for 'All partitions' is open. On the right side, a yellow arrow points to a button labeled 'Connect to this topic' which is highlighted with a yellow box. A modal window titled 'Topic connection' is overlaid on the page. It contains three tabs: 'Connect a client' (selected), 'Sample code', and 'Geo-replication'. The modal text states: 'To connect an application or tool to this cluster, you will need address of a bootstrap server, a certificate and an API key.' Under the heading 'Bootstrap server', it says: 'Your application or tool will make its initial connection to the cluster using the bootstrap server.' Below this text, the bootstrap server address '10.0.0.5:32643' is displayed in a light blue box and is circled with a yellow oval. A copy icon is located to the right of the address.

# Working with the sample applications

# Using the starter application

Click the **Toolbox** tab

Click **Generate application**



The screenshot shows the 'eslab' web interface. At the top, there is a navigation bar with tabs: 'Getting started', 'Topics', 'Consumer groups', 'Monitor', and 'Toolbox'. The 'Toolbox' tab is selected and highlighted with a blue underline. To the right of the tabs is a link 'Connect to this cluster' with a small icon. Below the navigation bar, the main content area is titled 'Applications' on the left. There are two application cards. The first card is titled 'Starter application' and contains the text: 'Download and install this application which you can connect to a topic. This application is a full project containing a Kafka producer and consumer for you to try out.' Below this text is a purple button labeled 'Generate application'. A yellow arrow points from the left towards this button. To the right of the 'Generate application' button is a link 'Just looking for the instructions?'. The second card is titled 'Workload generation application' and contains the text: 'Want to quickly validate your IBM Event Streams instance? Download and run a pre-built tool to generate messages at a configurable rate, or download and modify the source to simulate your own workload.' Below this text is a purple button labeled 'View in GitHub'.

# Configuring the starter application

Enter an application name, and select a topic

Select the options to produce or consume message

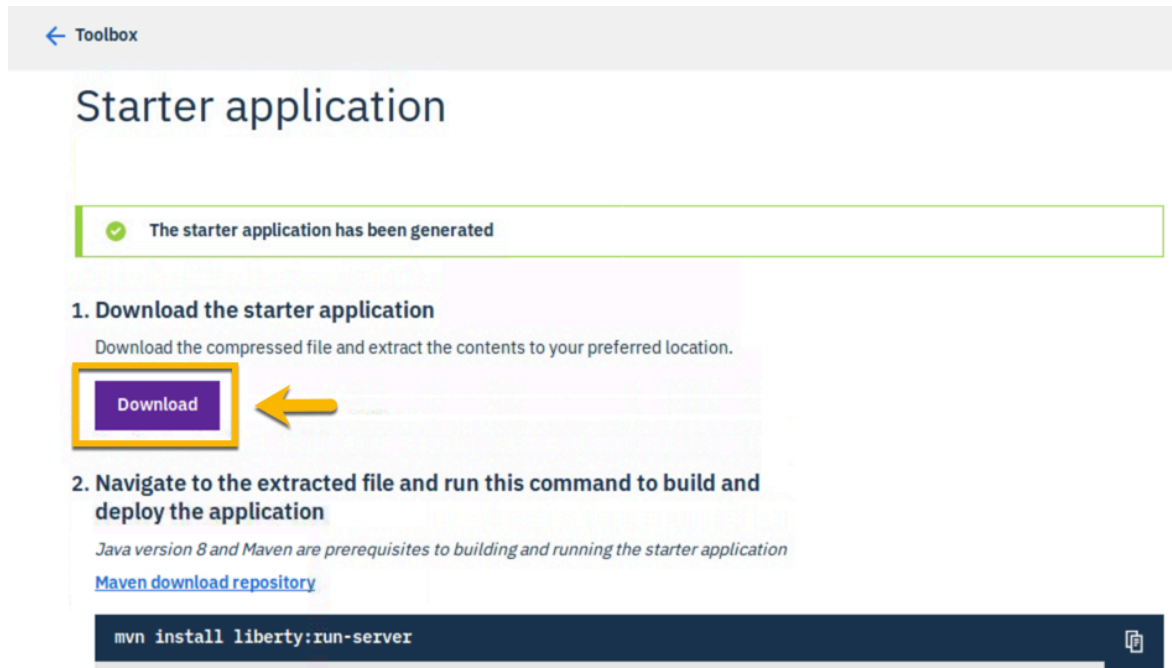
Click **Generate**

The screenshot shows the 'Toolbox' configuration window for a starter application. The 'Application name' field is set to 'eslabtester' and is highlighted with a yellow circle. Below it, the question 'What do you want this application to be able to do?' has two checked options: 'Produce messages' and 'Consume messages'. The next section, 'Which topic shall we connect with?', offers two choices: 'Create topic' (unselected) and 'Choose existing topic' (selected). The 'Choose existing topic' dropdown menu is set to 'eslab' and is also highlighted with a yellow circle. At the bottom right, the 'Generate' button is highlighted with a yellow box and a yellow arrow points to it. Other visible elements include a 'Cancel' button, a link 'Just looking for the instructions?', and a status indicator 'System is healthy' with a green checkmark.

# Downloading the application

After the starter application is generated, click **Download** and save the archive file

Extract and run the application (`mvn install`)



The screenshot shows the 'Starter application' page in the IBM Event Streams console. At the top, there is a 'Toolbox' header with a back arrow. Below it, the title 'Starter application' is displayed. A green success message box states 'The starter application has been generated'. The first step, '1. Download the starter application', includes the instruction 'Download the compressed file and extract the contents to your preferred location.' and a purple 'Download' button, which is highlighted with a yellow border and a yellow arrow. The second step, '2. Navigate to the extracted file and run this command to build and deploy the application', includes the text 'Java version 8 and Maven are prerequisites to building and running the starter application' and a link to the 'Maven download repository'. At the bottom, a dark blue terminal bar contains the command `mvn install liberty:run-server` and a copy icon.

← Toolbox

## Starter application

✓ The starter application has been generated

- 1. Download the starter application**  
Download the compressed file and extract the contents to your preferred location.  
**Download**
- 2. Navigate to the extracted file and run this command to build and deploy the application**  
Java version 8 and Maven are prerequisites to building and running the starter application  
[Maven download repository](#)

```
mvn install liberty:run-server
```

# Running the application

In a browser tab, enter the following URL:

[http://localhost:9080/<application\\_name>](http://localhost:9080/<application_name>)

Click the arrow to start producing messages

The screenshot displays the IBM Event Streams Starter Application interface. It is divided into two main panels: 'Producing Messages' on the left and 'Consuming Messages' on the right.

**Producing Messages Panel:**

- Header: **Starter Application**
- Section: **How does this work?** with a description: "We've created this starter application in order to give you a starting point to produce and consume messages to IBM Event Streams. Start the application and consumed messages appear."
- Counter: **00** messages have been produced, topic: eslab.
- Input: A text field for "Custom payload string (optional)" with a placeholder "Add custom payload (Hello World)".
- Action: A blue play button icon to start producing messages.
- Table: A section for "Most recent messages" which is currently empty, showing "No messages produced yet..".

**Consuming Messages Panel:**

- Counter: **00** messages have been consumed, topic: eslab.
- Table: A table with columns "Most recent messages", "Partition", and "Offset". It is currently empty, showing "No messages consumed yet..".

**Callouts:**

- A blue callout box with the text "Click to start producing messages" and a blue arrow pointing to the play button in the producing section.
- A blue callout box with the text "Consumer is listening for messages" and a blue arrow pointing to a yellow-bordered box containing a "Stop listening for messages" button in the consuming section.

# Running the application (cont.)

The producer begins producing messages, which are sent to the Topic

On the consumer side, the number of messages increments, while the message list becomes populated

The screenshot displays the IBM Event Streams Starter Application interface, which is split into two main panels. The left panel, titled 'Starter Application', includes a 'How does this work?' section explaining the application's purpose. It features a large '10' indicating 'messages have been produced' for the 'topic: eslab'. Below this is a 'Custom payload string (optional)' field containing 'Hello World!' and a 'Show 5 most recent message(s)' button. The right panel shows '10 messages have been consumed' for the same topic. It includes a 'Stop listening for messages' button and a table of the 10 most recent messages.

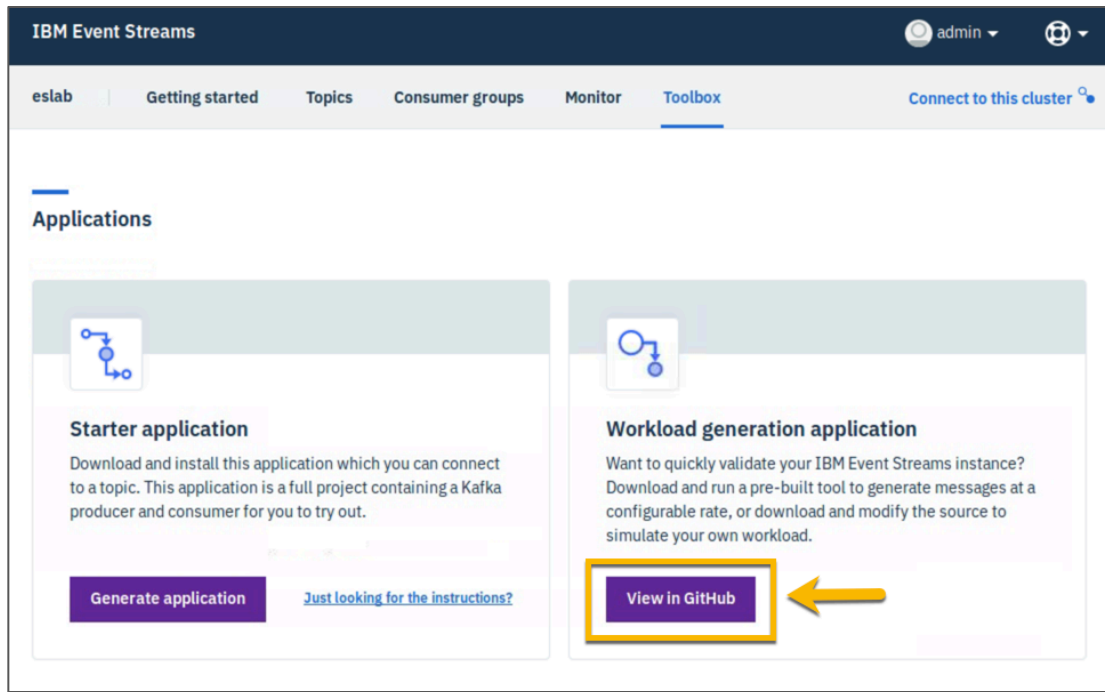
Showing 10 most recent message(s)	Partition	Offset
Message 10	0	9 Consumed at 4:50:25 PM
Message 9	0	8 Consumed at 4:50:23 PM
Message 8	0	7 Consumed at 4:50:21 PM

# Using the workload generator

There is another sample application that you can use to generate workloads of a specific size

You can use one of the predefined load sizes, or you can specify your own settings to test throughput

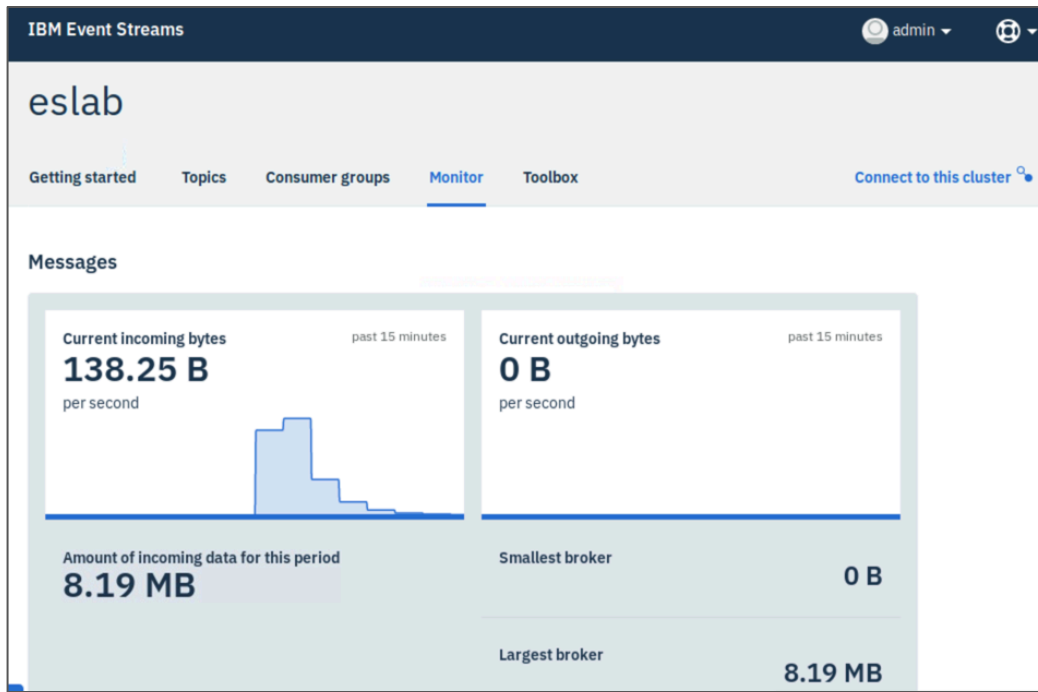
You download the application from GitHub





# Running an application with load

When you run the workload generator application, you can see some metrics for the load on the Monitor tab



# More resources

Installing IBM Event Streams

<https://ibm.github.io/event-streams/installing/installing/>

Generating a starter application

<https://ibm.github.io/event-streams/getting-started/generating-starter-app/>

Creating and testing message loads

<https://ibm.github.io/event-streams/getting-started/testing-loads/>



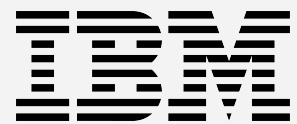
# Practice quiz (1 of 2)

1. What is one of the tasks you must do before installing IBM Event Streams?
  - a. Generate and download the starter application.
  - b. Make a backup of your IBM Cloud Private installation.
  - c. Create a topic that can be used for testing purposes.
  - d. Create a namespace that is dedicated to your Event Streams deployment.
2. Why do you need to create an image pull secret?
  - a. It enables access to the internal Docker repository.
  - b. It enables access to the IBM Cloud Private catalog.
  - c. It allows a specified user to log into IBM Cloud Private and Docker.
  - d. It enables access to the kubectl, the Kubernetes command-line interface.

# Practice quiz (2 of 2)

3. In the Event Streams console, where can you find the links to the sample applications?

- a. Topics tab
- b. Monitor tab
- c. Toolbox tab
- d. Messages tab



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