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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`)

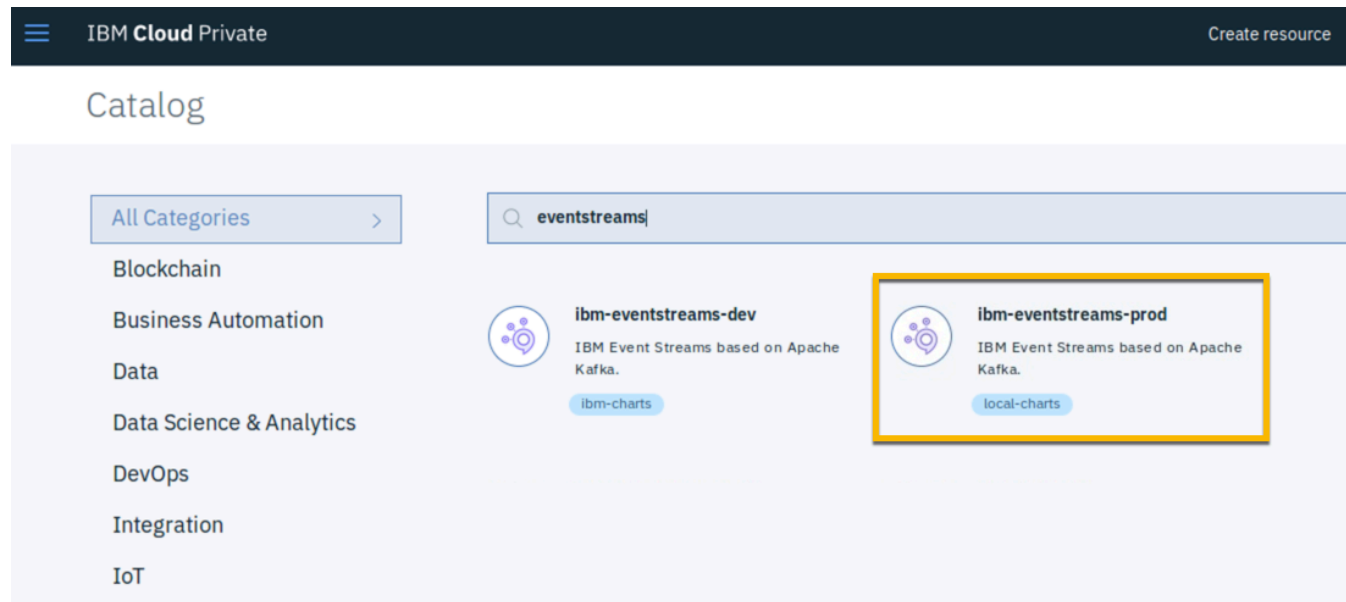


Image pull secret and image policy

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.

IBM Cloud Private

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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

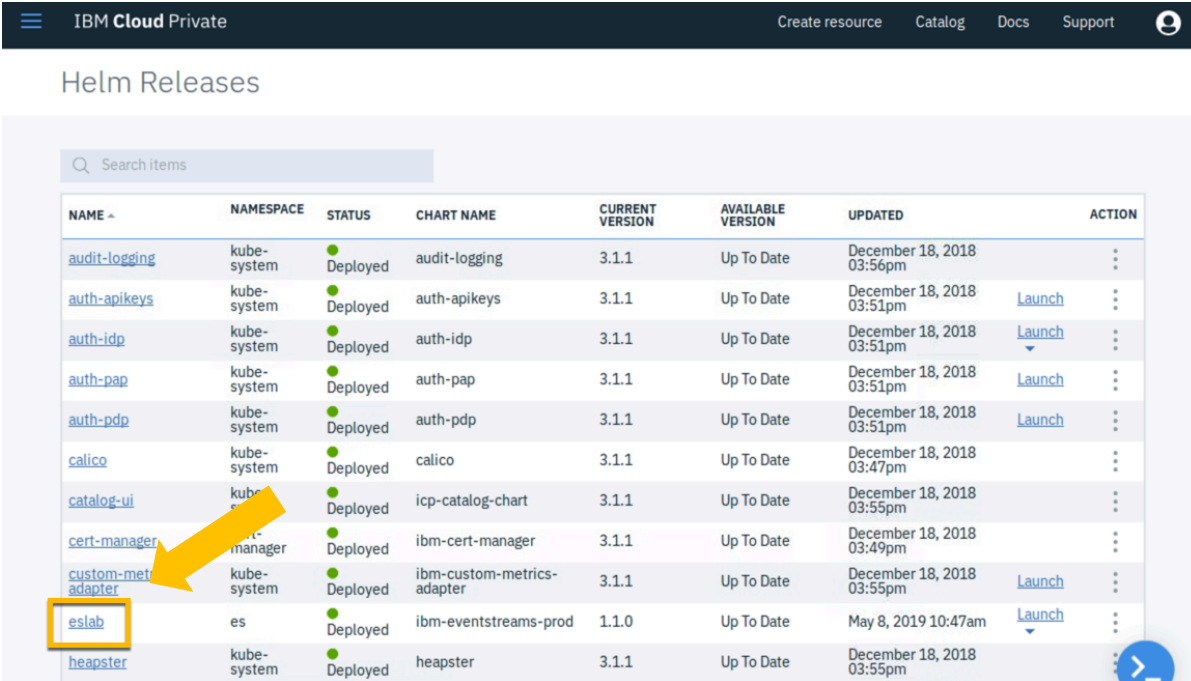
To install this chart, some additional configuration is recommended in Quick Start. If further customization is desired, view All parameters.

Cancel Install

Verifying the installation

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

Click the release name to see more details

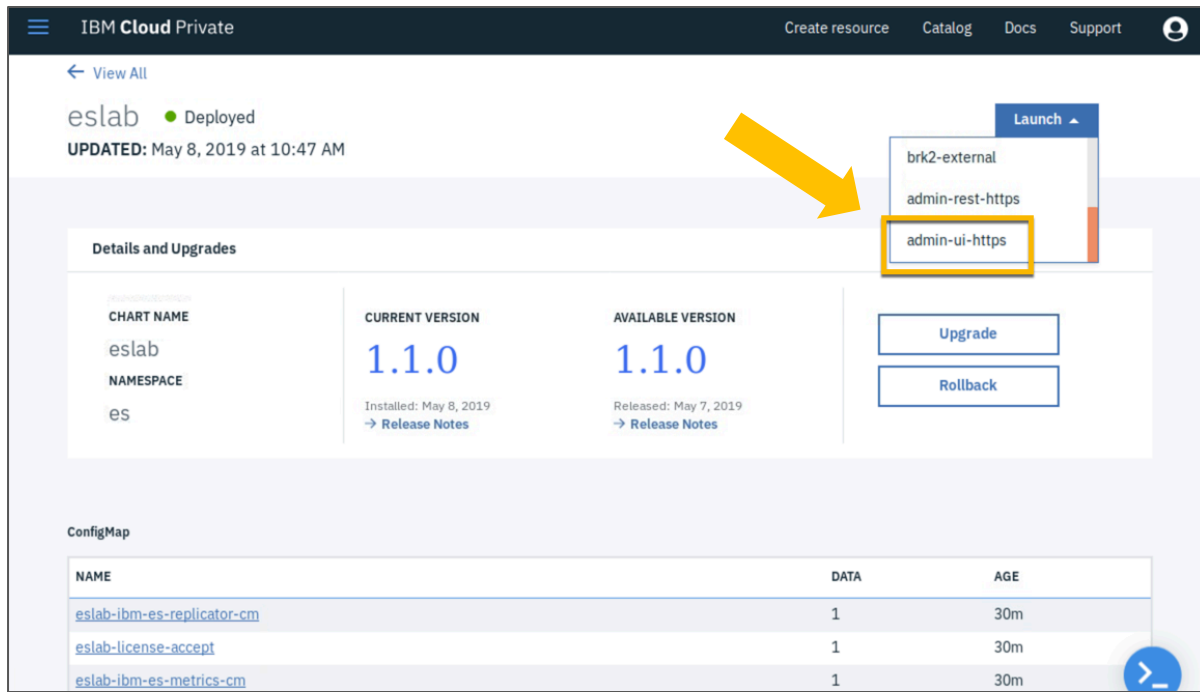


NAME ^	NAMESPACE	STATUS	CHART NAME	CURRENT VERSION	AVAILABLE VERSION	UPDATED	ACTION
audit-logging	kube-system	Deployed	audit-logging	3.1.1	Up To Date	December 18, 2018 03:56pm	⋮
auth-apikeys	kube-system	Deployed	auth-apikeys	3.1.1	Up To Date	December 18, 2018 03:51pm	Launch ⋮
auth-idp	kube-system	Deployed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



IBM Cloud Private

Create resource Catalog Docs Support

← 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 → Release Notes	Released: May 7, 2019 → Release Notes	Upgrade Rollback

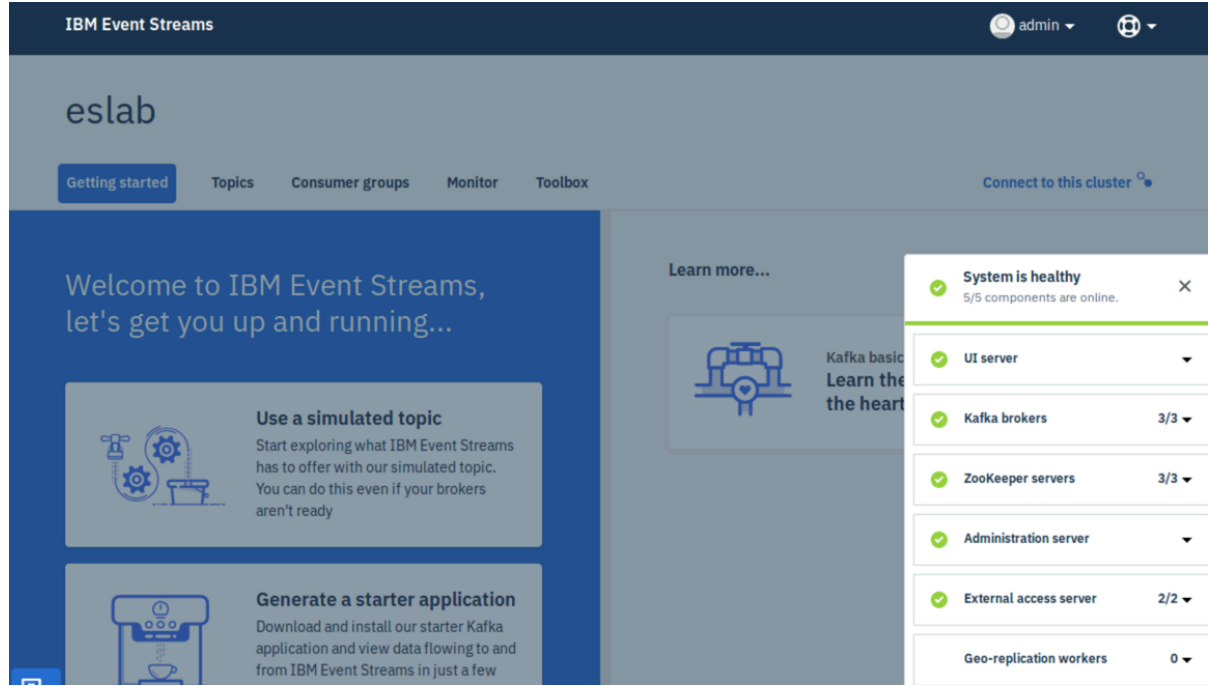
ConfigMap

NAME	DATA	AGE
eslab-ibm-es-replicator-cm	1	30m
eslab-license-accept	1	30m
eslab-ibm-es-metrics-cm	1	30m

Welcome page

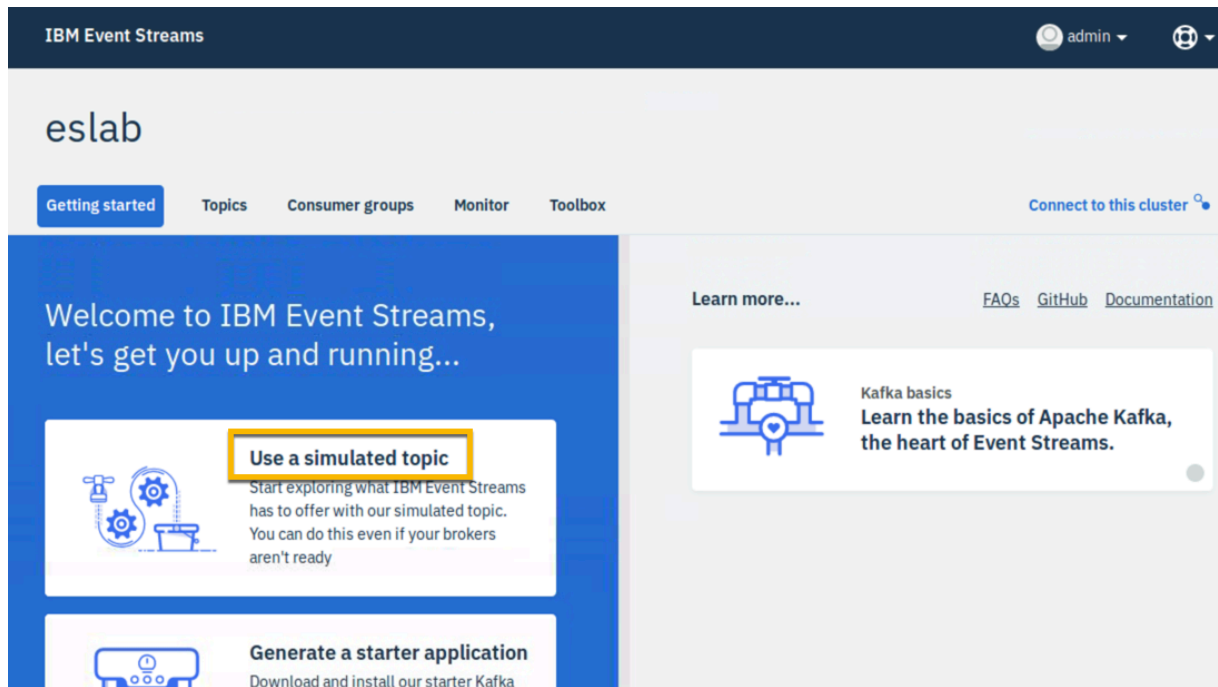
Event Streams status
is displayed in the
lower right corner

Click to expand the
status bar



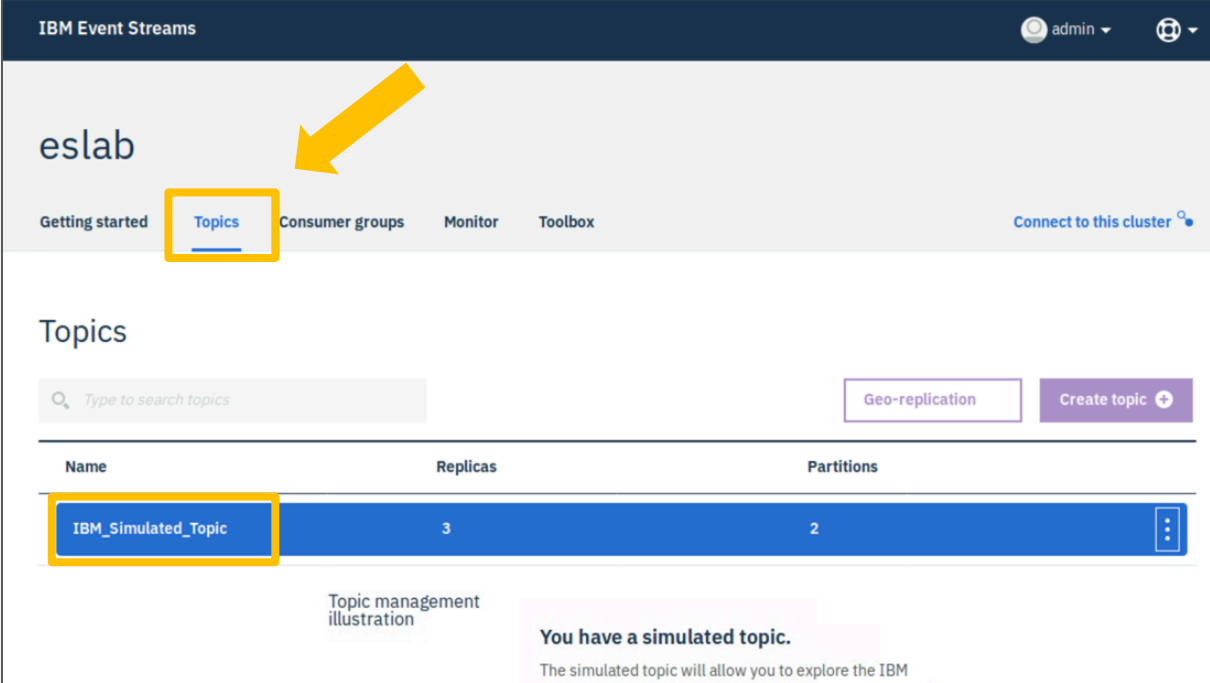
Create a simulated topic

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 user information "admin" and a profile icon on the right. Below the header, the "eslab" logo is on the left, and a navigation bar contains the following tabs: "Getting started", "Topics" (which is highlighted with a yellow box and a yellow arrow points to it), "Consumer groups", "Monitor", and "Toolbox". To the right of the navigation bar is a link that says "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". To the right of the search bar are two buttons: "Geo-replication" and "Create topic" with a plus icon. Below these elements is a table with three columns: "Name", "Replicas", and "Partitions". The table contains one row with the following data: "Name" is "IBM_Simulated_Topic", "Replicas" is "3", and "Partitions" is "2". The "Name" cell is highlighted with a yellow box. To the right of the table row is a vertical ellipsis menu 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".

IBM Event Streams

admin

eslab

Getting started **Topics** Consumer groups Monitor Toolbox

Connect to this cluster

Topics

Type to search topics

Geo-replication Create topic +

Name	Replicas	Partitions
IBM_Simulated_Topic	3	2

Topic management illustration

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 'Topics', followed by the specific topic name 'IBM_Simulated_Topic'. There are tabs for '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 at the top of the messages section says 'This is a simulated topic'. Below this, there is a 'Show messages from date:' section with a calendar for May 2019, where the 8th is selected. To the right of the calendar is a table of messages.

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	

At the bottom right of the table, there is a green checkmark icon and the text '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 on. The 'Replicas' section contains three radio button options: 'Replication factor: 1 Minimum in-sync replicas: 1', 'Replication factor: 3 Minimum in-sync replicas: 2' (which is selected), and 'Replication factor: 3 Minimum in-sync replicas: 2'. Below these are two dropdown menus for 'Replication factor' (set to 3) and 'Minimum in-sync replicas' (set to 2). A callout box on the right 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, with the 'Create topic' button highlighted by a yellow rectangle and an arrow pointing to it from the callout box.

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

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

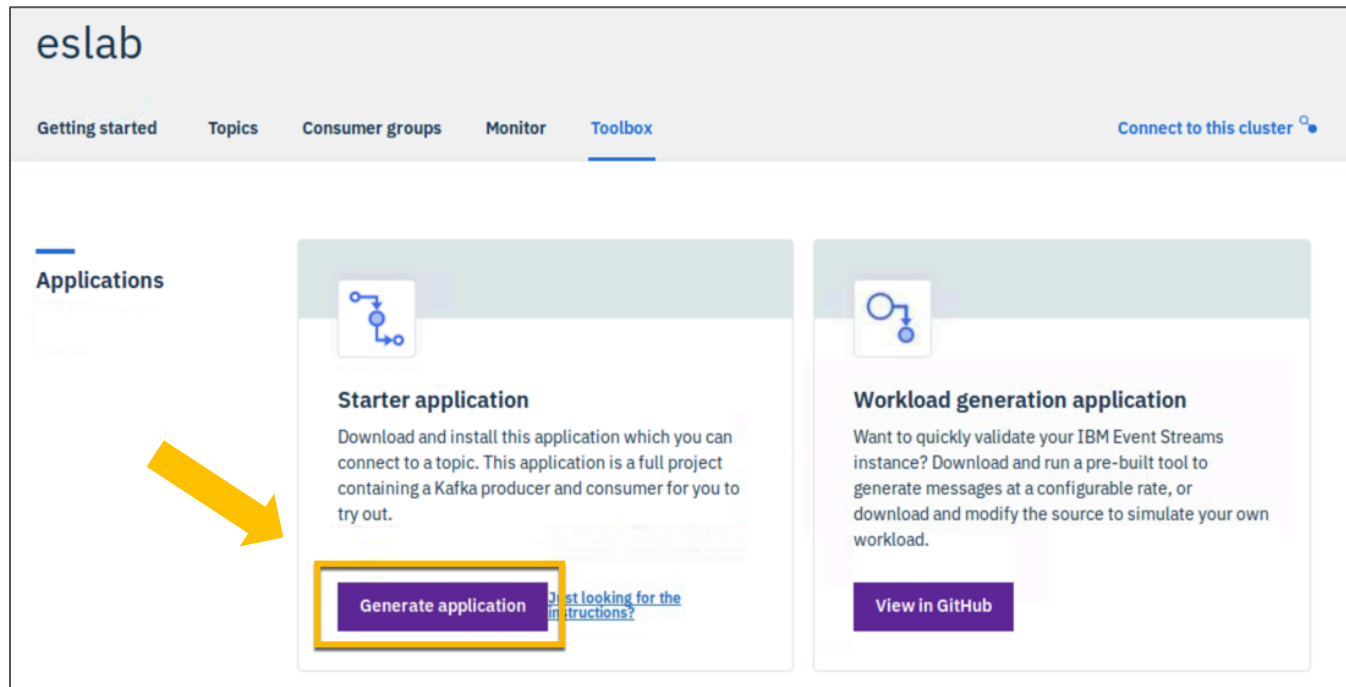
The screenshot shows the IBM Event Streams console interface. At the top, the header reads 'IBM Event Streams' with a user profile 'admin' and a settings icon. Below the header, the breadcrumb 'Topics' is visible. The main content area displays the topic name 'eslab'. There are tabs for 'Messages' and 'Consumer groups', with 'Messages' being the active tab. A dropdown menu shows 'All partitions'. On the right side, there is a button 'Connect to this topic' with a magnifying glass icon, which is highlighted by a yellow box and a yellow arrow. Below this button is a 'Find message' link. A modal window titled 'Topic connection' is open in the center. It has three tabs: 'Connect a client' (active), '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 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 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 a web-based configuration interface titled 'Toolbox'. It contains the following sections:

- Application name:** A text input field containing 'eslabtester', which is highlighted with a yellow circle.
- What do you want this application to be able to do?:** Two checkboxes are present: 'Produce messages' and 'Consume messages', both of which are checked.
- Which topic shall we connect with?:** This section includes a sub-header 'You can choose to create a new topic, or you can choose an existing topic to use in this application'. It has two radio button options: 'Create topic' (unselected) and 'Choose existing topic' (selected). The 'Choose existing topic' option is highlighted with a yellow circle. Below it, a dropdown menu shows 'eslab' as the selected topic, also highlighted with a yellow circle.
- Buttons:** At the bottom right, there are two buttons: 'Cancel' and 'Generate'. The 'Generate' button is highlighted with a yellow circle and has a yellow arrow pointing to it from the right.
- Footer:** At the bottom left is a blue icon of a speech bubble. At the bottom right, there is a green checkmark icon followed by the text 'System is healthy'.

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 'Toolbox'. At the top, a green message box states 'The starter application has been generated'. Below this, the first step is '1. Download the starter application', which includes the instruction 'Download the compressed file and extract the contents to your preferred location.' A yellow box highlights a purple 'Download' button, with a yellow arrow pointing to it from the right. The second step is '2. Navigate to the extracted file and run this command to build and deploy the application', which includes the prerequisite 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 displays the command `mvn install liberty:run-server`.

← 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>

Click the arrow to start producing messages

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

Producing Messages Section:

- Header: **Starter Application**
- Text: **How does this work?** 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 box labeled 'Custom payload string (optional)' with a placeholder 'Add custom payload (Hello World)'.
- Action: A blue play button icon to start producing messages.
- Table: A table titled 'Most recent messages' with a dropdown arrow. It currently shows 'No messages produced yet..'

Consuming Messages Section:

- Counter: **00** messages have been consumed. topic: eslab
- Table: A table titled 'Most recent messages' with columns 'Partition' and 'Offset'. It currently shows 'No messages consumed yet..'

Annotations:

- A blue box with the text 'Click to start producing messages' and a blue arrow pointing to the play button in the 'Producing Messages' section.
- A blue box with the text 'Consumer is listening for messages' and a blue arrow pointing to a blue square button labeled 'Stop listening for messages' in the 'Consuming Messages' section. This button is highlighted with a yellow border.

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 'Starter Application' interface for IBM Event Streams. It is divided into two main panels. The left panel, titled 'How does this work?', explains the application's purpose and shows that 10 messages have been produced to the 'eslab' topic. It includes a text input field for a 'Custom payload string (optional)' with the value 'Hello World!' and a 'Show 5 most recent message(s)' button. The right panel shows that 10 messages have been consumed from the 'eslab' topic. It features a 'Stop listening for messages' button and a table of the 10 most recent messages.

IBM Event Streams Starter Application

How does this work?
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 producer and see the consumed messages appear.

10
messages have been produced
topic: eslab

Custom payload string (optional)
Hello World!

Show 5 most recent message(s)

10
messages have been consumed
topic: eslab

Stop listening for messages

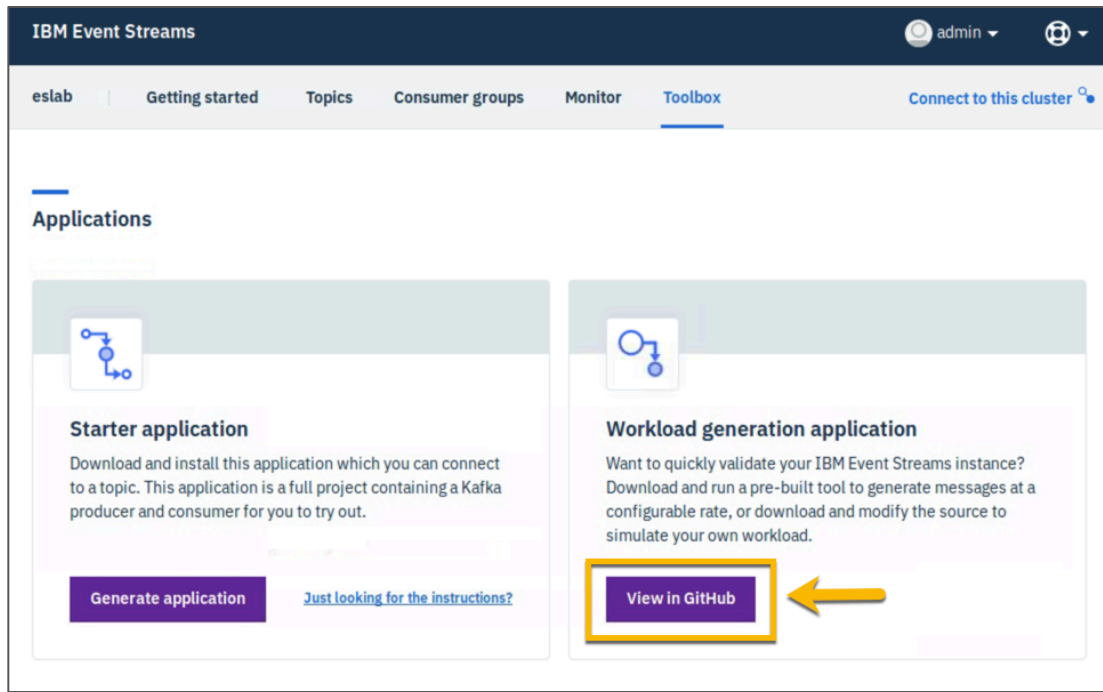
Showing 10 most recent message(s)	Partition	Offset
Message 10	0	9 Consumed at 4:50:25 PM
Message 9	0	8 Consumed at 4:50:23 PM
Message 8	0	7 Consumed at 4:50:21 PM

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

