# pubsubplus-connector-couchbase

## *User Guide*

Solace Corporation

Version 2.3.8

solace.

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# Preface

Solace Couchbase Connector * Getting Started * Resource Requirements for Self-Managed Micro-Integrations * Enabling Workflows == Configuring Micro Integration * Configuring the Datapath for Your Self-Managed Micro-Integration

# Management and Monitoring Micro Integration

Managing and Deploying Your Self-Managed Micro-Integration

# Configuration

- Configuring Self-Managed Micro-Integrations
- Workflow Configuration

include::../../../snippets/attributes/common.adoc

## Couchbase Source Configuration Options

These configuration options are all prefixed by `solace-persistence.`:

| Config Option | Type | Valid Values | Default Value | Description |
|---|---|---|---|---|
| `datasource.couchbase.dcpSeedNodes` | `map` | `<IP>:<PORT>` or `<DOMAIN>:<PORT>` | | couchbase connection seeds |
| `datasource.couchbase.couchbaseUsername` | `string` | | | couchbase connection username |
| `datasource.couchbase.couchbasePassword` | `string` | | | couchbase connection password |
| `datasource.couchbase.bucket` | `string` | | | couchbase connection bucket |
| `datasource.couchbase.bootstrapTimeout` | `int` | | `30` | couchbase connectTimeout, in seconds |
| `datasource.couchbase.persistencePollingInterval` | `int` | | `2` | couchbase rollback mitigation interval, in seconds |
| `datasource.couchbase.flowControlBufferInBytes` | `long` | | `2` | bytes of couchbase flow control buffer size |
| `datasource.couchbase.enable-tls` | `boolean` | `true or false` | `false` | boolean value of enable-tls |
| `datasource.couchbase.trustCertificatePath` | `string` | | | the path of couchbase TrustStore file, must be provided when enable-tls as true |
| `source.batchBufferSize` | `int` | | `100` | the batch buffer size of events send to solace |
| `source.pollingInterval` | `int` | | `2000` | the interval milliseconds of polling from couchbase |
| `source.bindings` | `map` | | | map of embedding configurations of bindings |

| Config Option | Type | Valid Values | Default Value | Description |
|---|---|---|---|---|
| source.bindings.<input-x>.scope | string | | | the scope polling from couchbase |
| source.bindings.<input-x>.collections | string | | | the collections polling from couchbase |
| source.bindings.<input-x>.topicPattern | string | | | customize topic by pattern, available pattern keys: BUCKET,DOCUMENT_ID,PARTITION,OFFSET_UUID,SEQ_NO,CAS,SCOPE,SCOPE_ID,COLLECTION,COLLECTION_ID |
| source.bindings.<input-x>.lvq | string | | | the lvq to hold offset status of polling |
| source.bindings.<input-x>.lvqTopic | string | | | the topic of lvq |
| source.bindings.<input-x>.couchbaseMetaData | embedding | | | embedding configuration of couchbase metadata usage |

These configuration options are all prefixed by solace-persistence.source.bindings.<input-x>.couchbaseMetaData:

| Config Option | Type | Valid Values | Default Value | Description |
|---|---|---|---|---|
| enabled | boolean | true or false | false | if true, couchbase metadata would be extracted to solace message |
| documentId | string | | | document id of couchbase document will be presented to specified json node of payload |
| metaIncorporateIn | string | header or payload | header | where to place the extracted metadata |
| customMeta | list | | | list of KV pairs of extracted metadata |
| customMeta.headerKeyName | string | | | header name |

| Config Option | Type | Valid Values | Default Value | Description |
|---|---|---|---|---|
| customMeta.headerKeyValue | string | | | metadata key of couchbase document, available meta key: qualifiedKey, key, cas, revision, tracingToken, timestamp, vbucket, isMutation,offset.seqno, offset.vbuuid, collection.id, collection.name, scope.id, scope.name |

# Couchbase Sink Configuration Options

These configuration options are all prefixed by solace-persistence.:

| Config Option | Type | Valid Values | Default Value | Description |
|---|---|---|---|---|
| datasource.couchbase.dcpSeedNodes | map | <IP>:<PORT> or <DOMAIN>:<PORT> | | couchbase connection seeds |
| datasource.couchbase.couchbaseUsername | string | | | couchbase connection username |
| datasource.couchbase.couchbasePassword | string | | | couchbase connection password |
| datasource.couchbase.bucket | string | | | couchbase connection bucket |
| datasource.couchbase.bootstrapTimeout | int | | 30 | couchbase connectTimeout, in seconds |
| datasource.couchbase.kvTimeout | int | | 30 | couchbase kvTimeout, in seconds |
| datasource.couchbase.numKvConnections | int | | 1 | couchbase kv connection number |
| datasource.couchbase.maxRetries | int | | 3 | couchbase maxRetries |
| datasource.couchbase.retryInterval | int | | 1000 | couchbase retryInterval, in milliseconds |
| datasource.couchbase.persistencePollingInterval | int | | 2 | couchbase rollback mitigation interval, in seconds |

| Config Option | Type | Valid Values | Default Value | Description |
|---|---|---|---|---|
| datasource.couchbase.flowControlBufferInBytes | long | | 2 | bytes of couchbase flow control buffer size |
| datasource.couchbase.enable-tls | boolean | true or false | false | boolean value of enable-tls |
| datasource.couchbase.trustCertificatePath | string | | | the path of couchbase TrustStore file, must be provided when enable-tls as true |
| datasource.couchbase.durabilityLevel | string | majority,majorityAndPersistActive,persistToMajority | NONE | couchbase durability level ,refer to Durability |
| sink.bindings | map | | | map of embedding configurations of bindings |
| sink.bindings.<output-x>.topic2Collection | string | <topic>:<scope>.<collection>,… | | mappings of solace topic and couchbase scope & collection relationship, bucket.scope.collection is also supported |
| sink.bindings.<output-x>.enableJsonSchemaValidation | boolean | true or false | false | whether to enable json schema validation |
| sink.bindings.<output-x>.upsert.topic | string | | | the topics for upsert to couchbase collection |
| sink.bindings.<output-x>.upsert.payloadNode | string | | | the json node prefix of payload, starts with / and begins from payload json root |
| sink.bindings.<output-x>.upsert.skipNullNode | boolean | true or false | false | if true, the json node null value which payloadNode sepcified will be skipped |
| sink.bindings.<output-x>.upsert.documentId | string | | | node of documentId in payload, starts with "/" |
| sink.bindings.<output-x>.upsert.documentIdPattern | string | | | expression of dynamic documentId, using json values with format ${} |
| sink.bindings.<output-x>.upsert.useOriginalDocumentId | boolean | true or false | true | if true, documentId or documentIdPattern should be configured, otherwise an uuid will be generated as document id |

| Config Option | Type | Valid Values | Default Value | Description |
|---|---|---|---|---|
| sink.bindings.<output-x>.upsert.removeDocumentId | boolean | true or false | true | when true, the node of documentId will not be presented in couchbase content |
| sink.bindings.<output-x>.upsert.removeBeforeNodeFromPayload | boolean | true or false | false | when true, the node of before will not be removed in couchbase content |
| sink.bindings.<output-x>.upsert.expireSeconds | int | | | couchbase content expire time, in seconds |
| sink.bindings.<output-x>.delete.topic | string | | | the topics for delete from couchbase collection |
| sink.bindings.<output-x>.delete.documentId | string | | | node of documentId in payload, starts with "/", document with specified documentId will be removed |
| sink.bindings.<output-x>.delete.documentIdPattern | string | | | expression of dynamic documentId, using json values with format ${}, document with specified documentId will be removed |

# More information

## Solace Pubsub Connector For Database Sink

### 1 Introduction

The Solace Pubsub+ Connector For Couchbase Source provides integration between PubSub+ event brokers/mesh and Couchbase, it helps to read the Couchbase Scope/collection data and make it available as an event in the Solace Event Mesh for enterprise applications to consume.

The Solace Pubsub+ Connector For Couchbase Sink will consume the event from Solace Broker/mesh and insert/update to the Couchbase Scope/collection.

The Solace Pubsub+ Connector For Couchbase is based on the new common architecture of the Solace Framework Connectors

#### 1.1 Pre-requisites

##### 1.1.1 Couchbase

- Couchbase cluster 7.2.3

##### 1.1.2 Java

- Solace Pubsub+ Connector For Couchbase required java runtime.
- Install jdk/jre 17.0.8.

##### 1.1.3 Maven

- Apache Maven 3.9+

### 2 Resource Requirement

Below given is the minimum viable production deployment resource numbers. Solution can be scaled horizontally with clustered mechanism and resources can be allocated accordingly.

- 4 Core CPU 4 GB.
- Solace 10 GB.

### 3 Broker detail

The Solace Broker manager address: `http://SolaceIP:8080/`.

In the application.yml file, it is configured to this Broker.

```
solace:
  java:
    host: tcp://SolaceIP:Port
```

```
    msgVpn: default
    clientUsername: username
    clientPassword: password
    connectRetries: -1
    reconnectRetries: -1
    apiProperties:
      pub_ack_window_size: 50
      pub_ack_time: 200
```

## 4 Couchbase Connection Detail

The Couchbase connection is configured as below in the application.yml

```
solace-persistence:
  datasource:
    couchbase:
      dcpSeedNodes:
        - IP:PORT
      username: username
      password: password
      bucket: bucket-name
      bootstrapTimeout: 30   #  seconds
      persistencePollingInterval: 2  #  seconds
      flowControlBufferInBytes: 10485760 # 10M
      enable-tls: true
      trustCertificatePath: path-to-tuststore-file
```

## 5 Scenarios

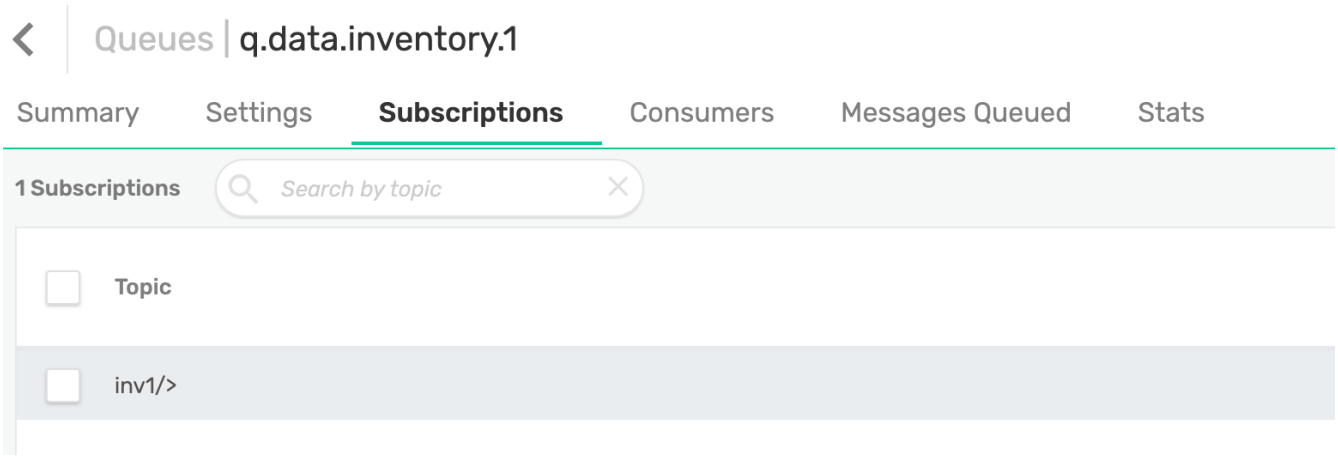
### 5.1 Couchbase to Solace Topic/Queue

- Couchbase connection, bucket, scope and collection.

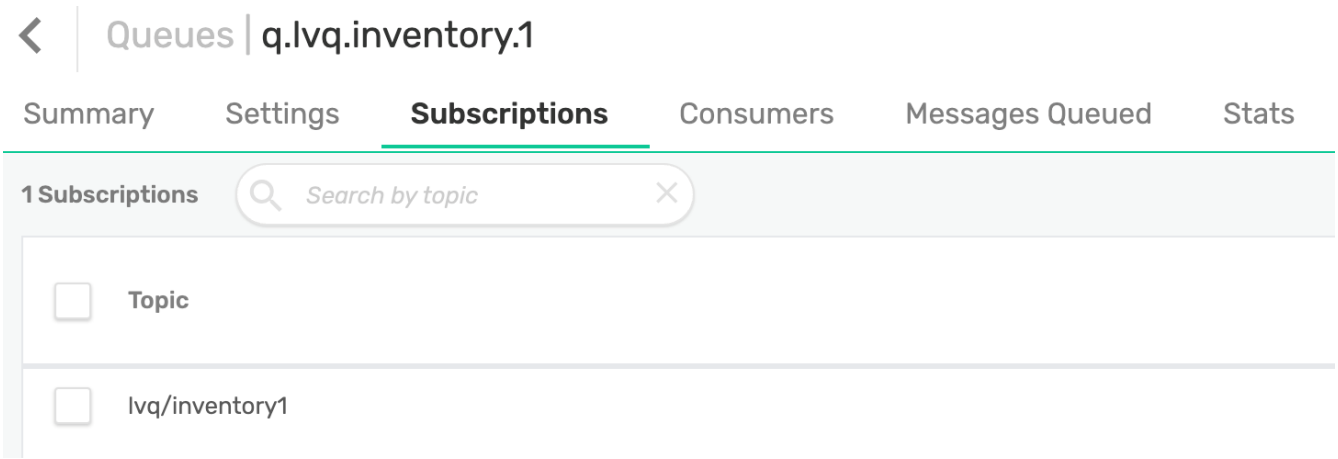
```
solace-persistence:
  datasource:
    couchbase:
      dcpSeedNodes:
        - IP:PORT
      username: username
      password: password
      bucket: bucket-name
      bootstrapTimeout: 30   #  seconds
      persistencePollingInterval: 2  #  seconds
      flowControlBufferInBytes: 10485760 # 10M
      enable-tls: true
      trustCertificatePath: path-to-tuststore-file
  source:
    bindings:
```

```
      input-0:  # workflow 0
        scope: scope
        collections: collections
```

- Queue name: q.data.inventory.1, it has subscription to topic inv1/>, the connector will read the couchbase data as payload and send to this topic/Queue.




- Queue name: q.lvq.inventory.1, it has subscription to topic lvq/inventory, the connector will send the offset data this topic/Queue.




- Please see the configuration of the data topic, LVQ topic and LVQ

```
    input-1:           #workflow 1
      scope: inventory
      collections: hotel
      couchbaseMetaData:
        enabled: true        #if ture, it will add metadata to the header or payload of the Solace message
        documentId: _id_     #add documentId in Payload, in the payloade it use _id_ as the element name
        metaIncorporateIn: payload # header or payload
        customMeta:
          # available meta key :
          # qualifiedKey, key, cas, revision, tracingToken, timestamp, vbucket, isMutation,
          # offset.seqno, offset.vbuuid, collection.id, collection.name,  scope.id, scope.name
          - headerKeyName: MESSAGE_HEADER_KEY
            headerKeyValue: key
          - headerKeyName: MESSAGE_HEADER_COLLECTION_NAME
            headerKeyValue: collection.name
          - headerKeyName: MESSAGE_HEADER_COLLECTION_ID
            headerKeyValue: collection.id
      topicPattern: inv1/{SCOPE}/{COLLECTION}/{BUCKET}/{DOCUMENT_ID}
      lvq: q.lvq.inventory.1
      lvqTopic: lvq/inventory1
```

- Metadata configuration see the details

```
    input-1:           #workflow 1
      scope: inventory
      collections: hotel
      couchbaseMetaData:
        enabled: true        #if ture, it will add metadata to the header or payload of the Solace message
        documentId: _id_     #add documentId in Payload, in the payloade it use _id_ as the element name
        metaIncorporateIn: payload # header or payload
        customMeta:
          # available meta key :
          # qualifiedKey, key, cas, revision, tracingToken, timestamp, vbucket, isMutation,
          # offset.seqno, offset.vbuuid, collection.id, collection.name,  scope.id, scope.name
          - headerKeyName: MESSAGE_HEADER_KEY
            headerKeyValue: key
          - headerKeyName: MESSAGE_HEADER_COLLECTION_NAME
            headerKeyValue: collection.name
          - headerKeyName: MESSAGE_HEADER_COLLECTION_ID
            headerKeyValue: collection.id
      topicPattern: inv1/{SCOPE}/{COLLECTION}/{BUCKET}/{DOCUMENT_ID}
      lvq: q.lvq.inventory.1
      lvqTopic: lvq/inventory1
```

- In this configuration, workflow 0 is disabled and it will not work, workflow 1 is enabled and will read data from Couchbase bucket/inventory/collection

```
solace:
  connector:
    workflows:  # Workflow configuration
      0:
        enabled: false  # If true, the workflow is enabled.
      1:
        enabled: true  # If true, the workflow is enabled.
```

### 5.2 Solace Queue to Couchbase

- The Source Data queue is q.data.inventory.1, see the sample configuration of Solace Queue.

```
    stream:
      bindings:  # Workflow bindings
        input-0:
          destination: q.data.inventory.1   # Queue name
          binder: solace
          consumer:
            concurrency: 1
            batchMode: true
        output-0:
          destination: scope.collection  # SolaceCouchbaseConnector producer destination
          binder: solace-couchbase
```

- The Couchbase configuration, see the sample configuration.

```
solace-persistence:
  datasource:
    couchbase:
      dcpSeedNodes:
        - IP:PORT
      username: username
      password: password
      bucket: bucket-name
      bootstrapTimeout: 30   #  seconds
      persistencePollingInterval: 2  #  seconds
      flowControlBufferInBytes: 10485760 # 10M
      enable-tls: true
      trustCertificatePath: path-to-tuststore-file
  sink:
    topic2Collection: topic1:tenant_agent_00.bookings,
    bindings:
      output-0:
        payloadNode:
        documentId: /_id_
        removeDocumentId: true
        expireSeconds: 30
```

Configure the topic to scope/collection mapping, it read all the data with topic name start with inv1 to the tenant_agent_00.bookings1

`documentId` is set to `/_id_`, the connector will use the element `_id_` of the payload as the documentId in Couchbase collection. `removeDocumentId: ture`, it will remove it from the payload in the collection.

- configure the workflows and enable it

```
46  solace:
47    connector:
48      workflows:  # Workflow configuration
49        0:
50          enabled: false  # If true, the workflow is enabled.
51        1:
52          enabled: true  # If true, the workflow is enabled.
```

# 6 Run Connector

### 6.1Solace Connector for Couchbase Source

```
java -cp ./target/pubsubplus-connector-couchbase-1.0.0-SNAPSHOT.jar
org.springframework.boot.loader.PropertiesLauncher --spring.config.additional-
location=./src/main/resources/couchbase-source/
```

### 6.2 Solace Connector for Couchbase Sink

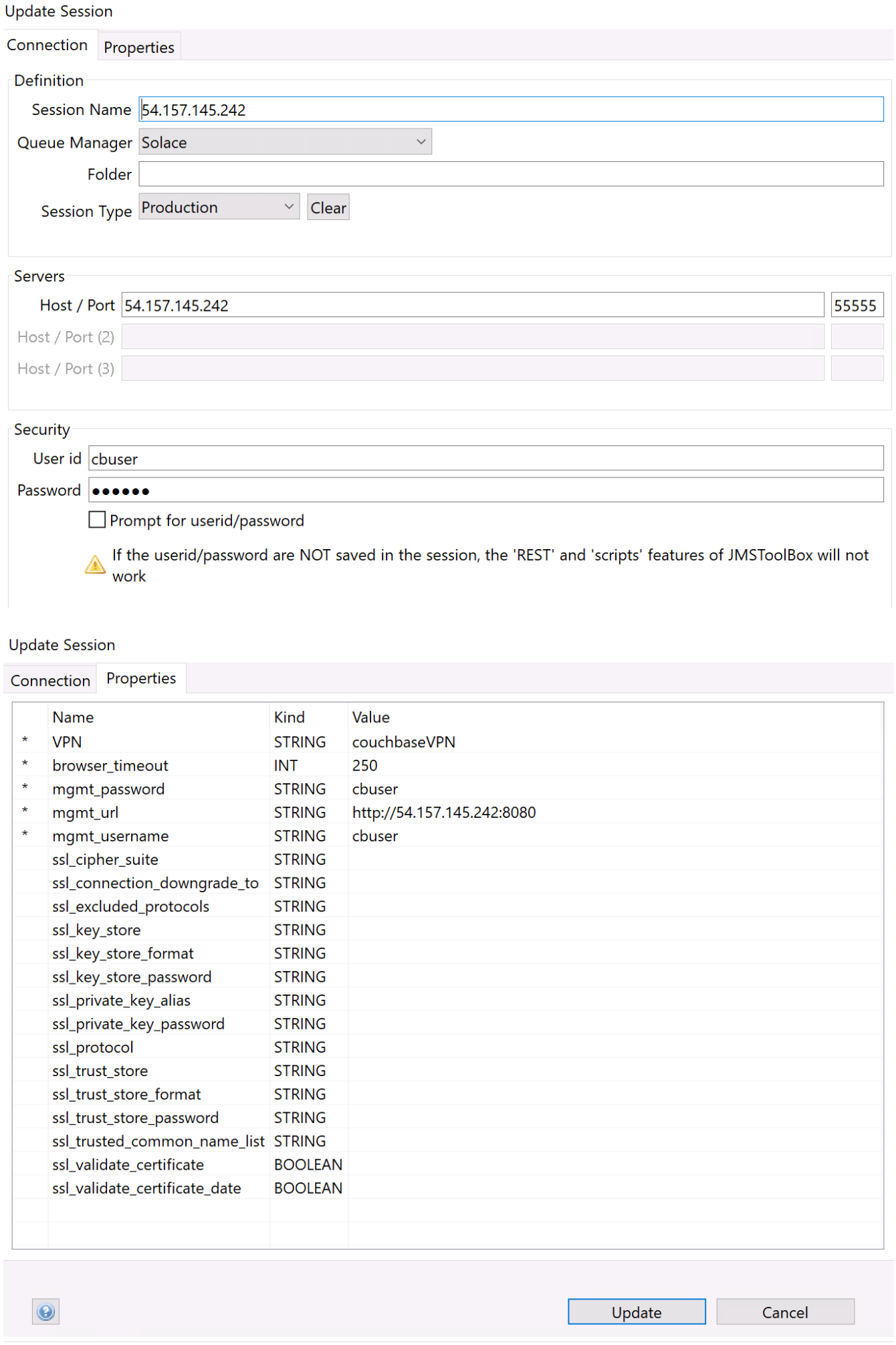
```
java -cp ./target/pubsubplus-connector-couchbase-1.0.0-SNAPSHOT.jar
org.springframework.boot.loader.PropertiesLauncher --spring.config.additional-
location=./src/main/resources/couchbase-sink/
```

# 7 Tools

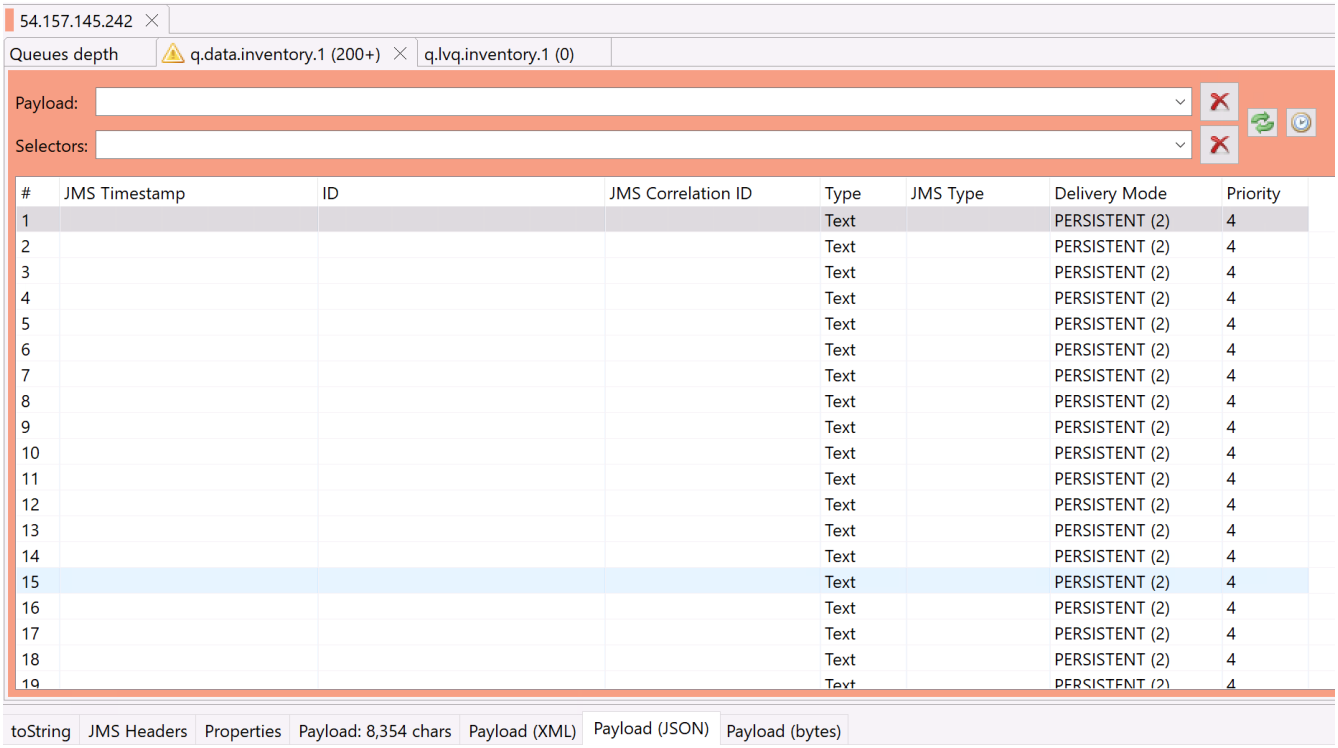
### 7.1 JMSToolbox

JMSToolBox is a JMS client based on the Eclipse platform, it is a Free Open Source Software (FOSS).

You can add a session to Solace:


Update Session
Connection
Properties
Definition
Session Name
54.157.145.242
Queue Manager
Solace
Folder
Session Type
Production
Clear
Servers
Host / Port
54.157.145.242
55555
Host / Port (2)
Host / Port (3)
Security
User id
cbuser
Password
Prompt for userid/password
If the userid/password are NOT saved in the session, the 'REST' and 'scripts' features of JMSToolBox will not work
Update Session
Connection
Properties
Name
Kind
Value
VPN
STRING
couchbaseVPN
browser_timeout
INT
250
mgmt_password
STRING
cbuser
mgmt_url
STRING
http://54.157.145.242:8080
mgmt_username
STRING
cbuser
ssl_cipher_suite
STRING
ssl_connection_downgrade_to
STRING
ssl_excluded_protocols
STRING
ssl_key_store
STRING
ssl_key_store_format
STRING
ssl_key_store_password
STRING
ssl_private_key_alias
STRING
ssl_private_key_password
STRING
ssl_protocol
STRING
ssl_trust_store
STRING
ssl_trust_store_format
STRING
ssl_trust_store_password
STRING
ssl_trusted_common_name_list
STRING
ssl_validate_certificate
BOOLEAN
ssl_validate_certificate_date
BOOLEAN
Update
Cancel

Browse the queue message information using jmstoolbox.





```
{
   "metadata":{
      "MESSAGE_HEADER_KEY":"hotel_16447",
      "MESSAGE_HEADER_COLLECTION_NAME":"hotel",
      "MESSAGE_HEADER_COLLECTION_ID":"20"
   },
   "payload":{
      "country":"United Kingdom",
      "free_parking":true,
      "city":"London",
      "description":"4 Star hotel near Kensington High Street with 906 rooms offering the usual Holiday Inn services",
      "_id_":"hotel_16447",
      "title":"London/South Kensington-Chelsea",
      "type":"hotel",
      "geo":{
         "lat":51.4942,
```


Please check the details in https://github.com/jmstoolbox/jmstoolbox

### 7.2 SDKperf

Another option for browsing queues in Solace, if you want something really basic (i.e. command-line text dump) is to use the SdkPerf test tool, which you download in different flavours from our solace.com/downloads page.

Run it like so (C for Linux example given, but Java/JMS/C# similar):

This makes the messages appear every 5 seconds. Just delete this if you want thing to scroll quickly.

```
./sdkperf_c -cip= 54.157.145.242 -cu=cbuser@couchabseVPN -cp=cbuser -sql=
q.data.inventory.1  -qb -md
```

```
-cip = broker hostname/IP address
-cu = client-username @ message-vpn (optional, will be default@default if omitted)
```

```
-cp = password (optional)
-sql = which queue to subscribe/connect to
-qb = enable queue browsing (rather than consuming!)
-md = message dump to console
-sd = subscriber delay, per message (optional).
```



be very careful to ensure you have the -qb option enabled, otherwise your SdkPerf instance will consume the messages, rather than browsing them. Which means they get removed from the queue. As always, the SdkPerf command line options -h (help) and -hm (help more) are very useful.

# License

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