

Doing Push Integration Anywhere with the Force.com Streaming API



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Overview



Key concepts in the Streaming API

The Bayeux protocol and CometD

Comparing Outbound Messaging with the Streaming API

Authenticating Streaming API users

What are PushTopics?

Creating Streaming clients

All about Generic Streaming

Streaming API limits

Summary



Streaming API

Receive a live stream of data changes based on an SOQL query that you define.



Key Concepts in the Streaming API

“Topics” based on SOQL queries

Client(s) subscribe to “topics”

Poll, not push

No guaranteed delivery,
ordering



When Do You Use It?



Replace custom polling-based solutions

Build event-driven systems behind the corporate firewall

Scale data events to multiple recipients

Bayeux Protocol and CometD

Bayeux is a protocol for async messaging
CometD is event bus, implementing Bayeux
Uses long polling, WebSockets in 3.0
Salesforce uses CometD 2.0
Implements: connect, disconnect,
handshake, subscribe, unsubscribe



How Does It Differ from Outbound Messaging?

Outbound Messaging

Push-based

One subscriber

XML payloads

Based on record, field changes

Retry on failure

Streaming API

Looks like push, actually polling-based

Many subscribers

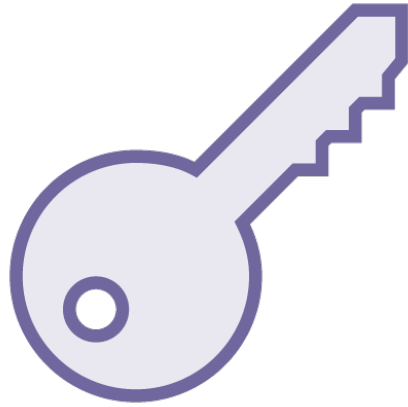
JSON payloads

Based on SOQL query

No retries*



Authenticating Streaming API Users



Can use SOAP session
ID



Can use OAuth token



User, object, field
security applies

What Are PushTopics? – About

**Record relates to CometD
channel**

**Notifications generated on
record match**

**Developer controls record
match criteria**

**Can deactivate or delete
PushTopics**



What Are PushTopics? – Writing Queries

One entity per query

Fields specified make up body of notification

Changes take effect immediately

Support for standard and custom objects

Basic subset of SOQL available



What Are PushTopics? – Notification Rules

**NotifyFor
OperationCreate**

**NotifyFor
OperationDelete**

**NotifyFor
OperationUndelete**

**NotifyFor
OperationUpdate**

NotifyForFields



```
PushTopic pushTopic = new PushTopic();
```

Create PushTopic

```
pushTopic.Name = 'NewDonations';
```

```
pushTopic.Query = 'SELECT Id, Name, Amount__c,  
Donation_Date__c FROM Voter_Donation__c';
```

Add query

```
pushTopic.ApiVersion = 35.0;
```

```
pushTopic.NotifyForOperationCreate = true;
```

```
pushTopic.NotifyForOperationUpdate = true;
```

```
pushTopic.NotifyForOperationUndelete = true;
```

```
pushTopic.NotifyForOperationDelete = true;
```

Set “notify for” parameters

```
pushTopic.NotifyForFields = 'Referenced';
```

```
insert pushTopic;
```

Insert



Demo



Create PushTopic object

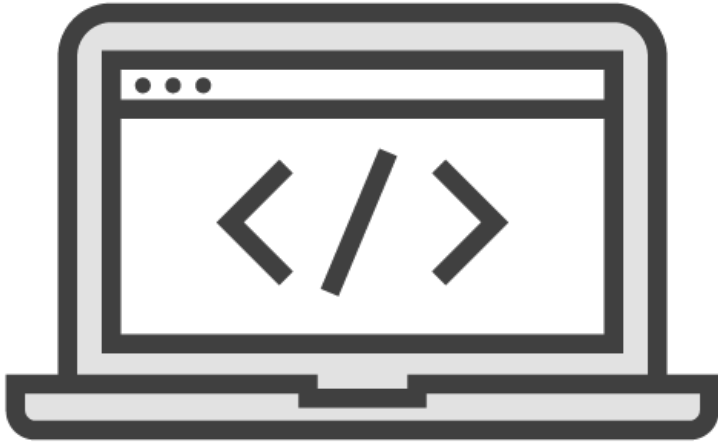
Set to NotifyForOperationUpdate

Set to listen on Referenced fields

Subscribe in Workbench



Creating Streaming Clients



Find client libraries

Connect to channel

Handle subscription messages

Consider timeout recovery options

Demo



Review Donation Streaming app

Update user credentials

Set client subscription

Test client with Force.com data changes



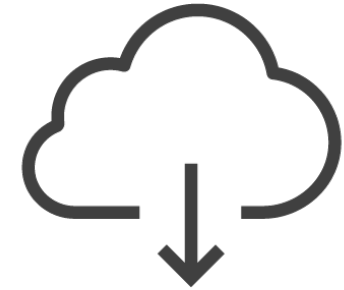
All About Generic Streaming



Send notifications on
general events



Send events through
REST endpoint



Can target subset of
subscribers



Demo



Create Generic Streaming channel

Define subscriber in client app

Send messages to REST endpoint

Observe output



Streaming API Limits

50
1,000
200K
10K

Topics per organization

Subscribers per topic

Maximum events per day

Maximum generic streaming events per day



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