Lab C - Exercise 1: Implement Durable Subscriptions

Overview

In this exercise you create processes to publish and subscribe to topic messages using static and dynamic durable subscriptions. You also explore the administration aspect of durable subscription.

Steps

1. Define processes for a publisher, non-durable subscriber and durable subscriber.

- In the *EMS206Project/**Processes*** folder, create the following folder
  - ◆ **LabC**
- Add the following three processes to LabC
  - ◆ **Publisher**
  - ◆ **Non-durableSubscriber**
  - ◆ **DurableSubscribe**r

2. Configure the publisher.

- Add a **JMSSendMessage** activity and configure it:
  - ◆ Name: **JMSTopicPublisher**
  - ◆ Messaging Style: **Topic** (from dropdown)
  - ◆ JMS Connection: Browse and select **EMS206project.JMSConn**
  - ◆ Destination: **topic.sample**
- Add a **Log** activity and a **Timer** activity
- Add transitions:
  - ◆ **Timer** to **JMSTopicPublisher**
  - ◆ **JMSTopicPublisher** to **Log**
- Configure mappings
  - ◆ For **JMSTopicPublisher** activity, select *Properties* > ***Input***
    - – Activity Input > Body: **"Test Message to publish"**
  - ◆ **Log** activity
    - – message: $**JMSTopicPublisher/ns:MessageID**
- **Save** the project

3. Configure a non-durable subcriber.

- Select the process diagram for the *Non-durableSubscriber* process
  - ◆ Add a **JMReceiveMessage** activity

- – Name: **JMSTopicSubscriber**
  - ◆ Add a **Log** activity and add the following transition:
    - – **JMSTopicSubscriber** to **Log**
- ■ Select **JMSTopicSubscriber**, *Properties > General* tab:
  - ◆ Messaging Style: **Topic**
  - ◆ JMS Connection: Browse for **EMS206project.JMSConn** resource
  - ◆ Destination Topic: **topic.sample**
  - ◆ **Save**
- ■ Select **Log**, *Properties > Input* tab:
  - ◆ From the available *Data Source* on the left, select the element **$JMSTopicSubscriber/Body**
  - ◆ Drag it to the *Activity Input* element **ActivityInput/message** (on the right)
- ■ **Save**

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4. Create a connection resource with a fixed Client ID.

- ■ In Project Explorer, navigate to *EMS206Project > Resources > **EMS206project***
  - ◆ Create a copy of **JMSConn** resource
    - – Name: **JMSConnWithClientID**
- ■ Double-click the **JMSConnWithClientID** resource
  - ◆ Scroll down to Advance Configuration
    - – Auto-generate Client ID: <u>unchecked</u>
    - – ClientID: **myClientID**
  - ◆ **Save**

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5. Configure a durable subcriber.

- ■ Select the process diagram for the *DurableSubscriber* process
  - ◆ Add a **JMSReceiveMessage** activity
    - – Name: **JMSTopicSubscriber**
  - ◆ Add a **Log** activity and add the following transition:
    - – **JMSTopicSubscriber** to **Log**
- ■ Select **JMSTopicSubscriber**, *Properties > General* tab:
  - ◆ Messaging Style: **Topic**
  - ◆ JMS Connection: Browse for **EMS206project.JMSConnWithClientID** resource
  - ◆ Destination Topic: **topic.sample**
  - ◆ Durable Subscription: <u>checked</u>
  - ◆ Subscription Name: **USERXX**
- ■ Select **Log**, *Input* tab:
  - ◆ From the available *Data Source* on the left, select the element **$JMSTopicSubscriber/Body**
  - ◆ Drag it to the *ActivityInput*/***message*** (on the right)
- ■ **Save**

6. Verify that there is no durable subscriptions defined at the moment.

- From the TIBCO EMS Administration Tool execute the following command:
  show durables
  ◆ Verify that there is no durables found

7. Run your publisher and monitor subscriptions using TIBCO EMS Administration Tool.

- Run the *Publisher* process only
  ◆ Configure the Components list to have only *Publisher* in it
  ◆ Launch the debugger
    – Verify that the message was published
- From the TIBCO EMS Administration tool, issue the command
  show topic topic.sample
  ◆ Observe that there are no pending messages and no subscriptions on the topic
- Run both subscribers
  ◆ Reconfigure the Components list:
    – Remove *Publisher*
    – Add *Non-durable Subscriber* and *DurableSubscriber*
  ◆ Launch the debugger
    – Both processes are waiting but do not receive the message

Note: Running the durable subscriber creates a dynamic durable subscription if there is no static durable with the same name.

    – **<u>Do not terminate</u>** the debugger
- From the Administration Tool, issue the command: **show topic topic.sample**
    – Verify that there are now two active consumers and one durable subscription

```
Subscriptions:          2
Durable Subscriptions: 1
Consumers:              2
Durable Consumers:      1
Pending Msgs:           0, (0 persistent)
```

  ◆ View all durable subscriptions by using the command: **show durables**
    – The fully qualified subscription name is constructed from the ClientID and the Subscription Name

```
tcp://localhost:7222> show durables
   Topic Name        Durable            Shared   User        Msgs    Size
* topic.sample      myClientID:USERXX   N        anonymous      0    0.0 Kb
```

Tip: The asterisk indicates that this is a dynamic durable subscription.

8. Test the dynamic durable subscription.

- Terminate the debugger
- Configure the Components list with *Publisher* as the only process

- Relaunch the debugger
  - This publishes a new message on **topic.sample**
- Configure the Components list with
  - *Durable Subscriber*
  - *Non-durableSubscriber*
- Relaunch the debugger
  - Notice that only *Durable Subscriber* receives the message published while it was inactive
- Terminate the debugger
- View the details of the dynamic durable subscription:
  - From the Administration Tool, issue the command **show durables**
    - Notice that the durable subscription is still shown
  - Using the File Browser navigate to the directory
    `/opt/tibco/soa/config/tibco/cfgmgmt/ems/`**data**
  - Open the file **durables.conf** with gedit
    - Notice that there is no durable subscription configured here
  - If you restart the EMS Server, the dynamic durable subscription will still exist

Tip: A dynamic durable subscription is created when a message consumer specifies that the subscription is durable. To delete dynamic durable subscription you must use the administrative command **delete durable**.

  - Delete the durable subscription
    - Execute the following command:
      ```
      delete durable myClientID:USERXX
      ```

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9. Create a process to subscribe to a static durable subscription.

- Create a static durable subscription
  - From the Administration Tool, issue the command
    ```
    create durable topic.sample myClientID:Static
    ```
- Verify that the static durable subscription is written to the configuration file **durables.conf**
  - Using the File Browser navigate to the directory
    `/opt/tibco/soa/config/tibco/cfgmgmt/ems/`**data**
  - Open the file **durables.conf** with gedit
  - Verify that the following line exists in it (should be at the end of the file)
    ```
    topic.sample myClientID:Static
    ```

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10. Configure a process to subscribe to the durable subscription.

- Switch to **Design** perspective
- Copy the *DurableSubscriber* process and paste it to LabC
  - Name: **StaticDurableSubscriber**
  - Select **JMSTopicSubscriber**, *Properties > General* tab
    - Subscription Name: **Static**
    - **Save**

Note: To create a durable subscriber for an existing static durable subscription, specify the same Client Id and durable subscription name as configured by the static subscription.

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11. Test your static durable subscription.

- Run the *Publisher* process once
  - ◆ Configure Components list:
    - – *Publisher*
  - ◆ Launch the Debugger
    - – Observe the message is published
  - ◆ Terminate the debugger
- Run all three subscribers created in this lab
  - ◆ Reconfigure the Components list:
    - – *Non-durableSubscriber*
    - – *DurableSubscriber*
    - – *StaticDurableSubscriber*
  - ◆ Launch the debugger
    - – Verify that *StaticDurableSubscriber* is the only process which runs
    - – Static durable subscription existed when the message was sent
  - ◆ Terminate the debugger
- Publish one more message
  - ◆ Restart the debugger and run only the *Publisher* again
- Restart the debugger and run all three subscriber processes
  - ◆ Notice that this time both dynamic and static subscriber receive the message
- **Terminate** the debugger
- Delete the dynamic durable subscription
  - ◆ From the EMS Administration Tool issue the command
    delete durable myClientID:USERXX