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# DTS 4: Publish Subscribe Introduction

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## A. Introduction

Apelon's DTS 4.3 release includes a number of improvements, new features and fixes. One of the great new features introduced in this release is the ability to send XML messages to either automated systems or key personnel. The following events will now be able to be tracked through the **DTS Publish/Subscribe** system:

- *Namespace Creation*
- *Namespace Version Publication*

Subscribers can be configured to receive all messages or to receive messages only associated with specified namespaces. A retry count and response wait time can be configured for each subscriber. The **DTS Publish/Subscribe** system can also be configured to alert subscription administrators of failed messages.

## B. Technical and Architectural Overview

The **DTS Publish/Subscribe** system sends simple XML text to a subscriber. The subscriber is identified by a URL. When a triggering event occurs the appropriate XML message is sent to the subscriber URL via an HTTP or HTTPS message. Examples of messages for each supported event type are shown below.

### *Namespace Creation*

```
<DtsNamespaceCreatedMessage>
  <authorityId>32768</authorityId>
  <authorityName>Apelon</authorityName>
  <namespaceId>32769</namespaceId>
  <namespaceName>Newcomb&apos;s Wildflower Guide</namespaceName>
  <namespaceProperties/>
</DtsNamespaceCreatedMessage>
```

### *Namespace Version Publication*

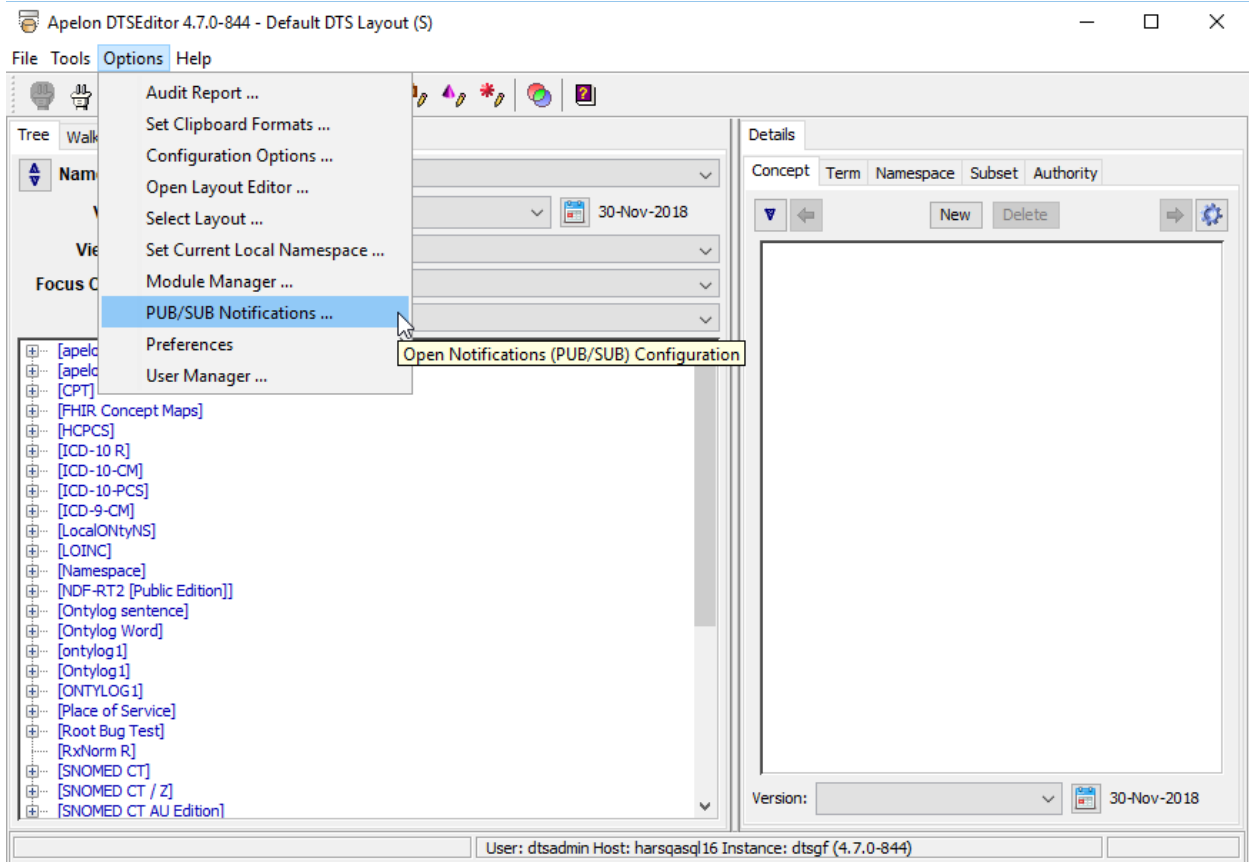
```
<DtsNamespaceVersionCreatedMessage>
  <authorityId>32768</authorityId>
  <authorityName>Apelon</authorityName>
  <namespaceId>32769</namespaceId>
  <namespaceName>Newcomb&apos;s Wildflower Guide</namespaceName>
  <namespaceProperties />
  <versionId>3</versionId>
  <versionName>1997 Edition</versionName>
  <versionReleaseDate>
    <time>1429533830969</time>
    <timezone>America/New_York</timezone>
  </versionReleaseDate>
  <versionRevsionDate>
    <time>1429533832473</time>
    <timezone>America/New_York</timezone>
  </versionRevsionDate>
</DtsNamespaceVersionCreatedMessage>
```

## Subscription Administrator Failed Notification Attempt Message

```
<DtsListenerFailedMessageAdminNotification>
  <message>
    <DtsNamespaceVersionCreatedMessage>
      <authorityId>32768</authorityId>
      <authorityName>Apelon</authorityName>
      <namespaceId>32769</namespaceId>
      <namespaceName>Newcomb&apos;s Wildflower Guide</namespaceName>
      <namespaceProperties />
      <versionId>4</versionId>
      <versionName>1997 Edition</versionName>
      <versionReleaseDate>
        <time>1429534270232</time>
        <timezone>America/New_York</timezone>
      </versionReleaseDate>
      <versionRevsionDate>
        <time>1429534274963</time>
        <timezone>America/New_York</timezone>
      </versionRevsionDate>
    </DtsNamespaceVersionCreatedMessage>
  </message>
  <listenerType>
    NAMESPACE_PUBLISH
  </listenerType>
  <DtsListenerErrorMessage>
    <listeners>
      <TDtsListener>
        <listenerId>1</listenerId>
        <listenerUrl>
          http://localhost:8081/_DtsPubSubClientExample/dtsPubSubExample/postMessage
        </listenerUrl>
        <listenerDescription>An example DTS listener</listenerDescription>
        <listenerTypeId>2</listenerTypeId>
        <listenerTypeCode>NAMESPACE_PUBLISH</listenerTypeCode>
        <listenerTypeDescription>NS Publish listener</listenerTypeDescription>
        <listenerTypeListenerId>2</listenerTypeListenerId>
        <namespaceId></namespaceId>
        <retryCount>-1</retryCount>
        <retryWait>-1</retryWait>
      </TDtsListener>
      <TDtsListener>
        <listenerId>1</listenerId>
        <listenerUrl>http://localhost:8081/_DtsPubSubClientExample/dtsPubSubExample/postMessage
        </listenerUrl>
        <listenerDescription>An example DTS listener</listenerDescription>
        <listenerTypeId>2</listenerTypeId>
        <listenerTypeCode>NAMESPACE_PUBLISH</listenerTypeCode>
        <listenerTypeDescription>NS Publish listener</listenerTypeDescription>
        <listenerTypeListenerId>3</listenerTypeListenerId>
        <namespaceId></namespaceId>
        <retryCount>3</retryCount>
        <retryWait>3000</retryWait>
      </TDtsListener>
    </listeners>
  </DtsListenerErrorMessage>
</DtsListenerFailedMessageAdminNotification>
```

## C. Configuring DTS Subscribers

DTS Subscribers can be configured directly from the DTS Editor application. Select the **PUB/SUB Notification** options from the **Options** menu as shown below.



## DTS 4: Publish Subscribe Introduction

This will open the following screen. The three main tabs of this screen are **Configure Listener Targets**, **Configure Listeners**, and **Configure Admin Listeners**.

### *Configure Listener Targets:*

This is where the URL of the Subscriber is captured.

### *Configure Listeners:*

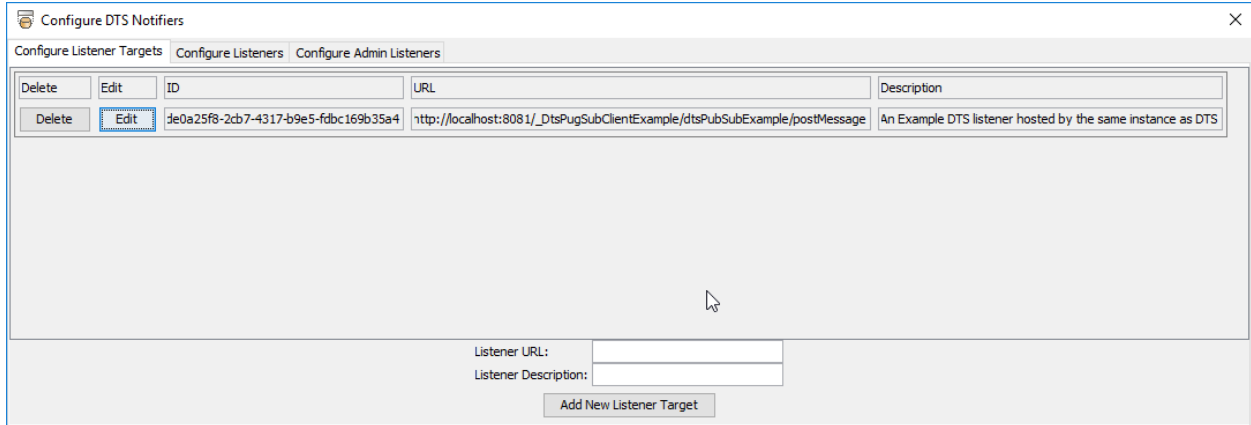
This is where the listener (subscriber) is defined. Configuration for what types of messages should be forwarded to this listener, number of retries, response wait time, etc. are configured.

### *Configure Admin Listener:*

This is where to configure a URL to post failed notification attempts for a given listener target.

The screenshot displays the 'Configure Admin Listeners' tab. At the top, there are three tabs: 'Configure Listener Targets', 'Configure Listeners', and 'Configure Admin Listeners'. Below the tabs is a table with the following columns: 'Delete', 'Edit', 'ADMIN ID', 'ADMIN URL', 'ADMIN Description', 'Listener ID', and 'Listener Target URL'. The table is currently empty. Below the table, there are three input fields: 'Listener Target:' (a dropdown menu), 'ADMIN Target URL:' (a text input field), and 'ADMIN Target Description:' (a text input field). At the bottom center, there is a button labeled 'Add new ADMIN Listener'.

### Configure Listener Targets:



This screen allows for the addition of a new URL. What messages are sent to this URL are configured on the next tab (the **Configure Listeners** screen).



## Configure Listeners:

Delete	Edit	Listener ID	Namespace ID	Retry Count	Retry Wait	Listener Type ID	Listener Type Code	Listener Type Description	Listener Target ID
Delete	Edit	062c0210-4f61-42cc-aaca-2cb4b8f43813				1	NAMESPACE_CREATE	This listener is notified when a namespace is created	de0a25f8-2cb7-4311
Delete	Edit	303c3a63-165c-423f-a4a7-d87143eaf733	37268			2	NAMESPACE_PUBLISH	This listener is notified when a namespace is published	de0a25f8-2cb7-4311
Delete	Edit	e6bdc24a-4ac3-421e-acd9-4bb60af051b7	37263			2	NAMESPACE_PUBLISH	This listener is notified when a namespace is published	de0a25f8-2cb7-4311

Listener Type: [2] NAMESPACE\_PUBLISH

Listener Target: [de0a25f8-2cb7-4311-b9e5-fdbc169b35a4] http://localhost:8081/\_DtsPugSubClientExample/dtsPubSubExample/postMessage

Namespace ID: 37263

Retry Count:

Retry Wait:

[Add New Listener](#)

This screen allows for the configuration of what messages are sent to the listener, specific namespaces the listener is interested in, and retry parameters.

**Listener Type (Pick List):** This specifies what type of messages should be sent to this listener (e.g. **Namespace Create** or **Namespace Publish**).

**Listener Target (Pick List):** The URL where the messages should be sent (defined on the previous tab).

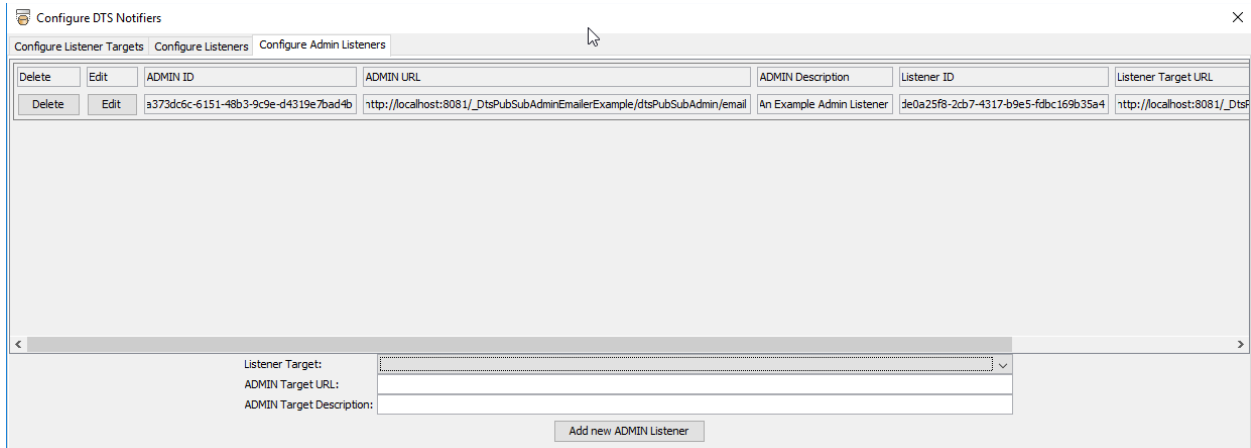
**Namespace ID (Free Text):** If a namespace id is provided only messages related to that namespace will be sent to the listener. If no namespace is provided all messages of the specified type (e.g. **Namespace Create** or **Namespace Delete**) will be sent to the given listener.

**Retry Count (Free Text – Validated as Integer):** The number of times DTS should attempt to send the message to the listener. If not specified one attempt will be made.

**Retry Wait (Free Text – Validated as Integer):** The amount of time (in milliseconds) the HTTP client should wait for a response from the server. If not specified the HTTP wait default will be used (this may be system/vendor specific).

## Configure Admin Listeners

This is where a URL to send failed notification attempt messages can be sent. Messages will be posted to this URL when an attempt to send a message to the associated listener fails.



**Listener Target (Pick List):** If a notification to this URL fails a failure message will be sent to the ADMIN Target URL.

**ADMIN Target URL (free text):** The URL to send the notification failure message to.

**ADMIN Target Description (free text):** A description of the purpose of this admin listener.

A typical ADMIN listener will receive the failure message, parse the contents and send an appropriate email to appropriate personnel. An example application that does exactly this is available from Apelon. DTS does not directly send email notifications. This would require DTS to have access to your email credentials and poses a substantial security risk. By sending a notification failed message to an HTTP(S) service we eliminate the need for this security risk.

## D. Available Demo Listeners

Source code for example listeners for **Namespace Create**, **Namespace Publish**, and **Notification Failure** are available from Apelon. The **Notification Failure** example includes the generation and sending of an email upon notification failure (email configuration is provided through a properties file that needs to be created with valid email credentials).