Platform Event Wrapper

What is it?

This unmanaged package wraps the publish and subscribe mechanism in Salesforce. It provides the ability change behavior at runtime, via Dependency Injection, as well as changing behavior via extensions.

What is the value?

Without some framework, or extensible tools, platform events are piecemealed, forgotten, or a mish-mash of incongruous parts. It provides a consistent and manageable control of publishing and subscribing to platform events; both standard and high-volume events.

The value lies in being consistent, reliable, reusable and flexible.

How does it works?

Defining a set of common interfaces and custom metadata within the Platform Event framework allows one to change/augment aspects at different levels/granularity. First, let's define some of the salient components and their functions before we walk through a code-snippet.

Salient Components

The Platform Event Wrapper provides six basic components:

Component	Function
evt_IEventHandler	Defines the behavior for a Publisher or Consumer
evt_IPlatformEventModel	Is a container for handling publish or subscription service
evt_PlatformEvtBuilder	Builds the model based on custom metadata, if defined, or uses defaults
evt_IProcessEventHandlers	Container of handlers (log, success, error, alert)
evt_PlatformEventAttrs	Attributes used to manage logging (high-volume or standard), alerts, retries, validations, etc. of the publish/consume process
evt_PlatformEvtMdtDataModel	Provides a wrapper around the custom-metadata (DAO, Data Access Object), ***evt_Platform_Event_Binding__mdt***

A static class diagram brings this into more clarity.

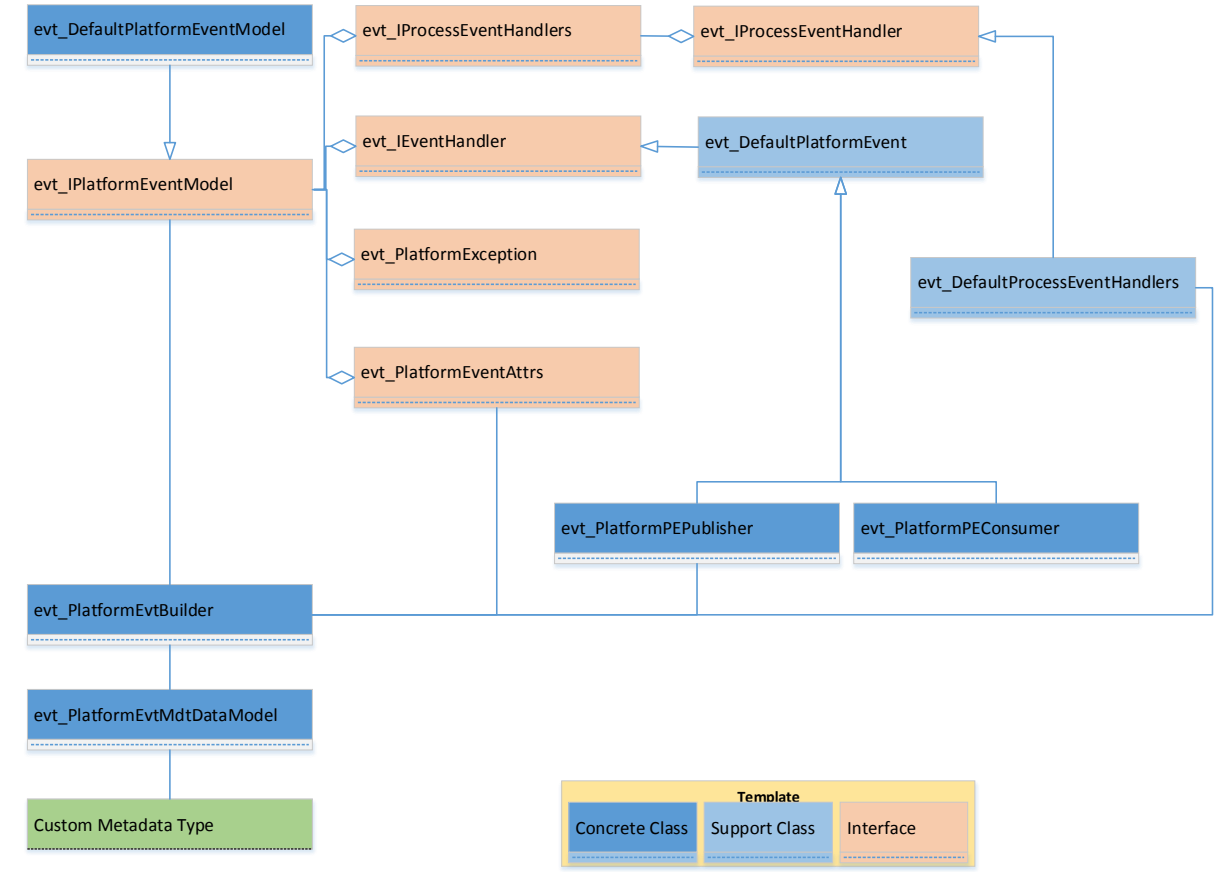


Figure 1 Static Class Diagram

Platform Event Model

The Platform Event Model, *IPlatformEventModel*, defines the behavior for processing platform events for publish or consumption.

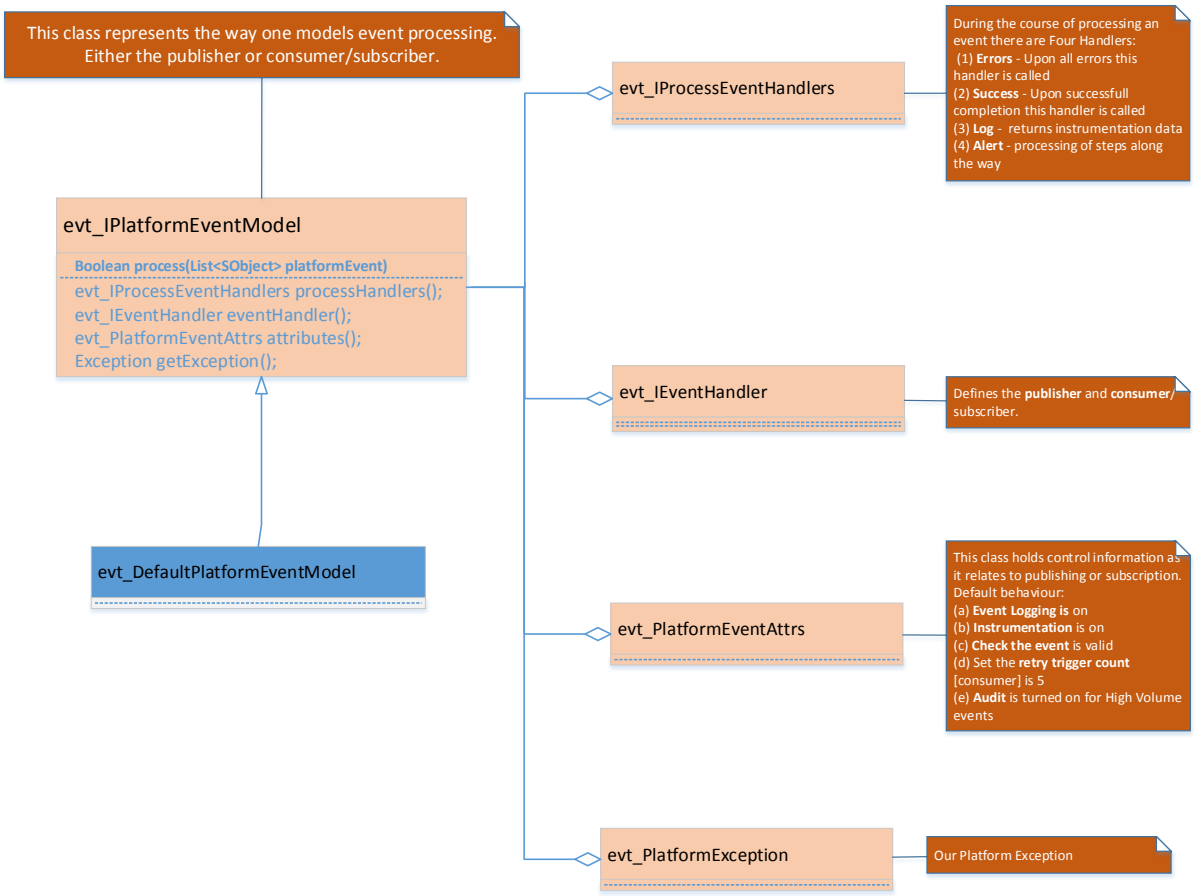


Figure 2 Platform Event Model

Code Snippet / Example

This code snippet, publishes an event, *pe_test__e*.

```
// [1] create default attributes -- optional
evt_PlatformEventAttrs attributes = new evt_PlatformEventAttrs();
// [2] create platform event builder, platform event name and the runtime environment (‘test’,’debug’prod’)
evt_PlatformEvtBuilder builder = new evt_PlatformEvtBuilder(‘pe_test__e','test');
// [3] create the default publisher
evt_IEventHandler publisher = builder.buildPublisher();
// [4] create event model
evt_IPlatformEventModel model = builder.build(publisher); // or builder.build(publisher,attributes);
// [5] create event to publish (note, the name must match that which was passed to the builder)
List<pe_test__e> data = new List<pe_test__e> { new pe_test__e () };
// [6] process/publish the event (returns true, if processed successfully)
System.debug('++++ result =' + model.process(data));
```

Figure 3 Publish an event

Steps 1 – 6 are described as follows (Step 1, is optional),

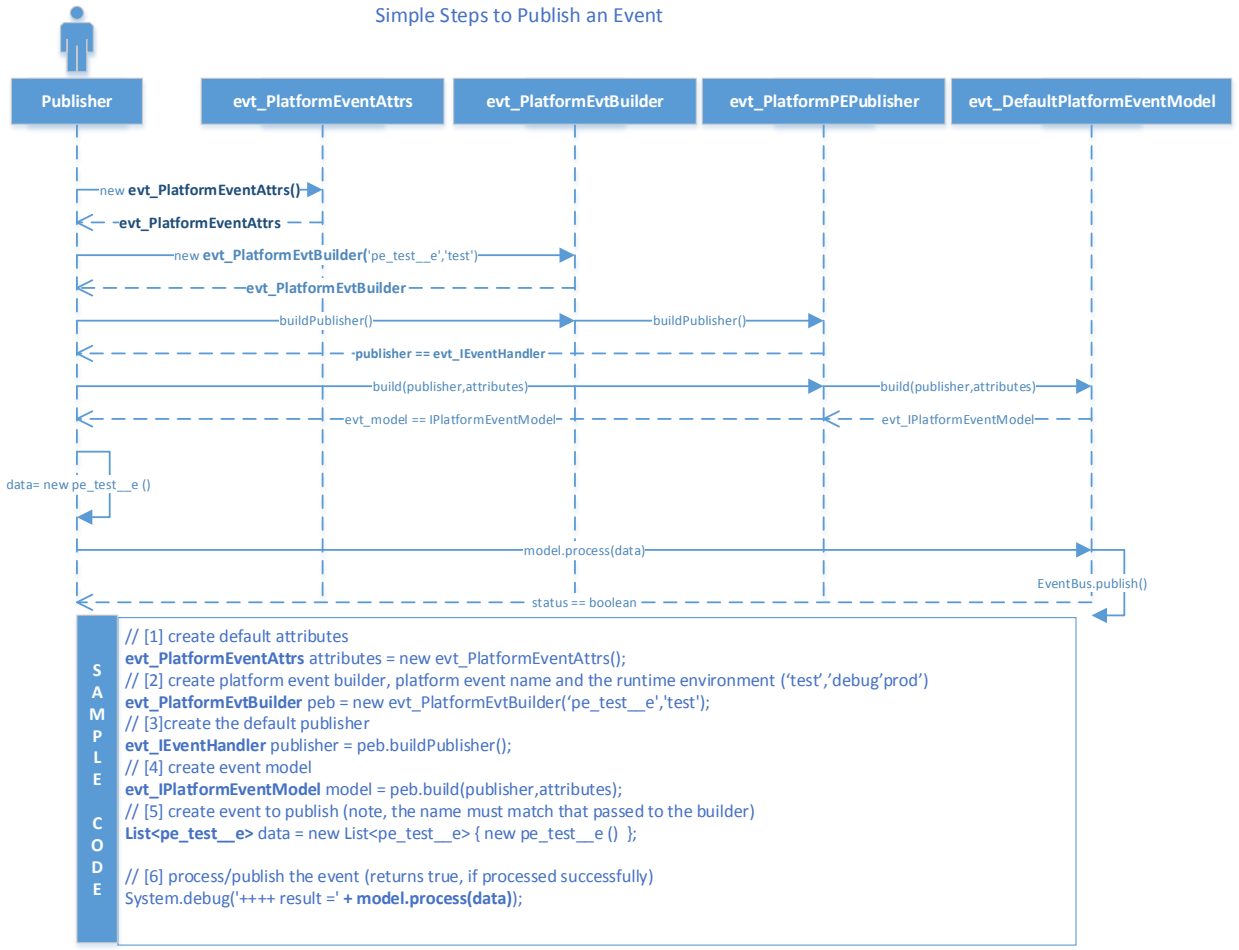
	Code	Comment
1	**evt_PlatformEventAttrs** attributes = new evt_PlatformEventAttrs();	Create the default attributes (optional). See Platform Attributes
2	**evt_PlatformEvtBuilder** builder = new evt_PlatformEvtBuilder('pe_test__e','test');	Create a platform event builder. The event name, '*pe_test__e',* along with the environment, 'test', is looked up in the custom metadata. The custom metadata may contain, four handlers. Handlers are classes that perform the following: (1) Log instrumentation information (2) Error information, that may occur (3) Log Event Data (JSON) (4) Alert of steps being performed.
3	**evt_IEventHandler** publisher = builder.buildPublisher();	From step 2, the builder knows if there are any special handlers (other than the default) defined in the custom metadata. Publisher follow the process log, check, alert and publish.
4	**evt_IPlatformEventModel** model = builder.build(publisher);	From step 2, we can build the model. The model holds the four handlers, the event handler (publisher) and attributes that control the behavior.
5	**List<pe_test__e>** pe=new List<pe_test__e> {new pe_test__e ()};	Create the collection of events to publish
6	**model.process(pe)**);	Publish the event, returning true, if successful; otherwise false.

Custom Metadata

In the custom metadata type below (**Apex Code Configurations),** three environments (based on the '*Label*') are defined with three different runtime environments.

1. **[DEBUG]** *a Sandbox (not running in a Unit Test)*
2. **[PROD]** *Not a sandbox and not a Test procedure*
3. **[TEST]** *i.e. Test.IsRunning*

Appendix: Publish Sequence Diagram



Platform Attributes

Platform attributes class, *evt_PlatformEventAttrs*, helps control functionality of the process of publishing and subscription. The table below breaks down the attributes and purpose. The names are defined in the class, *PlatformEventAttrs.cls,* and shown bellows.

Name	Value	Comment
SERIALIZE_EVENTS_s	Boolean	If true, converts the incoming List of events into JSON. The JSON is passed into the log handler for processing.

EVENT_LOGGING_s	enum EventLogging {
	ALL,
	ON_ERROR,
	ON_SUCCESS,
	ON_LOG
	}
		What information to log

RETRY_COUNT_s	**Integer**, the value between 1 and 9 (inclusive), default is 5	Number of retries; the default is 5. Retries occur ONLY for

Name	Value	Comment
		subscribers. Within a trigger there may be an occurrence (due to latency) that had not occurred. Thus, an *EventBus.RetryException* can be thrown. The consumer will handle up-to the retry-count.
CHECK_EVENT_NAME_s	Boolean, default true	Checks to determine if the event name passed in is correct.
ADD_INSTRUMENTATION_s	Boolean, default is true	Gather instrumentation (start-time, end-time). The information is passed along to the log handler

Users can change the behavior with the use of a Map<String,Object>. In fact, the defaults are defined below.

```
Map<String, Object> attributes = new Map<String, Object> {
                AUDIT_EVENTS_s => AuditEvents.HIGH_VOLUME
                , EVENT_LOGGING_s => EventLogging.ALL
                , RETRY_COUNT_s => DEFAULT_RETRY_COUNT
                , CHECK_EVENT_NAME_s => true
                , ADD_INSTRUMENTATION_s => true
};
```

Figure 4 Default Attributes

Custom Metadata

The Platform Event Wrapper uses a custom metadata, *evt_Platform_Event_Binding__mdt*, to lookup the event information. The information contains the following fields:

Label	API Name	Type	Comment
Active	Active__c	Checkbox	Allow execution. If inactive the event is not handled (published or consumed)
Alert Handler	Alert_Handler__c	Text(255)	The alert handler will be called at various steps performed by the consumer or the publisher
Consumer	Consumer__c	String	The consumer is how one decides to consume an event.

Label	API Name	Type	Comment
			There are hooks to override behavior, as needed.
Environment	Environment__c	Picklist (test,debug,production)	Which environment this event will run in
Error Handler	Error_Handler__c	String	The error handler will be called at various steps of errors/exception that occur in the consumer or the publisher
High Volume	High_Volume__c	Boolean	Is this a high-volume? If true, then it is common to save the incoming event in JSON and passed to the log handler
Log Handler	Log_Handler__c	String	The log handler will be called in the consumer or the publisher with instrumentation data
Pulisher	Pulisher__c	String	The publisher to invoke. The default publisher, evt_DefaultPEPublisher, provides a consistent process for publishing. There are hooks to override behavior, if needed.
Success Handler	Success_Handler__c	String	The success handler will be called if no errors or exceptions that occur in the consumer or the publisher

Custom Metadata Type
Platform Event Binding

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Custom Metadata Type Detail Edit Delete Manage Platform Event Bindings

Singular Label	Platform Event Binding	**Description**	Bindings for Platform Events. These bindings define the following: (1) Consumer -- Consumes/Subscribes handler (2) Publisher-- Publisher handler (3) Error Handler, (4) Success Handler, (5) Log Handler (6) Alert Handler Note, these handlers DO NOT need to be defined and will default to the known Default classes
Plural Label	Platform Event Bindings	**Visibility**	Public
Object Name	evt_Platform_Event_Binding	**Record Size**	1,700
API Name	evt_Platform_Event_Binding__mdt		

Platform Event Bindings

New

Platform Event Binding Name	Active	Environment	High Volume	Pulisher	Consumer	Alert Handler	Error Handler	Log Handler	Success Handler
pe_test_e	✓	test		evt_DefaultPEPublisher	evt_DefaultPEConsumer	evt_DefaultProcessHandler	evt_DefaultProcessHandler	evt_DefaultProcessHandler	evt_DefaultProcessHandler
recordCDC_e	✓	test	✓	evt_DefaultPEPublisher	evt_DefaultPEConsumer	evt_DefaultProcessHandler	evt_DefaultProcessHandler	evt_DefaultProcessHandler	evt_DefaultProcessHandler