

# **cosEvent Application**

**version 2.1**

Typeset in L<sup>A</sup>T<sub>E</sub>X from SGML source using the DOCBUILDER 3.3.2 Document System.

# Contents

<b>1</b>	<b>cosEvent User's Guide</b>	<b>1</b>
1.1	The cosEvent Application . . . . .	1
1.1.1	Content Overview . . . . .	1
1.1.2	Brief Description of the User's Guide . . . . .	1
1.2	Introduction to cosEvent . . . . .	1
1.2.1	Overview . . . . .	1
1.3	Event Service . . . . .	2
1.3.1	Overview of the CosEvent Service . . . . .	2
1.3.2	Event Service Components . . . . .	2
1.3.3	Event Service Communication Models . . . . .	3
1.3.4	A Tutorial on How to Create a Simple Service . . . . .	4
1.3.5	How to Run Everything . . . . .	5
1.4	cosEvent Release Notes . . . . .	6
1.4.1	cosEvent 2.1, Release Notes . . . . .	6
1.4.2	cosEvent 2.0, Release Notes . . . . .	6
1.4.3	cosEvent 1.0.1.1, Release Notes . . . . .	7
1.4.4	cosEvent 1.0.1, Release Notes . . . . .	7
1.4.5	cosEvent 1.0, Release Notes . . . . .	7
<b>2</b>	<b>cosEvent Reference Manual</b>	<b>9</b>
2.1	CosEventChannelAdmin . . . . .	13
2.2	CosEventChannelAdmin_ConsumerAdmin . . . . .	16
2.3	CosEventChannelAdmin_EventChannel . . . . .	17
2.4	CosEventChannelAdmin_ProxyPullConsumer . . . . .	18
2.5	CosEventChannelAdmin_ProxyPullSupplier . . . . .	19
2.6	CosEventChannelAdmin_ProxyPushConsumer . . . . .	21
2.7	CosEventChannelAdmin_ProxyPushSupplier . . . . .	23
2.8	CosEventChannelAdmin_SupplierAdmin . . . . .	24
2.9	cosEventApp . . . . .	25



# Chapter 1

## cosEvent User's Guide

The *cosEvent* application is an Erlang implementation of a CORBA Service CosEvent.

### 1.1 The cosEvent Application

#### 1.1.1 Content Overview

The cosEvent documentation is divided into three sections:

- PART ONE - The User's Guide  
Description of the cosEvent Application including services and a small tutorial demonstrating the development of a simple service.
- PART TWO - Release Notes  
A concise history of cosEvent.
- PART THREE - The Reference Manual  
A quick reference guide, including a brief description, to all the functions available in cosEvent.

#### 1.1.2 Brief Description of the User's Guide

The User's Guide contains the following parts:

- CosEvent overview
- CosEvent installation and examples

### 1.2 Introduction to cosEvent

#### 1.2.1 Overview

The cosEvent application is a Event Service compliant with the OMG<sup>1</sup> Event Service CosEvent.

---

<sup>1</sup>URL: <http://www.omg.org>

## Purpose and Dependencies

CosEvent is dependent on *Orber*, which provides CORBA functionality in an Erlang environment.

## Prerequisites

To fully understand the concepts presented in the documentation, it is recommended that the user is familiar with distributed programming and CORBA.

Recommended reading includes *CORBA, Fundamentals and Programming - Jon Siegel* and *Open Telecom Platform Documentation Set*. It is also helpful to have read *Concurrent Programming in Erlang*.

## 1.3 Event Service

### 1.3.1 Overview of the CosEvent Service

The Event service allows programmers to subscribe to information channels. Suppliers can generate events without knowing the consumer identities and the consumer can receive events without knowing the supplier identity. Both push and pull event delivery are supported. The Event service will queue information and processes.

The CORBA Event service provides a flexible model for asynchronous, decoupled communication between objects. This chapter outlines communication models and the roles and relationships of key components in the CosEvent service. It shows a simple example on use of this service.

### 1.3.2 Event Service Components

There are five components in the OMG CosEvent service architecture. These are described below:

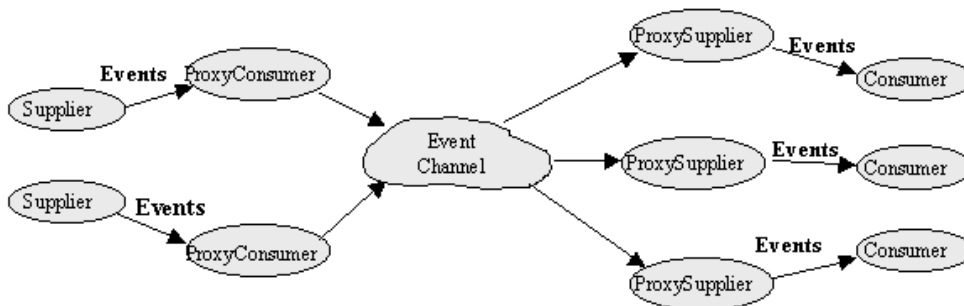


Figure 1.1: Figure 1: Event service Components

- *Suppliers and consumers:* Consumers are the ultimate targets of events generated by suppliers. Consumers and suppliers can both play active and passive roles. There could be two types of consumers and suppliers: push or pull. A PushSupplier object can actively push an event to a passive PushConsumer object. Likewise, a PullSupplier object can passively wait for a PullConsumer object to actively pull an event from it.

- *EventChannel*: The central abstraction in the CosEvent service is the EventChannel which plays the role of a mediator between consumers and suppliers. Consumers and suppliers register their interest with the EventChannel. It can provide many-to-many communication. The channel consumes events from one or more suppliers, and supplies events to one or more consumers. An EventChannel can support consumers and suppliers using different communication models.
- *ProxySuppliers and ProxyConsumers*: ProxySuppliers act as middlemen between consumers and the EventChannel. A ProxySupplier is similar to a normal supplier, but includes an additional method for connecting a consumer to the ProxySupplier. Likewise, ProxyConsumers act as middlemen between suppliers and the EventChannel. A ProxyConsumer is similar to a normal consumer, but includes an additional method for connecting a supplier to the ProxyConsumer.
- *Supplier and consumer administrations*: Consumer administration acts as a factory for creating ProxySuppliers. Supplier administration acts as a factory for creating ProxyConsumers.

### 1.3.3 Event Service Communication Models

There are four general models of component collaboration in the OMG CosEvent service architecture. The following describes these models: (Please note that proxies are not shown in the diagrams for simplicity).

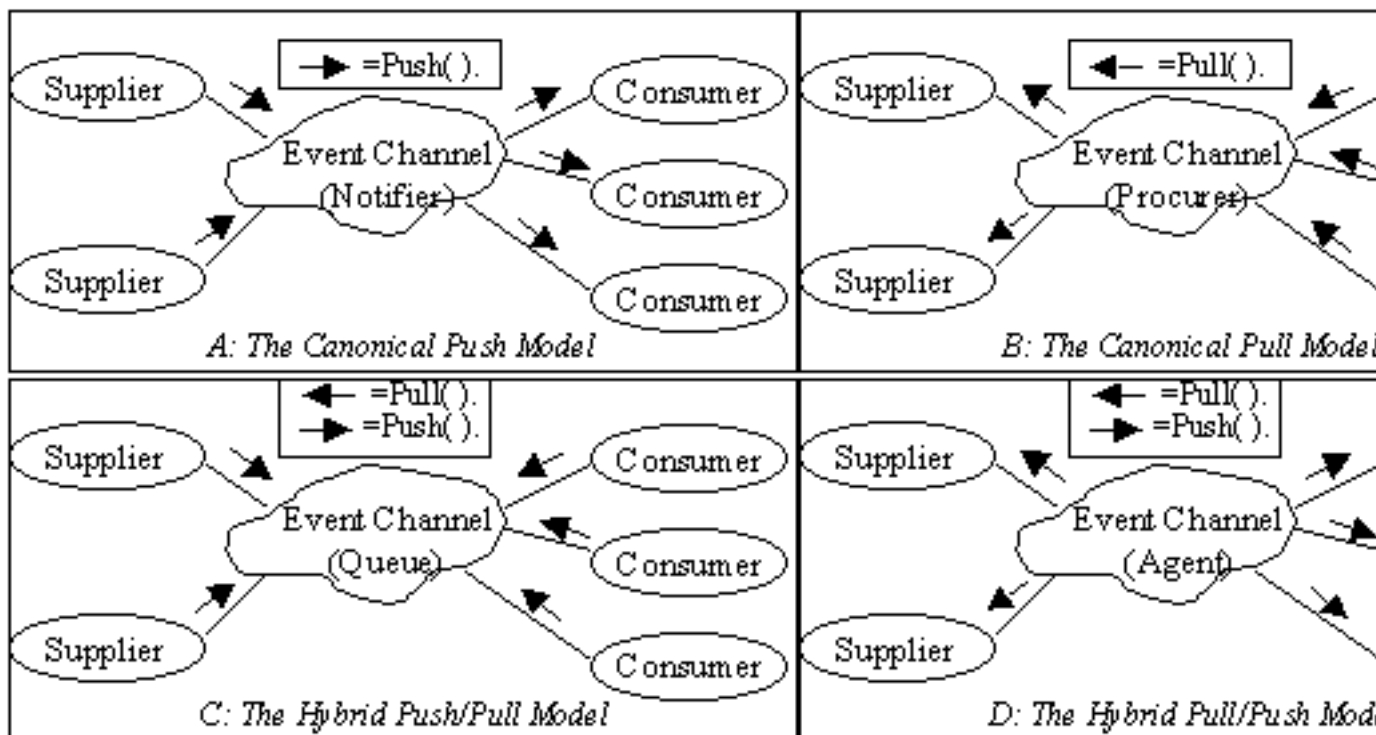


Figure 1.2: Figure 2: Event service Communication Models

- *The Canonical Push Model:* The Canonical push model shown in figure 2(A) allows the suppliers of events to initiate the transfer of event data to consumers. In this model, suppliers are active initiators and consumers are the passive targets of the requests. EventChannels play the role of Notifier. Thus, active suppliers use EventChannels to push data to passive consumers that have registered with the EventChannels.
- *The Canonical Pull Model:* The Canonical pull model shown in figure 2(B) allows consumers to request events from suppliers. In this model, Consumers are active initiators and suppliers are the passive targets of the pull requests. EventChannel plays the role of Procurer since it procures events on behalf of consumers. Thus, active consumers can explicitly pull data from passive suppliers via the EventChannels.
- *The Hybrid Push/Pull Model:* The push/pull model shown in figure 2(C) is a hybrid that allows consumers to request events queued at an EventChannel by suppliers. In this model, both suppliers and consumers are active initiators of the requests. EventChannels play the role of Queue. Thus, active consumers can explicitly pull data deposited by active suppliers via the EventChannels.
- *The Hybrid Pull/Push Model:* The pull/push model shown in figure 2(D) is another hybrid that allows the channel to pull events from suppliers and push them to consumers. In this model, suppliers are passive targets of pull requests and consumers are passive targets of pushes. EventChannels play the role of Intelligent Agent. Thus, active EventChannels can pull data from passive suppliers and push that data to passive consumers.

### 1.3.4 A Tutorial on How to Create a Simple Service

To be able to use the cosEvent application supplier and consumer objects must be implemented, which must inherit from the appropriate interface defined in the *CosEventComm.idl* specification.

We start by creating an interface which inherits from the correct interface, e.g., *CosEventComm::PushConsumer*. Hence, we must also implement all operations defined in the *PushConsumer* interface. The IDL-file could look like:

```
#ifndef _MYCLIENT_IDL
#define _MYCLIENT_IDL
#include <CosEventComm.idl>

module myClientImpl {

    interface ownInterface:CosEventComm::PushConsumer {

        void ownFunctions(in any NeededArguments)
            raises(OwnExceptions);

    };
};

#endif
```

Run the IDL compiler on this file by calling the `ic:gen/1` function. This will produce the API named `myClientImpl_ownInterface.erl`. After generating the API stubs and the server skeletons it is time to implement the servers and if no special options are sent to the IDL compiler the file name is `myClientImpl_ownInterface_impl.erl`.

### 1.3.5 How to Run Everything

Below is a short transcript on how to run cosEvent.

```
%% Start Mnesia and Orber
mnesia:delete_schema([node()]),
mnesia:create_schema([node()]),
orber:install([node()]),
mnesia:start(),
orber:start(),

%% Install cosEvent in the IFR.
cosEventApp:install(),

%% Register the application specific Client implementations
%% in the IFR.
'oe_myClientImpl':'oe_register'(),

%% Start the cosEvent application.
cosEventApp:start(),

%% Start a channel using the default configuration
Ch = cosEventApp:start_channel(),
%% ... or use configuration parameters.
Ch = cosEventApp:start_channel([pull_interval, 10}, {maxEvents, 50}]),

%% Retrieve a SupplierAdmin and a ConsumerAdmin.
AdminSupplier = 'CosEventChannelAdmin_EventChannel':for_suppliers(Ch),
AdminConsumer = 'CosEventChannelAdmin_EventChannel':for_consumers(Ch),

%% Use the corresponding Admin object to get access to wanted Proxies

%% Create a Push Consumer Proxy, which the Client Push Supplier will push
%% events to.
ProxyPushConsumer =
    'CosEventChannelAdmin_SupplierAdmin':obtain_push_consumer(AdminSupplier),

%% Create a Push Supplier Proxy, which will push events to the registered
%% Push Consumer.
ProxyPushSupplier =
    'CosEventChannelAdmin_ConsumerAdmin':obtain_push_supplier(AdminConsumer),

%% Create application Clients. We can, for example, start the Clients
%% our selves or look them up in the naming service. This is application
%% specific.
Consumer = myClientImpl_ownInterface:oe_create(),
Supplier = ...

%% Connect each Client to the corresponding Proxy.
'CosEventChannelAdmin_ProxyPushConsumer':
    connect_push_supplier(ProxyPushConsumer, Supplier),
'CosEventChannelAdmin_ProxyPushSupplier':
```

```
connect_push_consumer(ProxyPushSupplier, Consumer),
```

The example above, exemplifies a event system, i.e., the *Canonical Push Model*, where the Supplier client in some way generates event and pushes them to the proxy. The push supplier proxies will eventually push the events to each Consumer client.

## 1.4 cosEvent Release Notes

### 1.4.1 cosEvent 2.1, Release Notes

#### Improvements and new features

- The stub/skeleton-files generated by IC have been improved, i.e., depending on the IDL-files, reduced the size of the erl- and beam-files and decreased dependencies off Orber's Interface Repository. It is necessary to re-compile all IDL-files and use COS-applications, including Orber, compiled with IC-4.2.  
Own id: OTP-4576

#### Fixed bugs and malfunctions

-

#### Incompatibilities

-

#### Known bugs and problems

-

### 1.4.2 cosEvent 2.0, Release Notes

#### Improvements and new features

-

#### Fixed bugs and malfunctions

- This version is a completely new version of the cosEvent application; older versions was *not* compliant with the OMG specification. The look and feel have been changed to be more uniform with the other COS-services.

#### Incompatibilities

- All API:s not compliant with the OMG standard have been removed.
- Registering the cosEvent application in the IFR is done via the `cosEventApp` module. Upgrade in runtime is not possible.

Known bugs and problems

-

### 1.4.3 cosEvent 1.0.1.1, Release Notes

Improvements and new features

Updated internal documentation.

Fixed bugs and malfunctions

-

Incompatibilities

-

Known bugs and problems

-

### 1.4.4 cosEvent 1.0.1, Release Notes

Improvements and new features

-

Fixed bugs and malfunctions

-

Incompatibilities

- CosEvent is now able to handle upgrade properly.

Known bugs and problems

-

### 1.4.5 cosEvent 1.0, Release Notes

Improvements and new features

-

Fixed bugs and malfunctions

-

### Incompatibilities

- CosEvent include paths have changed since it is now a separate application, called cosEvent, i.e., no longer a Orber sub-application.

### Known bugs and problems

-

# cosEvent Reference Manual

## Short Summaries

- Erlang Module **CosEventChannelAdmin** [page 13] – The CosEventChannelAdmin defines a set of event service interfaces that enables decoupled asynchronous communication between objects and implements generic (untyped) version of the OMG COSS standard event service.
- Erlang Module **CosEventChannelAdmin\_ConsumerAdmin** [page 16] – This module implements a ConsumerAdmin interface, which allows consumers to be connected to the event channel.
- Erlang Module **CosEventChannelAdmin\_EventChannel** [page 17] – This module implements an Event Channel interface, which plays the role of a mediator between consumers and suppliers.
- Erlang Module **CosEventChannelAdmin\_ProxyPullConsumer** [page 18] – This module implements a ProxyPullConsumer interface which acts as a middleman between pull supplier and the event channel.
- Erlang Module **CosEventChannelAdmin\_ProxyPullSupplier** [page 19] – This module implements a ProxyPullSupplier interface which acts as a middleman between pull consumer and the event channel.
- Erlang Module **CosEventChannelAdmin\_ProxyPushConsumer** [page 21] – This module implements a ProxyPushConsumer interface which acts as a middleman between push supplier and the event channel.
- Erlang Module **CosEventChannelAdmin\_ProxyPushSupplier** [page 23] – This module implements a ProxyPushSupplier interface which acts as a middleman between push consumer and the event channel.
- Erlang Module **CosEventChannelAdmin\_SupplierAdmin** [page 24] – This module implements a SupplierAdmin interface, which allows suppliers to be connected to the event channel.
- Erlang Module **cosEventApp** [page 25] – The main module of the cosEvent application.

## CosEventChannelAdmin

No functions are exported.

## CosEventChannelAdmin\_ConsumerAdmin

The following functions are exported:

- `obtain_push_supplier(Object) -> Return`  
[page 16] Create a ProxyPushSupplier object
- `obtain_pull_supplier(Object) -> Return`  
[page 16] Create a ProxyPullSupplier object

## CosEventChannelAdmin\_EventChannel

The following functions are exported:

- `for_consumers(Object) -> Return`  
[page 17] Return a ConsumerAdmin object
- `for_suppliers(Object) -> Return`  
[page 17] Return a SupplierAdmin object
- `destroy(Object) -> Return`  
[page 17] Destroy the event channel

## CosEventChannelAdmin\_ProxyPullConsumer

The following functions are exported:

- `connect_pull_supplier(Object, PullSupplier) -> Return`  
[page 18] Connect the pull supplier to the proxy pull consumer
- `disconnect_pull_consumer(Object) -> Return`  
[page 18] Disconnect the ProxyPullConsumer object from the event channel.

## CosEventChannelAdmin\_ProxyPullSupplier

The following functions are exported:

- `connect_pull_consumer(Object, PullConsumer) -> Return`  
[page 19] Connect the pull consumer to the proxy pull supplier
- `disconnect_pull_supplier(Object) -> Return`  
[page 19] Disconnect the ProxyPullSupplier object from the event channel.
- `pull(Object) -> Return`  
[page 19] Transmit data from suppliers to consumers.
- `try_pull(Object) -> Return`  
[page 20] Transmit data from suppliers to consumers.

## CosEventChannelAdmin\_ProxyPushConsumer

The following functions are exported:

- `connect_push_supplier(Object, PushSupplier) -> Return`  
[page 21] Connect the push supplier to the proxy push consumer
- `disconnect_push_consumer(Object) -> Return`  
[page 21] Disconnect the ProxyPushConsumer object from the event channel.
- `push(Object, Data) -> Return`  
[page 21] Communicate event data to the consumers.

## CosEventChannelAdmin\_ProxyPushSupplier

The following functions are exported:

- `connect_push_consumer(Object, PushConsumer) -> Return`  
[page 23] Connect the push consumer to the proxy push supplier
- `disconnect_push_supplier(Object) -> Return`  
[page 23] Disconnect the ProxyPushSupplier object from the event channel.

## CosEventChannelAdmin\_SupplierAdmin

The following functions are exported:

- `obtain_push_consumer(Object) -> Return`  
[page 24] Create a ProxyPushConsumer object
- `obtain_pull_consumer(Object) -> Return`  
[page 24] Create a ProxyPullConsumer object

## cosEventApp

The following functions are exported:

- `install() -> Return`  
[page 25] Install the cosEvent application
- `uninstall() -> Return`  
[page 25] Uninstall the cosEvent application
- `start() -> Return`  
[page 25] Start the cosEvent application
- `stop() -> Return`  
[page 25] Stop the cosEvent application
- `start_channel() -> Channel`  
[page 25] Start a channel with default settings
- `start_channel(Options) -> Channel`  
[page 25] Start a channel with settings defined by the given options
- `start_channel_link() -> Channel`  
[page 26] Start a channel, which is linked to the invoking process, with default settings

- `start_channel_link(Options) -> Channel`  
[page 26] Start a channel, which is linked to the invoking process, with settings defined by the given options
- `stop_channel(Channel) -> Reply`  
[page 26] Terminate the target object

# CosEventChannelAdmin

---

## Erlang Module

The event service defines two roles for objects: the supplier role and the consumer role. Suppliers supply event data to the event channel and consumers receive event data from the channel. Suppliers do not need to know the identity of the consumers, and vice versa. Consumers and suppliers are connected to the event channel via proxies, which are managed by ConsumerAdmin and SupplierAdmin objects.

There are four general models of communication. These are:

- The canonical push model. It allows the suppliers of events to initiate the transfer of event data to consumers. Event channels play the role of `Notifier`. Active suppliers use event channel to push data to passive consumers registered with the event channel.
- The canonical pull model. It allows consumers to request events from suppliers. Event channels play the role of `Procure` since they procure events on behalf of consumers. Active consumers can explicitly pull data from passive suppliers via the event channels.
- The hybrid push/pull model. It allows consumers request events queued at a channel by suppliers. Event channels play the role of `Queue`. Active consumers explicitly pull data deposited by active suppliers via the event channels.
- The hybrid pull/push model. It allows the channel to pull events from suppliers and push them to consumers. Event channels play the role of `Intelligent agent`. Active event channels can pull data from passive suppliers to push it to passive consumers.

To get access to all definitions, e.g., exceptions, include necessary `hrl` files by using:  
`-include_lib("cosEvent/include/*.hrl").`

There are seven different interfaces supported in the service:

- ProxyPushConsumer
- ProxyPullSupplier
- ProxyPullConsumer
- ProxyPushSupplier
- ConsumerAdmin
- SupplierAdmin
- EventChannel

IDL specification for CosEventChannelAdmin:

```

#ifndef _COSEVENTCHANELADMIN_IDL
#define _COSEVENTCHANELADMIN_IDL

#include "CosEventComm.idl"

#pragma prefix "omg.org"

module CosEventChannelAdmin
{
    exception AlreadyConnected{};
    exception TypeError{};

    interface ProxyPushConsumer: CosEventComm::PushConsumer
    {
        void connect_push_supplier(in CosEventComm::
                                   PushSupplier push_supplier)
                                   raises (AlreadyConnected);
    };

    interface ProxyPullSupplier: CosEventComm::PullSupplier
    {
        void connect_pull_consumer(in CosEventComm::
                                   PullConsumer pull_consumer)
                                   raises (AlreadyConnected);
    };

    interface ProxyPullConsumer: CosEventComm::PullConsumer
    {
        void connect_pull_supplier(in CosEventComm::
                                   PullSupplier pull_supplier)
                                   raises (AlreadyConnected, TypeError);
    };

    interface ProxyPushSupplier: CosEventComm::PushSupplier
    {
        void connect_push_consumer(in CosEventComm::
                                   PushConsumer push_consumer)
                                   raises (AlreadyConnected, TypeError);
    };

    interface ConsumerAdmin
    {
        ProxyPushSupplier obtain_push_supplier();
        ProxyPullSupplier obtain_pull_supplier();
    };

    interface SupplierAdmin
    {
        ProxyPushConsumer obtain_push_consumer();
        ProxyPullConsumer obtain_pull_consumer();
    };

    interface EventChannel

```

```
    {  
        ConsumerAdmin for_consumers();  
        SupplierAdmin for_suppliers();  
        void destroy();  
    };  
  
};  
  
#endif
```

# CosEventChannelAdmin\_ConsumerAdmin

---

Erlang Module

The ConsumerAdmin interface defines the first step for connecting consumers to the event channel. It acts as a factory for creating proxy suppliers. Both consumer administration and supplier administration are defined as separate objects so that the creator of the channel can control the addition of suppliers and consumers.

To get access to all definitions include necessary `hrl` files by using:

```
-include_lib("cosEvent/include/*.hrl").
```

## Exports

`obtain_push_supplier(Object) -> Return`

Types:

- Object = #objref
- Return = #objref

This operation returns a ProxyPushSupplier object reference.

`obtain_pull_supplier(Object) -> Return`

Types:

- Object = #objref
- Return = #objref

This operation returns a ProxyPullSupplier object reference.

# CosEventChannelAdmin\_EventChannel

## Erlang Module

An event channel is an object that allows multiple suppliers to communicate with multiple consumers in a highly decoupled, asynchronous manner. The event channel is built up incrementally. When an event channel is created no suppliers or consumers are connected to it. Event Channel can implement group communication by serving as a replicator, broadcaster, or multicaster that forward events from one or more suppliers to multiple consumers.

It is up to the user to decide when an event channel is created and how references to the event channel are obtained. By representing the event channel as an object, it has all of the properties that apply to objects. One way to manage an event channel is to register it in a naming context, or export it through an operation on an object.

To get access to all definitions include necessary `hrl` files by using:

```
-include_lib("cosEvent/include/*.hrl").
```

Any object that possesses an object reference that supports the `ProxyPullConsumer` interface can perform the following operations:

## Exports

`for_consumers(Object) -> Return`

Types:

- Object = #objref
- Return = #objref

This operation returns a `ConsumerAdmin` object reference. If `ConsumerAdmin` object does not exist already it creates one.

`for_suppliers(Object) -> Return`

Types:

- Object = #objref
- Return = #objref

This operation returns a `SupplierAdmin` object reference. If `SupplierAdmin` object does not exist already it creates one.

`destroy(Object) -> Return`

Types:

- Object = #objref
- Return = #objref

# CosEventChannelAdmin\_ProxyPullConsumer

Erlang Module

The ProxyPullConsumer interface defines the second step for connecting pull suppliers to the event channel. A proxy consumer is similar to a normal consumer, but includes an additional method for connecting a supplier to the proxy consumer.

To get access to all definitions, e.g., exceptions, include necessary `hrl` files by using:  
`-include_lib("cosEvent/include/*.hrl").`

Any object that possesses an object reference that supports the ProxyPullConsumer interface can perform the following operations:

## Exports

`connect_pull_supplier(Object, PullSupplier) -> Return`

Types:

- Object = #objref
- PullSupplier = #objref of PullSupplier type
- Return = ok | {'EXCEPTION', E}
- E = #'CosEventChannelAdmin\_AlreadyConnected'{} |  
      #'CosEventChannelAdmin\_TypeError'{}

This operation connects PullSupplier object to the ProxyPullConsumer object. If a nil object reference is passed CORBA standard BAD\_PARAM exception is raised. If the ProxyPullConsumer is already connected to a PullSupplier, then the CosEventChannelAdmin\_AlreadyConnected exception is raised. Implementations of ProxyPullConsumers may require additional interface functionality; if these requirements are not met the CosEventChannelAdmin\_TypeError exception will be raised.

`disconnect_pull_consumer(Object) -> Return`

Types:

- Object = #objref
- Return = ok

This operation disconnects proxy pull consumer from the event channel and sends a notification about the loss of the connection to the pull supplier attached to it.

# CosEventChannelAdmin\_ProxyPullSupplier

Erlang Module

The ProxyPullSupplier interface defines the second step for connecting pull consumers to the event channel. A proxy supplier is similar to a normal supplier, but includes an additional method for connecting a consumer to the proxy supplier.

To get access to all definitions, e.g., exceptions, include necessary `hrl` files by using:  
`-include_lib("cosEvent/include/*.hrl").`

Any object that possesses an object reference that supports the ProxyPullSupplier interface can perform the following operations:

## Exports

`connect_pull_consumer(Object, PullConsumer) -> Return`

Types:

- Object = #objref
- PullConsumer = #objref of PullConsumer type
- Return = ok | {'EXCEPTION', #'CosEventChannelAdmin\_AlreadyConnected' {}}

This operation connects PullConsumer object to the ProxyPullSupplier object. A nil object reference can be passed to this operation. If so a channel cannot invoke the `disconnect_pull_consumer` operation on the consumer; the consumer may be disconnected from the channel without being informed. If the ProxyPullSupplier is already connected to a PullConsumer, then the `CosEventChannelAdmin_AlreadyConnected` exception is raised.

`disconnect_pull_supplier(Object) -> Return`

Types:

- Object = #objref
- Return = ok

This operation disconnects proxy pull supplier from the event channel. It sends a notification about the loss of the connection to the pull consumer attached to it, unless nil object reference was passed at the connection time.

`pull(Object) -> Return`

Types:

- Object = #objref
- Return = any

This operation blocks until the event data is available or the `CosEventComm_Disconnected` exception is raised. It returns the event data to the consumer.

`try_pull(Object) -> Return`

Types:

- Object = #objref
- Return = {any, bool() }

This operation does not block: if the event data is available, it returns the event data and sets the data availability flag to true; otherwise it returns a long with an undefined value and sets the data availability to false. If the event communication has already been disconnected, the `CosEventComm_Disconnected` exception is raised.

# CosEventChannelAdmin\_ProxyPushCons

Erlang Module

The ProxyPushConsumer interface defines the second step for connecting push suppliers to the event channel. A proxy consumer is similar to a normal consumer, but includes an additional method for connecting a supplier to the proxy consumer.

To get access to all definitions, e.g., exceptions, include necessary `hrl` files by using:  
`-include_lib("cosEvent/include/*.hrl").`

Any object that possesses an object reference that supports the ProxyPushConsumer interface can perform the following operations:

## Exports

`connect_push_supplier(Object, PushSupplier) -> Return`

Types:

- Object = #objref
- PushSupplier = #objref of PushSupplier type
- Return = ok | {'EXCEPTION', #'CosEventChannelAdmin\_AlreadyConnected' {}}

This operation connects PushSupplier object to the ProxyPushConsumer object. A nil object reference can be passed to this operation. If so a channel cannot invoke the `disconnect_push_supplier` operation on the supplier; the supplier may be disconnected from the channel without being informed. If the ProxyPushConsumer is already connected to a PushSupplier, then the `CosEventChannelAdmin_AlreadyConnected` exception is raised.

`disconnect_push_consumer(Object) -> Return`

Types:

- Object = #objref
- Return = ok

This operation disconnects proxy push consumer from the event channel. Sends a notification about the loss of the connection to the push supplier attached to it, unless nil object reference was passed at the connection time.

`push(Object, Data) -> Return`

Types:

- Object = #objref
- Data = any
- Return = ok | {'EXCEPTION', #'CosEventComm\_Disconnected' {}}

This operation sends event data to all connected consumers via the event channel. If the event communication has already been disconnected, the `CosEventCommDisconnected` is raised.

# CosEventChannelAdmin\_ProxyPushSupp

## Erlang Module

The ProxyPushSupplier interface defines the second step for connecting push consumers to the event channel. A proxy supplier is similar to a normal supplier, but includes an additional method for connecting a consumer to the proxy supplier.

To get access to all definitions, e.g., exceptions, include necessary `hrl` files by using:  
`-include_lib("cosEvent/include/*.hrl").`

Any object that possesses an object reference that supports the ProxyPushSupplier interface can perform the following operations:

## Exports

`connect_push_consumer(Object, PushConsumer) -> Return`

Types:

- Object = #objref
- PushConsumer = #objref of PushConsumer type
- Return = ok | {'EXCEPTION', E}
- E = #'CosEventChannelAdmin\_AlreadyConnected'{} | #'CosEventChannelAdmin\_TypeError'{} |

This operation connects PushConsumer object to the ProxyPushSupplier object. If a nil object reference is passed CORBA standard BAD\_PARAM exception is raised. If the ProxyPushSupplier is already connected to a PushConsumer, then the CosEventChannelAdmin\_AlreadyConnected exception is raised. Implementations of ProxyPushSuppliers may require additional interface functionality; if these requirements are not met the CosEventChannelAdmin\_TypeError exception will be raised.

`disconnect_push_supplier(Object) -> Return`

Types:

- Object = #objref
- Return = ok

This operation disconnects proxy push supplier from the event channel and sends a notification about the loss of the connection to the push consumer attached to it.

# CosEventChannelAdmin\_SupplierAdmin

---

Erlang Module

The SupplierAdmin interface defines the first step for connecting suppliers to the event channel. It acts as a factory for creating proxy consumers. Both consumer administration and supplier administration are defined as separate objects so that the creator of the channel can control the addition of suppliers and consumers.

To get access to all definitions include necessary `hrl` files by using:  
`-include_lib("cosEvent/include/*.hrl").`

## Exports

`obtain_push_consumer(Object) -> Return`

Types:

- `Object = #objref`
- `Return = #objref`

This operation returns a `ProxyPushConsumer` object reference.

`obtain_pull_consumer(Object) -> Return`

Types:

- `Object = #objref`
- `Return = #objref`

This operation returns a `ProxyPullConsumer` object reference.

# cosEventApp

Erlang Module

To get access to the record definitions for the structures use:

```
-include_lib("cosEvent/include/*.hrl").
```

This module contains the functions for starting and stopping the application.

## Exports

`install()` -> Return

Types:

- Return = ok | {'EXCEPTION', E} | {'EXIT', R}

This operation installs the cosEvent application.

`uninstall()` -> Return

Types:

- Return = ok | {'EXCEPTION', E} | {'EXIT', R}

This operation uninstalls the cosEvent application.

`start()` -> Return

Types:

- Return = ok | {error, Reason}

This operation starts the cosEvent application.

`stop()` -> Return

Types:

- Return = ok | {error, Reason}

This operation stops the cosEvent application.

`start_channel()` -> Channel

Types:

- Channel = #objref

This operation creates a new instance of a Event Channel [page 17] using the default settings.

`start_channel(Options)` -> Channel

Types:

- Options = [Option]
- Option = {pull\_interval, Seconds} | {typecheck, Boolean} | {maxEvents, Integer} | {blocking, Boolean}
- Channel = #objref

This operation creates a new instance of a Event Channel [page 17]

- {pull\_interval, Seconds} - determine how often Proxy Pull Consumers will check for new events with the client application. The default value is 20 seconds.
- {typecheck, Boolean} - if this option is set to true the proxies will check if the supplied client object is of correct type. The default value is false.
- {maxEvents, Integer} - this option determine how many events the ProxyPullSuppliers will store before discarding events. If the limit is reached events will be discarded in any order. The default value is 300.
- {blocking, Boolean} - this option determine the behavior of the channel when handling events internally. If set to true the risk of a single event supplier floods the system is reduced, but the performance may also be reduced. The default value is true.

`start_channel_link() -> Channel`

Types:

- Channel = #objref

This operation creates a new instance of a Event Channel [page 17], which is linked to the invoking process, using the default settings.

`start_channel_link(Options) -> Channel`

Types:

- Options = [Option]
- Option = {pull\_interval, Seconds} | {typecheck, Boolean} | {maxEvents, Integer} | {blocking, Boolean}
- Channel = #objref

This operation creates a new instance of a Event Channel [page 17], which is linked to the invoking process, with settings defined by the given options. Allowed options are the same as for `cosEventApp:start_channel/1`.

`stop_channel(Channel) -> Reply`

Types:

- Channel = #objref
- Reply = ok | {'EXCEPTION', E}

This operation stop the target event channel.

# List of Figures

1.1	Figure 1: Event service Components . . . . .	2
1.2	Figure 2: Event service Communication Models . . . . .	3



# Index of Modules and Functions

Modules are typed in *this* way.  
Functions are typed in *this* way.

connect\_pull\_consumer/2  
    *CosEventChannelAdmin\_ProxyPullSupplier* ,  
    19

connect\_pull\_supplier/2  
    *CosEventChannelAdmin\_ProxyPullConsumer* ,  
    18

connect\_push\_consumer/2  
    *CosEventChannelAdmin\_ProxyPushSupplier* ,  
    23

connect\_push\_supplier/2  
    *CosEventChannelAdmin\_ProxyPushConsumer* ,  
    21

*cosEventApp*  
    install/0, 25  
    start/0, 25  
    start\_channel/0, 25  
    start\_channel/1, 25  
    start\_channel\_link/0, 26  
    start\_channel\_link/1, 26  
    stop/0, 25  
    stop\_channel/1, 26  
    uninstall/0, 25

*CosEventChannelAdmin\_ConsumerAdmin*  
    obtain\_pull\_supplier/1, 16  
    obtain\_push\_supplier/1, 16

*CosEventChannelAdmin\_EventChannel*  
    destroy/1, 17  
    for\_consumers/1, 17  
    for\_suppliers/1, 17

*CosEventChannelAdmin\_ProxyPullConsumer*  
    connect\_pull\_supplier/2, 18  
    disconnect\_pull\_consumer/1, 18

*CosEventChannelAdmin\_ProxyPullSupplier*  
    connect\_pull\_consumer/2, 19  
    disconnect\_pull\_supplier/1, 19  
    pull/1, 19  
    try\_pull/1, 20

*CosEventChannelAdmin\_ProxyPushConsumer*  
    connect\_push\_supplier/2, 21  
    disconnect\_push\_consumer/1, 21  
    push/2, 21

*CosEventChannelAdmin\_ProxyPushSupplier*  
    connect\_push\_consumer/2, 23  
    disconnect\_push\_supplier/1, 23

*CosEventChannelAdmin\_SupplierAdmin*  
    obtain\_pull\_consumer/1, 24  
    obtain\_push\_consumer/1, 24

destroy/1  
    *CosEventChannelAdmin\_EventChannel* ,  
    17

disconnect\_pull\_consumer/1  
    *CosEventChannelAdmin\_ProxyPullConsumer* ,  
    18

disconnect\_pull\_supplier/1  
    *CosEventChannelAdmin\_ProxyPullSupplier* ,  
    19

disconnect\_push\_consumer/1  
    *CosEventChannelAdmin\_ProxyPushConsumer* ,  
    21

disconnect\_push\_supplier/1  
    *CosEventChannelAdmin\_ProxyPushSupplier* ,  
    23

for\_consumers/1

<i>CosEventChannelAdmin_EventChannel</i> , 17	<i>try_pull</i> /1 <i>CosEventChannelAd-</i> <i>min_ProxyPullSupplier</i> , 20
<i>for_suppliers</i> /1 <i>CosEventChannelAdmin_EventChannel</i> , 17	
<i>install</i> /0 <i>cosEventApp</i> , 25	<i>uninstall</i> /0 <i>cosEventApp</i> , 25
<i>obtain_pull_consumer</i> /1 <i>CosEventChannelAdmin_SupplierAdmin</i> , 24	
<i>obtain_pull_supplier</i> /1 <i>CosEventChannelAd-</i> <i>min_ConsumerAdmin</i> , 16	
<i>obtain_push_consumer</i> /1 <i>CosEventChannelAdmin_SupplierAdmin</i> , 24	
<i>obtain_push_supplier</i> /1 <i>CosEventChannelAd-</i> <i>min_ConsumerAdmin</i> , 16	
<i>pull</i> /1 <i>CosEventChannelAd-</i> <i>min_ProxyPullSupplier</i> , 19	
<i>push</i> /2 <i>CosEventChannelAd-</i> <i>min_ProxyPushConsumer</i> , 21	
<i>start</i> /0 <i>cosEventApp</i> , 25	
<i>start_channel</i> /0 <i>cosEventApp</i> , 25	
<i>start_channel</i> /1 <i>cosEventApp</i> , 25	
<i>start_channel_link</i> /0 <i>cosEventApp</i> , 26	
<i>start_channel_link</i> /1 <i>cosEventApp</i> , 26	
<i>stop</i> /0 <i>cosEventApp</i> , 25	
<i>stop_channel</i> /1 <i>cosEventApp</i> , 26	