



# Event API

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This chapter describes the Event API.

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## Using the Event API

In your IoT FND NB API client application, use this IoT FND server URL to access the Event API WSDL:

`http://<server_address>/nbapi/event?wsdl`

For example:

`http://10.27.167.19/nbapi/event?wsdl`

## Event API Method Calls

### searchEvents

This call searches for events based on device type, event name, event time, and event severity.

#### Prototype

```
<even:searchEvents
>
  <query>deviceType:cgmesh eventName:up</query>
  <count>4</count>
  <offset>0</offset>
</even:searchEvents>
```

## Parameters

**Table 1: searchEvents Parameters**

Parameter	Type	Description
query	string	Search query string.
count	integer	Number of results to retrieve.
offset	integer	Position of the first result.

Use the parameters in [Table 2: Query Parameters, on page 2](#) and the options listed in [Table 3: eventName Query Options, on page 3](#) in the query.

**Table 2: Query Parameters**

Parameter	Delimiters	Options	Description
deviceType	=	asr1000 cgmesh cgnms cgr1000 db c800 ir800 ir500 ap800	Device type.
eventName	=	Options are listed in <a href="#">Table 3: eventName Query Options, on page 3</a> .	User-defined name.
eventSeverity	=	CRITICAL MAJOR MINOR INFO	Severity level.
eventTime	> < >= <=	User defined.	UTC date and time in the format: yyyy-MM-dd HH:mm:ss:SSS.

**Table 3: eventName Query Options**

Option	Device	Description
aaaFailure	cgr1000 c800 ir800	The AAA server returned an error or was unreachable while attempting to authenticate a meter.
act2lFailure	cgr1000 c800 ir800	The system rebooted after a hardware ACT2 failure, and the ACT2 process is being invoked.
archiveLogModeDisabled	db	Database archive log mode is disabled. Hot backups are not permitted.
archiveLogModeEnabled	db	Database archive log mode is enabled.
batteryFailure	cgr1000 c800 ir800	The battery failed.
batteryLow	cgr1000 c800 ir800	The battery charge is below the normal range.
batteryNormal	cgr1000 c800 ir800	The battery charge is in the normal range.
bbuConfigFailure	cgr1000 c800 ir800	The battery back up (BBU) configuration failed.
bbuFirmwareDownloadFailed	cgr1000 c800 ir800	The BBU firmware download failed.
bbuFirmwareDownloadPassed	cgr1000 c800 ir800	The BBU firmware download passed.

Option	Device	Description
bbuFirmwareMismatchFound	cgr1000 c800 ir800	A BBU firmware mismatch was found.
bbuFirmwareUpgradeFailure	cgr1000 c800 ir800 ir500	The BBU firmware upgrade failed.
bbuLockOut	ir500	The BBU is locked out.
bbuPowerOff	cgr1000 c800 ir800 ir500	The battery backup unit is not powered.
cd11IfRogueApDetectedNotif	ap800	
cd11IfStationSwitchOverNotif	ap800	
ciscoIetfDot11QosExtChangeNotif	ap800	
ciscoWlanVlanWepChangeNotif	ap800	
coldBoot	cgmesh cgr1000 c800 ir800 ap800	A cold boot occurred or a mesh node registered due to cold boot.
configPushed	cgr1000 c800 ir800	(Industrial Operations Kit only) The group configuration pushed to CGRs.
configRollback	cgr1000 c800 ir800 ap800	Configuration rollback required.

Option	Device	Description
criticallyLowFRASpace	db	The Flash Recovery Area (FRA) free space is critically low. Run database backup immediately or risk IoT FND and database failure.
criticallyLowTableSpace	db	Database "USERS" table space is critically low. Contact your DBA immediately to add more space or risk IoT FND and database failure.
defaultRouteLost	cgmesh	The mesh node lost the default route.
deviceAdded	cgr1000 c800 ir800	(Industrial Operations Kit only) The EID of the new device.
deviceLocChanged	cgr1000 c800 ir800	This event occurs when the GPS location changed in relation to the configured Interval and Distance thresholds.
deviceRemoved	cgr1000 c800 ir800	(Industrial Operations Kit only) The EID of the removed device.
deviceUnknown	cgnms	Unknown device detected by NMS.
doorClose	cgr1000 c800 ir800	The device door was closed.
doorOpen	cgr1000 c800 ir800	The device door is open.
dot11AuthenticateFail	ap800	Dot11 authentication failed for the access point
dot11Deauthenticate	ap800	Dot11 deauthentication frame was detected.
dot11Disassociate	ap800	Dot11 disassociation frame was detected.
dot1xAuthFailed	cgmesh	Dot1x authentication failed for the meter.
dot1xAuthFailure	cgmesh	A Dot1x authentication failure was detected.

Option	Device	Description
dot1xAuthFlood	cgmesh	A Dot1x authentication flood was detected.
dot1xReauth	cgmesh	Multiple attempts to send the mesh key to the meter failed. Re-authentication is in progress.
down	asr1000 cgmesh cgnms cgr1000 c800 ir800 db ir500 ap800	The specified device is down.
hardwareInsertion	cgr1000 c800 ir800	A new piece of hardware was inserted into the chassis.
hardwareRemoval	cgr1000 c800 ir800	Hardware was removed from the chassis.
HSMdown	cgnms	The Hardware Security Module (HSM) is down.
HSMup	cgnms	The HSM is down.
interfaceDown	asr1000 c800 ir800	The device interface is down.
interfaceUp	asr1000 c800 ir800	The device interface is up.
linecardFailure	cgr1000 c800 ir800	Linecard failure detected.

Option	Device	Description
linePowerFailure	cgr1000 c800 ir800	The line power supply for the device failed. This is different from the device being turned off, as happens in a power outage.
linePowerRestored	cgr1000 c800 ir800	The line power supply for the device is restored.
lowBattery	cgr1000 c800 ir800 ir500	The device battery backup unit charge is low or below the specified threshold.
lowFlashSpace	cgr1000 c800 ir800	The device is nearly out of memory on the flash partition.
lowFlashSpaceOk	cgr1000 c800 ir800	The CGR available flash memory is within the specified threshold.
lowFRASpace	db	Low database CGR space detected.
lowMemory	cgr1000 c800 ir800	Available memory is below the specified threshold.
lowMemoryOk	cgr1000 c800 ir800	Available memory is above the specified threshold.
manualCloseEvent	asr1000 cgmesh cgr1000 c800 ir800	The issue state changed by admin to closed.
manualNMSAddrChange	cgmesh	The mesh node registered due to a manual NMS address change.

Option	Device	Description
manualReRegistration	cgmesh	The mesh node registered due to manual registration
meshConnectivityLost	cgmesh	The mesh node lost all connectivity.
meshLinkKeyTimeout	cgmesh	The mesh node link key timed out.
meshUpgradeSuccess	cgmesh	The mesh module firmware upgrade was successful.
meterCertChange	cgmesh	The mesh node registered due to a certificate change.
metricRetrievalFailure	asr1000 cgr1000 c800 ir800	Metric retrieval failed.
migratedToBetterPAN	cgmesh	The mesh node migrated to a better PAN.
modemTemperatureColdAlarm	cgr1000 c800 ir800	The temperature of the modem module fell below specified levels.
modemTemperatureColdAlarmRecovery	cgr1000 c800 ir800	The modem alarm reset.
modemTemperatureWarmAlarm	cgr1000 c800 ir800	The temperature of the modem module fell above specified levels.
modemTemperatureWarmAlarmRecovery	cgr1000 c800 ir800	The modem alarm reset.
nmsAddrChange	cgmesh	The mesh node registered due to an NMS address change.
nmsError	cgmesh	The mesh node registered due to an NMS error.
normalFRASpace	db	Database FRA space is normal.



Option	Device	Description
normalTableSpace	db	Database table space is normal.
outage	cgmesh cgr1000 c800 ir800 ir500	An outage was detected for this device.
portDown	cgr1000 c800 ir800 ap800	Ethernet interface {0}/{1} is down.
portFailure	cgr1000 c800 ir800 ap800	Syslog message corresponding to the port facility was generated.
portUp	cgr1000 c800 ir800 ap800	Ethernet interface {0}/{1} is up.
powerSourceNormal	cgr1000 c800 ir800	The input power source is equal to or better than when system started.
powerSourceWarning	cgr1000 c800 ir800	One or more input power source is not connected.
refreshMeshKeyFailed	asr1000 cgmesh	A refresh of the mesh key failed.
registered	asr1000 cgmesh	The event received is registered with NMS.

Option	Device	Description
registrationFailure	cgr1000 c800 ir800 ap800	Device registration failed.
registrationRequest	cgr1000 c800 ir800 ap800	A registration request from a device was received.
registrationSuccess	cgr1000 c800 ir800 ap800	Device registration was successful.
rejoinedWithNewIP	cgmesh	The mesh node registered with a new IP address.
restoration	cgmesh	The device was restored from outage.
restorationRegistration	cgmesh	The mesh node registered after an outage.
rplTreeReset	cgr1000 c800 ir800	The RPL tree version was reset to 2. Because the RPL tree is updated with data, versions increment. A value of 2 signifies a reset to its original initial state.
rplTreeSizeCritical	cgr1000 c800 ir800	More than the maximum number of mesh nodes joined the RPL tree.
rplTreeSizeCriticalClear	cgr1000 c800 ir800	Less than the maximum number of mesh nodes detected in the RPL tree.
rplTreeSizeMajor	cgr1000 c800 ir800	More than the expected mesh nodes joined the RPL tree were detected.
rplTreeSizeMajorClear	cgr1000 c800 ir800	The expected number of mesh nodes in the RPL tree were detected.

Option	Device	Description
rplTreeVersionReset	cgr1000 c800 ir800	The RPL tree version was reset to 2. Because the RPL tree is updated with data, versions increment. A value of 2 signifies a reset to its original initial state.
ruleEvent	asr1000 cgmesh cgnms cgr1000 c800 ir800 db	This is a rule-generated event.
sdcardRemovalAlarm	cgr1000	SD card removal detected, and an alarm sent.
signatureFailure	asr1000 cgmesh cgr1000 cgnms c800 ir800 db ir500	Invalid signature reported by mesh nodes. If this event occurs, you must verify the certificate setup and that the mesh node and IoT FND are time synchronized.
softwareCrash	cgr1000 c800 ir800	Software process failed with a stateless restart, indicating an interruption of a service. Messages are processed for crashes on supervisor modules and line cards.
systemSwInconsistent	cgr1000 c800 ir800	Inconsistency detected in software or file system.
temperatureMajorAlarm	cgr1000 c800 ir800	A thermal sensor indicates that the temperature has reached the operating major threshold.
temperatureMajorRecovery	cgr1000 c800 ir800	A major temperature alarm has recovered.

Option	Device	Description
temperatureMinor	cgr1000 c800 ir800	The device temperature reached the minor threshold.
temperatureMinorRecovery	cgr1000 c800 ir800	The minor temperature alarm has recovered.
timeMismatch	cgmesh	The NMS server time does not match the device local time.
timeMismatchResolved	cgmesh	The NMS server time matches the device local time.
tunnelDown	cgr1000 c800 ir800	The tunnel is down.
tunnelProvFailure	cgr1000 c800 ir800	Tunnel provisioning failed.
tunnelProvRequest	cgr1000 c800 ir800	A tunnel provisioning request was received from a device.
tunnelProvSuccess	cgr1000 c800 ir800	Tunnel provisioning was successful.
tunnelUp	cgr1000 c800 ir800	The tunnel is up.

Option	Device	Description
unknown	asr1000 cgmesh cgnms cgr1000 c800 ir800 ir500 ap800 db	The event received is not registered with NMS.
unknownRegReason	cgmesh	The mesh node registered for an unknown reason.
unknownWPANChange	cgmesh	The mesh node changed its WPAN for an unknown reason.
unsupported	cgr1000 c800 ir800 ap800	Unsupported device detected.
up	asr1000 cgmesh cgnms cgr1000 c800 ir800 ap800 db	The specified device is up.
veryLowFRASpace	db	Very low database FRA space detected.
wpanWatchdogReload	cgr1000 c800 ir800	The WatchDog reloaded the WPAN module. The bridge was unresponsive for more than 5 minutes and the WatchDog is enabled.

## Results

**Table 4: searchEvents Results**

Field	Type	Description
subscriptionid	long	Subscription ID used by the listener to identify the subscription response origin.
events	List<EventDetail>	Details about the event.

### searchEvents SOAP XML Request Format

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:even="http://event.nbapi.cgms.cisco.com/">
  <soapenv:Header/>
  <soapenv:Body>
    <even:searchEvents>
      <!--Optional:-->
      <query>deviceType:cgmesh eventName:up</query>
      <!--Optional:-->
      <count>4</count>
      <!--Optional:-->
      <offset>0</offset>
    </even:searchEvents>
  </soapenv:Body>
</soapenv:Envelope>
```

## subscribeForEvents

This call streams a set of events to the API listener, based on the query. Event subscriptions are based on device type, event name, or severity. Listener registers the URL and specifies the push window. After every configured eventPushWindowSec event push window, all new events received in this window are delivered to the registered URL. Subscription-based events notification uses the same query language as [searchEvents](#), [on page 1](#), except that the eventTime attribute-based queries cannot be subscribed to and return unsuccessful subscription errors.

### Prototype

```
<even:subscribeForEvents
>
  <soapEndPointUrl>http://customer.network.com:11001/Process/Service/
ProcessCellRouterStates/ReceiveEvents/EventPushService?wsdl</soapEndPointUrl>
  <query>deviceType:cgmesh eventName:registered</query>
  <eventPushWindowSec>21</eventPushWindowSec>
</even:subscribeForEvents>
```

## Parameters

**Table 5: subscribeForEvents Parameters**

Parameter	Type	Description
soapEndPointUrl	string	

Parameter	Type	Description
		<p>The address of the WSDL file—as implemented by your client—that receives event notifications from the IoT FND NB API. For more information, see <a href="#">Handling Event Notifications On the Client Side, on page 21</a>.</p> <p><code>http://&lt;server_address&gt; :&lt;port number&gt; /&lt;path&gt;&lt;api&gt; ?wsdl</code></p> <p>For example:</p> <p><code>http://localhost:8445/event?wsdl</code></p> <p><b>soapEndpointUrl</b> must point to the WSDL document that describes the listener application receiving the events. Ensure that the <i>target namespace</i> and <i>service name</i> parameters in the Web Services Description Language (WSDL) document conform to these default values:</p> <pre>target namespace "http://pushevent.nbapi.cgms.cisco.com/" service name "EventPushService"</pre> <p><b>Note</b> Release 2.1 and later installations support https for <code>soapEndpointUrl</code>.</p> <p><b>Functionality in IoT FND 1.1.3 and later installations</b></p> <p>Some applications cannot set the default values for these parameters when generating the WSDL file. If this is the case, in IoT FND 1.1.3 and later installations you can set the following properties in the <code>server/cgms/conf/cgms.properties</code> file to match the values in the generated WSDL document:</p> <pre>eventSubscriberNamespace ="http://event.nbapi.cgms.mydomain.com/" eventSubscriberServicename ="MyEventService"</pre> <p>The <i>target namespace</i> and <i>service name</i> parameters must match those specified in the <code>cgms.properties</code> file. If they are not specified in the <code>cgms.properties</code> file, they must match the default values.</p> <p><b>Note</b> Only one set of these values is allowed in the <code>cgms.properties</code> file. If there are multiple</p>



Parameter	Type	Description
		subscribers, they must use the <i>target namespace</i> and <i>service name</i> parameter values specified in all WSDL documents pointed to in the <b>soapEndPointUrl</b> of the subscriptions.
query	string	The query string. <b>Note</b> The query language eventTime field cannot be inside the subscription.
eventPushWindowSec	integer	The event push window time, in seconds. The query executes after x seconds, and the results are pushed to the listener endpoint specified in the <b>soapEndPointUrl</b> WSDL file.

## Results

**Table 6: subscribeForEvents Response**

Field	Type	Description
subscriptionId	long	Subscription ID

The QueryResult Status field indicates if the subscription succeeded or failed.

### subscribeForEvents SOAP XML Request Format

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:even="http://event.nbapi.cgms.cisco.com/"
  <soapenv:Header/>
  <soapenv:Body>
    <even:subscribeForEvents>
      <!--Optional:-->
      <soapEndPointUrl>http://128.107.155.95:8455/nbapi/pushevent?wsdl</soapEndPointUrl>
      <!--Optional:-->
      <query>deviceType:cgmesh eventName:registered</query>
      <!--Optional:-->
      <eventPushWindowSec>21</eventPushWindowSec>
    </even:subscribeForEvents>
  </soapenv:Body>
</soapenv:Envelope>
```

## unSubscribeForEvents

This call unsubscribes the defined listener event query.

### Prototype

```
<even:unsubscribeForEvents
>
  <query>deviceType:cgmesh eventName:registered</query>
</even:unsubscribeForEvents>
```

### Parameters

**Table 7: unsubscribeForEvents Parameters**

Parameter	Type	Description
soapEndPointUrl	string	Address where the EventNbapiService WSDL is located.  http://<server_address> :<port number> /<path><api> ?wsdl
query	string	Query string.  <b>Note</b> Query language eventTime field cannot be inside the subscription.

### Results

**Table 8: unsubscribeForEvents Results**

Field	Type	Description
subscriptionId	long	Subscription ID

The QueryResult Status field indicates if the subscription succeeded or failed.

### unsubscribeForEvents SOAP XML Request Format

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:even="http://event.nbapi.cgms.cisco.com/">
  <soapenv:Header/>
  <soapenv:Body>
    <even:unsubscribeForEvents>
      <!--Optional-->
      <soapEndPointUrl>http://128.107.155.95:8455/nbapi/pushevent?wsdl</soapEndPointUrl>
      <!--Optional-->
      <query>deviceType:cgmesh eventName:registered</query>
    </even:unsubscribeForEvents>
  </soapenv:Body>
</soapenv:Envelope>
```

## subscribeForCgmeshOutage

This call is similar to subscribeForEvents, except that it is for outage and restoration events. Up to 10 subscribers (listeners) at a time can register for these events.

## Prototype

```
<even:subscribeForCgmeshOutage
>
  <soapEndPointUrl>http://128.107.109.98:8456/nbapi/pushevent?wsdl</soapEndPointUrl>
</even:subscribeForCgmeshOutage>
```

## Parameters

**Table 9: subscribeForCgmeshOutage Parameters**

Parameter	Type	Description
soapEndPointUrl	string	<p>Address of the WSDL, implemented by your client, that receives outage notifications from the IoT FND NB API. For more information, see <a href="#">Handling Event Notifications On the Client Side</a>, on page 21.</p> <p><code>http://&lt;server_address&gt; :&lt;port number&gt; /&lt;path&gt;&lt;api&gt; ?wsdl</code></p> <p>For example: <code>http://localhost:8445/outage?wsdl</code></p> <p><b>Note</b> Release 2.1 and later installations support https for soapEndPointUrl.</p>

To configure the amount of time, in seconds, after which IoT FND pushes batches of outage events and Restoration Events to all subscribers, set the value of the event-Outage-push-sec parameter in the /opt/cgms/conf/cgms.properties file. For example, to set event-Outage-push-sec to 30, add this line to the file:

```
event-Outage-push-sec=30
```

When IoT FND pushes outage events to subscribers, only subscribers that are up receive the events. The subscribers that are down (they do not respond) do not receive these events even after they come back online, but they receive the next outage event push.

For a very fast outage event push, set event-Outage-push-sec to a value as low as 1 second. If you set the push value to 1 second, IoT FND executes a job to find and push new events in the queue.

## Results

**Table 10: Subscribe for CG-Mesh Outage Response**

Parameter	Type	Description
subscriptionId	long	Subscription ID which can be used by the listener to identify for which subscription they are getting the response from.

The QueryResult Status field indicates if the subscription succeeded or failed.

### subscribeForCgmeshOutage SOAP XML Request Format

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:even="http://event.nbapi.cgms.cisco.com/">
  <soapenv:Header/>
  <soapenv:Body>
    <even:subscribeForCgmeshOutage>
      <!--Optional:-->
      <soapEndPointUrl>http://128.107.109.98:8456/nbapi/pushevent?wsdl</soapEndPointUrl>
    </even:subscribeForCgmeshOutage>
  </soapenv:Body>
</soapenv:Envelope>
```

## unSubscribeForCgmeshOutage

This call unsubscribes the defined listener.

### Prototype

```
<even:unSubscribeForCgmeshOutage
>
  <soapEndPointUrl>http://128.107.109.98:8456/nbapi/pushevent?wsdl</soapEndPointUrl>
</even:unSubscribeForCgmeshOutage>
```

### Parameters

The following table describes the parameters in the request.

**Table 11: unSubscribeForCgmeshOutage Parameters**

Parameter	Type	Description
soapEndPointUrl	string	Address of the Event WSDL service. The soapEndPointUrl identifies the subscription.  http://<server_address> :<port number> /<path><api> ?wsdl  <b>Note</b> Release 2.1 and later installations support https for soapEndPointUrl.

### Results

**Table 12: unSubscribeForCgmeshOutage Results**

Parameter	Type	Description
subscriptionId	long	Subscription ID

The QueryResult Status field indicates if the subscription succeeded or failed.

### unSubscribeForCgmeshOutage SOAP XML Request Format

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:even="http://event.nbapi.cgms.cisco.com/"
  <soapenv:Header/>
  <soapenv:Body>
    <even:unSubscribeForCgmeshOutage>
      <!--Optional:-->
      <soapEndPointUrl>http://128.107.109.98:8456/nbapi/pushevent?wsdl</soapEndPointUrl>
    </even:unSubscribeForCgmeshOutage>
  </soapenv:Body>
</soapenv:Envelope>
```

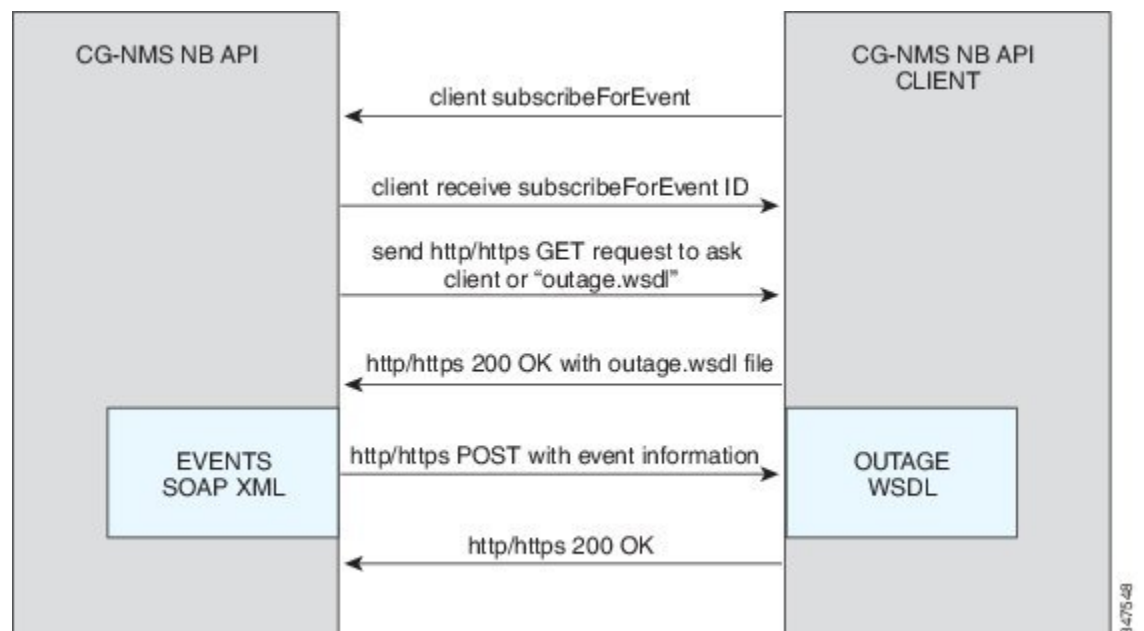
## Handling Event Notifications On the Client Side

When subscribing for an event type, your IoT FND NB API client must implement a Web Service that implements the WSDL for handling event notifications sent by the IoT FND NB API. The WSDL you must provide the receiveEvents() method, which the IoT FND NB API uses to send event notifications to your client.

### Example

In the following figure, the IoT FND NB API client implements the Outage WSDL. When the client subscribes for outage events, IoT FND uses the IoT FND NB API to call the method receiveEvents() on the IoT FND NB API client.

**Figure 1: Event Notification Handling**



This is the Event XML that your client must implement to receive outage notifications from IoT FND.

## Event Notification Handling WSDL (Client Side)

Your client must implement this WSDL:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<wsdl:definitions xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:tns="http://pushevent.nbapi.cgms.cisco.com/"
  xmlns:wsdli="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema" name="eventPush"
  targetNamespace="http://pushevent.nbapi.cgms.cisco.com/">
  <wsdl:types>
    <xsd:schema targetNamespace="http://pushevent.nbapi.cgms.cisco.com/">
      <xsd:element name="receiveEvents" type="tns:receiveEvents" />
      <xsd:complexType name="receiveEvents">
        <xsd:sequence>
          <xsd:element minOccurs="0" name="eventQueryResult"
            type="tns:eventQueryResult" />
        </xsd:sequence>
      </xsd:complexType>
      <xsd:complexType name="eventQueryResult">
        <xsd:complexContent>
          <xsd:extension base="tns:queryResult">
            <xsd:sequence>
              <xsd:element maxOccurs="unbounded" minOccurs="0"
                name="events" nillable="true" type="tns:eventDetail" />
              <xsd:element name="subscriptionId" type="xsd:long" />
            </xsd:sequence>
          </xsd:extension>
        </xsd:complexContent>
      </xsd:complexType>
      <xsd:complexType abstract="true" name="queryResult">
        <xsd:sequence>
          <xsd:element minOccurs="0" name="queryId" type="xsd:string" />
          <xsd:element minOccurs="0" name="queryStatus" type="xsd:string" />
        </xsd:sequence>
      </xsd:complexType>
      <xsd:complexType name="eventDetail">
        <xsd:sequence>
          <xsd:element minOccurs="0" name="eid" type="xsd:string" />
          <xsd:element minOccurs="0" name="eventMessage" type="xsd:string" />
          <xsd:element minOccurs="0" name="eventSeverity" type="xsd:string" />
          <xsd:element minOccurs="0" name="eventTime" type="xsd:long" />
          <xsd:element minOccurs="0" name="eventTypeName" type="xsd:string" />
          <xsd:element minOccurs="0" name="meterId" type="xsd:string" />
        </xsd:sequence>
      </xsd:complexType>
    </xsd:schema>
  </wsdl:types>
  <wsdl:message name="receiveEvents">
    <wsdl:part element="tns:receiveEvents" name="receiveEvents" />
  </wsdl:message>
  <wsdl:portType name="EventPushService">
    <wsdl:operation name="receiveEvents">
      <wsdl:input message="tns:receiveEvents" />
    </wsdl:operation>
  </wsdl:portType>
  <wsdl:binding name="EventPushServiceBinding" type="tns:EventPushService">
    <soap:binding style="document"
      transport="http://schemas.xmlsoap.org/soap/http" />
    <wsdl:operation name="receiveEvents">
      <soap:operation soapAction="http://pushevent.nbapi.cgms.cisco.com/receiveEvents" />
      <wsdl:input>
        <soap:body use="literal" />
      </wsdl:input>
    </wsdl:operation>
  </wsdl:binding>
  <wsdl:service name="EventPushService">
```

```
<wsdl:port binding="tns:EventPushServiceBinding" name="EventPushService">
  <soap:address location="http://127.0.0.1:8008" />
</wsdl:port>
</wsdl:service>
</wsdl:definitions>
```

## Push Mechanisms

Push mechanisms work only when the NMS server has successfully completed the subscription, as defined in the [subscribeForEvents](#), on page 14 and [subscribeForCgmeshOutage](#), on page 18 API methods.

A successful subscription leads to generation of the Subscription ID that is sent to the subscriber. The subscriber uses the Subscription ID to track the event push.

IoT FND runs a Scheduled Job every x seconds. Seconds are configurable during the subscription by using the event-Outage-push-sec global parameter defined in the /opt/cgms/conf/cgms.properties file. After every x seconds, IoT FND generates an EventList and pushes it to the subscribers defined in the soapEndPointUrl.

The web service to implement on the NMS side is:

```
public void receiveEvents(EventQueryResult eventQueryResult) throws java.rmi.RemoteException;
```

## QueryResult

The QueryResult Status field indicates if the subscription succeeded or failed. The following table describes the parameters in the response.

**Table 13: EventQueryResult Response**

Field	Type	Description
subscriptionId	long	Subscription ID used by the listener to identify which subscription the response is from.
events	List<EventDetail>	Details about the event.

The following table describes the parameters in the EventDetail results.

**Table 14: EventDetail Response**

Field	Type	Description
eid	string	Serial number for the CGR and MAC address for the mesh endpoint.
eventMessage	string	Message related to the event.
eventTime	long	Time in milliseconds.
eventTypeName	string	Type of event

Field	Type	Description
meterId	string	Meter ID corresponding to the EID. For this value to return, it must be included in the import file when importing meters in IoT FND.

## Example

This is an example of the XML content that the subscriber receives:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/">
  <env:Header>
    <seam:conversationId
xmlns:seam="http://www.jboss.org/seam/webservice">110</seam:conversationId>
  </env:Header>
  <env:Body>
    <ns2:searchEventsResponse xmlns:ns2="http://event.nbapi.cgms.cisco.com/">
      <eventQueryResult>
        <queryId></queryId>
        <queryStatus>SUCCEEDED</queryStatus>
        <events>
          <eid>NE01</eid>
          <eventMessage>Device is Up</eventMessage>
          <eventSeverity>INFO</eventSeverity>
          <eventTime>1314656731899</eventTime>
          <eventTypeName>up</eventTypeName>
          <meterId>Sjc123</meterId>
        </events>
        <events>
          <eid>NE01</eid>
          <eventMessage>Outage detected on this device</eventMessage>
          <eventSeverity>CRITICAL</eventSeverity>
          <eventTime>1314656731908</eventTime>
          <eventTypeName>outage</eventTypeName>
          <meterId>Sjc123</meterId>
        </events>
        <events>
          <eid>NE01</eid>
          <eventMessage>Device has been Restored from Outage</eventMessage>
          <eventSeverity>INFO</eventSeverity>
          <eventTime>1314656771923</eventTime>
          <eventTypeName>restoration</eventTypeName>
          <meterId>Sjc123</meterId>
        </events>
        <events>
          <eid>NE01</eid>
          <eventMessage>Device is Up</eventMessage>
          <eventSeverity>INFO</eventSeverity>
          <eventTime>1314656771933</eventTime>
          <eventTypeName>up</eventTypeName>
          <meterId>Sjc123</meterId>
        </events>
        <subscriptionId>2</subscriptionId>
      </eventQueryResult>
    </ns2:searchEventsResponse>
  </env:Body>
</env:Envelope>
```

The subscriptionId XML element (<subscriptionId>2</subscriptionId>) tells the receiver that this push is for the subscription ID equal to 2.