InstantLink NEI for FlowOne OrderHub REST V1

Release 20

Functional Description

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1 About this document

This document describes the InstantLink NEI for FlowOne OrderHub REST V1, compatible with InstantLink 9.0.0 and later.

1.1 Audience

This document is intended for the switch engineers, customer care staff and system analysts who need to understand how this NEI works in the customer's provisioning system.

1.2 Terms and concepts

The following sections list the abbreviations, terms and concepts used in the document.

1.2.1 Abbreviations

API	Application Protocol Interface, Application Programming Interface
MML	Man-Machine Language
M/O/C	Mandatory/Optional/Conditional parameter
N/A	Not applicable
NE	Network Element
NEI	Network Element Interface
OSS/BSS	Operations and Business Support System

1.2.2 Terminology

Application Programming Interface	A language and message format used by an application program to communicate with a program that provides services for it
	API can also be used to access other services, for example, a communications protocol, or control programs, such as a database management system (DBMS).
	APIs are implemented by writing function calls in the program, which provide the linkage to the required subroutine for execution. Thus, an API implies that some program module is available in the computer to perform the operation or that it must be linked into the existing program to perform the tasks.
Application Protocol Interface	Rules governing transmitting and receiving of data between two systems.
	In telecommunications, an API consists of a formalized set of software calls and routines that can be referenced by an application program in order to access supporting network services.
Business Service Tool; BST	A component of Provisioning and Activation and Order Management that enables design and execution of provisioning logics and order management.

InstantLink	InstantLink is a system for subscriber provisioning and service activation from the OSS/BSS systems to the communications network.
	InstantLink receives requests from the OSS/BSS systems, translates the requests to network-element-specific commands and executes these commands. After execution of a request, InstantLink sends a response to the OSS/BSS.
FlowOne OrderHub	A configurable UI for communications service providers' (CSP) delivery specialists who handle manual fulfillment tasks and monitor the order flow.
Macro Server	A module of InstantLink that executes Macro Sets with a synchronous connection.
network element	Network devices that control network operations, including switching and transport.
	Example network elements include HLR, GPRS Charging Gateway, MSC and SMSC
network element interface	A communication channel to a network element.
	NEI is an interface module in a product. Through a NEI, software can, for example, operate a network element, collect usage information from it or send control commands to it.

1.3　　　Related documentation

For more information on InstantLink, see InstantLink documentation.

2   System overview

This chapter provides general information about the NEI and the environment in which the NEI is used.

2.1   Introduction to FlowOne Orderhub

FlowOne Fulfillment offers fully automated fulfillment processes, reducing significantly the need for manual order handling at the back-office. For the remaining manual tasks, FlowOne OrderHub provides a single fulfillment user interface that makes manual order handling fast and less error-prone.

The Work Queues module in FlowOne OrderHub shows all the pending manual tasks in preconfigured queues. When an InstantLink Business Service Tool (BST) logic in Order Management decides that a human intervention is needed, a task is sent to a designated work queue in FlowOne OrderHub. The back-office employee picks the highest priority task in the work queue, performs the required manual work, and sends the order forward in the tool chain.

2.2   Introduction to InstantLink NEI

The InstantLink NEI for FlowOne OrderHub REST uses REST over the HTTP/HTTPS provisioning interface. The NEI is asynchronous and uses the Order Management Task Handler for sending task responses back to Order Management.
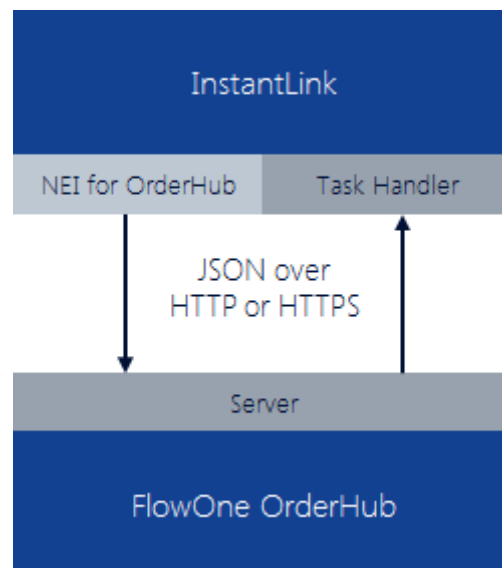

Figure 1. InstantLink NEI for FlowOne OrderHub

The InstantLink NEI for FlowOne OrderHub supports the following operations:

- create a new manual task to FlowOne OrderHub
- cancel a manual task in FlowOne OrderHub

- send a notification message to notify FlowOne OrderHub of an order status change.

3   Login and logout descriptions

The InstantLink NEI for FlowOne OrderHub sends authentication and authorization information in an HTTP header in API key format. The key contains both the authentication and the authorization information.

The NEI reads the API key from the file pointed by the $RCFILE environment variable during the Java Macro Server start-up. The API key must be generated using FlowOne OrderHub tools. For more information on the FlowOne OrderHub tools, see *FlowOne OrderHub Configuration Guide*.

The address to FlowOne OrderHub needs to be configured to the orderhub1 network element connection in the InstantLink network model. For instructions on how to configure the NEI into the InstantLink network model, see *InstantLink NEI for FlowOne OrderHub REST V1 Installation Guide*.

4 Provisioning task descriptions

This chapter describes the tasks supported by this NEI.

The tasks implemented for this NEI are as follows:

- create task
- cancel task
- send notification

4.1 Create task

Use the CREATE_TASK command to create a new manual task to FlowOne
OrderHub.

Required permissions

The API key attached to the NEI should be authorized with the tasks:submit
permission to be able to send a task to FlowOne OrderHub.

Command syntax

The NEI builds a JSON document based on the given task parameter values and
sends it to FlowOne OrderHub using HTTP POST method. The structure of the
JSON document is presented in the following example data. Task parameters are
described in *Table 1*.

```
{
  "orderId": "51",
  "taskId": "3",
  "orderRef": "ORDER_REFERENCE",
  "taskType": "TASK_TYPE",
  "workQueue": "WORK_QUEUE",
  "callback": {
    "endpoint":
http://host.nokia.com:port/TaskHandler/api/v1/requests/51/task
s/3
  },
  "dateRequired": "DATE_REQUIRED",
  "parameters": {
    "TASK_REF": "51_3"
  }
}
```

Table 1. Create task parameters

Task Parameter	Description	Values	M/O/C
REQ_TYPE	Defines the request type.	**Fixed value**: 1 (create)	M
REQ_OBJ	Defines the type of object that is created.	**Fixed value:** 1	M

Task Parameter	Description	Values	M/O/C
ACTION	The action for the FlowOne OrderHub operation.	**Fixed value:** CREATE_TASK	M
OH_ORDER_REF	The ID of the order this task is part of. For example, the value of ORDER_NO in Order Management can be used.	**Value format:** string **Example value:** ORDER_0324	O
OH_TASK_TYPE	The type of the task. The value must match one of the publicIds of the task types configured in FlowOne OrderHub.	**Value format:** string **Example value:** FALLOUT	M
OH_WORK_QUEUE	The work queue into which this task should be added. The value must match one of the publicIds of the work queues configured in FlowOne OrderHub.	**Value format:** string **Example value:** FALLOUT_MANAGEMENT	M
OH_DATE_REQUIRED	The date this task should be finished by. The date is used to calculate Jeopardy status for the task. **Note** This parameter is optional from release 20 onwards.	**A date in format:** yyyymmddhhMMss	O

4.2 Cancel task

Use the CANCEL_TASK command to cancel a task in FlowOne OrderHub

Required permissions

The API key attached to the NEI should be authorized with the tasks:modify permission to be able to cancel a task in FlowOne OrderHub.

Command syntax

An HTTP PUT message without any body element. The NEI builds the cancellation URL from the task parameters. The URL is in format:

```
http(s)://host.name.com:port/
api/tasks/_external/OM_ORDER_ID/OM_TASK_ID/status/cancelled
```

Table 2. Cancel task parameters

Task Parameter	Description	Values	M/O/C
REQ_TYPE	Defines the request type.	**Fixed value:** 1	M
REQ_OBJ	Defines the type of object that is created.	**Fixed value:** 1	M
ACTION	The action for the FlowOne OrderHub operation.	**Fixed value:** CANCEL_TASK	M

Task Parameter	Description	Values	M/O/C
OM_TASK_ID	The ID of the task that has been created to FlowOne OrderHub and that will be cancelled.	**Value format:** long **Example value:** 3	M
OM_ORDER_ID	The ID of the order whose task is to be cancelled. If not given, the current order ID is used.	**Value format:** long **Example value:** 12983 **Default value:** The ID of the current order	O

4.3 Send notification

Use the SEND_NOTIFICATION command to send a notification task to FlowOne OrderHub.

Required permissions

The API key attached to the NEI should be authorized with the managed_orders:send_notification permission to be able to send notifications for an order.

Command syntax

The NEI builds a JSON document based on the given task parameter values and sends it to FlowOne OrderHub using HTTP POST method. The structure of the JSON document is presented in the following example data. Task parameters are described in *Table 3*.

```
{
  "type": "InboundNotification",
  "eventType": "OrderStatusChanged",
  "eventId": "38471-1",
  "eventCode": "OSC",
  "eventTime": "2018-05-23T11:21:49Z",
  "referenceMap": {
    "orderId": 112,
    "orderNo": "MCO-38471",
    "initiatingSystem": "OrderHub",
    "initiatingUser": "John Smith (john.smith@example.com)"
  },
  "propertyMap": {
    "ORDER_STATUS": "CANCELLED"
  }
}
```

Table 3. Send notification task parameters

Task Parameter	Description	Values	M/O/C
REQ_TYPE	Defines the request type.	**Fixed value:** 1 (create)	M
REQ_OBJ	Defines the type of object that is created.	**Fixed value:** 1	M

Task Parameter	Description	Values	M/O/C
ACTION	The action for the FlowOne OrderHub operation.	**Fixed value:** SEND_NOTIFICATION	M
OM_ORDER_ID	The ID of the order to which the notification relates. If not given, the current order ID is used.	**Value format:** long **Example value:** 12983 **Default value:** The ID of the current order	O
OM_ORDER_NO	The order number associated with this order, if defined.	Any string value	O
EVENT_TYPE	The type of event to which this notification relates.	**Fixed value:** OrderStatusChanged or OrderAmendStatusChanged	M
EVENT_ID	A unique identifier for the event.	Any string value	O
EVENT_CODE	An optional identifier for the type of event that generated the notification.	Any string value	O
EVENT_TIME	A timestamp representing the point in time at which the event occurred. Defaults to the current date and time.	**Format:** yyyyMMddHHmmss	O
INITIATING_SYSTEM	Optionally defines the system that initiated the event (for example, order amend or cancellation)	Any string value	O
INITIATING_USER	Optionally defines the user who initiated the event (for example, order amend or cancellation)	Any string value	O
PARAM_<suffix>	Any additional parameters relating to the given event type. All such parameters are transmitted in the propertyMap notification attribute, with the leading prefix removed.	Any value	O

Table 4. Send notification – `OrderStatusChanged` task parameters

Task Parameter	Description	Values	M/O/C
PARAM_ORDER_STATUS S	Defines the new status of the affected order.	Any valid order status (for example, STARTED, CANCELLED or COMPLETED)	M

Table 5. Send notification – `OrderAmendStatusChanged` task parameters

Task Parameter	Description	Values	M/O/C
PARAM_ORDER_AMEND _STATUS	Defines the new amend status of the affected order.	Any value representing order amend status (for example, INACTIVE or AMENDING)	M