# Set Up Northbound Notification

## Northbound Notification

The Cisco Unified Communications Domain Manager 10.6(1) Northbound Notification (NBN) provides a mechanism to notify an Operations Support System (OSS) or Business Support System (BSS) when user data in Cisco Unified Communications Domain Manager 10.6(1) is created, updated, or deleted. The Northbound Notifications can be customized to specify which events trigger notification and the destination of notifications.

The supported model types are:

**data/NormalizedUser**

> Essential user information. Changes occur either from LDAP synch or manually in Cisco Unified Communications Domain Manager 10.6(1).

**relation/Subscriber**

> Subscriber information, such as assigned devices and services. Only changes made in Cisco Unified Communications Domain Manager 10.6(1) via Subscriber Management generate notifications. Changes to subscribers made in Cisco Unified Communications Manager do not generate notifications.

All NBN events are post-execution so the notification is sent immediately after the data is changed in Cisco Unified Communications Domain Manager 10.6(1).

**Note**    Failing changes to user data result in a pair of notifications, one for the attempted change and an opposite one for the rollback of the change. For example, a failing user add generates a create notification and a delete notification.

To suspend notifications for a given model type and operation, mark the event as 'inactive' and notifications will neither be sent nor stored while the event is inactive. Once the event is marked as 'active', subsequent notifications will be sent.

# Notification Format

The Northbound Notifications are sent to a destination as HTTP or HTTPS POST requests. The message body is a JSON map that contains the notification data. The JSON map is in the following format:

| Key | Datatype | Operation |
|---|---|---|
| model_type | String | All |
| operation | String | All |
| pkid | String | All |
| hierarchy | String | All |
| new_data | Map | Create/Update |
| previous_data | Map | Update/Delete |

The keys in the new_data and old_data maps are the attribute names for the given model type.

### Example

See the following example of a notification's message body triggered by updating a user:

```
{
    'model_type': 'data/NormalizedUser',
    'operation': 'update',
    'pkid': '5445310900698a11d83164e3',
    'hierarchy': '543c57ea00698a11d8305815',
    'new_data': {
        'username': 'jdoe',
        'mail': ['jdoe@provider.com'],
        'givenName': ['Jane'],
        'sn': ['Doe'],
        'l': ['RTP']
    },
    'previous_data': {
        'username': 'jdoe',
        'mail': ['jdoe@provider.com'],
        'givenName': ['Jane'],
        'sn': ['Doe'],
        'l': ['New York']
    }
}
```

# NBN Transaction Processing

Once an NBN event is triggered, it is handled in a new transaction independent of the original transaction that triggered the event. These transactions can also be queried through the transaction log. The result of the NBN transaction will be successful if a positive HTTP or HTTPS response code is received from the OSS/BSS. If no response is received (timeout) or a negative response code is received, the transaction will show as failed.

# Northbound Notification Workflow

Perform the following procedures to configure northbound notification.

### Procedure

**Step 1**  Configure Northbound Notification Destination, on page 3 to specify the destination for northbound notifications.

**Step 2**  Configure Northbound Notification Event, on page 5 to specify an event to trigger the northbound notification.

**Step 3**  Configure Northbound Notification Event Attributes, on page 4 to specify the list of attributes to be received in a notification for a specific event.

**Note**    Steps 2 and 3 can be performed in either order, but after the list attributes are defined in Step 3 you will need to edit the event (Step 2) to add or update the Attribute Selector field.

# Configure Northbound Notification Destination

Use this procedure to set the destination for Northbound Notifications of Cisco Unified Communications Domain Manager 10.6(1) events. Only one NBN destination can be configured.

**Note**    You cannot delete a destination until it is removed or disassociated from all events.

### Procedure

**Step 1**  Login as the provider admin.

**Step 2**  Select **Administration Tools** > **Northbound Notifications** > **Destination**.

**Step 3**  Click **Add**.

**Step 4**  Provide the following information for the destination:

| Field | Description |
|---|---|
| Hostname/IP Address | Hostname or IP address of the OSS/BSS http server. This field is mandatory. |
| Port | The destination port. This field is mandatory. |

| Field | Description |
|-------|-------------|
| Username | If the OSS/BSS http server has authentication enabled, specify the username to use. |
| Password | The password for the above username. |
| Secure | Use HTTPS send method for secure transport of the notification. This field is checked by default. Uncheck to use HTTP instead. |

**Step 5** Click **Save**.

# Configure Northbound Notification Event Attributes

You can use attribute selectors to define the attributes to be received in a notification for a particular event. Notifications contain only the specified fields and are not sent if none of the fields are chosen.

**Note** You cannot delete an attribute selector until it is removed or disassociated from all events.

**Important** It is possible to create an attribute selector through the API with "invalid" attributes as there is no API validation on the list of attributes. We recommend using the GUI or API to retrieve the list of attributes prior to creating an attribute list through the API. Refer to *Cisco Unified Communications Domain Manager, Release 10.6(1) API Reference Guide*. If an invalid attribute is added to an attribute filter, the transaction will succeed but notifications will not contain the chosen field.

### Procedure

**Step 1** Login as the provider admin.

**Step 2** Select **Administration Tools** > **Northbound Notifications** > **Attributes**.

**Step 3** Click **Add**.

**Step 4** Enter a unique name.

**Step 5** Select a model type: either data/NormalizedUser or relation/Subscriber.

**Step 6** Highlight one or more attributes and perform the following:

- Click **Select** to add an attribute to the list of chosen attributes. You can also select multiple attributes at a time by highlighting them and clicking **Select**.The attributes move from the Available box to the Selected box.

- Click **Remove** to remove an attribute from the list of chosen attributes. You can also remove multiple attributes at a time by highlighting them and clicking **Remove**.The attributes from the Selected box to the Available box.

**Example:**
For the data/NormalizedUser model, you could select Username, First Name, Last Name, Phone Number, and Mail. Notifications are then sent when an event occurs that includes one or more of these attributes.

**Step 7**    Click **Save**.

### What to Do Next

Apply the event attributes to an event by adding or updating the event and choosing the desired attribute selector.

# Configure Northbound Notification Event

Use this procedure to specify an event to trigger Northbound Notifications.

### Before You Begin

You must set the Northbound Notification Destination before you can configure events.

### Procedure

**Step 1**    Login as the provider admin.

**Step 2**    Select **Administration Tools** > **Northbound Notifications** > **Events**.

**Step 3**    Click **Add**.

**Step 4**    Provide the following information for the triggering event:

| Field | Description |
|---|---|
| Name | Event name. Must be unique. This field is mandatory. |
| Description | A description of the event |
| Active | Check to turn on notification. |
| Model Type | Select either data/NormalizedUser or relation/Subscriber as the model type of the data that triggers the event. This field is mandatory. |
| Operation | Select from the operations applicable to the selected model type. This field is mandatory. |
| Attribute Selector | Set an attribute selector to restrict (filter) the list of attributes sent in notifications for this event. This field is optional. To remove an existing attribute selector, backspace and delete it from the Attribute Selector field. If you do not specify an attribute selector, all possible attributes are sent in notifications for this event. |

| Field | Description |
| --- | --- |
| Destination | The provider's NBN destination. This field is read only. |

**Step 5** Click **Save**.