YubiEnterprise Delivery

Yubico

May 11, 2022
1 User Guide and Release Notes

1.1 Introduction .................................................. 1
1.2 Modes of Purchase ........................................... 2
1.3 Costs of Shipping and Taxes .................................. 5
1.4 Delivery Policies .............................................. 7
1.5 Onboarding ................................................... 9
1.6 Dashboard ................................................... 12
1.7 Shipments: Overview ......................................... 15
1.8 Requesting Shipment: Introduction ......................... 23
1.9 Shipping to Multiple Addresses ............................. 31
1.10 Shipping to a Single Address (Console) .................... 36
1.11 Purchase Orders ............................................. 41
1.12 User Management ........................................... 43
1.13 Best Practices and Troubleshooting ......................... 48
1.14 FAQs ....................................................... 59
1.15 API Onboarding Playbook .................................. 61
1.16 ServiceNow Integrations .................................... 64
1.17 Using the API to Execute a Shipping Request .......... 65
1.18 API: Best Practices and FAQ ............................... 88
1.19 Release Notes ............................................... 90
1.20 Copyright .................................................. 110
1.1 Introduction

1.1.1 Overview

YubiEnterprise Delivery is a cloud-based service that enables streamlined distribution of YubiKeys to end-users’ offices or residential addresses, both domestic and international.

- Ship Yubico products to end-users, tracking them through the system with seamless support from the experts at Yubico
- Access the service through the YubiEnterprise Delivery Console or integrate the service into your own IT flows using YubiEnterprise Delivery public APIs
- Place individual shipment requests or upload shipment requests in bulk using CSV files
- Check current inventory levels at a glance
- Get immediate information on product and shipping costs, as well as all other details relating to purchasing and shipment.
- Generate reports on all shipment requests over time for interdepartmental cross-charging.

Our Getting Started video shows how quickly you can get up and running with YubiEnterprise Delivery.

Workflow

In the typical use case, an enterprise or organization purchases a subscription to cover their security key needs over time or purchases virtual keys or purchases keys outright. *Modes of Purchase* describes these options in detail.

The enterprise or organization then uses YubiEnterprise Delivery to ship the security keys to their end-users as required. Some of the keys might be shipped to head office and/or branch offices for distribution in person, and many will be shipped to the home addresses of employees working remotely. To help perform these tasks, the YubiEnterprise Delivery account owner usually assigns privileges (roles) to others in their organization so that they too (or instead) can use YubiEnterprise Delivery to ship security keys to the end-users.
1.1.2 Prerequisites

Through your Yubico sales person or a distributor, Yubico’s channel partner, your organization issues a purchase order for:

- YubiEnterprise Delivery Services
- YubiKeys and/or Security Keys by Yubico
- Delivery Services (Shipping) Credits. For details on what this covers, see Delivery Services Credits.

The YubiEnterprise Delivery Console (GUI) requires only a browser such as Chrome, Firefox, or Edge, with the popup-blocking function disabled. For the API requirements, see API Onboarding Playbook.

To file a support ticket for YubiEnterprise Delivery, click Support.

1.2 Modes of Purchase

The mode of purchase affects the selections you make when using YubiEnterprise Delivery for shipment requests. You can purchase directly from Yubico or you can purchase from distributors, Yubico’s channel partners (see Purchasing Through a Channel Partner below).

There are three modes of purchase:

1.2.1 Non-subscription

Outright Purchase of Physical Keys

Purchasing set numbers of keys of specified types on a perpetual basis (you own the keys that you buy forever) assumes that you know exactly how many end-users you will have at any given moment, that you know exactly how many and what kinds of keys those end-users will need, as well as the number of end-users who will lose their keys.

Outright Purchase of Virtual Keys

This option is ideal if you know how many keys you need (now and in the future), but not the exact numbers and the exact types of keys. To address this, YubiEnterprise offers groups of keys (tiers), each with a clearly defined range of features: you buy a fixed number of credits in one or more tiers (see Tier Options below). This option assumes that upgrading keys is not relevant for your organization, and that your business needs will remain static.

1.2.2 Subscription

Since the exact numbers and models of keys you will need are difficult to predict, especially for an organization in a rapidly changing environment, Yubico offers the option of purchasing according to need as and when it arises. The subscription model includes the option of upgrading keys free of charge as business requirements evolve, as well as buffer stock free of charge. Subscriptions are charged at a fixed price per person per month, entitling you to distribute any key(s) in a specified group of keys (tier) to a specified numbers of users. You and/or your end-users choose any YubiKey with the assurance that when new keys within the same tier become available, you can upgrade immediately.
1.2.3 Features and Benefits

- Procurement that is fast, predictable, and cost-effective
- Organizations can move between tiers as needs evolve
- Subscriptions available for 750 users or more
- Upgrade up to 25% of YubiKeys for subscribed users per year
- Immediately replace lost or stolen keys
- Maintain buffer stock: to accommodate any urgent needs, keep 5% extra stock of keys at no additional cost. If you are subscribing to multiple tiers, the buffer stock is proportionately distributed across the tiers.
- Purchase backup YubiKey subscriptions at a discount to enable easy self-service account recovery.
- Technical support included: easy access to Yubico security experts. Yubico Support Services Overview can be found here https://www.yubico.com/support-services/
- Extended warranty: Warranties are extended to the duration of the term of the subscription.

For more detailed information, see the YubiEnterprise Delivery Terms Addendum.

1.2.4 Tier Options

Tier options apply to subscription modes of purchasing, but not to outright purchase of physical keys.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>TIER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Base</td>
</tr>
<tr>
<td>Security Key NFC by Yubico</td>
<td>X</td>
</tr>
<tr>
<td>YubiKey 5</td>
<td>X</td>
</tr>
<tr>
<td>YubiKey 5 NFC</td>
<td>X</td>
</tr>
<tr>
<td>YubiKey 5 Nano</td>
<td>X</td>
</tr>
<tr>
<td>YubiKey 5C</td>
<td>X</td>
</tr>
<tr>
<td>YubiKey 5C Nano</td>
<td>X</td>
</tr>
<tr>
<td>YubiKey 5Ci</td>
<td>X</td>
</tr>
<tr>
<td>YubiKey FIPS</td>
<td>X</td>
</tr>
<tr>
<td>YubiKey Nano FIPS</td>
<td>X</td>
</tr>
<tr>
<td>YubiKey C FIPS</td>
<td>X</td>
</tr>
<tr>
<td>YubiKey C Nano FIPS</td>
<td>X</td>
</tr>
</tbody>
</table>

**Example Subscription**

Purchase a subscription for 400 users with two keys each from the Base tier (800 keys), and for 600 users with two keys each from the Advanced tier (1200 keys). You automatically get 5% more keys free as **Buffer stock** for each of the tiers to which you subscribed, so in this example, 40 keys from the Base tier and 60 from the Advanced tier. You can upgrade annually 25% of the keys in each tier as **Replacement stock**, so 200 keys are automatically provided to you in the Base tier and 300 in the Advanced tier. Although you only paid for the 2000 keys in your **Initial** order, you actually get a total of 2600 keys in the first year of your subscription. In addition, you get a discount on any other keys.

1.2. Modes of Purchase
1.2.5 Subscription Purchasing Workflow

The standard subscription contract is a signed order form that covers Yubico terms and supersedes all other documents, followed by a purchase order (PO), which is required for invoicing and payment. It is not necessary for the date of the PO to coincide with the start date of the subscription, but the start date is specified in the PO, and it is the start date that determines when the annual 25% replenishment of the Replacement stock takes place.

Although it is not possible to create a PO from YubiEnterprise Delivery, as soon as a PO is accepted, it is entered into the system, where it can be accessed to get the information necessary for requesting shipments, information such as quantities of each product purchased and channel partner ID.

Subscription Renewal

The subscription automatically renews for a one-year term unless one party provides the other party with written notice of non-renewal at least 30 days prior to the end of the current term.

Payment

The payment term options for YubiEnterprise Delivery Subscription are either of the following:

- Pre-pay the full subscription term
  - Invoice is created when the order form is processed
  - Terms of payment are net 30 days from date of invoice creation.
- Post-pay: Pay annually
  - Invoice for the first year is created when the order form is processed
  - Subsequent invoices are sent at the end of the 11th month and at the end of the 23rd month
  - For each invoice, terms of payment are net 30 days from date of invoice creation
  - Delivery shipping credits do not need to be purchased.

Co-Terming

Yubico supports co-terming for YubiEnterprise Delivery Subscription, allowing organizations to add users throughout the term of the subscription. Customers pay based on the pro-rated term of the remaining subscription period.

1.2.6 Purchasing Through a Channel Partner

When requesting shipment, distinguish between inventory purchased directly from Yubico and inventory purchased from Yubico’s channel partners, because inventory is sorted according to the source from which it was purchased. The Dashboard shows your total inventory of any given product, combining quantities purchased from all sources: both directly from Yubico and indirectly through channel partners (if applicable). To find out what is in which inventory, check your purchase orders (POs).

Note: The source of a PO is always referred to as a channel partner, even if it was a direct purchase, in which case the Channel partner ID (or ChannelPartnerId or channelpartner_id) is 1.

Note: the selection of channel partner is not supported in the /shipments API.
To find out what the channel partner ID is:

**BEFORE shipment**  The name and ID of the channel partner are shown on the purchase order detail page, accessible by clicking the ID of the PO on the **Purchase orders** page.

**DURING creation of shipment request**  When selecting the **Channel partner name** on the **Single shipment** tab (accessed by clicking **Create shipment request**), the **Channel partner ID** populates automatically.

**AFTER shipment**  The **Channel partner ID** is shown on the shipment request detail page, accessible by clicking the ID of the shipment request on the **Shipments** tab.

When a customer purchases through a channel partner, the customer’s view of the console shows neither the cost of the products nor the shipping costs. Only the shipment status is shown.

---

To file a support ticket for YubiEnterprise Delivery, click **Support**.

### 1.3 Costs of Shipping and Taxes

For up-to-date shipment pricing to our supported destinations, please see our [YubiEnterprise Delivery pricing table](#).

#### 1.3.1 Delivery Services Credits

Unless you post-pay, use of the YubiEnterprise Delivery service entails purchasing Delivery Services Credits to cover shipping and taxes.

YubiEnterprise Delivery Shipping/Services Credits are prepaid shipping fees, a Shipping Credits SKU that is bought prior to any shipments. For each shipment request, YubiEnterprise Delivery will automatically deduct the appropriate shipping fees from the pre-paid credits and calculate the product taxes based on destination address and shipping taxes based on location from which the products are shipped.

At the end of every month in which shipment requests are made, Yubico invoices you. If Example Corp issues a purchase order (PO) in November for products plus Delivery Services Credits for shipping and taxes (i.e., taxes on both products and shipping) and products were shipped in January and June, in addition to the invoice for the original PO, Yubico would send Example Corp invoices in January and June aggregating the individual shipments dispatched in those months, reconciling the credits with the actual amount charged.

Delivery Shipping/Services Credits must be used within the period of time specified in your contract (generally one year for Perpetual customers and three years for Subscription customers), after which the credits expire (for more information, see the [Delivery Addendum to Yubico’s Terms and Conditions](#)).

Yubico can work with you to determine how much to fund in shipping and tax/VAT credits as you project the number and size of shipments. In any case, it is possible to add the Shipping Credits SKU to any subsequent purchase order.

The apportioning of the taxes / VAT across shipping and product is shown:

- On the invoice sent at the end of the month in which shipping was requested.
- On the Console - each shipment request that is made is assigned an ID. To display the tax or VAT charged for any given shipment, on the **Shipments** tab or the **Dashboard** tab, click on its **Id** in the lists of shipments and recent shipments.
1.3.2 Shipping

Shipping costs are determined at the time of shipping. They are based on:

- The weight/size of the package - this is affected by the way the keys are packaged, in trays or in blister packs. It is cheaper to ship large volumes of keys in trays than in blister packs, because the blister packs result in heavier, more voluminous packages.

- Destination

- Type of shipment, expedited or normal.

1.3.3 Sales Tax/VAT on Shipping

The VAT or sales tax charged for shipping is distinct from the VAT or sales tax charged for the product itself. Sales tax or VAT is charged on shipping costs at the rate imposed by the location where the shipment originates. Currently, this is:

- California for products shipped to the US and Canada
- Sweden for products shipped to Europe and other destinations outside the US and Canada.
1.3.4 Sales Tax/VAT on Product

Yubico calculates product taxes based on shipment destination. When the Delivery Services Credits are purchased and invoiced in advance, the rate charged is 10% for US and Canadian destinations. Products are taxed at the actual tax rates of shipping destination, and the customer is charged by aggregating individual shipments at the end of each month in a consolidated invoice. At the end of each month in which shipments are dispatched, Yubico’s invoice shows the reconciliation of the Delivery Services Credits purchased with the amounts actually charged.

Method of Calculating VAT

- If you are based in the Netherlands, Yubico charges VAT on the initial invoice.
- If you are based in the EU but not in the Netherlands and you provide a valid non-Netherlands EU VAT number, no VAT is charged on the initial invoice.
- If you are based in the EU but not in the Netherlands and you do not provide a valid non-Netherlands EU VAT number, VAT is charged based on shipment source, which is the Netherlands.

1.3.5 Exemptions

Sales Tax

To claim exemption from sales tax, you must present to Yubico the sales tax exemption certificate for the location to which the product is being shipped.

VAT

To claim exemption from VAT, you must present the VAT number; treatment varies depending on the country. Yubico does VAT reconciliation at the end of the month. It will then credit the customer with the amount of the tax charged on both product and shipping.

1.4 Delivery Policies

Each organization has business rules applying to delivery policies. Some organizations have rules that are unique to that organization.

These rules specify which combinations of parameters are allowed for the given organization. These business rules are therefore fundamental to determining whether a shipment request can succeed. Business rules are applied before undeliverability and similar such issues are determined.

1.4.1 Post Office Box as Destination

Post Office boxes (PO Boxes) are acceptable for shipment requests for US destinations; however, this is not true for destinations outside the United States.

Although the system can deliver to Post Office (PO) Boxes within the United States, delivery to PO Boxes (or the equivalent) elsewhere in the world is unlikely to succeed.
1.4.2 Key Quantities

Each destination country has a maximum number of keys per shipment request.

Products cannot be shipped via YubiEnterprise Delivery to countries that do not appear in the lists below.

500 Keys

Up to 500 keys per shipment request can be shipped to the following countries:

- Austria
- Belgium
- Bulgaria
- Canada
- Croatia
- Cyprus
- Czechia
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Iceland
- Ireland
- Italy
- Latvia
- Liechtenstein
- Lithuania
- Luxembourg
- Malta
- Netherlands
- Norway
- Poland
- Portugal
- Romania
- Slovakia
- Slovenia
- Spain
• Sweden
• Switzerland
• UK
• USA

**Single Keys**

No more than one (1) key per shipment request can be shipped to the following countries, and expedited shipping to these countries is not available. If the expedited option is selected, the shipment request will default to normal (standard) shipping.

• Australia
• New Zealand
• Philippines
• Indonesia
• Singapore
• Japan
• Thailand
• Saudi Arabia
• Taiwan
• UAE
• Mexico
• Israel
• Chile
• Hong Kong
• India

For bulk shipment to these countries, contact YubiEnterprise Delivery Support.

To file a support ticket with Yubico, click Support.

1.5 **Onboarding**

The current guide [https://console.yubico.com/help/](https://console.yubico.com/help/) is available without logging in.
1.5.1 Prior to Onboarding

After the Prerequisites have been met, Yubico does the following:

1. Creates a YubiEnterprise Delivery account for your organization
2. Enters the purchased products and delivery shipping credits into your organization’s YubiEnterprise Delivery account
3. Assigns YubiEnterprise Delivery login privileges to your organization’s enterprise account owner (Org Owner), who is nominated when the first purchase order (PO) is submitted
4. Emails the login credentials to the Org Owner.

1.5.2 Onboarding Workflow

Logging into your YubiEnterprise Delivery account always requires a YubiKey except in the first phase of onboarding. In this first phase, Yubico creates a new account in YubiEnterprise Delivery and the system creates a demo user with restricted permissions for the first Org Owner. Until the org owner enrolls a YubiKey or Security Key by Yubico, the permissions of that user/role remain restricted:

- Able to ship no more than ten keys
- Unable to invite new members
- Unable to generate API tokens
- Unable to edit the email template informing recipients that they will receive shipments from YubiEnterprise Delivery.

A banner on the Console informs the user of these limitations during this initial phase of onboarding. It tells the user to register a WebAuthn credential (i.e., a security key) to finish enabling their account. The banner provides a link to the user management page where the org owner can register their credential. For instructions, see Adding WebAuthn Credentials.

If the Org Owner has not already got a YubiKey, that person should use this window of opportunity to ship keys to themselves and up to nine other people who are to become YubiEnterprise Delivery members.

Once the demo user registers a security key with YubiEnterprise Delivery, that person acquires the full permissions of an Org Owner, and all capabilities of the account are fully enabled.

Procedure

1. The Org Owner (demo user) logs in, and clicks the privacy policy link to accept Yubico’s terms and conditions. At this point, the org owner can already verify that the YubiEnterprise Console dashboard displays the information corresponding to the initial purchase order:
   - The expected quantities of products
   - The expected value of delivery shipping credits
Verifying quantities purchased

2. The Org Owner uses the system to request shipment of a bare minimum of one key to themself. To avoid losing access to the system if the original security key is lost, all users should make sure to register at least one additional key with YubiEnterprise Delivery.

3. The Org Owner receives and registers at least one YubiKey with the system, thereby ending the first phase of onboarding and gaining access to the full capabilities accorded to an org owner.

4. The Org Owner configures new YubiEnterprise Delivery accounts for the other key recipients on the Settings tab by:
   - Entering the email addresses of the Org Members who will be managing the YubiKeys
   - Assigning roles to those Org Members. See Managing Users.

4. The system automatically emails login credentials to the Org Members. However, they will not be able to activate their accounts until they register their keys.

5. The Org Members log in to the Console, register their keys, review the privacy policy, and accept Yubico’s terms and conditions before starting to manage and/or audit the organization’s inventory of Yubico products and shipping thereof.

1.5.3 Logging In

The following instructions are for users of YubiEnterprise Delivery. (Your own organization could decide to implement a very similar process for its own end-users of YubiKeys and/or Security Keys by Yubico.)

1. Click the link supplied in the email from YubiEnterprise Delivery, which opens in a browser. (The browser requirements are given in Prerequisites)

2. Enter the username and password supplied in the same email.

   **Note:** Usernames must be email addresses. Any username entered without the “@” will return an error when the user tries to log in.

3. Click the Submit button. The browser displays a message instructing you to insert the YubiKey and touch it when it flashes its LED(s).

4. When the LED(s) flash, touch the YubiKey until it stops flashing. (If you have dry skin, you may need to dampen your finger so the key recognizes your touch.)

5. If your organization has more than one account—for example, the EMEA organization and the US/CAN organization—the list of accounts is displayed. Click the name of the appropriate organization.
**Note:** If you allow your browser to fill in your username and password automatically, the **Submit** button might be grayed out. To activate the button, click in the password field.

---

**Session Limits**

YubiEnterprise Delivery users do not stay logged in indefinitely. After an hour of inactivity, you are automatically logged out. If the screen does not react after a period of inactivity, log out by going back to the home page and clicking the profile button at the top of the page. Then you can log in again.

After 24 hours you will need to log in again in any case.

**Password Requirements**

The password for logging into the YubiEnterprise Delivery Console must adhere to the following requirements:

- Minimum length eight characters, which can be any of the following:
  - Alpha-numeric characters
  - Symbols
  - Punctuation marks, etc.
- Must not contain any part of the username.

---

To file a support ticket for YubiEnterprise Delivery, click **Support**.

### 1.6 Dashboard

The Dashboard gives an overview of most activities and provides Org Owners and Org Admins with a shortcut to requesting shipments. Org Owners, Admins, and auditors can:

- View product inventory
- View recent shipments
- View recent purchase orders (POs).

For more information on YubiEnterprise user permissions, see **Roles/Permissions**.

Since the Dashboard provides an overview of YubiEnterprise Delivery functionality, more detailed descriptions of each function are given in the corresponding chapters, **Shipments: Overview**, **Requesting Shipment: Introduction**, **Purchase Orders**, and **User Management**.

The screenshot below shows a representative Org Owner’s view of the Dashboard tab of the YubiEnterprise Delivery console with the applicable subsections; in the example shown below, standard products (outright purchases of physical products), plus subscription and non-subscription (virtual outright purchases) inventory, as well as **Recent Shipments**, and **Recent Purchase Orders (POs)** described below. The **Dashboard** for Subscription customers shows the inventory available in the tiers for which credits have been purchased. The keys displayed depend on the subscription tier(s). For example, if you did not have the FIPS tier, no FIPS keys would be displayed. You might need to scroll horizontally to see the full selection of tiers (for more information on tiers, see **Tier Options**).
1.6.1 Recent Shipments

Only recent shipments are displayed on the Dashboard of the Console. To view all shipments, click View all shipments, which takes you to the Shipments: Overview tab. The information displayed in the table in the Recent Shipments section is explained in Column Headings - Shipments Tab.
1.6.2 Creating a Shipment Request

From the Dashboard, Org Owners and Admins can request products be shipped to end-users. See Requesting Shipment: Introduction.

Editing a Shipment Request

From the Dashboard, Org Owners and Admins can also update a shipping address by clicking View Incompletes or delete a shipment request. For both, see Editing or Deleting a Shipment.

1.6.3 Recent Purchase Orders (POs)

Only recent POs are shown on the Dashboard of the Console. To view all POs, click View all purchase orders, which takes you to the Purchase Orders tab. The information displayed in the table in the Recent purchase orders section is explained in PO Tab Column Headings.

To file a support ticket with Yubico, click Support.
1.7 Shipments: Overview

Manage shipments from your inventory of purchased YubiKeys on the Shipments tab. Org Owners and Admins can request shipments and edit the requests if they have not yet been processed. The request processing stage is shown in the Status column; see also Shipment Request Status.

Shipments Tab

You can:

- Request shipment to a single address (Shipping to a Single Address (Console))
- Do bulk requests (Shipping to Multiple Addresses)
- Use the API to make shipment requests (Using the API to Execute a Shipping Request)
- Download a record of the requests you have made (Downloading the CSV File of Shipment Requests)
- Notify end-users that Yubico products are being shipped to them (Notifying End-Users of Shipment and Delivery).

1.7.1 Viewing Shipments

On the Shipments tab, you can sort on the Date, Delivery, Fee, and Status columns. To view all the details for a given request, including the email address of the person who made the request and the status of the request, click on the ID of the request.
Column Headings - Shipments Tab

**Id**  To view the details of a particular shipment request, click its **ID** to display it as a popup. To view an example of the details of a shipment request, see *Shipment Request Status* below.

**Date**  Date on which the shipment request was made.

**Shipment address**  The address to which the shipment was or will be sent.

**Delivery**  Type of shipping, **Normal** or **Expedited**.

**Fee**  Cost of shipping; for details, see *Shipping*.

**Status**  For a list of the different statuses and their meanings, see the **shipment_state_message** column on the far right of *Shipping Status Codes*.

**Tracking**  To see where a shipment has got to, click its tracking number to go to the site of the shipper.

**Search**

The **Search** field on the upper left of the **Shipments** tab enables you to locate any element in a shipping request, even partial words or numbers.

For partial words or partial numbers, be sure not to select the **is exact** checkbox.

**Advanced Search**

- **Date range**  - You can specify a start date and an end date for shipment requests that will restrict the results returned to the requests placed between the dates (inclusive) specified. If only the end date is specified, all results up to and including the end date will be returned. If only the start date is specified, all results up to and including the date of search will be returned.

- **Search on specified field**  - You can specify the columns to be searched for a specified string by clicking the checkboxes for the relevant columns.

- **Exact match**  - To find the exact match of the search term in the field, select the **is exact** checkbox.

### 1.7.2 Shipment Request Status

To find out whether individual shipment requests have been processed, have been delivered, the prices, the inventory from which they came, etc., either:

- Click the shipment request ID in the **ID** column on the **Shipments** tab

- Click the shipment request ID in the **Recent Shipments** section of the **Dashboard**.

The screenshot below shows one of the most common errors: the recipient’s company name is missing, and in the cases where this error appears, there are multiple companies at the address given. No costs are displayed because nothing was shipped.

*Shipment Request ID Popup*
The delivery shipping costs are covered in *Shipping*.

**Note:** Sometimes the information on the shipment request ID popup is so voluminous that to dismiss the popup, you need to hit the Escape key.

### 1.7.3 Downloading the CSV File of Shipment Requests

Organization owners, admins, and auditors can download a record of the shipment requests that have been made (the information on the *Shipments* tab) as a CSV file by clicking the **Download CSV** button next to the **Shipment request** button on the Shipments tab. There are two options:

- The entire contents can be downloaded - i.e., all the rows in the table, even if there are multiple pages.
- Search results. If a search term is entered into the Search field, the rows containing the search term will be downloaded as a CSV file.

To download the shipments table as a CSV file,

- To get the *whole* table, ensure the **Search** field is empty, and click **Download CSV**.
- To get only those rows of the table that contain a particular word or partial word, enter your search term into the **Search** field, and click **Download CSV**.
Column Headings in the Shipment Requests Table

The Shipment Requests table downloaded as a CSV file combines the information in the shipment ID popup with what is shown on the Shipments tab plus additional information. The column headings are listed below.

Note: Although all currency amounts displayed by the system are in US dollars, contracts, purchase orders, and invoices, etc. use the currency applicable to the parties involved.

- **A** - shipment_id - The unique identifier assigned by YubiEnterprise Delivery to every shipment request
- **B** - shipment_request_date - month/day/year
- **C** - shipment_update_date - month/day/year
- **D** - organization_name - Name of the customer organization on behalf of which the shipment request was made (typically the same throughout the file)
- **E** - channelpartner_id - Identifier of the distributor (Yubico’s channel partner) - this is 1 if it was a direct sale by Yubico
- **F** - user_email - The email address of the YubiEnterprise Delivery user who made the shipment request
- **G** - country_code_2 - Two-letter country code provided in available_countries.csv
- **H** - inventory_type - Depends on items entered in customer PO; e.g.,
  - Standard Inventory Keys,
  - Subscription Initial Stock,
  - Subscription Buffer Stock,
  - Subscription Replacement Stock,
  - Tier Perpetual Key,
  - YubiKey Shipment,
  - YubiKey Tier SKU Shipment
- **I** - is_delivered - TRUE or FALSE
- **J** - is_shipped - TRUE or FALSE
- **K** - shipped_date - month/day/year - Date of shipping
- **L** - delivered_date - month/day/year - Date of delivery
- **M** - tracking_number - Tracking number assigned by fulfillment agency
- **N** - recipient_company - Name of recipient’s company
- **O** - recipient_email - Recipient’s email address
• P - recipient_firstname - First name of recipient
• Q - recipient_lastname - Last name of recipient
• R - recipient_telephone - Recipient's telephone number
• S - street_line1 - First line of street address
• T - street_line2 - Second line of street address
• U - street_line3 - Third line of street address
• V - city - Name of village, town, or city
• W - region - Name or region, state, or province
• X - postal_code - Postal code, post code, zip code
• Y - delivery_type - Normal or Expedited
• Z - shipment_state_code - see Shipping Status Codes
• AA - shipment_state_id - see Shipping Status Codes
• AB - shipment_state_message - see Shipping Status Codes
• AC - shipment_summary_description - Total number of keys plus number of each type, e.g., Total Keys: 2 yk5c:1, sky2:1 means two keys were shipped, one a YubiKey 5C and one a Security Key 2
• AD - shipment_product_cost - Cost of product alone, without tax, VAT, or shipping
• AE - shipment_product_taxes - Cell is populated if products are shipped to location where sales tax is applicable. Amount of sales tax levied on product
• AF - shipment_product_vat - Cell is populated if products are shipped to location where VAT is applicable. Amount of VAT levied on product
• AG - shipping_service_cost - Cost of shipping
• AH - shipping_service_taxes - Cell is populated if products are shipped to location where sales tax is applicable. Amount of sales tax levied on shipping
• AI - shipping_service_vat - Cell is populated if products are shipped to location where VAT is applicable. Amount of VAT levied on shipping
• AJ - total_shipment_product_cost - Cost of product(s) with tax or VAT; does not include shipping costs or tax or VAT on them
• AK - total_shipment_tax_cost - Cell is populated if products are shipped to location where sales tax is applicable. Total sales taxes levied on product(s) plus shipping costs
• AL - total_shipping_service_cost - Total shipping costs including taxes or VAT levied on them
• AM - total_keys_shipped - Total number of products shipped
• AN - purchaseorder_numbers - If multiple POs were drawn on for a single request, they are separated by a pipe, e.g., PQR_123|PO-0721a
• AO - channel_partner_name - Name of the distributor from whom you purchased, i.e., Yubico’s channel partner, whose ID is given in column E.
1.7.4 Notifying End-Users of Shipment and Delivery

The YubiEnterprise Delivery system automatically notifies recipients by email when products are sent to them (see the \textit{SHIPPED} template below) and when they are delivered (see the \textit{DELIVERED} template below).

If there is a problem with delivery, the system automatically sends an email notification to the person who made the shipping request (see the \textit{DELIVERY EXCEPTIONS} template below).

The variables in angle brackets in the templates below are automatically replaced.

**SHIPPED**

\begin{verbatim}
Subject: YubiKeys shipped!
To: <Email address of recipient provided in shipping request>

Hello, <Name of recipient, or if absent, company name>
Your YubiKeys have been shipped. If you have any questions, please reach out to your company administrator.

<Custom text, if any>

YubiKeys Shipped:
<Type of YubiKey> <Quantity>
Delivered To: <Name and address of recipient>
<Name of Carrier> Tracking Number: <TrackingNumber>

Sincerely,
Your YubiEnterprise Delivery Service Team
This is an automatically generated message from Yubico. Replies are not monitored or answered.
\end{verbatim}

**DELIVERED**

\begin{verbatim}
Subject: YubiKeys Delivered!
To: <Email address of recipient provided in shipping request>

Hello, <Name of recipient, or if absent, company name>
Your YubiKeys have been delivered. If you have any questions, please reach out to your company administrator.

<Custom text, if any>

YubiKeys Delivered:
<Type of YubiKey> <Quantity>
Delivered To: <Name and address of recipient>
<Name of Carrier> Tracking Number: <TrackingNumber>

Sincerely,
Your YubiEnterprise Delivery Service Team
This is an automatically generated message from Yubico. Replies are not monitored or answered.
\end{verbatim}

**DELIVERY EXCEPTIONS**
**Customizing the Automated Emails**

One of the primary reasons for customizing the automated emails is when you do not need your end-users to reach out directly to Yubico if they have questions. Usually it is desirable for end-users to contact your own organization’s IT department if they have issues understanding how YubiKeys fit into your organization’s services access model.

These standard emails can be customized by adding text to the existing standard email templates. The custom text is inserted in the standard template at the place where `<Custom text, if any>` is located in the templates shown above. Note that the `SHIPPED` and `DELIVERED` emails are sent to every recipient, so customization is not suitable for sending an individual greeting.

**Step 1** On the **Settings** page, go to the **Email** tab and select the template to be customized: SHIPPED, DELIVERED, or DELIVERY EXCEPTIONS.
Step 2 Insert the text into the Custom text field. This field can accept any valid HTML, including scripts. Web and email links can be inserted as HTML link elements. Put the link target in the href attribute, and put the display text for the link between the angle brackets. For example:

Please visit <a href="https://yubico.com">Yubico's webpage</a> for more information, or email <a href="mailto:someone@yourcompany.com">someone@yourcompany.com</a>.

Step 3 Click Update.

Step 4 To view the customized email just created, click Send Sample.

To file a support ticket for YubiEnterprise Delivery, click Support.
1.8 Requesting Shipment: Introduction

*Shipments: Overview* provides general information about requesting shipment, whereas this section provides more specific information.

The different methods of requesting shipment each have their own subsection; the information in this current section applies to all methods.

### 1.8.1 Methods of Requesting Shipment

- *Shipping to a Single Address (Console)*
- *Shipping to Multiple Addresses*
- *Using the API to Execute a Shipping Request*

### 1.8.2 Address Validation

When Yubico’s address validation service catches a discrepancy between an address in a shipment request and post office standards, the system flags the affected shipment request. Requests with such discrepancies are shown as “Incomplete” in the **Status** column of the Console. Incompletes must be reviewed and the proposed change accepted or rejected before the request can be processed. For instructions, see *Reviewing Incompletes*.

### 1.8.3 Restrictions

**Post Office Boxes**

Although the system can deliver to Post Office (PO) Boxes within the United States, delivery to PO Boxes (or the equivalent) elsewhere in the world is unlikely to succeed.

**Inventory: Channel Partners**

When requesting shipment, distinguish between inventory purchased directly from Yubico and inventory purchased from Yubico’s channel partners, because inventory is sorted according to the source from which it was purchased. The **Dashboard** shows your total inventory of any given product, combining quantities purchased from all sources: both directly from Yubico and indirectly through channel partners (if applicable). To find out what is in which inventory, check your purchase orders (POs).

**Note:** The source of a PO is always referred to as a channel partner, even if it was a direct purchase, in which case the Channel partner ID (or ChannelPartnerId or channelpartner_id) is 1.

**Note:** the selection of channel partner is not supported in the /shipments API.

To find out what the channel partner ID is:

**BEFORE shipment** The name and ID of the channel partner are shown on the purchase order detail page, accessible by clicking the ID of the PO on the **Purchase orders** page.
**DURING creation of shipment request** When selecting the Channel partner name on the Single shipment tab (accessed by clicking Create shipment request), the Channel partner ID populates automatically.

**AFTER shipment** The Channel partner ID is shown on the shipment request detail page, accessible by clicking the ID of the shipment request on the Shipments tab.

### Limits and Constraints

#### Recipient Names

On the **Console**, in the **API** and in the **CSV file**: recipient.firstname and recipient.lastname map to the first line on the shipping label.

For commercial or business addresses, the API's recipient field and the Company field on the Console and in the CSV file all require the name of the recipient's company. This is not necessarily the same as the name of your organization. For residential addresses, leave the Company / recipient field empty.

The Company / recipient fields map to the second line on the shipping label.

Long recipient names can be problematic for all methods of requesting shipment, because the shipment request will fail if the contents of the name and/or Company / recipient fields exceed the maximum number of characters permitted in these fields (shown in the table below).

**Workaround:** When a recipient’s full name or company name exceeds the fields’ maximum lengths, split the names across the three fields, for example:

<table>
<thead>
<tr>
<th>Location</th>
<th>Field (limit=15)</th>
<th>Limit</th>
<th>Field (limit=20)</th>
<th>Limit</th>
<th>Field (limit=20)</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>API</td>
<td>recipient_firstname</td>
<td>15</td>
<td>recipient_lastname</td>
<td>20</td>
<td>recipient</td>
<td>20</td>
</tr>
<tr>
<td>CSV</td>
<td>recipient_firstname</td>
<td>15</td>
<td>recipient_lastname</td>
<td>20</td>
<td>recipient_company</td>
<td>20</td>
</tr>
<tr>
<td>Console</td>
<td>First name</td>
<td>15</td>
<td>Last name</td>
<td>20</td>
<td>Company</td>
<td>20</td>
</tr>
</tbody>
</table>

Example of an overly long name before adjustment to fit the fields

<table>
<thead>
<tr>
<th>Location</th>
<th>Field (limit=15)</th>
<th>Limit</th>
<th>Field (limit=20)</th>
<th>Limit</th>
<th>Field (limit=20)</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Johannes-Maximilian</td>
<td></td>
<td>von Derschowitz-Dampfloch zu Querdenker</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example after adjustment

<table>
<thead>
<tr>
<th>Location</th>
<th>Field (limit=15)</th>
<th>Limit</th>
<th>Field (limit=20)</th>
<th>Limit</th>
<th>Field (limit=20)</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Joh.-Maximilian</td>
<td></td>
<td>v.DerschowitzDampfloch</td>
<td></td>
<td>zu Querdenker</td>
<td></td>
</tr>
</tbody>
</table>

- Address validation takes place every 15 minutes. This means that you might have to wait up to 15 minutes to find out if your shipment request has been queued for fulfillment (see Shipping Status Codes).
- Non-subscription purchases: Shipment requests can be made for up to one year after a PO is submitted.
- Subscription purchases: Availability of products in shipment requests depends on the stock/inventory from which the products are drawn. (For details, see Tier Sub-categories.)
Inventory Matters

The full list of options potentially available is given below. The actual list depends on what you have purchased. Explanations for the terms in the list are given in the table below the list. For more details on subscription and non-subscription purchasing, see *Modes of Purchase*.

**Full List of Inventory Types**

- Primary Subscr - Base Tier: Initial
- Primary Subscr - Base Tier: Buffer
- Primary Subscr - Base Tier: Replacement
- Primary Subscr - Adv. Tier: Initial
- Primary Subscr - Adv. Tier: Buffer
- Primary Subscr - Adv. Tier: Replacement
- Primary Subscr - Prem. Tier: Initial
- Primary Subscr - Prem. Tier: Buffer
- Primary Subscr - Prem. Tier: Replacement
- Primary Subscr - FIPS Tier: Initial
- Primary Subscr - FIPS Tier: Buffer
- Primary Subscr - FIPS Tier: Replacement
- Backup Subscr - Base Tier: Initial
- Backup Subscr - Base Tier: Buffer
- Backup Subscr - Base Tier: Replacement
- Backup Subscr - Adv. Tier: Initial
- Backup Subscr - Adv. Tier: Buffer
- Backup Subscr - Adv. Tier: Replacement
- Backup Subscr - Prem. Tier: Initial
- Backup Subscr - Prem. Tier: Buffer
- Backup Subscr - Prem. Tier: Replacement
- Backup Subscr - FIPS Tier: Initial
- Backup Subscr - FIPS Tier: Buffer
- Backup Subscr - FIPS Tier: Replacement
- Non-subscription - Base Tier
- Non-subscription - Advanced Tier
- Non-subscription - Premium Tier
- Non-subscription - FIPS Tier
- Standard Products
Standard Products are physical keys purchased outright (on your PO you will not find “Standard Products”, but instead the actual products/models that you purchased).

<table>
<thead>
<tr>
<th>Standard Products</th>
<th>Subscription</th>
<th>Non-subscription</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a primary subscription and a backup subscription for each tier (product grouping): Base, Advanced, Premium, and FIPS. Each of those tiers has Initial, Buffer, and Replacement sub-categories, explained in the table below.</td>
<td>The non-subscription tiers are for virtual keys. Unlike subscription tiers, non-subscription tiers have no sub-categories.</td>
<td></td>
</tr>
</tbody>
</table>

**Tier Sub-categories**

<table>
<thead>
<tr>
<th>Tier</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>The stock in this category reflects the total number of users on the subscription. This lot can be drawn upon for 12 months from the start of your subscription term.</td>
</tr>
<tr>
<td>Buffer</td>
<td>This category is made available to you free of charge when your subscription begins. You can draw on it throughout the term of your subscription.</td>
</tr>
<tr>
<td>Replacement</td>
<td>This category is intended for those who have lost their YubiKeys or want to upgrade. The stock in this category is reset each year of the subscription to the Replacement limit.</td>
</tr>
</tbody>
</table>
1.8.4 Timing

Shipment requests can be edited or deleted until 3am PST (11am GMT), the day after they were entered.

**Normal (standard) shipping** Shipment requests typically will take 5-7 days for transit in North America and Europe. Other parts of the world will incur longer transit times.

**Expedited (rush) shipping** Shipment requests typically will take 1 business day for transit in North America and Europe. Other parts of the world will incur longer transit times.

1.8.5 Reviewing Incompletes

The address validation service flags addresses that are problematic or defective in some way, and displays this information on the Console in the **Status** column on the **Dashboard** tab. For a complete list of the different statuses and what they indicate, see *Shipping Status Codes*. To ensure your shipping request is accepted and processed, always verify that it has not been flagged Incomplete.

**Step 1** On the **Shipments** tab, in the **Actions** menu next to the **Create shipping request** button, select **Review incompletes**. The list of shipping requests with incomplete addresses is displayed:

![Review incompletes screen](image)

**Review incomplete addresses**

**Step 2** To find out what is wrong with an address and/or correct it, click the Edit icon at the end of the row containing the item. See *Editing or Deleting a Shipment*. The Edit shipment screen indicates the problem, as shown in the screenshot below, for example.
Step 3 The address validation process stops at the first error it finds in a given request (or in the case of a CSV file, in a given row). In the screenshot above, it stopped at the name of the recipient, but the address in the example above would not be validated either. For this reason, continue to run the Review Incompletes activity until no more errors are found in your shipment request.

1.8.6 Editing or Deleting a Shipment

You can update an address or delete a shipping request until it is locked for processing and fulfillment - see Timing. To delete shipment requests made via CSV file, see Deleting Multiple Shipments.

Step 1 To edit a shipment, click the Edit icon in the appropriate row of the table. The Edit shipment - <ID> screen appears, as shown below.
**Edit shipment screen**

**Step 2** Either make the required changes and click **Update** or click **Delete shipment**. The update function validates the fields, with a mouseover warning on any fields requiring input, as shown in the screenshot below:

- **Contact phone**

![Mouseover warning](image)

- **Contact email**

**Mouseover warning**

**Step 3** Verify that the system is able to validate all the input in your shipment request by running the **Review Incompletes** activity (see **Reviewing Incompletes**).
1.8.7 Refunds

When shipments fail to arrive at their destination, the price of product(s) plus shipping is refunded. The status of such a shipment is recorded as “Lost/Missing”.

**Viewing Refunds**

Org Owners, Admins, and Auditors can access refund details from the **Shipments** tab. On the upper right, click the **Action** dropdown menu and select **Processed Refunds**.

The list of processed refunds appears. To see further details, click the Shipment ID of the desired item.

**Downloading List of Refunds**

To download a CSV file listing all the data shown on the list of processed refunds, click the **Download refund CSV** button.
1.9 Shipping to Multiple Addresses

The information in Requesting Shipment: Introduction applies to this method.

Use the YubiEnterprise Delivery template to create a bulk request in the form of a CSV file. Each row - i.e., each individual shipping request - is processed independently, so that problems with one request do not hold up subsequent requests.

Note: Always download the latest version of the shipment spreadsheet template. When a new CSV template becomes available, the outdated version of the template no longer produces valid shipping requests. The CSV template is autogenerated based on your inventory. The CSV template changes frequently; for example, when:

- Yubico releases new products in categories to which your organization is subscribed. Therefore, new fields are added to the template to take account of them.
- We release a new version of the YubiEnterprise Delivery software that includes updates to the template.
- You add new products to your inventory through a new PO. Subscription customers have columns for each of the keys in their subscription tier(s).

The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. If you want to create a shipment request that includes both types of products within a single shipment, see Using the API to Execute a Shipping Request or Shipping to a Single Address (Console).

When requesting shipment to multiple addresses, ensure that

- The columns of your own CSV file correspond exactly to those in the CSV template.
- The header row from the template is included in your own CSV file.
- The contents of the cells do not exceed the limits. The columns with table cells that have limits on the number of alpha-numeric characters (including spaces) are listed in Shipment Request Fields. Not all columns have limits. Note that the only products listed in your bulk_shipment_template.csv are those your organization has purchased. The table in Shipment Request Fields lists all products.
1.9.1 Recipient Names

On the Console, in the API and in the CSV file: recipient_firstname and recipient_lastname map to the first line on the shipping label.

For commercial or business addresses, the API's recipient field and the Company field on the Console and in the CSV file all require the name of the recipient’s company. This is not necessarily the same as the name of your organization. For residential addresses, leave the Company / recipient field empty.

The Company / recipient fields map to the second line on the shipping label.

Long recipient names can be problematic for all methods of requesting shipment, because the shipment request will fail if the contents of the name and/or Company / recipient fields exceed the maximum number of characters permitted in these fields (shown in the table below).

**Workaround**: When a recipient’s full name or company name exceeds the fields’ maximum lengths, split the names across the three fields, for example:

<table>
<thead>
<tr>
<th>Location</th>
<th>Field (limit=15)</th>
<th>Limit</th>
<th>Field (limit=20)</th>
<th>Limit</th>
<th>Field (limit=20)</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>API</td>
<td>recipient_firstname</td>
<td>15</td>
<td>recipient_lastname</td>
<td>20</td>
<td>recipient</td>
<td>20</td>
</tr>
<tr>
<td>CSV</td>
<td>recipient_firstname</td>
<td>15</td>
<td>recipient_lastname</td>
<td>20</td>
<td>recipient_company</td>
<td>20</td>
</tr>
<tr>
<td>Console</td>
<td>First name</td>
<td>15</td>
<td>Last name</td>
<td>20</td>
<td>Company</td>
<td>20</td>
</tr>
</tbody>
</table>

Example of an overly long name before adjustment to fit the fields:

<table>
<thead>
<tr>
<th>Example of an overly long name before adjustment to fit the fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johannes-Maximilian</td>
</tr>
<tr>
<td>von Derschowitz-Dampfloch zu Querdenker</td>
</tr>
</tbody>
</table>

Example after adjustment:

<table>
<thead>
<tr>
<th>Example after adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joh.-Maximilian</td>
</tr>
<tr>
<td>v.DerschowitzDampfloch zu Querdenker</td>
</tr>
</tbody>
</table>

When requesting shipment, distinguish between inventory purchased directly from Yubico and inventory purchased from Yubico’s channel partners, because inventory is sorted according to the source from which it was purchased. The **Dashboard** shows your total inventory of any given product, combining quantities purchased from all sources: both directly from Yubico and indirectly through channel partners (if applicable). To find out what is in which inventory, check your purchase orders (POs).

**Note**: The source of a PO is always referred to as a channel partner, even if it was a direct purchase, in which case the Channel partner ID (or ChannelPartnerId or channelpartner_id) is 1.

**Note**: the selection of channel partner is not supported in the /shipments API.

To find out what the channel partner ID is:

- **BEFORE shipment**  The name and ID of the channel partner are shown on the purchase order detail page, accessible by clicking the ID of the PO on the Purchase orders page.

- **DURING creation of shipment request** When selecting the Channel partner name on the Single shipment tab (accessed by clicking Create shipment request), the Channel partner ID populates automatically.

- **AFTER shipment**  The Channel partner ID is shown on the shipment request detail page, accessible by clicking the ID of the shipment request on the Shipments tab.

Although the system can deliver to Post Office (PO) Boxes within the United States, delivery to PO Boxes (or the equivalent) elsewhere in the world is unlikely to succeed.
1.9.2 Requesting Shipment from Multiple Channel Partners

To request shipment from two or more inventories, make a shipment request for each inventory. For example, to have three YubiKey 5C NFC delivered to Jan Lindberg, even if your dashboard shows that you have three such keys, if one of those keys was purchased from Yubico, the second from channel partner A and the third key from channel partner B, you need to make three shipment requests, each one of them drawing on a different inventory.

1.9.3 Requesting Shipment from Multiple Channel Partners

To request shipment from two or more inventories, make a shipment request for each inventory. For example, to have three YubiKey 5C NFC delivered to Jan Lindberg, even if your dashboard shows that you have three such keys, if one of those keys was purchased from Yubico, the second from channel partner A and the third key from channel partner B, you need to make three shipment requests, each one of them drawing on a different inventory.

Procedure

Step 1 Click Create shipment request. The New shipping request popup appears:

![New shipping request popup]

Step 2 From the Bulk Shipment tab of the New shipping request popup, click Download shipment spreadsheet template (csv), the name of which is bulk_shipment_template.csv.

This button is not to be confused with the Download CSV button next to the Shipment request button on the Shipments tab.

Step 3 Get the country codes required for populating this file: still on the Bulk Shipment tab of the New shipping request popup, click Download available countries (csv).

Step 4 Save the CSV file preparatory to populating it with your information. The only purpose of the filename is to enable you to identify it correctly when you upload it. The following steps call out only certain fields. Shipment Request Fields below covers all the fields.

Step 5 In the InventoryType column, enter the integer for your shipment request:

<table>
<thead>
<tr>
<th>Integer</th>
<th>inventory_type (Stock)</th>
<th>Purchase Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Standard Product</td>
<td>Outright purchase</td>
</tr>
<tr>
<td>2</td>
<td>Non-subscription</td>
<td>Purchase of virtual keys</td>
</tr>
<tr>
<td>3</td>
<td>Subscription - Initial Shipment</td>
<td>Subscription</td>
</tr>
<tr>
<td>4</td>
<td>Subscription - Buffer Stock Shipment</td>
<td>Subscription</td>
</tr>
<tr>
<td>5</td>
<td>Subscription - Replacement YubiKey Shipment</td>
<td>Subscription</td>
</tr>
</tbody>
</table>
Step 6  The ChannelPartnerId column also calls for an integer.

When requesting shipment, distinguish between inventory purchased directly from Yubico and inventory purchased from Yubico's channel partners, because inventory is sorted according to the source from which it was purchased. The Dashboard shows your total inventory of any given product, combining quantities purchased from all sources: both directly from Yubico and indirectly through channel partners (if applicable). To find out what is in which inventory, check your purchase orders (POs).

Note: The source of a PO is always referred to as a channel partner, even if it was a direct purchase, in which case the Channel partner ID (or ChannelPartnerId or channelpartner_id) is 1.

Note: the selection of channel partner is not supported in the /shipments API.

To find out what the channel partner ID is:

BEFORE shipment  The name and ID of the channel partner are shown on the purchase order detail page, accessible by clicking the ID of the PO on the Purchase orders page.

DURING creation of shipment request  When selecting the Channel partner name on the Single shipment tab (accessed by clicking Create shipment request), the Channel partner ID populates automatically.

AFTER shipment  The Channel partner ID is shown on the shipment request detail page, accessible by clicking the ID of the shipment request on the Shipments tab.

Step 7  When you have finished populating the CSV file:

a) On the Bulk Shipment tab, click Choose file.

b) Select your CSV file, and then click Upload.

If your CSV file uploads successfully, after pre-checks have been performed, notification of success appears under the Upload button.

c) You are prompted to confirm the file you are uploading (by line count).

If you later find that there were errors in the uploaded file, you can delete some or all of the rows (see Editing or Deleting a Shipment and/or Deleting Multiple Shipments).

Note: It can take some time before your requests appear in the list of shipment requests. Always allow time for corrections in case the system finds addresses marked as Incomplete - see below, Reviewing Incompletes.

1.9.4 Shipment Request Fields

In the table below, all fields not marked as mandatory are optional. The Limit column displays the maximum number of alphanumeric characters permitted per field/table cell.
<table>
<thead>
<tr>
<th>Console: Field Label</th>
<th>Description</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSV: Column Heading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>API</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Country code</strong></td>
<td>Mandatory. Country code from <code>available_countries.csv</code></td>
<td>2</td>
</tr>
<tr>
<td><code>country_code_2</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Company recipient</strong></td>
<td>Mandatory if name of recipient is not provided</td>
<td>20</td>
</tr>
<tr>
<td><code>recipient</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>First name</strong></td>
<td>Name of recipient. Mandatory if company name not given</td>
<td>15</td>
</tr>
<tr>
<td><code>recipient_firstname</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Last name</strong></td>
<td>Recipient’s family name. Mandatory if company name not given</td>
<td>20</td>
</tr>
<tr>
<td><code>recipient_lastname</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Address 1</strong></td>
<td>Mandatory. First line of address</td>
<td>60</td>
</tr>
<tr>
<td><code>street_line1</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Address 2</strong></td>
<td>Mandatory if address not deliverable without (e.g. suite #)</td>
<td>60</td>
</tr>
<tr>
<td><code>street_line2</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Address 3</strong></td>
<td>Not supported for expedited/rush orders</td>
<td>60</td>
</tr>
<tr>
<td><code>street_line3</code></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>City</strong></td>
<td>Mandatory. City, town, or township</td>
<td>60</td>
</tr>
<tr>
<td><strong>Region/State</strong></td>
<td>Mandatory for US and Canada, and also mandatory if address is not deliverable without. (See footnote A) Abbreviations OR full names</td>
<td>50</td>
</tr>
<tr>
<td><code>postal_code</code></td>
<td>Zipcode or postal code</td>
<td>50</td>
</tr>
<tr>
<td><strong>RecipientEmail</strong></td>
<td>Email address of recipient</td>
<td>40</td>
</tr>
<tr>
<td><code>recipient_email</code></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 1.9. Shipping to Multiple Addresses

| **Contact Phone** | Telephone number of shipment recipient | 40    |
| `RecipientTelephone` |             |       |
Footnote A: To find out if an address is deliverable, make a shipment request and see what status code or message it gets. Deliverability is determined by our shipping partners, and it is their codes and messages we display when it comes to questions of deliverability. For a fuller explanation, see Troubleshooting.

1.9.5 Deleting Multiple Shipments

This capability applies only to requests that are still editable. To delete multiple shipment requests simultaneously,

Step 1 On the Shipments tab, go to the Actions list dropdown, and select Bulk operations. The Bulk Operations screen appears, showing only the shipment requests that can be deleted (i.e., those that have not yet been processed).

Step 2 Select the checkbox in the header row, then hit the Delete shipments button on the upper right. The selected shipment requests are deleted.

To revert the Select all action, i.e., to deselect all the shipment requests, click the checkbox in the header row again.

To file a support ticket for YubiEnterprise Delivery, click Support.

1.10 Shipping to a Single Address (Console)

The information in Requesting Shipment: Introduction applies to shipping to a single address using the console; see the Restrictions section, which lists the limits on field content and gives guidance on format.

1.10.1 Procedure

To use the Console to request shipping of keys from your inventory to one address,

Step 1 Click Create shipment request. The New shipping request popup appears. Select the tab on the left, Single shipment.
**Step 2** Fill in the address fields using Google Maps address formats (see *Troubleshooting*). For commercial/business addresses, enter the name of the recipient’s company in the **Company** field. This is not necessarily the same as that of your organization. For residential addresses, leave the **Company** field empty, unless the recipient’s name is too long to fit into the first and last name fields. The limits on the various fields are shown in *Shipment Request Fields*.

**Step 3** For the **Delivery Type** dropdown, select one of the two shipment types, **Normal** or **Expedited**. Your selection determines the shipping fee, which is calculated after you complete the shipping request.

**Step 4** Select the inventory that you are drawing on in the **From stock** dropdown list by clicking on the list, then on the appropriate checkbox(es. Multiple selections simultaneously are possible.

For a complete list and explanations of the options, see *Inventory Matters*. In the screenshot below, the number 4 on the right in the **From stock** field shows that four inventories were selected - those shown below the field. (The field itself is too short to name more than one of them; the three dots following in the field indicate that further selections were made).

If you select an inventory, but do not fill in any of the product fields, no shipment request is created.

<table>
<thead>
<tr>
<th>Primary Subscr - Prem. Tier: Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product type</strong></td>
</tr>
<tr>
<td>YubiKey 5 NFC</td>
</tr>
<tr>
<td>YubiKey 5 Nano</td>
</tr>
<tr>
<td>YubiKey 5C</td>
</tr>
<tr>
<td>YubiKey 5C Nano</td>
</tr>
<tr>
<td>YubiKey 5Ci</td>
</tr>
<tr>
<td>Security Key NFC by Yubico</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Backup Subscr - Prem. Tier: Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product type</strong></td>
</tr>
<tr>
<td>YubiKey 5 NFC</td>
</tr>
<tr>
<td>YubiKey 5 Nano</td>
</tr>
<tr>
<td>YubiKey 5C</td>
</tr>
<tr>
<td>YubiKey 5C Nano</td>
</tr>
<tr>
<td>YubiKey 5Ci</td>
</tr>
<tr>
<td>Security Key NFC by Yubico</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary Subscr - Adv. Tier: Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product type</strong></td>
</tr>
<tr>
<td>YubiKey 5 NFC</td>
</tr>
<tr>
<td>YubiKey 5 Nano</td>
</tr>
<tr>
<td>YubiKey 5C</td>
</tr>
<tr>
<td>YubiKey 5C Nano</td>
</tr>
<tr>
<td>Security Key NFC by Yubico</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standard products</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product type</strong></td>
</tr>
<tr>
<td>YubiKey 5C Nano</td>
</tr>
<tr>
<td>YubiKey 5C</td>
</tr>
<tr>
<td>YubiKey 5C Nano</td>
</tr>
<tr>
<td>YubiKey 5 NFC</td>
</tr>
<tr>
<td>YubiKey Lanyard</td>
</tr>
<tr>
<td>YubiKey 5 Nano</td>
</tr>
</tbody>
</table>

Create single shipment  Cancel
**Step 5** As soon as you have selected the stock and clicked in the **Shipping quantity** field for a key, any quantities you previously entered in that field are displayed.

Enter the desired quantities in the appropriate fields.

**Step 6** Click **Create shipment request**. The **Shipment confirmation** popup appears:

Click **Confirm**. If all went well, you are notified that your request was accepted:
Shipment Request Fields

In the table below, all fields not marked as mandatory are optional. The Limit column displays the maximum number of alphanumeric characters permitted per field/table cell.
<table>
<thead>
<tr>
<th>Console: Field Label</th>
<th>Description</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSV: Column Heading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>API</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Country code</strong></td>
<td>Mandatory. Country code from available_countries.csv</td>
<td>2</td>
</tr>
<tr>
<td>country_code_2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Company recipient</strong></td>
<td>Mandatory if name of recipient is not provided</td>
<td>20</td>
</tr>
<tr>
<td>recipient</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>First name</strong></td>
<td>Name of recipient. Mandatory if company name not given</td>
<td>15</td>
</tr>
<tr>
<td>recipient_firstname</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Last name</strong></td>
<td>Recipient’s family name. Mandatory if company name not given</td>
<td>20</td>
</tr>
<tr>
<td>recipient_lastname</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Address 1</strong></td>
<td>Mandatory. First line of address</td>
<td>60</td>
</tr>
<tr>
<td>street_line1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Address 2</strong></td>
<td>Mandatory if address not deliverable without (e.g. suite #)</td>
<td>60</td>
</tr>
<tr>
<td>street_line2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Address 3</strong></td>
<td>Not supported for expedited/rush orders</td>
<td>60</td>
</tr>
<tr>
<td>street_line3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>City</strong></td>
<td>Mandatory. City, town, or township</td>
<td>60</td>
</tr>
<tr>
<td><strong>Region/State</strong></td>
<td>Mandatory for US and Canada, and also mandatory if address is not deliverable without. (See footnote A) Abbreviations OR full names</td>
<td>50</td>
</tr>
<tr>
<td><strong>Postcode</strong></td>
<td>Zipcode or postal code</td>
<td>50</td>
</tr>
<tr>
<td>postal_code</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RecipientEmail</strong></td>
<td>Email address of recipient</td>
<td>40</td>
</tr>
<tr>
<td>recipient_email</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

40 Chapter 1. User Guide and Release Notes

<table>
<thead>
<tr>
<th>Contact Phone</th>
<th>Telephone number of shipment recipient</th>
</tr>
</thead>
</table>
Footnote A: To find out if an address is deliverable, make a shipment request and see what status code or message it gets. Deliverability is determined by our shipping partners, and it is their codes and messages we display when it comes to questions of deliverability. For a fuller explanation, see Troubleshooting.

To file a support ticket for YubiEnterprise Delivery, click Support.

1.11 Purchase Orders

The Purchase Orders tab displays the purchase orders (POs) that have been submitted for both products and delivery shipping credits.

Note: POs are not made from the YubiEnterprise Delivery Console, but instead by contacting your Yubico sales representative or your channel partner.

The Purchase Orders tab is for reference, and therefore the information displayed is read-only. It lists all your order information as shown in the example in the screenshot below:

Purchase Orders tab

You can view the number and type of products you currently have in inventory by clicking on the PO number to display the PO Detail View. Your Available credits are shown on the most recent PO Detail View as well as on the Dashboard.

More details - particularly those relating to subscriptions - can be found in Modes of Purchase.

1.11.1 PO Tab Column Headings

Order date Date on which the order was received.

Purchase order number PO number. This is a link to a PO Detail View showing what was purchased and your existing inventory. If you purchased from a channel partner, unit prices are not shown.

Channel partner name This field is empty if you purchased directly from Yubico.

Contact Email address on the PO.

Status The extent to which the selected PO has been consumed. As shipping requests are processed, inventory and shipping credits will be depleted.

- Available for shipment - you have products in inventory
- Order consumed - all products purchased have been shipped
• **Order Expired, contact sales** - the PO expired before the keys were shipped, so you should contact your Yubico sales person.

**PO Detail View**

For more information about a PO, click on its **Purchase order number**. The PO popup shows:

- **The purchase order number,** or if applicable, the channel partner ID and the channel partner name, e.g.: “Purchase order from channel partner 24 : Alpha_partner - ABC_123”.
- **Available inventory:** The name and quantity of each product available/purchased:
  - Number shown in bold indicates number of keys ordered. Number not bolded indicates number of keys currently in inventory.
  - If the purchase was direct (not through a channel partner), the unit price per item is shown.
  - For subscription customers, the tiers are shown.
  - “Unknown product name” denotes that access to the item has been revoked.
- **Available credits:** The delivery shipping credits available/purchased. Value of the credits purchased is shown in bold while those remaining in inventory are not.
  - **Shipping credit:** Amount of credit for shipping expenses (Shipping & Handling Fees).
  - **VAT credit:** Amount of credit for value-added tax assessed on product and shipping (UK and EU).
  - **Tax credits:** Amount of credit for sales tax assessed on product and shipping (US and Canada).

---

**PO popup: Purchase through channel partner 24: Alpha_partner - ABC_123**

<table>
<thead>
<tr>
<th>Available inventory</th>
<th>Available credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>999 / 1000 - Primary Subscr - FIPS Tier: Initial</td>
<td>$0.00 / $0.00 - Shipping credit</td>
</tr>
<tr>
<td>48 / 50 - Primary Subscr - FIPS Tier: Buffer</td>
<td>$0.00 / $0.00 - VAT credit</td>
</tr>
<tr>
<td>245 / 250 - Primary Subscr - FIPS Tier: Replacement</td>
<td>$0.00 / $0.00 - TAX credit</td>
</tr>
</tbody>
</table>

---

**PO popup: Purchase through channel partner PO-123a**

<table>
<thead>
<tr>
<th>Available inventory</th>
<th>Available credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>255 / 870 - $55.00 / Unit cost - YubiKey 5Ci</td>
<td>$3,377.73 / $10,000.00 - Shipping credit</td>
</tr>
<tr>
<td>603 / 939 - $55.00 / Unit cost - YubiKey 5C</td>
<td>$0.00 / $0.00 - VAT credit</td>
</tr>
<tr>
<td>347 / 815 - $44.00 / Unit cost - Unknown product name</td>
<td>$0.00 / $0.00 - TAX credit</td>
</tr>
<tr>
<td>0 / 240 - $55.00 / Unit cost - YubiKey 5C Nano</td>
<td></td>
</tr>
<tr>
<td>578 / 900 - $55.00 / Unit cost - YubiKey 5 Nano</td>
<td></td>
</tr>
</tbody>
</table>
1.11.2 Credits: Delivery, Shipping, Tax

The Available credits, which appear on your invoices as “Delivery Shipping Credits” are listed separately from purchased products.

YubiEnterprise Delivery Shipping/Services Credits are prepaid shipping fees, a Shipping Credits SKU that is bought prior to any shipments. For each shipment request, YubiEnterprise Delivery will automatically deduct the appropriate shipping fees from the pre-paid credits and calculate the product taxes based on destination address and shipping taxes based on location from which the products are shipped.

At the end of every month in which shipment requests are made, Yubico invoices you. If Example Corp issues a purchase order (PO) in November for products plus Delivery Services Credits for shipping and taxes (i.e., taxes on both products and shipping) and products were shipped in January and June, in addition to the invoice for the original PO, Yubico would send Example Corp invoices in January and June aggregating the individual shipments dispatched in those months, reconciling the credits with the actual amount charged.

Delivery Shipping/Services Credits must be used within the period of time specified in your contract (generally one year for Perpetual customers and three years for Subscription customers), after which the credits expire (for more information, see the Delivery Addendum to Yubico’s Terms and Conditions).

To file a support ticket for YubiEnterprise Delivery, click Support.

1.12 User Management

The initial org owner for YubiEnterprise Services is created by YubiEnterprise Delivery customer support.

In the case of a multinational organization shipping YubiKeys to both the EU and the US, there is a separate login for each. It may be the same person for both, but these are two separate organizations.

1.12.1 Managing Users

The following capabilities are available to org owners:

• Invite a user to register for YubiEnterprise Delivery (or re-register if they have lost their YubiKey)
• Reset a user’s password
• Change or remove a user’s role
• Remove a user from an org
• Suspend a user
Roles/Permissions

In addition to the org owner roles, there are org admin roles and org auditor roles. Together they make up the org members. The names and email addresses of the org members are displayed on the Users tab of the Settings page. All users can view the role and email address of each org member. The role a member has is displayed on the Edit member page.

Org members cannot have multiple roles within the same organization.

Admins and auditors do not see the controls for downloading CSV files or adding new members. The permission levels of the different members/roles are set out in the table below.

<table>
<thead>
<tr>
<th>Permission</th>
<th>Owner</th>
<th>Admin</th>
<th>Auditor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add / Delete org members</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Change member roles</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Reset member login credentials</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Make / Edit Shipment Requests</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Correct shipping addresses</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>View Shipments / Purchase Orders / Org settings</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Manage personal login credentials</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>View other roles’ details</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Generate API token</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
</tbody>
</table>

Downloading Org Member Details Spreadsheet

Org Owners can download a list of all the Org Members and their details in the form of a spreadsheet by clicking Download CSV from the Users tab of the Settings screen.

1.12.2 Managing Your Own Profile

To manage your own login credentials and API tokens, click on the profile icon (the green button with your initials) on the top right of any page. The profile page appears, showing your username and a button for each option.

If you have login credentials for more than one organization, the Authentication field lists those organizations. To change from one organization to another, click on the name of the desired organization.

Managing Login Credentials

Important: There is no going back if you click Manage Login Credentials: you must enter your current password. If you do not know your password, you will be automatically logged out immediately, and you will need to request a new password from your administrator.

To change your own password, click Manage Login Credentials, enter your current password, then your new password and confirm that new password by re-entering it.
1.12.3 Account Recovery and Password Reset

Org owners have the ability to:

- Enable a user to recover their account, for example when they have lost their YubiKey
- Reset a member’s password (sufficient if the member still has their YubiKey)
- Change a member’s role

As an org owner, do any of the above by going to the Edit member page by clicking the Edit icon next to the red trashcan icon to the right of the member’s name.

The commands for these options are illustrated in the following screenshot of the Edit member page:

![Fig. 1: Org Owner’s View of the Edit member Page](image)

1.12. User Management
User Status

The actions referenced above in Account Recovery and Password Reset transition the user into the following states:

Active  operational.

Inactive  A user who is not a member of any org. This state is automatically entered when a user who is part of a single org is removed from that org. Any API token the user has is deleted. All user credentials are reset. If an inactive user tries to log in, they get the userID / password invalid message. When any org owner adds this user to any org, the user moves from the Inactive state to the Invited state.

Reset  User’s account has been reset and user must re-register. The user’s API token (if present) remains. If a user is still pending (invited, but not registered), the reset action will send a new setup email.

Invited  An invitation to register has been sent to the user, but they have not yet registered a key.

Suspended  Contact customer support to suspend a user in order to disable their YED access in response to a security concern. Only Yubico can put a user into this state or move them out of it. Any API token the user has is deleted, and login credentials are reset.

Putting users into this state does not alter their org mappings; in other words, from the perspective of Yubico, they still exist, so if their access is re-instated, nothing further needs to be done.

All owners of the user’s org receive an email notifying them that this user is suspended and that these owners must contact customer support for re-activation, since they themselves cannot edit this user at all.

If a suspended user tries to log in, they get the userID / password invalid message

1.12.4 Adding or Deleting an Org Member

Org Owners can add an Org Member by clicking Add new member from the Users tab of the Settings screen. The Add new member popup appears. Enter the new user’s email address and role (YubiEnterprise Auditor, YubiEnterprise Admin, Owner):

Add new member popup
For each new Org Member added by an Org Owner, the system generates the following email inviting the member to register:

---

From: no-reply@yubico.com  
Date: Sep 10, 2020, 12:34 PM -0700  
To: <new-user@example.com>  
Subject: Welcome to YubiEnterprise!

**Please activate your account**

Hi,

Your system administrator has created a YubiEnterprise Delivery account for you. To help you get started with YubiEnterprise Delivery Console, please see Yubico’s ‘Getting Started <https://www.youtube.com/watch?v=IHw5Qt-r-qM>’ video.

Click the following link to activate your account:

**Activate your YubiEnterprise account**

This link expires in 7 days.  
Your username is: <new-user@example.com>

This is an automatically generated message from Yubico. Replies are not monitored or answered.

---

To delete an Org Member, on the Users tab of the Settings screen, the Org Owner clicks the trashcan icon to the right of the member’s role.

### 1.12.5 Lost or Reset YubiKey

If a user loses or resets their YubiKey, they can no longer log in to YubiEnterprise Delivery. Such a user must contact an org owner for their organization to have their account reset as described in Account Recovery and Password Reset. When the user acquires another security key to register, they can log in and register that second key. To avoid this scenario, it is best to register at least one other YubiKey at the same time as the first one, and to keep the additional YubiKey(s) in a safe place. For more information and instructions, see Spare YubiKeys.
1.12.6 Adding WebAuthn Credentials

To add WebAuthn credentials (register a security key), click your login icon - your initial - on the top right of any screen, then click Manage login credentials. The Account page is displayed:

Click Add, and the ensuing dialog prompts you to insert a security key, then asks you if you will allow the YubiEnterprise Delivery site (the Console) to “see” that key. Click Allow. In the screenshot above, the item registered as Authenticator is actually a YubiKey from the 4 Series.

Managing API Tokens

For information on API tokens and the relevant guidelines, see API Onboarding Playbook and API: Best Practices and FAQ respectively.

To file a support ticket with Yubico, click Support.

1.13 Best Practices and Troubleshooting

1.13.1 Best Practices

Note: The best practices specific to YubiEnterprise APIs are in the API: Best Practices and FAQ section of Using the API to Execute a Shipping Request.

- Have at least two Org Owners who can manage members (see User Management).
- Inform both your YubiEnterprise users and your end-users in advance that they will receive email from Yubico’s YubiEnterprise Delivery. Without this advance notice, they are likely to regard these emails as phishing attempts.
- Subscription customers:
  - To ensure that you do not let keys in any of your inventories expire unused, create a spreadsheet to plan the allocation of products across users and inventory types. See Example Subscription.
  - When creating a shipment request, select the inventory type before selecting the item(s) to be shipped.
Limits and Constraints

When planning and executing shipment requests, keep in mind the primary limits and constraints set out in *Delivery Policies*, but also the following:

Although the system can deliver to Post Office (PO) Boxes within the United States, delivery to PO Boxes (or the equivalent) elsewhere in the world is unlikely to succeed.

When requesting shipment, distinguish between inventory purchased directly from Yubico and inventory purchased from Yubico’s channel partners, because inventory is sorted according to the source from which it was purchased. The Dashboard shows your total inventory of any given product, combining quantities purchased from all sources: both directly from Yubico and indirectly through channel partners (if applicable). To find out what is in which inventory, check your purchase orders (POs).

**Note:** The source of a PO is always referred to as a channel partner, even if it was a direct purchase, in which case the Channel partner ID (or ChannelPartnerId or channelpartner_id) is 1.

**Note:** the selection of channel partner is not supported in the /shipments API.

To find out what the channel partner ID is:

**BEFORE shipment**  The name and ID of the channel partner are shown on the purchase order detail page, accessible by clicking the ID of the PO on the Purchase orders page.

**DURING creation of shipment request**  When selecting the Channel partner name on the Single shipment tab (accessed by clicking Create shipment request), the Channel partner ID populates automatically.

**AFTER shipment**  The Channel partner ID is shown on the shipment request detail page, accessible by clicking the ID of the shipment request on the Shipments tab.

Recipient Names

On the Console, in the API and in the CSV file: recipient_firstname and recipient_lastname map to the first line on the shipping label.

For commercial or business addresses, the API’s recipient field and the Company field on the Console and in the CSV file all require the name of the recipient’s company. This is not necessarily the same as the name of your organization. For residential addresses, leave the Company / recipient field empty.

The Company / recipient fields map to the second line on the shipping label.

Long recipient names can be problematic for all methods of requesting shipment, because the shipment request will fail if the contents of the name and/or Company / recipient fields exceed the maximum number of characters permitted in these fields (shown in the table below).

**Workaround:** When a recipient’s full name or company name exceeds the fields’ maximum lengths, split the names across the three fields, for example:
Address validation takes place every 15 minutes. This means that you might have to wait up to 15 minutes to find out if your shipment request has been queued for fulfillment (see Shipping Status Codes).

Non-subscription purchases: Shipment requests can be made for up to one year after a PO is submitted.

Subscription purchases: Availability of products in shipment requests depends on the stock/inventory from which the products are drawn. (For details, see Tier Sub-categories.)

The full list of options potentially available is given below. The actual list depends on what you have purchased. Explanations for the terms in the list are given in the table below the list. For more details on subscription and non-subscription purchasing, see Modes of Purchase.

### Full List of Inventory Types

- Primary Subscr - Base Tier: Initial
- Primary Subscr - Base Tier: Buffer
- Primary Subscr - Base Tier: Replacement
- Primary Subscr - Adv. Tier: Initial
- Primary Subscr - Adv. Tier: Buffer
- Primary Subscr - Adv. Tier: Replacement
- Primary Subscr - Prem. Tier: Initial
- Primary Subscr - Prem. Tier: Buffer
- Primary Subscr - Prem. Tier: Replacement
- Primary Subscr - FIPS Tier: Initial
- Primary Subscr - FIPS Tier: Buffer
- Primary Subscr - FIPS Tier: Replacement
- Backup Subscr - Base Tier: Initial
- Backup Subscr - Base Tier: Buffer
- Backup Subscr - Base Tier: Replacement
- Backup Subscr - Adv. Tier: Initial
- Backup Subscr - Adv. Tier: Buffer
- Backup Subscr - Adv. Tier: Replacement
- Backup Subscr - Prem. Tier: Initial
- Backup Subscr - Prem. Tier: Buffer
• Backup Subscr - Prem. Tier: Replacement
• Backup Subscr - FIPS Tier: Initial
• Backup Subscr - FIPS Tier: Buffer
• Backup Subscr - FIPS Tier: Replacement
• Non-subscription - Base Tier
• Non-subscription - Advanced Tier
• Non-subscription - Premium Tier
• Non-subscription - FIPS Tier
• Standard Products

<table>
<thead>
<tr>
<th>Standard Products</th>
<th>Subscription</th>
<th>Non-subscription</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard products are physical keys purchased outright (on your PO you will not find “Standard Products”, but instead the actual products/models that you purchased).</td>
<td>There is a primary subscription and a backup subscription for each tier (product grouping): Base, Advanced, Premium, and FIPS. Each of those tiers has Initial, Buffer, and Replacement sub-categories, explained in the table below.</td>
<td>The non-subscription tiers are for virtual keys. Unlike subscription tiers, non-subscription tiers have no sub-categories.</td>
</tr>
</tbody>
</table>

**Initial**

The stock in this category reflects the total number of users on the subscription. This lot can be drawn upon for 12 months from the start of your subscription term.

**Buffer**

This category is made available to you free of charge when your subscription begins. You can draw on it throughout the term of your subscription.

**Replacement**

This category is intended for those who have lost their YubiKeys or want to upgrade. The stock in this category is reset each year of the subscription to the Replacement limit.
Shipment requests can be edited or deleted until 3am PST (11am GMT), the day after they were entered.

**Normal (standard) shipping**  Shipments typically will take 5-7 days for transit in North America and Europe. Other parts of the world will incur longer transit times.

**Expedited (rush) shipping**  Shipments typically will take 1 business day for transit in North America and Europe. Other parts of the world will incur longer transit times.

### 1.13.2 Troubleshooting

This section addresses issues that can arise with shipping. YubiEnterprise Delivery notifies you of the situation of any given shipment via the codes in the Status column of the **Shipments** tab. The table below, **Shipping Status Codes**, lists the error codes and their explanations.

YubiEnterprise Delivery uses address validation services to reduce the incidence of issues, but it is important to be aware that just because an address exists in Google Maps, it does not mean that the address is deliverable. ‘Deliverable address’ is a United States Postal Service (USPS) classification for designating addresses to which the USPS has historically been able to deliver. YubiEnterprise Delivery’s ability to deliver is based on address information being input in the format acceptable to the relevant address validation service. The USPS-acceptable formats are set out in detail in the USPS’s *Postal Addressing Standards*.

**Note:**  When revising an address, the best option is to use the format Google Maps presents, because it usually does use the address format preferred by the validation service. In the example below, the address format that was input appears in the upper field, and Google Maps’ format is shown below the photo of the location.

---

**Karl-Ferlemann-Straße 41**

04177 Leipzig  
Germany  
Building
Address Validation Outside the US and Canada

For parts of the world with less standardized address formats, the fact that YubiEnterprise Delivery can accept an address does not mean that it is deliverable. An address will often be classified as “partially deliverable”, which means that we rely on local couriers who are familiar with the complexities of their urban systems and their delivery routes to deliver to the intended recipient.

Typically packages sent to European addresses and some parts of Asia reach their destination. Packages sent to South-east Asia and Eastern Europe typically arrive at the right street. In those parts of the world where there are no numbers in the postal addresses, the local courier’s capability is crucial to ensuring that the package actually arrives at its destination as opposed to ending up in its general area.

Shipping Status Codes

At any of the states between 1 and 9, a shipment request can be edited. From this point on, a shipment request is either processed through to an end state, or set back to state 99.

This table is very wide; scroll horizontally to see all four columns.
<table>
<thead>
<tr>
<th>Shipment State ID</th>
<th>Shipment State Code</th>
<th>Shipment State Description</th>
<th>Shipment State Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ShipmentStateIncomplete</td>
<td>Shipment request received by YubiEnterprise Delivery system but contained some data that could not be processed. (2), (3)</td>
<td>Incomplete Shipping Request</td>
</tr>
<tr>
<td>2</td>
<td>ShipmentStateDraft</td>
<td>Shipment request is being edited and is not ready for processing.</td>
<td>Draft</td>
</tr>
<tr>
<td>3</td>
<td>ShipmentStateAwaitingValidation</td>
<td>Shipment request received, no validation done yet.</td>
<td>Awaiting Validation</td>
</tr>
<tr>
<td>4</td>
<td>ShipmentStateProcessingAddress</td>
<td>Shipment request locked as it undergoes country check, address validation, sales tax rate lookup (US), DPL check.</td>
<td>Processing</td>
</tr>
<tr>
<td>5</td>
<td>ShipmentStateAddressValid</td>
<td>Shipment request address has been validated, ready to be picked up by fulfillment processor.</td>
<td>Accepted for Fulfillment</td>
</tr>
<tr>
<td>6</td>
<td>ShipmentStateAddressInvalid</td>
<td>Shipment request address is invalid but an alternative address has been found and suggested. (2), (3)</td>
<td>Incomplete</td>
</tr>
<tr>
<td>7</td>
<td>ShipmentStateAddressFail</td>
<td>Shipment request address could not be validated and no alternative could be found for suggesting.</td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Shipment State Codes
(1) Refer to *Timing* for cutoff times.

(2) Incomplete Address: Secondary line information such as apartment (apt), suite, unit is missing. Therefore it is not possible to guarantee delivery to the correct recipient.

(3) Address is Undeliverable or could not be understood: The address is either not physically deliverable or it could not be resolved to a real location.

(4) Any shipping request with a recipient name and/or address found on the US government’s DPL (Denied Parties/Persons List) cannot be fulfilled.

### Shipment Status Messages

As the following table is wide, you may need to scroll horizontally. In the Explanation column, the source of the message is given: YubiEnterprise Delivery system for internal messages, US Validation for the US Postal Service, and finally, International Validation. Messages originating from the last two are simply passed on to you by YubiEnterprise Delivery.

<table>
<thead>
<tr>
<th>Message</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>InventoryProductId not specified for ProductId %d - ShipmentStateError</td>
<td>Step 4 in <em>Shipping to Multiple Addresses</em></td>
</tr>
<tr>
<td></td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Too many keys in shipment - TotalKeysShipped %d &gt; %d - ShipmentStateError</td>
<td>See <em>Limits and Constraints</em></td>
</tr>
<tr>
<td></td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Not enough Inventory for Shipment - ShipmentStateError</td>
<td>See <em>Purchase Orders</em></td>
</tr>
<tr>
<td></td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Re-enter the address differently; some parts of it are invalid. See the</td>
<td>See <em>Troubleshooting</em></td>
</tr>
<tr>
<td>YubiEnterprise documentation for more guidance.</td>
<td>US Validation</td>
</tr>
<tr>
<td>The address is invalid. See the YubiEnterprise documentation for more</td>
<td>See <em>Troubleshooting</em></td>
</tr>
<tr>
<td>guidance.</td>
<td>US Validation</td>
</tr>
<tr>
<td>The address is valid.</td>
<td>No further explanation required</td>
</tr>
<tr>
<td></td>
<td>US Validation</td>
</tr>
<tr>
<td>Remove the ‘secondary unit designator’ (apt, suite, department, etc.)</td>
<td>Remove the apartment number, unit, etc.: it is</td>
</tr>
<tr>
<td>because it is superfluous.</td>
<td>considered wrong or unnecessary</td>
</tr>
<tr>
<td></td>
<td>US Validation</td>
</tr>
</tbody>
</table>

continues on next page
<table>
<thead>
<tr>
<th>Message</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter second line information (apartment, unit, etc.). The information in the primary line is not specific enough.</td>
<td>Add the apartment number, unit, etc. US Validation</td>
</tr>
<tr>
<td>The address is a valid military address.</td>
<td>No further explanation required US Validation</td>
</tr>
<tr>
<td>The address is a valid General Delivery address where individuals without permanent addresses can receive mail.</td>
<td>No further explanation required US Validation</td>
</tr>
<tr>
<td>The address is valid. An organization such as a government agency can can have its own zipcode because it receives a large volume of mail.</td>
<td>No further explanation required US Validation</td>
</tr>
<tr>
<td>Enter a street number; for example, for Yubico ‘Lytton Ave’ alone is not sufficient, it needs to be ‘530 Lytton Ave’.</td>
<td>The number on the primary line, e.g., the “185” in “185 Berry Street” is missing</td>
</tr>
<tr>
<td>Enter a valid street number.</td>
<td>The number on the primary line, e.g., the “185” in “185 Berry Street” is valid US Validation</td>
</tr>
<tr>
<td>Enter a PO Box, Rural Route, or Highway Contract box number.</td>
<td>US Validation</td>
</tr>
<tr>
<td>Enter a valid PO Box, Rural Route, or Highway Contract box number.</td>
<td>US Validation</td>
</tr>
<tr>
<td>Enter the Private Mailbox (PMB) identifier or the # sign, followed by the PMB number.</td>
<td>PMB number is Private Mailbox Number US Validation</td>
</tr>
<tr>
<td>This address is not eligible to receive mail.</td>
<td>US Validation</td>
</tr>
</tbody>
</table>
Table 5 – continued from previous page

<table>
<thead>
<tr>
<th>Message</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The address is that of a Commercial Mail Receiving Agency (CMRA) a private business that accepts mail for recipients, and the required private mailbox information is present.</td>
<td>US Validation</td>
</tr>
<tr>
<td>The address is missing some important secondary line information (apartment, unit, etc).</td>
<td>No further explanation required</td>
</tr>
<tr>
<td>Mail is unlikely to arrive at this destination - please verify input.</td>
<td>No further explanation required</td>
</tr>
<tr>
<td>This street could not be found within the city or postal code.</td>
<td>No further explanation required</td>
</tr>
<tr>
<td>Invalid OrganizationId for Shipment</td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Country Code not set for Shipment</td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Country could not be found from CountryCode2: %s</td>
<td>Country code entered is not in</td>
</tr>
<tr>
<td>Shipments has no shipment items</td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>DeliveryType not set for Shipment, defaulting to 1 - normal</td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Invalid DeliveryType %s for Shipment</td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>InventoryType not set for Shipment, defaulting to 1</td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>InventoryType %s not valid set for Shipment</td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Negative quantity entered for ShipmentItem with ProductId=%d defaulting to 0</td>
<td>You set the quantity of the specified ProductId to be shipped to less than zero. YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Invalid ShipmentProductQuantity for ShipmentItem %d</td>
<td>You probably do not have sufficient inventory - YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Invalid ShipmentProductLineCost for ShipmentItem %d</td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Invalid Shipment - Total keys in shipment greater than 500</td>
<td>You cannot ship more than 500 items at once - YubiEnterprise Delivery system</td>
</tr>
</tbody>
</table>

continues on next page
Table 5 – continued from previous page

<table>
<thead>
<tr>
<th>Message</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipment has zero total item quantity</td>
<td>The number of items to be shipped must be &gt; than 0 - YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>US Address is missing the state name/abbreviation in region field</td>
<td>No further explanation required YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Bad ProductId in ShipmentProduct for NewShipment-Product</td>
<td>ProductID is wrongly specified or invalid YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Input for %s exceeded limit of %d characters</td>
<td>Specified field cannot accept the number of characters that were entered. YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Shipment of these products to this country using this delivery type is not supported. For more information, see Delivery Policies.</td>
<td>Shipment request contravenes one or more business rules. YubiEnterprise Delivery system.</td>
</tr>
</tbody>
</table>

• See the USPS FAQ.

Insufficient Inventory

To maintain the window during which orders can be updated, edited, or recalled/deleted, orders are held and processed in batch. Therefore there might be less inventory available by the time an order is processed than what was shown in purchase order details when the request was created. For example, the person starting to create a shipment request assumes that the 50 keys the console shows they have in inventory will still be available by the time the shipment request is submitted. When this is not the case, any shipment requests processed after the inventory is exhausted will be flagged with this error message:

Error: Processing Error, contact support.
Reason is Not enough Inventory for Shipment
- ShipmentStateError

A second issue arises from the same source: when the user clicks on the shipment request ID with that error, part of the status message displayed is “Insufficient Inventory of Product X” where “X” is an integer. To find out what X means, consult the Product Name, Stock/Inventory, product_id and inventory_product_id table.

A third issue arises from the same source: it is not possible to make single shipment requests for products that are not available in inventory - which is expected if insufficient product has been purchased, but an insufficiency of inventory can also be caused by Yubico itself running out of stock.
Workaround

Either contact Support to get more inventory, or edit the request to switch to another product for which inventory is available.

To file a support ticket with Yubico, click Support.

1.14 FAQs

- **Are there any limits or constraints on shipment requests?** Yes:
  - Address validation takes place every 15 minutes. This means that you might have to wait up to 15 minutes to find out if your shipment request has been queued for fulfillment (see Shipping Status Codes).
  - Non-subscription purchases: Shipment requests can be made for up to one year after a PO is submitted.
  - Subscription purchases: Availability of products in shipment requests depends on the stock/inventory from which the products are drawn. (For details, see Tier Sub-categories.)

The full list of options potentially available is given below. The actual list depends on what you have purchased. Explanations for the terms in the list are given in the table below the list. For more details on subscription and non-subscription purchasing, see Modes of Purchase.

**Full List of Inventory Types**

- Primary Subscr - Base Tier: Initial
- Primary Subscr - Base Tier: Buffer
- Primary Subscr - Base Tier: Replacement
- Primary Subscr - Adv. Tier: Initial
- Primary Subscr - Adv. Tier: Buffer
- Primary Subscr - Adv. Tier: Replacement
- Primary Subscr - Prem. Tier: Initial
- Primary Subscr - Prem. Tier: Buffer
- Primary Subscr - Prem. Tier: Replacement
- Primary Subscr - FIPS Tier: Initial
- Primary Subscr - FIPS Tier: Buffer
- Primary Subscr - FIPS Tier: Replacement
- Backup Subscr - Base Tier: Initial
- Backup Subscr - Base Tier: Buffer
- Backup Subscr - Base Tier: Replacement
- Backup Subscr - Adv. Tier: Initial
- Backup Subscr - Adv. Tier: Buffer
- Backup Subscr - Adv. Tier: Replacement
- Backup Subscr - Prem. Tier: Initial
– Backup Subscr - Prem. Tier: Buffer
– Backup Subscr - Prem. Tier: Replacement
– Backup Subscr - FIPS Tier: Initial
– Backup Subscr - FIPS Tier: Buffer
– Backup Subscr - FIPS Tier: Replacement
– Non-subscription - Base Tier
– Non-subscription - Advanced Tier
– Non-subscription - Premium Tier
– Non-subscription - FIPS Tier
– Standard Products

<table>
<thead>
<tr>
<th>Standard Products</th>
<th>Subscription</th>
<th>Non-subscription</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard products are physical keys purchased outright (on your PO you will not find “Standard Products”, but instead the actual products/models that you purchased).</td>
<td>There is a primary subscription and a backup subscription for each tier (product grouping): Base, Advanced, Premium, and FIPS. Each of those tiers has Initial, Buffer, and Replacement sub-categories, explained in the table below, Tier Sub-categories</td>
<td>The non-subscription tiers are for virtual keys. Unlike subscription tiers, non-subscription tiers have no sub-categories.</td>
</tr>
</tbody>
</table>

• Does YubiEnterprise Delivery track YubiKey serial numbers? No.

• What is the data retention policy, i.e., how long is data held within the YubiEnterprise Delivery Console before being purged? Data is kept for seven (7) years to comply with export control and financial legal requirements.

• What happens to YubiKeys purchased on a subscription basis after expiry of the corresponding PO/term? Any keys not shipped are forfeited, but the date of forfeiture or expiry depends on their inventory type: see “Are there any limits or constraints on shipment requests” above.

• What happens to YubiKeys purchased outright (perpetual) after one year in inventory? YubiEnterprise Delivery enables customers to request shipments for up to 12 months after the initial PO. YubiEnterprise Delivery will hold the customer’s inventory, regular or custom keys. When the twelve-month period is up, YubiEnterprise Delivery will ship the remainder of the keys to the original customer address on file. The customer will also be notified 60 and 30 days prior to the period expiry via email.

• What taxes will be charged to the customer? See Shipping.

• How will the customer be invoiced for the cost of shipping and taxes or VAT charged on shipping? See Shipping.

• How does Yubico handle customers who are exempt from VAT/sales tax? See Exemptions.
YubiEnterprise Delivery

- **What Personally Identifiable Information (PII) is retained by Yubico?** Yubico retains data only as long as necessary to operate our business and to comply with statutory and regulatory requirements. We do not use this data for any purpose other than meeting our obligations to our customers (e.g. shipping YubiKeys) and to comply with applicable laws. In accordance with export controls and tax law, Yubico is required to retain shipment data for up to five years.

- **What is the warranty on keys on a subscription contract?** The warranty is extended to cover the full term of the subscription and applies as long as the subscription is active.

- **Where is YubiEnterprise Delivery available?** YubiEnterprise Delivery is available in USA, Canada, EU, UK, Norway, Switzerland, Iceland, and Liechtenstein. YubiEnterprise Delivery is not available in EU Overseas Countries or Territories.

- **Can organizations that already have accounts with FedEx and UPS use those accounts with YubiEnterprise Delivery?** No, at the moment, YubiEnterprise Delivery cannot use customer-provided shipping partner accounts.

- **Can Yubico’s security keys and YubiKeys be custom programmed by Yubico for a customer?** Yes: the minimum initial order is 10,000 or more, with subsequent orders being at least 5,000.

- **What reports are available to customers to help better manage their YubiEnterprise Delivery?** YubiEnterprise Delivery customers can log into the YubiEnterprise Delivery Console and access their purchase orders, shipment requests, address book etc. They can also download all their shipment requests and status / tracking numbers over the period.

- **Our business is based in the US but has locations in Europe. Can YubiEnterprise Delivery support distribution of YubiKeys in this setup?** Yes, this use case is supported. A business headquartered in North America, but having office locations and users in Europe will be able to receive YubiKeys at their respective locations, including residential addresses.

- **We may need to have several people in the company place orders for YubiKeys. How does YubiEnterprise Delivery satisfy that requirement?** Any individual who has administrative rights to the YubiEnterprise Delivery Console can place orders for keys through the console. Admins can be delegated across locations so that they can best gauge the numbers of users who will need YubiKeys and request shipments all at once, or over time as needed.

### 1.15 API Onboarding Playbook

#### 1.15.1 Introduction

While YubiEnterprise Delivery can be driven entirely through the pre-built console, it also comes with an API that provides the ability to extend the functionality to custom applications. This API will enable your organization’s developers to integrate the API into custom solutions that precisely meet the requirements of your business.

#### 1.15.2 YubiEnterprise Delivery Self-Service Web Portal

This example in YubicoLabs GitHub repository will demonstrate an end-to-end solution with the ability to integrate the YubiEnterprise Delivery API into a web application that users in your enterprise (or beyond) could use to create YubiKey shipment requests drawing on your organization’s inventory.

In this project you will:

1. Stand up an environment in Amazon Web Services (AWS) to handle the server-side operations for the YubiEnterprise Delivery API and for handling user authentication/authorization
2. Use the YubiEnterprise Delivery API to create, delete, edit, and retrieve shipment requests as well as verify a shipment address

3. Create a front-end application for your end users to request shipment of a YubiKey that has been defaulted by your organization.

Guide

GitHub Repository: This repository contains the code and steps required to stand up an application in AWS capable of sending requests to your organization’s instance of YubiEnterprise Delivery.

Considerations

The aim of this guide is to demonstrate a barebones application that utilizes the YubiEnterprise Delivery API. The application should not be considered “production ready”. Below are a few of the considerations to keep in mind to ensure the success of your integration.

Policies to prevent abuse This demo will allow a user to request shipment of as many keys as they desire. Additional logic will need to be built in to limit the number of shipment requests based on your requirements.

Selectable security Key This demo is configured to order the YubiKey 5 NFC, and can be extended a variety of ways to allow different keys.

Error handling There is one section in this guide that describes handling methods if an error is sent during the initial order. For a production deployment, there are a variety of different error cases that should be considered such as low inventory, shipment failure, undeliverable address, etc.

Auto-filling address Currently this guide assumes that the user will be shipping their key to the address listed in ServiceNow. The catalog item may need to be extended to allow the user to input their personal address (for example, if they are not located at one of your main offices). You may want to consider leveraging the YubiEnterprise Delivery Verify Address API to allow your users to correct any address errors prior to submitting a shipment request.

Configuration based on your security requirements This includes swapping the system out to use your identity provider, secrets management in AWS Lambda, and other controls used by your organization.

People and process impacts to customer service If your application is intended for external end users then your internal CX team needs to be prepared to handle inquiries relating to YubiEnterprise Delivery/YubiKey. Either an internal team should be established and trained to handle these items OR you can engage Yubico Professional Services.

Multi-region PO support The current demo is configured for a purchase order covering a single region. You will need to use the proper API token for the user’s region, e.g. North America / Canada is one region, EMEA is a different region and each have their own associated API token.

More information can be found here.
1.15.3 ServiceNow Integration

For an organization that has fully integrated YubiEnterprise Delivery into its own internal systems via the APIs, the fulfillment experience is streamlined: the end-user receives an email notifying them that they are eligible for a YubiKey and/or that they are required to use the key for specific system access. The email directs the end-user to the corporate fulfillment system (e.g., ServiceNow). For more information, see ServiceNow Integrations.

1.15.4 Setting up API Caller and Generating Token

With regard to the API token,

- Protect access to the API token, because whoever is in possession of the token is authorized to perform API operations for your organization.
- Accounts that use machine tokens should have the Admin role, not the Owner role. This reduces the risk if the token is compromised, since the token has only the permissions associated with its role.
- The fact that API tokens can easily be issued and revoked helps to assure the security of accounts that use machine tokens.
- To handle machine token expiry, we recommend using the API (/auth/machine-token) to renew the API token. Ideally, logic should be put in to renew by calling the API to get a new token before the existing one expires.
- If a user is removed from an organization and has a token in that organization, the token is revoked. If a user is suspended, all tokens are revoked. The tokens are left untouched if the user is reset or the password is reset.
- Before an API token expires, the system generates and sends a notification to the associated email address. The email notifies that the token will expire in 7 days/1 day and will not be accepted by our system after that.

**Step 1**  Set up a sub-account for the application that will be calling the YubiEnterprise Delivery API. Detailed instructions for b and c below are given in Adding or Deleting an Org Member.

a. Set up an email account for the application that will be calling the API. Ensure that you have access to it. The system automatically sends an email with login instructions to the new user.

b. Use the YubiEnterprise Delivery Console (GUI) to create an account used solely by the API caller, for example, jan-api@example.com.

c. Assign to the API caller’s account the YubiDelivery Admin role.

**Step 2**  Activate the new API-calling account by clicking the login link in the email and following the on-screen prompts.

**Step 3**  Associate a YubiKey for the API caller account with the YubiEnterprise login credentials:

a. On the upper right of any YubiEnterprise Console page, go to the profile page of the API caller by clicking the initial for that account.

b. Click Manage login credentials and enroll a YubiKey as a roaming credential.

**Note:** Consider registering a second YubiKey in case the first YubiKey becomes unavailable due to loss or theft.

**Step 4**  Generate the API token:

a. On the YubiEnterprise Console Profile page, click Generate new API token.

b. Make a copy of the token and store it in a secure location.
YubiEnterprise Delivery

The token is displayed on the Console only at this time. Once you navigate away from the page you will no longer be able to view it.

Note: The API token is tied to an account AND an organization.

**Authenticating with HTTP**

The YubiEnterprise Delivery API supports the HTTP Bearer Authentication scheme. In order to authenticate with HTTP, you must provide your API token in the header of the request.

Copy your API token from its secure location and paste it into into a curl command in a bash script as shown below (the full token is not shown here).

```
curl "https://api.console.yubico.com/v1/inventory" \   
   --header "Authorization: Bearer eyJhb..."
```

Once you are logged into YubiEnterprise Delivery, you can view the YubiEnterprise Delivery public API at https://console.yubico.com/apidocs.

To file a support ticket for YubiEnterprise Delivery, click Support.

**1.16 ServiceNow Integrations**

**1.16.1 Introduction**

ServiceNow IntegrationHub is a centralized location to build and manage integrations. It is made up of a series of “spokes,” self-contained, scoped applications that contain all of the artifacts that make up an integration, primarily “Actions”.

With the aid of the following example, we will demonstrate how to integrate the YubiEnterprise Delivery API into a ServiceNow spoke in order to enable your end users to order YubiKeys from your organization’s inventory with just a few clicks.

This guide will cover:

1. How to add a YubiKey to your service catalog
2. How to configure your form to send a request to the YED API to create a shipment
3. How to send shipment tracking information to your end user

**1.16.2 Step-by-step Guide**

The [YubiEnterprise Delivery for ServiceNow Tutorial](https://api.console.yubico.com/v1/inventory) will walk you through configuring your custom spoke.
Considerations

The aim of this guide is not to create a production-ready prototype, but instead to familiarize you with ServiceNow and the method of integrating it with YubiEnterprise Delivery. Below are a few of the considerations to keep in mind to ensure the success of your integration.

- **Policies to prevent abuse** This demo will allow a user to request shipment of as many keys as they desire. Additional logic will need to be built in to limit the number of shipment requests based on your requirements.

- **Selectable security key** This demo is configured to order the YubiKey 5 NFC, and can be extended a variety of ways to allow different keys.

- **Error handling** There is one section in this guide that describes handling methods if an error is sent during the initial order. For a production deployment, there are a variety of different error cases that should be considered such as low inventory, shipment failure, undeliverable address, etc.

- **Auto-filling address** Currently this guide assumes that the user will be shipping their key to the address listed in ServiceNow. The catalog item may need to be extended to allow the user to input their personal address (for example, if they are not located at one of your main offices). You may want to consider leveraging the YubiEnterprise Delivery Verify Address API to allow your users to correct any address errors prior to submitting a shipment request.

To file a support ticket for YubiEnterprise Delivery, click Support.

1.17 Using the API to Execute a Shipping Request

The information in Requesting Shipment: Introduction applies to this method.

Although the system can deliver to Post Office (PO) Boxes within the United States, delivery to PO Boxes (or the equivalent) elsewhere in the world is unlikely to succeed.

1.17.1 Channel Partners

To order keys via API from inventory purchased through channel partners, the new /shipments_exact APIs must be used. The older, deprecated /shipments API only supports ordering keys from inventory purchased directly from Yubico.

The following APIs are a) deprecated and b) do not support channel partners.

- GET /shipments
- POST /shipments
- GET /shipments/{shipmentId}
- PUT /shipments/{shipmentId}
- DELETE /shipments/{shipmentId}

To manage shipment orders that utilize inventory purchased through channel partners, use the corresponding shipments_exact APIs:

- GET /shipments_exact
- POST /shipments_exact
- GET /shipments_exact/{shipmentId}
YubiEnterprise Delivery

- PUT /shipments_exact/{shipmentId}
- DELETE /shipments_exact/{shipmentId}

The following APIs related to bulk shipments have been updated to handle channel partners:

- POST /shipments/bulk
- GET /shipments/bulk
- POST /shipments/bulkvalidate
- POST /shipments/bulkdelete - For the sake of completeness, this is included in the list, but it has not changed.

The GET /shipments/csv API will also be updated to support channel partners.

Single Orders

To order keys via API from inventory purchased through channel partners, the new /shipments_exact APIs must be used. The GET /shipments_exact, POST /shipments_exact, GET /shipments_exact/{shipmentId}, and PUT /shipments_exact APIs have all been modified to handle channel partners. The corresponding (and deprecated) /shipments APIs have not been modified and can only handle direct sales orders.

Recipient Names

On the Console, in the API and in the CSV file: recipient_firstname and recipient_lastname map to the first line on the shipping label.

For commercial or business addresses, the API’s recipient field and the Company field on the Console and in the CSV file all require the name of the recipient’s company. This is not necessarily the same as the name of your organization. For residential addresses, leave the Company / recipient field empty.

The Company / recipient fields map to the second line on the shipping label.

Long recipient names can be problematic for all methods of requesting shipment, because the shipment request will fail if the contents of the name and/or Company / recipient fields exceed the maximum number of characters permitted in these fields (shown in the table below).

**Workaround:** When a recipient’s full name or company name exceeds the fields’ maximum lengths, split the names across the three fields, for example:

<table>
<thead>
<tr>
<th>Location</th>
<th>Field (limit=15)</th>
<th>Limit</th>
<th>Field (limit=20)</th>
<th>Limit</th>
<th>Field (limit=20)</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>API</td>
<td>recipient_firstname</td>
<td>15</td>
<td>recipient_lastname</td>
<td>20</td>
<td>recipient</td>
<td>20</td>
</tr>
<tr>
<td>CSV</td>
<td>recipient_firstname</td>
<td>15</td>
<td>recipient_lastname</td>
<td>20</td>
<td>recipient_company</td>
<td>20</td>
</tr>
<tr>
<td>Console</td>
<td>First name</td>
<td>15</td>
<td>Last name</td>
<td>20</td>
<td>Company</td>
<td>20</td>
</tr>
</tbody>
</table>

Example of an overly long name before adjustment to fit the fields

<table>
<thead>
<tr>
<th>Location</th>
<th>Field (limit=15)</th>
<th>Limit</th>
<th>Field (limit=20)</th>
<th>Limit</th>
<th>Field (limit=20)</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>API</td>
<td>recipient_firstname</td>
<td>15</td>
<td>recipient_lastname</td>
<td>20</td>
<td>recipient</td>
<td>20</td>
</tr>
<tr>
<td>CSV</td>
<td>recipient_firstname</td>
<td>15</td>
<td>recipient_lastname</td>
<td>20</td>
<td>recipient_company</td>
<td>20</td>
</tr>
<tr>
<td>Console</td>
<td>First name</td>
<td>15</td>
<td>Last name</td>
<td>20</td>
<td>Company</td>
<td>20</td>
</tr>
</tbody>
</table>

Example after adjustment

<table>
<thead>
<tr>
<th>Location</th>
<th>Field (limit=15)</th>
<th>Limit</th>
<th>Field (limit=20)</th>
<th>Limit</th>
<th>Field (limit=20)</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Johannes-Maximilian</td>
<td></td>
<td>von Derschwitz-Dampfloch zu Querdenker</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>v.DerschwitzDampfloch</td>
<td></td>
<td>zu Querdenker</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Bulk Orders

Bulk orders using the API are still handled through the GET /shipments/bulk, POST /shipments/bulk, POST /shipments/bulk/validate, and POST /shipments/bulk/delete APIs. The API parameters and request body themselves did not change to work with channel partners. Instead, it is the content of the .csv file that is used in the upload that has been changed to include the new channel_partner_ID field. The channel partner ID is a non-zero integer shown as a field on the purchase order table and on the purchase order details page.

Note: To ensure you are using the latest .csv file format, make a practice of downloading the template file anew each time before uploading a new set of orders.

1.17.2 Verifying Products to be Shipped

Verify that all the products you intend to ship are currently available in inventory.

- /shippablekeys returns all products associated with your organization’s account, including any products that have a current available inventory of 0.
- When inventory_type is 1, products that have zero inventory are not listed. The quantities of the products available are shown next to the names of the products. Therefore, even if a product is shown on a PO, if its inventory is exhausted by the time you want to request it be shipped, this API will not return it.

1.17.3 Shipping Products to a Single Address

This method uses a suite of /shipments_exact APIs made available to enable more granularity in specifying the stock (inventory) from which the products are drawn. The original /shipments APIs are deprecated starting in the 1.6.0 release but they will continue to be available until at least May 2021. Use the /shipments_exact APIs for any new development and to update existing clients.

Specifying the stock/inventory to be used for single shipment requests thus provides a much larger range of options than the options available for bulk shipments. For these, see Shipping Products to Multiple Addresses.

1.17.4 Inventory Product ID and Product ID

Both of these values need to be supplied, product_id and inventory_product_id. The product_id is the unique identifier for the product, e.g., 4 is the YubiKey 5C Nano, while the inventory_product_id can be thought of as the ID for a “bucket” containing credits that your organization bought to cover the purchase of keys, lanyards, etc. Typically organizations with subscriptions have multiple “buckets”, while organizations that have bought physical keys outright might have only a single “bucket.”

Use the inventory_product_id to specify which inventory you are pulling from. The inventories correspond exactly to:

- The inventories shown on the YubiEnterprise Console Dashboard and
- The options in the Choose from stock dropdown on the Single shipment tab accessed by clicking Create Shipment Request on the Shipments screen.

The table below lists both product_id and inventory_product_id in the same column, and contains all inventories and products except custom products. To get the complete list of products and inventories available to your organization, make a call to GET /inventory. If you have custom products, that will return a list that also contains your custom products.
Table 6: Product Name, Stock/Inventory, `product_id`, and `inventory_product_id`

<table>
<thead>
<tr>
<th><code>inventory_product_id</code></th>
<th><code>product_id</code></th>
<th><code>product_name</code></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>YubiKey 5 NFC</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>YubiKey 5 Nano</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>YubiKey 5C</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>YubiKey 5C Nano</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>YubiKey 5Ci</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Security Key NFC by Yubico</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>YubiKey FIPS</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>YubiKey Nano FIPS</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>YubiKey C FIPS</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>YubiKey C Nano FIPS</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Primary Subscr - Base Tier: Initial</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Primary Subscr - Base Tier: Buffer</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Primary Subscr - Base Tier: Replacement</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Primary Subscr - Adv. Tier: Initial</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Primary Subscr - Adv. Tier: Buffer</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Primary Subscr - Adv. Tier: Replacement</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Primary Subscr - Prem. Tier: Initial</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Primary Subscr - Prem. Tier: Buffer</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Primary Subscr - Prem. Tier: Replacement</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Primary Subscr - FIPS Tier: Initial</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Primary Subscr - FIPS Tier: Buffer</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Primary Subscr - FIPS Tier: Replacement</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Non-subscription - Base Tier</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Non-subscription - Advanced Tier</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Non-subscription - Premium Tier</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Non-subscription - FIPS Tier</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>YubiKey Lanyard</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>YubiKey 5C NFC</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Backup Subscr - Base Tier: Initial</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>Backup Subscr - Base Tier: Buffer</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Backup Subscr - Base Tier: Replacement</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Backup Subscr - Adv. Tier: Initial</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>Backup Subscr - Adv. Tier: Buffer</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>Backup Subscr - Adv. Tier: Replacement</td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>Backup Subscr - Prem. Tier: Initial</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>Backup Subscr - Prem. Tier: Buffer</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>Backup Subscr - Prem. Tier: Replacement</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>Backup Subscr - FIPS Tier: Initial</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>Backup Subscr - FIPS Tier: Buffer</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>Backup Subscr - FIPS Tier: Replacement</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>YubiKey 5 NFC FIPS</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>YubiKey 5C NFC FIPS</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>YubiKey 5Ci FIPS</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>YubiKey 5 Nano FIPS</td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>YubiKey 5C FIPS</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>YubiKey 5C Nano FIPS</td>
<td></td>
</tr>
</tbody>
</table>

The `inventory_product_id` can have the same value as the `product_id` field in the individual inventory_records.
Example 1: Without Subscription

For example, if you do not have a subscription and simply bought outright a number of YubiKey 5C Nanos (no virtual keys, no tiers), your request for a single shipment would look like this:

```json
{
    "delivery_type": 1,
    "country_code_2": "US",
    "recipient": "string",
    "recipient_email": "string",
    "recipient_firstname": "string",
    "recipient_lastname": "string",
    "recipient_telephone": "string",
    "street_line1": "string",
    "street_line2": "string",
    "street_line3": "string",
    "city": "string",
    "region": "string",
    "postal_code": "string",
    "shipment_items": [
        {
            "product_id": 4,
            "inventory_product_id": 4,
            "shipment_product_quantity": 1
        }
    ]
}
```

Example 2: With Subscription

With a subscription, your `product_id` value and your `inventory_product_id` value would not coincide, and your individual shipment request would look like this:

```json
{
    "delivery_type": 1,
    "country_code_2": "US",
    "recipient": "string",
    "recipient_email": "string",
    "recipient_firstname": "string",
    "recipient_lastname": "string",
    "recipient_telephone": "string",
    "street_line1": "string",
    "street_line2": "string",
    "street_line3": "string",
    "city": "string",
    "region": "string",
    "postal_code": "string",
    "shipment_items": [
        {
            "product_id": 4,
            "inventory_product_id": 15,
            "shipment_product_quantity": 1
        }
    ]
}
```
1.17.5 Telephone Number

It is mandatory that the recipient_telephone field be populated. This is the number at which the recipient of the shipment can be reached, designated on the Console as Contact Phone.

The permissible content of this, [+()\-0-9\s]+, should match regular expression.

For /v1/shipments_exact the API validates the existence of recipient_telephone in the request body. If the country code is IN, the limit is 255 of the alphanumeric characters specified above while all other country codes limit recipient_telephone to 40.

For CSV upload via /v1/bulkvalidate, the API validates the existence of recipient_telephone on each row. If the country code is IN, the limit is 255 of the alphanumeric characters specified above, while all other country codes limit recipient_telephone to 40.

Error Messages

In the API

The following response is sent if recipient_telephone is not included in the request to create shipment at shipments_exact as per POST /v1/shipments_exact:

```
400 Bad Request {
    code: 'validation_error',
    message: 'We were unable to create the shipment',
    errors: [
        {
            field: 'recipient_telephone',
            message: 'recipient_telephone is a required field'
        }
    ]
}
```

In the CSV

When uploading a CSV file with no recipient_telephone provided in one or more rows:

```
YRIEIXLECHAT-01:shipments yrieix.lechat$ cat my-shipments.csv
Country code 2,Company,First name,Last name,Address 1,Address 2,Address 3,City,Region/
    State,Postcode,RecipientEmail,RecipientTelephone,DeliveryType,InventoryType,
    ChannelPartnerId,YubiKey 5 NFC,YubiKey 5 Nano,YubiKey 5C,YubiKey 5C Nano,YubiKey 5Ci,
    Security Key NFC by Yubico,YubiKey FIPS,YubiKey Nano FIPS,YubiKey C FIPS,YubiKey C␣
    Nano FIPS
US,My Company,Yrieix,LeChat,123 Home Ave,,,Brooklyn,NY,11111,y.lechat@yubico.com,,Normal,␣
    1,1,0,0,0,0,1,0,0,0,0
    json_pp
```

(continues on next page)
1.17.6 Mapping

Use the product_id to map to the inventory_product_id of the shipments_exact request as shown in the /inventory example output below.

**Custom-programmed YubiKeys**

If your organization has custom-programmed YubiKeys, to make a shipment request, use the /inventory /products APIs to get the inventory_product_id and product_id. Using standard product_id codes in shipment requests will result in errors.

**/inventory Example Output**

```json
{
    "count": 3,
    "total_count": 3,
    "organization_product_inventory": [
        {
            "organization_product_inventory_id": "Cym9ypJsmVEshX9qz5Qc7S",
            "is_subscription_product": true,
            "is_virtual_product": true,
            "organization_id": "UEayb8v4LTHdAshpnk1gMn",
            "organization_product_quantity": 978,
            "product_id": 15,
            "inventory_type": 3,
            "product_name": "Primary Subscr - Adv. Tier: Initial",
            "product_tier": 2,
            "product_mapping": [1, 2]
        }
    ]
}
```
3,
4,
6,
7],
},
{
  "organization_product_inventory_id": "Ky8VzJWpftEk2hiMs3DjVW",
  "is_subscription_product": true,
  "is_virtual_product": true,
  "organization_id": "UEayb8v4LTHdAshpnklgMd",
  "organization_product_quantity": 10,
  "product_id": 44,
  "inventory_type": 3,
  "product_name": "Backup Subscr - Prem. Tier: Initial",
  "product_tier": 3,
  "product_mapping": [
  1,
  2,
  3,
  4,
  5,
  6,
  7]
},
{
  "organization_product_inventory_id": "UPjT3FU8oqCoHPCr9mNUzD",
  "is_subscription_product": true,
  "is_virtual_product": true,
  "organization_id": "UEayb8v4LTHdAshpnklgMd",
  "organization_product_quantity": 964,
  "product_id": 18,
  "inventory_type": 3,
  "product_name": "Primary Subscr - Prem. Tier: Initial",
  "product_tier": 3,
  "product_mapping": [
  1,
  2,
  3,
  4,
  5,
  6,
  7]
}
]
1.17.7 ShipmentDeliveryTypeEnum

ShipmentDeliveryTypeEnum specifies the method of shipping:

- 1 - Normal (standard) shipping (default)
- 2 - Expedited (rush) shipping.

1.17.8 Recipient Field

The recipient field requires the name of the recipient's company (if applicable) in the shipment address. Do not use the /shipments recipient field to specify the name of the individual to whom products are to be shipped. Use the recipient_firstname and recipient_last name fields instead.

Shipment Request Fields

In the table below, all fields not marked as mandatory are optional. The Limit column displays the maximum number of alphanumeric characters permitted per field/table cell.
Table 7: Shipment Request Fields

<table>
<thead>
<tr>
<th>Description</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory. Country code from <code>available_countries.csv</code></td>
<td>2</td>
</tr>
<tr>
<td>Mandatory if name of recipient is not provided</td>
<td>20</td>
</tr>
<tr>
<td>Name of recipient. Mandatory if company name not given</td>
<td>15</td>
</tr>
<tr>
<td>Recipient’s family name. Mandatory if company name not given</td>
<td>20</td>
</tr>
<tr>
<td>Mandatory. First line of address</td>
<td>60</td>
</tr>
<tr>
<td>Mandatory if address not deliverable without (e.g. suite #)</td>
<td>60</td>
</tr>
<tr>
<td>Not supported for expedited/rush orders</td>
<td>60</td>
</tr>
<tr>
<td>Mandatory. City, town, or township</td>
<td>60</td>
</tr>
<tr>
<td>Mandatory for US and Canada, and also mandatory if address is not deliverable without. (See footnote A) Abbreviations OR full names</td>
<td>50</td>
</tr>
<tr>
<td>Zipcode or postal code</td>
<td>50</td>
</tr>
<tr>
<td>Email address of recipient</td>
<td>40</td>
</tr>
<tr>
<td>Telephone number of shipment recipient</td>
<td>40</td>
</tr>
</tbody>
</table>
Footnote A: To find out if an address is deliverable, make a shipment request and see what status code or message it gets. Deliverability is determined by our shipping partners, and it is their codes and messages we display when it comes to questions of deliverability. For a fuller explanation, see Troubleshooting.

Single Shipment Example Input

The following Curl example sends an HTTP POST to the shipments_exact resource URI to ship a YubiKey 5 NFC to a fictional employee, Jan Lindberg:

```
curl "https://api.console.yubico.com/v1/shipments_exact" \
--header "Content-Type: application/json" \
--header "Authorization: Bearer eyJhb..." \
--data '{
    "delivery_type": 1,
    "country_code_2": "US",
    "recipient": "Example Inc.",
    "recipient_email": "jan.lindberg@example.com",
    "recipient_firstname": "Jan",
    "recipient_lastname": "Lindberg",
    "recipient_telephone": "555-5555",
    "street_line1": "7788 Foxtrot Street",
    "street_line2": "",
    "street_line3": "",
    "city": "Dedham",
    "region": "MA",
    "postal_code": "02026",
    "shipment_items": [
        {"product_id": 3,
        "inventory_product_id": 15,
        "shipment_product_id": "MZ9bmEYFpKKviHe8nSiq4W",
        "product_name": "YubiKey 5C",
        "product_sku": "5060408461488",
        "product_tier": 2,
        "shipment_product_quantity": 16}
    ]
}'
```

In the example above, you will notice the delivery_type is set to 1 which means it is a normal shipment. A value of 2 would request an expedited shipment. The recipient_email gives the address at which the recipient will receive an email with the tracking number of the shipment.

Single Shipment Example Output

```
{
    "shipment_id": "U89bfKdKtQfhnqaFBrAZW",
    "shipment_items": [
        {"inventory_product_id": 15,
        "shipment_product_id": "MZ9bmEYFpKKviHe8nSiq4W",
        "product_id": 3,
        "product_name": "YubiKey 5C",
        "product_sku": "5060408461488",
        "product_tier": 2,
        "shipment_product_quantity": 16
    ]
}
```

(continues on next page)
1.17.9 Shipping Products to Multiple Addresses

The system chooses the stock (inventory) from which products are drawn. (Bulk shipment ordering will convert to the exact choice method used in shipping products to a single address in a future release).

Example

The following example of a Bash script calls Curl to upload a CSV file with multiple shipment requests. To scroll horizontally, click in the code box below.

```bash
#!/bin/bash

token="apitokengoeshere"

curl -F "file=@/path/to/file/bulk_shipment.csv" https://api.console.yubico.com/v1/ shipments/bulkvalidate \ --header "x-authorization: Bearer $\{token\}"
```

For instructions on creating and populating the CSV file, see Shipping to Multiple Addresses.
1.17.10 inventory_type and InventoryTypeEnum

The `inventory_type` requires one of the values given in the `InventoryTypeEnum` table below.

### InventoryTypeEnum

<table>
<thead>
<tr>
<th>Integer</th>
<th><code>inventory_type</code> (Stock)</th>
<th>Purchase Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Standard Product</td>
<td>Outright purchase</td>
</tr>
<tr>
<td>2</td>
<td>Non-subscription</td>
<td>Purchase of virtual keys</td>
</tr>
<tr>
<td>3</td>
<td>Subscription - Initial Shipment</td>
<td>Subscription</td>
</tr>
<tr>
<td>4</td>
<td>Subscription - Buffer Stock Shipment</td>
<td>Subscription</td>
</tr>
<tr>
<td>5</td>
<td>Subscription - Replacement YubiKey Shipment</td>
<td>Subscription</td>
</tr>
</tbody>
</table>

- If you have purchased keys on the perpetual mode and/or lanyards, use Inventory Type 1.
- If you are not a subscription customer, but have purchased one or more tiers of virtual keys instead of physical keys, use Inventory Type 2, YubiKey Tier SKU Shipment.
- Subscription customers: Use Inventory Types 3, 4, and 5.

<table>
<thead>
<tr>
<th>Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td>The stock in this category reflects the total number of users on the subscription. This lot can be drawn upon for 12 months from the start of your subscription term.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>This category is made available to you free of charge when your subscription begins. You can draw on it throughout the term of your subscription.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>This category is intended for those who have lost their YubiKeys or want to upgrade. The stock in this category is reset each year of the subscription to the Replacement limit.</td>
</tr>
</tbody>
</table>

- Use up all of your Inventory Type 3, Initial, within the first year of your subscription.
- Use Inventory Type 4 at any time: Buffer stock expires only at the end of your subscription term.
- Use Inventory Type 5, Replacement, for users who have lost their keys or want to upgrade. Any keys not used in a given year are forfeited at the end of that year.
1.17.11 Validating CSV Uploads

<table>
<thead>
<tr>
<th>lines-in-file</th>
<th>Lines in the file, including header.</th>
</tr>
</thead>
<tbody>
<tr>
<td>lines_read</td>
<td>Lines that were able to be read in as CSV, excluding the header. lines_read should thus be one less than lines_in_file</td>
</tr>
<tr>
<td>lines_parsable</td>
<td>Lines that passed basic validation. lines_parsable + lines_not_parsable = lines_read.</td>
</tr>
</tbody>
</table>

**Example**: If a file that is not in the CSV format is uploaded, even if it had 100 lines, 0 lines would be read, because the CSV reader function cannot read the lines in as CSV.

**Example**: If a file has too many columns - i.e., more columns than the header row has - 0 lines would be read.

**Sample Error Messages**

- Error with GetCountryByTwoLetterCode for CountryCode: TT
- InventoryType not set for Shipment, defaulting to 1
- DeliveryType not set for Shipment, defaulting to 1 - normal
- Wrong number of fields

1.17.12 Tracking Shipment Requests

**Single Shipment Request Tracking Example**

A successful response from the shipments_exact resource will include a shipment_id which can be used to get the tracking information for this shipment request.

```json
{
  "shipment_id": "U89bfKKCtQfhnqaFBrAZW",
  "shipment_items": [
    {
      "inventory_product_id": 15,
      "shipment_product_id": "MZ9bmEYFPKKviHe8nSiq4W",
      "inventory_product_id": "U89bfKKCtQfhnqaFBrAZW",
      "product_id": 3,
      "product_name": "YubiKey 5C",
      "product_sku": "5060408461488",
      "product_tier": 2,
      "shipment_product_quantity": 16
    }
  ]
}
```

(continues on next page)
Tracking a Shipment Using the shipment_id

```bash
curl "https://api.console.yubico.com/v1/shipments_exact/Bj4pfrB1SCvkTbTP88Ak2" \
--header "Content-Type: application/json" \
--header "Authorization: Bearer eyJhb...
```

### 1.17.13 Deprecated APIs

Table 8: Deprecated APIs and their Replacements

<table>
<thead>
<tr>
<th>Deprecated</th>
<th>Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>GET /shipments</td>
<td>GET /shipments_exact</td>
</tr>
<tr>
<td>POST /shipments</td>
<td>POST /shipments_exact</td>
</tr>
<tr>
<td>GET /shipments/{shipmentId}</td>
<td>GET /shipments_exact/{shipmentId}</td>
</tr>
<tr>
<td>PUT /shipments/{shipmentId}</td>
<td>PUT /shipments_exact/{shipmentId}</td>
</tr>
<tr>
<td>DELETE /shipments/{shipmentId}</td>
<td>DELETE /shipments_exact/{shipmentId}</td>
</tr>
<tr>
<td>/UpdateShipmentById</td>
<td>shipments_exact/{shipment_id}</td>
</tr>
</tbody>
</table>
1.17.14 Search

Some of the lines of code are very long, so it may be necessary to click in the line and scroll horizontally.

You can get a list of shipments filtered by query parameters. We introduced /search-description on searchable resources to provide a description of the searchable fields. To look up a shipment using the parameter “Shipping error, contact support” state, for example, set the search_field to shipment_state_id and set the ID to 99, which is the ID for that shipment state. (See the Shipment Status Codes table below for explanations of the various shipment states.)

Example

```bash
curl "https://api.console.yubico.com/v1/shipments_exact?search=99&search_field=shipment_state_id" \
   --header "Content-Type: application/json" \
   --header "Authorization: Bearer eyjhb...
```

Advanced Search

To enable advanced search, add the query string parameter &advanced_search=true. Note that the &search query parameters will need to respect a different structure: search=field_name:operation_type:value. An example search with curl (--data-urlencode is used because many characters introduced are illegal in the old query string, such as : and |):

```bash
curl -H "$SYED_AUTHORIZATION" -G --data-urlencode 'search=shipment_request_date::range::2020-05-10T00:00:00Z|2020-12-10T00:00:00Z' --data-urlencode 'search=organization_name::like::alpha comp' --data-urlencode 'search=organization_name::exact::demo_org' 'http://api.console.local/v1/shipments_exact?offset=0&limit=10&sort_by=shipment_request_date&sort_direction=DESC&advanced_search=true'
```

This is the encoded URL.

```bash
GET /v1/shipments_exact?offset=0&limit=10&sort_by=shipment_request_date&sort_direction=DESC&advanced_search=true&search=shipment_request_date%3A%3Arange%3A%3A2020-05-10T00:00:00Z%7C2020-12-10T00:00:00Z&search=organization_name%3A%3Alike%3Aalpha%20comp&search=organization_name%3A%3Aexact%3Ademo_org HTTP/1.1
```

Fields with different names will be searched in an AND, while fields with the same name will be ORed, so the resulting query fragment will be:

```sql
WHERE (shipment_request_date BETWEEN ? AND ?) AND ((organizations.organization_name = ?) OR (organizations.organization_name LIKE ?)) ORDER BY shipment_request_date DESC LIMIT ?
```

with the following array to fill in the ? in the fragment:

```sh
[2020-05-10 00:00:00 +0000 UTC 2020-12-10 00:00:00 +0000 UTC demo_org %alpha comp% 10]
```

Note: The old search will continue to work as before.
1.17.15 Filtering and Pagination

Refer to the API docs for the GetShipmentsExacts operation.

1.17.16 Status

Shipment Status Codes

At any of the states between 1 and 9, a shipment request can be edited. From this point on, a shipment request is either processed through to an end state, or set back to state 99.

For information on how address validation affects the success of a shipping request, see the Troubleshooting chapter.

This table is very wide; scroll horizontally to see all four columns.
Table 9: Shipment State Codes

<table>
<thead>
<tr>
<th>shipment_state_id</th>
<th>shipment_state_code</th>
<th>shipment_state_description</th>
<th>shipment_state_message</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ShipmentStateIncomplete</td>
<td>Shipment request received by YubiEnterprise Delivery system but contained some data that could not be processed. (2), (3)</td>
<td>Incomplete Shipping Request</td>
</tr>
<tr>
<td>2</td>
<td>ShipmentStateDraft</td>
<td>Shipment request is being edited and is not ready for processing.</td>
<td>Draft</td>
</tr>
<tr>
<td>3</td>
<td>ShipmentStateAwaiting-Validation</td>
<td>Shipment request received. no validation done yet.</td>
<td>Awaiting Validation</td>
</tr>
<tr>
<td>4</td>
<td>ShipmentStateProcessingAddress</td>
<td>Shipment request locked as it undergoes country check, address validation, sales tax rate lookup (US), DPL check.</td>
<td>Processing</td>
</tr>
<tr>
<td>5</td>
<td>ShipmentStateAddress-Valid</td>
<td>Shipment request address has been validated, ready to be picked up by fulfillment processor.</td>
<td>Accepted for Fulfillment</td>
</tr>
<tr>
<td>6</td>
<td>ShipmentStateAddressInvalid</td>
<td>Shipment request address is invalid but an alternative address has been found and suggested. (2), (3)</td>
<td>Incomplete</td>
</tr>
<tr>
<td>7</td>
<td>ShipmentStateAddress-Fail</td>
<td>Shipment request address could not be validated and no alternative could be found for suggesting.</td>
<td></td>
</tr>
</tbody>
</table>
(1) Refer to Timing for cutoff times.

(2) Incomplete Address: Secondary line information such as apartment (apt), suite, unit is missing. Therefore it is not possible to guarantee delivery to the correct recipient.

(3) Address is Undeliverable or could not be understood: The address is either not physically deliverable or it could not be resolved to a real location.

(4) Any shipping request with a recipient name and/or address found on the US government’s DPL (Denied Parties/Persons List) cannot be fulfilled.

**Shipment Status Messages**

Scroll horizontally to see the entire width of the table.

As the following table is wide, you may need to scroll horizontally. In the Explanation column, the source of the message is given: YubiEnterprise Delivery system for internal messages, US Validation for the US Postal Service, and finally, International Validation. Messages originating from the last two are simply passed on to you by YubiEnterprise Delivery.

<table>
<thead>
<tr>
<th>Message</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>InventoryProductId not specified for ProductId %d</td>
<td>Step 4 in Shipping to Multiple Addresses YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Too many keys in shipment - TotalKeysShipped %d &gt; %d</td>
<td>See Limits and Constraints YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Not enough Inventory for Shipment - ShipmentStateError</td>
<td>See Purchase Orders YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Re-enter the address differently; some parts of it are invalid. See the YubiEnterprise documentation for more guidance.</td>
<td>See Troubleshooting US Validation</td>
</tr>
<tr>
<td>The address is invalid. See the YubiEnterprise documentation for more guidance.</td>
<td>See Troubleshooting US Validation</td>
</tr>
<tr>
<td>The address is valid.</td>
<td>No further explanation required US Validation</td>
</tr>
</tbody>
</table>

continues on next page
Table 10 – continued from previous page

<table>
<thead>
<tr>
<th>Message</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove the ‘secondary unit designator’ (apt, suite, department, etc.)</td>
<td>Remove the apartment number, unit, etc.: it is considered wrong or unnecessary US Validation</td>
</tr>
<tr>
<td>because it is superfluous.</td>
<td></td>
</tr>
<tr>
<td>Enter second line information (apartment, unit, etc.).</td>
<td>Add the apartment number, unit, etc. US Validation</td>
</tr>
<tr>
<td>The information in the primary line is not specific enough.</td>
<td>US Validation</td>
</tr>
<tr>
<td>The address is a valid military address.</td>
<td>No further explanation required US Validation</td>
</tr>
<tr>
<td>The address is a valid General Delivery address where individuals</td>
<td>No further explanation required US Validation</td>
</tr>
<tr>
<td>without permanent addresses can receive mail.</td>
<td>US Validation</td>
</tr>
<tr>
<td>The address is valid. An organization such as a government agency can</td>
<td>No further explanation required US Validation</td>
</tr>
<tr>
<td>can have its own zipcode because it receives a large volume of mail.</td>
<td>US Validation</td>
</tr>
<tr>
<td>Enter a street number; for example, for Yubico ‘Lytton Ave’ alone is</td>
<td>The number on the primary line, e.g., the “185” in “185 Berry Street” is missing</td>
</tr>
<tr>
<td>not sufficient, it needs to be ‘530 Lytton Ave’.</td>
<td></td>
</tr>
<tr>
<td>Enter a valid street number.</td>
<td>The number on the primary line, e.g., the “185” in “185 Berry Street” is not valid US Validation</td>
</tr>
<tr>
<td>Enter a PO Box, Rural Route, or Highway Contract box number.</td>
<td>US Validation</td>
</tr>
<tr>
<td>Enter a valid PO Box, Rural Route, or Highway Contract box number.</td>
<td>US Validation</td>
</tr>
<tr>
<td>Enter the Private Mailbox (PMB) identifier or the # sign, followed by</td>
<td>PMB number is Private Mailbox Number US Validation</td>
</tr>
<tr>
<td>the PMB number.</td>
<td>US Validation</td>
</tr>
<tr>
<td>This address is not eligible to receive mail.</td>
<td>US Validation</td>
</tr>
</tbody>
</table>

continues on next page
Table 10 – continued from previous page

<table>
<thead>
<tr>
<th>Message</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The address is that of a Commercial Mail Receiving Agency (CMRA) a private business that accepts mail for recipients, and the required private mailbox information is present.</td>
<td>US Validation</td>
</tr>
<tr>
<td>The address is missing some important secondary line information (apartment, unit, etc).</td>
<td>No further explanation required International Validation</td>
</tr>
<tr>
<td>Mail is unlikely to arrive at this destination - please verify input.</td>
<td>No further explanation required International Validation</td>
</tr>
<tr>
<td>This street could not be found within the city or postal code.</td>
<td>No further explanation required International Validation</td>
</tr>
<tr>
<td>Invalid OrganizationId for Shipment</td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Country Code not set for Shipment</td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Country could not be found from CountryCode2: %s</td>
<td>Country code entered is not in YubiEnterprise Delivery system list</td>
</tr>
<tr>
<td>Shipment has no shipment items</td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>DeliveryType not set for Shipment, defaulting to 1 - normal</td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Invalid DeliveryType %s for Shipment</td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>InventoryType not set for Shipment, defaulting to 1</td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>InventoryType %s not valid set for Shipment</td>
<td>You cannot use this InventoryType for this shipment - YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Negative quantity entered for ShipmentItem with ProductId=%d defaulting to 0</td>
<td>You set the quantity of the specified ProductID to be shipped to less than zero. YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Invalid ShipmentProductQuantity for ShipmentItem %d</td>
<td>You probably do not have sufficient inventory - YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Invalid ShipmentProductLineCost for ShipmentItem %d</td>
<td>YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Invalid Shipment - Total keys in shipment greater than 500</td>
<td>You cannot ship more than 500 items at once - YubiEnterprise Delivery system</td>
</tr>
</tbody>
</table>

continues on next page
<table>
<thead>
<tr>
<th>Message</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipment has zero total item quantity</td>
<td>The number of items to be shipped must be &gt; than 0 - YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>US Address is missing the state name/abbreviation in region field</td>
<td>No further explanation required YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Bad ProductId in ShipmentProduct for NewShipment-Product</td>
<td>ProductID is wrongly specified or invalid YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Input for %s exceeded limit of %d characters</td>
<td>Specified field cannot accept the number of characters that were entered. YubiEnterprise Delivery system</td>
</tr>
<tr>
<td>Shipment of these products to this country using this delivery type is not supported. For more information, see <em>Delivery Policies</em>.</td>
<td>Shipment request contravenes one or more business rules. YubiEnterprise Delivery system.</td>
</tr>
</tbody>
</table>

- See the USPS FAQ.

**Response Request Status Codes**

The responses to your requests indicate what is happening on the server side. Below are the common status codes in responses from the YubiEnterprise Delivery API, and what they mean.
### Table 11: Status Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Meaning</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>OK</td>
<td>The request was successful and the response body contains the representation requested</td>
</tr>
<tr>
<td>302</td>
<td>FOUND</td>
<td>A common redirect response; this will redirect to the OAUTH login page</td>
</tr>
<tr>
<td>400</td>
<td>BAD REQUEST</td>
<td>API validation failed for the request</td>
</tr>
<tr>
<td>403</td>
<td>FORBIDDEN</td>
<td>API denied permission to fulfill the requested resource</td>
</tr>
<tr>
<td>404</td>
<td>NOT FOUND</td>
<td>The requested resource was not found</td>
</tr>
</tbody>
</table>

### 1.17.17 Dates and Times

All dates and times in requests from the API are UTC in the RFC-3339 format.

### 1.17.18 Users, Roles, and Organizations

Since API tokens are scoped to organizations, if an organization is shipping YubiKeys to both United States/Canada and to Europe, two API tokens are required: one for the US/CAN organization and one for the European organization.

An individual user can have one role in one organization and the same or a different role in another organization; for example, user Jan could be an owner in a company’s US/CAN organization and an Admin in the same company’s EU organization. However, because these are separate organizations, if Jan is logged in to the US/CAN YubiEnterprise, Jan cannot use that login to perform operations in the company’s EU YubiEnterprise.

Because it is possible to change the role of a user already in an organization, it is worth noting that deleting a user both:

- Deletes that user’s association with the organization, and
- Removes from that user the permissions associated with their role.

It is therefore possible in theory (though undesirable) for a user to be a member of an organization without having a role.

To file a support ticket for YubiEnterprise Delivery, click **Support**.
1.18 API: Best Practices and FAQ

The following best practices are specific to API use; others are in *Best Practices and Troubleshooting*.

### 1.18.1 Control Access to your Accounts

- Protect access to the API token, because whoever is in possession of the token is authorized to perform API operations for your organization.
- Accounts that use machine tokens should have the Admin role, not the Owner role. This reduces the risk if the token is compromised, since the token has only the permissions associated with its role.
- The fact that API tokens can easily be issued and revoked helps to assure the security of accounts that use machine tokens.
- To handle machine token expiry, we recommend using the API (/auth/machine-token) to renew the API token. Ideally, logic should be put in to renew by calling the API to get a new token before the existing one expires.
- If a user is removed from an organization and has a token in that organization, the token is revoked. If a user is suspended, all tokens are revoked. The tokens are left untouched if the user is reset or the password is reset.
- Before an API token expires, the system generates and sends a notification to the associated email address. The email notifies that the token will expire in 7 days/1 day and will not be accepted by our system after that.

### 1.18.2 Lifecycle Management

API tokens expire precisely one year after generation. Since a user can have only one API token at a time, you must have a plan to roll-over to a new API token before the old one expires. Holders of API tokens are notified before expiry via an automatically generated email sent to the address associated with the token. The email is sent 7 days before expiry and then again the day before expiry.

**Revoking and Deleting an Active API Token**

- **API** The GET `/auth/machine-token` request revokes any existing tokens and creates a new machine token. This could therefore cause outages. GET in this instance is not a safe idempotent operation.
- **Console** While logged in to YubiEnterprise Delivery Console as the user with the relevant API token, go to the profile page by clicking on the profile icon on the top right. Click *Revoke and delete active API token*.

### 1.18.3 API: FAQ

**Q. Who should use the API?**

A. Customers of YubiEnterprise Delivery.

**Q. Does Yubico charge for API calls?**

A. No.

**Q. How do I get access to the API?**

A. Get login credentials from the YubiEnterprise Delivery account owner in your organization, and see *Onboarding Workflow*. 
Q. How should I set up an account to call the API?
A. After you have been given a YubiEnterprise Delivery account, follow the instructions in API Onboarding Playbook.

Q. How do I test the API?
A. In the API Onboarding Playbook in the current guide, see YubiEnterprise Delivery Self-Service Web Portal and ServiceNow Integrations.

Q. How do I revoke an API token?
A. See Revoking and Deleting an Active API Token above.

Q. Where do I go if I need help?
A. Get help now from our support team: to file a support ticket for YubiEnterprise Delivery, click Support, or reach out to your assigned customer success representative.

Q. Can I get notification of YubiEnterprise Delivery API changes?
A. Subscribe to the Yubico Developer Program mailing list. Go to https://www.yubico.com/why-yubico/for-developers/developer-program/. Although this page looks as if it is just for a coupon, it is actually the sign-up page for the mailing list.

Q. Where do I find official Yubico product images and descriptions?
A. On Yubico’s Press room images and logos page are the logo and product images.

Q. What is the maximum number of YubiKeys that can be included in a shipment request?
A. It depends on the country to which you are shipping. See Delivery Policies.

Q. Can a shipment request be cancelled?
A. Shipment requests can be edited or deleted until 3am PST (11am GMT), the day after they were entered.

Normal (standard) shipping  Shipments typically will take 5-7 days for transit in North America and Europe. Other parts of the world will incur longer transit times.

Expedited (rush) shipping  Shipments typically will take 1 business day for transit in North America and Europe. Other parts of the world will incur longer transit times.

Q. Does the country code look-up API return the countries to which Yubico can ship, or does it return all countries in the world?
A. It returns all the countries in the world. Currently we can ship only to the countries named in Delivery Policies.

Q. What do you do with the zip_code field if it is not applicable, for example, for Canada and the EU countries?
A. Leave the zip_code field blank and use the postal_code field instead.

Q. Do I need to validate addresses via the API prior to submitting them?
A. “Pre-qualifying” the address does not eliminate the address validation step. Every shipping request is sent for address validation. Status is updated when address validation is complete. Once the request reaches the “Accepted for Fulfillment” status, it has passed the address validation phase. If the status is “Incomplete Address”, edit or delete the request. See Reviewing Incompletes.

To file a support ticket for YubiEnterprise Delivery, click Support.
1.19 Release Notes

The changes reported in the release notes are cumulative. We include all customer-visible functionality updates as well as any known issues and suggested workarounds.

1.19.1 Release 1.21.3 (9 May 2022)

Resolved Issues

- Shipments sent to GB/UK now transition relatively quickly to “Delivered” or “Delivery Exception” instead of remaining in the “Shipped: In Transit” status indefinitely.

Known Issues

- **API**: When getting a purchase order by its ID, extra, undocumented fields are returned. When a request for GET /v1/purchaseorders/{purchaseorderId} is sent, the response includes (is_vat_valid, is_tax_exempt, is_post_pay).

- When the CSV file containing shipment requests is generated, the inventory_type column is not always populated for every row in the file.

- On the Channel partners page under Settings, the channel partner name and channel partner ID fields are not sortable.

Known Limitations

- For European shipments using Bpost, also known as the Belgium Post Group, the tracking number is not hyperlinked. However, the delivery status does update correctly. **Workaround**: To find out where a Bpost shipment is, copy the tracking number and paste it into the field for that purpose on Bpost’s page for that purpose, [http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en](http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en) or into Parcelsapp.com’s page for Bpost tracking, [https://parcelsapp.com/en/carriers/belgium-post](https://parcelsapp.com/en/carriers/belgium-post).

- **Channel Partners**: To order keys via API from inventory purchased through channel partners, the new /shipments_exact APIs must be used. The older, deprecated /shipments API only supports ordering keys from inventory purchased directly from Yubico. For more information, see :ref:channel-partners-label.

1.19.2 Release 1.21.0 (26 April 2022)

Resolved Issues

- If a field has been selected for sorting on any of the console list screens, that field title will now be shown in bold.

- Email addresses are now validated during shipment request creation for single and bulk shipments.

- The channel partner name field in the shipments .csv file is now populated for all entries, including direct sale shipments.

- Previously, when an order received a Delivery Exception status, an internal message was shown in the console. This has been fixed so the message is no longer shown.

- The API documentation has been updated to reflect that the suggested address fields (suggest_street_line1, suggest_street_line2, suggest_street_line3, suggest_city, suggest_region, and suggest_postal_code) are largely deprecated and will return an empty string. This applies to the following
APIs: GET /shipments_exact, POST /shipments_exact, GET /shipments_exact{shipmentId}, and POST /shipments_exact{shipmentId}.

- The suggest_recipient field of the API, which is never returned in responses, has been removed from the API.
- On the Users screen under Settings, the alphabetic sort was not working properly when trying to sort users by email address. The sort function has been fixed and now behaves as expected.
- Role and State are no longer sortable fields on the Users screen under Settings in the console.

Known Issues

- **API**: When getting a purchase order by its ID, extra, undocumented fields are returned. When a request for GET /v1/purchaseorders/{purchaseorderId} is sent, the response includes (is_vat_valid, is_tax_exempt, is_post_pay).
- **CSV**: When the CSV file containing shipment requests is generated, the inventory_type column is not always populated for every row in the file.
- On the Channel partners page under Settings, the channel partner name and channel partner ID fields are not sortable.

Known Limitations

- For European shipments using Bpost, also known as the Belgian Post Group, the tracking number is not hyper-linked. However, the delivery status does update correctly. **Workaround**: To find out where a Bpost shipment is, copy the tracking number and input it on Bpost’s page for that purpose, http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en or that of their partner, https://parcelsapp.com/en/carriers/belgium-post.
- **Channel Partners**: To order keys via API from inventory purchased through channel partners, the new /shipments_exact APIs must be used. The older, deprecated /shipments API only supports ordering keys from inventory purchased directly from Yubico. For more information, see Inventory: Channel Partners.

1.19.3 Release 1.20.0 (24 March 2022)

New Features & Enhancements

- **Console/CSV/API**: Consistency in the requirement for recipient telephone number in shipment requests is now system-wide. When creating a single shipment request in the Console (i.e., using the GUI), phone number has always been a required field. Now bulk shipment requests via CSV upload also require phone number, as do shipment requests made via API. With the current release of YubiEnterprise Delivery, 1.20.0, shipment requests that do not include recipient telephone number (“Contact phone”) will no longer be processed. Although the /shipments API is deprecated, this requirement will be enforced on that API too.
- **Console/CSV/API** Shipments request statuses will now be updated to reflect changes reported after requests have reached the “Delivery Exception” state.
Known Issues

- **API**: When getting a purchase order by its ID, extra, undocumented fields are returned. When a request for GET `/v1/purchaseorders/{purchaseorderId}` is sent, the response includes (is_vat_valid, is_tax_exempt, is_post_pay).
- **CSV**: When the CSV file containing shipment requests is generated, the inventory_type column is not always populated for every row in the file.

Known Limitations

- For European shipments using Bpost, also known as the Belgian Post Group, the tracking number is not hyper-linked. However, the delivery status does update correctly. **Workaround**: To find out where a Bpost shipment is, copy the tracking number and input it on Bpost’s page for that purpose, [http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en](http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en) or that of their partner, [https://parcelsapp.com/en/carriers/belgium-post](https://parcelsapp.com/en/carriers/belgium-post).
- **Channel Partners**: To order keys via API from inventory purchased through channel partners, the new `/shipments_exact` APIs must be used. The older, deprecated `/shipments` API only supports ordering keys from inventory purchased directly from Yubico. For more information, see [Inventory: Channel Partners](#).

1.19.4 Release 1.19.0 (24 February 2022)

New Features & Enhancements

- **Console**: The detail view of the shipment request now displays **Total** cost and **Product cost** in the **Shipping and tax** section of the page instead of at the top, where it was previously shown.

Resolved Issues

- The **POST validate-address** API that is used to determine whether an address is acceptable by YED for delivery contradicted the **POST shipments_exact** API in that the first deemed an address without a city acceptable, while the second deemed it unacceptable, since city is a required field. The **validate-address** API has now been fixed; it too requires the city field and its rules are consistent with the rules of the **POST shipments_exact** API.

Known Limitations

- For European shipments using Bpost, also known as the Belgian Post Group, the tracking number is not hyper-linked. However, the delivery status does update correctly. **Workaround**: To find out where a Bpost shipment is, copy the tracking number and input it on Bpost’s page for that purpose, [http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en](http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en) or that of their partner, [https://parcelsapp.com/en/carriers/belgium-post](https://parcelsapp.com/en/carriers/belgium-post).
- **Channel Partners**: To order keys via API from inventory purchased through channel partners, the new `/shipments_exact` APIs must be used. The older, deprecated `/shipments` API only supports ordering keys from inventory purchased directly from Yubico. For more information, see [Inventory: Channel Partners](#).
1.19.5 Release 1.18.0 (20 January 2022)

New Features & Enhancements

• API Holders of API tokens are notified before expiry of a token via an automatically generated email sent to the address associated with the token. The email is sent 7 days before expiry, the day before expiry, and on the day of expiry.

Resolved Issues

• When the CSV file containing shipment requests was generated, the inventory_type column was not always populated for every row in the file. This issue has now been fixed.

• In the email that the system sends to notify recipients that a shipment will arrive, the carrier field was not consistently populated, nor was the link added to the carrier’s tracking number. This issue has now been fixed, and both the carrier and the tracking link are included in the email. API: This also resolves the issue of the incomplete response that was returned for the shipment order in the GET /shipments_exact and GET /shipments_exact/<shipmentId> responses: they now return comprehensive information.

• In the user guide, the section entitled Using the API to Execute a Shipping Request had a typo in the second sentence, which prevented the following information from being displayed at that location. “Although the system can deliver to Post Office (PO) Boxes within the United States, delivery to PO Boxes (or the equivalent) elsewhere in the world is unlikely to succeed.” This has now been fixed, so that the information now appears in this location.

Known Limitations

• For European shipments using Bpost, also known as the Belgian Post Group, the tracking number is not hyper-linked. However, the delivery status does update correctly. **Workaround:** To find out where a Bpost shipment is, copy the tracking number and input it on Bpost’s page for that purpose, http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en or that of their partner, https://parcelsapp.com/en/carriers/belgium-post.

• Channel Partners: To order keys via API from inventory purchased through channel partners, the new /shipments_exact APIs must be used. The older, deprecated /shipments API only supports ordering keys from inventory purchased directly from Yubico. For more information, see **Inventory: Channel Partners.**

• API When getting a purchase order by its ID, extra, undocumented fields are returned. When a GET /v1/purchaseorders/{purchaseorderId} is sent, the response includes is_vat_valid, is_tax_exempt, is_post_pay.

1.19.6 Release 1.17.2 (10 December 2021)

Enhancements

• Fifteen more countries have been added to the list of deliverable shipment destinations. The lists of countries and the corresponding limitations are given in **Key Quantities.**
Resolved Issues

- **Console**: Shipments to overseas PO boxes (non-USA) are not delivered; instead, they are returned by all carriers. The Console now displays a warning to this effect when a shipment request is created using an overseas PO box. This limitation is referenced in *Post Office Box as Destination*.

1.19.7 Release 1.17.0 (18 November 2021)

New Features & Enhancements

- **Console**: Owners, Admins, and Auditors can now view the list of refunds for lost or missing shipments, drill down into the details of each item, and download a CSV file containing this data. For more information, see *Refunds*.

Resolved Issues

- **Console**: Including leading or following whitespace with a term entered in the Search field yielded no results, even if the search term ought to have produced results. This issue has now been resolved; the system automatically trims any whitespace of this kind before the search is performed.

- When a shipment request was made providing a company name as recipient, plus either recipient first name or recipient last name, a validation error was returned. This issue has now been resolved: no error is thrown when the company name plus either first name or last name is provided.

- **Console**: The edit icon on the shipments page redirected the user to the shipment details page instead of showing the edit view in the same page. This issue has now been resolved, and it is now possible to edit in the same view.

- The status summary for shipments that were cancelled indicated that the shipments had been delivered, even though they were not. This issue has now been fixed: the status summary correctly shows canceled shipments as such.

- **API integrations**: The API documentation for the `GET /shipments_exact` API (to get all shipments) erroneously said that all the items included in the shipment (`shipment_items`) would be returned; that was incorrect - the field (`shipment_items`) was not returned in the response. This is no longer the case, and the API documentation now accurately reflects that the `shipment_items` field is not returned in the response.

- **Console**: After login, the Dashboard did not show any data. Only when the page was refreshed or one was redirected back from another page did the page load and show relevant data. This issue has now been resolved: the Dashboard page loads upon login and displays all data.

Known Issues

- **API** When getting a purchase order by its ID, extra, undocumented fields are returned. When a request for `GET /v1/purchaseorders/{purchaseorderId}` is sent, the response includes (`is_vat_valid, is_tax_exempt, is_post_pay`).

- When the CSV file containing shipment requests is generated, the `inventory_type` column is not always populated for every row in the file.
Known Limitations

- For European shipments using Bpost, also known as the Belgian Post Group, the tracking number is not hyper-linked. However, the delivery status does, update correctly. Workaround: To find out where a Bpost shipment is, copy the tracking number and input it on Bpost’s page for that purpose, http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en or that of their partner,

- Channel Partners: To order keys via API from inventory purchased through channel partners, the new /shipments_exact APIs must be used. The older, deprecated /shipments API only supports ordering keys from inventory purchased directly from Yubico. For more information, see Purchasing Through a Channel Partner.

1.19.8 Release 1.16.0 (21 October 2021)

New Features & Enhancements

- Eight new countries are available for existing and new organizations to ship to. They are: India, Saudi Arabia, the United Arab Emirates, Mexico, Chile, Israel, Taiwan, and Hong Kong.

- Fulfillment partner [“Provider”] information is now displayed:
  - On the Console, on the shipment details page, in the Shipping & tax section
  - In the API, in the carrier field.

- API PUT /shipments/makedraft has been deprecated and is therefore no longer available.

Known Issues

- API: When getting a purchase order by its ID, extra, undocumented fields are returned. When a request for GET /v1/purchaseorders/{purchaseorderId} is sent, the response includes (is_vat_valid, is_tax_exempt, is_post_pay).

Known Limitations

- For European shipments using Bpost, also known as the Belgian Post Group, the tracking number is not hyper-linked. However, the delivery status does, update correctly. Workaround: To find out where a Bpost shipment is, copy the tracking number and input it on Bpost’s page for that purpose, http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en or that of their partner, https://parcelsapp.com/en/carriers/belgium-post.

- API: To order keys via API from inventory purchased through channel partners, the new /shipments_exact APIs must be used. The older, deprecated /shipments API only supports ordering keys from inventory purchased directly from Yubico. For more information, see Purchasing Through a Channel Partner.

1.19.9 Release 1.15.0 (23 September 2021)

New Features & Enhancements

- Seven new countries: It is now possible to have shipments sent to Australia, New Zealand, Japan, Singapore, the Philippines, Indonesia, and Thailand.
Resolved Issues

- In cases when particular carriers were used to ship an order, shipments were not progressing beyond the SentForFulfillment state. The system now handles additional carriers correctly.

- Very occasionally, shipments did not have their delivered_date set. This issue has now been resolved, and all shipments that reach their target recipient have a delivered_date.

- On the Purchase Order popup, the channel partner name and partner ID were not shown the same way as they were in the shipment popup. The presentation of this information has now been rationalized so that it appears with the same formatting and in the same detail in both locations.

- **Disabled Update Button** When a shipment request was in the Awaiting validation state, it was not possible for the creator of the request to edit any field other than the from stock/key counts field. Even though the user was able to click the Shipment id link to open the shipment details page, the Update button remained disabled by default. This issue has now been resolved: it is possible to update all fields on the shipment details page even when the request is in the Awaiting validation state.

- **Insufficient inventory**
  - To maintain the window during which orders can be updated, edited, or recalled/deleted, orders are held and processed in batch. Therefore there might be less inventory available by the time an order is processed than what was shown in purchase order details when the request was created. For example, the person starting to create a shipment request assumes that the 50 keys the console shows they have in inventory will still be available by the time the shipment request is submitted. When this is not the case, any shipment requests processed after the inventory is exhausted will be flagged Error: Processing Error, contact support. Reason is Not enough Inventory for Shipment - ShipmentStateError.
  
  - A second issue arises from the same source: when the user clicks on the shipment request ID with that error, part of the status message displayed is “Insufficient Inventory of Product X” where “X” is an integer. To find out what X means, consult the Product Name, Stock/Inventory, product_id and inventory_product_id table.
  
  - A third issue arises from the same source: it is not possible to make single shipment requests for products that are not available in inventory - which is expected if insufficient product has been purchased, but an insufficiency of inventory can also be caused by Yubico itself running out of stock.

  Workaround: Either contact Support to get more inventory, or edit the request to switch to another product for which inventory is available.

Known Limitations

- For European shipments using Bpost, also known as the Belgian Post Group, the tracking number is not hyper-linked. However, the delivery status does, update correctly. **Workaround:** To find out where a Bpost shipment is, copy the tracking number and input it on Bpost’s page for that purpose, http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en or that of their partner, https://parcelsapp.com/en/carriers/belgium-post.

- **API:** To order keys via API from inventory purchased through channel partners, the new /shipments_exact APIs must be used. The older, deprecated /shipments API only supports ordering keys from inventory purchased directly from Yubico. For more information, see Purchasing Through a Channel Partner.
1.19.10 Release 1.14.0 (19 August 2021)

New Features & Enhancements

- **Shipment requests**: The alphanumeric character limits on the Console fields and the cells in the CSV upload file and the API have been expanded. For exact details, see the table detailing these limits in [Shipment Request Fields](#).

- The shipment request detail popup has been expanded to a full page in order to display more information.

Resolved Issues

- **API**: For POST validate-address, street_line1 limit is 60 alpha-numeric characters.

- The unit price of the products is shown on the Purchase Order popup if the products were purchased directly from Yubico (as opposed to from a channel partner).

- **Single shipment request**: The product list is now filtered by the partner selected. In other words, selecting a channel partner determines which products are available for shipment and the quantities thereof.

- **Bulk shipment request**: The CSV file’s ChannelPartnerId column requires that the ID be explicitly entered instead of defaulting to “1” for Yubico (direct sale). This facilitates the avoidance of errors.

Known Issues

- **API** When getting a purchase order by its ID, extra, undocumented fields are returned. When a request for GET / v1/purchaseorders/{purchaseorderId} is sent, the response includes (is_vat_valid, is_tax_exempt, is_post_pay).

Known Limitations

- For European shipments using Bpost, also known as the Belgian Post Group, the tracking number is not hyper-linked. However, the delivery status does, update correctly. **Workaround**: To find out where a Bpost shipment is, copy the tracking number and input it on Bpost’s page for that purpose, [http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en](http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en) or that of their partner, [https://parcelsapp.com/en/carriers/belgium-post](https://parcelsapp.com/en/carriers/belgium-post).

- **API**: To order keys via API from inventory purchased through channel partners, the new /shipments_exact APIs must be used. The older, deprecated /shipments API only supports ordering keys from inventory purchased directly from Yubico. For more information, see [Purchasing Through a Channel Partner](#).

1.19.11 Release 1.13.0 (22 July 2021)

New Features & Enhancements

- **Channel Partners**: This feature enables the inclusion of Yubico’s channel partners in YubiEnterprise Delivery. Customers can distinguish between inventory purchased directly from Yubico and inventory purchased through our channel partners. This information is displayed on the Purchase Order (PO) tab by clicking on the individual PO IDs (see [PO Detail View](#)). When requesting individual shipments using the Console, the channel partner is specified via the Channel Partner dropdown (see [Shipping to a Single Address (Console)](#)), while for bulk upload of shipment requests, the ChannelPartnerId column in the CSV file is must be populated see: [Shipment Request Fields](#). This feature is fully described in [Purchasing Through a Channel Partner](#) in “Requesting Shipment” in this guide. The updated APIs are listed under a heading with the same name, [Purchasing Through a Channel Partner](#), in the “API Onboarding Playbook” in this guide.
• The default Delivery Exception email no longer references and links to Yubico’s support website. This enables enterprise customers to divert any support requests from shipment recipients (end users) to their own IT team.

• **Download CSV**: A new field, `recipient_company`, is now included in the exportable .csv file containing all shipment requests. This is the equivalent of the `Company` field in a single shipment request.

**Resolved Issues**

• There was an issue where the user ID associated with a shipment request was being updated to the ID of the last user to edit the shipment. The requester ID is supposed to be the ID of the user who originated the request and should not change once the order is created. A side effect of this was that it was possible for the shipment to get into a state in which it was not viewable/editable/delete-able. The fix was to ensure that the requester ID always remains unchanged.

• **API**: Now `suggest_postal_code` returns the correct information. Previously, this was never correctly returned, which affected the following APIs:
  - GET `/shipments_exact`
  - GET `/shipments_exact/{shipmentId}`
  - PUT `/shipments_exact/{shipmentId}` because the response to that is the full shipment payload, which includes the `suggest_postal_code` field.

  It had no effect on the POST `/validate-address` API.

**Known Issues**

• When getting a purchase order by its ID, extra, undocumented fields are returned. When a request for GET `/v1/purchaseorders/{purchaseorderId}` is sent, the response includes `(is_vat_valid, is_tax_exempt, is_post_pay)`.

**Known Limitations**

• **Channel Partners**: To order keys via API from inventory purchased through channel partners, the new `/shipments_exact` APIs must be used. The older, deprecated `/shipments` API only supports ordering keys from inventory purchased directly from Yubico. For more information, see *Purchasing Through a Channel Partner*.

**1.19.12 Release 1.12.0 (24 June 2021)**

**Resolved Issues**

• **Search function**: when a search had 0 results, you could type any page number without an error being displayed. This issue has been resolved.
Known Issues

- When getting a purchase order by its ID, extra, undocumented fields are returned. When a request for GET /v1/purchaseorders/{purchaseorderId} is sent, the response includes (is_vat_valid, is_tax_exempt, and is_post_pay).

Known Limitations

- For European shipments using Bpost, also known as the Belgian Post Group, the tracking number is not hyper-linked. However, the delivery status does, update correctly. **Workaround:** To find out where a Bpost shipment is, copy the tracking number and input it on Bpost's page for that purpose, http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en or that of their partner, https://parcelsapp.com/en/carriers/belgium-post.

1.19.13 Release 1.11.2 (26 May 2021)

Resolved Issues

- The status of shipment requests that had already been sent out for fulfillment was not updating as expected. The status of those orders remained stuck at “Processing: Queued for Fulfillment” instead of progressing to “Processing: Sent for Fulfillment”. This issue has now been resolved.

Known Issues

- Search function: when a search has 0 results, you can type any page number without an error being displayed.
- The .csv template for bulk shipment requests sometimes contains a column for a product that you do not have, e.g., the YubiKey 5 NFC might not be available to you and yet the template has a column for it. If you attempt to use this column, your bulk shipment request will be rejected for containing an invalid product ID.

Known Limitations

- For European shipments using Bpost, also known as the Belgian Post Group, the tracking number is not hyper-linked. However, the delivery status does, update correctly. **Workaround:** To find out where a Bpost shipment is, copy the tracking number and input it on Bpost's page for that purpose, http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en or that of their partner, https://parcelsapp.com/en/carriers/belgium-post.

1.19.14 Release 1.11.0 (20 May 2021)

New Features & Enhancements

- API Token: timestamps for creation, last use, and expiry are now shown on the profile page for that user. This information is shown for all tokens used since YubiEnterprise Delivery release 1.10.
- Automated emails sent by the system to end-users upon shipment / delivery / delivery-exception are now fully customizable. Formerly an organization owner or admin could use the Console to customize a paragraph that was then inserted into the standard email template. Now the UI shows one field for the subject of the email and a second for the email body. The customization performed here will apply to all emails sent by the system for that organization.
- The ability to search shipments by recipient_email has now been enabled.
• The Shipped_date now appears on the Dashboard of the Console and on the Shipments tab, as well as in the .csv download file containing the shipment requests.

• The Delivered_date now appears on the Dashboard of the Console and on the Shipments tab, as well as in the .csv download file containing shipment requests. This field is searchable.

Resolved Issues

• CRLF characters (Carriage Return (ASCII 13, \r) Line Feed (ASCII 10, \n)) were allowed in the address fields of individual shipment requests made via the Console. This resulted in unexpected line breaks in the corresponding row of the download CSV file. Those characters are now stripped from the input, so the CSV file no longer shows those line breaks.

• Data contained in downloaded .csv files of shipment requests was problematic, in that it caused a lack of alignment. This issue has now been corrected.

• When the same item was ordered from different types of inventory, e.g., primary/backup subscription, advanced tier, initial/replacement/buffer, the total quantity of the item from all types of inventory did not always add up correctly. This issue has now been fixed.

• If you entered a product type or quantity that was not available or inactive in the system, the shipping request was rendered incomplete, and the status message used the numeric ID of the product instead of its name (e.g., “ProductId3 not active in the system”). This issue has now been resolved, so that the actual name of the product is shown, e.g., “YubiKey 5C not active in the system”.

• If you canceled a bulk shipment request after having uploaded a .csv file, the previously selected file name was displayed next to the Choose file button. This issue has now been resolved.

• If you hovered over your profile icon on the Console, instead of your organization name in the tooltip, you would see its ID in the YubiEnterprise Delivery system. This issue has now been resolved, and so the actual name of your organization is displayed in the tooltip.

Known Issues

• Search function: when a search has 0 results, you can type any page number without an error being displayed.

• The .csv template for bulk shipment requests sometimes contains a column for a product that you do not have, e.g., the YubiKey 5 NFC might not be available to you and yet the template has a column for it. If you attempt to use this column, your bulk shipment request will be rejected for containing an invalid product ID.

Known Limitations

• For European shipments using Bpost, also known as the Belgian Post Group, the tracking number is not hyperlinked. The delivery status does, however, update correctly. Workaround: To find out where a Bpost shipment is, copy the tracking number and input it on Bpost’s page for that purpose, http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en or that of their partner, https://parcelsapp.com/en/carriers/belgium-post.
1.19.15 Release 1.10.0 (22 April 2021)

New Features & Enhancements

• The .csv file for bulk import has always been limited to 10MB, but now the system returns a clear error message along with the 400 response code when a user attempts to upload a file that is too large.

• **User Account Management**: The list of users on the Settings > Users tab now displays a user status column. This enables adherence to compliance procedures when reviewing which users have access to the system.

• **Enhanced Security**: Session login limits: YubiEnterprise Delivery users do not stay logged in indefinitely. They are automatically logged out after 24 hours.

Resolved Issues

• Console search widget: the page counter is now reset to 1 for each new search.

• Console search widget: It was not possible to enter a page number that would have contained no search results; in other words, if there were only 10 pages of search results, you could not enter 100. It is now possible to enter a page number that does not exist because there were not that many results, but an error message explaining this is now shown.

• The available inventory displayed on the Purchase Order popup is now sorted.

• Making an /auth/machine-token API request with an expired token used to fail with a 500 error. Now such a request correctly returns a 401.

• When a user created a new API token and then switched orgs, the view did not update - the new token still appeared under the other org, even though the active token reference did update correctly. This has now been fixed.

• The email address of the user who created a shipment request is now shown in the pop-up window displayed by clicking on the ID of the shipment request.

• Broken links in the documentation have now been fixed.

• Users in demo mode are no longer able to edit the email template informing new recipients that they will be receiving shipments from YubiEnterprise Delivery. This capability is reserved for org owners and admins whose accounts are fully enabled (i.e., no longer in demo mode).

1.19.16 Release 1.9.0 (18 March 2021)

The initial API documentation link on Swaggerhub (https://app.swaggerhub.com/apis/yubico/yubi-enterprise-delivery-public/v1-oas3) is no longer updated and has therefore been removed. Please refer to: https://console.yubico.com/apidocs/ for the latest API documentation.

Enhancements

• User input is validated in such a way that the user is able to confirm or change input as required before submitting shipment requests; for example:
  – Indications of the allowed input for any given field are provided
  – Character rules are now provided for each API
  – The verification results for uploaded CSV files are now provided
  – Error codes have been standardized.
• YubiEnterprise Delivery users can now give their security keys (nick)names so that a user with multiple keys can distinguish them from each other. The console displays the keys in the order in which they were registered.
• API: Validation error responses are now consistent across the APIs.
• API Security:
  – If your request body does not contain valid JSON, the system informs you that the JSON contents you presented could not be verified and were therefore discarded.
  – When a user with permissions to change user roles attempts to grant a disallowed privilege level, the requested role is checked against a list of available roles and the error displayed to the user says only “a match was not found for a valid role”.
• When selecting products during the creation of a shipment request, users can now see the entire range of custom product options available to their organization.
• Organization owners can now reset just users’ passwords in addition to the existing option of resetting users entirely.

Resolved Issues

• Telephone numbers entered in shipment requests are now validated. If a mistake is found, the user is given the opportunity to correct it before the request is processed.
• API: Submitting invalid values for the delivery_type or inventory_type fields now triggers INFO-level errors instead of 500s.
• API: A JSON unmarshall error resulting from a malformed payload for the /shipments POST CreateShipment API used to send ‘500 / “unknown error”’. This type of error now sends ‘400 / “invalid payload”’.
• When your login has expired, clicking on the Generate API token on the profile page does not work. This issue has now been fixed.
• API: The auditor role can delete API tokens as well as create them.
• Transaction rollbacks are now logged at INFO level instead of at WARNING level, which was too severe.
• When an attempt is made to delete a shipment request that does not exist, the error code returned is now 404 instead of 500, which erroneously indicated a server problem. This issue has now been fixed.
• API: When Organization Products are returned, the TotalCount is now set.
• API: When calling InviteUserToCurrentOrganization for a user already in an organization, an AlreadyExists response is now returned.
• API: GET /shipments was missing the advanced_search parameter. This is now present.
• The CSV download was timing out. This issue has now been resolved.
Known Limitations

• For European shipments using Bpost, also known as the Belgian Post Group, the tracking number is not hyper-linked. The delivery status does, however, update correctly. **Workaround**: To find out where a Bpost shipment is, copy the tracking number and input it on Bpost’s page for that purpose, [http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en](http://www.bpost2.be/bpostinternational/track_trace/find.php?lng=en) or that of their partner, [https://parcelsapp.com/en/carriers/belgium-post](https://parcelsapp.com/en/carriers/belgium-post).

1.19.17 Release 1.8.3 (9 March 2021)

Enhancements

• Support for Transport Layer Security (TLS) v1.0 and v1.1 has been removed; the earliest version YubiEnterprise Delivery now supports is TLS 1.2. This update to the cryptographic protocols renders network communication less vulnerable to attack.

1.19.18 Release 1.8.0 (18 February 2021)

Features & Enhancements

• **Security Enhancement**: YubiEnterprise Delivery 1.8.0 implements an infrastructure enhancement that requires all users to reset their passwords. All users will have received an email from Yubico announcing this one week prior to the 1.8.0 release. The email explains the procedure to be followed: click on the link in the email, which takes you to a page enabling you to update your password. If you do not update it within one week, contact your YubiEnterprise Delivery organization owner for an account reset. If you are an Org Owner, contact YubiEnterprise Support.

• Using the API and the Console (GUI) for single shipments, it is now possible to include products from different inventory types within the same shipment. For details, see [Shipping to a Single Address (Console)](#).

• **Advanced Search for API** Advanced search capabilities have been introduced for API users. Fields with different names will be searched in an AND, while fields with the same name will be ORed.

Resolved Issues

• When browsers truncated redirection URLs, or users manually copy-pasted incomplete URLs, the missing OAuth authorize parameters caused the login backend to crash.

Known Issues

• When your login has expired, clicking on the **Generate API token** on the profile page does not work. **Workaround**: Log in to the Console again.
1.19.19 Release 1.7.0 (21 January 2021)

Features & Enhancements

• **API**: **Advanced search** Lists of shipment requests can be filtered by query parameters. We introduced `/search-description` on searchable resources to provide a description of the searchable fields.

• Timestamps for shipment requests and for orders being shipped are now provided with millisecond precision from the Console (the GUI) and via the API.

• **API** We now return “404 Not Found” response `{"message":"Product Id <> could not be found"}` for GET `/products/{product id}` on an invalid product ID, as per the API contract.

• The CSV file download containing shipment requests shows streamlined shipment status, including for shipments carried out before the 1.7.0 release. For details, see *Column Headings in the Shipment Requests Table*.

• The tracking number for each shipment is now associated directly with the shipping date, just as the “Shipped - in transit” status is directly linked to the date of shipment.

Resolved Issues

• Organization names were not being displayed correctly. This issue has now been fixed.

• Some European shipments did not show the correct tracking number link. This issue has now been fixed.

• When selecting shipments for bulk deletion, the number of shipment requests listed as available for deletion may not have matched the number displayed directly underneath the Back to Shipments button (e.g., “1 - 11 of 32” and yet there would be only a single item shown in the list). The number of items listed in the table was correct, not the number shown on the upper right. This issue has now been fixed.

• When the API was used to create a shipment request against a subscription that did not include the product you wanted to ship, the shipment details page (the popup for the shipment ID) on the Console (the GUI) for that request would show that the “ghost product” request was made against Standard products inventory. This issue is now fixed.

• In the YubiEnterprise Console (the GUI), the limit on the number of characters in the “Company” field has been raised from 15 to 20, so it now matches the limits on that field in the bulk upload as a CSV file and the API.

• Shipment requests with shipment_state_id=104 (ShipmentStateDelivered) will always have is_delivered=TRUE.

• Upon completing a single shipment request using the YubiEnterprise Console (the GUI), the button for creating another shipment request did not appear to be functional. Its name is now properly displayed, and this secondary button changes from white to dark blue when you mouse over it.

• When using the Console (GUI) to create a single shipment request and selecting first Standard products from the From stock dropdown, entering a quantity for any product, then selecting another item from From stock, the quantity previously selected in conjunction with Standard products disappears from view. However, the number entered is still in the system; it shows up in the confirmation message when you click Create Shipment.

• **API** In the validate-address API, some fields in the response payload and the US Address Component did not match the LOB API. This issue is now fixed.
1.19.20 Release 1.6.0 (19 November 2020)

Features & Enhancements

• With the release of YubiEnterprise Delivery 1.6.0, customers have more granular control in determining the stock inventory from which products are shipped. Previously, the system would choose the stock from the oldest Purchase Order in the system to ensure that the customer’s stock did not expire before use.
  – Explicit selection is now available for single shipment requests (see Shipping to a Single Address (Console)).
  – Bulk shipment orders will continue to use the original method whereby the system chooses the stock. Bulk shipment ordering will convert to the exact choice method in a future release.
  – A new set of delivery APIs has been made available to support the exact choice method, the suite of /shipments_exact APIs. The original /shipments APIs are deprecated starting in this 1.6.0 release but they will continue to be available until at least May 2021. Customers are encouraged to use the /shipments_exact APIs for any new development and to update existing clients soon.

<table>
<thead>
<tr>
<th>Deprecated</th>
<th>Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>GET /shipments</td>
<td>GET /shipments_exact</td>
</tr>
<tr>
<td>POST /shipments</td>
<td>POST /shipments_exact</td>
</tr>
<tr>
<td>GET /shipments/{shipmentId}</td>
<td>GET /shipments_exact/{shipmentId}</td>
</tr>
<tr>
<td>PUT /shipments/{shipmentId}</td>
<td>PUT /shipments_exact/{shipmentId}</td>
</tr>
<tr>
<td>DELETE /shipments/{shipmentId}</td>
<td>DELETE /shipments_exact/{shipmentId}</td>
</tr>
<tr>
<td>/UpdateShipmentById</td>
<td>shipments_exact/{shipment_id}</td>
</tr>
</tbody>
</table>

• Before adding Backup subscriptions to new Purchase Orders (POs), existing POs should be exhausted.

• Download of CSV file with shipment requests has been accelerated.

• Expedited shipments in the US will no longer use USPS Priority (for 1-99 items) and UPS Ground (for 100-500 items) but instead will be using UPS Overnight for 1-500 products. The cost of shipping has been adjusted accordingly.

• A new version of the original /address-validation API checks addresses more closely to ensure acceptance by the system. The deprecated API is /address-validation and the new one is /validate-address. The deprecated API will continue to be available until at least May 2021. Users are encouraged to use the /validate-address API for any new development and to update existing clients soon.

• The online Help can now be accessed from the login screen; it is not necessary to log in to access Help.

• Better navigation: When reviewing Incompletes, a new Go Back to Shipments button facilitates acceleration of the workflow.

• The Dashboard view more accurately reflects modes of purchase and stock in inventory. The new sections are Standard products inventory, Non-subscription inventory, and Subscription inventory.
Resolved Issues

• It is now possible to create a single shipment request combining different types of stock/inventory, for example both a lanyard from the Standard products option and a key from the Primary Subscr. Advanced Tier - Init option in the From stock dropdown.

• The Search function for the online help (User Guide and Release Notes) has now been fixed.

• Purchase Order (PO) display: Inventory counts of zero on POs are no longer shown as just a forward slash, but instead as expected, for example “0/100 - YubiKey 5C”.

• The detail view of Purchase Orders with “ghost” inventory is now available. “Ghost” inventory was caused by Yubico adding a product to an Organization and then removing it.

1.19.21 Release 1.5.0 (22 October 2020)

Features

• It is now possible to delete multiple shipment requests simultaneously. This is useful when the system is unable to validate multiple addresses or when the wrong CSV file was uploaded by mistake.

• The CSV file upload now accepts alternative values for DeliveryType: instead of just 1 for Normal and 2 for Expedited, the words Normal and Expedited are now acceptable input. Integer parsing will be retained for backwards compatibility.

API

• GET /inventory has been extended so that it always returns product_mapping.

Resolved Issues

• Outstanding error messages are now cleared between shipment updates.

• Products no longer in inventory cannot be selected from the New shipping request page in the Console for a single shipment request. In the API, /shippablekeys returns only products still in inventory for inventory_type = 1.

Known Issues

When selecting shipments for bulk deletion, the number of shipment requests listed as available for deletion may not match the number displayed directly underneath the Back to Shipments button (e.g., “1 - 11 of 32” and yet there is only a single item shown in the list). The number of items listed in the table is correct, not the number shown on the upper right.
1.19.22 Release 1.4.0 (24 September 2020)

Features

- Improved /products API endpoint behavior: GET /products returns the list of products that are both a) in inventory and b) shippable.
- The delivery exceptions email feature has been completed.

Resolved Issues

- Inventory type in shipment requests always displays correctly now.
- The product images for multiple subscription tiers concurrently displayed are now consistent.

1.19.23 Release 1.3.1 (10 September 2020)

Known Issue

- When requesting shipment for a YubiKey Lanyard, the Inventory Type must be set at type 1, YubiKey Shipment, even if you are a subscription customer. This means that if you want to send a person both a lanyard and a key from subscription stock, you must make two separate shipment requests. Set the other inventory types as follows:

<table>
<thead>
<tr>
<th>Integer</th>
<th>inventory_type (Stock)</th>
<th>Purchase Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Standard Product</td>
<td>Outright purchase</td>
</tr>
<tr>
<td>2</td>
<td>Non-subscription</td>
<td>Purchase of virtual keys</td>
</tr>
<tr>
<td>3</td>
<td>Subscription - Initial Shipment</td>
<td>Subscription</td>
</tr>
<tr>
<td>4</td>
<td>Subscription - Buffer Stock Shipment</td>
<td>Subscription</td>
</tr>
<tr>
<td>5</td>
<td>Subscription - Replacement YubiKey Shipment</td>
<td>Subscription</td>
</tr>
</tbody>
</table>

- Use Inventory Type 1 if you have purchased keys on the perpetual mode and/or for lanyards.
- Use Inventory Type 2, YubiKey Tier SKU Shipment, if you are not a subscription customer, but have purchased tiers of keys instead of physical keys.
- Inventory Types 3, 4, and 5 are for subscription customers only.
  * Make sure to use up all of your Inventory Type 3, Initial, within the first year of your subscription.
  * Use Inventory Type 4 at any time: Buffer stock expires only at the end of your subscription term.
  * Use Inventory Type 5, Replacement, for users who have lost their keys or want to upgrade.

1.19.24 Release 1.3.0 (28 August 2020)

Features

- Enhanced and extended address validation status messages: error messages displayed as a result of failed address validation now give instructions for achieving successful validation.
- Improvements to the downloadable shipments CSV. It now shows for each shipment:
  - Organization name as well as org-ID
YubiEnterprise Delivery

- Purchase Order number
- User email as well as user-ID
- Delivery type indicating “normal” or “expedited”
- Both shipment state ID and actual shipment state message
- Both shipment product cost and shipment product taxes.

- Added YubiKey Lanyard to the product list.
- Begin preview of API to retrieve the available subscriptions.

Resolved Issues

- The customized email for DELIVERY EXCEPTIONS can now be sent as a preview sample to the logged-in YubiEnterprise Delivery user.

1.19.25 Release 1.2.0 (23 July 2020)

Features

- Updated Pricing
  - Introducing flat-fee shipping for up to 2 keys:
  - Introducing support for expedited shipping (1-3 days)
- Email customization and preview: The notification emails automatically sent to YubiKey recipients can be customized, and can also be previewed. Clicking the Send Sample button below the Customize Email field sends a sample of the customized email to the email ID logged into YubiEnterprise Delivery. For more details, see Notifying End-Users of Shipment and Delivery.
- PREVIEW: Ability to download shipments table: Organization owners, admins, and auditors can download the information on the Shipments tab as a CSV file. There are two options:
  - The entire contents can be downloaded - i.e., all the rows in the table, even if there are multiple pages.
  - Search results. If a search term is entered into the Search field, the rows containing the search term will be downloaded as a CSV file.
- Subscription Shipping through YubiEnterprise Delivery: Subscription customers can view their inventory on the Dashboard, with:
  - Premium Tier Subscription
  - Premium Tier Subscription Replacement
  - Premium Tier Subscription Buffer.

Subscription customers can specify shipment types:
  - Initial shipment
  - Buffer stock shipments
  - Replacement YubiKey shipment

Subscription customers can download a CSV file with the contents of the shipments table (see “Ability to download shipments table” above), showing all the YubiKeys in the subscription tier and Subscription-Fulfillment-Type.
Known Issues

- The customized email for DELIVERY EXCEPTIONS cannot be sent as a preview sample to the logged-in YubiEnterprise Delivery user.

1.19.26 Release 1.0.0 (18 June 2020)

Features

YubiEnterprise Delivery enables organizations to manage orders of Yubico’s security keys (including YubiKeys), encompassing:

- Ordering shipment of a key or keys to a single address through the YubiEnterprise Delivery Console (the GUI) or the API
- Bulk upload of shipping orders for fulfillment using CSV files
- Shipping orders via the API
- Inventory management
- Tracking shipping costs
- Tracking shipment of the security keys you purchase from Yubico to the end-user
- Customizing auto-generated delivery notification emails
- Support for Virtual Product Tiers.

Known Limitations

- The following character limitations (including spaces) apply to all three methods of requesting shipment: Console (GUI), CSV, and API:
  - First Name: 15
  - Last Name: 20
  - Company: 20
  - Address lines 1, 2, 3: 40
  - City: 20

- In certain situations, if your computer has a platform FIDO authenticator such as Windows Hello and you want to enroll a YubiKey, the Windows UI displayed may ask you to enroll that other platform authenticator. **Workaround:** Hit **Cancel** to get to the YubiKey enrollment option.

Known Issue

- A shipment request whose status is indicated as ShipmentStateError must be recreated and resubmitted.
1.20 Copyright

This guide is available as help text accessible from each screen of Yubico’s YubiEnterprise Delivery Console. There is a help page for each tab in the Console, describing the functions available from that tab, and listing input parameters for actions such as requesting shipping or giving someone YubiEnterprise Delivery console privileges. The table of contents for the YubiEnterprise Delivery User Guide appears to the left of the help text.

Copyright
© 2022 Yubico AB. All rights reserved.

Trademarks
Yubico and YubiKey are registered trademarks of Yubico AB. All other trademarks are the property of their respective owners.

Disclaimer
The contents of this document are subject to revision without notice due to continued progress in methodology, design, and manufacturing. Yubico shall have no liability for any error or damages of any kind resulting from the use of this document.

The Yubico Software referenced in this document is licensed to you under the terms and conditions accompanying the software or as otherwise agreed between you or the company that you are representing.

1.20.1 Contact Information

Yubico Inc.
530 Lytton Street
Suite 301
Palo Alto, CA 94301
USA

To ask for help with YubiEnterprise Delivery, file a ticket at YubiEnterprise Support.
More options for getting touch with us are available on the Contact page of Yubico’s website.

1.20.2 Document Updated

2022-05-11 22:43:59 UTC