# **YubiEnterprise Services**

Yubico

Jul 02, 2025

# **USER GUIDE AND RELEASE NOTES**

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#### CHAPTER

# INTRODUCTION

**YubiEnterprise Services** enable organizations to procure YubiKeys efficiently, distribute them rapidly, and remotely manage YubiKey strong authentication solutions at scale. These services are the gateway to value-added service offerings. Services include subscribing to keys, customizing keys, and shipping keys to end users.

**Note:** This documentation is intended for users of YubiEnterprise Services, and describes how to work with the YubiEnterprise Console and the YubiEnterprise API. For general information about Yubico and YubiKeys, see Yubico Support.

# **1.1 Subscription Services**

**YubiEnterprise Subscription** provides cost-effective and flexible YubiKey procurement and rollout. It simplifies the acquisition and rollout of phishing-resistant authentication, with future-proofed flexibility.

Subscribing to YubiKeys provides the following benefits:

- Lower cost to entry: Get phishing-resistant multi-factor authentication for low prices per user per month (OPEX) with additional entitlements and discounts.
- Flexibility: Enable user choice to select preferred YubiKeys with the option to upgrade as needs evolve.
- **Future-proofed**: Ensure security is always prioritized as your business evolves and you experience employee turnover and/or replace lost or stolen keys.
- Faster rollout: Quickly deploy and protect your workforce and your brand. Stay connected to security experts via Professional Services, a dedicated Customer Success Manager, and Priority Support.

For more information about subscription tiers, see Modes of Purchase.

# **1.2 Customization Services**

**Customization services** include various types of customization of keys. YubiKeys can for example be pre-programmed for an organization to meet specific needs. For more information, see *Customizations*. YubiKeys can also be pre-registered with end user-specific credentials through the *Yubico FIDO Pre-reg* service. For more information, see *Shipping Pre-registered Keys*.

# **1.3 Delivery Services**

**YubiEnterprise Delivery** is a cloud-based service providing distribution and logistics for streamlined distribution of YubiKeys to end users' offices or residential addresses.

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

Delivery use case example:

- An enterprise or organization purchases a subscription to cover their security key needs over time.
- The enterprise or organization then uses the YubiEnterprise Console to ship keys to their end users as required.
- Alternatively, shipment requests are generated through an integration using the YubiEnterprise public APIs.
- Some keys might be shipped to head office or branch offices for distribution in person, others will be shipped to the home addresses of employees working remotely.
- To help perform these tasks, the YubiEnterprise account owner assigns privileges (roles) to others in their organization so they can also use YubiEnterprise Delivery to request shipments.

# 1.4 Access and Login

To access the YubiEnterprise Console and work with the YubiEnterprise API, your organization must first be set up and your account must be activated through a first-time log in as described in *Onboarding*. When your account has been activated you can log in to the Console as described in *Logging in*.

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

#### CHAPTER

# **ONBOARDING**

This section describes how to onboard YubiEnterprise Services and getting access to the YubiEnterprise Console to start creating shipment requests.

When your Yubico sales person or a channel partner has issued a purchase order for the desired products, subscriptions, and services for your organization, the onboarding procedure starts. This includes setting up accounts for your organization and providing access to the Console.

# 2.1 Procedure Overview

When Yubico has received the initial purchase order for your organization, an account is created for your organization and the purchased products and services are added to the account.

When the account is created, an activation email is automatically sent to the email address of the first user added to the organization's account. This user is assigned the *Console Owner* role, and is added as a *demo user* with permissions restricted as follows:

- Cannot ship more than 10 YubiKeys
- Cannot add new Console users
- Cannot generate API tokens

User permissions remain restricted until the demo user registers a security key as part of the onboarding. When a security key has been registered for the account in the Console, the user acquires full Console Owner permissions.

The **first Console Owner** performs the following actions during their onboarding:

- 1. Activates account and performs initial login to the Console.
- 2. Verifies the content of the first purchase order.
- 3. Creates an initial shipment request of maximum 10 YubiKeys (optional).
- 4. Registers at least one security key for their user account to get full feature access.
- 5. Adds Console users as needed for the organization, at least one more Console Owner is recommended.

The onboarding procedure is described in more detail in the following.

# 2.2 Prerequisites

The following is needed for the onboarding:

- A browser such as Chrome, Firefox, or Edge, with the popup-blocking function disabled.
- Email with account activation link provided by Yubico. Note that the link expires after 7 days.
- To get full Console feature access, you need to register a YubiKey.

**Note:** To use the YubiEnterprise API you also need access to the Console to be able to set up an API caller user account with an associated API token. For more information, see *API Onboarding Playbook*.

# 2.3 Onboarding Procedures

The first user account registered with an organization will also automatically be the first Console Owner (account owner) for the organization. Onboarding a first Console Owner and registering a YubiKey for this account is required to be able to add more Console users for the organization and create shipment requests for YubiKeys.

**Note:** It is recommended to have at least two users with the Console Owner role as this is the only role that can perform password and account resets. If your organization only has one Console Owner and that person locks themselves out or leaves your organization, you must contact Yubico to set up a new Console Owner. To add users and assign roles, see *Adding or Deleting Users*.

The YubiEnterprise Console uses *Passwordless Authentication* through YubiKeys. Only passkeys stored on security keys (device-bound passkey) are allowed when logging in. When accessing the Console, you will only use a password during onboarding of your organization as the first user (Console Owner) logging in for the first time.

## 2.3.1 Activating First User

To activate your account and onboard as the first Console user, do the following:

- 1. Click the Activate your YubiEnterprise account link in the activation email you received from Yubico.
- 2. Create a strong password following the recommendations in the activation dialog and click Activate Account.



- 3. In the YubiEnterprise Console login page that opens, click Login.
- 4. In the Welcome to the YubiEnterprise Console dialog, click Sign in with Password.

Note: The "Sign in with Passkey" option displayed in the dialog will be used once you have registered a YubiKey.



5. Enter your email address and the previously created password, and click Sign in with Password.

# Welcome to the YubiEnterprise Console

Email ———	
firstname.la	stname@somemail.com
Password —	
	•••• Sign in with Password
	← Back

- 6. In the YubiEnterprise Console Acceptance Use Policy dialog, click I agree to continue.
- 7. When successfully logged in you will be taken to the **Dashboard** page for your organization where you can see your initial purchases and YubiKey license inventories. Since you have not yet registered a YubiKey, you will be notified that you are in "demo mode" with limited feature access.

yubico	Yubil	Enterprise Console	US TAXES: \$0.00   VAT: \$0.00	SHIPPING: <b>\$0.00</b>	ţ	Help	A username@company.com	~
: Company AB	«	You are in demo mode - sl     To unlock full access and man	hipping is limited to 10 keys bage more keys, register a passkey us	sing your YubiKey. You can	do this anyti	me from her	е.	
✿ Dashboard		Your subscriptions				-	Only show shippable inventory	?
🕞 Shipments	<	Base Standard ti	er PRIMARY SUBSCRIPTION					
<ul> <li>Purchase orders</li> <li>Settings</li> </ul>	ĸ	Total licenses available						
		100% remaining	RY 00 available					

8. *Register at least one YubiKey* to get full Console feature access, if you have a YubiKey available at this point. If you *do not have a YubiKey*, you can still order up to 10 keys as a demo user, and register a key when you have one. Continue to step 13 to create an initial shipment request for YubiKeys if you do not have any.

If you have a YubiKey, click the link in the **demo mode message** at the top to register a passkey on your YubiKey. In the dialog that opens, click **Create Passkey**.

# Upgrade to Passwordless sign-in with YubiEnterprise

We are making sign-in faster, easier, and more secure - no more

passwords. From now on you will use passkey. 🥝

#### What will happen:

- 1. Insert your YubiKey.
- 2. Click 'Create Passkey' and follow the prompts.
- 3. Enter your YubiKey's PIN (it's unique to your key).
- 4. A passkey will be registered to your YubiKey.
- 5. Your existing password will be removed you're going passwordless!

We recommend adding a backup sign in method, like a second YubiKey. You'll have the opportunity to add one once you migrate, or you can do it anytime from 'Manage Credentials'.

<u>Learn more about</u>	passkey:	<u>s</u>
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්ද Create Passkey
Remind me later

- 9. When prompted, tap your YubiKey and provide the PIN associated with the YubiKey.
- 10. A passkey is created on the YubiKey, and a passkey confirmation dialog is displayed. A notification with details about the registered YubiKey is sent to the email address associated with your Console account.

It is recommended that you register an additional YubiKey as a backup to avoid losing access to the Console. This can be done at any time. Click **Yes, create another** to register a spare YubiKey and follow the instructions. Click **No, I'm done for now** to continue without registering a spare key.

# Your passkey has been created!

You have secured your account with the passkey **YubiKey 5 Series with NFC**. Next time you sign in, just insert your key and tap - it is that simple.

You have registered one passkey. For added security, we recommend creating a **backup passkey on a YubiKey** - just in case your main key is lost or unavailable.

Would you like to create a passkey on a backup YubiKey now?

**Tip:** Keep your main passkey device handy and store the backup in a safe place.

Yes, create another
No, I'm done for now

- 11. When you have registered a YubiKey, you will be prompted to log out and in again using the YubiKey. In the **Welcome to YubiEnterprise Console** dialog, click **Sign in with Passkey**, tap your YubiKey, enter the PIN, and tap your YubiKey again to log in.
- 12. When you have registered at least one YubiKey you will get full feature access.

yubico	Yub	iEnterprise Console US TAXES: \$0.00   VAT: \$0.00   SHIPPING: \$0.00   🏚   Help   🗛 username@company.com	~
: Company AB	«	Only one Passkey is registered      We recommend adding a second one as a backup in case your primary key is lost or unavailable. You can do this anytime from here.     Tip: Give each passkey a nickname so you can easily tell them apart later.	
û Dashboard		Only show shippable inventory     Your subscriptions	)
<ul><li>Shipments</li><li>Purchase orders</li></ul>	<	Base Standard tier PRIMARY SUBSCRIPTION	
🛱 Settings	<	Total licenses available	
		100%       PRIMARY         100 / 100 available       Image: Console Owners         Why it's important       Add Console Owners	×

- 13. *Create a first shipment request.* For more information on how to create a shipment request, see *Working with Shipments.* If you did not yet register a YubiKey, you have the option as demo user to request a shipment of up to 10 keys for yourself and other users in your organization. When you have a YubiKey available, follow the steps in the Console login dialog to log in with passkey and gain full feature access, see steps 8-11.
- 14. *Add an additional Console Owner* for your organization, if not already done (you must first have registered a YubiKey to be able to do this). It is recommended to have at least two users with the Console Owner role. Click **Add Console Owner** in the notification message at the bottom right of the page.

15. Add more Console users as needed for your organization, for example IT administrators that will be managing shipment requests, or API integration user accounts. For more information, see *Roles and Permissions*. The system will send activation emails to each new user so they can log in and activate their account as described in *Activating User Accounts*. New users will need to register a YubiKey to be able to log in to the Console.

#### 2.3.2 Activating User Accounts

**Note:** If your organization has Single sign-on (SSO) enabled, new users do not have to activate their account. Users are immediately added to the organization in the *Active* state and can use the SSO service-provider-initiated login link to log in to the Console. For more information, see *Authenticating with SSO*.

When a Console Owner has added you to the YubiEnterprise Console as a member of your organization you will receive an account activation email from Yubico. You will need a YubiKey to be able to log in to the Console as a new user.

To activate your account and log in to the Console for the first time, do the following:

- 1. Have your YubiKey ready and click the Activate your YubiEnterprise account link in the activation email from Yubico.
- 2. In the setup dialog, click Activate Account.



- 3. When prompted, tap your YubiKey and provide the PIN associated with the YubiKey.
- 4. A passkey is created on the YubiKey, and a passkey confirmation dialog is displayed. A notification with details about the registered YubiKey is sent to the email address associated with your Console account.

You will be prompted to register an additional YubiKey as a backup to avoid losing access to the Console if the original key is lost. This can be done at any time. Click **Yes, create another** to register a spare YubiKey and follow the instructions. Click **No, I'm done for now** to continue without registering a spare key.

# Your passkey has been created!

You have secured your account with the passkey **YubiKey 5 Series with NFC**. Next time you sign in, just insert your key and tap - it is that simple.

You have registered one passkey. For added security, we recommend creating a **backup passkey on a YubiKey** - just in case your main key is lost or unavailable.

Would you like to create a passkey on a backup YubiKey now?

**Tip:** Keep your main passkey device handy and store the backup in a safe place.

Yes, create another

#### No, I'm done for now

- 5. To activate your account, you will be prompted to log out and in again using the newly registered YubiKey. Follow the instructions to log in.
- 6. In the YubiEnterprise Console Acceptance Use Policy dialog, click I agree to continue.
- 7. You will be taken to your organization's **Dashboard** page which provides an overview of available inventory, and recent shipments and purchase orders.
- 8. You are now ready to start working in the YubiEnterprise Console! To begin, see the Getting started section.

## 2.3.3 Distributors and Resellers

Yubico channel partners can use the *Distributor* and *Reseller views* in the YubiEnterprise Console to see what was sold to associated end customers, monitor their inventories, and provide access to purchase order information.

To onboard as an account owner for a channel partner organization, follow the procedure for *Activating First User*. When adding Console users for your organization, you can assign the Distributor and Reseller roles to those specific users. These roles provide access to the Distributor and Reseller views. To add users and assign roles, see *Adding or Deleting Users*.

For more information about channel partner roles, see *Roles and Permissions*. For more information about channel partner views, see *Dashboard*.

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

#### CHAPTER

## THREE

# **GETTING STARTED**

Welcome to YubiEnterprise Services! This section provides guidance to supporting content for common tasks performed by different user categories working with the YubiEnterprise Console and the YubiEnterprise API.

# 3.1 Logging in

To access the YubiEnterprise Console, your organization must first be set up, and your account must be activated through a first-time log in with a registered YubiKey as described in *Activating User Accounts*.

**Important:** For enhanced security, the Console is being upgraded to use passwordless authentication. If you have not yet upgraded your Console account to passwordless authentication, you will be given the option to move to passwordless when logging in. For a limited time, you can still log in with your password. See *Upgrading to Passwordless*.

To log in to the Console, do the following:

- 1. Have your YubiKey ready and go to https://console.yubico.com/login.
- 2. Click Sign in with Passkey.



3. Ensure to select the *security key* passkey option if your browser suggests other (synced) passkey options. For example in the Chrome scenario below, click **Use a different passkey** to locate and select the passkey associated





- 4. When prompted, tap your YubiKey and provide the PIN associated with the YubiKey.
- 5. You will be logged in and taken to the **Dashboard** from where you can start working with your Console tasks.

**Note:** To ensure that the YubiKey (device-bound passkey) is always used when logging in, it is recommended to remove any existing synced passkeys. See *Best Practices - Synced Passkeys*.

# **3.2 Viewing Notifications**

Notifications provide an overview of activities in the system, as well as important information regarding for example failed shipments requiring your interaction. Notifications are a good starting point when you first log in to the Console.

The Notifications (bell) icon in the top menu indicates the number of unread notifications if any.

YubiEnter	rprise Console	US TAXES: <b>\$0.00</b>   VAT: <b>\$0</b>	.00   SHIPPING: <b>\$10,000.00</b>		🕂   Неір   🗛
<b>«</b>	Total license	Notifications	Mark all as read	Ŧ	_
		This week:			Read and unread Unread only
	remaining		]	-	Archived
		You have no rece	nt notifications		
<	Form factors	Older:			
	HRT Config Yu	<ul> <li>We were unable to validate the add shipment request with ID 58CPmTr<sup>1</sup> recommend reviewing and correctin your failed shipment as soon as pos shipping delays.</li> <li>View Shipment &gt; Contact Custome</li> </ul>	ress of the YubiKey Jan 15, VdPsGi2PhEtgEdF. We ng the address for ssible to avoid any	2025 •	· 5Ci
<	Create shipm				

You can do the following when working with notifications:

- Click the **Notifications** icon to check the list of notifications to see if there are any activities that require user interaction, for example shipments with failed address validation.
- Click the unread notifications to read them and take action if needed. Notifications remain in the list after being read until they expire after 30 days.
- To filter notifications, click the **Filter** icon at the top right and select the desired option. You can for example filter notifications to only view unread ones.
- To keep desired notifications, click **Archive** for a notification to move it to the archive where it will be stored until deleted. Click **Archived** to view all archived notifications.
- Click **Mark all as read** to clear all unread indications. Notifications that have been read remain visible and you can see their record and take action at any time.

**Note:** Notification interactions are personalized. When you mark a notification as read, it will only be marked as read for you. Other Console users in your organization will still see the notification as unread until they mark the notification as read.

# 3.3 Working in the Console and API

**Note:** What you can do in the Console depends on your role and permissions. The descriptions below are specific to each user category. For more information, see *Roles and Permissions*.

#### 3.3.1 Customers

#### Organization account owner with CONSOLE OWNER role

You are an account owner working with purchasing plans for your organization. You want to set up your organization's account, order a first set of YubiKeys, add more Console users for your organization, and manage their permissions. As Console Owner, you can also reset accounts if needed.

#### Understanding purchasing and delivery

- Purchasing models
- Shipping costs and taxes
- Destinations, delivery types, and quantities

#### **Onboarding and accessing the Console**

- Onboarding steps
- Viewing initial purchase
- Requesting initial shipping of YubiKeys

#### Managing Console users in your organization

- Adding users and permissions
- Resetting accounts

#### Organization IT administrator with CONSOLE ADMIN role

You manage deployment of YubiKeys for your organization. You want to see the inventory, understand how many keys are available, and ship keys to various parts of your organization. You want to check the status of shipments, and update shipment request details if needed.

#### Monitoring your inventory

- Checking available inventory
- Viewing purchase orders
- Managing customizations

#### **Creating shipment requests**

- Getting an overview of shipments
- Requesting shipment to a single address
- Requesting shipment to multiple addresses

#### **Managing shipments**

- Viewing shipments
- Correcting shipment addresses
- Editing and deleting shipments
- *Viewing refunds for failed shipments*

#### Organization auditor with CONSOLE AUDITOR role

You are an auditor for an organization and want to review data like purchase orders, shipments and permission settings. You also want to download information for reporting purposes.

#### Viewing data for an organization

• Purchase orders

- Shipment requests
- Processed refunds
- Users and their permissions

#### **Downloading information**

- Shipment requests
- Processed refunds

#### 3.3.2 Distributors

#### User with DISTRIBUTOR VIEW access

Distributors are organizations that sell Yubico products to associated resellers that in turn sell the products to end customers. As a distributor you want to see what was sold by your resellers, monitor customer inventories, and provide your resellers with access to view purchase orders.

#### Getting an overview

- Reseller and customer overview
- Viewing inventory for a reseller's customer

#### Viewing purchase orders

- · Checking what was sold per reseller and customer
- Viewing purchase order details
- Checking if a customer can use automated delivery (YE Delivery)

#### Managing view permissions

• Allowing resellers to view purchase orders

#### 3.3.3 Resellers

#### User with RESELLER VIEW access

Resellers are organizations that sell Yubico products to end customers. As a reseller you want to see what was sold to your customers, monitor their inventories, and provide access for customers to view purchase orders.

#### Getting an overview

- Customer overview
- Viewing inventory for a customer

#### Viewing purchase orders

- Checking what was sold for a customer
- Viewing purchase order details
- Checking if a customer can use automated delivery (YE Delivery)

#### Managing view permissions

• Allowing customers to view purchase orders

## 3.3.4 Integrators

#### Developer with CONSOLE ADMIN role

You are a developer integrating the YubiEnterprise API into a system on behalf of a customer organization. You want to understand how to get started with the YubiEnterprise API, and how to use it for example to create shipment requests.

#### Getting started with the YubiEnterprise API

- API Onboarding Playbook
- Setting up an API caller with access token
- Building a self-service delivery portal

#### Working with the YubiEnterprise API

- Requesting shipments
- Listing, tracking, and searching shipments
- Requesting pre-registered YubiKeys through Okta
- Requesting pre-registered YubiKeys through Microsoft Entra
- Managing API tokens

#### **Integration examples**

• Integrating with ServiceNow

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

# **MODES OF PURCHASE**

*YubiEnterprise Services* is a set of services that enable organizations to efficiently procure, rapidly distribute, and remotely manage YubiKey strong authentication solutions at scale.

All YubiKeys are part of one or more product tiers. Products can be added to your inventory as *subscription* purchase of product *tiers*, or *non-subscription perpetual* outright purchase of products. You can purchase directly from Yubico, or through a *reseller*.

The exact numbers and models of YubiKeys the end users of your organization will want or need can be difficult to predict. With a *YubiEnterprise Subscription* you can purchase YubiKey *licenses* through an end user-based subscription model. With a subscription you only have to estimate the number of end users and the security key functionality requirements for your organization. You can then select preferred YubiKeys over time, with replacement and upgrade options as needs evolve.

The different purchasing options are described in more detail in the following.

# 4.1 Tier Options

A *tier* is a collection of YubiKey models representing a level within a hierarchy of product sets. All YubiKeys are part of one or more product tiers associated with subscription *plans*. For more information, see *Subscriptions*.

Subscription plans include the following tiers:

- Base includes the Security Key Series, FIDO-only support.
- Advanced includes YubiKey 5 Series, multi-protocol support.
- Compliance includes all certified YubiKeys, multi-protocol support, and YubiKey Bio on request.

#### 4.1.1 Key Models Per Tier

The following provides an overview of available YubiKey models in each subscription tier.

**Note:** Enterprise subscription tiers are additive. For example, if you select Advanced tier, you can also request YubiKeys from the Base tier. If you select Compliance Tier, you can also request YubiKeys from the Base or Advanced tier.



2. Security Key - Enterprise Edition exclusive to Subscription customers

MODEL	TIER		
	Base	Advanced	Compliance
Security Key NFC by Yu- bico	Х	Х	Х
Security Key C NFC by Yubico	Х	Х	Х
	Х	Х	Х
Security Key NFC - Enterprise Edition			
	Х	Х	Х
Security Key C NFC -			
Enterprise Edition			
YubiKey 5 NFC		Х	X
YubiKey 5C NFC		Х	Х
YubiKey 5C		Х	Х
YubiKey 5 Nano		Х	Х
YubiKey 5C Nano		Х	Х
YubiKey 5Ci		Х	X
YubiKey 5 Nano FIPS			X
YubiKey 5C FIPS			X
YubiKey 5C Nano FIPS			Х
YubiKey 5 NFC FIPS			Х
YubiKey 5C NFC FIPS			Х
YubiKey 5Ci FIPS			Х

#### Security Key - Enterprise Edition

These are black FIDO-only NFC/C NFC, NFC/C NFC Enterprise Edition YubiKeys with serial numbers.

#### **YubiKey Bio Series**

- YubiKey Bio Series FIDO Edition (YubiKey Bio FIDO Edition and YubiKey C Bio FIDO Edition) is an optional add-on to any Subscription tier.
- YubiKey Bio Series Multi-protocol Edition (YubiKey Bio Multi-protocol Edition and YubiKey C Bio -

Multi-protocol Edition) is an optional add-on to the Advanced and Compliance Subscription tiers.

# 4.2 Plans and Features

Yubico Enterprise Plans lets you optimize features and purchasing model for your organization.

Consider the following when selecting a plan:

- What are the security requirements for your organization, for example regarding compliance and the type of systems and services you need to secure?
- What authentication capabilities, authentication protocols, and certification options will you be needing?
- Which services will you need to be able to efficiently deploy YubiKeys in your organization?
- Will you be deploying YubiKeys to internal employees only, or will you extend this to your partners and/or customers?
- How quickly are you hoping to complete the roll-out is there a compelling event that requires additional services?

Yubico offers the YubiKey as a Service (YaaS) plans *Enterprise Plus* and *Enterprise Standard* with included features and benefits as described in the following.

#### **Enterprise Plus Plan**

- **Replacement licenses** up to 25% each year included for the term period, for example 75% replacement users spread over 3 years.
- Backup licenses 25% discount per backup license on price per user.
- Bulk customizations 2 bulk programming events/year included.
- Yubico Enrollment Suite with FIDO Pre-reg included.
- **Professional Services** includes a credit of 5% of purchase price, can be applied to any Professional Services packages.
- YubiEnterprise Services all services included.

#### **Enterprise Standard Plan**

- Replacement licenses purchased à la carte at the time of the purchase and added to the monthly contract.
- **Backup licenses** 10% discount per backup licenses on price per user.
- Bulk customizations \$1 per user per year and 1 bulk programming event/year included.
- Yubico Enrollment Suite with FIDO Pre-reg not available.
- **Professional Services** à la carte pricing.
- YubiEnterprise services YubiEnterprise Delivery service only.

#### All plans

- Flexibility to choose YubiKey models (form factors).
- Discounted backup licenses to secure your backup authentication and enable easy self-service account recovery
- Extended warranty, covers the initial term of the subscription plus the first renewal.
- Priority Technical Support 24x7x365.
- Dedicated Customer Success Manager.

- Security Key Enterprise Edition.
- YubiKey Bio included in Compliance, optional add-on to Base and Advanced tiers.

#### 4.2.1 Additional Benefits

The following lists additional benefits that are part of the Enterprise Plans.

#### **Customizations.**

YubiKeys can be customized, for example pre-programmed to meet specific needs. The Enterprise Plus includes two bulk programming orders per year, and the standard plan includes one where you can order multiple YubiKeys pre-programmed per your organizations' requirements.

#### **Yubico Enrollment Suite**

The Yubico Enrollment Suite offering, part of the Enterprise Plus plan, includes the following:

- *FIDO Pre-reg* order pre-registered YubiKeys and have them shipped directly to end users, ready to be used for authentication.
- *YubiEnroll* lets organizations' own IT admins pre-enroll YubiKeys themselves and deliver the YubiKeys to end users, ready to be used for authentication.

#### YubiEnterprise Delivery

Includes distribution logistics management for automated ordering and delivery of YubiKeys to your end users or office locations. Using the YubiEnterprise Delivery service you can ship YubiKeys to 175 countries and 24 territories around the world. For destinations and shipping rates, see *Destinations and Quantities*.

#### YubiEnterprise Services Console

Use the intuitive YubiEnterprise Console web user interface to manage your YubiEnterprise services. You can check your purchase orders and inventory, create and monitor shipment requests, and manage your customizations.

#### **Support Services**

All plans include a dedicated *Customer Success Manager* and Priority Technical 24x7x365 Support for all Severity 1 and Severity 2 issues. *Professional Services* are offered to build your solution and help deploy YubiKeys in your organization (5% of purchase price for Plus plan, à la carte pricing for Standard plan).

#### **Co-Terming**

Yubico supports co-terming for YubiEnterprise Services, allowing organizations to add users and services at any time during the term of the subscription. An initial subscription must be present to start the co-term program. The added users and/or services will have the same term end date as the original subscription.

# 4.3 Subscriptions

A *subscription* combines at least one product tier (Base - Advanced - Compliance) and a plan (Plus or Standard). The product tiers enable a subset of YubiKeys, for example 5-series from which you can choose any key in that or a lesser tier.

Product tiers and plans can be combined as follows:

- Base tier with Plus plan
- Base tier with Standard plan
- Advanced tier with Plus plan
- Advanced tier with Standard plan
- Compliance tier with Plus plan

#### • Compliance tier with Standard plan

All subscription plans include Replacement and Backup YubiKey licenses. For more information, see Licenses.

The subscription automatically renews for original subscription term length 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. For detailed information, see Yubico Terms & Conditions.

#### 4.3.1 Licenses

A *license* is an entitlement which allows an end user to use a YubiKey for business purposes for the organization that purchased the subscription. With licenses you can select the desired YubiKey model for your different end users as the need arises for your organization.

A subscription contains a certain number of YubiKey licenses that are charged at a fixed price per license and end user.

In general, licenses are of the following type:

- **Primary** refers to the number of *active (primary) users*. A subscription with 500 users will have 500 primary licenses where each of the 500 users are entitled to use a YubiKey of their choice..
- **Replacement** granted to a *new user*. For example, a new hire replacing an employee who left the organization. The employee that left is allowed to keep their YubiKey and continue using it for personal use. The new employee takes over the primary license and is granted their own YubiKey via the Replacement license.
- **Backup** granted to a *primary user needing 2 or more* YubiKeys. It is a separate license because Yubico provides either a 10% or 25% discount when 2 or more keys are supplied to the same user. A backup license also applies to replacement YubiKeys in a situation where an existing employee leaves and takes their 2 keys with them, and the new employee requires 2 new YubiKeys.

For more information on license usage, see *Examples*.

## 4.3.2 Examples

With the Enterprise Plus and Enterprise Standard subscription plans, you get access to the YubiEnterprise Services Console web user interface. Your product purchases become available as *inventories* ("buckets") on your Dashboard in the Console, from where you can conveniently create shipment requests to deliver the YubiKeys to your end users.

The following provides an example of a purchasing scenario. The example explains the display of subscriptions and associated inventory in the Console user interface, and how to use the different product inventories when distributing YubiKey licenses to your end users.

#### Purchasing scenario

You want to deploy YubiKeys to 1000 end users in your organization. 600 of your users need multi-protocol security keys. For the other 400 users, FIDO-only security keys are sufficient. You want all of your users to have two YubiKeys in case one is lost. This means you need 2000 YubiKeys in total.

You purchase an *Enterprise Plus* subscription plan with the following:

• For the 600 users that need multi-protocol security keys, you purchase 1200 (two per user) YubiKey licenses from the *Advanced Plus Primary* tier. When ordering YubiKeys for these users, you can choose between the key models (form factors) available in the Advanced tier. This is what this inventory looks like in the Console:

#### Your subscriptions

otal licenses ava	ilable						
100% remaining	PRIMARY 1200 / 1200 avai	lable					
orm factors availa	able	_	_	_			_
0	ø	о О	• •	• • [11]			0
Security Key C NFC by Yubico (Black)	Security Key C NFC by Yubico -	Security Key NFC by Yubico (Black)	Security Key NFC by Yubico - Enterprise	YubiKey 5 NFC	YubiKey 5 Nano	YubiKey 5C	YubiKey 5C NF

• For the 400 users that need FIDO-only security keys, you purchase 800 (two per user) YubiKey licenses from the *Base Plus Primary* tier. When ordering YubiKeys for these users, you can choose between the key models (form factors) available in the Base tier. This is what this inventory looks like in the Console:

	ses available			
100% remainin	PRIMARY 800 / 800 a	vailable		
orm factor	s available	•	•	٥
	Ψ	- <b>T</b>	141	

Since you have an Enterprise Plus subscription plan, you are entitled to annually upgrade 25% of the licenses in each tier as Replacement inventory, for example to cover for employee turnover or lost YubiKeys.

In this scenario, 300 Advanced Plus Primary Replacement licenses, and 200 Base Plus Primary Replacement licenses

are included in the per user price and can be deployed when events occur typically some employees leave and some new employees join, but also in cases like lost or stolen keys.

Your inventory now looks like this in the Console:

```
Your subscriptions
```

Total licenses ava	ilable							
100% remaining	PRIMARY 1200 / 1200 availa	able	100% remaining	REPLACEMENT	e			
Form factors avail	able							
0	•	• •	•	• •			•	Π
Security Key C NFC by Yubico (Black)	Security Key C NFC by Yubico - Enterprise Edition	Security Key NFC by Yubico (Black)	Security Key NFC by Yubico - Enterprise Edition	YubiKey 5 NFC	YubiKey 5 Nano	YubiKey 5C	YubiKey 5C NFC	YubiKey 5
Treate shipment re Base Plus	equest >	ISCRIPTION						
Treate shipment re Base Plus Total licenses ava	equest > tier PRIMARY SUB	ISCRIPTION						
Base Plus Total licenses ava	tier PRIMARY SUB ilable PRIMARY 800 / 800 available	e	100% remaining	replacement 200 / 200 availabl	e			
Base Plus Total licenses ava	equest > tier PRIMARY SUB ilable PRIMARY 800 / 800 available	e	100% remaining	REPLACEMENT 200 / 200 availabl	e			
Ereate shipment re Base Plus Total licenses ava remaining	equest > tier PRIMARY SUB ilable PRIMARY 800 / 800 available able	e	100% remaining	REPLACEMENT 200 / 200 availabl	e	•		

With the Enterprise Plus subscription plan, you are entitled to a 25% discount per Backup license price per user. If you take advantage of this you would typically provide a backup key to 100% of your users, but you can also do a smaller subset.

These inventories look like this in the Console:

Advanced	Plus tier BAC	KUP SUBSCRIPTION						
Total licenses avai	lable							
100% remaining	PRIMARY <b>75 / 75</b> available							
Form factors availa	ble							
•	•		о  Щ				0	
Security Key C NFC by Yubico (Black)	Security Key C NFC by Yubico - Enterprise Edition	Security Key NFC by Yubico (Black)	Security Key NFC by Yubico - Enterprise Edition	YubiKey 5 NFC	YubiKey 5 Nano	YubiKey 5C	YubiKey 5C NFC	YubiKey 5C Na
Create shipment rec	tier BACKUP SUB	SCRIPTION						
Total licenses avai	lable							
100% remaining	PRIMARY 25 / 25 available							
Form factors availa	ble							
•		•		• • •		• • •		
Security Key C NFC by	Yubico (Black) Secu	ity Key C NFC by Yubic	o - Enterprise Edition	Security Key NFC by Y	ubico (Black) Securit	y Key NFC by Yubico -	Enterprise Edition	

Create shipment request >

With an *Enterprise Standard* subscription plan, you would have purchased the Replacement licenses with à la carte pricing. Backup licenses would have been available at 10% discount on the à la carte price, per backup YubiKey user license.

With a *Perpetual (non-subscription)* purchase, you would have purchased 2000 YubiKey models specified at purchase time. Replacement and Backup YubiKey licenses would be charged at à la carte pricing at the time of purchase.

#### License usage

When creating shipment requests in the YubiEnterprise Console, you will be able to select from all your available inventory. Based on the previous purchasing example, available options when creating a shipment request in the Console will look like this:

#### Product selection

ADV +	Advanced - Plus - Primary (i) You have up to 1200 licenses available	~
ADV +	Advanced - Plus - Primary - Replacement i You have up to 300 licenses available	*
ADV +	Advanced - Plus - Backup i You have up to 75 licenses available	~
BASE +	Base - Plus - Primary (i) You have up to 800 licenses available	~
BASE +	Base - Plus - Primary - Replacement i You have up to 200 licenses available	~
BASE +	Base - Plus - Backup (i) You have up to 25 licenses available	~

Next: Confirm

Cancel

In this example, the recommended license usage is the following:

- Advanced Plus Primary: Choose this inventory for the *initial deployment* of YubiKeys to the 600 users that need YubiKeys (two per user) from the Advanced tier.
- Advanced Plus Primary Replacement: Choose this inventory to replace lost YubiKeys, provide YubiKeys to new employees, or provide an upgraded YubiKey to users that need YubiKeys from the Advanced tier.
- Advanced Plus Backup: Choose this inventory to provide a backup YubiKey for self-service account recovery for users that need YubiKeys from the Advanced tier.
- **Base Plus Primary:** Choose this inventory for the *initial deployment* of YubiKeys to the 400 users that need YubiKeys (two per user) from the Base tier.
- **Base Plus Primary Replacement:** Choose this inventory to replace lost YubiKeys, provide YubiKeys to new employees, or provide an upgraded YubiKey to users that need YubiKeys from the Base tier.
- **Base Plus Backup:** Choose this inventory to provide a backup YubiKey for self-service account recovery for users that need YubiKeys from the Base tier.

**Note:** If you have inventory from a Subscription 1.0 purchase (legacy), you might also see inventory of type Initial and Buffer.

# 4.4 Accessories

Yubico products also include accessories, for example lanyards, keyports and key covers that can be shipped to your end users together with YubiKeys. Accessories can currently only be ordered through the Perpetual (non-subscription) purchase. However, they can be paired with a subscription license. For example, a Primary Plus primary user may be granted a YubiKey 5 NFC YubiKey and a YubiKey cover which can be added to the same shipment.

For more information, see Perpetual Purchasing.

# 4.5 Perpetual Purchasing

While the Enterprise and Standard plans offer the most comprehensive and best value choice pricing over 3 years with additional entitlements included, you also have the option to outright purchase YubiKeys using the non-subscription *Perpetual* option.

Purchasing a set number of specified models of key on a perpetual basis assumes that you know exactly how many end users you will have, as well as how many and what kinds of keys those end users will need. It also assumes that you have accurately estimated your employee turnover rate, and the number of end users who will lose their keys.

The following service availability applies for Perpetual purchasing:

- YubiKeys form factors specified at purchase time.
- Replacement YubiKey licenses only à la carte pricing.
- Backup YubiKey licenses only à la carte pricing.
- YubiEnterprise Services only YubiEnterprise Delivery.
- YubiEnterprise Console only with YubiEnterprise Delivery services.
- Professional Services only à la carte pricing (no included 5% credit).
- **Priority Technical Support** basic, no default SLA. Priority support pricing à la carte (\$15,000 list price per year).
- Bulk programming events only à la carte pricing (the greater of \$10,000 or \$5 per YubiKey).

Inventory for products (YubiKeys and accessories) purchased through the Perpetual option is displayed under **Available physical products** on the Dashboard in the YubiEnterprise Console. From here you can create shipment requests for YubiKeys (and accessories).

#### Available physical products



# 4.6 Purchasing through Resellers

The entity through which a purchase order is submitted is referred to as a *channel partner*. This can be *Yubico itself* (*direct sale*), or a *reseller* or *distributor* doing business with Yubico.

The *YubiEnterprise Console Dashboard* shows your total inventory of any given product, combining quantities purchased from all sources, both directly from Yubico and indirectly through resellers.

Inventory is sorted according to the source from which it was purchased. When creating a shipment request, you can choose from inventory purchased directly from Yubico, or through a distributor/reseller associated with your organization. Whether purchased directly or through a distributor/reseller, you have access to the same services, for example the ability to automatically fulfill licenses with YubiKeys through the YubiEnterprise Console or the API.

To find out what is in which inventory, check your purchase orders. The reseller name and ID can be viewed in the *Purchase order detail page*.

# 4.7 Purchasing Workflow

The 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. The start date of the subscription determines when the annual replenishment of the Replacement inventory takes place. The PO must include an email address for the customer, and distributor or reseller where applicable.

As soon as a PO is accepted, it is entered into the YubiEnterprise Delivery system. You can then access the YubiEnterprise Console to review quantities of YubiKeys purchased, and create shipment requests for delivery of YubiKeys to your end users.

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

## **COSTS OF SHIPPING AND TAXES**

For up-to-date shipment pricing to supported destinations, see the YubiEnterprise Delivery pricing table. The table lists destinatioun countries and key shipment limits for each country. For bulk shipments to single-key countries, contact YubiEnterprise Delivery Support.

### 5.1 Delivery Services Credits

YubiEnterprise Delivery service customers will be invoiced for Delivery Services Credits to cover shipping and taxes after the fact.

**Note:** Customers with credits remaining after having paid in advance for them will continue to be able to draw them down until those credits are exhausted.

YubiEnterprise Delivery Shipping/Services Credits are shipping fees, a Shipping Credits SKU that is invoiced after shipment. For each shipment request, YubiEnterprise Delivery will automatically deduct the appropriate shipping fees 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.

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.

## 5.2 Shipping

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

- The weight/size of the package. Depends on 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 as these packages are heavier and more voluminous.
- Destination.
- Type of shipment, expedited or normal.

### 5.2.1 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 (see *Delivery Policies*).

### 5.2.2 Shipping Accessories

Accessories include for example lanyards, keyports and key covers that can be shipped with YubiKeys. If a shipment of YubiKeys also contains accessories, only the shipping fees for the YubiKeys will be charged. Shipping rates are charged in accordance with the YubiEnterprise Delivery pricing table. If the shipment only contains accessories, shipping fees for the corresponding quantity of YubiKeys will be applied.

### 5.3 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.

Note: Sales tax/VAT on product is not calculated until the shipment has been shipped.

#### 5.3.1 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.

## 5.4 Exemptions

#### 5.4.1 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.

### 5.4.2 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.

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

#### CHAPTER

## **DELIVERY POLICIES**

This section explains the Yubico delivery policies including product quantities, shipping destinations, and delivery types.

# 6.1 Shipment Fulfillment Centers

Yubico deliveries are generally shipped from the following fulfillment centers when YubiEnterprise Delivery is used:

- Shipments to EU countries, the UK and Asia: Yubico's facility in Stockholm, Sweden.
- Shipments to US, Canada and the Americas: Yubico's facility in Santa Clara, California.

Each organization has business rules applying to delivery policies, some unique to the particular organization. These rules specify which combinations of parameters are allowed for the organization and are therefore fundamental to determining whether a shipment request can succeed.

# 6.2 Destinations and Quantities

Using the YubiEnterprise Delivery service you can ship YubiKeys to many destinations around the world. Each destination country has a maximum number of YubiKeys per shipment request. For some countries (US and the EU) you can include up to 500 keys per shipment request. For other countries you can only include one (1) YubiKey per shipment request due to specific custom duty regulations. Yubico additionally offers a "White Glove" delivery service to ship multiple keys to countries with custom duty regulations that require import.

Available quantity options for different countries are listed below. Shipments are delivered using either *Normal* or *Expedited* delivery depending on destination.

For more information about shipping and pricing, see the YubiEnterprise Delivery pricing table.

**Note:** New countries that have recently been added to the enabled-by-default list of available countries might not appear for your organization when creating a shipment request. Contact Yubico Support if you are missing a desired shipping destination, or if you want to disable an existing shipping destination for your organization.

### 6.2.1 Multi-Key Destinations

The following list reflects countries to which you can ship *up to 500 YubiKeys*. The countries are enabled by default in the YubiEnterprise Console when an organization is added, and are automatically available when creating shipment requests.

#### Multi-key destinations enabled by default, up to 500 keys per shipment request

- 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
- United Kingdom of Great Britain and Northern Ireland
- United States of America & U.S. Territories

```
Note: U.S. territories include: American Samoa (AS), Guam (GU), Northern Mariana Islands (MP), Marshall Islands (MH), Micronesia (FM), Palau (PW), Puerto Rico (PR), U.S. Virgin Islands (VI).
```

#### 6.2.2 Single-Key Destinations

The following list reflects countries to which you can ship *one (1) YubiKey*. Some countries in the list are enabled by default for all organizations, and are automatically available when creating shipment requests. Other countries can be *enabled upon request* by contacting Yubico Support.

#### Single-key destinations - enabled by default or upon request, one key per shipment request

- Albania
- Algeria (enabled on request)
- Andorra (enabled on request)
- Angola (enabled on request)
- Anguilla (enabled on request)
- Antigua and Barbuda (enabled on request)
- Argentina
- Armenia (enabled on request)
- Aruba (enabled on request)
- Australia
- Azerbaijan (enabled on request)
- Bahamas (enabled on request)
- Bahrain (enabled on request)
- Bangladesh (enabled on request)
- Barbados (enabled on request)
- Belize (enabled on request)
- Benin (enabled on request)
- Bermuda (enabled on request)
- Bhutan (enabled on request)
- Bolivia (enabled on request)
- Bonaire, Sint Eustatius and Saba (enabled on request)
- · Bosnia and Herzegovina
- Botswana (enabled on request)
- Brazil
- Brunei Darussalam (enabled on request)

- Burkina Faso (enabled on request)
- Burundi (enabled on request)
- Cabo Verde (enabled on request)
- Cambodia (enabled on request)
- Cameroon (enabled on request)
- Cayman Islands (enabled on request)
- Chad (enabled on request)
- Chile
- China (enabled on request)
- Columbia
- Congo (the Democratic Republic of the) (enabled on request)
- Congo (enabled on request)
- Cook Island (enabled on request)
- Costa Rica
- Cote d'Ivoire (*enabled on request*)
- Curacao (enabled on request)
- Djibouti (enabled on request)
- Dominica (enabled on request)
- Dominican Republic
- Ecuador (enabled on request)
- Egypt
- El Salvador (enabled on request)
- Eritrea (enabled on request)
- Eswatini (enabled on request)
- Ethiopia (enabled on request)
- Faroe Islands (enabled on request)
- Fiji (enabled on request)
- French Guiana (enabled on request)
- French Polynesia (enabled on request)
- Gabon (enabled on request)
- Gambia (enabled on request)
- Georgia (enabled on request)
- Ghana (enabled on request)
- Gibraltar (enabled on request)
- Greenland (enabled on request)
- Grenada (enabled on request)

- Guadeloupe (enabled on request)
- Guatemala
- Guernsey
- Guinea (enabled on request)
- Guyana (enabled on request)
- Haiti (enabled on request)
- Holy See (enabled on request)
- Honduras (enabled on request)
- Hong Kong
- India
- Indonesia
- Iraq (enabled on request)
- Isle of Man
- Israel
- Jamaica
- Japan
- Jersey
- Jordan (enabled on request)
- Kazakhstan (enabled on request)
- Kenya (enabled on request)
- Korea (the Republic of)
- Kuwait (enabled on request)
- Kyrgyztan (enabled on request)
- Lao People's Democratic Republic (enabled on request)
- Lebanon (enabled on request)
- Lesotho (enabled on request)
- Liberia (enabled on request)
- Macao (enabled on request)
- Madagascar (enabled on request)
- Malawi (enabled on request)
- Malaysia
- Maldives (enabled on request)
- Mali (enabled on request)
- Martinique (enabled on request)
- Mauritania (enabled on request)
- Mauritius (enabled on request)

- Mexico
- Moldova (enabled on request)
- Monaco (enabled on request)
- Mongolia (enabled on request)
- Montenegro
- Montserrat (enabled on request)
- Morocco (enabled on request)
- Mozambique (enabled on request)
- Namibia (enabled on request)
- Nepal (enabled on request)
- New Caledonia (enabled on request)
- New Zealand
- Nicaragua (enabled on request)
- Niger (enabled on request)
- Nigeria (enabled on request)
- Oman (enabled on request)
- Pakistan
- Palestine, State of (enabled on request)
- Panama
- Papua New Guinea (enabled on request)
- Paraguay (enabled on request)
- Peru
- Philippines
- Qatar (enabled on request)
- Republic of Kosovo (enabled on request)
- Republic of North Macedonia (enabled on request)
- Reunion (enabled on request)
- Rwanda (enabled on request)
- Saint Kitts and Nevis (enabled on request)
- Saint Lucia (enabled on request)
- Saint Martin (enabled on request)
- Samoa (enabled on request)
- San Marino (enabled on request)
- Saudi Arabia
- Senegal (enabled on request)
- Serbia

- Seychelles (enabled on request)
- Singapore
- Sint Maarten (enabled on request)
- South Africa
- Sri Lanka (enabled on request)
- Suriname (enabled on request)
- Taiwan
- Tanzania, United Republic of (enabled on request)
- Thailand
- Timor-Leste (enabled on request)
- Togo (enabled on request)
- Tonga (enabled on request)
- Trinidad and Tobago (enabled on request)
- Tunisia (enabled on request)
- Turkey
- Turks and Caicos Islands (enabled on request)
- Uganda (enabled on request)
- United Arab Emirates (UAE)
- Uruguay (enabled on request)
- Uzbekistan (enabled on request)
- Vanuatu (enabled on request)
- Vietnam (enabled on request)
- Virgin Islands (British) (enabled on request)
- Zambia (enabled on request)
- Zimbabwe (enabled on request)

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

#### CHAPTER

### SEVEN

# DASHBOARD

The Dashboard in the YubiEnterprise Console provides an overview of available inventory, and recent shipments and purchase orders. The menu to the left provides access to different functions. What you see depends on your *user role* when logged in to the Console.

There are three categories of Console users: Customers, Distributors, and Resellers. Each of these have their own view providing access to functions that are specific for the type of user role. Depending on your user roles, you can have multiple view options and you can switch between them using the view selector in the upper part of the left menu of the Console.

### : ACME Inc

VIEWING AS DISTRIBUTOR	~
Reseller	
Customer	

Dashboard views available to a user with all roles

The following sections describes the functionality available through the different views.

## 7.1 Customer View

All users with either the Console Owner, Console Admin, or Console Auditor role can access the Customer view of the Dashboard. For more information, see *Roles and Permissions*.

The Dashboard provides an overview of your aggregated inventory, recent shipments and purchase orders (POs). If you are a distributor or a reseller, the information you see on the Dashboard using the Customer view applies to purchases for your own organization.

From the Dashboard you can do the following:

- Get an overview of your product inventory, aggregated from different resellers if applicable.
- View available customizations that can be applied to an inventory where applicable.
- View recent shipments and POs.
- Request shipments from the inventory cards.



The image below shows an example of a customer's view of the Dashboard.

The Dashboard displays *cards* for each of the different subscription plans/tiers within the primary, backup and replacement categories. If your organization uses customized products, the availability of these are also displayed.

Each card shows the licenses available and the total licenses including the amount of products consumed and remaining. In addition, the supported form factors for each plan/tier/category are displayed.

**Note:** You can create shipment requests directly from each card on the Dashboard. To help select the right inventory, the create shipment request option is a *button* for *primary* subscription inventories, and a *link* for *backup* subscription inventories.

#### 7.1.1 Notifications

Notifications provide an overview of activities in the system, as well as important information regarding for example failed shipments requiring user interaction. The Notifications (bell) icon in the top menu indicates the number of unread notifications if any. For more information, see *Viewing Notifications*.

#### 7.1.2 Shippable Inventory

In some cases, shippable quantities for a product might be allocated for example due to limited availability. If there is an inventory allocation set for a specific product you will see the availability in the Create shipment request form when requesting shipments. For more information, see *Shippable Inventory*.

### 7.1.3 Customizations

The Dashboard displays available customizations that can be applied to an inventory. YubiKeys can be customized, for example pre-registered or pre-programmed to meet specific needs for an organization. For more information, see *Customizations*.

### 7.1.4 Recent Shipments

Only recent shipments are displayed on the Dashboard. To view all shipments and their details, click **Shipments > All shipments** in the left menu. For more information, see *Viewing Shipments*.

### 7.1.5 Recent Purchase Orders (POs)

Only recent POs are shown on the Dashboard. To view all POs and their details, click **View all purchase orders** in the left menu. For more information, see *Viewing Purchase Orders*.

## 7.2 Distributor View

Distributors are organizations that sell Yubico products to resellers that in turn sell the products to end customers. The *Distributor role* provides access to the **Distributor** view in the Console.

Distributor Comp     VIEWING AS DISTRIBUTOR	«	<b>Resellers</b> Search			
💾 Resellers		III Columns \Xi	Filters 📕 Density C Refresh data	Rows per page: 25 👻 1-	16 of 16 < >
Purchase orders		Reseller $\downarrow$	Customer	Purchase orders	
រស៊ូវ Settings	<	Reseller 1	Customer Company 1	1	
		Reseller 2	Customer Company 2	1	
		Reseller 3	Customer Company 3	1	
		Reseller 4	Customer Company 4	1	
		Reseller 5	Customer Company 5	1	

The Distributor view lets you see what was sold to end customers, monitor their inventories, and provide access to purchase order information for your resellers.

### 7.2.1 Viewing Inventories

The **Resellers** page provides an overview of your associated resellers. To view the inventory for a specific reseller customer, select **Resellers** in the left menu and click on a **Customer** link in the list.



This displays the end customer Dashboard showing the inventory that was sold by the distributor and the associated reseller to that end customer. The dashboard view is an aggregation of how much of each product was purchased, and how much inventory is available for shipping. Inventory sold to this end customer by other distributors or resellers is not shown.

The end customer dashboard view displays the following information:

- Subscription/non-subscription inventory
- · Perpetual/physical product inventory
- The number of each product purchased
- The number of each product remaining to be redeemed/shipped
- For Advanced/Compliance tiers, the models that the end customer can order
- The most recent purchase orders

### 7.2.2 Viewing Purchase Orders

The **Purchase orders** page provides a list of purchase orders and associated resellers and their end customers. To see purchase order details for a specific customer, click the desired **Purchase order** link in the list of resellers.

: Distributor Comp VIEWING AS DISTRIBUTOR ~	«	Purchase orders Search				
🖽 Resellers		III <sup>●</sup> Columns 〒 Filters ■ Density C	C Refresh data		Rows per page:	5 👻 1-5 of 19
Purchase orders		Purchase order $~\psi$	Order date	Reseller	Customer	YE Delivery ?
រដ្ឋ	<	PO number 1	Aug 23, 2023, 10:14 PM GMT+2	Reseller 1	Customer 1	× NO
	PO number 2	Aug 15, 2023, 06:49 PM GMT+2	Reseller 2	Customer 2	✓ YES	
		PO number 3	Oct 3, 2023, 06:12 PM GMT+2	Reseller 3	Customer 3	YES
		PO number 4	Aug 1, 2023, 11:29 PM GMT+2	Reseller 4	Customer 4	YES
		PO number 5	Sep 22, 2023, 10:51 PM GMT+2	Reseller 5	Customer 5	✓ YES

For more information on purchase order details, see Viewing PO Details.

**Note:** If a customer is shipping custom keys, for example pre-programmed or pre-registered keys, the Customization ID and Customization label (user-friendly name) are displayed on the PO. The columns are only visible if a PO contains items from a customized inventory. For more information, see *Customizations*.

### 7.2.3 Managing Views

From the **Settings** page you can manage view settings for your resellers, for example allowing them to view purchase orders. For more information, see *Distributor Role*.

# 7.3 Reseller View

Resellers are organizations that sell Yubico products to end customers. The *Reseller role* provides access to the **Reseller** view in the Console.

Keseller Comp	은 Customers / 은 All customers						
VIEWING AS RESELLER 💙	Customers						
😩 Customers	Search						
Purchase orders	🚻 Columns \Xi Filters 🗮 Density C Refresh data	Rows per page: 15 👻	1–9 of 9				
හි Settings <	Customer	Purchase orders					
	Customer 1	1					
	Customer 2	1					
	Customer 3 I	1					

The Reseller view lets you see what was sold to your customers, monitor their inventories, and provide access to purchase order information for your end customers.

### 7.3.1 Viewing Inventories

The **Customers** page provides an overview of your customers. To view the inventory for a specific customer, select **Customers** in the left menu and click on a **Customer** link in the list.

This displays the end customer Dashboard showing the inventory that was sold by you to that end customer. The dashboard view is an aggregation of how much of each product was purchased, and how much inventory is available for shipping. Inventory sold to this end customer by other distributors or resellers is not shown.

The end customer dashboard view displays the following information:

- Subscription/non-subscription inventory
- Perpetual/physical product inventory
- The number of each product purchased
- The number of each product remaining to be redeemed/shipped
- For Advanced/Compliance tiers, the models that the end customer can order
- The most recent purchase orders

#### 7.3.2 Viewing Purchase Orders

The **Purchase orders** page shows a list of purchase orders and associated customers, and distributors if any. To see purchase order details for a specific customer, click the desired **Purchase order** link in the list.

For more information on purchase order details, see Viewing PO Details.

**Note:** If a customer is shipping custom keys, for example pre-programmed or pre-registered keys, the Customization ID and Customization label (user-friendly name) are displayed on the PO. The columns are only visible if a PO contains items from a customized inventory. For more information, see *Customizations*.

### 7.3.3 Managing Views

From the **Settings** page you can manage view settings for your customers, for example allowing them to view purchase orders. For more information, see *Reseller Role*.

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

#### CHAPTER

### EIGHT

## **PURCHASE ORDERS**

The following describes how to view purchase orders (POs) that have been submitted for an organization. Through different *views* you can view POs both as a customer for your own organization, as well as a distributor and reseller for the organizations to which you are selling.

**Note:** POs are generated by contacting your Yubico sales representative or your channel partner, not from the Yubi-Enterprise Delivery Console.

## 8.1 Viewing Purchase Orders

To view purchase orders for your organization, click **Purchase orders** in the left menu to open the Purchase orders page. To locate a specific purchase order, use the search bar at the top or click **Filters** to filter the list of purchase orders by one or more fields. You can also sort on all the column headings using different criteria.

E AF Corp	«	Purchase orders					
✿ Dashboard		🚻 Columns \Xi Filters 🔳 Dens	ity C Refresh data			Rows per page: 15 👻	1-3 of 3 < >
🕞 Shipments	<	Order date $\ \psi$	Purchase order number	Reseller	Contact	Status	YE Delivery ?
Customizations		Jun 13, 2024, 04:09 PM GMT+2	99887712	AF Reseller	Firstname Lastname	Available for Shipment	✓ YES
		May 17, 2024, 11:06 AM GMT+2	20304052		Firstname Lastname	Available for Shipment	✓ YES
Purchase orders		Apr 24, 2024, 02:05 PM GMT+2	N/A		Firstname Lastname	Available for Shipment	✓ YES
😥 Settings	<						

The **Purchase orders** page provides the following information:

- Order date Date on which the PO was received by Yubico.
- Purchase order number The unique number of the PO.
- Reseller Name of the reseller, if reseller was involved in the purchase.
- Contact Name of the contact for the PO, if available.
- Status The status of the PO, for example "Available for Shipment".
- YE Delivery Indicates whether inventory can be shipped using YubiEnterprise Delivery.

View the subscription tiers and number of licenses for products you currently have in inventory by clicking on the PO number to display the PO detail view (see *Viewing PO Details*). For more information about subscription tiers, see *Modes of Purchase*.

### 8.1.1 Modifying the Table View

You can modify the appearance of the table and the data displayed using the controls at the top of the page.

- **Columns** Determine which columns will be shown in the table. Click **Columns** and select or deselect the desired columns. Click **Reset** to return to a previous selection. You can also drag and drop the columns to place them in a desired order on the page.
- Filters Filter data to be displayed. Click Filters, select an **Operator** and a **Value**, and click **Apply**. Available filter fields depend on the data in the table of the Console page you are working with. Click **Clear all** to remove the selected filters.
- Density Determine the space between rows in the table, for example "Compact".

### 8.1.2 Searching Purchase Orders

The **Search** field at the top of the **Purchase orders** page lets you locate any element in a purchase order, even partial words or numbers. Entering search parameters instantly filters the list of purchase orders based on those parameters. Change or remove the search parameters in the **Search** field to reset the search.

To locate a specific purchase order, you can perform advanced searches by combining search with **Filters** to drill down further into the list of purchase orders.

Example: To locate a purchase order from a reseller named "Resell Inc." where the contact is "Jane", first enter "Jane" in the **Search** field to filter out purchase orders with this name. Then apply a filter where **Reseller name** contains "Resell" and click **Apply**.

To return to viewing the list of search results after clicking a list item, click **Back**. The list remains available even after refreshing the browser window while on a page of search results. To remove all filters, click **Clear all**.

## 8.2 Viewing PO Details

To view the details for a PO, click the desired **Purchase order** number in the **Purchase orders** page to open the **Purchase order detail** page.

The following information is displayed:

- Purchase order # and contact details for the PO.
- Order date When the order was received by Yubico.
- Reseller Name of reseller for PO (also for direct purchase from Yubico)
- Reseller ID ID of the reseller (1 for Yubico).
- **Inventory** Product inventory, for subscriptions this is expressed as the name of a *tier*. Bolded number indicates number of keys available out of the number of purchased keys within the subscription (number not bolded).
- Cost per item If the purchase was direct (not through a channel partner), the unit price per item is shown.
- **Customization ID/Customization label** Unique ID and its friendly name representing a specific type of key customization and its status. The columns are only visible if a PO contains items from a customized inventory. Customization IDs and Customization labels on POs are visible also to *distributors* and *resellers* if their associated customers are using custom keys. For more information, see *Customizations*.

**Note:** If you as a customer have purchased inventory directly from Yubico as well as from a reseller, you will be able to see both those "buckets" of inventory.

## 8.3 Purchase Order Views

Depending on your role and the selected view - Customer, Distributor or Reseller - you will see different information when looking at the **Purchase orders** page. Click the view selector in the upper part of the left menu to switch between views.

The **Customer** view shows purchase orders (POs) submitted on behalf of an organization. The **Distributor** and **Reseller** views are intended for distributor and reseller types of organizations, and show purchase orders associated with a distributor or reseller respectively. Console Owners for an organization always have access to the Customer view to be able to manage organization users.

You can have multiple roles within an organization. For example, as a Console Owner for a *distributor* type of organization you will have access to both the Customer and the Distributor views. You will then see the following information on the **Purchase orders** page:

- The **Customer** view shows information about purchase orders submitted for your own organization, for example keys you purchased for your employees.
- The **Distributor** view shows information about purchase orders submitted on behalf of your associated resellers and their end customers.

**Note:** Distributors must first allow their resellers to view PO information associated with them. Resellers must then allow their associated end customers to view their PO information. For more information, see *Roles and Permissions*.

### 8.3.1 Customer View

**Note:** Selecting the **Customer** view as an end customer you can only see POs from *indirect* sales if the reseller has granted you access to view purchase order information. You will always be able to see POs from *direct* sales (through Yubico).

The **Customer** view provides the following purchase order information:

- Order date When the order was received by Yubico.
- **Purchase order number** (PO number) Links to a *Viewing PO Details* showing what was purchased and existing inventory related to that specific purchase order. If you purchased from a reseller, unit prices are not shown.
- Reseller Name of reseller. This field is empty if you purchased directly from Yubico.
- Contact Name on the PO provided to Yubico.
- **Status** Whether available for shipping or not. As shipping requests are processed, inventory and shipping credits will be depleted.
  - Available for Shipment Indicates whether there are products available for shipment.
  - 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.
- YE Delivery Indicates whether the inventory can be shipped using YubiEnterprise Delivery.

### 8.3.2 Distributor View

Distributors are organizations that sell Yubico products to resellers that in turn sell the products to end customers. For more information about Distributor view options, see *Distributor View*.

	<b>«</b>						
Stage_Dist01		Search					
VIEWING AS DISTRIBUTOR		III Columns 〒 Filters ■ Density C	7 Refresh data			Rows per page: 5 👻	1–5 of 5 < >
💾 Resellers		Purchase order $\downarrow$	Order date	Reseller	Customer	Contact	YE Delivery 🕜
Purchase orders		Dist01-Reseller04-Cust03-noYED	Sep 22, 2023	Stage_Reseller04	Stage_Cust02	Austin Brown abrown@example.org	× NO
🔞 Settings	<	Dist01-Reseller02-Cust03-withYED	Sep 22, 2023	Stage_Reseller02	Stage_Cust03	Lani Kealakekoa Iani@buisness.com	✓ YES
		Dist01-Reseller01-Cust02-withYED	Sep 22, 2023	Stage_Reseller01	Stage_Cust02	IT Buyer someone@company.com	✓ YES
		Dist01-Reseller01-Cust01-withYED	Sep 22, 2023	Stage_Reseller01	Stage_Cust01	Pat Smith	✓ YES

Purchase order information in the **Distributor** view includes the following:

- **Purchase order number** (PO number) links to a *Viewing PO Details* showing what was purchased and existing inventory related to that specific purchase order.
- Order date When the order was received by Yubico.
- **Reseller** Name of the reseller for the PO.
- Customer Name of the end customer for which the purchased products are intended.
- Contact Name on the PO provided to Yubico.
- YE Delivery Indicates whether the inventory can be shipped using YubiEnterprise Delivery.

#### 8.3.3 Reseller View

Resellers are organizations that sell Yubico products to end customers. For more information about Reseller view options, see *Reseller View*.

<b>«</b>						
Stage_Reseller01	Search					
VIEWING AS RESELLER	🚻 Columns \Xi Filters 🗮 Density	C Refresh data			Rows per page: 15 👻	1-3 of 3 < >
😩 Customers	Purchase order $\downarrow$	Order date	Customer	Distributor	Contact	YE Delivery ?
Purchase orders	Dist01-Reseller01-Cust02-withYED	Sep 22, 2023	Stage_Cust02	Stage_Dist01	IT Buyer someone@company.com	✓ YES
ស៊្លំ Settings <	Dist01-Reseller01-Cust01-withYED	Sep 22, 2023	Stage_Cust01	Stage_Dist01	Pat Smith person@company.com	✓ YES

Purchase order information in the **Reseller** view includes the following:

- **Purchase order number** (PO number) links to a *Viewing PO Details* showing what was purchased and existing inventory related to that specific purchase order.
- Order date When the order was received by Yubico.
- Customer Name of the end customer for which the purchased products are intended.
- **Distributor** Name of the distributor through whom the reseller purchased the products. If no distributor is involved in the purchase, this field is empty.
- Contact Name on the PO provided to Yubico.
- YE Delivery Indicates whether the inventory can be shipped using YubiEnterprise Delivery.

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

#### CHAPTER

### NINE

## SHIPMENT REQUESTS

This section describes the concepts of shipment requests and processing in YubiEnterprise Delivery services. For instructions on how to work with shipment requests, see *Working with Shipments*.

You can manage shipments from your inventory of purchased products on the **All shipments** page. Even if not all your products are being shipped through YubiEnterprise Delivery, you can track shipment requests regardless of how those shipments are processed by Yubico.

	«	🕞 Shi	ipments / 🖵	All shipmen	ts					
Company Inc.		All sł	hipments							
		Sear	ch						Download CSV	Create shipment request
û Dashboard		Ш Со	lumns \Xi Filt	ers 🔳 Dens	ity C Refresh data				Rows per page: 50 👻	1-50 of 165 < 📏
🕞 Shipments	~	_	10					-		
			ID	Date $\psi$	Shipment address	Recipient	Delivery	Туре	Status	
All shipments			JQ8jK1JdHV	Apr 22,	Firstname Lastname, 48		Normal	AUTOMATED	Delivered	
Review incompletes			XYWx9KSx6	Apr 4, 2	Test, 1234 Street, Test,		Normal	MANUAL	Shipped: In transit	
Processed refunds			3Qym4UW	Apr 1, 2	Test, 1234 E Street, Ta		Normal	AUTOMATED	Address Validation Fa	iled 🧷
			PPbYjcgGF	Mar 7, 2	Firstname Lastname , 48		Normal	AUTOMATED	Delivered	
; <sup>1</sup> / <sub>b</sub> Customizations			S7kQg8XJe	Mar 4, 2	Firstname Lastname , 48		Normal	AUTOMATED	Delivered	

Shipments processed through YubiEnterprise Delivery (Console or API) are considered "Automatic", whereas the shipments created by Yubico or a channel partner at your request are considered "Manual". The **Type** column on the **All shipments** page in the Console displays the type of shipment. The **Status** column shows the *Shipment Request Status*.

In the Console, you can create shipment requests from the All shipments page, or from subscription cards on the *Dashboard*. You can create shipment requests to ship to a *single address* or to *multiple addresses*.

Developers can create shipment requests to ship to a single address using the *YubiEnterprise API*. If your organization is using pre-registered keys, you can request shipments through your *identity provider*.

## 9.1 Shipment Processing

To maintain the window during which shipment requests can be updated or cancelled, shipments 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. Processing of shipments happens once a day, and the inventory counts on the *Console Dashboard* are only updated after this step.

If an inventory for a product is empty (0), you cannot create shipment requests for that product inventory in the Console. However, because processing only happens once a day, this means that inventory can be over-requested before the processing occurs.

Say for example you have 100 remaining inventory for YubiKey 5C NFC keys. If you create a shipment request containing 75 YubiKey 5C NFC keys, you will not see a deduction in inventory until the shipment processing step occurs. This is not real-time, and if you place the order in the morning, you will still see a remaining inventory of 100 for the rest of the day. In that time, someone else in your organization could place another shipment for 50 YubiKey 5C NFC keys.

When the system eventually processes these shipments, the first one will succeed. The second one will fail due to insufficient inventory with the Console message "Error: Processing Error, contact Support". To resolve this you can contact Yubico to request more inventory, and either *update the product selection* for the shipment request, or cancel it and create a new one when there is inventory available.

If you are using an *API integration* to create shipment requests, a shipment request can be accepted even if there is no inventory for a product. This is to account for the case of products being added later when you purchased more inventory. These shipment requests will fail but can be deleted or resubmitted for processing once more inventory is obtained from Yubico. When using the API it is recommended to *verify inventory availability* before creating a shipment request to avoid insufficient inventory errors.

### 9.1.1 Time Frames

The following describes important shipment processing and delivery-related time frames:

- Shipment requests: Shipment requests can be edited or deleted until 2am PST (10am GMT), the day after they were entered. For more information, see *Editing or Deleting Shipments*.
- Address validation: Because the system validates addresses every 15 minutes, it can take up to 15 minutes to see if a shipment request has been queued for fulfillment. For more information, see *Shipment Statuses*.
- Delivery:
  - Normal (standard) shipping: Typically, shipments will take 5-7 days for delivery in North America and Europe. Delivery to other parts of the world will take longer.

Note: Shipments to India might take 6-8 weeks to deliver.

- **Expedited** (**rush**) **shipping:** Typically, shipments within North America can be delivered in 1 business day. It may take longer to deliver shipments to other parts of the world, but Yubico will leverage the fastest delivery service reasonably available.

## 9.2 Shippable Inventory

On certain occasions, shippable quantities for a product might be *allocated*, for example due to limited availability. Inventory allocation is also used for shipment of customized keys to indicate the number of pre-programmed keys available for shipment.

If there is an inventory allocation set for a specific product you will see the availability in the **Create shipment request** form when requesting shipments.

Physical	products					^
Select form	n factor(s)					
•	YubiKey 5 NFC	UP TO 25 SHIPPABLE	_	0	+	
	YubiKey 5 Nano		_	0	+	
T	YubiKey 5C Nano		_	0	+	

If there are no shippable products available, you will not be able to request shipments. The allocation is removed or updated as soon as the affected products become available.

By default, the Dashboard only displays inventory that can be shipped through *automated shipments* using YubiEnterprise delivery services. To display the actual total remaining available allocated inventory number that can be shipped using manual *and* automated shipments, switch the **Only show shippable inventory** toggle at the top right of the Dashboard to "off".

# 9.3 Address Validation

Incomplete or incorrect address information might cause validation errors. 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 with status "Address Validation Failed" in the All shipments page in the Console. These incomplete shipments must be reviewed and the proposed change accepted or rejected before the request can be processed. For more information, see *Reviewing Incompletes*.

Even if an address exists in an address directory it does not mean that the address is deliverable. "Deliverable address" is a United States Postal Service (USPS) classification for addresses to which the USPS has historically been able to deliver. YubiEnterprise Delivery's ability to deliver is based on address information being entered in the format acceptable to the relevant address validation service. The USPS-acceptable formats are described in the USPS's Postal Addressing Standards.

YubiEnterprise Delivery uses a third-party address validation service that performs a deliverability assessment for US domestic shipments. This assessment can deem an inaccurate address as "deliverable," leading to successful delivery despite the inaccuracy. For compliance reasons, the inaccurate address will not be updated in the Console or API. The deliverability assessment only applies to addresses in the US.

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 is often classified as "partially deliverable". This means that

delivery relies on local couriers familiar with their urban systems and routes to deliver to intended recipients, especially in destinations where there are no numbers in the postal addresses.

**Note:** The YubEnterprise address validation service validates that the "Region" field has the required standardized two-letter USPS region code for shipments going to the US and Canada. If the region code is missing in these cases, the shipment request will fail the address validation. For more information, see *USPS Region/State Codes*.

### 9.3.1 Recipient Information

When creating shipment requests, either a recipient first name and last name, or a company name are required. If needed you can provide both when creating a shipment request to a *commercial* address. However, because the system address validation recognizes commercial addresses, you should not provide a company name if shipping to a *residential* address as this might cause delivery issues.

Only latin characters are permitted. The reason for this is to avoid issues where carriers are not able to print address labels with non-latin characters. Accented characters (à, á, ä etc.) are permitted.

Long street names in recipient addresses can be problematic because the shipment request might fail if the contents of the recipient address fields in the shipment request exceed the maximum number of characters permitted. In cases where the shipment address is longer than what is accepted by the associated carriers, the shipment will fail validation with the status "Address Not Accepted by Carrier".

When creating a shipment request using the shipment request form in the Console, the Address line 1 (required) and Address line 2 (optional) fields are available for entering the recipient address.

The following limitations apply:

- The maximum number of characters allowed in each of the two address fields is 60.
- When shipping to *India*, the total maximum allowed characters combined between Address line 1 and Address line 2 is *120*.
- For *every other destination country*, the maximum number of allowed characters combined between the two address fields is *105*.
- In case of a long address, the system will try to split the address to fit within the character limits. Even if an address contains less than 120 characters, the shipment request might fail if the system cannot find a place in the address to split the lines between the fields.

If a shipment request fails with the status "Address Not Accepted by Carrier" an email is sent notifying the requester about the failure. The requester is asked to *edit the shipment request* to shorten or split the address, and resubmit the shipment request. For more information about character limits, see *Shipment Request Form Fields*. Address validation override cannot be applied for validation failures of type "Address Not Accepted by Carrier".

#### 9.3.2 Post Office Boxes

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

### 9.3.3 Address Validation Override

The Yubico address validation service sometimes gives an error even if an address is valid. You have the option to override the Yubico validation warnings if you are confident that an address is valid. This feature is also useful if for example you are using a different address validation service than the Yubico one.

**Important:** Be aware that if you override the Yubico address validation service and a shipment is returned or otherwise undeliverable, Yubico will not refund the product, shipping fees, applicable taxes and/or VAT associated with that shipment.

When the address validation is overridden for a shipment, its status changes from "Address validation failed" to "Accepted for Fulfillment". Shipments for which address validation have been applied are indicated in the **Address validation override** column in the **All shipments** page. Address validation can be skipped for failed shipments, or when creating shipments. For more information, see *Overriding Address Validation*.

## 9.4 Shipment Notifications

The YubiEnterprise Delivery system automatically sends notification messages related to the various *shipment statuses*, for example shipments that failed and require user interaction. Notification messages are displayed in the *Console notification center*, as well as sent by email to relevant recipients.

The following applies to notification messages:

- Notification emails are sent for shipments created both from the Console and the API, for example integrations such as *FIDO Pre-reg* (shipments of pre-registered YubiKeys).
- For shipments with statuses "Address Validation Failed" and "Address Not Accepted by Carrier", the email is sent to the shipment *requestor*, both for *single-address* shipment requests and shipment requests created through a *CSV upload* (multi-address shipment request).
- Tracking details, delivery, and delivery exception emails are only sent to the *recipient* of the shipment. If no recipient email is provided in the shipment request, then no email is sent.
- To consolidate the information in case of multiple failures, email notifications are aggregated into hourly or daily emails depending on the criticality of the notification.
- For emails that go to the shipment *requestor*, if they mark them as read in the Notification Center in the Console before the scheduled time that the email digest is sent, the notification message will not be included in the digest email.
- If a replacement shipment was created by Yubico, by default the email notifications are sent to the original shipment requestor. However, this can be changed by Yubico when creating the replacement shipment. Once the replacement shipment is created, the email address cannot be changed.

## 9.5 Country Codes

When creating shipment requests to multiple addresses (bulk shipments) or through the API, this requires entering a two-letter country code as part of the shipment address. The country codes used in the system follows the international two-letter country code standard.

To ensure you are using the correct country code, you can download a CSV file containing country codes for all the countries available for shipments for that specific organization. For more information, see *Creating the Address File*.

# 9.6 USPS Region/State Codes

Shipments going to the US and Canada require a standardized two-letter USPS region code listed below.

State (US) / Province or Territory (Canada)	Code
Alabama	AL
Alaska	AK
Alberta	AB
American Samoa	AS
Arizona	AZ
Arkansas	AR
British Columbia/Colombie-Britannique	BC
California	CA
Colorado	CO
Connecticut	CT
Delaware	DE
District of Columbia	DC
Florida	FL
Georgia	GA
Guam	GU
Hawaii	HI
Idaho	ID
Illinois	IL
Indiana	IN
Iowa	IA
Kansas	KS
Kentucky	KY
Louisiana	LA
Maine	ME
Manitoba	MB
Marshall Islands	MH
Maryland	MD
Massachusetts	MA
Michigan	MI
Micronesia	FM
Minnesota	MN
Mississippi	MS
Missouri	MO
Montana	MT
Nebraska	NE
Nevada	NV
New Brunswick/Nouveau-Brunswick	NB
New Hampshire	NH
New Jersey	NJ
New Mexico	NM
New York	NY
Newfoundland/Terre-Neuve	NF
North Carolina	NC
North Dakota	ND
Northern Mariana Islands	MP

Table 1: USPS Codes for US and Canada

continues on next page

State (US) / Province or Territory (Canada)	Code
Northwest Territories/Territoires du Nord-Ouest	NT
Nova Scotia/Nouvelle-Écosse	NS
Nunavut	NU
Ohio	OH
Oklahoma	OK
Ontario	ON
Oregon	OR
Palau	PW
Pennsylvania	PA
Prince Edward Island/Île-du-Prince-Édouard	PE
Puerto Rico	PR
Quebec/Québec	QC
Rhode Island	RI
Saskatchewan	SK
South Carolina	SC
South Dakota	SD
Tennessee	TN
Texas	TX
U.S. Virgin Islands	VI
Utah	UT
Vermont	VT
Virginia	VA
Washington	WA
West Virginia	WV
Wisconsin	WI
Wyoming	WY
Yukon	YK

Table 1 – continued from previous page

## 9.7 Status and Error Messages

During processing a shipment request goes through different statuses. You can view the status for a shipment in the **Status** column of the **All shipments** page. For information about various shipment statuses and how to solve shipment request validation issues, see *Resolving Shipment Issues*.

For explanations of shipment error messages in the API, see Shipment Error Messages.

## 9.8 Subscription Inventories

The following provides an overview of subscription inventory options that might be available for your organization, and that you will choose from when creating shipment requests. For more information about subscription plans and options, see *Modes of Purchase*.

**Note:** If you have inventory from a Subscription 1.0 purchase (legacy), you might also see inventory of type Initial and Buffer.

62		Chapt	er <sup>A</sup> 9!v <sup>3</sup> Shipment Requests Primary Replacement
	Replacement	Primary	
		Backup	Advanced Plus Backup
YubiKey 5 Ci Advanced Plus tier	Initial	Primary	Advanced Plus Primary
		Баскир	Advanced Standard Backup Replacement
		Backun	Primary Replacement
	Replacement	Primary	Advanced Standard
		Backup	Advanced Standard Backup
Advanced Standard tier (Multiprotocol key license(s)) YubiKey 5 Series including		Backup	Advanced Standard Primary
	Initial	Backup Primary	Base Plus Primary Replacement
	Keplacement	Primary	Base Plus Primary Replacement
	Domlogory	Backup	Base Plus Backup
Base Plus tier	Initial	Primary	Base Plus Primary
		Backup	Base Standard Backup Replacement
	Replacement	Primary	Base Standard Primary Replacemen
		Backup	Base Standard Backup
Base Standard tier	Initial	Primary	Base Standard Primary
Name of Tier	Initial or Replacement	Primary or Backup	Console: "Product selection", "Products" dropdown

#### Table 2: Subscription (2.0) - full list of inventory (stock) types

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

## WORKING WITH SHIPMENTS

This section provides an overview of how to work with shipment requests. For an introduction to the concept of shipment requests, see *Shipment Requests*.

## **10.1 Requesting Shipments**

You can use any of the following methods to create shipment requests:

- From the Console to ship keys to a single address, see Shipping to a Single Address.
- From the Console to ship keys to multiple addresses, see Shipping to Multiple Addresses: Bulk Shipments.
- Using the YubiEnterprise API to ship keys to a single address, see Shipments.

In some cases shipment requests are also manually created by Yubico. After creation, shipment requests are displayed in the **All shipments** page. Here you can follow shipments, see their status and update information if needed.

## **10.2 Viewing Shipments**

To view details for a shipment, go to the **Shipments** > **All shipments** page and click the shipment ID in the **ID** column. To locate a specific shipment, use the search bar at the top or click **Filters** to filter the list of shipments by one or more fields. You can also sort on all the column headings using different criteria.

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	🕞 Shipments / 🕻	🔓 All shipmer	its						
Company Inc.	All shipment	S							
	Search						Download CSV	Create shipmei	nt request
fr Dashboard	🚻 Columns \Xi F	ilters 🔳 Den	sity C Refresh data				Rows per page: 50 👻	1-50 of 165	< >
🕞 Shipments 🗸 🗸	D ID	Date $\downarrow$	Shipment address	Recipient	Delivery	Туре	Status		
All shipments	JQ8jK1JdHV	. Apr 22,	Firstname Lastname , 48		Normal	AUTOMATED	Delivered		
Review incompletes	XYWx9KSx6.	Apr 4, 2	Test, 1234 Street, Test,		Normal	MANUAL	Shipped: In transit		
Processed refunds	3Qym4UW	Apr 1, 2	Test, 1234 E Street, Ta		Normal	AUTOMATED	Address Validation Fa	ailed 🧪	
	PPbYjcgGF	Mar 7, 2	Firstname Lastname, 48		Normal	AUTOMATED	Delivered		
Customizations	S7kQg8XJe	Mar 4, 2	Firstname Lastname, 48		Normal	AUTOMATED	Delivered		

The All shipments page provides the following information:

- **ID** The ID of the shipment request. Click the ID number to view the shipment details, see *Shipment Details View*.
- Date Date on which the shipment request was made.
- Shipment address The address to which the shipment was or will be sent.
- Recipient email Email address to which information about the shipment is automatically sent.
- **Delivery** Type of delivery "Normal" or "Expedited" (rush).
- **Type** How the shipping request was created: "MANUAL" (by Yubico), "AUTOMATED" (from Console), or "AUTO FIDO PRE-REG" (FIDO Pre-reg, see *Shipping Pre-registered Keys*).
- Status The status of the shipment request, see Shipment Statuses.
- Address validation override Indicates whether *address validation override* has been applied to the shipment (YES/NO).
- Tracking The tracking number with the carrier. Clicking the tracking number takes you to the site of the carrier.
- Ship date Date on which the shipment was dispatched.
- **Delivery date** Date on which the shipment arrived at its destination.
- **Reseller** Name of the reseller, if reseller was involved in the purchase.

## 10.2.1 Modifying the Table View

You can modify the appearance of the table and the data displayed using the controls at the top of the page.

- **Columns** Determine which columns will be shown in the table. Click **Columns** and select or deselect the desired columns. Click **Reset** to return to a previous selection. You can also drag and drop the columns to place them in a desired order on the page.
- Filters Filter data to be displayed. Click Filters, select an **Operator** and a **Value**, and click **Apply**. Available filter fields depend on the data in the table of the Console page you are working with. Click **Clear all** to remove the selected filters.
- Density Determine the space between rows in the table, for example "Compact".

## **10.2.2 Searching Shipments**

The **Search** field at the top of the **All shipments** page lets you locate any element in a shipping request, even partial words or numbers. Entering search parameters instantly filters the list of shipments based on those parameters. Change or remove the search parameters in the **Search** field to reset the search.

To locate a specific shipment, you can perform advanced searches by combining search with **Filters** to drill down further into the list of shipments.

Example: You want to locate the tracking number for a shipment with status "Address Validation Failed" to your London office and a recipient with a name containing "John". In the **Search** field, enter "London". Then apply a filter where **First name** contains "John" and where **Status** is "Address Validation Failed", and click **Apply**. The tracking number is displayed in the **Tracking** column.

You can also use advanced search to find shipping information for customized YubiKeys where you know the serial number and/or the firmware version.

Example: To find out the delivery status for a shipment of a customized YubiKey with the serial number "123456789", apply a filter where **Serial number** equals "123456789", and click **Apply**.

To return to viewing the list of search results after clicking a list item, click **Go back**. The list remains available even after refreshing the browser window while on a page of search results. To remove all filters, click **Clear all**.

### **10.2.3 Shipment Request Status**

The shipment request **Status** shows the progress of the shipment request, for example "Awaiting Validation", "Delivered", or "Incomplete". For more information, see *Shipment Statuses*.

In case of shipment request errors, click the shipment ID to open the *Shipment details* view to investigate the shipment information. To edit a shipment request and correct errors, see *Editing or Deleting Shipments*.

### **10.2.4 Shipment Details View**

□ Shipments / □ All shipments / ③ Shipment details

To open the **Shipment details** view, click the shipment ID either from the **ID** column on the **Shipments** page, or in the **Recent Shipments** section of the **Dashboard**.

Shipment details		
	10-14Vi	Cohock
SowirDowuShgiviri	AUTO FIDO PRE-REG	GO DACK
REQUEST DATE: 2024-05-14T23:33:37.385Z	REQUESTOR: Firstname Lastname firstname.lastname@somemail.com	
RESELLER NAME:	RESELLER ID:	
Yubico (direct sale)	1	
SHIPMENT STATUS  Status: Shipped: In tr TRACKING: MOCKTRACK123  Shipment requested 15 May 2024 at 01:33 am gm MESSAGES No status messages	Shipped: In transit         T+2	3 Delivered

Address		Shipping	Costs
Name:	Firstname Lastname	Delivery type: Normal	Product cost: \$95.00
Company:	Yubico	Provider: Fedex	Product tax:
Address line 1:	123 Some City	Tracking: Track1234	Product VAT:
Address line 2:	#345		Shipping Fee: \$10.00
City:	City Name		Shinning tax:
Region/State:	California		Shipping tax.
Postal Code:	95054		Shipping VAI:
Country Code:	US		Total: \$105.00
Email:	firstname.lastname@somemail.com		
Phone:	123123123		

#### Item details

Inventory product type	Product name	Customization	Customization	PO reference	Qua	Cost per item	Cost
Compliance - Standard - Primary	YubiKey 5 NFC	test00	LABELtest00	PO1234567	1	\$95.00	\$95.00
Product total					1		\$95.00

The Shipment details page displays the following information:

- SHIPMENT ID section The shipment ID and type of shipment request (manual/automated).
  - REQUEST DATE and REQUESTOR The date when the shipment request was created, and the email
    of the user who created the shipment request.
  - RESELLER NAME and ID Name and ID of the reseller.
- SHIPMENT STATUS section Status and related status messages for the shipment request.
- Address section Contact information for the shipping recipient.
- Shipping section Details about type of delivery, shipping provider and tracking number, if available.
- Costs section:
  - Product cost The total cost of purchased products included in the shipping.
  - Product tax/VAT The product tax/VAT based on the total product cost.
  - Shipping Fee The shipping cost based on included products and shipping destinations.
  - Shipping tax/VAT The shipping tax/VAT based on the shipping cost.
  - Total Total cost including shipping and taxes. See *shipping costs*.
- Item details section:
  - Inventory product type Type of inventory, for example "Compliance Plus- Primary", see Tier Options.
  - Product name Type of product, key model.
  - Customization ID/Customization label Unique ID and its friendly name representing a specific type of key customization, see *Customizations*. The columns are only visible if a shipment contains items from a customized inventory.
  - PO reference The purchase order associated with the shipment request.
  - Quantity The number of keys included in the selected shipment.
  - Cost per item The cost for each product of a certain type included in the shipment.
  - Cost The total cost for the shipment.

Action - Lets you view information associated with a specific shipment of customized keys, see *Viewing Customization Details*. The column is only visible if a shipment contains items from a customized inventory.

If the shipment request has not yet been locked for processing and fulfillment, you can edit the recipient information and product selection. For more information, see *Editing or Deleting Shipments*.

# **10.3 Editing or Deleting Shipments**

You can update an address or delete a shipment request until it is locked for processing and fulfillment, see *Time Frames*. This applies for both Automated and Manual type of requests. However, to edit or delete a *Manual* shipment request, you must contact Yubico to update the shipment request.

**Note:** You can edit shipments of type *Auto FIDO Pre-reg (pre-registered keys)* in the same states as for other automated shipments. You can update the recipient and address information, and change the delivery type. However, you *cannot* change the products included in the shipment.

To edit or delete a shipment request, do the following:

- 1. Click Shipments > All shipments in the left menu to open the All shipments page.
- 2. Click the Edit icon for the desired item in the table to open the Shipment details page.
- 3. To update the information, scroll down to the **Edit Shipment** section. You can for example edit the recipient and shipping information, or update the delivery type if needed.

**Important:** To avoid delivery issues to addresses with long street names, for all shipments to *India* the maximum combined character limit is *120* characters between Address line 1 and 2. For shipments to *other destinations* the combined address line character limit is *105*. For more information, see *Recipient Information*.

To make changes in the product selection, go to the **Product Selection** section. Note that *Shippable Inventory* limits might apply.

If you are confident that the provided address is valid for a shipment where the address validation failed, you can select **Opt out of address validation** to override the system address validation. For more information, see *Overriding Address Validation*.

**Important:** If you chose to override the Yubico validation service and a shipment is returned or otherwise undeliverable, Yubico will not refund the product, shipping fees, applicable taxes and/or VAT associated with that shipment.

4. Make the required changes, click **Update**, then click **Confirm** to confirm your changes. The update function validates the fields, with a warning on any fields requiring input. To delete the shipment, click **Delete shipment** and confirm the deletion. To delete multiple shipments at the same time, see *Deleting Multiple Shipments*.

## **10.3.1 Reviewing Incompletes**

The address validation service flags addresses that are problematic or incorrect and displays this information in the **Status** column on the **All shipments** page. To ensure your shipping request is accepted and processed, always verify that it has not been flagged as incomplete or with failed address validation. For explanation of different statuses, see *Shipment Statuses*.

To review and manage incomplete and failed shipment requests, do the following:

- 1. In the **All shipments** page, click **Filters** and for the **Status** filter, select the applicable status in the list, for example **Address Validation Failed** or **Incomplete Shipping Request**. Then click **Apply** to filter out the shipments.
- 2. Open the **Shipment details** page for each shipment and view the information under **MESSAGES** In the **SHIP-MENT STATUS** section to understand what is incorrect in the shipment information. For example, parts of the address might be missing or is entered incorrectly. Or, shipping of the requested product set is not allowed for the destination country.
- 3. Update the information as described in *Editing or Deleting Shipments*.

## **10.3.2 Deleting Multiple Shipments**

To delete multiple shipment requests at the same time, do the following:

- 1. Click **Shipments** > **All shipments** in the left menu.
- 2. In the **All shipments** page, select the checkbox to the left on the row for each shipment you want to delete. Only shipments with the appropriate status can be selected. For example, a shipment with status "Shipped: In transit" cannot be selected for deletion.

You can use filters to filter out shipments with a status making them available for deletion. Click **Filters** and **Can be deleted**, then click **Apply**.

💵 Columns 🚽	Filters 🔳 Density	C Refresh data	
QUICK FILTERS	✓ Can be deleted	Can override address validation	
First name		Operator contains	Value
Last name	(	Operator	Value
Last name	(	Operator	Value
Address line 1	-	Contains -	Value
City	-	contains 👻	
	(	Operator	Value Clear all Apply

To select all rows in the table, select the checkbox in the header. To clear a selection of rows, select the checkbox in the header again.

Shipments / 🕞 All shipments

	chu	nm	ante
$\neg \blacksquare$	2111	וווע	CIICS

Sear	ch						Download CSV	Create shipme	nt requ	Jest
III Co	olumnsFilt	ers 🔳 Dens	sity C Refresh data			Rov	ws per page: 5 👻	51-55 of 76	<	>
	ID	Date $\downarrow$	Shipment address	Recipient	Delivery	Туре	Status			
	JiNPnHWGr	Sep 11,	Test, 1234 E Street, Ta		Normal	AUTOMATED	Address Validati	on Failed 🧪		
	UkNS2Bag	Aug 11,	dsadsa , dasd, 213213,		Normal	AUTOMATED	Address Validati	on Failed 🧪		
	M81ViHDm	Mar 22,	test, 3123, test, Kansas,		Normal	AUTOMATED	Address Validati	on Failed 🧪		
	P7WV1kwE	Mar 16,	test test, test, test, 123,		Normal	AUTOMATED	Address Validati	on Failed 🧪		
	VuFXYEugai	Mar 7, 2	Last First, 123 Lane Roa		Normal	AUTOMATED	Address Validati	on Failed 🧪		
_						_		_		
	(	3 ROW(S) S	ELECTED		ଜା	Override address va	alidation 🗍 Del	ete 55 of 76	<	>

3. When satisfied with your selection, click **Delete** in the bar at the bottom and click **Confirm** in the **Confirm** deletion dialog.

### **10.3.3 Overriding Address Validation**

The Yubico address validation service sometimes gives an error even if an address is valid. As a *Console Owner or Console Admin* you can override the Yubico validation warnings if you are confident that a provided address is valid. You can override the address validation for existing shipment requests with status "Address Validation Failed". You can also choose to override the address validation when creating shipment requests.

**Important:** If you chose to override the Yubico validation service and a shipment is returned or otherwise undeliverable, Yubico will not refund the product, shipping fees, applicable taxes and/or VAT associated with that shipment.

To override address validation for a single *existing* shipments, do the following:

- 1. Locate the desired shipment, either in the All shipments page or the Review incompletes page.
- 2. Click the **ID** for the shipment to open the **Shipment details** page. Alternatively, click the **Edit** icon for the shipment in the **Status** column.
- 3. In the SHIPMENT STATUS section of the Shipment details page, click Override address validation.

SHIPMENT STATUS		
• Status: Address Validation Failed		
Shipment requested DEC 23, 2023, 12:38 AM GMT+1	— 🔀 Address Validation Failed ————————————————————————————————————	3 Delivered
MESSAGES		
<ul> <li>InventoryType not set for Shipment, defaulting t</li> <li>The address could not be confirmed by the address</li> </ul>	to 1 ress validation service. Please confirm that it is valid or up	date it.
Override address validation		

4. Click Confirm in the Confirm address validation override dialog.

To override address validation for *multiple existing* shipments, do the following:

- 1. Click **Shipments > All shipments** in the left menu.
- 2. In the **All shipments** page, select the checkbox for each shipment with status "Address Validation Failed" for which you want to apply address validation override.

Only shipments with the appropriate status can be selected. To filter out shipments with appropriate status, click the **Can override address validation** option under **Filters**. To select all rows in the table, select the checkbox in the header. To clear a selection of rows, select the checkbox in the header again.

3. Click Override address validation in the bar at the bottom and click Confirm.

To override the address validation when *creating new* shipment requests, select the **Override address validation** option when creating the shipment request. For more information on how to create shipment requests, see *Shipping to a Single Address* and *Shipping to Multiple Address: Bulk Shipments*.

**Note:** If address validation override is applied to a shipment, you can still update the address for that shipment. In this case, the address validation override will also be applied to the updated address. If you do not want address validation override to apply to the updated address, deselect the **Override address validation** option when editing the address. For more information, see *Editing or Deleting Shipments*.

# **10.4 Downloading List of Shipments**

Console Owners, Admins, and Auditors can download a list of shipment requests that have been made. This can be useful if you want to perform data analysis for example to identify address validation failures for specific shipping destinations. You can then filter out shipments with status "Address Validation Failed" and download a file with those specific shipments.

To download a CSV file with general shipment data, go to the **Shipments** > **All shipments** page and click **Download CSV** in the top row.

When downloading the CSV file, only enabled columns and filtered rows are included. Use the **Search** field or click **Filters** to filter out desired shipments. Click **Columns** to include desired columns in the output. For more information, see *Modifying the Table View*.

**Note:** If no filtering is applied, data for **ALL** shipments in the table will be included in the CSV file. Ensure to filter out desired shipments before downloading to only get the data you are interested in. If your selection contains a large number of rows, generation of the download CSV file might take some time to complete.

## 10.4.1 Column Headings in Download File

The All shipments table downloaded as a CSV file combines shipment details information with what is shown on the **All shipments** page, plus some additional information. The column headings are described 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.

- shipment\_id Unique identifier assigned by YubiEnterprise Delivery to every shipment request.
- shipment\_request\_date Month/day/year.
- shipment\_update\_date Month/day/year.
- organization\_name Name of the customer organization on behalf of which the shipment request was made (typically the same throughout the file).
- reseller\_id Identifier of the reseller (Yubico's channel partner) this is "1" if it was a direct sale by Yubico.
- user\_email The email address of the YubiEnterprise Delivery user who made the shipment request.
- country\_code\_2 Two-letter country code. For more information, see *Shipping to Multiple Addresses: Bulk Shipments*.
- inventory\_type Depends on items entered in the PO, for example "Standard Inventory Keys".
- is\_delivered TRUE or FALSE.
- is\_shipped TRUE or FALSE.
- shipped date Month/day/year date of shipping.
- delivered\_date Month/day/year date of delivery.
- tracking\_number Tracking number assigned by fulfillment agency.
- recipient\_company Name of recipient's company.
- recipient\_email Recipient's email address.
- recipient\_firstname First name of recipient.
- recipient\_lastname Last name of recipient.
- recipient\_telephone Recipient's telephone number.
- street\_line1 First line of street address.
- street\_line2 Second line of street address.
- street\_line3 Third line of street address (deprecated).
- city Name of village, town, or city.
- region Name or region, state, or province.
- postal\_code Postal code, post code, zip code.

- bypassed\_address\_validation Indicates whether the Yubico address validation service has been overridden (TRUE or FALSE), see *Overriding Address Validation*.
- shipment\_type "Automated" (entered into the YubiEnterprise system by customer), "Manual" (entered into the system by Yubico), or "Fido2PreRegistered" for *FIDO Pre-reg shipments*.
- delivery\_type Normal or Expedited.
- shipment\_state\_code see Shipment Status Codes.
- shipment\_state\_id see Shipment Status Codes.
- shipment\_state\_message see Shipment Status Codes.
- shipment\_summary\_description Total number of keys plus number of each type, for example *Total Keys:* 2 yk5c:1, sky2:1 means two keys were shipped, one a YubiKey 5C and one a Security Key 2.
- shipment\_product\_cost Cost of product alone, without tax, VAT, or shipping.
- shipment\_product\_taxes Cell is populated if products are shipped to location where sales tax is applicable. Amount of sales tax levied on product.
- shipment\_product\_vat Cell is populated if products are shipped to location where VAT is applicable. Amount of VAT levied on product.
- shipping\_service\_cost Cost of shipping.
- shipping\_service\_taxes Cell is populated if products are shipped to location where sales tax is applicable. Amount of sales tax levied on shipping.
- shipping\_service\_vat Cell is populated if products are shipped to location where VAT is applicable. Amount of VAT levied on shipping.
- total\_shipment\_product\_cost Cost of product(s) with tax or VAT; does not include shipping costs or tax or VAT on them.
- 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.
- total\_shipping\_service\_cost Total shipping costs including taxes or VAT levied on them
- total\_keys\_shipped Total number of products shipped.
- purchaseorder\_numbers If multiple POs were drawn on for a single request, they are separated by a pipe, for example PQR\_123|PO-0721a.
- reseller\_name Name of the reseller from whom you purchased, Yubico's channel partner, based on the reseller\_id column.

**Note:** For *FIDO Pre-reg* type of shipments, the CSV file will also include serial number and firmware version for each custom key. The information is included after the shipment has been processed by Yubico Fulfillment Center, and the shipment is moved to state "Shipped: in Transit".

# **10.5 Resolving Shipment Issues**

The following describes the different statuses a shipment can have and how to resolve issues that might occur.

Notifications regarding shipment issues are *displayed in the Console* as well as sent by email to relevant recipients. You can view the status for a shipment in the **Status** column of the *All shipments* page. You can also filter out shipments based on their status using the *advanced search*.

For explanations of shipment error messages in the API, see Shipment Error Messages.

## 10.5.1 Shipment Statuses

• Accepted for Fulfillment

**Explanation:** Shipment request address has been validated and is ready to be picked up for fulfillment processing.

Action: Information only, no action needed.

Address Not Accepted by Carrier

**Explanation:** The shipment request was not accepted due to the recipient address exceeding the maximum character length set by the carrier.

Action: Update shipment request, if possible shorten the address information.

• Address Validation Failed

**Explanation:** The Yubico address validation service failed because the address provided is not sufficient to guarantee delivery. The correct address must be provided before proceeding. No keys, tax, or shipping credits have been deducted from inventory. For more information, see *Reviewing Incompletes*.

Action: Check address in shipment request.

• Awaiting Validation

Explanation: The shipment request has been received, no validation done yet.

Action: Information only, no action needed.

### Awaiting DPL Confirmation

Explanation: The shipment is being reviewed for DPL match, see "Error: DPL Match".

Action: Check shipment status, if updated to "DPL Confirmation" the shipment will not be processed.

• Cancelled

**Explanation:** The shipment has been cancelled, for example because a fulfillment partner was not able to ship the order.

Action: Contact Yubico Support for information.

• DPL Confirmed

**Explanation:** The shipment was automatically detected as a DPL match (see "Error: DPL Match"), and has been reviewed by Yubico and found to be a confirmed match (not false positive). The shipment will not be processed.

Action: Check shipment request, create alternative shipment request if applicable.

• Delivered

**Explanation:** The shipment was delivered to the recipient.

Action: Information only, no action needed.

**Note:** The Console lists the status of some shipments as "Delivered" when the tracking service shows "Delivered to Sender" (meaning the shipment was returned to sender).

### • Delivery Exception

**Explanation:** The shipment request was processed and shipped successfully, but the delivery was unsuccessful. The order is now the responsibility of the fulfillment partner.

A "Delivery Exception" is triggered when a carrier is citing an order delivery issue. Common reasons for delivery exceptions are undeliverable address, missing door code or telephone number, company name on a residential address, delivery delays, and items held at customs.

Action: Check shipment request tracking information, contact carrier.

#### • Error: DPL Match

**Explanation:** The shipment recipient has been found on the Bureau of Industry and Security's denied persons list (DPL). All individuals and entities on the DPL are prohibited from participating in export transactions. The DPL match is awaiting review and confirmation by Yubico.

Action: Check shipment status, if updated to "DPL Confirmation" the shipment will not be processed.

#### • Error: Processing Error, contact Support

**Explanation:** The system encountered an issue processing inventory and financial debits. The error was likely caused by insufficient key or credit inventory. The shipment request will either need to be edited to reflect available inventory, or sufficient inventory must be added through a new PO. The shipment will not be sent to the fulfillment partner again until it has been reprocessed.

Action: Check inventory, contact Yubico Support to add more if needed.

#### • Error: Shipping Error, contact Support

**Explanation:** The system encountered an issue when sending the shipment request to the fulfillment partner. The shipment request must be reprocessed before sending it to the fulfillment partner again.

Action: Contact Yubico Support to resolve issue.

• Incomplete

**Explanation:** The address provided is incomplete. The correct address must be provided before proceeding. No keys, tax, or shipping credits have been deducted from inventory. For more information, see *Reviewing Incompletes*.

Action: Check address in shipment request.

#### • Incomplete Shipping Request

**Explanation:** The shipment request contained data that the system could not understand or parse. The request must be corrected before proceeding. No keys, tax, or shipping credits have been deducted from inventory. For more information, see *Reviewing Incompletes*.

Action: Check shipment request input data.

#### Manual Processing

Explanation: Shipment is being fulfilled manually.

Action: Information only, no action needed.

#### • Processing: Queued for Fulfillment

Explanation: Shipment is being fulfilled manually. No further action is required by the shipment requestor.

Action: Information only, no action needed.

#### • Processing: Ready for Fulfillment

Explanation: Shipment is being fulfilled manually. No further action is required by the shipment requestor.

Action: Information only, no action needed.

• Processing: Sent for Fulfillment

**Explanation:** Applies to automated shipments only. The shipment request was sent to the fulfillment partner via the API for processing.

Action: Information only, no action needed.

• Requested

**Explanation:** Applies to manual shipments only. The inventory has been deducted from the associated account, and the order is being prepared by the Yubico fulfillment team.

Action: Information only, no action needed.

• Returned to Sender

Explanation: The shipment has been returned to the sender by the carrier.

Action: Contact Yubico Support for information.

• Shipment Lost/Missing

Explanation: The shipment was lost in transit to the recipient.

Action: Contact Yubico Support for replacement (unless address validation override was applied).

• Shipped: In transit

**Explanation:** The shipment request was released to and shipped by the fulfillment partner and billed by Yubico.

Action: Information only, no action needed.

## **10.6 Viewing Processed 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". Console Owners, Admins, and Auditors can access refund details.

Click **Shipments > Processed refunds** in the left menu to display the **Processed refunds** page.

🕞 Shipments / 🏷 Processed refunds

#### Processed refunds

Search						Download refund CSV
🚻 Columns 🔳 Density	C Refresh data			Rows per p	oage: 15 <del>-</del>	1–10 of 10 < >
Shipment ID $ \downarrow $	Inventory product type	PO reference	Refund quant	Product name	Refund date	Refunded amount
XYWx9KSx6H4qRTzy651	Shipping		0		Apr 4, 2024	\$11.50
XYWx9KSx6H4qRTzy651	Compliance - Plus - Primary	N/A	10	YubiKey 5 NFC	Apr 4, 2024	\$200.00
XYWx9KSx6H4qRTzy651	Compliance - Plus - Primary	N/A	11	YubiKey 5 Na	Apr 4, 2024	\$220.00
KQQ9Kar5Th9osaEMRW	Primary Subscr - FIPS Tier: Initial	N/A	2	YubiKey 5 NFC	Dec 1, 2022	\$217.24
F2dnvUVp3qJ8DhmaLtHZa	Shipping		0		Dec 16, 2022	\$495.00

The **Processed refunds** table shows the following information:

- Shipment ID
- Inventory product type (shipping, subscription type, etc.)
- PO reference if applicable (link to PO from which the refunded inventory was drawn)
- Refund quantity (this value will be "0" for shipping)
- Product name
- Refund date
- Refunded amount

To see more details, click the **Shipment ID** of the desired shipment to view its details. For more information, see *Shipment Details View*. Fore more information about refunds, you can also *download a file*.

If your organization is shipping custom keys, the **Customization ID** and **Customization label** (user-friendly name) associated with a refunded shipment are displayed in the Shipment details page. For more information, see *Customiza-tions*.

# 10.7 Downloading List of Refunds

To download a CSV file listing all the data shown on the list of processed refunds, click **Download refund CSV** in the upper right of the **Processed refunds** page.

The download file contains the following information for each refunded shipment request:

- shipment\_id
- refund\_date
- organization\_name
- reseller\_name
- reseller\_id
- inventory\_product\_type
- product\_name
- refund\_quantity
- product\_cost
- refunded\_product\_tax
- refunded\_product\_vat
- refunded\_shipping\_fee
- refunded\_shipping\_tax
- refunded\_shipping\_vat
- purchaseorder\_number
- country\_code\_2
- shipment\_request\_date
- shipped\_date
- recipient\_company
- recipient\_email

- recipient\_firstname
- recipient\_lastname
- recipient\_telephone
- street\_line1
- street\_line2
- street\_line3
- city
- region
- postal\_code

# **10.8 Customizing Automated Emails**

The YubiEnterprise Delivery system automatically sends notifications related to various statuses for shipment requests, for example shipments that failed and require user interaction. Notifications regarding shipments are *displayed in the Console* as well as sent by email to relevant recipients.

The automated shipment notifications sent by email are based on pre-defined templates. You can customize these templates as desired to adapt the message for your organization. You can change the look and feel of the email as well as the text, for example to add a link to your own support organization, or contact information for your own IT department.

The following email templates are available:

- Delivered notify recipients that products are delivered.
- Delivery Exceptions notify recipients that there is a problem with a delivery.
- Shipped notify recipients that products have been sent to them.
- Tracking Update notify recipients that tracking information for a shipment has changed.

To see the content of an email template, click **Settings > Email** in the Console left menu, and select the desired template in the **Template** dropdown.

The email templates 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>.
```

To replace the Yubico logo image at the top of the email page, replace the existing image link with one of your choice, for example your company logo. Ensure that the image you use is stored in a publicly available space.

```
<img alt="yubico" width="168" height="50" src="https://console.yubico.com/

→media/yubico_logo.png">
```

The following values in the template can be used anywhere in the email body and will be substituted when the email is sent:

- {{.Name}} the first and last name of the recipient.
- {{nl2br .Address}} the destination address.

- {{.Carrier}} the carrier used, for example UPS, FedEx or USPS.
- {{.TrackingNumber}} tracking number of the shipment.
- {{.CopyrightYear}} the current year.
- {{.Email}} recipient email address.

The following code lists quantity and items in the shipment:

```
{{range $name, $qty := .LineItems}}
{{$name}}: {{$qty}}
{{end}}
```

To customize notification emails, do the following:

1. In the Console left menu, click **Settings > Email**, and in the **Template** dropdown, select the template you want to customize.

nippe	d 👻	
Custon Yubik	n email subject (eys Shipped!	
Custo	om email body	
1		g ore.
2	html	A COLOR OF
3	<html lang="en"></html>	General and Activity
4	<head></head>	- 14 <u>E</u>
5	<meta content="text/html; charset=utf-8" http-equiv="Content-Type"/>	Wally a set of a
6	<pre><script>alert(x)</script></pre>	STATES A SATISFIC ALL SATISFIC TAXAGE
		EddCvin.co.
0	 styte= margin: v;background: #boboos; >	-
10	stable style="background: #DBDBDB:margin: 10ny auto:may_width: 640ny:font_family: 'Helvetica Neue' 'Open Sang' i	
11	<pre></pre>	
12	<pre></pre>	
13	<pre><img alt="yubico" height="50" src="https://console.yubico.com/media/yubico logo.png" width="168"/></pre>	
14		
15		
16		
17		
18	<pre><h1 https:="" ice.com="" place.uk="" start<="" started="" style="color: #325f74;font-weight: bold; font-size: 28px; text-align: center; margin:10px 0; mso-line-he&lt;br&gt;&lt;/pre&gt;&lt;/td&gt;&lt;td&gt;&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;19&lt;/td&gt;&lt;td&gt;YubiKeys shipped today!&lt;/td&gt;&lt;td&gt;&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;20&lt;/td&gt;&lt;td&gt;&lt;/hl&gt;&lt;/td&gt;&lt;td&gt;&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;21&lt;/td&gt;&lt;td&gt;&lt;pre&gt;Hello, {{.Name}}&lt;/td&gt;&lt;td&gt;&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;22&lt;/td&gt;&lt;td&gt;&lt;pre&gt; Your Yubikeus have sheen shiped. To get started place wight as hesf=" td="" www.ice.com=""><td></td></h1></pre>	
23	<pre>//www.yubico.com/start &gt;www. //www.yubico.com/start &gt;www.</pre>	
24		
26		
27	<pre></pre>	
28	Delivery Details:	
	/	

- 2. Insert the desired content into the template.
- 3. Your HTML code is validated as you type. If your code is correct, a green banner appears, and you can continue editing or click **Update**. A red banner appears if the HTML is incorrect. Correct it and click **Update**, or click **Restore**. Once you click **Update**, the **Restore** button is deactivated.

4. To view the customized email you created, click Send sample.

**Note:** If you make a mistake in the HTML code when customizing the template, you can click the **Restore** button to return to the default. However, if your HTML is correct and you click **Update**, you can no longer click **Restore**. For this reason, consider making a copy of the default template before you customize it.

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

### CHAPTER

## **ELEVEN**

# SHIPPING TO A SINGLE ADDRESS

The information in this section describes how to create shipment requests to a *single* recipient address from the Yubi-Enterprise Console. To create shipments to *multiple* addresses, see *Shipping to Multiple Addresses: Bulk Shipments*. For information about shipment request concepts, see *Shipment Requests* and *Working with Shipments*.

# **11.1 Creating a Shipment Request**

To request shipping of keys from your inventory to an individual address, click one of the following:

- CREATE SHIPMENT REQUEST in the card for the appropriate subscription on the Dashboard.
- The Create shipment request button in the All shipments page.

This opens the New shipping request form to create a single shipment request.

New shipping request	
SINGLE SHIPMENT BULK SHIPMENT	
- Reseller*	C Reseller ID
Yubico (direct sale) 👻	1
Recipient information	if shinning to a commercial/business address
Firstname	Lastname
and/or	
Company	
Do not provide a company name if shipping to a residential address.	
Shipping information	
Country*	Address line 1 *
United States of America (the)	123 Some Street Name
Address line 2	City*
Region / State* Postal code *	- Phone*
Minnesota 👻 112234	122334455
	Submitting an invalid phone number may result in the order being returned to sender and may incur additional shipping charges.
Email address	
Opt out of address validation	
Check this box to opt out of address validation for this shipment. If the shipment is re applicable taxes and/or VAT.	eturned or otherwise undeliverable, Yubico will not refund the product(s), shipping fees,
Delivery Type	
Normal	xpedited
Product selection	
Products	*

Enter information in the form fields as described in the following. For detailed descriptions of form fields and their values, see *Shipment Request Form Fields*.

- 1. If applicable, select a **Reseller** from the dropdown list. Your selection determines the inventories from which you can draw products from. The **Reseller ID** field is automatically populated depending on the selected reseller.
- 2. Enter the required **Recipient information**, either provide a company name or a recipient name, or both.

3. Enter the **Shipping information**. Ensure you enter a valid recipient address and phone number for a successful delivery. Only latin characters are permitted, including accented characters (à, á, ä etc.). When shipping to countries without postal codes, enter "00000" in that field.

**Important:** To avoid delivery issues to addresses with long street names, for all shipments to *India* the maximum combined character limit is *120* characters between Address line 1 and 2. For shipments to *other destinations* the combined address line character limit is *105*. For more information, see *Recipient Information*.

4. Select **Opt out of address validation** to override the Yubico address validation service if applicable, see *Overriding Address Validation*.

**Important:** If you chose to override the Yubico validation service and a shipment is returned or otherwise undeliverable, Yubico will not refund the product, shipping fees, applicable taxes and/or VAT associated with that shipment.

- 5. Select the **Delivery Type**, Normal or Expedited. Your selection determines the shipping fee, which is calculated after you complete the shipping request.
- 6. In the **Product selection** section, select one or more inventories to draw products from, and select the desired products and quantity from each inventory. If *inventory allocations* apply for a product, this is indicated (in pink). Customized products can also be selected if available for your organization (FIDO Pre-reg type of customizations are excluded since these shipment requests are not created in the Console). Customization options are indicated by the associated Customization ID (in blue).

Product selection

t forr	m factor(s)					
•	YubiKey 5 NFC Select form factor options					
		DEMO TEST	_	3	+	
		UP TO 15 SHIPPABLE	-	2	+	
	YubiKey 5 Nano Select form factor options					
		DEMO TEST	-	3	+	
		UP TO 15 SHIPPABLE	_	2	+	

Note: Accessories include for example lanyards, keyports and key covers that can be shipped together with

YubiKeys. Accessories are currently not supported with subscription tiers, only with perpetual purchases. To add accessories to a shipment request, select the desired accessories from the **Physical products** section.

- 7. When done with the product selection, click **Continue**.
- 8. Click **Next: Confirm**, review the information in the **Shipment confirmation** dialog, and if satisfied click **Submit shipment request**. The new shipment request will appear in the **All shipments** page.

## **11.1.1 Shipment Request Form Fields**

The table below provides descriptions of fields in the **New shipping request** form. Fields not marked as *Required* are optional. The **Limit** column displays the maximum number of alphanumeric characters permitted per field. You will be notified in the Console if the number of characters you enter in a field exceeds the limit.

**Important:** To avoid delivery issues to addresses with long street names, for all shipments to *India* the maximum combined character limit is *120* characters between Address line 1 and 2. For shipments to *other destinations* the combined address line character limit is *105*. For more information, see *Recipient Information*.

Field Name	Description	Limit
Reseller Reseller ID	Required. Even if the selling entity was Yubico (direct sale), the <b>Reseller</b> name must be selected. The <b>Reseller ID</b> is automatically populated.	_
First name	Name of recipient. Required if company name is not provided. Maps to the first line on the shipping label.	15
Last name	Recipient's family name. Required if first name is provided. Maps to the first line on the shipping label.	20
Company	Required if name of recipient is not provided. Maps to the second line of the shipping label if the address is not residential. Do not provide a company name if shipping to a residential address.	20
Country	Required. Select a country from the list of destination countries that your organization is allowed to ship to.	_
Address 1	Required. First line of address.	60
Address 2	Required if address is undeliverable without, for example suite #. Field can be used to split addresses with long street names.	60
City	Required. City, town, or township.	60 -
11.F. Creating a Shipment Requ	est and Canada, see <i>Region/State Codes for US and</i> <i>Canada</i> . Region/state is required	87

### **Entering Shipping Information**

**Note:** When creating shipment requests and selecting destination countries, you will only see countries that are enabled for your organization in the **Country** dropdown list. However, you can ship to all countries that are listed in the YubiEnterprise Delivery pricing table. To ship to other countries, contact YubiEnterprise Delivery Support.

For a successful delivery of your order, always ensure that the recipient information you provide is valid. The **Phone** field in the shipment request form is the telephone number of the shipment recipient, and is used by the carrier to complete the last stage of delivery. Ensure you submit a valid phone number to avoid the order being returned to the sender.

Incomplete or incorrect address information might cause *validation errors*. For example, entering the following information for a shipment request would result in failure because USPS recognizes that there are multiple companies in the building whose address is 530 Lytton Avenue:

```
Jan Lindberg
530 Lytton Avenue
Palo Alto, CA 94301
USA
```

Similarly, entering the following information for a shipment request would result in failure because a residential address would not be associated with a company.

Jan Lindberg Yubico Inc. 6 Lea Rd Dronfield S18 1SB UK

When adding address information, you can for example use the address formats provided by Google Maps, see note in *Troubleshooting*. The limits on the various fields and the options for the dropdown are given in *Shipment Request Form Fields*.

### 11.1.2 Verifying Shipment Status

You can view the status of shipment requests on the **All shipments** page in the **Status** column. To ensure your shipping request is accepted for processing, always verify that it has not been flagged as *Incomplete* by the validation service. For more information on how to correct incomplete shipment requests, see *Reviewing Incompletes*.

# **11.2 Editing and Deleting Shipment Requests**

You can update an address or delete a shipment request until it is locked for processing and fulfillment. Editable shipment requests are shown with an **Edit** icon in the **Status** column in the list on the **All shipments** page. For more information, see *Editing or Deleting Shipments*.

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

CHAPTER

## TWELVE

# SHIPPING TO MULTIPLE ADDRESSES: BULK SHIPMENTS

You can create a request to ship a set of products to multiple addresses using the **BULK SHIPMENT** method. With this method you download an address template CSV file from the Console and fill it with recipient names and addresses.

**Note:** Bulk shipment is not available to "demo users". These are users with the Console Owner role that have not yet enrolled by registering a security key, as part of the onboarding process. For more information, see *Procedure Overview*.

**Important:** Download a fresh countries CSV and address template CSV file every time you make a bulk shipment request. The templates change frequently, and any request that does not use the latest templates will fail.

You then upload the file, select from the Console the products that all recipients will get, and submit the bulk shipment request for the products to be shipped to multiple addresses. If different recipients require different product sets, create a separate CSV file for each product set.

# 12.1 Creating the Address File

Use the templates provided by Yubico to create your list of recipient names and addresses.

1. Click **Shipments > All shipments** in the left menu, then click **Create shipment request** in the top menu and select **BULK SHIPMENT**.

## New shipping request

SINGLE SHIPMENT BULK SHIPMENT

# Create bulk shipments by uploading a CSV address file

Easily create many shipments at once by uploading a CSV file of your recipients

- Create a CSV file containing your recipients' information and addresses. A template to get you started is available for download below. We recommend downloading the address template CSV for each upload.
- 2. Upload the CSV file.
- Complete the subsequent form to choose the contents of the shipment that will be sent to each of the recipients in the CSV file. If different contents are desired for different recipients, please submit each group of recipients separately.
- Download countries CSV
- Download address template CSV



2. Click **Download countries CSV** to download the country list. This file contains the list of countries that your organization is allowed to ship to and the correct country code for each country.

**Important:** Download a fresh countries CSV and address template CSV file every time you make a bulk shipment request. The templates change frequently, and any request that does not use the latest templates will fail.

- 3. Click Download address template CSV to download the template for recipient information.
- 4. Fill out the address template. For details about the fields in the CSV file, see Recipient Information Fields.
- 5. Save the address file, it will be used when *creating the actual shipment request*.

**Back to shipments** 

## **12.1.1 Recipient Information Fields**

When filling in the template, ensure you follow these guidelines for a successful validation later on in the process:

- The table header row from the template is included in your CSV file.
- The columns in your CSV file correspond exactly to those in the template.
- Either company name or first name and last name are required.
- If the destination country is either United States or Canada, state or region is required, see USPS Region/State Codes.
- Only latin characters are permitted, including accented characters (à, á, ä etc.).
- When shipping to countries without postal codes, enter "00000" in that cell.
- Some table cells have limits on the number of alpha-numeric characters (including spaces). Ensure that content in a cell does not exceed the limits listed in the table below.

**Note:** The size of the uploaded CSV file must not exceed 25 MB. If it does, split the file and create multiple shipment requests.

In the table below, fields not marked as *Required* are optional. The **Limit** column displays the maximum number of alphanumeric characters permitted per field/table cell.

**Important:** To avoid delivery issues to addresses with long street names, for all shipments to *India* the maximum combined character limit is *120* characters between Address line 1 and 2. For shipments to *other destinations* the combined address line character limit is *105*. For more information, see *Recipient Information*.

Column Heading	Description	Limit
Company	Required if name of recipient is not provided. Maps to the second line of the shipping label if the address is not residential. Do not provide a company name if shipping to a residential address.	20
First name	Name of recipient. Required if company name is not provided. Maps to the first line on the shipping label.	15
Last name	Recipient's family name. Required if first name is provided. Maps to the first line on the shipping label.	20
Address 1	Required. First line of address.	60
Address 2	Required if address is undeliverable without, for example suite #.	60
City	Required. City, town, or township.	60
Region/State	USPS codes are required for the US and Canada, see USPS Region/State Codes. Region/state is required for other countries if the address is undeliverable without it.	50
Postcode	Required. Zip code or postal code.	50
Country Code 2	Required. Country code from available_countries.csv file, see <i>Country Codes</i> .	2
92	Chapter 12. Shipping to Mul Recipient's email address.	tiple Addresses: Bulk Shipments

Recipient Email

### **Country Codes**

The downloadable available\_countries.csv file contains a list of destination countries and their country codes that your organization is allowed to ship to. Use the two-letter country codes to populate the Country Code 2 field in the address template.

**Note:** Although the system can deliver to Post Office (PO) Boxes within the United States, delivery to the equivalent elsewhere in the world is unlikely to succeed. If possible, use a different address.

### **Region/State Codes for US and Canada**

If the destination country is either United States or Canada, state or region is required and must confirm to the two-letter codes for states (US) or territories (CA). To populate the Region/State field in the address template, use the codes provided in USPS Region/State Codes.

# **12.2 Creating the Bulk Shipment Request**

The steps described in the following require that you have *created a CSV file with recipient information* to be used when submitting the shipment request.

- 1. In the Console in the All shipments page, click Create shipment request and select BULK SHIPMENT.
- 2. Drag and drop your address CSV file into the upload area, or click **Select a file** to add a file from a location of your choice. The file size must not exceed 25 MB. If it does, split the shipment request.
- 3. Select **Opt out of address validation** to override the Yubico address validation service if applicable, see *Overriding Address Validation*. If you select this option, the uploaded CSV file will still be validated for missing required fields.

**Important:** If you chose to override the Yubico validation service and a shipment is returned or otherwise undeliverable, Yubico will not refund the product, shipping fees, applicable taxes and/or VAT associated with that shipment.

- 4. If applicable, select a **Reseller** from the dropdown list. Your selection determines the inventories from which you can draw products from.
- 5. Select the **Delivery Type**, Normal or Expedited. Your selection determines the shipping fee, which is calculated after you complete the shipping request.
- 6. In the **Product selection** section, select one or more inventories to draw products from, and select the desired products and quantity from each inventory.

**Note:** For some countries you can only request one (1) key per address due to customs duty regulations. To see which countries this limitation applies to, see *Delivery Policies*.

If *inventory allocations* apply for a product, this is indicated (in pink). Customized products can also be selected if available for your organization (FIDO Pre-reg type of customizations are excluded since these shipment requests are not created in the Console). Customization options are indicated by the associated Customization ID (in blue).

**Note:** Accessories include for example lanyards, keyports and key covers that can be shipped together with YubiKeys. Accessories are currently not supported with subscription tiers, only with perpetual purchases. To add accessories to a shipment request, select the desired accessories from the **Physical products** section.

- 7. When done with the product selection, click **Continue**.
- 8. Verify the product selection and the address file to be used.
- 9. Click Create shipment request(s).
- 10. The recipient information is validated line by line to ensure there are no errors. If errors were found, you will see a notification indicating the type of errors and the lines in the file where they were found.



# You have up to 1 licenses available

Non-subscription - FIPS Tier

## **Physical products**

### Continue

Line 2 • RecipientTelephone is a required field
 Line 3 • RecipientTelephone is a required field

Create shipment request(s) Back

- 11. Correct the errors in the file according to the instructions and save it.
- 12. Click **Use a different file** in the upload area, upload the corrected version for a new validation, and click **Create shipment requests(s)**.
- 13. When the file is accepted without errors you will see a success notification. The new shipment requests will appear in the **Shipments** page as one request for each recipient line in the CSV file.

**Note:** If you have purchased directly from Yubico as well as from resellers, you will have multiple inventories to draw products from. To request shipments from multiple inventories you need to make a shipment request for each inventory separately by selecting the desired reseller in the **Reseller** dropdown when creating the shipment request.

# **12.3 Editing and Deleting Shipment Requests**

You can update an address or delete a shipment request until it is locked for processing and fulfillment. Editable shipment requests are shown with en **Edit** icon in the **Status** column in the list on the **All shipments** page. For more information, see *Editing or Deleting Shipments*.

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

CHAPTER

## THIRTEEN

# SHIPPING PRE-REGISTERED KEYS

This section describes how to install, configure, and use Yubico's FIDO pre-registration service (Yubico FIDO Prereg) to distribute pre-registered YubiKeys to end users. Yubico FIDO Pre-reg reduces the IT administrative burden and improves end user experience by standardizing and streamlining YubiKey onboarding and account recovery.

## 13.1 About Yubico FIDO Pre-reg

With Yubico FIDO Pre-reg the IT administrator (IT admin) for an organization can use the YubiEnterprise API together with an IDP's WebAuthn API and automated workflows to order pre-registered YubiKeys for end users. The YubiKeys are pre-registered and shipped directly to the specific end user who received a randomly generated PIN separately.

The following IDPs (Identity Providers) are supported:

- Okta
- Microsoft Entra ID (Early Access)

Note: Currently you can only request one (1) YubiKey per shipment request using Yubico FIDO Pre-reg.

### 13.1.1 Viewing Pre-reg Shipments

Just as for other types of shipment requests, you can monitor the status of pre-registered shipments for your organization in the **All shipments** page of the YubiEnterprise Console. Pre-registered shipments are indicated as **AUTO FIDO PRE-REG** in the **Type** column on the page.

To locate a specific pre-registered shipment, do the following:

- Use the **Filters** function to filter out pre-registered shipments. Click **Filters**, select **Auto FIDO Pre-reg** as **Type**, and click **Apply**.
- You can also use search in combination with filters to drill down further into the list of shipments. For more information, see *Searching Shipments*.

🕞 Shipments / 🕞 All shipment	ts				
All shipments					
Search				Download CSV Create shipment i	request
🚻 Columns \Xi Filters 🗮 Dens	ity C Refresh data			Rows per page: 15 ▼ 1–15 of 83	< >
QUICK FILTERS Can be deleted			Туре	Status	Trac
	From	To	AUTOMATED	Awaiting Validation 🧪	-
Ship date			AUTO FIDO P	Incomplete 🧪	
Delivery date	From	То	AUTO FIDO P	Incomplete 🧨	-
	Operator	Value	AUTO FIDO P	Error: DPL Match	-
Туре	IS ONE OF	Automated	AUTO FIDO P	Address Validation Failed 🧷	
Serial number	contains	Manual	AUTO FIDO P	Processing: Sent for Fulfillment	
	Onerator	Auto FIDO Pre-reg	AUTO FIDO P	Processing: Sent for Fulfillment	-

## 13.1.2 Editing Pre-reg Shipments

Just as for other types of shipments, you can update a pre-registered shipment from the Console until it is locked for processing and fulfillment. Shipments that can be edited are indicated with an **Edit** icon in the **Status** column of the **All shipments** page.

You can update the recipient and address information, the delivery type, or you can delete the shipment request. Note that products included in a pre-registered shipment request cannot be modified. For more information, see *Editing or Deleting Shipments*.

### **13.1.3 Viewing Customization Information**

A FIDO pre-registered YubiKey is considered a customization and therefore Yubico provides each customer with a unique Customization ID. An organization's Customization ID is required for integrations such as with Okta. To view your organization's Customization ID, see *Customizations*.

### **13.1.4 General Prerequisites**

The following sections describe how to integrate Yubico FIDO Pre-reg with different IDPs. The instructions are intended for IT admins who are setting up shipments of pre-registered YubiKeys for their end users in an environment with an IDP and SSO.

The instructions assume IT administration skills and knowledge of the YubiEnterprise API as well as the specific IDP. Listed tasks include steps both in the YubiEnterprise Console and the IDP application. Refer to the IDP-specific documentation for details.

Ensure the following is in place before you start integrating Yubico FIDO Pre-reg with your IDP:

- Your company is using a *supported IDP*.
- YubiKey as a Service Plus plan subscription.
- YubiEnterprise Console access with FIDO Pre-reg enabled.

• Customization IDs and Product IDs for the YubiKey models you will be shipping to end users. These IDs are provided by Yubico during onboarding of your organization. For more information, see *Customizations*.

# 13.2 FIDO Pre-reg with Okta

The following describes the steps to get started using Yubico FIDO Pre-reg with Okta and Okta Workflows. See also FIDO Pre-reg with Okta FAQs.

**Important:** Before you start implementing Yubico FIDO Pre-reg, ensure you have the Customization IDs and Product IDs for the YubiKey models you will be shipping to end users. These IDs are provided by Yubico during onboarding of your organization. For more information, see *Prerequisites*.

### 13.2.1 How it Works

The Yubico FIDO Pre-reg integration streamlines the deployment process with improved ease of use and enhanced security. The diagram below illustrates the process.

The Yubico FIDO Pre-reg template developed specifically for Okta Workflows in this case, helps orchestrate the process steps. The Yubico Connector and the Yubico FIDO Pre-reg Workflow templates are both integrated with the Okta Workflows console.

### **Process Flow**

The workflows are designed to ensure each request via Okta to Yubico contains all information needed to have the keys shipped to the end user. A secure and encrypted transfer process mitigates any risk of exposing sensitive information.



### Workflow: IT Admin and End User

1. The IT admin initiates a shipment request for a pre-registered key from the Okta tenant. This triggers the Yubico FIDO Pre-reg Okta Workflows template. All information needed to program and ship a key for an individual user is sent to Yubico through a YubiEnterprise API request. Note that only one key per shipment can be requested.

- 2. The IT admin receives updates based on the shipping status, and can monitor shipments of pre-registered keys using the YubiEnterprise Console.
- 3. The end user receives an email containing their YubiKey PIN and their FIDO Pre-reg YubiKey is shipped to them directly. No IDP password or IDP registration is required. The YubiKey PIN is only communicated to the end user and is encrypted and obscured from Okta, the IT admin, and Yubico.
- 4. The end user can immediately use the YubiKey and PIN to authenticate into Okta where they have Single Sign-On (SSO) access to applications to which they have access provided through Okta.

### Workflow: Credential and PIN Provisioning

- 1. The IT admin initiates a shipment request for a pre-registered YubiKey from the Okta tenant.
- 2. Yubico receives the shipment request from Okta through the YubiEnterprise API. Yubico programs a YubiKey with the information provided in the request. The information contains the credential and PIN requests, end user shipping information, and YubiKey form factor.
- 3. After the YubiKey is programmed, a response is sent back to the YubiEnterprise API including the randomly generated PIN, serial number, and firmware version. This response is retrieved by the Okta workflows.
- 4. When the Okta workflows receive the response from the YubiEnterprise API, the YubiKey is enabled for usage. This triggers an email to the end user containing the PIN for the YubiKey.
- 5. After the programming of the YubiKey the credential data, including the PIN, is purged from Yubico systems.

Additionally, the YubiKey can be used as a recovery tool for the IDP's complementary passwordless feature such as Okta FastPass. For example, if an end user loses their phone and gets a replacement one, they can re-enroll in the Okta service using the YubiKey without needing to call their support services.

### **Workflow Integration**

This section describes the integration between the Yubico Connector in Okta and the Okta Workflows. The integration provides the Yubico action cards used to set up the workflows in Okta for requesting shipments and retrieving shipment information. The Yubico workflow integration includes the action cards described below.
Action	Description
Create Shipment Request	
	Create a new shipment request to provision a YubiKey that will contain a pre-registered WebAuthn credential.
Get Shipment Details	
	Get details about a specific shipment request, including the shipment state, and shipment items used for the pre-registration of a WebAuthn credential.
Build Shipment Item	
	Helper action card that builds a "shipment item" used in the "Create shipment request" action card.
Get Public Transport Keys and Signing Certificate	Pull the current public Yubico transport and signing keys used to encrypt the PIN and credential request payloads.

The input and output parameters for each action card are described in more detail in the following. For more information, see *Configuring Workflow Connections*.

When you add a Yubico card to a flow for the first time, you will be prompted to authorize the connection. This requires an API token generated from the YubiEnterprise Console. Once you have configured this connection and saved the API token information to it, you can reuse it for other YubiEnterprise-related actions. For more information, see *Generating an Authorization Token*.

#### **Action: Create Shipment Request**

Action card to create a new shipment request to provision a YubiKey that contains a pre-registered WebAuthn credential.

Note: Product ID and Inventory Product list can be found in the *Product inventory type mapping table*.

#### **Input - Create Shipment Request**

Field	Definition	Туре	Req'd
Company	Company name of ship- ment recipient	Text	TRUE
Email	Email address of shipment recipient	Text	FALSE
First Name	First name of shipment re- cipient	Text	FALSE
Last Name	Last name of shipment re- cipient	Text	FALSE
Phone Number	Telephone number of shipment recipient The limit is 40 of the alphanumeric characters "0-9+-()" unless the country code is IN, in which case the limit is 255. Any format is acceptable, with or without spaces.	Text	TRUE
Address	Street address of shipment recipient Note: This field can also include the apartment or unit number.	Text	TRUE
Apt or Unit Number	The apartment or suite or unit number or designation of shipment recipient.	Text	FALSE
City	City of shipment recipient	Text	TRUE
Region	2-letter region or state code of shipment recipient. Mandatory for recipients in the US or Canada.	Text	FALSE
Postal Code		Text	TRUE
102	Zip code or postal code of shipment recipient.	Chapter 1	3. Shipping Pre-registered Keys
C. A. C. L		T. (	

## **Output - Create Shipment Request**

Field	Definition	Туре
Shipment ID		Text
	The shipment ID of the newly created shipment.	
	Value is null for non-successful API response.	
Shipment State ID		Number
	The shipment state of the newly created	
	shipment. For values, see Shipment	
	Codes.	
	Value is null for non-successful API	
	responses.	

#### **Action: Get Shipment Details**

Action card to get details about a specific shipment including the shipment state and the shipment items used for the pre-registration of a WebAuthn credential.

## **Input - Get Shipment Details**

Field	Definition	Туре	Req'd
Shipment ID	ID for a specific shipment.	Text	TRUE

**Output - Getting Shipment Details** 

Field	Definition	Туре
Shipment State ID		Number
	The shipment state of the newly created	
	shipment. For values, see Shipment State Codes.	
	Value is null for non-successful API responses	
Shipment Items		
	List of items included in the shipment. Underlying objects include details for each item.	List of objects
	product_data: Details about a shipment item. Includes: - serial - version - fido_pin_response - fido_credential_response	List of objects
		Text
	serial: Serial number of the item	
	version: Firmware version of the item	Text
		Text
	fido_pin_response: PIN for the item. Is encrypted as a JWE string.	
	This string should be provided to Okta's WebAuthn pre-registration activate endpoint.	
	fido_credential_response: List of FIDO	List of strings
104	credentials for the item. Is encrypted as <b>Chapter</b> - a JWE string.	13. Shipping Pre-registered Keys
	This string should be provided to	

### Action: Build Shipment Item

Action card that builds a shipment item used in the Create shipment request action card.

#### Input - Build Shipment Item

Field	Definition	Туре	Req'd
Customization ID	ID associated with the specific Yubico customization assigned to an organization.	Text	TRUE
Product ID	ID associated with the specific YubiKey format.	Number	TRUE
Inventory Product ID	ID for the "bucket" containing credits for YubiKey ordering.	Number	TRUE
Quantity	Number of keys to include in this shipment (current limitation is 1).	Number	TRUE
PIN Request - Encrypted	Customization options for YubiKey PIN generation, wrapped as a JWE string. This string is the output provided by Okta's WebAuthn pre-registration enroll endpoint.	Text	TRUE
Credential Requests - Encrypted	PublicKeyCredentialCreatic for WebAuthn credential creation, wrapped as a JWE string. This string is the output provided by Okta's WebAuthn pre-registration enroll endpoint.	List of strings	TRUE
106	Note: This input item is noted as a as list. This is due to YubiEnterprise's API	Chapter 13. Sh	ipping Pre-registered Keys

### **Output - Build Shipment Items**

Field	Definition	Туре
Shipment Item		Object
	Object that contains configuration details	
	for an item to include in a shipment.	

#### Action: Get Public Transport Keys and Signing Certificate

Action card to pull the current public Yubico transport and signing keys used to encrypt the PIN and credential request payloads.

#### Input - Get Public Transport Keys and Signing Certificate

No input required.

#### **Output - Get Public Transport Keys and Signing Certificate**

Field	Definition	Туре
		Object
Transport Keys - JWKS	Yubico JWKS (JSON Web Key Set) used for deriving an ECDH shared secret. Primarily used for encrypting the PIN and credential requests for the YubiEnterprise API.	
		Object
Signing Public Keys - JWKS	Yubico JWKS (JSON Web Key Set) containing signing certificates used for signing PIN and credential responses from the YubiEnterprise API.	

## **13.2.2 Implementation Overview**

The following provides an overview of prerequisites and steps to get started using Yubico FIDO Pre-reg with Okta, and create a first shipment of pre-registered YubiKeys to an end user.

#### **Prerequisites**

Ensure you have the following before starting the implementation procedure:

- Access to a YubiEnterprise Console organization with FIDO Pre-reg enabled.
- Customization IDs (CID) and Product IDs for the YubiKey models you will be shipping to end users. These IDs are provided by Yubico during onboarding of your organization.
- A YubiEnterprise API token. See Generating API Tokens.
- For an overview of the Okta authentication with pre-enrolled YubiKeys, see Require phishing-resistant authentication with pre-enrolled YubiKey (Okta documentation).
- Ensure you have an Okta Identity Engine (OIE) tenant with Adaptive MFA and Okta Workflows entitlements in place.
- In order for users to be able to authenticate with a security key, ensure that FIDO2 WebAuthn is enabled in your Okta tenant. In the **Okta Admin Console**, configure **User verification** to use the **Preferred** option as described in Add the FIDO2 (WebAuthn) authenticator section (Okta documentation).

**Note:** The FIDO Alliance recommends UV=Required. However, you will need to assess the impact of UV=Required based on your organization's current settings, as it may impact users across operating systems and browser types if a PIN is not set. Preferred is an option, if you are concerned about blocking other users.

**Important:** It is strongly recommend to immediately add a backup YubiKey, WebAuthn, or Fastpass enrollment as protection in case the YubiKey is lost.

### Procedure

The Yubico FIDO Pre-reg workflow template for Okta is flexible and you can request a pre-registered YubiKey using the following methods:

- MFA initiated trigger shipments using Pre-enrolled authenticators in Okta Workflows console (for an individual user).
- **Group Add** trigger shipments using the Group Add flow in the Okta Workflows console (for an individual user or multiple users).
- **Batch requests** use the API to order YubiKeys for multiple users. For more information, see Order pre-enrolled YubiKeys in a batch (Okta documentation).

Select the applicable method for your organization and follow these steps to set up the Yubico FIDO Pre-reg integration and create a first shipment request:

- 1. Create groups for new and existing users
- 2. Configure the Okta policies
- 3. Add the Yubico FIDO Pre-reg Workflow template

- 4. Configure the workflow connections
- 5. Add new users to the directory
- 6. *Create a shipment request*

# 13.2.3 Creating Groups for New and Existing Users

In this step you will create groups for new and existing users in Okta. For information on how to do this, see Create groups for new and existing users (Okta documentation).

# 13.2.4 Configuring Okta Policies

In this step you will configure the Okta policies to support the Yubico FIDO Pre-reg integration.

### **Global Session Policy**

Create a Global Session Policy that is configured to establish the user session with any factor that is *not a password*. For information on how to do this, see Configure a global session policy (Okta documentation).

### **Authenticator Enrollment Policy**

Authenticator enrollment policies let you manage how and when your end users enroll authenticators, for example to use "WebAuthn Only". For more information, see Configure an authenticator enrollment policy (Okta documentation).

# 13.2.5 Adding the FIDO Pre-reg Workflow Template

In this step you will add the Yubico FIDO Pre-registration Okta workflow template to your Okta instance. The template includes flows for example for shipment triggers, shipment processing, and credential mapping.

To add the workflow templates to your Okta instance, do the following:

- 1. Go to the **Okta Workflows Template** catalog.
- 2. Locate the **Yubico FIDO Pre-reg Workflow** template by searching for "Yubico FIDO Pre-reg" in the search bar within the Okta Workflows console.
- 3. Click Add Template.

# **13.2.6 Configuring Workflow Connections**

In this step you will authorize and configure the Create shipment workflow connections.

#### **Generating an Authorization Token**

When you add a Yubico card to a flow the first time you are prompted to authorize the connection. This requires an API token generated from the YubiEnterprise Console. Once you have configured the connection and saved the API token, you can reuse it for other YubiEnterprise-related actions. To generate the token if not already done, see *Generating API tokens*.

#### **Creating Connection from Okta Org**

Do the following to create the connection from the Okta org:

- 1. In the Okta Admin console, open Workflows and click Connections > New Connection.
- 2. Locate and select the Okta connector icon.
- 3. Add a display name for the connection in the Name field, and provide a description.

	New Connection	
General	Permissions	
Name		
Okta Devi	ices	
Description	n	
Client ID		
Client Secr	ret	
Domain - w	vithout 'https://' or '-admin'. E.g 'atko.okta.com'	

- 4. Enter the Client ID and Client Secret values provided in Okta Workflows OAuth.
- 5. In the **Domain** field, enter your Okta org domain without https://, for example, company.okta.com. If your org uses a custom domain, enter the custom domain.
- 6. Click Create.

### **Creating Connection from Yubico Org**

Do the following to create a connection from the *Yubico org*:

- 1. If not already done, generate an API token as described in *Generating an Authorization Token*. Save the API token in a location from where you can easily copy and paste it.
- 2. In the Okta Admin console, open Workflows and click Connections > New Connection.
- 3. Locate and select the Yubico connector icon.
- 4. Provide a display name for the connection in the **Connection Nickname** field, paste the previously generated API token into the **API Secret** field.

New Connection	
Y	
Connection Nickname	
Yubico	
API Secret	
	0
Back Need Help?	Cancel

5. Click Create.

#### Updating the Create Shipment - Group Add Flow

If requesting a pre-registered YubiKey via the *Group Add* flow, you will need to add customization and product IDs to the Create shipment - Group Add flow as described in the following:

1. In the Okta Admin console, open Workflows, select Flows and open the Create shipment trigger - Group add workflow.

6	Workflow	VS	Home Rows Connections Templates		
	Yubico FIDO Pre-r	egistration			
	Yubico Fl	DO P	re-registration ©		
	+ New Flow		9		
	THE 🕇	CRU/OFF	NOS	ICTIONS	YINCT294
ſ	9 App Event	Ð	Oreate shipmeet trigger - Group add	0 =	e o never san
l	🕈 App Event	C	Orazle shipmaert trigger - MFA miliated	240	e u Ineversion
	O Helper	C	Call activate API	6 💓 🗖 ≡	e o never ran
	O Helper	C	Call evoluted all	0 🗉 🛛 👀	never ran
	O Helper	C	Orante obigment	d <b>d</b> 🗐 💓	e o never ran
	O Helper	C	Invato abjenset ham	0 🗏 💼	e e rever ran
	0 Helper	C	Map Credental XNE	Ð	©0 nover can
	O Helper	C	Mp credential response to envolment O	0 🔳 👗	never ran
	O Helper	C	Map Factor/D to Key ID	Ð	e 0 never ran
	O Helper	C	Process product data	0 1 1	e o never san
	O Helper	C	Process phipment	() ()	e 0 never san
	🖀 Schedule	C	Process shipments (cron job)	= <b>=</b> =	eu never ran

2. In the Create shipment page, open the dropdown menu on the Edit Conditions card.

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	x) (
Contraction of the contraction o	inted low
Image: And the former         Image: And the former <td< td=""><td>ion information</td></td<>	ion information

- 3. Update the fields as described below using input values provided by Yubico during onboarding of your organization. Note that in this example, the product\_id is "1" for key model *YubiKey 5 NFC* and "29" for key model *YubiKey 5C NFC*. For more information, see *Product and Inventory Identifiers*.
  - a. If product\_id (for *YubiKey 5 NFC*): Your Customization ID.
  - b. If inventory\_product\_id: Your Subscription ID.
  - c. Else if product\_id (for YubiKey 5C NFC): Your Customization ID.
  - d. Else if inventory\_product\_id: Your Subscription ID.

Assign		*	if Group == "YubiKey" ~	Hide Outputs
Customization ID	Aa▼		+ Flow Control × + Assian	‡ product_id
				デ product_id
nventory Product ID	123-		product_id 123*	2 moduct_id
106			<i>x</i>	Drea autaut here
lick or drop here to cre	14		Click or drop here to cre	brag ouput here
				Click or drag to create
Customization ID			;; product_id	
Inventory Product ID			0 Þ Q 🗅 🌣	
				0
P Q	U *			
Flow Control Assign	×	• [	Else lf Group == "YubiKey" V	Hide Outputs
Flow Control Assign	×	• [	Else If Group == "YubiKey" > + Flow Control Assign + +	Hide Outputs
Flow Control Assign	Aa•	• [	Else If Group == "YubiKey"	Hide Outputs
Flow Control Assign	Aa•	+ [		Hide Outputs
Flow Control Assign Customization ID Inventory Product ID 106	Aa•	• [	Ekelf       Group == "YubiKey"         +       Flow Control         Assign         product_id         123*         29         Citie of a bit is in the set	Hide Outputs
Flow Control Assign Customization ID Inventory Product ID 106 Click or drop here to cre	Aa• 	+ [	Else If Group == "YubiKey"  + Flow Control Assign + product_id 123 - Click or drop here to cre	Hide Outputs
Eustomization ID Niventory Product ID 106 Elick or drop here to cre	Aa• 	* [	Exelf       Group == "YubiKey"          +       Flow Control         Assign       +         product_id       123 •         29	Hide Outputs
Eventory Product ID 106 Customization ID 106 Customization ID	Aa• 	+ [	Eke If       Group == "YubiKey"          +       Flow Control         Assign       *         product_id       123*         29       29         Click or drop here to cre       *         ::: product_id       *	Hide Outputs
Flow Control Assign Customization ID Customization ID 106 Customization ID	Aa• 	+	Exe [] Group == "YubiKey"   +   Flow Control   Assign   product_id   123 •   29   Click or drop here to cre   (in product_id   iii product_id	Hide Outputs

4. Click Save.

# 13.2.7 Shipping Pre-reg Keys to Users

In this step you will add new users for shipments and create a shipment request. In order to make a shipment request, the following information is required for the user, either from the Okta Universal Directory (UD) or from your organization's HRIS (Human Resources Information System):

- First Name
- Last Name
- Street Address
- City
- State/Province (two-letter format)
- Postal Code
- Country Code
- Primary email
- Secondary email (for onboarding *new* users to receive a PIN)
- Primary phone number

• Organization

### Adding New Users to Directory

The following describes how to add a *new* user with status "Staged" in Okta. For more information, see Create staged user (Okta documentation).

To add a new user, do the following:

- 1. In the **Okta Admin** console, go to **Directory > People** and click **Add person**.
- 2. In the Add Person dialog, enter information as follows:
  - First name, Last name, and Username.
  - Primary email (work email) for active users.
  - Secondary email (personal email used prior to activation for new users).
  - Do not assign the user to any YubiKey groups, this is done later.
  - Set Activation to "Activate later". This creates the user in status "Staged".
- 3. Click Save.
- 4. On the **People** page, go to **Staged** > **User** > **Profile** > **Edit**.
- 5. Enter the following information required for key shipment: **Primary phone**, **Street address**, **City**, **State**, **Zip code**, **Country code**, and **Organization**.
- 6. Click Save.

#### **Creating a Pre-reg Shipment Request**

In this step, you will create a Yubico FIDO Pre-reg shipment request. You can create shipment requests either through the Okta Admin console using Okta Groups, or using the API for batch shipment requests. See *Integration Procedure*.

In this example we will use the **Pre-enrolled authenticators** option in the **Okta Workflows** console to create a shipment request.

Note: Only one FIDO Pre-reg YubiKey at a time can be requested for an Okta tenant.

To create a shipment request, do the following:

1. In the Okta Workflows console, ensure the Create shipment trigger - MFA initiated flow is enabled.

**Note:** It is recommended that only one flow at a time be enabled: either the **Group Add** or the **MFA Initiated** flow.

🙆 Workflo	ws	Home Flows Connections T	Templates	
> Yubico FIDO Pre-	reg (EA)			
Yubico F Use this one	IDO P	re-reg (EA) 💿		
Flows (12)	Tables (1			
+ New Flow		Q,		
түре 🕇	ON/OFF	NAME		ACTIONS
🕈 App Event	$\odot$	Create shipment trigger - Group add		◎ ≡ ஃ ≡
🕈 App Event	C	Create shipment trigger - MFA Initiated		<u>19</u>
O Helper	C	Call activate API		00
O Helper	C	Call enrollment API		0 = 0 🕚
O Helper	C	Create shipment		D 🗯 🗐 🚫

- 2. In the **Okta Admin** console, ensure the user to whom you want to ship the key has a profile in the user directory. If not, create a new user as described in *Adding New Users to Directory*.
- 3. Click the profile of the desired user and do the following:
  - If using the Okta Universal Directory (UD) to source the shipping information, ensure this is populated in the user profile.
  - Alternatively, confirm the user's shipping information is being sourced from an HRIS or other source of truth.
- 4. In the user profile, click **Pre-enrolled authenticators** and then click + Add.

C Reset or Remove password     More Actions •       Image:					
Applications	Groups	Profile	Devices	Admin roles	Pre-enrolled authenticators
Security Key	,				
NAME			s	TATUS	
Add a pre-enrolled security key         Use your YubiEnterprise Delivery account to send this user a pre-enrolled YubiKey for phishing-resistant authentication.         Learn more       + Add					

5. On the **YubiKey enrollment and delivery** page, enter the **Product ID**, **Inventory ID**, and **Customization ID** provided by Yubico during onboarding. See *General Prerequisites*.

🔞 YubiKey enrollment and	delivery			
Enroll the user with a WebAuthn authenticator for security keys and provide delivery information for the user to receive a YubiKey with credentials preloaded from your Yubico Enterprise Delivery inventory.				
Security key details				
Enter details for the key this user should receive. Re	eference your YubiEnterprise Console for this information.			
Product ID				
Inventory Product ID				
Customization ID				

6. On the **Yubikey enrollment and delivery** page, ensure all required fields are populated: Primary and secondary **Email address** (PIN will be sent to both), primary **Phone number**, **Organization**, and **Shipping address**.

Security key delivery Confirm the user's information is correct. Changes can be made by editing the user's profile.					
Email address to receive security key PIN Secondary personal email	yubikey.tester@myemail.com				
Note: The user's security key PIN will be sent to their personal email address. The primary email address won't be accessible until after the user activates their account using the PIN.					
Phone number Primary phone number	555555555				
Organization Organization name	Yubico				
Shipping address Street address City State Zip Code Country Code	5432 Some Street Name Santa Clara CA 95054 US				
Note: Shipping address formats aren't validated. Check your Yubico Enterprise Delivery terms for supported shipping regions' format requirements.					

7. If the user's shipping information is being sourced elsewhere, you will receive a message stating that it is missing. Ensure that the information is retrieved from another endpoint or update the profile values before continuing.

•	Delivery details missing from user profile
	To submit the form, the user's profile needs to have:
	Primary phone number
	Organization     Street address
	City     State
	Zip Code
	Country Code
	Or, <b>Continue</b> if these values will be imported from an HRIS integration.
	Update profile values

- 8. Click Continue.
- 9. The Yubico FIDO Pre-reg workflow is triggered and the fulfillment starts.

Applications	Groups	Profile	Devices	Pre-enrolled authenticators	
Security Key	,			+ Ad	kd
NAME			S	TATUS	
YubiKey				FULFILLMENT STARTED	

Yubico receives a request for a pre-registered YubiKey. The request contains all information needed to program and ship the key. When the request is fulfilled and the credential is activated by Okta, the randomly generated PIN associated with the YubiKey is emailed to the user's secondary email address (new user). For existing users, it will be sent to their primary email address.

**Note:** Once the credential is programmed onto the YubiKey, the challenge and credential data, including PIN, is purged from Yubico systems.

# 13.3 FIDO Pre-reg with Microsoft

The following describes the steps to get started using Yubico FIDO Pre-reg with Microsoft Entra ID.

**Note:** Yubico FIDO Pre-reg with Microsoft is currently in *Early Access* for identity provider Microsoft Entra ID. For more information, see Yubico FIDO Pre-reg.

**Important:** Before you start implementing Yubico FIDO Pre-reg, ensure you have the Customization IDs and Product IDs for the YubiKey models you will be shipping to end users. These IDs are provided by Yubico during onboarding of your organization. For more information, see also *Prerequisites*.

# 13.3.1 How it Works

The Yubico FIDO Pre-reg integration streamlines the deployment process with improved ease of use and enhanced security. End users receive a YubiKey, already pre-registered in the customer's Microsoft Entra ID tenant, directly from Yubico, ready to be used. All use cases such as new and existing employees as well as replacements are supported.

The image below provides an example of a customer environment setup based on Microsoft components.



### **Process Flow**

The following steps illustrate the end-to-end YubiKey delivery flow:

- 1. An authorized user (or process) triggers a YubiKey request for a user in Microsoft Entra ID via a front-end or IT Service Management (ITSM) orchestration platform.
- 2. The YubiKey request is received by the Yubico FIDO Connector App which is deployed on the customer infrastructure. The connector then makes a request over Microsoft Graph API to retrieve the necessary parameters required to create a device-bound passkey credential.
- 3. Microsoft Entra ID returns the passkey credential creation parameters for the target user to the Yubico FIDO Connector App which then encrypts the information as a credential request using JSON Web Encryption.
- 4. The Yubico FIDO Connector App creates a shipment request to the YubiEnterprise Delivery service including the form factor and shipping information, and attaches the encrypted credential request.
- 5. After passing through the YubiEnterprise Delivery service, Yubico decrypts the credential request and creates the credential (user private key) for the specified YubiKey form factor. The attestation response from the credential creation is then encrypted.
- 6. Yubico ships the YubiKey to the intended end user.
- 7. The Yubico FIDO Connector App continuously checks the YubiEnterprise Delivery service for updated shipment status.
- 8. When the shipment reaches status Shipped in the YubiEnterprise Delivery service, the Yubico FIDO Connector App captures the shipping information including tracking number, **serial number**, **firmware version**, and *encrypted* credential response and **PIN**.

- 9. The shipment status is updated in the customer's front-end system of choice.
- 10. The credential response is decrypted by the Yubico FIDO Connector App.
- 11. The YubiKey device-bound passkey credential (user public key) is registered in Microsoft Entra ID through the Microsoft Graph API.
- 12. The PIN is decrypted and provided to the customer's delivery system of choice.
- 13. The PIN is communicated to the targeted end user.
- 14. The end user authenticates to Microsoft Entra ID using their YubiKey and PIN. If the PIN was configured for one-time use, the user will be prompted to change the PIN.

The following sections provide an overview of solution features and components.

#### **Customer Orchestration**

The custom-developed Customer Orchestration connects the various solution components and drives the interaction between them.

- Interacts with an HR system or other sources to get user addresses for shipments.
- Interacts with Microsoft Entra ID to initiate the registration of YubiKeys on behalf of end users.
- Interacts with Yubico APIs to request shipment of YubiKeys to end users.
- Communicates with end users to provide the PIN, separate from the YubiKey delivery.

The Customer Orchestration represents an aggregate of functional requirements for the orchestration, and can be implemented in any number of platforms, automation tools, or code. For example for Microsoft customers, the orchestration requirements can be fulfilled using services like Azure Logic Apps, Azure Function Apps, or other services in their Microsoft Azure subscription.

Yubico provides the FIDO Connector App that can be deployed to Microsoft Azure to perform the most complex orchestration parts. For more information, see *Yubico FIDO Connector App*.

Different components and orchestrations can be used for different use cases. Some onboarding YubiKey issuing workflows can be completely automated using Identity Governance and Administration (IGA) tooling. Other self-service workflows or admin-requested YubiKeys might involve manager approvals using ITSM tooling like ServiceNow.

The Customer Orchestration implements the client-side of the encryption/decryption scheme. It supports the encryption/decryption of individual elements in the credential request and response messages so that the PIN and other passkey (FIDO2) credential information remains accessible only to the Customer Orchestration. For more information, see *Security Features*.

The Customer Orchestration components can be configured, customized, and deployed by an IT administrator or a Customer Orchestration developer.

#### Yubico FIDO Connector App

The Yubico-developed FIDO Connector App is easily deployed to a Microsoft Azure subscription and handles most of the Customer Orchestration complexities:

- Exposes an API that can be easily called from forms, processes, workflows.
- Performs all interactions with the Microsoft Graph API for registering YubiKeys in a Microsoft Entra ID tenant.
- Performs all transport encryption before securely transmitting the credential information from the Customer Orchestration to the Yubico FIDO Pre-reg service.

- Keeps track of pending shipments and actively polls the Yubico FIDO Pre-reg service to check on status and updates to pending Yubico FIDO Pre-reg requests.
- Once the shipment request is ready, the app decrypts and verifies the authenticity of the response from the Yubico FIDO Pre-reg service.
- Completes the registration of the YubiKey by calling the Microsoft Graph API.
- Emails the PIN to the correct contact (end user's manager by default).

#### Yubico FIDO Pre-reg API

The Yubico FIDO Pre-reg API provides a shipping request API to the Customer Orchestration and generates fulfillment requests to Yubico. The API supports the communication of encrypted credential registration data between the Customer Orchestration and Yubico.

The Yubico FIDO Pre-reg API is an extension of the YubiEnterprise API which is a cloud-based service facilitating the global distribution of YubiKeys. For more information, see YubiEnterprise API.

#### **Security Features**

The following provides an overview of security features of an implementation of FIDO Pre-reg with Microsoft.

#### **Microsoft Entra ID Access**

Yubico has no access to enroll and/or activate user passkey (FIDO2) credentials directly into a customer's Microsoft Entra ID tenant. Instead, all interactions with Microsoft Entra ID are handled by the Customer Orchestration.

#### **Pre-Registered** Credentials

Since Yubico has no access to the customer's Microsoft Entra ID tenant, Yubico registers authenticators (YubiKeys) using the passkey credential creation parameters provided in a customer-initiated shipment request. The credential responses are then returned for retrieval by the Customer Orchestration, and the credential details are used by the Customer Orchestration to register YubiKeys with Microsoft Entra ID.

#### **PIN Provisioning**

Yubico generates a PIN for a given YubiKey and returns it to the YubiEnterprise Delivery service for retrieval by the Customer Orchestration, which then decides how that PIN gets communicated to the end user.

#### **Transport Encryption**

To mitigate the risk of exposing sensitive information, for example creation parameters, serial numbers, and PIN related to YubiKey assignments within the YubiEnterprise Delivery service, all data transferred from the Yubico environment to the Customer Orchestration system is encrypted using a secure transfer mechanism. This ensures that Yubico personnel and systems have no access to or visibility into, any credential-related data at any stage of the process.

## 13.3.2 Implementation Overview

The following provides an overview of the steps to get started using Yubico FIDO Pre-reg with Microsoft Azure components and Entra ID to create a first shipment of a pre-registered YubiKey.

#### **Prerequisites**

Ensure you have the following before starting the implementation procedure:

- Access to a YubiEnterprise Console organization with FIDO Pre-reg enabled.
- Customization IDs (CID) and Product IDs for the YubiKey models you will be shipping to end users.

Note: Customization and Product IDs are provided by Yubico during onboarding of your organization.

- A YubiEnterprise API token. See Generating API Tokens.
- An ARM Template JSON file, provided by Yubico.
- A Docker Image for the Yubico FIDO Connector App, provided by Yubico.
- An Azure Resource Group permissions template provided by Yubico.
- The following administrative roles are required for the implementation:
  - Application Administrator when registering apps (Microsoft Entra ID).
  - Authentication Policy Administrator when enabling passkey authentication (Microsoft Entra ID).
  - Global Administrator when registering apps and granting admin consent for tenant (Microsoft Entra ID).
  - Privileged Role Administrator when granting Logic App permissions (Azure deployment).

#### Procedure

Follow these steps to set up the components required for using Yubico FIDO Pre-reg with Microsoft, and create a first shipment of pre-registered YubiKeys to an end user.

- 1. Configure required Azure permissions
- 2. Configure authentication and register apps in Microsoft Entra ID
- 3. Deploy apps and infrastructure components in Azure
- 4. Create a shipment request

The sections in the following describe each step in detail.

# 13.3.3 Configuring Azure Permissions

In this step you will add permissions required for developers that will deploy and configure the applications in Azure.

When adding the permissions, use one of the following options:

- Use an existing account with the required permissions.
- Create a Resource Group and add a custom role using a *predefined permissions template*. The steps to do this are described in the following.

### **Creating a Resource Group**

If not already available, you must create an Azure Resource Group prior to adding the required user permissions.

To create a Resource group, do the following:

- 1. Log in to the Azure Portal.
- 2. Search for and select "Resource groups".
- 3. Click Create.
- 4. Select the appropriate Subscription and Region, and provide a descriptive Resource group name, for example "Yubico FIDO Pre-reg Service".
- 5. Click **Review + create**.

#### Adding a Custom Role

To add a custom role with the required permissions, do the following:

- 1. In the **Azure portal**, create a custom role with the permissions from the *predefined permissions template* scoped to the previously created Resource group.
- 2. When the custom role is created, assign the new "Privileged administrator role" to the user or the security group that is deploying the resources.

**Note:** The "Microsoft.Authorization/roleAssignments/write" permission results in the new role being a *Privileged administrator* role.

### **Assigning an Email License**

To support the PIN mailing function, the designated sender account will need to have the required licensing. This setup uses the Microsoft 365 email service. If you want to use a different email service, you can update the "Send\_shipment\_pin Logic App flow" after the deployment to use a preferred delivery service.

To assign an Microsoft 365 license to the account, do the following:

- 1. Log in to the Microsoft 365 admin center.
- 2. Go to **Billing > Licenses** and assign a license granting access to Microsoft 365. If your organization requires additional licenses you might need to work with the Billing Account Owner or Billing Account Contributor.

# 13.3.4 Configuring Microsoft Entra ID

In this step you will configure Microsoft Entra ID for authentication and authorization management.

To complete all configuration steps described below, the following roles are required.

- Application Administrator
- Authentication Policy Administrator
- Global Administrator
- Privileged Role Administrator

## **Enabling Passkey (FIDO2) Authentication**

In this step you will configure the authentication methods policies used in Microsoft Entra ID.

**Note:** To complete these configuration steps you must have either the *Authentication Policy Administrator* or the *Global Administrator* role.

To configure the Microsoft Entra ID policies to allow the use of YubiKeys, do the following:

- 1. Log in to the Microsoft Entra admin center as at least an Authentication Policy Administrator.
- 2. Go to Protection > Authentication methods > Policies.
- 3. Under the method **Passkey** (**FIDO2**), set the toggle to "Enable". Select "All users" or "Add groups" to select specific groups. Only security groups are supported (you cannot use dynamic groups or individual users).
- 4. **Save** the configuration.

The **Configure** tab has additional settings to control the type of passkeys supported in the customer tenant, and their registration requirements:

- Allow self-service set up: Must be set to "Yes". If this is disabled, YubiKeys cannot be registered, not even using administrative registration processes.
- Enforce attestation: Recommended setting "Yes". Using cryptographic evidence attestation ensures that registered authenticators are genuine YubiKeys and not fraudulent products or low-assurance passkey credentials (which might not be able to support attestation).
- Enforce key restrictions: Recommended setting "Yes". This lets your organization allowlist specific YubiKey models by their associated Authenticator Attestation GUID (AAGUID). For more information, see YubiKey hardware FIDO2 AAGUIDs.

**Important:** If security keys such as device-bound passkeys or other types of passkeys are already used in your Microsoft Entra ID environment, ensure that these configuration changes do not break the sign-in for existing users.

For more information, see Enable passkeys (FIDO2) for your organization (Microsoft documentation).

#### **Registering Apps**

In this step you will register the Yubico FIDO Connector App and the Yubico FIDO Pre-reg Test Client (optional).

An app must be registered to allow the app itself to connect to the Microsoft Graph API, and to allow other clients such as Entra ID IGA, test clients, ServiceNow and other custom applications, to connect to the app to invoke requests.

It is recommended that any forms, processes, and workflows used to call the Yubico FIDO Connector App follow a similar registration pattern with distinct credentials as described in the following.

**Note:** Most of the registration steps can be performed by an admin user with the *Application Administration* role. However, to complete some steps a user with the *Global Administrator* role is required as indicated in the procedure.

#### Yubico FIDO Connector App

To register the Yubico FIDO Connector App, do the following:

1. Log in to the Microsoft Entra admin center and go to Applications > App registrations.

- 2. Click + New registration.
- 3. Provide a descriptive name, for example "Yubico FIDO Pre-reg Service", and click Register.
- 4. Under Manage, click API permissions.
- 5. Click + Add a permission.
- 6. Select "Microsoft Graph".
- 7. Click Application permissions.
- 8. Search for "UserAuthenticationMethod.ReadWrite.All" and select the permission.
- 9. Click Add permissions.
- 10. Next to the list of permissions, select "Grant admin consent for {tenant name}".

Note: The Global Administrator role is required for this step.

- 11. Under Manage, click Expose an API.
- 12. Click Add next to the Application ID URI.
- 13. Edit the Application ID URI to a value like "api://fido-connector-api.{verified domain name}.
  - The verified domain name can be either a custom domain that has been verified by the tenant, or you can use the default domain that ends with ".onmicrosoft.com".
  - The Application ID URI represents the scope that clients will use when authenticating to call the API. This value will be populated as an ARM template parameter FIDO\_Connector\_Allowed\_Audiences. The URI does not need to be resolvable, but should have a descriptive scope name.
- 14. Click + Add a scope and set the following:
  - Scope name: "create\_request"
  - Display name fields: "create\_request"
  - Description fields: "Allows Yubico FIDO Pre-reg requests"
- 15. Click Add scope.
- 16. Under Manage, click Certificates & secrets.
- 17. Click + New client secret.
- 18. Provide a name for your client secret and accept the recommended expiration.
- 19. Click Add.
- 20. Copy the client secret. This will be used in the ARM template as FIDO\_Connector\_Client\_Secret.
- 21. Go to **Overview** and copy the **Application** (client) **ID** value. This will be used in the ARM template as FIDO\_Connector\_Client\_Id.

For more information, see Register an application with the Microsoft identity platform (Microsoft documentation).

#### Yubico FIDO Pre-reg Test Client

Registering this app is *optional*. However, the app is useful when testing direct calls to the Yubico FIDO Connector App. The application credentials created here can be used in a Postman test client or any other HTTP test client when testing the app deployment.

To register the Yubico FIDO Pre-reg Test Client app, do the following:

- 1. Log in to the Microsoft Entra admin center and go to Applications > App registrations.
- 2. Click + New registration.
- 3. Provide a descriptive name like "Yubico FIDO Pre-reg Test Client" and click Register.
- 4. Under Manage, click Certificates & secrets.
- 5. Click + New client secret.
- 6. Provide a name for your client secret and accept the recommended expiration.
- 7. Click Add.

The app credentials you created here will be used later when testing the app deployment. For more information, see *Testing*.

#### **Other Forms and Workflows**

It is recommended that any forms, processes, and workflows used to call the Yubico FIDO Connector App follow a similar registration pattern with distinct credentials, as described here for other app registrations.

## **13.3.5 Azure Deployment**

In this step you will deploy the Yubico FIDO Connector App itself along with the underlying infrastructure and required configuration changes.

#### **Prerequisites**

Before you start the deployment, ensure you have the following:

- Access to a YubiEnterprise Console organization with FIDO Pre-reg enabled, along with a YubiEnterprise API token. See Generating API Tokens.
- An ARM Template JSON file, provided by Yubico.
- A Docker Image for the Container app, provided by Yubico. The Docker image contains the Registry name/password used in the deployment.
- Completed all steps in the *Configuring Microsoft Entra ID*. This includes developer permissions to deploy Azure services, along with FIDO policies, as well as *App registrations*.

#### Procedure

These are the steps to deploy the components in Azure:

- 1. Deploy the ARM template
- 2. Modify private endpoints for Azure Vault and Storage
- 3. Configure the Container app
- 4. Grant permissions to the Container app
- 5. Grant permissions to the Logic App
- 6. Authorize Logic App to use Office 365 connector

Each step is described in detail in the following.

### **Deploying ARM Template**

To deploy the ARM template, do the following:

- 1. Log in to the Azure portal.
- 2. In the Home view, search for and select "Deploy a custom template".
- 3. Click **Build your own template in the editor**.
- 4. Click Load file, then select the ARM template file provided by Yubico.
- 5. Click Save.
- 6. In the configuration menu, provide the following values:
  - Subscription: Select your Azure Subscription.
  - Resource group: Select or create a resource group for this deployment.
  - Region: Leave as default, all resources are deployed to the local region of the resource group.
  - YED\_API\_TOKEN: Paste in the token generated in *Prerequisites*.
  - Key Vault\_Resource\_Name: Provide a unique name for your key vault instance.
  - Container\_App\_Name: Provide a unique name for your container app.
  - Container\_Registry\_Name: Use the Registry name from *Prerequisites*.
  - **Container\_Image\_Name\_Tag:** Use the Registry Container Image name and version Tag from *Prerequisites*.
  - Container\_Registry\_User: Use the Registry user name from *Prerequisites*.
  - Container\_Registry\_Password: Use the Registry password from *Prerequisites*.
  - FIDO\_Connector\_Client\_Id: Client ID from the app registration.
  - FIDO\_Connector\_Client\_Secret: Client Secret from the app registration.
  - FIDO\_Connector\_Allowed\_Audiences: List of scopes/audiences that a client application must use for calling the app's API. The default value used earlier was api://fido-connector-api.{verified domain name}. Ensure this is formatted as an array of strings, for example ["scope\_1", "scope\_2"].
  - **FIDO\_Connector\_Allowed\_Client\_Apps:** List of app registrations that are allowed to call this app's API, as registered in *client app registrations*. The optional app registration, if performed, can be used as the ID string. Ensure that the formatting is an array of strings including each client app ID. Example: ["client\_app\_id\_1"].
  - Storage Account\_Resource\_Name: Provide a unique name for your storage instance.
  - Workflows\_Send\_shipment\_pin\_name: Leave as default, or enter a name based on your preferred naming convention.
- 7. Click **Review + create**.
- 8. When the validation completes, click **Create** and wait for your application to deploy.

**Note:** The following parameters in the ARM template have appropriate predefined values for standard Microsoft Azure deployments. They do not need to be changed unless specifically advised by your IT department, for example for government deployments:

- MS\_Login\_Online\_Endpoint
- MS\_Graph\_Endpoint

- Azure\_Mgmt\_Endpoint
- Azure\_Storage
- Azure\_Vault

#### **Modifying Private Endpoints**

The ARM template includes a reference implementation of a virtual network, subnet and private endpoints for Azure Vault and Storage resources used by the FIDO Connector Container App. You can use this reference as a basis to further modify as per the network settings of your environment. The predefined values of the following parameters typically do not need to be changed.

- virtualNetworkName
- virtualNetworkAddressPrefix
- subnetName
- subnetAddressPrefix
- keyVaultPrivateEndpointName
- tableStorageAccountPrivateEndpointName

#### **Configuring Container App**

To configure environment variables for the Container app, do the following:

- 1. In your **Container App** resource, go to **Application > Containers**.
- 2. Click Edit and deploy.
- 3. In the Properties tab, set the Image source to "Docker Hub or other registries".
- 4. In the Container tab, click yubicofidopreregcontainer in the Container Image section.
- 5. On the Properties tab, for Image source select "Docker Hub or Other Registries".
- 6. Click Environment Variables.
- 7. Set SEND\_PIN\_URL as follows:
  - a. Go to your **Resource Group**.
  - b. Open the logic app resource **Send\_shipment\_pin**.
  - c. Copy the value "Workflow URL".
  - d. Paste it into the SEND\_PIN\_URL value field.
  - e. Click Save.
- 8. Click Create.
- 9. Wait for your application to instantiate.

#### **Granting Container App Permissions**

Note: This step requires Owner role, or role that can create role assignments.

To configure the managed identity for the Container app, do the following:

- 1. In your **Container App** resource, go to **Settings > Identity**.
- 2. Click Azure role assignments.
- 3. Click Add role assignment and apply the following values:
  - a. Scope: Key Vault.
  - b. Subscription: Your subscription.
  - c. Resource: The Key Vault deployed by this project.
  - d. Role: Key Vault Administrator.
- 4. Click Save.
- 5. Click Add role assignment and configure as follows:
  - a. Scope: Storage.
  - b. Subscription: Your subscription.
  - c. Resource: The Storage Account deployed by this project.
  - d. Role: Storage Table Data Contributor.
- 6. Click Save.

#### **Granting Logic App Permissions**

Note: These configuration steps require either the Privileged Role Administrator or Global Administrator roles.

To add authorization for the Send\_shipment\_pin Logic App to call the Microsoft Graph API, do the following:

- 1. In the **Send\_shipment\_pin** Logic App, go to the resource group where the **Send\_shipment\_pin** Logic App was deployed.
- 2. Select the "Send\_shipment\_pin" Logic App.
- 3. Go to **Settings > Identity**.
- 4. Copy the value for **Object** (principal) ID.
- 5. Go to Entra ID in the Azure portal.
- 6. Go to Manage > Role and administrators.
- 7. Select the role "Directory Readers".
- 8. Click + Add assignments.
- 9. Under Select members, select "No member selected".
- 10. In the search field, paste the "Object (principal) ID" copied from step 4.
- 11. Select the Enterprise Application displayed and click Select.

- 12. Click Next.
- 13. Ensure the Assignment type is selected as "Active".
- 14. Enter a justification and click Assign.

#### Authorizing Office 365 Usage

To authorize the Send\_shipment\_pin Logic App to use the Office 365 connector, do the following:

- 1. In the **Send\_shipment\_pin** Logic App, go to the resource group where the **Send\_shipment\_pin** Logic App was deployed.
- 2. Select the "Send\_shipment\_pin" Logic App.
- 3. Go to **Development tools > API connections**.
- 4. Select the "office365" connection.
- 5. Go to General > Edit API connection.
- 6. Click Authorize.
- 7. Log in with the account that will be used as sender of Yubico FIDO Pre-reg PIN emails.
- 8. When logged in, click Save.

#### Testing

In this step you will retrieve an access token and make an API call to test that the app was correctly deployed to your environment. In the test you will leverage the APIs directly, for example by using a client like Postman, or any HTTP client. The test assumes that you have registered the Yubico FIDO Pre-reg Test Client as described in *Registering Apps*.

To retrieve an access token, do the following:

- 1. Go to the previously created Yubico FIDO Pre-reg Test Client.
- 2. From your client, make an API call using the following request:
  - Method: POST
  - URL: https://login.microsoftonline.com/{your azure tenant domain}/oauth2/v2.0/ token
  - Header: Content-Type application/x-www-form-urlencoded
  - Body:
    - grant\_type: client\_credentials
    - client\_id: Client ID created for the Yubico FIDO Pre-reg Test Client.
    - client\_secret: Client secret from when you created the test client.
    - scope: api://fido-connector-api.{verified domain name}/.default
- 3. Send the request.
- 4. From the response, copy the access\_token value.

To call the API, do the following:

- 1. From your client, make an API call using the following request:
  - Method: GET

- URL: https://{url of your container app}/v1/status. For base URL, copy the Application URL from your Container App.
- Header:
  - Authorization Bearer {access\_token from previous step} Example: Bearer eyJ0...
  - Content-Type application/json
- 2. From this API call you should receive a 200 status code, with a response payload that outlines the different environment configurations that were made during setup of the components. Double-check these responses to ensure that they are correct.

## Troubleshooting

The following provides basic troubleshooting steps for common deployment issues.

#### Where to start?

- 1. What is the error message that you are getting?
- 2. Verify the environment variables and key vault values:
  - a. Key Vault Administrator is required to view key vault entries.
  - b. Verify secrets entries for the YubiEnterprise API. Must be a valid token retrieved from the YubiEnterprise Console, see *Generating API Tokens*.
- 3. Review response message from the Credential API Container App.
- 4. Check Container App Logs.
- 5. Verify Environment Variables.
- 6. Verify Azure Key Vault values.

#### Verifying shipment status in storage browser

- 1. Log in to the Azure portal.
- 2. Go to the **Resource Group**.
- 3. Go to Storage Account > Storage Browser > Tables.
- 4. Click the **fprshipments** table.
- 5. Find the desired shipment by shipmentId.
- 6. Verify that the state of the shipment is complete. A shipmentId status that is not updated to "complete" will continue to retry. Once you investigate and resolve the issue, the status can be manually updated to "complete".
- 7. If a shipmentId has encountered an error during processing, it will be recorded in the **fprshipments** table fields error\_kind and error\_message.
- 8. Once you have investigated and resolved the issue, the shipment will be reprocessed during the next scheduled run to "complete" status. Alternatively, the status can be manually updated to "complete" if the cause of the error cannot be resolved.

**Note:** The shipment status and processing error recorded in the **fprshipments** table can also be obtained by calling the API *Get Shipment Request Status*. You can find more details to understand the error in *Checking FIDO Connector App logs* under *Troubleshooting*.

#### Verifying delivery status of YubiKey PIN

By default Yubico FIDO Pre-reg is configured to send emails to the end user's manager. If the manager relationship for the end user is not set up, or the manager does not have an email address configured, the PIN delivery will fail.

To verify that the PIN delivery was successful, do the following:

- 1. Log in to the Azure portal.
- 2. Go to **Resource Group > Logic App**.
- 3. In the left menu, click **Development tools > Run history**.
- 4. Verify that you have a record with Status "Succeeded".
- 5. If the status is "Succeeded":
  - a. Open the history record.
  - b. Select the connector for "HTTP Get User Manager Details".
  - c. In the **Parameters** tab of the **Outputs** section, verify that **Body** has a field for the "mail" attribute populated with the email address of the end user's manager.
- 6. If the status is "Failed":
  - a. Open the history record.
  - b. Review which connector had an error and investigate the details of the error by clicking the connector.

#### Verifying that end user has YubiKey registered in Microsoft Entra ID

- 1. Log in to the Microsoft Entra admin center.
- 2. Go to **Users > All users**.
- 3. Search for the desired **User**.
- 4. Go to Authentication method.
- 5. Verify that the new YubiKey is listed.

#### Checking the Microsoft Entra ID audit log history for end user

- 1. Log in to the Microsoft Entra admin center.
- 2. Go to **Users > All users**.
- 3. Search for the desired **User**.
- 4. Go to **Audit logs**.
- 5. Filter the **Activity** column for each of the following:
  - a. "Get passkey creation options".
  - b. "Admin registered security info".
  - c. "User registered security info".
- 6. Check if any of the events indicate that an error occurred.

**Note:** If an error related to Microsoft Entra ID is encountered by the FIDO Connector App, the error\_message in the **fprshipments** table, or error entry in FIDO Connector App logs, will contain a client-request-id which is related to the "Correlation ID" in Microsoft Entra ID Audit Logs.

#### **Checking FIDO Connector App logs**

- 1. Log in to the Azure portal.
- 2. Go to the **Resource Group** where the FIDO Connector App is deployed.
- 3. Select the Container App.
- 4. Select **Monitoring > Logs**.
- 5. Within the open tab, if not already selected, in the drop-down, change from "Simple mode" to "KQL mode" (using Kusto Query Language).
- 6. Paste a KQL query similar to the following to begin identifying errors and timeframes to investigate:

```
ContainerAppConsoleLogs_CL
| where Log_s contains "WARN" or Log_s contains "ERROR" or Log_s contains "Fail"
| project TimeGenerated, ContainerName_s, Log_s
```

# 13.3.6 Shipping Pre-reg Keys to Users

The method for creating shipment requests for pre-registered YubiKeys depends on how your Yubico FIDO Pre-reg solution is set up in your Customer Orchestration environment.

As an IT administrator, you can for example trigger a shipment request for a pre-registered YubiKey through your frontend system, for example ServiceNow. Or, you can have some other integration process in your environment trigger the shipment request.

The shipment request is received by the Yubico FIDO Connector App which manages the credential encryption, requests recipient information from the customer's system, and creates a shipment request to the YubiEnterprise Delivery service. For more information, see *Process Flow* and *API Reference*.

When a shipment request for a pre-registered YubiKey has been successfully processed it will return a shipmentId. This shipment ID can be used in the YubiEnterprise Console or the YubiEnterprise Shipment API to track the request status and get shipping updates and possible error states.

# 13.3.7 Post-Deployment Operations

The following describes useful runtime parameters and some important maintenance operations that are needed to avoid service interruption due to for example rotation of YubiEnterprise API tokens.

#### **Additional Runtime Environment Parameters**

The following table lists useful parameters for the FIDO Connector App that you can change in the Azure Container if needed. To add or change these variables, navigate to the container's environment as described in *Configuring Container App*.

Variable	Default value (if not changed by Environment Variable)	Possible values
CRON_PROCESS_SHIPMENT_SCI	00****	The cron expression for the schedule that checks ongoing shipments and processes them. The default setting is to run every hour at the top of the hour. It can be changed to any valid cron expression, for example to run every 30 minutes: 0 */30 * * * *
LOGGING_LEVEL_COM_YUBICC	INFO	DEBUG
ENTRA_FIDO_API_CHALLENGE_ NUTES	20160	Numeric value representing time in minutes that the Entra FIDO challenge is valid for.
CRON_DATA_CLEANUP_COMPLI	0	The below cron schedule will purge 'complete' shipment records that are older than this value. 0 = do nothing, no records will be deleted, the schedule is effectively disabled. n = integer value means delete 'complete' shipment items older than today - n days.
CRON_DATA_CLEANUP_SCHEDU	0 30 * * * *	The cron expression for the cleanup schedule that purges 'complete' shipments and their secrets from the Azure table and vault.
13.3. FIDO Pre-reg with Microsof	t	The default setting is to run <b>133</b> at every 30 minutes past the hour.

The effective values of the various runtime environment variables can be obtained by the API *Check Deployment Component Status*.

The Process Shipment job can also be run outside of the scheduled time to process shipments on demand by using the API *Process Shipments*.

#### **Configuring Key Vault and Storage Permissions**

To be able to change the YubEnterprise API token or to view the shipments status table from the Azure portal, you need to configure appropriate user and firewall rules. The following describes how to set up these permissions in Key Vault and Storage.

Azure Key Vault Access configuration uses a permission model based on Azure RBAC (role-based access control). Access to Azure Key Vault is defined at a specific scope level by assigning appropriate Azure roles.

By default, the Resource Group Owner does not have permissions to view the contents of the Azure Key Vault. Therefore a special *Key Vault Secrets Officer* role can be assigned to a User or User Group for these to be able to access the Azure Key Vault.

To assign the "Key Vault Secrets Officer" role, do the following:

- 1. Log in to the Azure Portal.
- 2. Go to your **Resource Group > Key Vault > Access control (IAM)**.
- 3. Add role assignment "Key Vault Secrets Officer".
- 4. Select a User Group or User to assign this role to.

As a user with this permission you can now go to **Resource Group > Key Vault > Secrets** and view the Key Vault Secrets.

In this reference implementation, Azure Vault and Storage public network access is disabled. To allow IT Administrators access to Azure Vault or Storage, the IP address or range of your on-premises network must be allowed on the Azure Vault and Storage firewall settings.

To allow the on-premises network through the firewall on Azure Vault and Storage, do the following:

- 1. Log in to the Azure Portal.
- 2. Go to your **Resource Group > Key Vault > Settings > Networking**.
- 3. On the tab **Firewalls and virtual networks**, scroll down to the **Firewall** section. Add your client IP address or range, for example "10.0.10.0". Microsoft trusted services are allowed by default, but you can disable "Allow trusted Microsoft services to bypass this firewall" depending on your organizations' preferences.
- 4. Go to your **Resource Group > Storage account > Security + networking > Networking**.
- 5. On the tab **Firewalls and virtual networks**, scroll down to the **Firewall** section. Add your client IP address or range, for example "10.0.10.0". Microsoft trusted services are allowed by default, but you can disable "Allow Azure services on the trusted services list to access this storage account" depending on your organizations' preferences.

#### **Rotating API Tokens**

YubiEnterprise API tokens expire one year after generation. Since a user (API caller) 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.

To avoid service interruptions, it is recommended to regularly rotate the API tokens. The YubiEnterprise API token can be easily changed from the Key Vault objects without having to perform a complete deployment.

**Note:** Ensure that the user performing the API token rotation in Azure Key Vault has the Key Vault Secrets Officer role, see Configuring Key Vault and Storage Permissions.

To manage the API tokens, do the the following:

- 1. Log in to the Azure Portal.
- 2. Go to your **Resource Group > Key Vault > Secrets**.
- 3. List the **YubiEnterprise API** tokens and click to view versions. Open and view the current version, add a new version, and disable the previous version. For information on how to retrieve API tokens, see *Generating API Tokens*.

#### **Rotating Application Client Secrets**

The Application Client Secret created as part of the application registration steps for *Yubico FIDO Connector App* have an expiration set by the administrator.

To perform regular rotation, the Microsoft Entra ID Administrator can also delete an existing Client Secret and create a new Client Secret to be used by the registered Application.

The FIDO\_Connector\_Client\_Secret can be easily changed from the Key Vault objects without having to perform a complete deployment.

**Note:** Ensure that the user performing the API token rotation in Azure Key Vault has the Key Vault Secrets Officer role, see Configuring Key Vault and Storage Permissions.

To manage the Client Secret, do the the following:

- 1. Log in to the Azure Portal.
- 2. Go to your **Resource Group > Key Vault > Secrets**.
- 3. List the ENTRA-FIDO-API-CLIENT-SECRET and click to view versions. Open and view the current version, add a new version, and disable the previous version.

#### **Changing Microsoft 365 Email Account**

The Microsoft 365 email account is used for example to send the Yubico FIDO Pre-reg PIN to end users. If needed, the email account can be changed as described in the following.

To change the Microsoft 365 email account, do the following:

- 1. Log in to the Azure Portal.
- 2. Go to **Resource Group > Logic App**.
- 3. In the left menu, click **Development tools > API connections**.

- 4. Select Microsoft 365.
- 5. Go to **General > Edit API connection**.
- 6. Click Authorize.
- 7. Click Authorize again.
- 8. Log in with the account that will be used as the sender of emails for Yubico FIDO Pre-reg PINs.
- 9. When logged in, click Save.

### **Resending PIN Email**

The PIN email can be resent for a successfully completed shipment by using the API, see Resend PIN.

# 13.3.8 API Reference

Each deployment of the Yubico FIDO Connector will have its own instance of the API described in the following.

**Base URL:** URL provided by the Container App This URL will be dependent on the URL provided by your container app service, and will be unique for each deployment.

## **Check Deployment Component Status**

#### GET /v1/status

Provides the status of deployment components. As part of the testing, you can first do a call to /v1/status to verify that the API is operational and the client can connect to it. It is also a way to ensure that some of the key properties provided during deployment are set.

Response: On success HTTP 200. Response body:

```
{
"AZURE_TABLES_ENDPOINT": "string",
"AZURE_TABLES_SHIPMENTS_TABLE_NAME": "string",
"AZURE_KEY_VAULT_ENDPOINT": "string".
 "AZURE_TENANT_ID": "string",
"CRON_PROCESS_SHIPMENT_SCHEDULE": "string",
"CRON_DATA_CLEANUP_SCHEDULE": "string",
"CRON_DATA_CLEANUP_COMPLETED_DAYS": "string",
"EMAIL_API_SEND_ENDPOINT": "string",
"ENTRA_FIDO_API_CLIENT_ID": "string",
 "ENTRA_FIDO_API_VERSION": "string",
 "ENTRA_FIDO_API_CHALLENGE_TIMEOUT_MINUTES": "string",
"LOGGING_LEVEL_COM_YUBICO": "string",
"YE_API_BASE_URL": "string",
"YE_JWKS_SIGN_ENDPOINT": "string",
"YE_JWKS_TRANSPORT_ENDPOINT": "string"
}
```
### **Create Shipment Request**

### POST /v1/fpr/shipments

Provides the ability to place a request for shipment of pre-registered YubiKeys.

**Note:** reseller\_organization\_id is the optional Base58 Organization ID for the reseller that a shipment's inventory was purchased through. It can be omitted or sent as an empty string if no value needs to be provided. All other fields in request are required.

Input value references:

- · Character limits for yubicoShipmentRequest
- Values for product\_id and inventory\_product\_id
- Finding a customization\_id in the Enterprise Console
- YubiEnterprise API Reference

**Request:** 

```
{
"user_id": "Object ID of the user in Entra",
"pin_request": {
    "type": "generate",
    "length": 8, //value should be between 4 and 63, inclusive
},
 "yubico_shipment_request": {
    "reseller_organization_id": "Optional ID for the reseller",
    "delivery_type": 1,
    "address_validation_bypass": false,
    "recipient": {
         "recipient_company": "Company name",
         "recipient_email": "Email address", //Should be email to receive PIN, not_
→principle object name
         "recipient_firstname": "First name",
         "recipient_lastname": "Last name",
         "recipient_telephone": "5555555555"
    },
     "mailing_address": {
         "street_line1": "Street address",
         "street_line2": "Apt / unit #",
         "city": "City",
         "region": "2 char state",
         "postal_code": "Postal code",
         "country_code_2": "2 char country code"
    },
    "shipment_items": [
         {
             "product_id": 1, //YubiKey model ID
             "inventory_product_id": 18, //Subscription ID
             "product_quantity": 1, //# of keys to include
             "customization_id": "CUSTID" //Customization ID
         }
```

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] } }

#### **Response:**

- On success:
  - HTTP 201
  - Response body: Created shipment\_id from YubiEnterprise Delivery service

{"data":{"shipment\_id":"String"}}

- On error:
  - HTTP 401 Unauthorized
  - HTTP 400 Bad Request
  - Bad request, response body examples:

```
{"error_code":"ye_error","error_message":"Validation error when creating YED
shipment","error_data":{"code":"validation_error","message":"Input for Last Name
exceeded limit of 20 characters"}}
```

```
{"error_code":"api_error","error_message":"PIN `length` must be between 4 and
8","error_data":{"error_type":"validation"}}
```

```
{"error_code":"idp_error","error_message":"Could not find user: 7dc95e2f-53-...
"}
```

### **Get Shipment Request Status**

#### GET /v1/fpr/shipments/{shipment\_id}

Provides the ability to get the processing state of a shipment\_id created through the Create Shipment Request API.

The request in the FIDO Connector App has two distinct states: "ongoing" and "complete". The states are described in more detail in the following.

shipment_state	Description
ongoing	The request has been created in YubiEnterprise with a Shipment ID. Fulfillment operations and credential creation are in progress with MS Entra ID.
complete	Response from YubiEnterprise has been received, the credential has been created on the YubiKey and successfully registered with MS Entra ID.

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If a processing error has been encountered it will be saved in the **fprshipments** table and returned by the API. Details about the encountered error are provided in **error\_kind** and **error\_message** as described in the following.

Error	Description
error_kind	This field will contain a string value "GENERAL" if an error has been encountered during processing.
error_message	This field will contain a string value that has the detailed error message returned by YubiEnterprise or MS Entra ID.

#### **Response:**

- On success:
  - HTTP 200
  - Response body for a shipment request *without errors*:

```
{
   "shipment_id": "string",
   "shipment_state": "string"
}
```

- Response body for a shipment request with processing errors:

```
{
   "shipment_id": "string",
   "shipment_state": "string",
   "error_kind": "string",
   "error_message": "string"
}
```

### **Resend PIN**

GET /v1/operations/resend-pin/{shipment\_id}

Provides the ability to resend the PIN email for a shipment\_id. For a shipment request in complete status, this operation retrieves the PIN response from the YubiEnterprise Delivery service and decrypts it to resend the PIN email.

Response: On success HTTP 204, no content body.

### **Process Shipments**

#### GET /v1/operations/process-shipments

Provides the ability to trigger on-demand the process of retrieving shipment responses from the YubiEnterprise Delivery service and process them. This API is useful if shipment processing needs to be run right away instead of waiting for the scheduled job.

Response: On success HTTP 204, no content body.

### 13.3.9 Release Notes - FIDO Connector

The following lists new features, resolved issues, and known limitations for new versions of the *Yubico FIDO Connector App*.

### Release 1.1.1 (25 June 2025)

### **New Features & Enhancements**

- **PIN length changed to 4-63 characters.** The validation in the API now accepts PINs of any length between 4 to 63 characters, inclusive. See *API Reference*.
- **Support for address validation override.** An address\_validation\_bypass flag (true/false) has been added to the API. If set to "true", the API will accept the provided address without further validation. See *Address Validation*.

### Release 1.0.0 (3 April 2025)

First release of the Yubico FIDO Connector App. The application is deployed to a Microsoft Azure subscription and handles most of the Customer Orchestration complexities. For more information about included features, see *Yubico FIDO Connector App*.

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

# CHAPTER

# FOURTEEN

# **CUSTOMIZATIONS**

YubiKeys can be customized, for example pre-programmed to meet specific needs for an organization. YubiKeys can also be pre-registered with end-user-specific credentials using the *FIDO Pre-reg service*. For more information, see *Shipping Pre-registered Keys*. For information about customization services, contact Yubico.

When you order a YubiKey with custom configuration, a *Customization ID* is used to represent the applicable customization included in the final product that you will receive. The Customization ID is unique for a configuration but is not specific for a key model (form factor). You can associate a Customization ID with a more user-friendly *Customization label* of your own choice.

A Customization ID can be associated with multiple organizations. An organization can for example have sub-entities in different countries to which they want to ship keys with a specific configuration.

The Customization ID is needed for example when configuring the shipment request workflow for ordering *shipment* of pre-registered YubiKeys.

# 14.1 Viewing Customizations

To view available customizations for your organization, click **Customizations** in the left menu. The **Customizations** page appears providing an overview of customizations for your organization.

**Note:** The Customizations page is only visible if your organization has at least one associated Customization ID. If your organization is not using custom keys, you will not see this page.

Search			
III Columns \Xi F	ilters 🔳 Density C Refresh data	Rows per page: 15 👻 1–4	lof4 < >
Customization ID	Customization label	Status	Actions
S3KNL0		✓ ACTIVE	Ð /
test09		✓ ACTIVE	Ð /
AA149	YubiKey 5 NFC administrators	✓ ACTIVE	Ð 🖊
qweqwe	Sales offices	✓ ACTIVE	Ð 🖊

### Customizations

The Customizations page displays the following information:

- Customization ID The unique ID for a specific customization.
- **Customization label** A user-friendly name associated with the Customization ID. See *Adding Customization Labels*.
- **Status** The state of the customization record. Can be one of the following:
  - Approved Custom configuration is ready to be added to sales orders.
  - Active Custom configuration is in use for order fulfillment.
  - **Decommissioned** Custom configuration is discontinued and is no longer fulfillable.
- Actions Options for adding and editing customization labels and viewing the change history.

Use Search and Filters to filter the list by one or more fields to locate a specific customization ID to view its details.

### 14.1.1 Modifying the Table View

You can modify the appearance of the table and the data displayed using the controls at the top of the page.

- **Columns** Determine which columns will be shown in the table. Click **Columns** and select or deselect the desired columns. Click **Reset** to return to a previous selection. You can also drag and drop the columns to place them in a desired order on the page.
- Filters Filter data to be displayed. Click Filters, select an **Operator** and a **Value**, and click **Apply**. Available filter fields depend on the data in the table of the Console page you are working with. Click **Clear all** to remove the selected filters.
- Density Determine the space between rows in the table, for example "Compact".

# 14.2 Adding Customization Labels

The Customization ID consists of a string of numbers and letters. To make it easier for users to identify a specific customization, Console Owners can add user-friendly Customization labels to Customization IDs associated with their organization.

Customization labels can be shared between organizations, for example if your company has sub-entities in different countries to which you want to ship custom YubiKeys. Customization labels can be viewed by all organization members, but only organization Console Owners can add and update labels. Yubico can view but not update Customization labels.

To add or edit a Customization label for a Customization ID, do the following:

- 1. Click Customizations in the left menu to open the Customizations page.
- 2. Click the Edit icon in the Actions column for the desire Customization ID.
- 3. Add the desired customization label, for example "YubiKey 5 NFC sales offices".
- 4. Click Save.

**Note:** If a Console Owner for an organization updates a customization label, the change will be reflected in all organizations associated with that specific Customization ID.

Customization labels will also be displayed on *purchase orders*, *shipment details*, and *refunded shipments*. If no Customization label has been added, the Customization label column is empty.

# 14.2.1 Viewing Change History

To view the change history for a customization label for example for auditing purposes, click the **clock** icon for the desired **Customization label** in the **Customizations** page. The history information includes the date when a change was made, the updated customization label, and the email of the user that made the change.

# 14.3 Viewing Customization Details

For *FIDO Pre-reg (pre-registered keys)* type of shipments, you can view customization details associated with each key in a specific shipment. The information includes serial number and firmware version, and is displayed after the shipment has been processed by Yubico Fulfillment Center and the shipment is moved to state "Shipped: in Transit".

To view customization details for custom keys in a shipment, do the following:

- 1. Click **All shipments** in the left menu.
- 2. Click the **ID** for a shipment of type "AUTO FIDO PRE-REG" for which you want to see customization details. Ensure that the selected shipment is in state "Shipped: in Transit" or later.
- 3. In the **Shipment details** page, scroll down to the **Item details** section and click **Details** in the **Action** column for the applicable key model to expand the view.

Item details

Inventory product type	Product name	Customization ID	PO refere	Quantity	Cost per item	Cost	Action
Advanced - Standard - Primary	YubiKey 5 NFC	test00	directBBB	1	\$55.00	\$55.00	Details 🗸
Advanced - Standard - Primary	YubiKey 5C NFC	qweqwe	directBBB	15	\$55.00	\$825.00	Details 🗸
						Serial No.	Firmware
					1	randomSerialNumber100	5.6
					2	randomSerialNumber142	5.6
					3	randomSerialNumber170	5.6
					4	randomSerialNumber198	5.6
					5	randomSerialNumber217	5.6
					Ro	ws per page: 5 👻 1–5 of	15 < >
Product total				16		\$880.00	

The following information is displayed:

- Serial No. A unique number identifying a pre-registered key.
- Firmware The version number for the firmware used on the pre-registered key.

Each customization has its own Customization ID identifying the type of customization applied to the keys. In the example above, the shipment request contains a total of 16 keys of models "YubiKey 5 NFC" (one key) and "YubiKey 5C NFC" (15 keys).

# 14.3.1 Finding a Customized Shipment

To locate a shipment containing specific customizations, you can filter shipments on serial number and firmware version, if you know this information. This is useful for example to view the status of a specific shipment request.

On the All shipments page, click Filters and enter values in the Serial No. and/or Firmware fields.

Search			
III Columns 🚅 Fil	ters 🔳 Density C F	Refresh dat	ta
Date			
	From		То
Ship date			
Delivery date	From		10
	Operator		Value
Туре	is	-	Any -
	Operator		Value
Serial No.	contains	*	13369901
	Operator		Value

# 14.3.2 Viewing Customizations in Refunds

Just as for other types of shipments, you can view refunds for customized shipments. If the refunded shipment includes custom keys, the Customization IDs are listed in the **Refunds** section of the **Shipment details** page.

Refunds									
Inventory product type	PO reference	Refund quantity	Product name	Customization ID	Cost per item	Tax per item	VAT per item	Refund date	Refunded amount
Standard products	N/A	100	YubiKey 5 NFC FIPS	qweqwe	\$0.10	\$0.00	\$0.00	May 7, 2024	\$10.00
Shipping					\$83.62			May 7, 2024	\$83.62
Refund total		100							\$93.62

For more information, see Viewing Processed Refunds.

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

### CHAPTER

# FIFTEEN

# **USER MANAGEMENT**

The following section describes the authentication concept for the YubiEnterprise Console, and how to manage Console user accounts and permissions.

The initial *Console Owner* (organization account owner) for an organization using YubiEnterprise Services is set up by Yubico during onboarding. The Console owner then sets up additional Console users for the organization.

Each user in an organization has a single account, the username for which is their email address. New users receive an email with an activation link through which they complete the setup of their account by registering a YubiKey. For more details, see *Activating User Accounts*.

In the case of an international organization shipping YubiKeys to multiple countries, separate organization accounts can be set up. The same individual can be the Console Owner for multiple organizations.

**Important:** Ensure your organization has *at least two Console Owners*. That is the only role that can perform password and account resets for users who have been locked out. If your organization only has one Console Owner and that person locks themselves out or leaves the organization, you must contact Yubico to set up a new Console Owner which might delay your shipments.

# **15.1 Viewing Users**

In the **Console**, click **Settings** > **Users** to open the **Users** page. What you see here depends on your role. You can only access user information through the **Customer** view with either the **Console Owner**, **Console Admin**, or **Console Admin**, or **Console Admin**, or **Console Auditor** role. Only Console Owners can edit or delete users, Admins and Auditors can only view the user information.

For distributor and reseller types of organizations, there are also **Distributor** and **Reseller** roles that control permissions for these users. For more information, see *Roles and Permissions*.

Users

							A	dd new	v me	mber
🚻 Columns 🗮 Density C Refresh data					Rows	sper page: 15 👻	1–2	of 2	<	>
Email	Roles	Last login	State	MFA	Password	Passwordless		A	Actio	n
firstname.lastname@somemail.com	CONSOLE OWNER	May 27, 2025, 03:54	Active	~	×	~		/	•	Î
firstname.lastname2@somemail.com	CONSOLE ADMIN	May 27, 2025, 03:24	Active	~	$\times$	$\checkmark$		/		Î

Customer/Console Owner view of Users

The following information is displayed:

- Email Email address used to log in to the Console.
- Roles The role that the user has in the system, see *Roles and Permissions*.
- Last login Date and time when the user was last logged in.
- State The state of the user's account, for example "Pending" or "Active", see User Account States.
- MFA Indicates whether the user has enabled multi-factor authentication (tick) or not (x).
- **Password** Indicates whether the user has set a password (tick) or not (x).
- **Passwordless** Indicates whether the user account has been upgraded to passwordless authentication (tick) or not (x). If ticked, the user has at least one registered passkey, and any previous passwords have been removed. See *Passwordless Authentication*.
- Actions Icons for editing or deleting users, only available for Console Owners.

# 15.2 Adding or Deleting Users

Note: Adding or deleting users can only be done from the Customer view by a Console Owner.

Do the following to *add* a user:

1. On the Settings > Users page, click Add new member. The Add new member dialog appears.

Add new member	
<sup>Email*</sup> firstname.lastname@acme.com	
Customer view	
O None	
YubiEnterprise Console Owner	
O YubiEnterprise Console Admin	
O YubiEnterprise Console Auditor	
For user management and viewing orders not subject for resale.	
Save Cancel Select at least one view.	

2. Enter the new user's email address and select a role - YubiEnterprise Console Owner, Admin, or Auditor. If your organization is a distributor or reseller you will also have options to assign

**Distributor** or **Reseller** roles to your users. For more information, see *Distributor Role* and *Reseller Role*.

3. Click **Save**. For each new user, the system generates an activation email inviting the user to activate their account.

Do the following to *delete* a user:

- 1. On the **Settings > Users** page, click the trashcan icon on the line for the user you want to delete.
- 2. Click **Remove user** in the confirmation dialog that appears.

# **15.3 Managing Your Account**

With passwordless authentication you log in to the Console using a secure proof of identity through a *passkey* on a registered device such as a YubiKey. For more information, see *Passwordless Authentication*.

To manage your account settings, click on your user icon in the upper right corner and select **Manage credentials** to open the **Account** page. From here you can manage the passkeys associated with your account, as described in the following.



### 15.3.1 Managing Login Credentials

From the **Passkeys** section in the **Account** page you can manage passkeys as follows:

- To *register* a passkey, click **Add** and follow the instructions in the dialog that appears. Registered passkeys will appear in the list of passkeys.
- To *change* the name of a passkey in the list, click **Edit**, make your changes, and click **Save**. The YubiKey model is automatically provided as passkey name. This can be changed to a name of your choice.
- To *remove* a passkey from your account, click **Remove**.
- To *check* which passkey you are currently logged in with, click **Identify** and follow the instructions. The current passkey will be highlighted in the list.

**Note:** For enhanced security, authentication to the Console through password is being deprecated, and organizations are encouraged to move their user accounts to passwordless login, see *Upgrading to Passwordless*. If you are still using a password to log in to the Console, the password management option in the Account page will be displayed.

# 15.3.2 Switching Organizations

If your Console account is a member of more than one organization, you can switch between the organizations from the more options menu in the top left corner. Click the **organization name** to open the menu, then select the name of the desired organization to open the dashboard for that organization.



### 15.3.3 Managing API Tokens

An API token is used by an API caller account for authentication with the YubiEnterprise API, for applications that integrate for example with the YubiEnterprise Delivery service. The API caller account is associated with an organization, and is set up as a Console user account with the Console Admin role. For more information, see *API Caller Account Setup*.

# **15.4 Passwordless Authentication**

Passwordless authentication is more secure and convenient than using passwords when logging in to websites and applications. With passwordless authentication you log in using for example a username or email address together with a secure proof of identity through a *passkey* on a registered device such as a YubiKey. The passkey is a digital credential tied to your user account and the website or application you are logging in to.

The passkey can be stored on *separate external hardware* like a YubiKey (device-bound passkey). A passkey can also be stored on multiple devices like a computer or mobile phone where it can be copied and *synchronized* between the devices (cloud-based synced passkeys).

Synced passkeys can be synchronized between for example browsers (Chrome, Edge, Safari), password managers (1Password etc.), and platform ecosystems (Apple Keychain, Google Account sync etc.). These passkeys are stored in software and can be accessed from multiple devices once synchronized.

A passkey stored on a YubiKey can be used on multiple instances to log in to websites and applications. However, the YubiKey must be *registered on each instance* before it can be used.

Using a device-bound passkey is the most phishing-resistant option as this requires physical possession of the YubiKey for authentication. Device-bound passkeys cannot be synchronized across devices, and provide enhanced security through hardware-backed cryptography.



For enhanced security, the YubiEnterprise Console is being upgraded to use passwordless authentication through YubiKeys (device-bound passkey), see *Upgrading to Passwordless*.

### 15.4.1 Upgrading to Passwordless

With passwordless authentication, you will only use a password during onboarding of your organization as the first user (Console Owner) logging in for the first time. As soon as you have created a passkey by registering a YubiKey, the password-based credentials are removed. Additional Console users that you add for your organization will activate their account using passwordless login by registering a YubiKey. For more information, see *Onboarding*.

During the migration of Console users to passwordless authentication, the login process is slightly different for existing and new Console users. The following applies:

- *Existing Console users* that have not yet upgraded to passwordless authentication will be given the option to move to passwordless when logging in. For a limited time, these users can still log in with their password until a passkey is registered.
- New Console users will log in through passwordless authentication by registering a YubiKey.
- *SSO-authenticated users* that manage SSO (Single Sign-On) configurations for their organizations will be asked to log out and in again using the username and password (not SSO) that was registered for that specific Console account. Once logged in, the passwordless migration process will begin. SSO-authenticated users that do not manage SSO configurations will not need to migrate to passwordless authentication at this point.

**Note:** Before upgrading to passwordless authentication, it is recommended to remove any existing *synced* passkeys associated with your Console account. See *Best Practices - Synced Passkeys*.

To upgrade to passwordless, do the following:

1. Open the Console login page, have your YubiKey ready, click **Create Passkey**, and follow the instructions. You might be asked to set a PIN for your YubiKey if not already done.

# Upgrade to Passwordless sign-in with YubiEnterprise

We are making sign-in faster, easier, and more secure - no more

passwords. From now on you will use passkey. 🧿

### What will happen:

- 1. Insert your YubiKey.
- 2. Click 'Create Passkey' and follow the prompts.
- 3. Enter your YubiKey's PIN (it's unique to your key).
- 4. A passkey will be registered to your YubiKey.
- 5. Your existing password will be removed you're going passwordless!

We recommend adding a backup sign in method, like a second YubiKey. You'll have the opportunity to add one once you migrate, or you can do it anytime from 'Manage Credentials'.

Learn more about passkeys

Le Create Passkey Remind me later

2. When the passkey has been registered on your YubiKey, you will be logged out and requested to log in again using your newly registered YubiKey. It is recommended to register an additional YubiKey in case the first one is lost, you can however do this at any time.

# Your passkey has been created!

You have secured your account with the passkey **YubiKey 5 Series with NFC**. Next time you sign in, just insert your key and tap - it is that simple.

You have registered one passkey. For added security, we recommend creating a **backup passkey on a YubiKey** - just in case your main key is lost or unavailable.

Would you like to create a passkey on a backup YubiKey now?

**Tip:** Keep your main passkey device handy and store the backup in a safe place.

Yes, create another	
No, I'm done for now	

3. When you have registered a YubiKey, your password-based credentials are removed, and going forward you will use your YubiKey when logging in to the Console.

For more information about passwordless migration, see also Passwordless Migration FAQs.

### 15.4.2 Removing Synced Passkeys

Before you *upgrade to passwordless authentication* when logging in to the Console, it is recommended to remove any existing *synced* passkeys associated with the YubiEnterprise Console login. For more information, see *Best Practices* - *Synced Passkeys*.

# 15.5 Lost or Reset YubiKey

If you lose or reset your YubiKey, you can no longer log in to the Console. If this happens, you must contact a Console Owner for your organization to have your account reset as described in *Account Resets and Role Changes*. You will receive a recovery email with an activation link which you can use to register a new YubiKey and log in to the Console.

**Important:** It is strongly recommended to register at least two YubiKeys with your Console user account, and keep the spare YubiKey in a safe place. For information on how to register YubiKeys, see *Managing Login Credentials*.

# **15.6 Account Resets and Role Changes**

**Note:** Only Console Owners can reset user accounts and change user roles. If a user needs to reset their account, they must reach out to a Console Owner in their organization. Yubico cannot reset user accounts if the organization has other Console Owners.

To manage account resets and role changes, do the following:

- 1. Click **Settings** > **Users** in the left menu.
- 2. Click the Edit icon on the line for the desired user to open the Edit member page.
- 3. Select options as follows:
  - a. To reset the account for a user, click **Reset user**.
  - b. To reset the password for a user, click **Reset password**.

**Note:** The Reset password option is only visible for users that have not yet upgraded to *Passwordless Authentication*. When a user has been upgraded, the Reset password option is no longer displayed.

- c. To change the role for a user, select the desired role in the **Change role** section. If the user is part of a reseller or a distributor organization, the roles that provide access to the distributor/reseller views can also be changed here.
- 4. Click Save.

🎲 Settings / 🎎 Users / 🧪 Edit member

# Edit member firstname.lastname@company.com

### Last logged in: Jun 10, 2025, 03:48 PM GMT+2, 9 minutes ago

#### Reset user

The user recovery process usually entails

- 1. The user is sent a recovery email
- 2. The email contains a link that takes them to the account recovery flow
- 3. The account recovery flow asks the user for a new password and to enroll a security key

Reset user

### Reset password

The password reset process entails:

- 1. The user's password is reset
- 2. The user is sent a password reset email
- 3. The user is logged out and cannot log in again until they complete the password reset.
- 4. The email contains a link that takes them to the password reset flow
- The password reset flow authenticates the user with their security key, if they have one enrolled, and then asks the user for a new password

Reset password

### Change role

Distributor view

O None

Oistributor

View orders where organization is listed as "Distributor".

Customer view

O None

- YubiEnterprise Console Owner
- O YubiEnterprise Console Admin
- YubiEnterprise Console Auditor

For user management and viewing orders not subject for resale.



Select at least one view.

# 15.7 Authenticating with SSO

Single sign-on (SSO) is an authentication method that enables users to use the same set of credentials to securely access multiple applications and services. YubiEnterprise Services supports SSO. For an organization with SSO enabled, users do not have to register.

Although they are added the same way as non-SSO-enabled users, instead of remaining in the *Pending* state until they follow the emailed instruction to register a security key, they are immediately added to the organization in the *Active* state. They can therefore use the service-provider-initiated login link to log in to the Console. For more information, see *Single Sign-On (SSO)*.

**Note:** If your organization is using SSO, the options for managing credentials for logging in to the Console will not be available. Instead, credential management and Console login authentication is done through the SSO provider.

# **15.8 Roles and Permissions**

In addition to the Console Owner, Console Admin and Console Auditor roles for Customer (account) organization members, there are also Reseller and Distributor roles. These provide access to specific views for distributors and resellers to view their customers' purchase orders and inventories.



A Console user can have one or none of the organization member roles, and may have one or both of the Distributor and Reseller roles. All organizations must always have *at least one* Console Owner, and can have one or more users with the Console Admin or Console Auditor roles.

An organization can for example be both a *Customer* ordering keys for its own employees, and a *Reseller* selling keys to end customers. This scenario requires at least one user with the Console Owner role for the organization, and the Reseller role for one or more users in the organization.

The following section describes the different roles and their permissions in more detail.

### 15.8.1 Customer Roles

The table below describes the permissions for the Console Owner, Console Admin and Console Auditor roles for a Customer (account) organization.

Permission	Owner	Admin	Auditor
Add/delete organization members	yes	no	no
Change member roles	yes	no	no
Reset member login credentials	yes	no	no
Create/edit shipment requests	yes	yes	no
Correct shipping addresses	yes	yes	no
View shipments/purchase orders/org settings	yes	yes	yes
Manage personal login credentials	yes	yes	yes
View other roles' details	yes	yes	yes
Generate API token	yes	yes	no
Override address validation	yes	yes	no
Download CSV files	yes	no	no

Console Owners, Admins, and Auditors can all view the names, email addresses and assigned roles of organization members displayed on the **Settings > Users** page.

**Note:** Only the end customer can view the Personally Identifiable Information (PII) entered for creating shipment requests. Neither the distributor nor the reseller can view the PII entered by their end customers for creating shipment requests.

In order to view Personally Identifiable Information (PII), new and existing users must accept the applicable terms and conditions when they log in for the first time after the release of YubiEnterprise Services 2.4.0.

### **15.8.2 Distributor Role**

The Distributor role is used by organizations that sell Yubico products to resellers. As a user with the Distributor role, you have access to the *Distributor view* where you can monitor end customers' product inventory and activities in your reseller network.

Note: The Distributor role does not provide permission to view or manage user information.

The Distributor view lets you access the **Settings** > **Resellers** page where you can provide access for your resellers to view purchase order information.

Stage_Dist01	<b>«</b>	Search		
<ul> <li>Resellers</li> <li>Purchase orders</li> </ul>		🚻 Columns \Xi Filters 🗮 D	ensity C Refresh data Rows per page: 15 👻 1–3 of 3 🔍	>
ស៊េវ Settings	~	Reseller $\downarrow$	View purchase orders	
Resellers		Stage_Reseller04	-	
		Stage_Reseller02		
		Stage_Reseller01		
			Total Rows	:: 3

To allow your resellers to access purchase order information for end customers, set the **View purchase orders** toggle to "on" for the desired reseller. This setting also enables resellers to allow their *end customers to access purchase order information*. To *revoke* access to purchase order information, set the toggle to "off".

**Important:** If you disable this access for a reseller, then neither that reseller nor their end customers can see any inventory purchased through this reseller.

As a Console Owner for a distributor organization, you can assign the Distributor role to users from your organization. When adding a user as described in *Adding or Deleting Users*, you will see the option for assigning the Distributor role in the **Add new member** dialog.

Add new member
<sup>Email</sup> * firstname.lastname@company.com
Distributor view
O None
<ul><li>Distributor</li></ul>
View orders where organization is listed as "Distributor".
Customer view
None
O YubiEnterprise Console Owner
O YubiEnterprise Console Admin
O YubiEnterprise Console Auditor
For user management and viewing orders not subject for resale.
Save
Select at least one view.

### 15.8.3 Reseller Role

The Reseller role is used by organizations that sell Yubico products to end customers. As a user with the Reseller role, you have access to the *Reseller view* where you can monitor end customers' product inventory and purchase orders.

Note: The Reseller role does not provide permission to view or manage user information.

The Reseller view lets you access the **Settings > Customers** page where you can provide access for customers to view purchase order information.

: Stage_Reseller01	«	Search	
Customers		🚻 Columns 😇 Filters 🗮 Density C Refresh data	
Purchase orders		Rows per page: 15 👻	1-2 of 2 < >
🐼 Settings	~	Customer View purchase orders	
Customers		Stage_Cust01	
		Stage_Cust02	
			Total Rows: 2

To let a customer access purchase order information, set the **View purchase orders** toggle to "on" for the desired customer. To *revoke* access to purchase order information, set the toggle to "off".

**Important:** If you disable this access for a customer, this customer will not be able to see any inventory purchased from you. If a distributor is involved, the distributor must also first *enable this setting for you as a reseller*, in order for your end customer to see the purchase order information.

As a Console Owner for a reseller organization, you can assign the Reseller role to users from your organization. When adding a user as described in *Adding or Deleting Users*, you will see the option for assigning the Reseller role in the **Add new member** dialog.

Add new member
firstname.lastname@company.com
Reseller view
○ None
Reseller
View orders where organization is listed as reseller.
Customer view
None
O YubiEnterprise Console Owner
O YubiEnterprise Console Admin
O YubiEnterprise Console Auditor
For user management and viewing orders not subject for resale.
Save

Select at least one view.

# **15.9 User Account States**

All Console users have one of the following account states. To view a user's account state, click **Settings > Users**, locate the desired user, and view the **State** column.

#### Active (demo mode)

This user is the first user added to an organization. The user has activated their account, but they have not yet registered a passkey. Console activity is restricted to the activities described in *Procedure Overview*.

#### Active

The user has activated their account by logging in to the Console, either through password or by registering a passkey.

#### Account Reset

A Console Owner can do this if a user's account has been compromised. The user state remains as "Account Reset" until the user follows the instructions in the Account Reset email sent by the system.

#### Deactivated

The user has been removed from all organizations, and they can no longer log in to the Console. All associated

access tokens have been revoked. Console Owners can add the user to the organization again at a later date.

### Pending

The user has been emailed an invitation with an activation link for their Console account, but they have not yet activated their account. This is the initial state for new users.

### Suspended

If a user becomes a security concern, disable system access for that user by contacting Yubico Support to have the user suspended. Any API token the user has is deleted, and their login credentials are temporarily invalidated.

- If a suspended user tries to log in, they get the "userID/password invalid" message.
- Only Yubico can suspend a user and only Yubico can lift such a suspension.
- Although all access tokens are revoked, the user remains associated with their organization, so that if the suspension is lifted, Console Owners are not required to recreate the affected user.
- All owners of the suspended user's organization receive an email notifying them that this user is suspended and they must contact Yubico Support to have the suspension lifted.

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

### CHAPTER

# SIXTEEN

# SINGLE SIGN-ON (SSO)

Single-Sign-On (SSO) lets users log in once with a single ID to multiple related software systems. The Security Assertion Markup Language (SAML) open standard is designed to deliver a seamless user experience through SSO flows.

A *service provider* (*SP*) provides services to end users and rely on an *identity provider* (*IDP or IdP*) to verify a user's identity. SSO through SAML can be initiated by an IDP (IDP-initiated SSO) or an SP (SP-initiated SSO).

# **16.1 Supported SSO Initiation Forms**

With the release of YubiEnterprise Services 2.4.0, both IDP- and SP-initiated SSO are supported. Console Owners can enable IDP-initiated SSO from the **YubiEnterprise Console**. For more information, see *SSO Enablement*.

### 16.1.1 IDP-initiated SSO

The IDP authenticates users when they present their credentials so that those users can then access other websites and applications (relying applications). The SAML flow for an IDP-initiated SSO is as follows:

- 1. When the IDP and SP established SSO trust, they shared a private key.
- 2. The user's identity is sent by the IDP to the SP in the form of a SAML assertion signed with the private key.
- 3. To retrieve the SAML Assertion securely, the IDP uses the user's browser or a reference that the SP can use.

### 16.1.2 SP-initiated SSO

Service providers rely on an IDP to store the user's information (including attributes for the particular service requested), and make authentication decisions based on that information.

SP-initiated SSO comes into play when a user tries to access an application at the SP end without having first authenticated with an IDP. In this case, the SAML flow is as follows:

- 1. In the absence of an active browser session, the SP redirects the user to the IDP to request authentication.
- 2. The user's identity is sent by the IDP to the SP in the form of a SAML assertion signed with the *private* key.
- 3. If the SP supports SSO from multiple IDPs, it can determine which IDP to use by:
  - Requesting the user to enter additional information.
  - Showing the user the list of supported IdPs so the user can select the right one.
  - Using a resource URL specific to a specific IDP.
  - Restoring an IDP cookie in the user's browser session from initial IDP login.

4. Upon receipt of the SAML assertion, the SP validates the signature using the *public* key and presents the user with its landing page as if the user had logged in with the usual credentials instead of SSO.

# 16.2 Logging in Using SSO Only

SSO enablement introduces a new category of user: those who are able to log in *only* via SSO. Users added *after* SSO is enabled fall into this new category, while users enrolled *prior* to SSO enablement will still be able to log in with username and password.

**Important:** Users that were enrolled before enabling SSO can still log in with their credentials but *only to perform SSO management actions*. For other *Console actions* they need to authenticate via SSO. This permission setup prevents users from locking themselves out for example if they have forgotten their password, then log in with SSO and accidentally misconfigure or disable SSO, in which case they would be locked out.

If SSO is disabled, none of the users added after SSO is enabled will be able to log in. For more information, see *Disabling SSO*. API tokens are not affected by SSO enablement or disablement.

Only a single organization at a time can be logged into with SSO. A user who is a member of multiple organizations cannot use SSO-logged-in sessions to switch between organizations. If a user needs to switch from one SSO-enabled organization to another, they must log out of the first organization and use the login link supplied by the SP for the second organization. See also *Authenticating with SSO*.

**Note:** Even though authenticated through SSO when logging in, a user will again be prompted by the IDP for authentication with their credentials when initiating a Service Provider flow. This is due to the ForceAuthn configuration setting in SAML being set to "true" by default, following Yubico security recommendations.

# 16.3 Permissions and SSO

Capability	Logging in with SSO	Logging in with credentials
Status		
	Users invited to join the Console go into the Active state and can log in immediately via the SP's SSO login link.	Users invited to join the Console without SSO go into the <b>Pending</b> state until they enroll their credentials.
Login Redirect	None: not applicable	
		If SSO has been enabled, users who log in using credentials will be redirected to log in via SSO.
Console Operations		
	All are permitted (for example shipment request creation, listing POs, inviting users etc.) except configuring SSO and updating credentials.	No operations other than configuring SSO (by Console Owner) and updating credentials are permitted.
Credential Update		
	Not permitted; credential management page is inaccessible.	All roles can update their credentials: change password, edit, delete, and add new YubiKeys.
SSO Configuration	Not permitted for any role.	
		Console Owners may configure SSO.

Table 1: Console permissions with and without SSO

# 16.4 SSO Enablement

The sections below describe how to configure and enable SSO for different identity providers. Console Owners can enable IDP-initiated SSO by logging in to the **Console** with credentials, going to **Settings > SSO**, and selecting **Allow IDP initiated single sign-on**.

ACME Inc     VIEWING AS CUSTOMER	~	Configure SAML Single Sign-On <sup>(2)</sup> View instructions for setting up SAML SSO
û Dashboard		• Copy this information for your IDP setup. Note that each IDP has different labels for these fields, and the sequence of fields varies from one IDP to the next.
🕞 Shipments	<	EntitvID/Identifier 2
Purchase orders		
😥 Settings	~	Reply URL (ACS) ?
Users		
Email		Allow IDP initiated single sign-on * (
SSO		IDP initiated login URL (ACS) 💡

### 16.4.1 Requirements

To enable SSO integration you need to:

- Use SAML 2.0 with Azure AD or Okta or Google Workspace as your IDP. Other IDPs are likely to be compatible, but are not supported. For more information, see *Enabling SSO for Other IDPs*.
- Have owner, admin, or super-admin access to the SSO app in your IDP account for permissions to manage the SAML configuration and users.
- Know how to enable, edit and disable your IDP's SSO offering.
- Be able to share the SSO link with the Console users in your organization out-of-band after SSO is enabled, this is not something that the system does automatically.
- Be a Console Owner in the Console.
- Be able to log in to the Console with username/password and a registered YubiKey (via credentials, not SSO).

### 16.4.2 Known Limitations

- Since Console users invited *after SSO enablement* are not required to have username and password, they will not be able to log in if SSO access is disabled. These users must be reset to be able to log in using credentials. Resetting a user triggers the system to send the user an email directing them to reset their username/password and register a YubiKey. See *Disabling SSO*.
- Google Workspace cannot support both the SP-initiated and the IDP-initiated ACS URL at the same time. It is also not possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace.

When IDP-initiated SSO is enabled with the Google Workspace SAML application, the IDP-initiated SSO ACS URL (/realms/y4o-azad/broker/sso/endpoint/clients/idp-initiated) must be configured as the ACS URL in order for the Google Dashboard link to work. When the Google Workspace SAML application is configured with this URL, the IDP will not work with the SP-Initiated flow since the *Reply URL (ACS)* endpoint does not match what is configured above.

# 16.5 Enabling SSO with Azure AD

This section describes how to enable SSO between Azure AD and the YubiEnterprise Console. These instructions assume that your company's SAML application has already been created in Azure AD.

**Note:** The Azure AD SAML Enterprise Application can be made to work with both the SP-initiated and IDP-initiated flows. Configure both the IDP-initiated ACS URL and the SP-initiated ACS URL as valid reply URLs. Make sure to mark the IDP-initiated URL as default.

### 16.5.1 Copy Entity ID from Console to Azure AD

### Step 1

Log in to the **Console** as Console Owner using credentials (password and MFA), and go to **Settings** > **SSO**. The **Configure SAML Single Sign-On** page appears. Click the copy icon at the end of the **EntityID/Identifier** field in section **1**.

# Configure SAML Single Sign-On @

#### View instructions for setting up SAML SSO

Copy this information for your IDP setup. Note that each IDP has different labels for these fields, and the sequence of fields varies from one IDP to the next.

EntityID/Identifier 🕜	
Reply URL (ACS) 🕐	

#### Step 2

Log in to your Azure tenant https://portal.azure.com/signin/index/.

#### Step 3

Set up the new application in Azure AD (note that this does not mean "create the new application") by going to **Manage Azure Active Directory** and clicking **View**.



Your company's **Overview** page for Azure AD appears.

#### Step 4

From the menu on the left-hand side, select **Enterprise Applications**. Your company's Overview page for all applications appears.

#### Step 5

From the list in the center pane, select the appropriate SAML application. The **Overview** page for that application appears.

≡	Microsoft Azure	≫ Search resources, services, and docs (G+/)						fiona.fincannon@ yubico (yubico.onmi
Hon	IUX/Stage Yu Enterprise Application	<pre>oplications &gt; Enterprise applications   All applications &gt; biEnterprise Delivery SAML   Overview «</pre>						
щ.	Overview	Properties						
∭ ★ Man	Deployment Plan Diagnose and solve problen a <b>ge</b>	IN Name O						
111 204	Properties Owners	Object ID ①						
₽ 24 Э	Roles and administrators Users and groups Single sign-on	Getting Started						
<ul> <li>(a)</li> <li>(b)</li> <li>(c)</li> <li(c)< li=""> <li(c)< li=""> <li(c)< li=""></li(c)<></li(c)<></li(c)<></ul>	Provisioning Application proxy Self-service Custom security attributes (preview)	Assign users and groups Provide specific users and groups access to the applications Assign users and groups Get started	n	٢	3. Pro Autom accour Get sta	natically natically nts in th arted	User A create a le applic	ccounts Ind delete user ation
Secu Secu Secu Secu Secu Secu Secu Secu	rity Conditional Access Permissions Token encryption	<ul> <li>4. Self service</li> <li>Enable users to request access to the application using their Azure AD credentials</li> <li>Get started</li> </ul>						

Step 6

Click Get started in the second box Set up single sign on. The [Name of your organization's enterprise application] SAML | SAML-based Sign-on page appears.

≡ Microsoft Azure	∞ Search resources, services, and docs (G+/)	
Home > Yubico   Enterprise ap	pplications $>$ Enterprise applications   All applications $>$ [UX/Stage] YubiEnterprise Delivery SAML $>$	
[UX/Stage] YubiE	nterprise Delivery SAML   SAML-based Sign-on	
_	炎 ក Upload metadata file 🤌 Change single sign-on mode 📁 Test this application 📗 🞘 Got feedback?	
Overview		
Deployment Plan	Set up Single Sign-On with SAML	
X Diagnose and solve problem	ns An SSO implementation based on federation protocols improves security, reliability, and end user experiences and is easie	r to
Manage	implement. Choose SAML single sign-on whenever possible for existing applications that do not use OpenID Connect or O more.	Auth. Lea
Properties	Read the configuration guide G for help integrating (UX/Stage) YubiEnterprise Delivery SAML	
A Owners		
Roles and administrators	Basic SAML Configuration	Edit
Users and groups	Identifier (Entity ID)	
Single sign-on	Reply URL (Assertion Consumer Service URL)	
Provisioning	Sign on URL	
Application proxy	Relay State (Optional) Optional	
ᢙ Self-service	Logout Uri (Optional) Optional	

Step 7

Click the Edit icon for **1 Basic SAML Configuration**. The **Basic SAML Configuration** window appears.

Save A Got feedback?		
dentifier (Entity ID) * 🗊		
he unique ID that identifies your application to Az	ure Active Directory. This value must be unique across all ap	plications ir
our Azure Active Directory tenant. The default ide	ntifier will be the audience of the SAML response for IDP-init	tiated SSO.
	Default	t
https://login.	$\checkmark$	DÍ
dd identifier		
eply URL (Assertion Consumer Service U	RL) * ①	
eply URL (Assertion Consumer Service U	RL) * ① eccive the authentication token. This is also referred to as the	e "Assertion
Reply URL (Assertion Consumer Service U the reply URL is where the application expects to r Tonsumer Service" (ACS) in SAML.	RL) * ① eceive the authentication token. This is also referred to as the	e "Assertion
eply URL (Assertion Consumer Service U he reply URL is where the application expects to r ionsumer Service" (ACS) in SAML.	RL) * ① ecceive the authentication token. This is also referred to as the Index Default	e "Assertion t

### Step 8

Under Identifier (Entity ID), click Add identifier. A new field appears.

# **Basic SAML Configuration**

☐ Save	
<b>Identifier (Entity ID)</b> * The unique ID that identifies your application to Azure Active Directory. This your Azure Active Directory tenant. The default identifier will be the audience	value must be unique across all applications in e of the SAML response for IDP-initiated SSO.
	Default
https://loginurl	V 0 💼

### Add identifier

#### Step 9

Paste what you copied from the Console (in step 1) into the **Identifier (Entity ID)** field in Azure. If you select **Default**, this will be the primary identifier sent for IDP-initiated SAML responses.

#### Step 10

Save your settings by clicking **Save** in the top left corner of the **Basic SAML Configuration** Edit window.

# 16.5.2 Copy Reply URL from Console to Azure AD

### Step 1

Log in to the **Console** as Console Owner using credentials (password and MFA), and go to **Settings** > **SSO**. The **Configure SAML Single Sign-On** page appears. Click the copy icon at the end of the **Reply URL (ACS)** field in section **1**.

Configure SAML Single Sign-On <sup>(2)</sup>	
Copy this information for your IDP setup. Note that each IDP has different labels for these fields, and the sequence of fields varies from one IDP to the next.	2
EntityID/Identifier ?	
Reply URL (ACS)	

### Step 2

Unless you are already logged into Azure and on the **Basic SAML Configuration** Edit window, log into your Azure tenant https://portal.azure.com/signin/index/ and perform steps 2-7 in *Copy Entity ID from Console to Azure AD* above.

### Step 3

Under Reply URL (Assertion Consumer Service URL), click Add reply URL. A new field appears.

Save 🔗 Got feedback?	
dentifier (Entity ID) * 🗊	
The unique ID that identifies your application to Azure Act your Azure Active Directory tenant. The default identifier v	tive Directory. This value must be unique across all applications in will be the audience of the SAML response for IDP-initiated SSO.
	Default
https://login.	✓ ☑ 前
Add identifier	
Add identifier Reply URL (Assertion Consumer Service URL) * The reply URL is where the application expects to receive to Consumer Service" (ACS) in SAML.	① the authentication token. This is also referred to as the "Assertion
Add identifier Reply URL (Assertion Consumer Service URL) * The reply URL is where the application expects to receive t Consumer Service" (ACS) in SAML.	① the authentication token. This is also referred to as the "Assertion Index Default

#### Step 4

Paste what you copied from the Console's **Reply URL** (ACS) field (in "Step 1") into the **Reply URL** (Assertion Consumer Service URL) field in Azure. If you select **Default**, this will be primary and IDP-initiated SAML responses will be sent to this reply URL.

#### Step 5

In Azure, save your settings by clicking **Save** in the top left corner of the **Basic SAML Configuration** Edit window.

### 16.5.3 Copy Login URL & Azure AD Identifier from Azure to Console

#### Step 1

Unless you are already logged into Azure and on the **Basic SAML Configuration** Edit window, log into your Azure tenant https://portal.azure.com/signin/index/ and perform steps 2-7 in *Copy Entity ID from Console to Azure AD* above.

#### Step 2

In Azure, in section **4 Set up [your company's] SAML**, click the copy icon at the end of the **Login URL** field.

Set up [ ] YubiEnterprise [	Delivery SAML	
You'll need to configure the applicati	on to link with Azure AD.	
Login URL	https://login.	D
Azure AD Identifier	https://sts.windows.net/	D

#### Step 3

Log in to the **Console** as Console Owner using credentials (password and MFA), and go to **Settings** > **SSO**. The **Configure SAML Single Sign-On** page appears. Paste the content from the **Login URL** field in Azure into the **IDP login URL** field in section **2**.
EntityID/Issuer*
- IDP login URL*
X.509 certificate (Base64) *

Go back to Azure, and in section **4 Set up [your company's] SAML**, click the copy icon at the end of the **Azure AD Identifier** field.

4	Set up [	] YubiEnterprise Delivery SAML				
	You'll need to c	onfigure the application to link	with Azure AD.			
	Login URL		https://login.	D		
	Azure AD Ident	ifier	https://sts.windows.net/:	D		
	Logout URL		https://login.microsoftonline.com/	D		

## Step 5

In the Console, in **Settings > SSO**, on the **Configure SAML Single Sign-On** page in section **2**, paste the content from the **Azure AD Identifier** field in Azure into the **EntityID/Issuer** field.

Paste the content from the IDP's SSO setup into the fields below. Note that each IDP has different labels for these fields, and the sequence of fields varies from one IDP to the next.

EntityID/Issuer \* \_\_\_\_\_\_ https://sts.windows.net...

- IDP login URL\* \_\_\_\_\_ https://login.microsoftonline.com...

X.509 certificate (Base64)\*

# 16.5.4 Copy X509 Certificate from Azure AD to Console

#### Step 1

Unless you are already logged into Azure and on the **Basic SAML Configuration** Edit window, log into your Azure tenant https://portal.azure.com/signin/index/ and perform steps 2-7 in *Copy Entity ID from Console to Azure AD* above.

#### Step 2

In section 3, SAML Certificates, download the Certificate (Base64) by clicking Download.

Tokon signing cortificato		
Token signing certificate		🖉 Edi
Status	Active	
Thumbprint		)
Expiration	1/25/2026, 9:06:06 AM	
Notification Email	r@yubico.com	
App Federation Metadata Url	https://login.microsoftonline.com/	D
Certificate (Base64)	Download	
Certificate (Raw)	Download	
Federation Metadata XML	Download	
Verification certificates (optional) (Pro	eview)	
Required	No	✓ Eu
Active	0	
Expired	0	

#### Step 3

Open the file in a text editor and copy it. You do not need to to remove the header and footer lines:

0

0

0



In the Console, in **Settings > SSO**, on the **Configure SAML Single Sign-On** page in section **2**, paste the certificate content into the **X.509 cert (Base64)** field. (The header and footer in the file will be automatically stripped out when you save.)

#### Step 5

Click the Save settings button at the bottom of the Console page.

# 16.5.5 Set Attributes & Claims in Azure AD

There is always a required claim. Ensure that the name identifier format is Email address.

## Step 1

Unless you are already logged into Azure and on the **Basic SAML Configuration** Edit window, log into your Azure tenant https://portal.azure.com/signin/index/ and perform steps 2-7 in *Copy Entity ID from Console to Azure AD* above.

#### Step 2

2

In section 2, Attributes & Claims, click the Edit icon.

Attributes & Claims		🖉 Edit
givenname	user.givenname	
surname	user.surname	
emailaddress	user.mail	
name	user.userprincipalname	
Unique User Identifier	user.userprincipalname	

#### Step 3

In the Attributes & Claims window that appears, click the Unique User Identifier (Name ID) in the Required claim section.

Attributes	&	Claims	
------------	---	--------	--

+ Add new claim + Add a group claim ≡≡ Columns   🕅	Got feedback?		
Required claim			
Claim name	Туре	Value	
Unique User Identifier (Name ID)	SAML	user.userprincipalname [	•••
Additional claims			
Claim name	Туре	Value	
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/emailadd	SAML	user.mail	•••
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/givenname	SAML	user.givenname	•••
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/name	SAML	user.userprincipalname	•••
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/surname	SAML	user.surname	•••

 $\checkmark$  Advanced settings

# Step 4

In the **Manage claim** window that opens, if the **Name identifier format** is not **Email address**, select it from the dropdown list.

 $\times$ 

··· > SAML-based Sign-on > Attributes & Claims >				
Manage claim ··· >				
🖫 Save 🗙 Discard changes 🛛 🔗	Got feedback?			
Name	nameidentifier			
Namespace	http://schemas.xmlsoap.org/ws/200			
∧ Choose name identifier format				
Name identifier format *	Email address $\checkmark$			
Source *	<ul> <li>Attribute</li></ul>			
Source attribute *	user.userprincipalname $\sim$			
Claim conditions				

Save your settings in Azure by clicking **Save** in the top left corner of the **Manage claim** window. The **Attributes & Claims** window reappears.

### Step 6

In the **Attributes & Claims** window, directly underneath the title, click + **Add new claim**. The **Manage claim** window appears.

	h resources, services, and docs (G+/)				
Home > [UX/Stage] YubiEnterprise Delivery SAML   SAML-based Sign-on > SAML-based Sign-on > Attributes & Claims >					
Manage claim					
🔚 Save 🔀 Discard changes 🛛 🖗 Got feedback?					
Name *	emailAddress				
Namespace	Enter a namespace URI				
Source *	Attribute      Transformation      Directory schema extension (Preview)				
Source attribute *	user.mail				
Claim conditions					
✓ Advanced SAML claims options					

In the **Manage claim** window, in the **Name** field, enter emailAddress, and for **Source** leave the default setting with the **Attribute** radio button. From the **Source attribute** dropdown, select user. mail. Click **Save**. The **Attributes & Claims** window reappears with your new claim listed.

	$\mathcal P$ Search resources, services, and docs (G+/)						
Home > [UX/Stage] YubiEnterprise Delivery SAML   SAML-based Sign-on > SAML-based Sign-on >							
Attributes & Claims							
+ Add new claim + Add	+ Add new claim + Add a group claim ≡≡ Columns   🔗 Got feedback?						
Required claim							
Claim name		Туре	Value				
Unique User Identifier (Name ID)		SAML	user.userprincipalname [	•••			
Additional claims							
Claim name		Туре	Value				
emailAddress		SAML	user.mail	•••			
http://schemas.xmlsoap.org/w	s/2005/05/identity/claims/emailadd	SAML	user.mail	•••			
http://schemas.xmlsoap.org/w	s/2005/05/identity/claims/givenname	SAML	user.givenname	•••			
http://schemas.xmlsoap.org/w	s/2005/05/identity/claims/name	SAML	user.userprincipalname	•••			
http://schemas.xmlsoap.org/w	s/2005/05/identity/claims/surname	SAML	user.surname	•••			

# 16.5.6 Verify and Save SSO Settings in Console

#### Step 1

In the Console, look at **Settings > SSO Configure SAML Single Sign-On** to make sure that the content you pasted in is correct.

#### Step 2

In section **3**, copy the **SP Initiated Login URL** by clicking the copy icon at the end of it. Save the URL so that you can send it to your Console users.

3 Get your single sign-on URL	
For org initiated SSO, save this link to share with your uIDP initiated settings.	users. Do not paste this into your
SP Initiated Login URL	<b>~</b>
Save settings	Cancel Enable SSO

Step 3

Before enabling SSO, make sure to send all users who will be enabled for it this **SP Initiated Login URL**. The same link will also be shown in the login dialog after you have enabled SSO.

# 16.5.7 Add Users and Enable User Login via SSO

Add users first to Azure, then to the Console. Before you can add them to your company's SAML application in Azure, the users must be added to your company's Azure AD instance at the top level. If needed, ensure you have the permissions in Azure to have groups available for assignment.

## Step 1

On your company's Overview page in Azure, from the menu on the left under **Manage**, select **Users**. On the **Users** page, the entire list of your company's users appears.

≡ Microsoft Azure 🔑 Sear	ch resources, services, and docs (G+/)	D G	۵ ۵	<b>ଡ</b> ଼ନ	Login Name of User
Home >					
i Yubico   Overview					×
~	🕂 Add \vee 🔅 Manage tenants	s 🚺 What's n	new 🗔 P	review features	📯 Got feedback? 🗸
<ol> <li>Overview</li> </ol>					
Preview features	(i) Microsoft Entra has a simpler	r, integrated exp	erience for mar	naging all your Id	lentity and Access
🗙 Diagnose and solve problems	Management needs. Try the n	iew Microsoft Er	ntra admin cent	ter! 🛛	
Manage	Overview Monitoring Pro	operties Re	commendatio	ns Tutorials	5
🚨 Users	Search your tenant				

#### Step 2

To add entirely new users to Azure as opposed to adding them to the SAML organization, click **New user** at the top of the page and follow the directions provided in the subsequent pages. Otherwise

select the users for whom you are enabling SSO by clicking on the checkbox next to the respective **Display name**.

#### Step 3

From [your company's] SAML Overview page, click Assign users and groups. The Users and groups window appears.



#### Step 4

Click Add user/group at the top of the window. The Add Assignment screen appears. Under Users, click None Selected to display a list of your total users in Azure.

Home > [l ] YubiEnterprise Delivery SAML | Users and groups >

# Add Assignment

Yubico

Groups are not available for assignment due to your Active Directory plan level. You can assign individual users to the application.

Users

None Selected Select a role

User

## Step 5

Select the checkboxes for the requisite users, then click the **Select** button.

#### Step 6

Users must have an account in the Console in order for the SSO-authentication to work. To add users, log in to the Console with the Console Owner role, go to **Settings > Users**, and add users as needed.

**Important:** Users that are not explicitly provisioned in the Console, will fail the SSO authentication. Furthermore, the Console does not support SCIM (System for Cross-domain Identity Management) or JIT (Just-in-time) login for users in Azure.

# 16.6 Enabling SSO with Okta

This section describes how to enable SSO between Okta and the YubiEnterprise Console. These instructions assume that your company's SAML application has already been created in Okta.

# 16.6.1 Create App Integration

#### Step 1

Log in to the **Console** as Console Owner with user name and password, and go to **Settings > SSO**. The **Configure SAML Single Sign-On** page appears. This is the location from which you will be copying information.

1

# Configure SAML Single Sign-On @

## View instructions for setting up SAML SSO

Copy this information for your IDP setup. Note that each IDP has different labels for these fields, and the sequence of fields varies from one IDP to the next.

EntityID/Identifier ?	
	0
Reply URL (ACS) 💡	
	6

#### Step 2

Log in to your company's Okta tenant https://developer.okta.com/login/ as Admin, and navigate to **Applications > Applications**. The Applications page appears on the right.

okta		Q Search for people, ap	ps and grou	ps		?	Okta instance name
Dashboard Directory Applications	~ ~	Applications	Browse	App Catalog	Assign Users to App More *		Help
Applications Reports	~	Q Search		]			
Settings	~	STATUS ACTIVE INACTIVE	3	0	demo-test-stage platform-okta-test-stage		o • o •
				Ø	SSO Integration		0 ×

## Step 3

Click Create App Integration. The Create a new app integration window appears.

Next

Cancel

Create a new app integration			×
Sign-in method Learn More 🖸	0	OIDC - OpenID Connect Token-based OAuth 2.0 authentication for Single Sign-On (SSO) through API endpoints. Recommended if you intend to build a custom app integration with the Okta Sign-In Widget.	1
	0	SAML 2.0 XML-based open standard for SSO. Use if the Identity Provider for your application only supports SAML.	
	0	SWA - Secure Web Authentication Okta-specific SSO method. Use if your application doesn't support OIDC or SAML.	
		API Services Interact with Okta APIs using the scoped OAuth 2.0 access tokens for machine-to-machine authentication.	

#### Step 4

Select SAML 2.0 and click Next. The Create SAML Integration window appears.

Dashboard	~		_
Directory	~	<b>ЩCreate SAML Integrat</b>	ion
Applications	~	1 General Settings	2 Configure SAML
Reports	~		
Settings	~	1 General Settings	
		App name	Name of this SAML integration for SSO
		App logo (optional)	▲ ■
		App visibility	Do not display application icon to users
		Cancel	Next

#### Step 5

On the **1. General Settings** tab, enter the appropriate name in the **App name** field, make any other necessary settings and click **Next**. The **Configure SAML** tab of the **Create SAML Integration** window appears.

A SAML Settings	
General	
Single sign-on URL 👔	
	✓ Use this for Recipient URL and Destination URL
Audience URI (SP Entity ID) 🔞	

# 16.6.2 Copy Entity ID from Console to Okta

- 1. In the Console Settings > SSO page from Step 1 in *Enabling SSO with Okta*, click the copy icon to copy the **EntityID/Identifier** from the Console.
- 2. Paste it into the Audience URI (SP Entity ID) field in Okta's Configure SAML tab.

Dashboard	~		
Directory	~	Create SAML Integration	
Applications	~	1 General Settings 2 Configure SAML	
Reports	~		
Settings	~	A SAML Settings	
		General	
		Single sign-on URL 👔	
		Use this for Recipient URL and Destination URL	
		Audience URI (SP Entity ID) 💿 paste *EntityID/Identifier* from YubiEnterprise Console	
		Default RelayState 💿	
		If no value is set, a blank RelayState is sent	

# 16.6.3 Copy Reply URL from Console to Okta

- 1. In the Console Settings > SSO page from Step 1 in *Enabling SSO with Okta*, click the copy icon to copy the **Reply URL (ACS)** from the Console.
- 2. Paste it into the **Single sign-on URL** field in Okta's **Create SAML Integration** window on the **Configure SAML** tab. Enable the checkbox for **Use this for Recipient URL and Destination URL**.

# Create SAML Integration

General Settings	2 Configure SAML
A SAML Settings	
General	
Single sign-on URL	paste *Reply URL (ACS)* from YubiEnterprise Console
Audience URI (SP Entity ID)  👔	paste *EntityID/Identifier* from YubiEnterprise Console

# 16.6.4 Set Name ID Format, Application Username, and Attribute Statement

## Step 1

In Okta, still in the **General** section on the **A SAML Settings** tab, from the **Name ID format** dropdown, select **EmailAddress**.

## Step 2

From the Application username dropdown, select Email.

A SAML Settings		
General		
Single sign-on URL 👔	Paste Reply URL (ACS) from YubiEr	nterprise Console
	✓ Use this for Recipient URL and D	estination URL
Audience URI (SP Entity ID) 🛛 💿	Paste EntityID/Identifier from Yubi	Enterprise Console
Default RelayState		
	lf no value is set, a blank RelayState i	s sent
Name ID format 🛛 💿	EmailAddress •	]
Application username 👔	Email	ן
Update application username on	Okta username	
	Okta username prefix	
	Email	10w Advanced Setting
	Email prefix	
	Custom	
Attribute Statements (optional)	(None)	LEARN MOR

Scroll down to the Attribute Statements (optional) section, and

- Under Name, enter emailAddress
- Leave the Name format unspecified
- Under Value enter user.email.

Name	Name format	Value	
	(optional)		
emailAddress	Unspecified	• user.email	•

## Step 4

Scroll down to the bottom of the tab and click Next. The Feedback tab appears.

Step 5

On the Feedback tab under Create SAML Integration, select either:

- I'm an Okta customer adding an internal app or
- I'm a software vendor. I'd like to integrate my app with Okta,

Provide feedback (optional) and click Finish. The Sign On tab for your application appears.

General Sign On	Import	Assignments		
Settings Sign on methods The sign-on method Some sign-on method Application username	etermines ho s require add is determined	w a user signs into and man itional configuration in the d by the user profile mappir	Edit nages their credentials for an application. 3 <sup>rd</sup> party application. ng. Configure profile mapping	About SAML 2.0 streamlines the end user experience by not requiring the user to know their credentials. Users cannot edit their credentials when SAML 2.0 is configured for this application. Additional configuration in the 3rd party application may be required to complete the integration with Okta.
SAML 2.0				Application Username
Default Relay	State			username value when assigning the application to users.
Metadata c Metadata UR	etails	https://		If you select <b>None</b> you will be prompted to enter the username manually when assigning an application with password or profile push provisioning features.
		ml/metadata	/sso/sa	SAML Setup
		🛱 Сору		Single Sign On using SAML will not work until you configure the app to trust Okta as an IdP.
More deta	ils			☑ View SAML setup instructions

# 16.6.5 Copy IDP SSO URL & X509 Certificate from Okta to Console

Step 1

On the bottom right of Okta's Sign On tab, click the View SAML setup instructions tab.

Name     Active	e of your application integratio	on
eneral Sign On Impor	rt Assignments	
Settings		About Edit SAML 2.0 streamlines the end user experience by not requiring the user
Sign on methods The sign-on method determine application. Some sign-on met Application username is determ	es how a user signs into and manages their credentials for an hods require additional configuration in the 3 <sup>rd</sup> party application. mined by the user profile mapping. Configure profile mapping	know their credentials. Users canno edit their credentials when SAML 2. configured for this application. Additional configuration in the 3rd party application may be required to complete the integration with Okta
SAML 2.0		Application Username
Default Relay State		Choose a format to use as the defau username value when assigning the application to users.
Metadata details		If you select <b>None</b> you will be promy to enter the username manually wh assigning an application with passw or profile push provisioning features
Metadata URL	https://url	CAMI Colum
	🛱 Сору	SAML Setup Single Sign On using SAML will not work until you configure the app to trust Okta as an IdP.
More details		F2 View SAML setup instruction

The How to Configure SAML 2.0 for [name of your] Application window appears.



Still in Okta, copy the content of the **Identity Provider Single Sign-On URL:** to the **IDP login URL** field in the Console.

#### Step 3

From the Okta **The following is needed to configure [application name]** window, copy the **Identity Provider Issuer** to the Console's **EntityID/Issuer**.

#### Step 4

In Okta, click **Download certificate** under **X.509 Certificate**, then paste the content to the Console's **X.509 cert (Base64)** field.

#### Step 5

In the Console, click Save settings.

#### Step 6

From the Console, copy the SP Initiated Login URL and send it to your users.

# 16.6.6 Add Console Users to Okta's SAML App Integration

Users for whom you intend to enable SSO must first be in Okta to be available for adding to the application integration. For information on how to add users, see the Okta documentation.

1. In Okta, navigate to **Applications > Applications** and click **Assign Users to App**. The **[name of app]** page for your app appears.

← Back to Application	S					
Name of this SAML integration for SSO						
() Once you have a working SAML integration, submit it for Okta review to publish in the OAN.						
General Sign C	General Sign On Import Assignments					
Assign v	Convert assignments ▼	Q Search People V				
Filters	Person	Туре				
People						
Groups		01101110 01101111 01110100 01101 000 01101 01 01101110 01100111 No users found				

- 2. Assign Console organization members as a group or as individuals.
- 3. In the Console, enable SSO.

# 16.6.7 Enable IDP- and SP-initiated SAML Flows

This configuration enables both the IDP- and SP- initiated SAML flows for Okta. This subsection assumes that you are familiar with the instructions for IDP-initiated SAML flow with Okta.

Step 1

In the **Console > Settings > SSO**, select **Allow IDP initiated single sign-on** to enable, and copy the **IDP initiated login URL (ACS)**.

6

Copy this information for your IDP setup. Note that each IDP has different labels for these fields, and the sequence of fields varies from one IDP to the next.

EntityID/Identifier <b>?</b> https://login.:	
Reply URL (ACS) ? https://login. ndpoint	/e 🗌
Allow IDP initiated single sign-on * ( ?	
IDP initiated login URL (ACS) 🕜 https://login. ndpoint/clients/idp-initiated	

#### Step 2

In Okta, go to **App General > SAML Settings > Edit > Edit SAML Integration: General Settings > Configure SAML**.

#### Step 3

Still in Okta, paste the **IDP-initiated Login URL** from the **Console** into the **Single sign-on URL** field, click **Use this for Recipient URL and Destination URL**, then click **Next** and finally **Finish**.

# Edit SAML Integration

1 General Settings	2 Configure SAML
A SAML Settings	
General	
Single sign-on URL	-okta-dev-sso/broker/sso/endpoint/clients/idp-initiated
	Use this for Recipient URL and Destination URL
Audience URI (SP Entity ID) 🛛 🕢	https://login.local/sso/platform-okta-dev-sso/entityld

## Step 4

Test: in Okta, on **App General > App Embed Link**, copy the IDP-initiated login link from the **Embed link** field into your browser to verify that the link redirects you to the Console after Okta

```
login.
```

App Embed Link	Edit
Embed Link	
You can use the URL below to sign into platform-okta-dev-local from a portal or other location of Okta.	ı outside
https://okta.com/home/devplatformokta/0oa5d7/aAp5d7	
Application Access Error Page	
If someone who is not assigned to the application attempts to use an embed link, they will be redirected to a default error page or one that can be customized. An application level setting v override default URL settings.	vill
<ul> <li>Use the error page setting on the global settings page</li> <li>Use a custom error page for this application</li> </ul>	

# 16.6.8 Start App Integration

To start IDP-initiated login, go to the **Okta End User Apps Dashboard** (https://<account>.okta.com/app/UserHome) and click on the app for the Console SSO integration.

÷	$\rightarrow$ C ( $\blacksquare$ test-account	.okta.com/app/UserHome			
	okta	Q Search your apps			
A	My Apps		My Apps		
	Work				
	Add section $\oplus$		⊗ Work		
•	Notifications (1)		©	<b>©</b>	Ô
==	Add apps		YED SSO Integration	demo-test-stage	platform-okta-dev- local
			Add section		

# 16.7 Enabling SSO with Google Workspace

This section describes how to enable SSO between Google Workspace and the YubiEnterprise Console.

# **16.7.1 Prerequisites**

- Ensure that you are a Console Owner in the Console.
- System role: Your Google Workspace Administrator Seed Role must be Super Admin.
- Ensure you have access to the email account associated with that Google account.

# 16.7.2 Procedure

# Add a Custom SAML App

## Step 1

Log into the Google Admin Workspace by going to admin.google.com/ and selecting the appropriate account.

# Step 2

Enter username and password for the selected account. If your company has set up Google Groups to require a YubiKey, you will be prompted to plug one in and touch it. After login, the **Admin** page appears.

O Admin	Q Search for users	, groups or setting	Ų	8	?	000 000 000
Google Workspace						
Google Workspace services						
11 SERVICES						
Additional Google service	ces 🧲					
Blogging, photos, video, social	tools and more					
65 SERVICES						
Web and mobile anns						
Manage SAML, Android and iO	S apps					
3 APPS						
Google Workspace Mark	ketplace					
Add and manage third party ap	ops					
N0 APPS	MANAGE					

Go to **Apps** > **Web and mobile apps**.

Google A	ccount × 📀 Admin console - We	b and mobil $ imes$	+				
← → C ( admin.google.com/ac/apps/unified							
= 💽 Admin	Q Search for users, group	ps or settings					
Apps > Web a	and mobile apps						
ă	Apps (2) Add app						
Ĺ	Ahha (2) Ann ahh + Serri	igs +					
	+ Add a filter						
٢	Name A	Platform	Authentication	llear accase	Details		
@		Thatform	Automouton	0361 000033	Details		
6	ACME-docs-test-SAML-app	Web	SAML	ON for everyone			
	UX UX-Goog test-idp	Web	SAML	ON for everyone			
	-test-idp org	Web	SAML	OFF for everyone			

Create a new SAML app by clicking on the **Add app** dropdown and selecting **Add custom SAML app** (you need be Super Admin to see this option.)

Apps (3) Add app   Settings			
+ Add a filte Search for apps			
□ Name ↑ Add private Android app	Authentication	User access	Details
Add private Android web app	SAML	ON for everyone	Certificate expires on May 23, 2028
UX U Add custom SAML app	SAML	ON for everyone	Certificate expires on May 23, 2028
test-idp org Web	SAML	OFF for everyone	Certificate expires on May 23, 2028

Under the Add custom SAML app banner, the 1 App details tab is displayed:

× Add custom SAML app
1 App details — 2 Google Identity Provider detail: — 3 Service provider details — 4 Attribute mapping
App details
Enter details for your custom SAML app. This information is shared with app users. Learn more
App name
App name is required
Description
App icon
Attach an app icon. Maximum upload file size: 4 MB
CANCEL CONTINUE

In the 1 App details tab:

- (Required) Enter a name in the App name field.
- (Optional) Add a description in the **Description** field.
- (Optional) Attach an icon for the app by clicking on the big blue button.

Click **CONTINUE**. Under the **Add custom SAML app**, the **2 Google Identity Provider detail** page appears.

Boogle Identity Provider detail: — 🚳 Service provider details — 🕘 Attribute mapping			
	lafa instructions. Lange many		
to contigure single sign-on (SSU) for SAIML apps, follow your service provid	ers instructions. Learn more		
Option 1: Download IdP metadata			
DOWNLOAD METADATA			
00			
UR			
Option 2: Copy the SSO URL, entity ID, and certificate			
1011022			
	5		
https://accounts.google.com/o/sami2/idp?idpid=C03aimaf	0		
Entity ID			
https://accounts.google.com/o/saml2?idpid=C03airnaf	Ō		
Certificate			
Google_2028-5-23-2265_SAML2_0 Expires May 23, 2028	Ē ±		
MIIDdDCCAlygAwiBAgiGAYhSOs+QMADGCSQGSib3DQEBCwUAMHsxFDASBgNVBAo bmbduMRYwFAYDYDOHFw11bh3YudGFbblBWAWV3M08wD0YDVD0DFw2Hb29bbGU	TC0dvb2dsZSBJ xGDAWBaNVBAsTD0dv		
b2dsZSBGb3lgV29yazELMAKGA1UEBhMCVVMxEzARBgNVBagTCKNhbGlmb3JuaWE	wHhcNMjMwNTI1		
SHA-256 fingerprint			
1D:AD:8C:6D:0D:4A:6A:33:6C:E1:75:E1:38:EE:CA:97:D2:C8:FD:0D:21:F5:E6	:09:69:80:60:5B:B3:56:BC:89		
BACK		CANCEL	CONTINUE

## Configure the Custom SAML App

Copy and paste information between the Google Add custom SAML app and the Console Configure SAML Single Sign-On pages, have them open side-by-side in two browser windows.

Step 1

Log in to the Console as Console Owner with username, password, and YubiKey. Go to **Settings** > **SSO** to open the the SSO configuration page.

_	
	Configure SAML Single Sign-On 🥝
	View Instructions for setting up SAML SSO
	Copy this information for your IDP setup. Note that each IDP has different labels for these fields, and the sequence of fields varies from one IDP to the next.
	EntityID/Identifier @
	Reply URL (ACS)
	https://login.s
	napoint
	Allow IDP Initiated single sign-on * 🕜
	EntityID/Issuer *
	EntityID/Issuer * IDP login URL *
	EntityID/Issuer * IDP login URL * X.509 certificate (Base64) *
	EntityID/Issuer * IDP login URL * X.509 certificate (Base64) *
	EntityID/Issuer * IDP login URL * X.509 certificate (Base64) *
	EntityID/Issuer *  IDP login URL *  X.509 certificate (Base64) *  Get your single sign-on URL
	EntityID/Issuer *  IDP login URL *  X.509 certificate (Base64) *  Get your single sign-on URL  For org initiated SSO, save this link to share with your users. Do not paste this into your IDP initiated settings.
	EntityID/Issuer *  IDP login URL *  X.509 certificate (Base64) *  Get your single sign-on URL  For org initiated SSO, save this link to share with your users. Do not paste this into your IDP initiated settings.  SP Initiated Login URL
	EntityID/Issuer *  IDP login URL *  X.509 certificate (Base64) *  Get your single sign-on URL  For org initiated SSO, save this link to share with your users. Do not paste this into your IDP initiated settings.  SP Initiated Login URL  https://login.!
	EntityID/Issuer *  IDP login URL *  X.509 certificate (Base64) *  Get your single sign-on URL  For org Initiated SSO, save this link to share with your users. Do not paste this into your IDP Initiated settings.  SP Initiated Login URL  https://login.!



Enter the following values from Google's **2 Google Identity Provider detail** page into the Console's SSO configuration form, transferring them from the fields listed in the table:

Google	YubiEnterprise Console
SSO URL	IDP login URL (section 2)
Entity ID	EntityID/Issuer (section 2)
Certificate	X.509 cert (Base64)(section 2)

On the Console's Configure SAML Single Sign-On page, click Save settings.

#### Step 3

In Google, in the Add custom SAML app screen, click CONTINUE. The 3 Service provider details window appears.

Service provider details			
To configure single sign on, add	I service provider details such as ACS URL and entity ID. Learn more		
ACS URL	azad/broker/sso/endpoint		
https://login.dev.			
Entity ID			
https://login.dev	azad/entityId		
Name ID			
Defines the naming format sup	ported by the identity provider. Learn more		
Name ID format			
UNSPECIFIED			-
Name ID			
Basic Information > Primary	/ email		~
ACK		OANOEI	

#### Step 4

In Google, in the **3 Service provider details** window, enter the following values from the Console into Google's form, transferring them from the fields listed in the table:

Google	YubiEnterprise Console
ACS URL	Reply URL (ACS) (step 1)
Entity ID	EntityID/Identifier (step 1)
Start URL - leave blank	
Name ID format - set EMAIL	
Name ID - leave Basic Information > Primary email	

#### Step 5

In Google, in the 3 Service provider details screen, click CONTINUE. The 4 Attribute Map-

**ping** page appears (with *Attributes* and *Group membership* (*optional*). Skip these steps by clicking **FINISH**. The page for your new SAML app appears.

≡	🔿 Admin	Q Search	for users, groups or settings				Ļ	8	?	 F
Â	Apps > Web and mobile ap	ps > Custom SA	ML app for documentation							
	Custom S Cuapp for documen	SAML tation	User access To make the managed app available View details OFF for everyone	to select users, choose a group or orga	anizational unit. L	earn more				~
<ul> <li>₽</li> <li>□</li> <li>□</li> <li>□</li> <li>○</li> </ul>	TEST SAML LOGIN  DOWNLOAD METADA	ТА	Service provider details Certificate Google_2028-5-23- (Expires May 23, 24	ACS URL https://login. azad/broker/		Entity ID https://login azad/entitylo	1			~
•	DELETE APP		SAML attribute mapping SAML attribute mapping isn't configu Map Google directory user profile fiel Configure SAML attribute mapping	rred ds to SAML service provider attributes						

#### Step 6

In Google, ensure that **User Access** is **ON for everyone** by clicking on the caret in the upper right corner of the **User access** section.

Second Custom SAML App for Documentation	User access To make the managed app available to select users, choose a group View details ON for everyone	or organizational unit. Learn more	O
<ul> <li>☑ TEST SAML LOGIN</li> <li>▲ DOWNLOAD METADATA</li> <li>✓ EDIT DETAILS</li> </ul>	Service provider details Certificate Google_2028-5-23-2265_SAML2_0 (Expires May 23, 2028)	/ubico.com/realms/docs-test- .Jendpoint	Entity ID     https://ogin.dev.yubico.com/sso/docs-test-azure/entityld
DELETE APP	SAML attribute mapping SAML attribute mapping isn't configured Map Google directory user profile fields to SAML service provider att Configure SAML attribute mapping	ributes.	

The **Service Status** window opens. Toggle the service status radio control to **ON for everyone** and click **SAVE**.

Showing settings for users in all organizational units					
Service status				^	
Service status	ON for everyone OFF for everyone  Nost changes take effect in a few minutes. Learn more				
		1 unsaved change	CANCEL	SAVE	

## Step 7

In the Console, click Save settings and Enable SSO (unless already enabled).

# Troubleshooting

- **Issue**: Changing the ACS URL in an existing Google IDP configuration does not appear to be successful even after waiting a significant amount of time.
  - Workaround: Start over. Delete your Web and mobile app and start again.
- Issue: Sometimes the Google site displays the 500 error after SSO configuration.
  - Workaround: Update the Entity ID with a trailing forward slash "/". If you already have such a slash, remove it.
- Issue: Sometimes Google presents the message "Service is not configured for this user".
  - Workaround: Update the Entity ID with a trailing forward slash "/". If you already have such a slash, remove it.

# 16.8 Enabling SSO with Duo

This section describes how to enable SSO between Duo and the YubiEnterprise Console. Note that unlike the other SAML integrations described above, Duo is not the IDP for the users. The following instructions assume that Duo is configured with Azure as the IDP, so those steps are not included.

# 16.8.1 Prerequisites

- Ensure that Duo's IDP is configured (Azure for this environment).
- Ensure that you are a Console Owner in the Console.
- As Console Owner, add the SSO users to your organization in the Console, see *Adding or Deleting Users*. Each user's email address must match the email address used for that user in Duo and in Azure.

# 16.8.2 Procedure

To copy and paste information between the Duo and the Console configuration pages, have them open side-by-side in two browser windows.

# Step 1

As administrator, log in to the Duo Tenant Admin portal: https://admin.duosecurity.com.

	Admin Login
En	ter your admin credentials
	Save my email address and login options Not recommended for public or shared computers
	Continue
Wan	t to protect your organization with Duo? Start a free tria

Add the Console (YubiEnterprise Delivery) application in Duo.

Go to Applications > Protect an Application > YubiEnterprise Delivery > Protect.

		Q Search	V Account O Help	, A
Dashboard Device Insight	~	Dashboard > Applications > Protect an Applic Protect an Applic Yubico	ation	
Applications	^	Application	Protection Type	
Protect an Appli Authentication F	cation Proxy	yubico YubiEnterprise Delivery	2FA with SSO hosted by Duo (Single Sign-On)	Protect
Single Sign-On Users	~			

# Step 3

Log in to the Console with the Console Owner role.

## Step 4

## Configure Console SSO to IDP (Duo).

In the Console, go to **Settings > SSO** to open the **SAML Single Sign-On** page. Copy the **EntityID/Identifier** field from section 1 in the Console to the **EntityID/Identifier** field in the Duo Service Provider section.

# Configure SAML Single Sign-On @

View instructions for setting up SAML SSO

Copy this information for your IDP setup. Note that each IDP has different labels for these fields, and the sequence of fields varies from one IDP to the next.

EntityID/Identifier ?	
https://login.	0

### Console configuration section

**Service Provider** 

Enter your EntityID/Identifier from YubiEnterprise Delivery

Duo configuration section

#### Step 5

Configure IDP (Duo) to SP (Console).

- Copy the **EntityID/Identifier** field from the Duo application configuration Metadata section to the **EntityID/Issuer** field in section **2** in the Console configuration page.
- Copy the IDP login URL from Duo to the IDP login URL field in the Console.
- In Duo, download the **Certificate**, open the file with a text editor, copy the content and paste it into the **X.509 cert (Base64)** field in the Console.

#### Metadata

EntityID/Identifier	https://ssosso.duosecurity.com/saml2/sp/		⁰/metada	Сору
IDP login URL	https://sso-	.sso.duosecurity.com/saml2/sp/	%sso	Сору
Downloads				
Certificate	Download certifi	cate		

Duo configuration section

Paste the content from the IDP's SSO setup into the fields below. Note that each IDP has different labels for these fields, and the sequence of fields varies from one IDP to the next.

```
- EntityID/Issuer* -
https://sso...
```

2

– IDP login URL\* – https://sso...

X.509 certificate (Base64) \*

Console configuration section

#### Step 6

Save settings and enable SSO in the Console.

Ensure to click Save settings and Enable SSO before closing your browser.

Save settings	Cancel	Enable SSO

#### Step 7

#### Configure Duo application attribute mapping.

To configure a Duo attribute other than **Email Address** as the email address attribute sent to the Console in the SAML response, return to the Duo application configuration screen Service Provider section, check the box for **Custom attributes**, and then select the attribute to send as the email address attribute.

Service Provider		
EntityID/Identifier *	EntityID/Identifier	
	Enter your EntityID/Identifier from YubiEnterprise Delivery	_
Custom attributes	Check this box if your Duo Single Sign-On authentication so names.	ource uses non-standard attribute
Mail attribute	<email address<="" th=""><th>]</th></email>	]
	+ Enter custom value	
	<username></username>	
Universal Prompt 🔊	<first name=""></first>	More Information
	<last name=""></last>	n more about the new prompt experience.
	<display name=""></display>	
	<email address=""></email>	

## **Configure Duo application policy.**

Duo policies control how users authenticate to specific applications. Steps 8 and 9 ensure that MFA is enforced, and YubiKeys are enabled as Webauthn authentication method. These policies can be configured globally, or per application. If other applications are already being protected with Duo, ensure that the following settings can apply to all applications, or consider creating a unique Application policy for the Console. See the Duo documentation.

a. To configure global policies, click Edit Global Policy in the Duo application configuration page.

Global Policy This policy always app	Ed	It Global Policy	
Enabled	New User policy	Prompt unenrolled users to enroll whenever possible.	
Enabled	Authentication policy	Skip two-factor authentication and enrollment, unless there is a superseding policy configured.	
	User location	No restrictions.	

b. In the New User Policy section, ensure the **Require enrollment** option is selected. (Optional) if the IdP is forcing 2FA, click **Bypass 2FA** in the Authentication Policy section. To force 2FA in Duo (not relying on the IdP), click **Enforce 2FA**.



Ensure hardware tokens are selected.

In Duo, scroll down to the **Authentication methods** section, and ensure the **Hardware tokens** option is selected.

## Authentication methods

Lears will only be allowed to authentiaste with 254 using the checked methods		
Users will only be allowed to authenticate with 2PA using the checked methods.		
Platform authenticator (WebAuthn)		
Built-in authenticators that require a biometric, PIN, or passcode (e.g., Face ID, Touch ID, Windows Hello, or Android fingerprint and face recognition.)		
Note: The only platform authenticator that Traditional Prompt supports is Touch ID on Chrome browsers.		
Roaming authenticator (WebAuthn)		
USB, Bluetooth, or NFC security keys		
✓ Duo Push		
Always require a Verified Duo Push with	3 (default <del>)</del>	digits.
This setting requires users to verify Duo Push authentications. ①		
Duo Mobile passcodes		
SMS passcodes		
Automatically send a new passcode up to 3 times if delivery fails. Any retries will use additional telephony credits.		
<ul> <li>Hardware tokens</li> </ul>		

### Step 10

Save the global policy.

In Duo, click Save Policy at the bottom of the Global Policy configuration page.

#### Step 11

Save the application configuration.

In Duo, click **Save** at the bottom of the application configuration page.

# 16.9 Enabling SSO for Other IDPs

To try out SSO for identity providers that Yubico does not explicitly claim to support, go to **Settings > SSO > Configure SAML Single Sign-On**, and fill in the configuration fields.
	L Sinale Sian-On 🙆	
View instructions for s		
	etting up skille sso	
Copy this information fields, and the sequen	for your IDP setup. Note that each IDP has diffe ce of fields varies from one IDP to the next.	rent labels for these
EntityID/Identifier 🔗		
https://login.s		
Reply URL (ACS) 🔗		
https://login.s ndpoint		
Allow IDP initiated sin	gle sign-on * 🛛 🕘	
Paste the content from different labels for the	n the IDP's SSO setup into the fields below. Note rse fields, and the sequence of fields varies from	e that each IDP has n one IDP to the next.
EntityID/Issuer *		
IDP login URL*		
X.509 certificate (Base64	i) ^	
Get your single sign-o	n URL	
	this link to share with your users. Do not p	paste this into your
or org initiated SSO, save DP initiated settings.		
or org Initiated SSO, save DP Initiated settings. SP Initiated Login URL		
et your single sign-o	n URL this link to share with your users. Do not p	paste this into your

**Note:** Be aware that the field labels vary depending on the IDP. For examples of these variances, look at the instructions for supported IDPs Microsoft Azure, Okta, and Google Workspace.

# 16.10 Disabling SSO

To disable SSO, in the **Console**, go to **Settings > SSO**. In the **Configure SAML Single Sign-On** page click the **Disable SSO** button.

Users added *after* SSO was enabled will not be able to login once SSO is disabled. Therefore you need to determine which users need to be enabled to log in with credentials again. To see which users have credentials, log in to the Console as Console Owner with credentials and go to **Settings > Users**. The **MFA** column on the page indicates which users have credentials.

ACME Inc     viewing as customer	*					Add nev	v member
		C Refresh data		Rows per page: 15	- 1-15	of 49	< >
		Email	Roles	Last login State	MFA	Pa	Edit
🕞 Shipments	<	user1@acme.com	CONSOLE ADMIN	2023-11 Active	~	~	/ =
Purchase orders		user2@acme.com	CONSOLE OWNER	2023-12 Active	~	~	/ 1
😥 Settings	~	user3@acme.com	CONSOLE ADMIN	2024-01 Active	~	~	/ =
Users		user4@acme.com	CONSOLE ADMIN	2023-10 Active	~	~	/ =

To enable users added after SSO enablement to enroll credentials and log in again, reset them as described in *Account Resets and Role Changes*.

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

CHAPTER

## SEVENTEEN

# SERVICENOW INTEGRATIONS

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".

The YubiEnterprise Delivery for ServiceNow Tutorial walks you through the configuration of custom spokes. The examples include how to add a YubiKey to your service catalog, how to configure a form to send a request to the YED API to create a shipment, and how to send shipment tracking information to the end user.

The aim of this example 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.

CHAPTER

## EIGHTEEN

## **API ONBOARDING PLAYBOOK**

While the YubiEnterprise Delivery service can be run entirely through the Enterprise Console, it also comes with an API that provides the ability to extend the functionality to custom applications. The YubiEnterprise API is available for developers associated with customer organizations to integrate custom solutions that meet specific business requirements. The API calls are free of charge.

The following sections describe the steps to get up and running and start working with the YubiEnterprise API to integrate with various platforms and solutions to deliver YubiKeys to end users.

# 18.1 API Caller Account Setup

Here you will set up a sub-account for the application that will be calling the YubiEnterprise API, and generate an API token for authentication. Creating the account and the API token is done in the YubiEnterprise Console. For access to the Console for your organization, see *Onboarding*.

## **18.1.1 Prerequisites**

- An email account for the application that will be calling the API. Ensure you have access to this email account since the Console login instructions will automatically be sent to this email address.
- Access to the YubiEnterprise Console for your organization.
- Console account with Console Owner permission to be able to add user accounts for your organization.

**Note:** If your organization has Single sign-on (SSO) enabled, new users do not have to register. Users are immediately added to the organization in the *Active* state and can use the SSO service-provider-initiated login link to log in to the Console. For more information, see *Authenticating with SSO*.

## 18.1.2 Creating an Account

To create a user account with an API token for the API caller, do the following:

- 1. In the Console, create an account only to be used by the API caller, for example "my-app@example.com". For instructions, see *Adding or Deleting Users*.
- 2. Assign the **Console Admin** role to the API caller's account.
- 3. Activate the new API caller account by clicking the login link in the email sent by the system, and follow the instructions to log in.

**Note:** If your organization is using the single sign-on (SSO) method, you cannot change your password or your authentication method when you log in via SSO. You must use your credentials (username, password and YubiKey) to log in. Only then can you manage your credentials.

- 4. Associate a YubiKey for the API caller user account with the YubiEnterprise login credentials:
  - a. On the upper right of any **Console** page, click the user icon of the API caller and select **Manage credentials** to open the **Account** page.
  - b. Register at least one YubiKey (WebAuthn credential), for instructions see *Managing Login Credentials*. It is strongly recommended to register a second YubiKey in case the first one is lost.
- 5. Generate an API token for the API caller account as described in *Generating API Tokens*. Make a copy of the API token and store it in a secure location for future usage.

# **18.2 Generating API Tokens**

The following section describes how to generate and manage API tokens used by API callers for authentication.

To generate an API token for an account, do the following:

- 1. In the **Console**, click the organization name on the top of the left menu and select **Generate API token**. The **Manage API** token dialog appears showing the generated API token.
- AF-corp-test



- 3. Make a copy of the token and store it in a secure location. The token is shown *only at this time*, if you navigate away from the dialog you will no longer be able to view it.
- 4. Click I have saved my token to close the dialog.

**Note:** The API token is tied to an account AND an organization. If a token does not exist for an account/organization, the menu option under the organization name will be **Generate API token**. If a token exists for an account/organization, the option will be **Manage API token**.

## 18.2.1 Notification of API Token Expiry

API tokens expire one year after generation. Since a user (API caller) 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.

The system automatically emails notification that the API token will expire:

- 7 days beforehand
- 1 day beforehand
- On the day of expiry

The notification is emailed to:

- The user (holder) of the API token
- The Console Owner (account owner, in cc)

For more information about user roles, see Roles and Permissions.

**Note:** API tokens are only valid for one year at the time. Generating a new API token can be done at any time, and the generation of a new token will invalidate the old one. Tokens are bound to a user within an organization. If an application is using an API token generated by user A, then user B generating a new API token will not revoke the token generated by user A.

## 18.2.2 Revoking and Deleting API Tokens

An account can have 0 or 1 API access (machine) tokens. Once you have a token, it must be revoked and deleted before you can get a new one - *even if the old one has expired*.

- From the API: You can add logic to renew the token by calling the API to get a new token before the existing one expires. The GET /auth/machine-token request revokes any existing tokens and creates a new machine token. Note that this could cause outages since GET in this instance is not a safe idempotent operation.
- From the Console: While logged in to the Console as the user with the relevant API token, click the organization name and select Manage API token. Click Revoke and delete active API token. Once you revoke and delete the old token, the button to generate a new token appears.

## 18.2.3 Organizations and API Tokens

API tokens are scoped to organizations. In the case of a multinational organization shipping YubiKeys to both Europe and United States/Canada, two separate organizations will be set up. In this case, two API tokens are required, one for the European organization, and one for the US/CAN organization.

An individual user can have one role in one organization and the same or a different role in another organization. Even if the same individual is the Console Owner for both, there is a separate account for each. For example a user could be a Console Owner in a company's US/CAN organization and a Console Admin in the same company's EU organization. However, because these are separate organizations, if the user is logged in to the US/CAN YubiEnterprise, the same user cannot use that login to perform operations in the company's EU YubiEnterprise.

The following is important regarding API tokens:

- 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 API 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.

• 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.

# **18.3 Authenticating with HTTP**

The YubiEnterprise API supports the HTTP Bearer Authentication scheme. In order to authenticate with HTTP, you must provide the API token in the header of the request. For instructions on how to generate an API token, see *Generating API Tokens*.

To use the API token, copy the token from its secure location and paste it into for example a curl command in a bash script as shown below.

```
curl "https://api.console.yubico.com/v1/inventory" \
--header "Authorization: Bearer eyJhbGci0iJIUzI1NiIsInR5cCI6IkpXVCJ9..."
```

# **18.4 Dates and Times**

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

# 18.5 Working with the API

Consider the points in the following before you begin working with the API.

#### Shipment flow

Make sure you understand the shipment request "happy path" flow and how to handle any error cases. For more information, see *Shipment Requests* and *Best Practices*.

#### Customizations

YubiEnterprise Services include the possibility to custom program and pre-register YubiKeys. To learn more, see *Customizations* and *Shipping Pre-registered Keys*.

## Data model

The API exposes the YubiEnterprise Services data model. It is crucial to understand the difference between product and inventory identifiers. For more information, see *Product and Inventory Identifiers*.

#### Low inventory

Prepare for initial stock running out by setting up pulling from the buffer or replacement stocks. Set up notification to admins of low inventory and automatically roll shipment requests to buffer and replacement stocks.

#### Testing

Use an isolated sandbox environment to reduce testing time.

#### **API updates**

The YubiEnterprise APIs occasionally have breaking changes. Therefore, monitor releases and spin up a project to prepare for migration before the change goes live. To get notified about API changes, see Release Notes and sign up for the Yubico Developer Program mailing list.

The following section provides a starting point and an introduction to the YubiEnterprise API. For full API details, see the YubiEnterprise API Reference.

## 18.5.1 Shipments

• Shipping to a single address: Use the /shipments\_exact API to ship products to a single address. This API can be used to handle shipment requests both directly from Yubico, or through resellers (channel partners).

For more information about the API, see Create a new shipment.

**Note:** Shipping to multiple addresses can only be done from the Console. For more information, see *Shipping to Multiple Addresses: Bulk Shipments*.

• Listing shipment requests: GET /shipments\_exact retrieves a list of all shipments.

In cases where there are more than 100 shipments, iterate through the shipments based on the number of shipments provided by the total\_count parameter. Use the optional parameters to obtain more records. For example:

```
// get the first 100
/shipments_exact?limit=100&offset=0
// get the second 100
/shipments_exact?limit=100&offset=100
// get the third 100
/shipments_exact?limit=100&offset=200
```

For more information about the API, see List all shipments.

• Searching shipments: The /shipments\_exact/search-description route provides a description of the searchable fields on searchable resources. Returns a metadata object that describes which fields on GET / shipments\_exact are searchable/sortable.

For more information about the API, see List searchable fields.

• **Tracking shipments:** A successful response from the shipments\_exact resource includes a shipment\_id which can be used with GET /shipments\_exact/{shipmentId} to get the tracking information for a specific shipment request. The response includes a tracking\_number and a tracking\_link for the shipment.

For more information about the API, see Get a shipments by its ID.

## 18.5.2 Products

• Identifying products: The product\_id parameter used with shipments\_exact provides the unique identifier for a product in a shipment request. For example "4" represents a YubiKey 5C Nano. For input values, see *Product and Inventory Identifiers*.

For more information about the API, see List products.

## 18.5.3 Inventory

• Identifying inventories: inventory\_product\_id specifies which inventory you are drawing from in a shipment request, for example "Base" or "Advanced" tier, relating to the different types of *purchasing options*. For input values, see *Product and Inventory Identifiers*.

inventory\_type relates to the type of purchase such as "subscription" or ""non-subscription", see *Subscription Inventories*. For input values, see *Product Inventory Type Mapping*.

For more information about the API, see inventory.

• Verifying inventory: Before creating a shipment request, you can verify that all the products you intend to ship are currently available in your inventory to avoid shipping errors caused by lack of inventory. To get a complete list of products and inventories available to your organization, make a call to GET /inventory.

For more information about the API, see inventory.

• Viewing inventory allocations: On certain occasions, shippable quantities for a product might be allocated by Yubico, for example due to limited availability, see *Shippable Inventory*. To view inventory allocations, make a call to GET /inventory-allocations. The response includes an entry for each product with the remaining\_allocated\_inventory value representing the amount of keys left which can be shipped.

For more information about the API, see inventory allocations.

For more API information, see the YubiEnterprise API Reference.

# **18.6 Integrations**

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, for example ServiceNow. The YubiKey can be pre-registered and shipped directly to a specific end user who received a randomly generated PIN code separately.

For shipping delivery integration examples, see ServiceNow Integrations and Shipping Pre-registered Keys.

# **18.7 Delivery Self-Service Web Portal**

The YubiEnterprise Delivery Self-Service Portal lets you create a web portal driven by the YubiEnterprise API that allows your customers to order from your organization's inventory. The example in this GitHub repository demonstrates an end-to-end solution with the ability to integrate the YubiEnterprise 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 API and for handling user authentication/authorization
- 2. Use the YubiEnterprise 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.

**Note:** The project demonstrates a reference architecture showing how you can deploy your own YubiKey ordering portal using the YubiEnterprise API. The application should not be considered "production ready", and does not implement the *FIDO2 Pre-Registration Shipments API*.

Below are a few considerations 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 need to use the proper API token for the user's region. For example, North America / Canada is one region, EMEA is a different region and each have their own associated API token. For more information, see the repository.

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

CHAPTER

## NINETEEN

## **API REFERENCE INFORMATION**

The following sections provide input values for various parameters used when working in the Enterprise Console as well as using the YubiEnterprise API.

## **19.1 Country Codes**

Creating shipment requests to multiple addresses (bulk shipments) or through the API requires entering a two-letter country code as part of the shipment address. You can *download a CSV file* containing country codes for all countries available for shipments for an organization. You can also use the API GET /countries/csv to get the correct country codes.

## 19.2 USPS Region/State Codes

Shipments going to the US and Canada require a standardized two-letter USPS region code. For more information, see USPS Region/State Codes.

# **19.3 Product and Inventory Identifiers**

The product\_id and inventory\_product\_id parameters are both used with /shipments\_exact.

product_id and/or inventory_product_id	product_name
1	YubiKey 5 NFC
2	YubiKey 5 Nano
3	YubiKey 5C
4	YubiKey 5C Nano
5	YubiKey 5Ci
7	Security Key NFC by Yubico
8	YubiKey FIPS
9	YubiKey Nano FIPS
10	YubiKey C FIPS
	continues on next page

Table 1: Stock/Inventory: product\_id and inventory\_product\_id mapped to Product Name

product_id and/or inventory_product_id	product_name
11	YubiKey C Nano FIPS
12	Primary Subscr - Base Tier: Initial
13	Primary Subscr - Base Tier: Buffer
14	Primary Subscr - Base Tier: Replacement
15	Primary Subscr - Adv. Tier: Initial
16	Primary Subscr - Adv. Tier: Buffer
17	Primary Subscr - Adv. Tier: Replacement
18	Primary Subscr - Prem. Tier: Initial
19	Primary Subscr - Prem. Tier: Buffer
20	Primary Subscr - Prem. Tier: Replacement
21	Primary Subscr - FIPS Tier: Initial
22	Primary Subscr - FIPS Tier: Buffer
23	Primary Subscr - FIPS Tier: Replacement
24	Non-subscription - Base Tier
25	Non-subscription - Advanced Tier
26	Non-subscription - Premium Tier
27	Non-subscription - FIPS Tier
28	YubiKey Lanyard
29	YubiKey 5C NFC
38	Backup Subscr - Base Tier: Initial
39	Backup Subscr - Base Tier: Buffer
40	Backup Subscr - Base Tier: Replacement
41	Backup Subscr - Adv. Tier: Initial
42	Backup Subscr - Adv. Tier: Buffer
43	Backup Subscr - Adv. Tier: Replacement
44	Backup Subscr - Prem. Tier: Initial
45	Backup Subscr - Prem. Tier: Buffer
46	Backup Subscr - Prem. Tier: Replacement
47	Backup Subscr - FIPS Tier: Initial
48	Backup Subscr - FIPS Tier: Buffer
49	Backup Subscr - FIPS Tier: Replacement
54	YubiKey 5 NFC FIPS
55	YubiKey 5C NFC FIPS
56	YubiKey 5Ci FIPS
57	YubiKey 5 Nano FIPS
58	YubiKey 5C FIPS
59	YubiKey 5C Nano FIPS
68	YubiKey C Bio - FIDO Edition
69	YubiKey Bio - FIDO Edition
82	Security Key NFC by Yubico (Black)
83	Security Key C NFC by Yubico (Black)
84	Security Key NFC by Yubico - Enterprise Edition
85	Security Key C NFC by Yubico - Enterprise Edition
86	Base - Standard - Primary
87	Base - Standard - Backup
88	Base - Standard - Primary - Replacement
89	Base - Standard - Backup - Replacement

## Table 1 – continued from previous page

continues on next page

product_id and/or inventory_product_id	product_name
90	Base - Plus - Primary
91	Base - Plus - Backup
92	Base - Plus - Primary - Replacement
93	Base - Plus - Backup - Replacement
94	Base/Bio - Standard - Primary
95	Base/Bio - Standard - Backup
96	Base/Bio - Standard - Primary - Replacement
97	Base/Bio - Standard - Backup - Replacement
98	Base/Bio - Plus - Primary
99	Base/Bio - Plus - Backup
100	Base/Bio - Plus - Primary - Replacement
101	Base/Bio - Plus - Backup - Replacement
102	Advanced - Standard - Primary
103	Advanced - Standard - Backup
104	Advanced - Standard - Primary - Replacement
105	Advanced - Standard - Backup - Replacement
106	Advanced - Plus - Primary
107	Advanced - Plus - Backup
108	Advanced - Plus - Primary - Replacement
109	Advanced - Plus - Backup - Replacement
110	Advanced/Bio - Standard - Primary
111	Advanced/Bio - Standard - Backup
112	Advanced/Bio - Standard - Primary - Replacement
113	Advanced/Bio - Standard - Backup - Replacement
114	Advanced/Bio - Plus - Primary
115	Advanced/Bio - Plus - Backup
116	Advanced/Bio - Plus - Primary - Replacement
117	Advanced/Bio - Plus - Backup - Replacement
118	Compliance - Standard - Primary
119	Compliance - Standard - Backup
120	Compliance - Standard - Primary - Replacement
121	Compliance - Standard - Backup - Replacement
122	Compliance - Plus - Primary
123	Compliance - Plus - Backup
124	Compliance - Plus - Primary - Replacement
125	Compliance - Plus - Backup - Replacement
152	YubiKey Bio - Multi-protocol Edition
153	YubiKey C Bio - Multi-protocol Edition

Table	1 – continued from	previous page
10010		providuo pugo

# **19.4 Product Inventory Type Mapping**

Input values for the inventory\_type parameter used with /inventory.

radic 2. I roudet <> inventory type mapping	Table 2:	Product	<>	inventory	type	mapping
---------------------------------------------	----------	---------	----	-----------	------	---------

Product or Inventory Name shown on Purchase Order	Value to use for inventory_type
YubiKey Lanyard	1
Security Key C NFC by Yubico (Black)	1
Security Key C NFC by Yubico - Enterprise Edition	1
Security Key NFC by Yubico (Black)	1
Security Key NFC by Yubico - Enterprise Edition	1
YubiKev 5 Nano	1
YubiKey 5 Nano FIPS	1
YubiKey 5 NFC	1
YubiKey 5 NFC FIPS	1
YubiKev 5C	1
YubiKey 5C FIPS	1
YubiKey 5C Nano	1
YubiKey 5C Nano FIPS	1
YubiKey 5C NFC	1
YubiKey 5C NFC FIPS	1
YubiKey 5Ci	1
YubiKey 5Ci FIPS	1
YubiKey Bio - FIDO Edition	1
YubiKey C Bio - FIDO Edition	1
Advanced - Plus - Backun	3
Advanced - Plus - Backup - Replacement	5
Advanced - Plus - Primary	3
Advanced - Plus - Primary - Replacement	5
Advanced - Standard - Backun	3
Advanced - Standard - Backup - Replacement	5
Advanced - Standard - Primary	3
Advanced Standard Primary Penlacement	5
Advanced/Bio - Plus - Backup	3
Advanced/Bio - Plus - Backup - Replacement	5
Advanced/Bio - Plus - Primary	3
Advanced/Bio Plus Primary Replacement	5
Advanced/Bio_Standard_Backup	3
Advanced/Bio Standard Backup Replacement	5
Advanced/Bio_Standard_Primary	3
Advanced/Bio Standard Primary Paplacement	5
Rockup Subser Adv. Tier: Buffer	4
Dackup Subser Adv. Tier. Buller	2
Dackup Subser - Adv. Tier, Initial	5
Dackup Subser - Auv. Tiel. Replacement	5
Dackup Subser - Dase Tier, Duller	2
Dackup Subser - Dase Tier, Initial	5
Dackup Subser - Dase Her, Replacement	3
Dackup Subser - FIPS Her: Buller	4
Dackup Subser - FIPS Her: Initial	5 F
Backup Subscr - FIPS Her: Replacement	3
Backup Subscr - Prem. Her: Buffer	4

continues on next page

Product or Inventory Name shown on Purchase Order	Value to use for inventory_type
Backup Subscr - Prem. Tier: Initial	3
Backup Subscr - Prem. Tier: Replacement	5
Base - Plus - Backup	3
Base - Plus - Backup - Replacement	5
Base - Plus - Primary	3
Base - Plus - Primary - Replacement	5
Base - Standard - Backup	3
Base - Standard - Backup - Replacement	5
Base - Standard - Primary	3
Base - Standard - Primary - Replacement	5
Base/Bio - Plus - Backup	3
Base/Bio - Plus - Backup - Replacement	5
Base/Bio - Plus - Primary	3
Base/Bio - Plus - Primary - Replacement	5
Base/Bio - Standard - Backup	3
Base/Bio - Standard - Backup - Replacement	5
Base/Bio - Standard - Primary	3
Base/Bio - Standard - Primary - Replacement	5
Compliance - Plus - Backup	3
Compliance - Plus - Backup - Replacement	5
Compliance - Plus - Primary	3
Compliance - Plus - Primary - Replacement	5
Compliance - Standard - Backup	3
Compliance - Standard - Backup - Replacement	5
Compliance - Standard - Primary	3
Compliance - Standard - Primary - Replacement	5
Non-subscription - Advanced Tier	2
Non-subscription - Base Tier	2
Non-subscription - FIPS Tier	2
Non-subscription - Premium Tier	2
Primary Subscr - Adv. Tier: Buffer	4
Primary Subscr - Adv. Tier: Initial	3
Primary Subscr - Adv. Tier: Replacement	5
Primary Subscr - Base Tier: Buffer	4
Primary Subscr - Base Tier: Initial	3
Primary Subscr - Base Tier: Replacement	5
Primary Subscr - FIPS Tier: Buffer	4
Primary Subscr - FIPS Tier: Initial	3
Primary Subscr - FIPS Tier: Replacement	5
Primary Subscr - Prem. Tier: Buffer	4
Primary Subscr - Prem. Tier: Initial	3
Primary Subscr - Prem. Tier: Replacement	5

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- Customers who have purchased Subscription (2.0) will be selecting only Inventory Type **3** or **5**.
- 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**.
- Subscription (1.0) customers: Use Inventory Types 3, 4, and/or 5.

# **19.5 Shipment Status Codes**

Shipment state codes and associated status messages. For information on how to resolve issues with shipment requests, see *Resolving Shipment Issues*.

#### shipment\_state\_code Status description Status message in Console shipment state id (shipment state description) (shipment state message) ShipmentStateIncomplete Shipment request received **Incomplete Shipping** 1 Request by YubiEnterprise Delivery system but contained some data that could not be processed. (2), (3) Draft ShipmentStateDraft Shipment request is being 2 edited and is not ready for processing. Awaiting Validation **ShipmentStateAwaitingValidation** Shipment request received, 3 no validation done yet. Processing ShipmentStateProcessingAddress Shipment request locked as 4 it undergoes country check, address validation, sales tax rate lookup (US), DPL check. Accepted for Fulfillment ShipmentStateAddressValid Shipment request address has 5 been validated, ready to be picked up by fulfillment processor. Incomplete ShipmentStateAddressInvalid Shipment request address is 6 invalid but an alternative address has been found and suggested. (2), (3) ShipmentStateAddressFail Shipment request address Address Validation Failed 7 could not be validated and no alternative could be (Previously: Address found for suggesting. is undeliverable or could not be (2), (3) understood) 227

## Table 3: Shipment state codes

19.5. Shipment Status Codes

ShipmentStateError	Shipment request has failed	Error: Processing Error.
Simplification	Simplifient request mus runted	Enter Treessing Enter,

(1) Refer to *Time Frames* 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 Validation Failed (previously "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 by the address validation service.

(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.

# **19.6 Shipment Error Messages**

Error messages accessible via the API. The Explanation column provides the message source: YubiEnterprise Delivery system for internal messages, US Validation for the US Postal Service, and International Validation. Messages originating from the last two are passed on by YubiEnterprise Delivery.

Message	Explanation
InventoryProductId not specified for	See Shipping to Multiple Addresses: Bulk Shipments
ProductId %d - ShipmentStateError	YubiEnterprise Delivery system
Too many keys in shipment -	See <i>Recipient Information</i>
TotalKeysShipped %d > %d - ShipmentStateError	YubiEnterprise Delivery system
Not enough Inventory for Shipment -	See <i>Purchase Orders</i>
ShipmentStateError	YubiEnterprise Delivery system
Re-enter the address differently; some parts of it are invalid.	See <i>Troubleshooting</i> US Validation
The address is invalid.	See <i>Troubleshooting</i> US Validation
The address is valid.	No further explanation required. US Validation
Remove the 'secondary unit designator'	Remove the apartment number, unit, etc.:
(apt, suite, department, etc.)	it is considered wrong or unnecessary.
because it is superfluous.	US Validation

#### Table 4: YubiEnterprise API status messages

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Message	Explanation
Enter second line information (apartment, unit, etc.). The information in the primary line is not specific enough.	Add the apartment number, unit, etc. US Validation
The address is a valid military address.	No further explanation required. US Validation
The address is a valid General Delivery address where individuals without permanent addresses can receive mail.	No further explanation required. US Validation
The address is valid. An organization such as a government agency can have its own zipcode because it receives a large volume of mail.	No further explanation required. US Validation
Enter a street number; for example, for Yubico "Lytton Ave" alone is not sufficient, it needs to be "530 Lytton Ave".	The number on the primary line, for example the "185" in "185 Berry Street" is missing. US Validation
Enter a valid street number.	The number on the primary line, for example the "185" in "185 Berry Street" not valid. US Validation
Enter a PO Box, Rural Route, or Highway Contract number.	US Validation
Enter a valid PO Box, Rural Route, or Highway Contract box number.	US Validation
Enter the Private Mailbox (PMB) identifier or the # sign, followed by the PMB number.	PMB number is Private Mailbox Number US Validation
This address is not eligible to receive mail.	US Validation
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Message	Explanation
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.	US Validation
The address is missing some important secondary line information (apartment, unit, etc).	No further explanation required. International Validation
Mail is unlikely to arrive at this destination - please verify input.	No further explanation required International Validation
This street could not be found within the city or postal code.	No further explanation required International Validation
Invalid OrganizationId for Shipment	YubiEnterprise Delivery system
Country Code not set for Shipment	YubiEnterprise Delivery system
Country could not be found from CountryCode2: %s	Country code entered is not in YubiEnterprise Delivery system list
Shipment has no shipment items	YubiEnterprise Delivery system
DeliveryType not set for Shipment, defaulting to 1 - <i>normal</i>	YubiEnterprise Delivery system
Invalid DeliveryType %s for Shipment	YubiEnterprise Delivery system
InventoryType not set for Shipment, defaulting to 1	YubiEnterprise Delivery system

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Message	Explanation
InventoryType %s not valid set for Shipment	You cannot use this InventoryType for this shipment - YubiEnterprise Delivery system
Negative quantity entered for ShipmentItem with ProductId=%d defaulting to 0	You set the quantity of the specified ProductID to be shipped to less than zero. YubiEnterprise Delivery system
Invalid ShipmentProductQuantity for ShipmentItem %d	You probably do not have sufficient inventory. YubiEnterprise Delivery system
Invalid ShipmentProductLineCost for ShipmentItem %d	YubiEnterprise Delivery system
Invalid Shipment - Total keys in shipment greater than 500	You cannot ship more than 500 items at once. YubiEnterprise Delivery system
Shipment has zero total item quantity	The number of items to be shipped must be > 0. YubiEnterprise Delivery system
US Address is missing the state name/abbrevation in region field	No further explanation required. YubiEnterprise Delivery system
Bad ProductId in ShipmentProduct for NewShipmentProduct	ProductID is wrongly specified or invalid. YubiEnterprise Delivery system
Input for %s exceeded limit of %d characters	Specified field cannot accept the number of characters that were entered. YubiEnterprise Delivery system
Shipment of these products to this country using this delivery type is not supported For more information, see <i>Delivery Policies</i> .	Shipment request contravenes one or more business rules. YubiEnterprise Delivery system

## Table 4 – continued from previous page

# **19.7 Response Request Status Codes**

Explanations of common status codes in responses from the YubiEnterprise API.

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

Table 5: Status codes

# **19.8 Deprecated APIs: Overview**

The following tables list deprecated APIs and recommended replacements if available. Deprecated APIs will eventually be removed, and it is therefore recommended that existing implementations be updated. Ensure that your implementation is not using a deprecated version of the API. New implementations should use the recommended replacement methods.

## Shipment Request Creation: Address Information

Deprecated	Replacement
street_line3	Starting with release 2.8.0 this field in the recipient address information will be deprecated and will only be available until September 2024. There is no replacement API for this functionality.

Shipping Requests: Bulk Shipment to Multiple Addresses

Deprecated	Replacement
GET /v1/shipments/bulk	From July 2024, the only method to create
POST /v1/shipments/bulk	bulk shipment requests is to use the
POST /v1/shipments/bulkvalidate	YubiEnterprise Console
	There is no replacement API for this functionality.

## Shipping Requests: Listing, Tracking, Searching, Status etc.

Deprecated	Replacement
GET /shipments	GET /shipments_exact
POST /shipments	POST /shipments_exact
GET /shipments/{shipmentId}	<pre>GET /shipments_exact/{shipmentId}</pre>
<pre>PUT /shipments/{shipmentId}</pre>	<pre>PUT /shipments_exact/{shipmentId}</pre>
<pre>DELETE /shipments/{shipmentId}</pre>	<pre>DELETE /shipments_exact/{shipmentId}</pre>
/UpdateShipmentById	<pre>shipments_exact/{shipment_id}</pre>
/organization/update-setting	None

## **User Management**

Starting with release 2.11.0 new APIs for user management were introduced. The old APIs are deprecated and will be available until November 23, 2024.

Deprecated	Replacement
POST /v1/users/{userId}	POST /v1/users/{userId} body {"roles": ["org-owner","distributor","reseller"]}
<pre>POST /v1/organization/users/reset/{email}</pre>	<pre>POST /v1/users/{userId} body {"action": "reset-user"}</pre>
<pre>POST /v1/organization/users/ reset-password/{email}</pre>	<pre>POST /v1/users/{userId} body {"action": "reset-password"}</pre>
DELETE /v1/organization/users/{email}	DELETE /v1/users/{userId}

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

## CHAPTER

## TWENTY

# **BEST PRACTICES AND TROUBLESHOOTING**

The following sections provide recommendations, best practices and troubleshooting support when working with the YubiEnterprise Console.

# 20.1 Best Practices

## 20.1.1 General Recommendations

- Checking service status: If YubiEnterprise Delivery appears to be behaving strangely, check the status of YubiEnterprise Services: http://status.yubico.com/. Subscribe to that page to receive updates related to YubiEnterprise Console planned maintenance and/or downtime.
- **Mail notifications:** The YubiEnterprise Delivery system automatically notifies shipment recipients by email for example when products are sent, or if there is a problem with a delivery. Ensure to inform your users and recipients about this so that these emails from Yubico are not regarded as phishing attempts. For more information, see *Shipment Notifications*.
- **Contacting Support:** If you need to contact Customer Support, ensure to use the dedicated support form for YubiEnterprise Delivery. For security reasons, the email address submitted in the support form must be from a designated Console user. It is also helpful to provide a best contact to be notified of orders that have returned to sender.

## 20.1.2 Shipment Requests

- **Recipient information:** To ensure a successful delivery of YubiKeys, it is important that the correct recipient information is entered in the shipment request. Ensure to review the guidelines provided in *Recipient Information*.
- **Key quantities:** Using the YubiEnterprise Delivery service you can ship keys to many countries around the world. Each destination country has a maximum number of keys per shipment request. For some countries you can include up to 500 keys per shipment request, and some countries have a single key limit per shipment due to custom duty regulations. For more information, see *Destinations and Quantities*.
- **Shipping destinations:** The countries you want to ship to must first be enabled for your organization in the YubiEnterprise Delivery system. This is done during the onboarding setup of your organization. To enable more shipping destinations, contact Support.
- **Company name and phone number:** When entering recipient information in a shipment request, do *not* provide a company name if you are shipping to a residential address, since this might cause delivery issues with the carrier. Always provide a valid phone number to the recipient since many carriers use this phone number to enable final delivery.

- Updating or cancelling shipment requests: This can be done until 2am PST (10am GMT) the day after they were entered. Delivery time to different parts of the world varies. For more information, see *Time Frames*.
- **Delivery exceptions:** A "Delivery Exception" *shipment status* is triggered when a carrier is citing an order delivery issue. Below are some common reasons for delivery exceptions:
  - Address is undeliverable, or there was no access to delivery location
  - Door code (digicode) or telephone number required to deliver
  - Longer than normal delivery timeline
  - Company name on a residential address
  - Item was held by customs, or was lost
  - Weather or operational delays
  - Customer has a mail hold for delivery, or refused delivery

To investigate delivery issues, you can check the tracking information (if available) for your shipment.

- **Refunds and replacements:** In some cases shipments fail to arrive at their destination due to delivery errors. When this happens, a shipment can be replaced or refunded. For more information, see the Yubico Enterprise Return Merchandise Authorization policy.
- Shipping pre-registered keys with Okta: For questions and guidance related to Yubico FIDO Pre-reg for Okta, see *FIDO Pre-reg with Okta FAQs*.

## 20.1.3 Subscription & Inventory Management

- Understanding subscriptions: With a YubiEnterprise Subscription you purchase YubiKey licenses through an end user-based subscription model and select preferred YubiKeys over time, with replacement and upgrade options as needs evolve. To learn more about subscriptions, see *Modes of Purchase*.
- **Preventing inventory expiry:** As a Subscription customer, 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. Check your organizations' *Console Dashboard* regularly to verify available inventory.
- License usage: When creating shipment requests in the YubiEnterprise Console, you will be able to select from all your available inventory. Ensure to select form the correct inventory when creating shipment requests for *replacement* and *backup* YubiKeys. See *Examples*.

## 20.1.4 User Management

• **Preventing account lockout:** Ensure your organization has *at least two Console Owners* for the account. This way, if a Console Owner is locked out, the other Console Owner can easily reset their account as only a Console Owner can do user resets.

If your organization only has one Console Owner and that person locks themselves out or leaves your organization, you must contact Yubico to set up a new Console Owner which might delay shipment requests. For more information, see *User Management*.

- **Backup key:** It is recommended that Console users register *at least two YubiKeys* for their account to be able to log in if a key is lost. For more information, see *Managing Login Credentials*.
- **SSO and user management:** Users invited to log in to the Console *after SSO is enabled* will not be prompted to set up a username and password. Therefore, if SSO is later disabled, those users will not be able to log in without SSO. If SSO is disabled, these users will need to be reset so that they may enroll the proper login credentials. For more information, see *Single Sign-On (SSO)*.

## 20.1.5 Synced Passkeys

Before you *upgrade to passwordless authentication* when logging in to the Console, it is recommended to remove any existing *synced* passkeys associated with the YubiEnterprise Console login.

Leaving old synced passkeys for your account can cause confusion during the login process. Authentication might fail if your browser uses the wrong passkey, and you might experience issues when registering a new YubiKey-based passkey.

The following describes how to remove existing synced passkeys from some common instances.

- Windows 11 Microsoft Edge/Google/Chrome/Firefox
  - 1. Open Windows Settings.
  - 2. Go to Accounts > Passkeys.
  - 3. Delete any existing passkeys for https://login.yubico.com/.
- Windows 10 Microsoft Edge/Google Chrome/Firefox

Deletion requires administrative privileges. Microsoft does not provide an official GUI for deleting passkeys in Windows 10. Instead you can use a command line tool from a command prompt as follows:

- Key Listing: certutil -csp NGC -key -v
- Key Deletion: certutil -csp NGC -delkey <identifier>

If you prefer a GUI, you can use this webauthn-fido2-key-remover tool. However, this tool is not an official Yubico or Microsoft product and should be used at your own risk.

• Apple OS X (15+)

Microsoft Edge/Google Chrome are listed twice because earlier Edge/Chrome on OS X 15 did not support storing passkeys in the Apple Passwords app, later versions do. You might need to check all instances for passkeys.

- Safari/Firefox/Microsoft Edge/Google Chrome
  - 1. Open the Passwords App.
  - 2. Go to the Passkeys section.
  - 3. Delete any existing passkeys for https://login.yubico.com/.
- Microsoft Edge
  - 1. Go to your Edge profile passkeys on edge://wallet/passkeys.
  - 2. Delete any existing passkeys for https://login.yubico.com/.
- Google Chrome
  - 1. Go to your Chrome profile passkeys on chrome://settings/passkeys.
  - 2. Delete any existing passkeys for https://login.yubico.com/.

## • Apple OS X (14)

- Safari/Firefox
  - 1. Open the Settings App.
  - 2. Go to Passwords.
  - 3. Delete any existing passkeys for https://login.yubico.com/.
- Microsoft Edge
  - 1. Go to your Edge profile passkeys on edge://wallet/passkeys.

- 2. Delete any existing passkeys for https://login.yubico.com/.
- Google Chrome
  - 1. Go to your Chrome profile passkeys on chrome://settings/passkeys.
  - 2. Delete any existing passkeys for https://login.yubico.com/.
- Linux Google Chrome
  - 1. Go to your Chrome profile passkeys on chrome://settings/passkeys
  - 2. Delete any existing passkeys for https://login.yubico.com/.
- Android Google Chrome

You cannot delete passkeys using your Android phone, instead you need to use a desktop version of Chrome and log in using the same profile.

- 1. Go to your Chrome profile passkeys on chrome://settings/passkeys
- 2. Delete any existing passkeys for https://login.yubico.com/.
- Apple iPadOS/Apple iOS (18+) Safari
  - 1. Open the Passwords App.
  - 2. Go to the Passkeys section.
  - 3. Delete any existing passkeys for https://login.yubico.com/.
- Apple iPadOS/Apple iOS (16-17) Safari
  - 1. Open the Settings App.
  - 2. Go to Passwords.
  - 3. Delete any existing passkeys for https://login.yubico.com/.

# 20.2 Troubleshooting

## 20.2.1 Address Validation Errors

- **Managing incompletes:** YubiEnterprise Delivery uses address validation services. However, even if an address exists in an address directory, it does not mean that the address is deliverable. To resolve address validation errors, edit the shipment request to ensure that the provided recipient information is correct and complete. For more information, see *Reviewing Incompletes*.
- Address not accepted by carrier: If your shipment request fails with the status "Address Not Accepted by Carrier" this usually indicates that the street name in the recipient address is too long, exceeding the character limits set by the associated carrier. To solve this issue, edit the shipment request to shorten the address, or split the address between Address line 1 and 2, and then resubmit the shipment request. For more information, see *Recipient Information*.
- **Overriding address validation:** The Yubico address validation service sometimes gives an error even if an address is valid. If you are confident that a provided address is valid, you have the option to override the address validation warnings generated by the system. For more information, see *Address Validation*.

## 20.2.2 Insufficient Inventory Errors

To maintain the window during which orders can be updated, edited, or cancelled, 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 more information, see *Shipment Processing*. Inventory can also be *allocated* by Yubico due to limited availability. For more information, see *Shippable Inventory*.

Shipment requests processed from an insufficient inventory are flagged with the status "Error: Processing Error, contact Support" in the Console, and the API message "Not enough Inventory for Shipment - ShipmentStateError".

To resolve insufficient inventory errors, you can contact Yubico to request more inventory, and either *update the product selection* for the shipment request, or cancel it and create a new one when there is sufficient inventory available.

If you are using an *API integration* to create shipment requests, it is recommended to verify inventory availability before creating a shipment request to avoid insufficient inventory errors. For more information, see *Inventory*.

## 20.2.3 Shipment Status Codes

To check the status for a shipment, see *Viewing Shipments*. For explanations of shipment status codes and associated status messages, see *Shipment Status Codes*.

## 20.2.4 Shipment Error Messages

For shipment error messages, see Shipment Error Messages.

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

## CHAPTER

## TWENTYONE

## FAQS

Frequently asked questions around YubiEnterprise Services.

# 21.1 Shipping and Delivery FAQs

- Are there any limits or constraints on shipment requests? Yes, see the following:
  - Address Validation Every 15 minutes, the system validates addresses; therefore you might have to wait up to 15 minutes to find out if your shipment request has been queued for fulfillment. For more information, see *Shipment Status Codes*.
  - Availability of Stock/Inventory Shipment allocations may be set. For more information, see *Shippable Inventory*.
  - Non-subscription Purchases Shipment requests can be made for up to one year after a PO is submitted.
  - Subscription Purchases Availability of products depends on the stock/inventory from which the products are drawn. For more information, see *Tier Options*.
- Can there be unexpected delays in delivery of shipments?

YubiEnterprise Delivery Service is only available during regular business days (weekdays). It is not available on weekends or official holidays, even though there are no time constraints on the creation of shipment requests, which can be generated at any time.

YubiEnterprise Delivery Service is dependent on third parties such as courier services and is therefore impacted by their scheduled holidays.

Yubico tries to provide notification on the Console for delivery delays of more than 2 business days. Please reach out to YubiEnterprise Services Support with any further queries on shipment delivery delay.

#### • Does YubiEnterprise Delivery track YubiKey serial numbers?

For organizations that are using pre-registered keys (FIDO Pre-reg service), a unique serial number is used to identify each pre-registered key. For more information, see *Viewing Customization Details*.

#### • 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 seven years.

• What is the data retention policy and 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 the first question in this FAQ, "Are there any limits or constraints on shipment requests?"

## • 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. Yubi-Enterprise 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.

## • 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.

## • What is the maximum number of YubiKeys that can be included in a shipment request?

It depends on the country to which you are shipping. See Delivery Policies.

#### • Can a shipment request be cancelled?

Yes. Shipment requests can be edited or deleted until **2am PST (10am GMT)**, the day **after** they were entered. Instructions for this procedure are given in *Editing or Deleting Shipments*.

#### · What shipping delivery options are available?

Depending on the country being shipped to, one or both of the following will be available:

- Normal (standard) shipping
- Expedited (rush) shipping

For more details, see Time Frames.

# • What do you do with the zip\_code field if it is not applicable, for example, for Canada and the EU countries?

Leave the **zip\_code** field blank and use the **postal\_code** field instead.

· Where do I find official Yubico product images and descriptions?

On Yubico's Press room images and logos page are the logo and product images.

# 21.2 FIDO Pre-reg with Okta FAQs

• Where can I view the status of the shipment?

Shipment status can be viewed in the *YubiEnterprise Console* for your organization. Shipment status can also be viewed in the user's Okta profile under "Pre-Enrolled Authenticators". However, this information is pulled from YubiEnterprise Delivery.

## • Where do I get the product\_id, inventory\_product\_id, and customization\_id?

Work with your Yubico CSM to obtain these IDs.

• Where do I view errors with the Yubico FIDO Pre-reg template?

As an Okta Administrator, errors and successes can be viewed in the FIDO Pre-reg Workflow **Execution History**. For more information, see the Okta Execution History documentation.

- What if my shipment in the Okta Workflows Table is in an error state?
  - If the shipment is in an error state due to an invalid address within the Console, you can *manually remove the shipment in the Console*.
  - If the shipment is in an error state, but can be fixed, do not duplicate or re-add the entry. Manually change the state from "error" to "ongoing" in the Okta Workflows Shipments table.
- What if the shipment request submitted has an error due to a missing user object field?
  - Review the Execution History for the **Create shipment** card in the FIDO Pre- reg template to determine the missing object. Navigate to the user object in the Okta Universal Directory (UD) and add the missing input into the appropriate field. Once the required information is provided, make the request again.

If using an HRIS system, ensure that the user object contains all the necessary user shipping information: Address, city, state, zip code, country code, organization, primary email, secondary email, and primary phone number. Once the required information is provided, make the request again.

**Note:** For organization, the "organization" title may need to be hardcoded in the Okta Workflow card.

## • What if I have a custom Okta domain/vanity URL?

If your Okta organization uses a vanity or custom URL, the Okta Connector and the Okta Device Connector in the Workflows should be configured to use the custom URL. Both the Okta and Okta Devices Connectors will need the custom URL.

#### • How does the user receive the PIN?

The user receives an email with the randomly generated PIN to their primary and secondary email addresses listed in the Okta Universal Directory (UD).

#### • Can the user change a PIN?

If the forcePINchange flag is set, a user can change the PIN via the Change PIN option in the Yubico Authenticator app. For more information, see Changing the FIDO2 PIN. Force PIN change is a feature of CTAP 2.1 on 5.7 firmware keys only and it must be specified by the customer ahead of time in the custom configuration form.

**Important:** When using the Yubico Authenticator app, ensure you click **Change PIN** (and not Reset PIN which will wipe the YubiKey).

#### • Is there a PIN length requirement?

FIDO Pre-reg YubiKeys are programmed with a 6 digit randomly generated PIN.

#### • What happens if a user forgets their PIN?

The only way to reset an unknown FIDO2 PIN is to reset the authenticator entirely. However, this will unregister your YubiKey with all accounts it has been registered with, including their pre-registered FIDO2 credential, necessitating re-enrollment using either FIDO U2F or FIDO2.

If you have a general idea of the PIN, you can try a workaround that will give you 8 PIN attempts instead of 3 before being locked out. Removing and inserting the key will give you 3 retries each time until you are locked out. Once locked out, your only option is to reset the application.

Before you do a reset, you should log in to affected accounts and unregister the key you plan to reset. Then make sure you can log back in and modify the account's two-factor authentication (2FA) settings without your YubiKey. After the reset, you can re-register the key again. Alternatively, if you have a backup YubiKey registered with all of your accounts, you can also use this to log in to modify the 2FA settings.

## • What happens if a user accidentally deletes the PIN email or they are unable to retrieve it?

In the Okta Admin console, the Okta administrator has the option to send the PIN to the user before the user makes their first authentication into the Okta tenant. After the user authenticates with their YubiKey and PIN, the "Send PIN" option is no longer available.

## • I see two trigger cards: MFA Initiated and Group Add, why?

The Group Add trigger is available in order to allow customers to request YubiKeys based on group membership.

## • If I initiate a request using the Group Trigger, will I still see it in the user's Okta profile?

Yes, the request will be visible in the Okta Admin UI. In the user's profile navigate to the "Pre-enrolled authenticators" tab.

• I would like to request more than 1 pre-registered YubiKey. How do I trigger a batch Yubico FIDO Pre-reg YubiKey request?

For information on how to trigger a batch of pre-registered YubiKeys, see Order pre-enrolled YubiKeys in a batch (Okta documentation).
#### • What if I need to delete a FIDO Pre-reg YubiKey request?

A request will need to be deleted in the following places: your YubiEnterprise Delivery organization and within the user's Okta profile on the "Pre-enrolled authenticators" tab. Additionally, it can be removed from the Okta Workflow Pre-reg Shipments table. If not removed from the Shipments Table, on the next process run, the YubiEnterprise API will return a 404 message, and set the status to "error" and not run again.

# 21.3 Passwordless Migration FAQs

#### 21.3.1 General

- What is passwordless authentication? Passwordless authentication allows you to log in to the YubiEnterprise Console without using a traditional username and password. Instead, you will use a "passkey," which is a more secure digital credential. See *Passwordless Authentication*.
- Why is the YubiEnterprise Console moving to passwordless authentication?

This change significantly enhances the security of your account and the YubiEnterprise Console. Passkeys are resistant to phishing attacks and eliminate the risks associated with weak or stolen passwords. Passkeys also provide a smoother and faster login experience.

#### • What is a passkey (resident key)?

A *passkey* is a cryptographic key that is stored directly on an authenticator, such as a YubiKey or your computer/smartphone. When you log in, the website verifies your identity by checking for this key, along with your presence, for example by touching the YubiKey or providing a PIN/biometric on your device. This means your login credential will not travel over the internet in the same way a password does.

#### • Do I need a YubiKey?

By default, YubiKeys will be required for registering your primary passkey. In future phases of the passwordless migration, your organization owner will have the ability to configure policies that may allow other types of FIDO2-compliant security keys or even syncable passkeys. These are synced across systems and devices and considered less secure.

#### • Will I still be able to use my user name and password?

Initially, yes. During the first migration phase, username/password login will remain available. However, password-based logins will be deprecated and you will be prompted to migrate to passwordless authentication. In later phases, migration will become mandatory if you log in with a password.

#### **21.3.2 Migration Process**

#### · How do I migrate to passwordless authentication?

After successfully logging in with your username and password, a dialog will appear offering you the option to register a passkey and migrate to passwordless authentication. You can choose to do it then or skip it. The dialog appears after every successful password login until you have registered a passkey and your account has been migrated. See *Upgrading to Passwordless*.

#### • What happens to my password after I migrate?

Upon successful registration of a passkey, your password credentials will be deleted from the YubiEnterprise Console. You will not be able to revert to username/password-based authentication.

#### • What if I am an SSO-managing user (Console Owner) in the Console?

If you log in via SSO and manage SSO configurations, the migration process for your underlying YubiEnterprise Console account (if it exists and uses a password) will be slightly different. You will be notified about the move to passwordless, and you will be asked to log out and log back in using your username/password (not SSO) for that specific account. Once logged in, the standard migration process will begin.

#### • Are there any users who cannot migrate to passwordless authentication immediately?

Yes. Non-SSO-managing Console users that log in via SSO, and are members of an organization that has fully enabled SSO will not need to migrate to passwordless authentication at this point.

#### 21.3.3 Using and Managing Passkeys

#### • How do I set up my passkey?

You will be guided through the passkey registration process which includes inserting your YubiKey and setting a PIN, if not already done. The registration will be tied to your existing account email, or the email address through which you received an activation link.

#### • Can I have more than one passkey?

Yes, you can register multiple passkeys for your account. It is highly recommended to register at least two in case one is lost or damaged. You must always have at least one passkey registered.

#### • How do I manage my passkeys (add, rename, delete)?

You will be able to manage your passkeys from your user account page. You can add new passkeys, rename existing ones for easier identification, and delete passkeys. See *Managing Your Account*.

#### • What happens if I add or delete a passkey?

For security reasons, you will receive an email notification whenever a passkey is added to or removed from your account.

#### · What if I lose my YubiKey or it stops working?

This is why registering a back-up passkey is highly recommended. If you lose all your registered passkeys or cannot access your account, contact your organization owner. They can reset your account, allowing you to register a new passkey via an activation link. Alternatively, contact your Yubico account team, or Yubico Support.

#### • What if I have not migrated by the final deadline?

You will be locked out of the YubiEnterprise Console, and you will need to contact Yubico Support. They will provide you with an activation link, which will allow you to register a passkey and regain access to your account.

#### • Who should I contact if I have questions or issues?

Reach out to your Yubico account team or contact Yubico Support if you have any questions or encounter issues during this transition.

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

# CHAPTER TWENTYTWO

## **RELEASE NOTES**

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

## 22.1 Release 2.25.0 (2 July 2025)

#### 22.1.1 Resolved Issues

• **Region/state field display:** When a shipment request was made through the API, and the Region/State field contained data in non-capital letters (for example "ny" for the state of New York), the data was not displayed in that field when editing the address information in the Enterprise Console. This issue has been resolved, and the Region/State field now properly displays data entered in non-capital letters.

#### 22.1.2 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

## 22.2 Release 2.24.4 (5 June 2025)

#### 22.2.1 New Features & Enhancements

• **Region information in shipment requests:** When creating a shipment request in the YubiEnterprise Console or the API, the "Region" field in the recipient information is required for shipments going to the US or Canada, in order for the address validation to be successful. This information has been clarified in the documentation, both in the *Enterprise Console User Guide* and in the YubiEnterprise API Reference.

### 22.2.2 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.3 Release 2.24.0 (22 May 2025)

### 22.3.1 Resolved Issues

- **City information missing in shipment request:** An issue was reported for a processed shipment request where the "City" field did not contain any city name, only a whitespace. This issue has been resolved. Validation has been added to ensure that a city name is properly provided for shipment requests generated both in the Console as well as through the API.
- Shipment with missing region information: An issue was reported where a shipment request submitted through the API passed the address validation without an associated region although "Region" is a required field for US shipments. This issue has been resolved, and US shipments submitted to the address validation API with missing a region or other required fields will not be processed.

### 22.3.2 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.4 Release 2.23.4 (6 May 2025)

### 22.4.1 Resolved Issues

• **Shipment tracking service:** An update was implemented in order to increase the accuracy of updating statuses for shipments to India.

### 22.4.2 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.5 Release 2.23.0 (24 April 2025)

#### 22.5.1 New Features & Enhancements

- **Shipment cancellation notifications:** Functionality has been added to notify the Console user of a *cancelled* shipment so that a new shipment request can be created. The notification message is sent as an email as well as displayed under *Notifications* in the Console. For multiple cancellations, notification messages are aggregated into a single email.
- **Returned shipment notifications:** Functionality has been added to notify the Console user of a shipment that has been *returned to the sender* so that appropriate actions can be taken. The notification message is sent as an email as well as displayed under *Notifications* in the Console. For multiple return-to-sender notifications, the messages are aggregated into a single email.

### 22.5.2 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.6 Release 2.22.0 (27 March 2025)

#### 22.6.1 New Features & Enhancements

• User authentication: When logging in to the Console as a first-time user with Console Owner role in limited "demo mode", the user has the option to immediately register a YubiKey to get full access to features. This functionality has been updated. After registering a YubiKey, the user is now prompted to re-authenticate using the newly registered YubiKey, thereby leaving "demo-mode" and obtaining full feature access. For more information, see *Onboarding*.

#### 22.6.2 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

## 22.7 Release 2.21.1 (28 February 2025)

#### 22.7.1 Resolved Issues

• **Bulk shipment CSV file:** When uploading a CSV file containing incorrect quotation marks, an internal server error was returned instead of a helpful error message. This issue has been resolved, and the error message returned in these cases has been updated to provide informative user guidance.

#### 22.7.2 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.8 Release 2.21.0 (27 February 2025)

#### 22.8.1 New Features & Enhancements

- Shipment details: To make it easier for users to see which fields have specific data, field names are now displayed for address information in the Shipment details page in the Console. For example, names for "Address line 1" and Address line 2" are now explicitly displayed to make it easier to see which data each field holds, useful for example when solving address validation issues.
- User management API: organization/users/{email} previously listed as deprecated (May 2024) has now been removed. This has been replaced with users/{user\_Id}. For more information, see Users in the Yubi-Enterprise API Reference.
- **Dashboard:** To avoid confusion, the product license quantity has been removed from the "Customizations available" section of subscription products on the Dashboard in the Console. Only the various customizations that are available for the particular tier are now displayed.
- Sample email API: The POST /v1/organization/send-sample-email/{template} API has been deprecated and will only be available until September 2025. Shipment notification emails can be managed in the Console, see *Shipment Notifications*.

- Shipment CSV upload error message: When a user uploads a CSV to the Console for a bulk upload, the system provides specific error messages if there are errors. However, if the CSV file contains more than 50 errors, no specific error messages appear, making it difficult to understand how to solve the errors in the file. The error message has now been enhanced to provide better guidance and support for resolving the errors.
- Address validation override option: In case of address validation failure for shipments in the Console, an email is sent to the shipment requester. This email has been enhanced to also include information about the Address validation override option.

#### 22.8.2 Resolved Issues

- **Inventory allocation issue when editing shipment:** Previously a Console user could not edit a shipment request from an inventory without remaining products, even if the user was not adding any products when editing. The shipment request update would fail. This issue has been resolved, and users can edit shipment details for a shipment with no remaining inventory allocation.
- **Incorrect link in email notification:** The link in the email notifying users about expiring API tokens was pointing to the wrong location. The link has been updated, and is now pointing to the correct location informing users how to regenerate API tokens.
- Notification display issue: When viewing notifications in the Console and clicking a link to view a shipment, there was an issue where the Notification dialog remained on top of the Shipment details page hiding the information. This issue has been resolved and the Notification dialog closes when a user clicks a link to view shipment information.
- License number error in Dashboard: When viewing "Total licenses available" on the Console Dashboard, there was an error where incorrect information was displayed in cases where "0%" should have been displayed. This issue has been resolved, and the correct information is displayed.
- **Incorrect setting of "is\_delivered" in CSV file:** Previously the "is\_delivered" column in the CSV file for downloading shipments was set to "false" even if the shipment was in state "Delivered". This issue has been resolved, and the "is\_delivered" column is correctly set to "true" if the shipment status is "Delivered".
- **Incorrect setting of "is\_shipped" in CSV file:** Previously the "is\_shipped" column in the CSV file for down-loading shipments was set to "true" even if the shipment was in the "Sent For Fulfillment" status. This issue has been resolved, and the "is\_shipped" column is now only set to "true" if the shipment status is at least "Shipped".
- Empty field after validation failure: When creating a shipment request in the Console, the "Region/State" field in the shipment form was emptied after a fulfillment rule validation failure. The issue has been resolved, and in case of a fulfillment rule validation failure, all shipment information remains as expected.

### 22.8.3 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.9 Release 2.20.3 (23 January 2025)

### 22.9.1 New Features & Enhancements

• **Shipment tracking emails:** Functionality has been added enabling users to update and customize the email template used when notifying recipients about tracking information changes. In support of this, a new "Tracking Update" option has been added to the email Template dropdown menu available in the Email page in the Console. For more information, see *Shipment Notifications*.

### 22.9.2 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
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# 22.10 Release 2.20.1 (17 January 2025)

### 22.10.1 New Features & Enhancements

• **Recipient email reference links:** The documentation reference link in the email that the recipient receives when a shipment fails with "Shipment Failure: Address Not Accepted by Carrier", has been updated. The reference link now points to the specific place in the user guide for user self-service support when solving address validation issues.

### 22.10.2 Resolved Issues

• Shipment tracking update email issue: An issue was reported where the tracking update email was sent in cases where the shipment status was overridden without actually changing the tracking information. This issue has been resolved, and the tracking update email is now only sent to the recipient if the tracking information is changed.

### 22.10.3 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.11 Release 2.20.0 (16 January 2025)

#### 22.11.1 New Features & Enhancements

- Notifications: A new feature has been added to inform Console users of recent activities, for example those requiring user interaction. A Notifications (bell) icon has been added to the top menu in the Console for viewing and managing notifications. For more information, see *Viewing Notifications*.
- Shipment search API: The /v1/shipments/search-description API previously listed as deprecated (July 2024) has now been removed from the API. The /shipments\_exact/search-description API should be used instead.
- **Purchase order CSV API:** The /v1/purchaseorders/csv API previously listed as deprecated (July 2024) has now been removed from the API. There is no replacement API for this functionality.
- **Shipment tracking:** Functionality has been added to notify a shipment requestor whenever the tracking information for a shipment changes. For example, if the tracking number or carrier for a shipment is changed, an email is sent to the shipment requestor notifying about the change.
- **Table sorting:** Functionality has been updated for the sorting of rows in tables on Console pages. Previously the default available sort orders were ['asc', 'desc', null], where "null" would turn off the sorting. To avoid confusing users, the available sort orders have been limited to ['asc', 'desc'].

### 22.11.2 Resolved Issues

- **Issue when selecting Region/State:** When creating a single shipment request in the Console, there was an issue when using tab to move to the Region/State field and type in a letter to open the list. This issue has been resolved. Users can now use tab to go to the Region/State field, type in a letter, and select the desired region/state as expected.
- Not possible to enable SSO after an update: When updating the SSO configuration in the Console, the "Enable SSO" button stayed inactive after saving. The button was activated only after reloading the page. This issue has been resolved, and the user can click "Enable SSO" to enable the SSO settings after a configuration update.
- **Required fields not highlighted:** When creating a shipment request in the Console and leaving required fields empty, the recipient information fields were not highlighted when trying to save the shipment request. This issue has been resolved, and all required fields that are left empty are now highlighted when the user tries to save the shipment request.
- Issue with autocomplete in Region/State field: When creating a shipment request in the Console using autocomplete, this populates the Region/State field dropdown as search text but does not add the actual value. This issue has been resolved, and the actual value is now entered as expected in the Region/State field when using autocomplete.
- **Key quantity display discrepancy:** An issue was reported where there was a quantity difference between the product listing under Item details, and selected form factors under Product selection in the Shipment details page in the Console. This was due to an error in the handling of line count for multiple items of the same product model for not-yet processed shipment requests. This issue has been resolved, and the correct key quantity is now displayed.

### 22.11.3 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.12 Release 2.19.1 (26 December 2024)

### 22.12.1 Resolved Issues

• **SSO and WebAuthn login:** An issue was reported where a Console Owner within an organization with Single sign-on (SSO) enabled could not navigate to the SSO configuration page in the Console when logged in using WebAuthn credentials. Instead an "404 Page Not Found" error was displayed. This issue has been resolved, and a Console Owner logged in with WebAuthn credentials can now navigate to the SSO configuration page as expected.

### 22.12.2 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.13 Release 2.19.0 (19 December 2024)

#### 22.13.1 New Features & Enhancements

- Shipment address verification non-Latin characters: When entering addresses in the Console, it was previously possible to use non-Latin characters which caused issues where carriers were unable to print the addresses. To avoid these issues, functionality has been added preventing users from entering non-Latin characters for shipment addresses. If non-Latin characters are used, the shipment is not accepted and an error message is displayed informing the user that non-Latin characters cannot be used.
- Shipment address verification postal codes: When entering addresses in the Console, the postal codes for shipments to the US are now validated for the correct format to avoid shipping issues. The postal code entered in the shipment request must be in either the 5-digits (12345) or 5+4 digits (12345-6789) format. If the postal code format is incorrect, the shipment is not accepted, and an error message is displayed informing about the correct format to use.

#### 22.13.2 Resolved Issues

• Error message missing for shipment request without products: When correcting addresses for shipment requests with validation errors in the Console, it was possible to submit the corrected request even though the product quantity was zero. Only when the user clicked the back button in the form was an error message displayed. This issue has been resolved and the "Shipment has no shipment items" message is now correctly displayed when trying to submit the form without specifying a product quantity.

### 22.13.3 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

### 22.14 Release 2.18.1 (3 December 2024)

#### 22.14.1 New Features & Enhancements

• **Shipment request bulk deletion:** Functionality has been added to the All shipments page for bulk deletion of shipments with status "Address not Supported by Carrier". Console users can now filter out shipments with this status and apply bulk deletion to the selected shipments.

#### 22.14.2 Resolved Issues

- Shipment destination country selection issue: In some cases the Region/State field in the shipment request form in the Console was not allowing input if a country other than the US or Canada was selected. This happened even though the organization had other countries enabled. This issue has been resolved and users are now able to select countries as expected.
- Unable to delete shipments: Previously in some cases users were unable to delete shipments with status "Awaiting DPL Verification" in the Console. This issue has been resolved and shipments with this status can be deleted as expected.

#### 22.14.3 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.15 Release 2.18.0 (2 December 2024)

### 22.15.1 New Features & Enhancements

- Shipping to multiple addresses (bulk shipments): When creating a shipment request to multiple addresses in the Console, users can now select products from customized inventory, and customization IDs are displayed in the product selection.
- **Purchase orders:** Customization support has been added to purchase orders for both FIDO Pre-reg and non-FIDO Pre-reg type of customizations. A new column has been added to the Purchase order pages in the Console displaying Customizations IDs where applicable.
- **Dashboard:** The Console dashboard layout and functionality has been updated for a better user experience. Support for customizations has been added to display availability of customized inventory. The display of inventory and associated form factors has been updated for a clearer view of availability. The "Only show shippable inventory" toggle is now set to on "On" by default. The display of primary/secondary subscriptions and create shipment request options have been enhanced to make it easier for users to select the right inventory.
- **Shipment tracking:** Functionality has been added to improve tracking of shipments sent to India. When a shipment has arrived in India, a status email with updated information about carrier, tracking number, and tracking service is sent to the shipment requestor.
- **Shipment request confirmation:** When creating a shipment request, the information on the confirmation page has been updated to provide a more complete overview of details. The information includes display of address validation override selection, product names and selected form factors, and any customizations applied.
- **Shipment recipient address:** The support for using non-latin characters in the shipment recipient address has been removed. The reason for this is to avoid issues where carriers are not able to print address labels with non-latin characters. If entering non-latin characters when creating a shipment request (Console and API), an error message is displayed and the address fails the address validation. Accented characters (à, á, ä etc.) are still permitted.
- **Product selection:** When creating shipment requests in the Console, the product selection has a new design for improved usability. Also, functionality has been added making it possible to select both customized and non-customized products form an inventory (FIDO Pre-reg type of customizations are excluded since these shipment requests are not created in the Console).
- **Products API:** The GET /v1/products API has been updated to return customization\_id in the products payload. The field was already available but was previously set to return null.

### 22.15.2 Resolved Issues

• **Inventory allocation issue when editing shipment:** Previously a Console user could not edit a shipment request from an inventory with no remaining keys. Editing was not possible even if the user was not adding any products when editing, and the shipment request update would fail. This issue has been resolved, and it is now possible to edit shipment details for a shipment with no remaining inventory allocation.

#### 22.15.3 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

## 22.16 Release 2.17.8 (14 November 2024)

#### 22.16.1 New Features & Enhancements

• **Filtering of shipments:** The functionality for filtering shipments in the All shipments page has been updated. Shipment requests that failed due to address length limitations will be displayed with status "Address Not Accepted by Carrier" in the list of shipments. A filter has been added for this status in the advanced search so users can filter out shipments that failed due to address length limitations.

### 22.16.2 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
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# 22.17 Release 2.17.7 (14 November 2024)

#### 22.17.1 New Features & Enhancements

• **Shipment notifications:** The functionality for sending shipment notification emails to recipients has been updated. Email notifications for address validation errors involving long street names in shipment addresses were not sent out. Also, the shipment history message in the email was incorrect. This has been updated and the correct email notifications are now sent out for this type of address validation errors.

#### 22.17.2 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
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## 22.18 Release 2.17.6 (13 November 2024)

#### 22.18.1 New Features & Enhancements

• Shipment recipient addresses: The handling of long shipment recipient addresses has been updated. In cases where the shipment address is longer than what is accepted by the YubiEnterprise Delivery service and associated carriers, the shipment will fail validation with status "Unable to format shipment address". An email is sent notifying the requester about the failure, informing them that the shipment request needs to be updated with a shorter address. If the destination country is **India**, 120 characters can be used for Address line 1 and 2 in the Console shipment request form. For **other destinations**, 105 characters can be used. Address validation override cannot be applied for this type of validation failure.

#### 22.18.2 Known Limitations

- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.19 Release 2.17.0 (24 October 2024)

#### 22.19.1 New Features & Enhancements

- **Sorting of customizations:** Sorting has been added to the table on the Customizations page. Console users can now sort the table by "Customization ID" or "Status" to make it easier to locate a specific customization.
- **Updated column header name:** In the Users page in the Console, the table column header previously named "Edit" has been changed to "Actions" to align with other tables of similar type. This column displays the different actions, for example edit or delete, that can be performed for an item.
- Search filter enhancements for shipments: To help Console users locate a specific shipment, the granularity of filter options has been improved in the table on the All shipments page. Users can now filter on for example recipient first name and last name, address line 1, and city and state.

#### 22.19.2 Resolved Issues

- Notification emails sent to suspended accounts: Previously when notifying recipients about shipment delivery exceptions, the notification email was also sent to suspended (inactive) users in an organization. This issue has been resolved, and notification emails are now only sent to active users.
- **Issues when moving table columns:** In some Console pages it was not possible to change the display order of columns. When trying to drag and drop a column to a different place it would not snap into the desired position. The problem appeared in for example the Purchase orders, Users, and Processed refunds pages. This issue has been resolved and moving columns now work as expected in these pages.
- Form factor display text is cut off: When expanding the content for a subscription card on the Dashboard in the Console, the display text for form factors with long names are truncated. This makes it difficult to understand which form factor is available. This issue has been resolved, and the display has been adjusted so the entire form factor text is visible.

### 22.19.3 Known Limitations

- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.20 Release 2.16.3 (23 September 2024)

#### 22.20.1 Resolved Issues

• Error when resetting user in Console: An error message was displayed when a user was trying to reset another user in the Settings page. This issue has been resolved, and resetting users for an organization now works as expected.

### 22.20.2 Known Limitations

- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 000000 in that field.

# 22.21 Release 2.16.1 (13 September 2024)

### 22.21.1 New Features & Enhancements

• **Shipment CSV downloads:** The functionality for downloading CSV files with shipment requests from the All shipments page has been enhanced, and it is now possible to download large data files. When downloading a large data file, a message is displayed informing the user that due to the size of the request, generation of the download CSV file might take some time to complete.

### 22.21.2 Known Limitations

- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.22 Release 2.16.0 (12 September 2024)

#### 22.22.1 New Features & Enhancements

#### Address validation override - Console updates:

- Console users now have the option to override the system address validation from the All shipment and Shipment details pages for shipments that failed due to address validation error. When overriding the address validation, a confirmation message is displayed informing users of potential consequences such as additional costs. For more information, see *Overriding Address Validation*.
- Console users now have the option to override the system address validation when *creating* single or multiple shipment requests. Checkboxes have been added in the shipment creation forms that when selected will bypass the address validation for the shipment. Confirmation messages have been added informing users of potential consequences such as additional costs when bypassing the address validation. For more information, see *Shipping to Address* and *Shipping to Multiple Addresses: Bulk Shipments*.
- When performing address validation override for a *single* shipment in the Console, the confirmation dialog displays the address fields for the associated shipment. The information is displayed both when creating and editing a shipment.
- When performing address validation overrides for multiple shipments at the same time in the Console, a confirmation dialog has been added. The dialog informs users of potential consequences such as additional costs when overriding the address validation. For more information, see *Overriding Address Validation*.
- Support for different address validation override scenarios has been added when editing a shipment request. For example, if address validation override was previously applied for a shipment, the address validation override checkbox is pre-selected when editing the shipment. Also, the address validation override option is enabled or disabled depending on the state of the shipment.
- A new column displaying whether address validation override has been applied for a shipment has been added to the table in the All shipments page in the Console. A new filter option has been added allowing users to filter out shipments with address validation override. If address validation override was applied for a shipment, this is clearly indicated in the Shipment status section of the Shipment details page.
- When shipments fail due to address validation errors, email notifications are sent for each of the failed shipments, to the user that created the shipment. These email notifications are now grouped before being sent, to reduce the amount of emails.
- The CSV file on the All shipments page in the Console has been updated to include a field for address validation override. This information allows users to for example perform data analysis on shipment validation failures. For more information, see *Downloading List of Shipments*.

#### Address validation override - API updates:

- New API endpoints have been implemented that supports performing address validation overrides on multiple shipments. The shipment update and creation APIs have been updated to indicate whether the default address validation should be overridden. If address validation is overridden, the shipment will still undergo DPL validation. For more information, see the YubiEnterprise API docs.
- The /shipments\_exact API endpoints (including shipment details sub-routes) have been updated to include address validation information. A boolean field has been added indicating if address validation was overridden for a shipment.
- An address\_validation\_bypass field has been added to the API to indicate shipments where address validation was overridden during create. The /shipments\_exact endpoints (including shipment details sub-routes) now return shipments with address\_validation\_bypass set to true for these shipments.

- API support has been implemented for address validation override when uploading a CSV file to create multiple shipment requests at the same time. A flag has been added indicating that address validation will be skipped for all shipments in the CSV file.
- The shipment create and update APIs for FIDO Pre-reg shipment types have been updated to indicate whether the default address validation should be overridden. If address validation is overridden, the shipment will still undergo DPL validation.

#### Other updates:

- **Console table column ordering:** When a user changes the order in which columns are displayed in tables, the updated order preference is preserved so the user does not have to re-order columns again on next login. The enhancement applies to all pages with tables in the Console.
- Date and time display: The format for display of date and time in the Console has been unified for a more consistent user experience. The date and time format is now localized based on the user's timezone, for example Jul 2, 2024, 09:48 AM MST (US) and 2 juli 2024 09:48 GMT-7 (Sweden). The update applies to all instances within the Console.
- **Product name change:** To enhance the user experience, "Standard product" has been renamed to "Physical product" in all instances in the Console. A physical product refers to keys and lanyards, as compared to subscriptions and tiers.

### 22.22.2 Known Limitations

- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.23 Release 2.15.4 (26 August 2024)

#### 22.23.1 Resolved Issues

• Wrong company name on shipping label: The customer's organization name instead of the recipient's company name was printed on the shipping label. This issue has been resolved, and the recipient's company name as entered by the customer in the shipment request is now printed on the shipping label.

### 22.23.2 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.24 Release 2.15.0 (15 August 2024)

#### 22.24.1 New Features & Enhancements

- **Console login**: Functionality has been added to enforce expiration of one-time tokens used during login. Previously when a user received an email with a reset link (one-time token), and then reset their login again, another email with a login link was sent while the one in the previous email was still valid. Each link would expire 7 days after creation. With the new functionality, any new user reset invalidates links in previous emails and only the link in the last email can be used.
- **Create shipment error handling**: Error handling when creating shipments has been improved so that users do not have to correct errors one by one during repeated submissions of the create shipment form. If there are multiple errors or missing data in required fields in the form, incorrect fields are now clearly highlighted upon the first submission of the form.
- **Shipment bulk deletion**: Deletion of multiple shipments can now be done directly in the All shipments page through a *new multi-select feature*. Only shipments with certain statuses can be selected for deletion. A quick filter has been added to filter out shipments with statuses allowing them to be deleted.
- **Bulk shipment CSV file processing**: The processing of uploaded CSV files when creating multiple shipment requests (bulk shipments) has been improved to avoid the creation of duplicate shipment requests. If a file with the same set of addresses as a previous file is uploaded within the last 90 days, a notification is displayed to the user informing about the duplicate upload.
- Address validation failed status name: The status message displayed to users when the address validation failed for a shipment was unnecessarily verbose and confusing. Therefore the status message has been changed from the previous "Address is undeliverable or could not be understood" to "Address Validation Failed". The change applies to both new and existing shipments with address validation failures. The status code (7) has not been changed, only the message.

### 22.24.2 Resolved Issues

• **Inactive products available for selection**: Previously when creating a shipment and selecting products, in some cases products that had been inactivated still appeared available for selection. This issue has been resolved, and inactive products are now filtered out and are not available for selection.

### 22.24.3 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.25 Release 2.14.3 (25 July 2024)

#### 22.25.1 Resolved Issues

• **Inventory error**: In some cases certain shipments that included custom-programmed keys were incorrectly receiving an insufficient inventory error. This issue has been resolved, and fulfillment of these shipments now works as expected.

### 22.25.2 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

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- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

## 22.26 Release 2.14.2 (23 July 2024)

#### 22.26.1 Resolved Issues

• **Incorrect tracking links**: In some cases, incorrect tracking links were displayed for shipments handled by Yubico in-house fulfillment. Instead of displaying a tracking link to the associated carrier, the tracking link was pointing to a generic search for the specific tracking number. This issue has been resolved, and the tracking link now correctly points to the tracking page of the associated carrier, if this is known.

### 22.26.2 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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# 22.27 Release 2.14.1 (22 July 2024)

#### 22.27.1 Resolved Issues

• Broken links to contact Yubico Support: The path for the "Contact Yubico Support" link was changed from /yubienterprise-subscription/ to /yubikey-as-a-service/ which caused some links in the YubiEnterprise Console user interface and the user guide to break. This issue has been resolved. The "Contact Yubico Support" links have been updated to the correct one in all instances and are now working properly.

### 22.27.2 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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# 22.28 Release 2.14.0 (18 July 2024)

#### 22.28.1 New Features & Enhancements

- **Customizations**: Console Owners can now add user-friendly Customization labels to Customization IDs to make it easier to identify specific customizations and understand what they include. Customization labels can be added and updated, and shared between multiple organizations. Console users can view Customization labels, but only Console Owners can add and edit them. For more information, see *Adding Customization Labels*.
- **API**: The following APIs previously listed as deprecated, will be removed:
  - /shipments. Use /shipments\_exact instead.
  - /shipments/bulk. Use the Console user interface instead.
  - /shipments/bulkvalidate. Use the Console user interface instead.
  - /shipments/{shipmentId}. Use shipments\_exact/{shipmentId} instead.
  - /address-validation. Use /validate-address instead.
  - /shippablekeys. Use GET /v1/inventory and GET /v1/products instead.

For more information, see Deprecated APIs: Overview and the YubiEnterprise API documentation.

- **API**: Additional validation has now been added to the Create FPR Shipment API to verify that the FIDO2 encrypted requests use a valid Transport Key ID. Requests with an invalid Transport Key ID will fail during shipment creation with a "400 Bad Request" error.
- **Customizations**: Customization labels (friendly names) have been added to the details for *Refunded shipments* to make it easier to identify the customized inventory associated with a refund. If no Customization label exists for a customization, the Customization label column is empty.
- **Customizations**: Customization labels (friendly names) have been added to the *Shipment details* page to make it easier for users to understand which customizations are associated with a specific shipment. If no Customization label exists for a customization, the Customization label column is empty.
- **Customizations**: An audit log feature has been added so that Console users can view the changes to customization labels (friendly names). A change history icon has been added to the Actions column in the Customizations page. The history information includes the date when a change was made, the updated customization label, and the email of the user that made the change. For more information, see *Customizations*.
- **API**: The listShipmentSearchDescription API has been deprecated and will only be available until January 2025. The /shipments\_exact/search-description API should be used instead.
- **API**: The deprecation messages for the deprecated /organization/users and /organization/users/ {email} APIs previously displayed under the Request Body Scheme section have been moved to the Title section in the API documentation.
- **API**: A deprecation message for the /organization/users/search-description API planned to be removed starting November 2024, has been added in the API documentation.
- **API**: The /purchaseorders/csv API is being deprecated and will only be available until Jan 2025. There is no replacement API for this functionality.

#### 22.28.2 Resolved Issues

- **Disabled product filtering**: Previously when a product had been disabled for an organization, the product would not be available on the dashboard or when creating a single shipment but would still appear in the bulk shipment CSV template for the organization. If using the column for a disabled product when creating a bulk shipment, the request would be rejected due to an invalid product ID. This issue has been resolved and disabled products are filtered out.
- **Console Owner role change**: In cases where there was only one Console Owner for an organization, it was possible for this user to change their own role to for example Console Admin. Doing this removes the ability to manage organization users as only Console Owners can add and delete users. This issue has been resolved. If there is only one Console Owner for an organization, they cannot change their role without adding at least one other Console Owner first.
- **Tracking status**: Previously the "coming soon" tracking status for the shipping provider was displayed as a clickable link pointing to an irrelevant website. This issue has been resolved, and the hyperlink has been replaced with plain text in all places where it was displayed, including the Shipment summary table, the CSV file export, bulk shipment operations, and Shipment details.

### 22.28.3 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
- **Google Workspace** cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see *SSO: Known Limitations*.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.29 Release 2.13.0 (20 June 2024)

#### 22.29.1 New Features & Enhancements

- **Console**: The user interface components in the Console have been updated. The updated version includes performance improvements, new table column selection with reset option, and updated date picker when searching and filtering table data in pages.
- **Download shipments**: The is\_fido\_preregistered column has been removed from the CSV download file. This column is not needed since *FIDO Pre-reg shipments* are already included in the shipment type column when downloading shipment data.

#### 22.29.2 Resolved Issues

• **Processed refunds**: When displaying refunds on the Processed refunds page in the Console, there was a mismatch between the number of rows in the table and the page size set in the pagination. In some cases, the table contained fewer rows than the total number of rows as defined in the pagination setting. This issue has been resolved, and the total number of displayed rows as set in pagination is now correct.

### 22.29.3 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

## 22.30 Release 2.12.0 (6 June 2024)

#### 22.30.1 New Features & Enhancements

- **Console**: The "Customization" page and its navigation links were renamed from "Customization IDs" to more accurately reflect the content of the page. For more information, see the new *Customizations* section in the Console guide.
- **Console**: When downloading a CSV file with shipments in the All shipments page, the user is notified when trying to download a file that is greater than the download limit (50,000 records). When hovering over the download button, a notification is displayed informing the user that they should refine their search because the download file contains too many rows.
- **API**: Support has been added to include serial number and firmware version in the CSV file when downloading shipments from the All shipments page. New columns for description, quantity, cost, serial number and firmware version have been added for each physical product. Serial number and firmware version are only displayed for *FIDO Pre-reg shipments*.

#### 22.30.2 Resolved Issues

- **Console**: Previously when a user's password was reset, the session was not properly terminated. This issue has been resolved. When a user's password is reset, all sessions belonging to the user whose password was reset, are destroyed. The next time the user interacts with the Console, they will be asked to log in again.
- **Console**: A user was initially invited to the Console through an email containing a mix of uppercase and lowercase letters. When the same user with the same email address was invited again, the email contained only lowercase letters which caused the system to consider the user as new, requesting a login creation. This issue has been resolved and case-insensitive checks have been added.

### 22.30.3 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.31 Release 2.11.0 (23 May 2024)

#### 22.31.1 New Features & Enhancements

- **Console**: The serial number and firmware version for pre-registered keys in FIDO Pre-reg shipments (Limited Early Availability service) can now be viewed in the Shipment details page. When clicking Details in the new Action column, a list with serial numbers and firmware for the selected inventory is displayed. The list supports pagination.
- **Console**: Support has been added for searching on pre-registered keys (FIDO Pre-reg Limited Early Availability service) associated with specific serial numbers or firmware versions in the Console. Filters for serial number and firmware version have been added to the advanced search functionality.
- **Console**: Support has been added to view Customization IDs associated with shipment of custom keys in the Console. A Customization ID column has been added in the Item details section of the Shipment details page. The information is only visible if a shipment contains customized inventory.
- **Console**: A Customization IDs page has been added to the Console so that users can view all Customization IDs associated with their organization. The Customization IDs are displayed together with information about the status of the customization to show if it is in use. The Customization IDs page is only visible if an organization has associated Customization IDs.
- **Console**: The table headers in the Console have been enhanced. When displaying more than 25 rows in any table, the table header will remain visible at the top when scrolling down on a page, making it easier for users to understand the column contents.
- **API**: The User management API has been updated. New endpoints are introduced replacing the existing one, some endpoints have moved, and a new endpoint has been added. Previously the User management API was including the email of the user in the path parameter. The endpoints have been changed to include the user ID instead of the email address.

The following endpoints have been *replaced*:

- Change user role:
  - Old: POST /v1/organization/users/reset/{email}
- Reset user account:
  - Old: POST /v1/organization/users/reset/{email}
  - New: POST /v1/users/{userId}; body {"action": "reset-user"}
- Reset user password:
  - Old: POST /v1/organization/users/reset-password/{email}
  - New: POST /v1/users/{userId}; body {"action": "reset-password"}
- Delete user:
  - Old: DELETE /v1/organization/users/{email}
  - New: DELETE /v1/users/{userId}

#### The old endpoints are deprecated and will be available until November 23, 2024.

The following endpoints were *added* or *moved*:

- Gets one user for an organization:
  - New: GET /v1/users/{userId}
- Gets all users for an organization:
  - Old: GET /v1/organization/users/
  - New: GET /v1/users/
- Returns a list with searchable user fields:
  - Old: GET /v1/organization/users/search-description
  - New: GET /v1/users/search-description
- Creates new user for an organization:
  - Old: POST /v1/organization/users/
  - New: POST /v1/users/

For more information, see the YubiEnterprise Delivery API documentation.

- **Console**: A shipment's delivery type (Normal or Expedited) for shipments of pre-registered keys (FIDO Pre-reg Limited Early Availability service) can now be edited on the Shipment details page. FIDO Pre-reg shipments can be edited in the same states as for automated shipments.
- **Console**: It is now possible to view Customization IDs associated with purchase orders for custom keys in the Console. A column has been added in the Products section of the Purchase order details page, displaying the Customization ID and its status (whether it is in use or not). The information is only visible if a purchase order contains customized inventory.
- **Console**: Users can now view Customization IDs associated with refunded customized shipments for their organization. A column displaying Customization IDs has been added to the Refunds section of the Shipment details page.

### 22.31.2 Resolved Issues

- **Console**: In the Shipping section on the Shipment details page in the Console, information is displayed about the shipping provider and tracking. Previously the status "coming soon" appeared as a clickable link pointing to an irrelevant website. This issue has been resolved, and the hyperlink has been removed.
- **Console**: When entering a login URL with a leading space in the SSO configuration form for an identity provider, the URL was not validated. This issue has been resolved, and the entered login URL is now properly validated.
- **Console**: A user with Console Owner role for an organization issued a machine token for authentication. The user's role was then changed to Distributor (Distributor Role). After this role change the user was still able to use the previously issued machine token. This issue has been resolved. When roles in an organization are updated for a user, and the new role is not Console Owner or Console Admin, any machine tokens issued by the user will be removed.
- **Console**: Previously when clicking Create shipment request from an inventory card on the Dashboard, the create shipment form was empty instead of being pre-filled with information from the clicked inventory source card. This issue has been resolved. When creating a shipment request by clicking a card on the Dashboard, the Reseller and Product selection fields are pre-filled.
- **Console**: A shipment request was placed for a license that the organization no longer had inventory for. The shipment was accepted even though there was no inventory, and the shipment remained in status "Accepted for Fulfillment". This issue has been resolved, and a shipment request will fail during processing if there is no available inventory.

### 22.31.3 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.32 Release 2.10.3 (25 April 2024)

#### 22.32.1 Resolved Issues

• Previously when creating a shipment request in the **Create new shipping request** page, the "Shippable count" was not displayed if the remaining allocation was less than the subscription amount for a form factor. Because "Shippable count" is also used for displaying the amount of customized keys available for shipping, this caused inconsistency in the display of the amount of shippable keys. This issue has been fixed. If a form factor has an inventory allocation, "Shippable count" is always displayed when selecting products for a shipment request.

### 22.32.2 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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# 22.33 Release 2.10.0 (11 April 2024)

#### 22.33.1 New Features & Enhancements

- **API**: The update shipment validation has been updated to support customization ID and customizable inventory. BasicShipmentValidation now verifies the following:
  - The customization has includes\_fpr flag set to true.
  - The product\_id product's corresponding shippable item has is\_custom flag set to true.
  - The validate-by-partner check verifies that a partner is configured for FIDO Pre-reg or any shipment type for that organization.
- **Console**: The contact support link in the Console and the login page has been updated to reduce the number of clicks a user has to take to submit a support request. When clicking the support link, users are now taken directly to the YubiEnterprise Delivery support page with the support form opened. Previously a user had to click to open the form to enter data.

• API: validate-address has been updated to support shipments of type Auto FIDO Pre-reg (pre-registered keys). This API is used to verify addresses for shipments of pre-registered keys as part of the fulfillment process.

#### 22.33.2 Resolved Issues

- **API**: When calling the POST endpoint /v1/organization/users/reset/valid.email@yubico.com in a scenario where the user does not exist in the organization, the API was incorrectly returning a 500 error. This issue has been resolved and the API returns the correct 404 error.
- **API**: When calling the POST endpoint /v1/organization/users/reset/invalid-email in a scenario where the user's email is invalid, the API was incorrectly returning a 500 error. This issue has been resolved, and if the user's email is invalid the API now returns a 400 error.
- **API**: When calling the POST endpoint /v1/organization/users/reset/valid.user@yubico.com in a scenario where the user had been suspended and had a + sign in their email, the API was incorrectly returning a 500 error. This issue has been resolved. The suspended user is reset and the API returns the correct 200 error.

### 22.33.3 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.34 Release 2.9.2 (29 March 2024)

### 22.34.1 Resolved Issues

• **Inability to edit shipment request**: When a user attempted to edit a shipment request which (a) contained standard products inventory and (b) failed validation for a reason unrelated to inventory, the original standard products selection was pre-populated and could not be changed. This was caused by the inventory becoming unavailable between shipment request creation and the moment when the user attempted to modify the request. This issue has been resolved and inventory that has become unavailable in the meantime no longer pre-populates the form.

#### 22.34.2 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

## 22.35 Release 2.9.0 (14 March 2024)

#### 22.35.1 New Features & Enhancements

- **Console**: The Shipment details page has been reorganized to make better use of available space. The shipment, status, recipient, and item details information is presented in clear sections, and a new status progress bar is added for better overview.
- **Console**: The click behavior of the left navigation menu in the Console has been aligned for a more consistent user experience. Clicking on a parent menu item expands the section to display sub-items if these exist. A sub-item must be clicked on to display its page content.
- **Console**: To make it easier for users to navigate the YubiEnterprise Console, all pages now have page headers. These are located under the breadcrumb navigation at the top, informing users what page in the structure they are currently on.

#### 22.35.2 Resolved Issues

• **Console**: When editing an automated shipment with inventory from a subscription or virtual product with inventory allocation "0", the form factor quantity field was prefilled with the original quantity but could not be edited. This issue has been resolved, and the field can now be edited.

### 22.35.3 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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# 22.36 Release 2.8.4 (7 March 2024)

#### 22.36.1 Resolved Issues

• **Console**: Shipment address validation was failing for FIDO Pre-registered shipment types (Limited Early Access feature) even if the address was correct. This issue has been fixed and the address validation for FIDO Pre-registered shipment types is now working as expected.

#### 22.36.2 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment

request, so a request without a postal code will not be successful. **Workaround** - For shipping to countries without postal codes, enter **00000** in that field.

### 22.37 Release 2.8.3 (6 March 2024)

#### 22.37.1 Resolved Issues

• **Console/bulk shipments**: When creating a shipment request and submitting a valid bulk shipment CSV file, a success message was displayed. However, due to a validation failure the shipment was not actually being generated. This issue has been resolved, and bulk shipment requests are successfully validated and generated.

#### 22.37.2 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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## 22.38 Release 2.8.1 (22 February 2024)

#### 22.38.1 Resolved Issues

- **Console/bulk shipments**: Uploading a CSV address file containing an incorrect column header caused an error displaying a misleading and uninformative message. This issue has been fixed. Should you submit a file with an incorrect header, the error message displayed is now correct and more helpful.
- **Console**: The Address line 3 field used when creating shipment requests was removed in release 2.8.0. However, the field still appeared in some instances when editing shipments. This issue has been fixed and the Address line 3 field is removed.
- **API**: Following the removal of the Address line 3 in forms (release 2.8.0), the corresponding street\_line3 field in all parts of the API documentation where this field appears have been marked as deprecated. API *responses* continue to support street\_line3 for existing shipments and purchase orders that contain this information.

### 22.38.2 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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# 22.39 Release 2.8.0 (15 February 2024)

#### 22.39.1 New Features & Enhancements

- **Console/API**: The Address line 3 field in the shipment creation form has been removed for all countries. Following this removal, the corresponding street\_line3 field in the shipment API will be deprecated. The field will only be available until September 2024, and there is no replacement functionality.
- **Console**: You can now conveniently access the functionality for managing your credentials by clicking on your user name in the upper right corner of the page when logged in to the Console. This also provides quick access to log out. The Profile page where this functionality previously existed has been removed. For more information, see *Managing Your Account*.
- **Console**: The page footer has been updated. The Yubico logo is removed, and the footer size has been reduced to take up less space. The footer is no longer "sticky" meaning that you only see the footer when you have reached the end of a page.
- **Console**: The behavior of the left menu navigation is enhanced. You can now collapse and expand the menu by using the [ key, as well as by hovering over the menu with the mouse. The entire list of a user's organizations is now displayed without the need of vertical scrolling.
- **Console**: You can now conveniently access the functionality for managing API tokens from the dropdown menu at the top of the left menu. The Profile page where this functionality previously existed has been removed. For more inforamtion, see *Generating API Tokens*.
- **Console**: To highlight the recent important changes to the bulk shipment flow and the new CSV templates, a login banner message has been added to the Console. The message notifies about the changes, and provides a link to *Shipping to Multiple Addresses: Bulk Shipments* in the Console user guide for supporting information.

### 22.39.2 Resolved Issues

- **Console**: The role selector at the top of the left menu was showing the wrong color for Distributor and Reseller roles when these were selected. This issue has been resolved and the correct colors are now rendered for all roles when selected.
- **Console/account management**: A user had MFA registered for their account, and the password was reset but the password reset email was lost. The password was reset again but this time no email was sent. This issue has been resolved. When resetting passwords, any existing reset tokens are discarded, and a new email with a password reset link is sent to the user.
- **Console**: When trying to delete shipments that failed because of insufficient allocated inventory, this was not possible. This issue has been resolved, and you can now delete and resubmit these failing shipment requests once more inventory is allocated.
- **Console**: When selecting an organization at the top of the left menu, long organization names were truncated and could not be read. This issue has been resolved and you can now read the full organization name when switching organizations.
- **Console**: Following the removal of the Address line 3 field in the shipment creation form, the address template CSV file for creating bulk shipments no longer includes a column for Address line 3. Ensure to always *download new template files* when creating a bulk shipment request.

### 22.39.3 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
- Google Workspace cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see the *Known Limitations* section of the SSO topic.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

# 22.40 Release 2.7.0 (18 January 2024)

#### 22.40.1 New Features & Enhancements

- The list of countries supported by YubiEnterprise Delivery has been very substantially extended for single key shipments. The newly available countries are:
  - Albania
  - Argentina
  - Bosnia and Herzegovina
  - Brazil
  - Colombia
  - Costa Rica
  - Dominican Republic (the)
  - Egypt
  - Guatemala
  - Guernsey
  - Isle of Man
  - Jamaica
  - Jersey
  - Malaysia
  - Montenegro
  - Pakistan
  - Panama
  - Peru
  - Puerto Rico
  - Serbia
  - South Africa
  - Korea (the Republic of)
  - Turkey

The full list of countries available is in the YubiEnterprise Delivery Price list.

Please contact Support if your organization is interested in enabling any of these countries for single-key shipments.

- **Console**: Account security new functionality has been added so that when a security key is removed or added by a user for an account, or when a password is changed, an email is sent to the user. The email informs about the security-related changes, allowing the user to take actions if needed.
- **Console**: Organizations if you manage more than one organization, you can now quickly switch between them through a new menu available right next to the organization name at the top. Previously you had to navigate to your Profile page and select a different organization from there.
- **Console**: Bulk shipments the process has been improved to make it easier when creating shipment requests to multiple addresses. The CSV template for uploading recipient information has been simplified and products can now be selected in the Console, and from all available inventories. For more information, see *Shipping to Multiple Addresses: Bulk Shipments*.
- **Console**: Previously when logging in to the Console, a notification about the recommendation to add more Console Owners was shown to all users, regardless of whether the user's organization hade multiple Console Owners or not. This notification has now been adjusted so that only users belonging to organizations with a single active Console Owner will see the notification.
- **Console**: When creating shipment requests, some of the country names have been changed to match the ISO 3166 standard for country codes. For example, "United States" is renamed to "United States of America (the)", and "United Kingdom" is renamed to "United Kingdom of Great Britain and Northern Ireland (the)". You can see the new names for example when creating shipment requests and selecting destination countries.
- **API**: Starting with release 2.7.0, the APIs for bulk shipment requests will be deprecated. The deprecated APIs will be available only until June 2024. From July 2024, the only method for submitting bulk shipment requests is to use the *YubiEnterprise Console*. The following APIs will be removed:
  - POST /v1/shipments/bulk
  - GET /v1/shipments/bulk
  - POST /v1/shipments/bulkvalidate

#### 22.40.2 Resolved Issues

- **Inventory/From Stock**: The option to specify the inventory to draw from was not available when using the CSV file with the API or when creating bulk shipments. This issue has now been resolved by the implementation of the new bulk shipment process in release 2.7.0.
- **Console**: When creating bulk shipment requests and uploading the CSV file, the validation processing was slow and sometimes took too long, causing the browser to time out. The issue was caused by a performance problem which has been resolved.
- **Console**: When onboarding the Console for the first time as a *demo user*, a notification about the recommendation to add more Console Owners was shown. However, users in demo mode are not permitted to take the actions described in the message. This issue has been resolved, and demo users will now see a different message.
- **Shipment fees**: The flat \$65 fee for single-key shipments that should have been applied to the following territories and countries is not being applied correctly.
  - US:
    - \* American Samoa
    - \* Guam
    - \* Federated States of Micronesia
    - \* Marshall Islands
    - \* Northern Mariana Islands
    - \* Palau
    - \* Puerto Rico
    - \* The U.S. Virgin Islands
  - International:
    - French Guiana: maps to France (FR) country code

- \* Guadeloupe: maps to France (FR) country code
- \* Saint Martin (French part): maps to France (FR) country code
- \* Martinique: maps to France (FR) country code
- \* Réunion: maps to France (FR) country code
- \* Jersey: maps to United Kingdom (GB) country code
- \* Isle of Man: maps to United Kingdom (GB) country code
- \* Guernsey: maps to United Kingdom (GB) country code

#### 22.40.3 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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
- Google Workspace cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see the *Known Limitations* section of the SSO topic.
- Address entry postal codes: Several countries supported by YubiEnterprise Delivery do not use postal codes (for example Hong Kong, United Arab Emirates). However, postal codes are required when creating a shipment request, so a request without a postal code will not be successful. Workaround For shipping to countries without postal codes, enter 00000 in that field.

## 22.41 Release 2.6.8 (8 January 2024)

#### 22.41.1 Resolved Issues

• **Console**: When creating a shipment request, entering a region/state was also required for countries other than the US and Canada, when selecting a destination country. This issue has been fixed, and region/state is now only required when selecting the US or Canada as destination country.

## 22.41.2 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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## 22.42 Release 2.6.7 (8 January 2024)

### 22.42.1 Resolved Issues

• **Console**: When submitting a shipment request, the country in the address field was changed to the US as default, even if the country originally entered was a different one. This has been fixed, and the correct country is now applied when submitting a shipment request.

## 22.42.2 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal.

tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com - (https://www.ship24.com/couriers/india-post-tracking).

• Google Workspace cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see the *Known Limitations* section of the SSO topic.

# 22.43 Release 2.6.2 (7 December 2023)

## 22.43.1 Resolved Issues

• **API**: A change introduced in release 2.6.0 slightly altered the sorting functionality, breaking backwards compatibility. The correct behavior has now been restored.

## 22.43.2 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
- Google Workspace cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see the *Known Limitations* section of the SSO topic.

# 22.44 Release 2.6.1 (7 December 2023)

#### 22.44.1 Resolved Issues

• **API**: Support for filtering on integer fields using the exact operator when performing advanced search was accidentally removed in release 2.6.0. The correct behavior has now been restored.

## 22.44.2 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
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## 22.45 Release 2.6.0 (7 December 2023)

#### 22.45.1 New Features & Enhancements

- **Console**: Customers, distributors and resellers can now get a clearer view of how many products are available for shipping. If there is an allocation set for a specific product due to limited availability, a notification showing the number of allocated shippable products is displayed on the **Dashboard** and when accessing the **Create Shipment Request** form. Users are prevented from creating shipments when their inventory selection exceeds their available shippable inventory. For more information, see *Shippable Inventory*.
- **Console**: The Edit Shipment functionality has been enhanced by improved design. For more information, including screenshots, see *Editing or Deleting Shipments*.

## 22.45.2 Resolved Issues

- **Console**: The NetSuite sales order number field in the Purchase Order details page has been removed, as the information was superfluous.
- **Console**: In the Distributor and Reseller views of the Purchase Order details, the Distributor ID line was shown. Since it is not used in any workflows, the line has been removed.
- **API**: The API documentation has been updated for the shipments\_exact APIs to indicate that the shipped\_date and delivered\_date fields are nullable.
- In rare situations, the tracking\_link field for Royal Mail shipment details was not being populated. This issue has now been fixed.
- **API**: Because the enum subscription\_type should be included in the response for GET /v1/products, the subscription\_type field has been added to the /products API.
- **Console** and **API**: When creating a shipment request, the total number of selected form factors cannot exceed the shippable count. This prevents users from creating shipment requests that would otherwise fail due to insufficient allocation. For more information, see *Shippable Inventory*.

## 22.45.3 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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 Resellers*.
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# 22.46 Release 2.5.1 (31 October 2023)

### 22.46.1 Resolved Issues

• **Console**: The search results generated by using the Console's search function to filter on shipments were not the same in the GUI as they were in the downloaded CSV file. For example, filtering shipments by Shipment address with multiple string terms, each separated from the next by a space, as in contains: stockholm 1 might have shown 60 shipments in the Console UI, but the downloaded CSV file would have contained none at all. This issue has now been fixed, and the results displayed by the Console UI are accurately reflected in the downloaded CSV file.

### 22.46.2 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
- Google Workspace cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see the *Known Limitations* section of the SSO topic.

# 22.47 Release 2.5.0 (26 October 2023)

### 22.47.1 New Features & Enhancements

• **Console** Organizations now receive notification to add at least one more Console Owner if they currently have only a single owner. Console Owner is the only role that can perform password and account resets for users who have been locked out. Organizations that have only a single Console Owner who locks themselves out or leaves the organization will be obliged to contact Yubico to set up a new Console Owner.

## 22.47.2 Resolved Issues

- **API**: When getting a purchase order by its ID, extra, undocumented fields were returned. When a request for GET /v1/purchaseorders/{purchaseorderId} was sent, the response included (is\_vat\_valid, is\_tax\_exempt, is\_post\_pay). These extra fields are no longer returned.
- The country name "Vietnam" was wrongly spelt as two words, "Viet Nam", in several locations, such as in the list of countries to which an organization could ship, and in the shipment creation process. This issue has now been fixed, and "Vietnam" is no longer listed as two words.
- **Console**: On the **Settings** tab, the **Email** field for adding new members is now limited to 255 alpha-numeric characters. This limit applies when adding a new user or editing an existing user.
- **API**: The public API documentation has been corrected to reflect our implementation for shipment APIs. The following were strings in the public API documentation; they have now been corrected to integer<int64>.
  - shipment\_product\_cost,
  - shipment\_product\_taxes,
  - shipment\_product\_vat,
  - shipping\_service\_cost,
  - shipping\_service\_taxes,
  - shipping\_service\_vat,
  - total\_shipment\_product\_cost,
  - total\_shipment\_tax\_cost,
  - total\_shipment\_vat\_cost,
  - total\_shipping\_service\_cost,
  - total\_keys\_shipped.

Similarly, the shipment\_destination\_vat\_rate was a string in the public API documentation; it has now been corrected to number<double>.

### 22.47.3 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove

that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com - (https://www.ship24.com/couriers/india-post-tracking).

• Google Workspace cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see the *Known Limitations* section of the SSO topic.

## 22.48 Release 2.4.3 (4 October 2023)

#### 22.48.1 New Features & Enhancements

• roles, a new member of the org struct that supports multiple roles per org ID per user, has been added to the /auth/me endpoint of the openapi spec. The roles struct member replaces the top level roles field, which has been deprecated.

#### 22.48.2 Resolved Issues

- Previously, when an enterprise console user attempted to download the shipments.csv file after sorting some of the **Shipments** table columns, the following error message appeared: "Unable to download refund csv, please try again later." This has been fixed so that users can successfully download the shipments.csv file no matter which columns have been sorted.
- Previously, the error message displayed during a failed attempt to download the shipments.csv file mentioned the refunds.csv file instead of the shipments.csv file. This has been fixed.

### 22.48.3 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

• Google Workspace cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see the *Known Limitations* section of the SSO topic.

# 22.49 Release 2.4.2 (3 October 2023)

#### 22.49.1 New Features & Enhancements

• The file size of the animated YubiKey on the YED Console login screen has been reduced.

### 22.49.2 Resolved Issues

- The IDP note on the **Configure SAML Single Sign-On** page under **Settings** in the YED Console has been updated to the following statement: "Note that each IDP has different labels for these fields, and the sequence of fields varies from one IDP to the next."
- The YED console login page was struggling to load due to the file size of the page's animated YubiKey. This has been fixed so the login page loads as expected.

## 22.49.3 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
- Google Workspace cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see the *Known Limitations* section of the SSO topic.

## 22.50 Release 2.4.1 (28 September 2023)

#### 22.50.1 Resolved Issues

• Previously, if a user toggled the **Only show shippable inventory** switch on the customer dashboard, but the customer did not have any remaining shippable inventory, the toggle and the inventory section of the dashboard disappeared. This has been fixed so the inventory section and toggle remain visible, and a message indicating "No shippable inventory found" is displayed.

### 22.50.2 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
- Google Workspace cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see the *Known Limitations* section of the SSO topic.

## 22.51 Release 2.4.0 (28 September 2023)

### 22.51.1 New Features & Enhancements

- 1-Tier and 2-Tier Sales: YubiEnterprise Console now supports inventory purchase and consumption for Yubico and its channel partners Distributors and Resellers as well as End-customers.
- **Console**: The Terms & Conditions for use of YubiEnterprise Services/Delivery have been updated and with the release of version 2.4.0, all new and returning users will need to indicate acceptance, otherwise they will not be able to log in to the Console. Each user's acceptance will be logged with the relevant timestamp.
- **Console**: Console Owners can now assign, add, view and remove the Distributor role as needed for efficient user management within the organization.

- **Console**: Console Owners can now assign, add, view and remove the Reseller role as needed for efficient user management within the organization.
- **Console**: Distributor view of Reseller list: so that distributors can efficiently manage and monitor the resellers associated with their distributing activities, the Console displays a list of their resellers. For more information, see *Roles and Permissions*.
- **Console**: Reseller view of End Customer list: so that resellers can efficiently manage and monitor the endcustomers associated with their reselling activities, the Console displays a list of their end-customers. For more information, see *Roles and Permissions*.
- **Console**: Because a user can have multiple roles/views in the same organization, the **Users** page lists the ones that apply for each user.
- **Console**: Automatic Selection of Login Role: If the user logging in to the Console has multiple roles, the highest priority role is selected, with the top role being Org Owner, followed by Org Admin, Org Auditor, Distributor, Reseller in that order. The user then arrives at the appropriate landing page.
- **Console**: SSO: The release of YubiEnterprise Services 2.4.0 heralds support for SSO initiated both by the Service Provider (SP-initiated SSO) and by the Identity Provider (IDP-initiated SSO).
- **Console**: IDP-initiated SSO: Org owners can now enable IDP-initiated SSO by logging in to the **Console** with credentials, going to the **Settings > SSO** tab, configuring IDP-initiated SSO, and clicking the new checkbox for it. For more information, see *Supported SSO Initiation Forms*.
- **Console**: SSO: Org owners logged in to the Console via SSO are now able to see whether IDP-initiated SSO has been enabled and view the URL for IDP-initiated SSO by going to the **Settings > SSO** tab.
- **Console**: All users are able to see on the **Purchase Orders** page the **YE Delivery** column showing whether the PO in question is available for shipping via YubiEnterprise Delivery.
- **Console**: The **Shipment Creation** page displays new information on the number of items available to be delivered: subscription products plus helper text for standard products.
- **Console**: On the **Dashboard**, there is no **Create Shipment Request** button if there are no products available for delivery.
- In the refunds.csv file, the channelpartner\_name column has been renamed reseller\_name and the channelpartner\_id column has been renamed reseller\_id. The values in the columns continue to be those for the channel partner name and ID.
- In the shipments download file (shipments.csv) the channelpartner\_name column has been renamed reseller\_name, and the channelpartner\_id column has been renamed reseller\_id. The expected values in these columns remain unchanged, i.e., the channel partner name and the channel partner ID.
- In the bulk\_shipment\_template.csv file that is downloaded when preparing to submit shipment requests in bulk, the **ChannelPartnerID** column has been renamed **ResellerID**. The expected values for this column remain the same.

## 22.51.2 Resolved Issues

- **Console**: New and returning customers are now asked to read and agree to the updated YubiEnterprise Console Acceptable Use Policy. Once the policy has been agreed to, the customer may access the console.
- **Console**: In the **Shipments** table, the tracking number was occasionally missing even though the status showed that the shipment had been delivered; however, the detail view of such a shipment would show the tracking number. This issue has now been resolved; the tracking number always shows up on the main page as well.

### 22.51.3 Known Issues

• If a user toggles the **Only show shippable inventory** switch on the customer dashboard, but the customer does not have any remaining shippable inventory, the toggle and the inventory section of the dashboard disappear. **Workaround**: reload the page or navigate away from the page and return to it.

## 22.51.4 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).
- Google Workspace cannot support both the Service Provider-initiated ACS URL and the Identity Providerinitated ACS URL at the same time. Neither is it possible to set up two different SAML Apps in the same Google Workspace, because Google Workspace enforces SP EntityID uniqueness across all SAML Apps in the workspace. For more information, see the *Known Limitations* section of the SSO topic.

## 22.52 Release 2.3.0 (31 August 2023)

#### 22.52.1 New Features & Enhancements

• **Console**: Typically the shipment carrier needs the recipient's telephone number for delivery. The **Contact phone** field for single shipments now has a tooltip explaining its purpose and the consequences of omission. "This phone number will be used by the carrier to complete the last stage of delivery. Submitting an invalid phone number may result in the order being returned to sender." See *Entering Shipping Information* for context.

## 22.52.2 Known Issues

• **Console**: If you are on the second page of viewing a table (showing, for example, items 101-200) and you reload your browser, that second page you were on now displays as page 1 and the items that were 101-200 now display as items 1-100. The first page of the table has thus become inaccessible. **Workaround**: Change the size of the page.

## 22.52.3 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

## 22.53 Release 2.2.0 (27 July 2023)

### 22.53.1 Resolved Issues

- **Console**: The Dashboard was incorrectly counting some (but not all) refunded keys as remaining inventory. This issue has now been fixed, so that no refunded keys are counted as remaining inventory.
- **Console**: When using filters on the **Shipments** tab or the **Purchase Orders** tab, the operators that offered an alternative to "contains" used to spring back to the default, which is "equals". This behavior has now been fixed, so that it is now possible to use the "contains" operator for **Country code**, **Recipient**, and **Recipient email**.

## 22.53.2 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

## 22.54 Release 2.1.4 (11 July 2023)

### 22.54.1 Resolved Issues

• **API** When creating a shipment request using the API, if the **delivery\_type** (normal or expedited) was not given, the API was not applying the default (normal) to the request as expected. For countries to which only a single key at a time can be shipped and where only the normal delivery type is supported, shipment creation was therefore failing. This issue has now been fixed.

### 22.54.2 Known Issues

• **Console**: The Dashboard is incorrectly counting some (but not all) refunded keys as remaining inventory.

## 22.54.3 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.

- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

# 22.55 Release 2.1.2 (29 June 2023)

## 22.55.1 Resolved Issues

- **API**: Usage of the validate-address API for addresses in the following locations was failing with an undeliverable 400 response. Orders entered directly into the system and validated as part of the usual order processing were unaffected. This issue has now been resolved.
  - Australia
  - Japan
  - New Zealand
  - Indonesia
  - Philippines
  - Singapore
  - Thailand
  - India
  - Mexico
  - Chile
- **Console**: When filters were used, there was a problem clearing (resetting) the filter when no search results were found. For example, if advanced search was used on the **Shipments** tab or the **Purchase Orders** tab, and the search term yielded no results, the search term in the filter could not be changed unless the browser window was reduced before clicking CLEAR ALL again. This issue has now been resolved; it is no longer necessary to shrink the browser window in order to change the search term.

### 22.55.2 Known Issues

• Console: The Dashboard is incorrectly counting some (but not all) refunded keys as remaining inventory.

## 22.55.3 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

# 22.56 Release 2.1.0 (22 June 2023)

### 22.56.1 New Features & Enhancements

- Single Sign-on (SSO) for Google Workspace: YubiEnterprise Console now supports SSO for Google Workspace. For further information and instructions, see *Enabling SSO with Google Workspace*.
- Self-enablement for Single Sign-On (SSO): Using the Console, Console Owners can now enable SSO for a variety of Identity Providers (IDPs). For more information, see *Enabling SSO for Other IDPs*.
- **Improved Console Navigation**: To improve user experience and flow for upcoming features, the horizontal navigation menu is now a left sidebar.

## 22.56.2 Resolved Issues

- The orgId field in the response to the following APIs was deprecated by the OpenAPI specs. The following APIs no longer return values for that field. Therefore it is advisable not to write more code that depends on the orgId field:
  - GET v1/inventory
  - GET v1/inventory/channelpartners/{channelpartnerId}
  - GET v1/purchaseorders
  - GET v1/purchaseorders/{purchaseorderId}
  - GET/POST v1/shipments
  - GET/PUT v1/shipments/{shipmentId}
  - GET/POST v1/shipments\_exact
  - GET/PUT v1/shipments\_exact/{shipmentId}
  - GET v1/accountbalances

#### 22.56.3 Known Issues

• Console: The Dashboard is incorrectly counting some (but not all) refunded keys as remaining inventory.

## 22.56.4 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

# 22.57 Release 2.0.4 (5 June 2023)

### 22.57.1 Known Issues

- Console: The Dashboard is incorrectly counting some (but not all) refunded keys as remaining inventory.
- The orgId field in the response to the following APIs has been deprecated by the OpenAPI specs. Although these APIs currently return values for that field, future versions of the API will not return the orgID field. Therefore it is advisable not to write more code that depends on that field:
  - GET v1/inventory
  - GET v1/inventory/channelpartners/{channelpartnerId}
  - GET v1/purchaseorders
  - GET v1/purchaseorders/{purchaseorderId}
  - GET/POST v1/shipments
  - GET/PUT v1/shipments/{shipmentId}
  - GET/POST v1/shipments\_exact
  - GET/PUT v1/shipments\_exact/{shipmentId}
  - GET v1/accountbalances

### 22.57.2 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

# 22.58 Release 2.0.3 (2 June 2023)

## 22.58.1 Resolved Issues

**Console**: Individual shipment request: Even though the *Region/State* line of the address had actually been entered and the shipment request submitted, that line was shown as empty in the shipment request record. Updating the request did not resolve the issue; the field remained blank. This issue has now been resolved and the data entered in the *Region/State* line of the address is now displayed in the record of the submitted request.

## 22.58.2 Known Issues

- The orgId field in the response to the following APIs has been deprecated by the OpenAPI specs. Although these APIs currently return values for that field, future versions of the API will not return the orgID field. Therefore it is advisable not to write more code that depends on that field:
  - GET v1/inventory
  - GET v1/inventory/channelpartners/{channelpartnerId}
  - GET v1/purchaseorders
  - GET v1/purchaseorders/{purchaseorderId}
  - GET/POST v1/shipments
  - GET/PUT v1/shipments/{shipmentId}
  - GET/POST v1/shipments\_exact
  - GET/PUT v1/shipments\_exact/{shipmentId}
  - GET v1/accountbalances

### 22.58.3 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove

that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com - (https://www.ship24.com/couriers/india-post-tracking).

## 22.59 Release 2.0.0 (25 May 2023)

#### 22.59.1 New Features & Enhancements

- **Console Subscription Management**: The dashboard view has been upgraded to enable a better overview of the different subscription plans/tiers within the primary, backup and replacement categories, along with the licenses available as a portion of the total licenses. In addition, the supported form factors are shown for each plan/tier/category. Not only does this improved user interface facilitate subscription management, but it also makes ordering product shipment easier in that the request can be started directly from the inventory display. For more information including screenshots and explanations, see *Dashboard*.
- Enhanced Search The search function on the Shipments tab and the Purchase orders tab in the YubiEnterprise Console has been enhanced to enable advanced search. All the columns can be displayed and/or hidden; the Filters enable use of "Contains" or "Equals" operators; and the Density option enables setting the display view to compact, standard or comfortable. For more information, see *Modifying the Table View* for the Shipments tab and *Modifying the Table View* for the Purchase orders tab.
- **Sub-processors**: We are pleased to notify users that we have published a sub-processor webpage located here which lists sub-processors used on Yubico's behalf as part of Yubico's product and service offerings. To stay up-to-date on Yubico sub-processors, users can subscribe to an RSS feed or check the webpage for updates.

#### 22.59.2 Resolved Issues

• The API endpoints GET /v1/inventory and GET /v1/inventory/:channelpartnerId no longer return a response that includes the field product\_tier. The API is therefore now in conformity with the documented behavior.

#### 22.59.3 Known Issues

- The orgId field in the response to the following APIs has been deprecated by the OpenAPI specs. Although these APIs currently return values for that field, future versions of the API will not return the orgID field. Therefore it is advisable not to write more code that depends on that field:
  - GET v1/inventory
  - GET v1/inventory/channelpartners/{channelpartnerId}
  - GET v1/purchaseorders
  - GET v1/purchaseorders/{purchaseorderId}
  - GET/POST v1/shipments
  - GET/PUT v1/shipments/{shipmentId}
  - GET/POST v1/shipments\_exact
  - GET/PUT v1/shipments\_exact/{shipmentId}
  - GET v1/accountbalances

## 22.59.4 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

# 22.60 Release 1.33.0 (20 April 2023)

## 22.60.1 New Features & Enhancements

• **Console**: Shipment Recipient name OR Recipient company name: a new tooltip clarifies requirements for these fields: "At minimum, either a recipient first name and last name is required OR a recipient company name. When sending to a residential address, provide a first and last name but not a company name (can cause delivery issues). A company name should only be provided when sending to a commercial/business address." This means that for business (corporate) addresses, both recipient name and company name can be provided, whereas for residential addresses, the company name must be left blank.

## 22.60.2 Resolved Issues

• Login When a WebAuthn credential nickname has more than 255 characters, a 500 error would be returned. This validation issue has now been fixed, so that the SQL exception that occurs when attempting to write the new name to the database now returns a 400.

#### 22.60.3 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

## 22.61 Release 1.32.0 (23 March 2023)

#### 22.61.1 New Features & Enhancements

- SSO: YubiEnterprise Services now supports Single Sign-On (SSO). For details, see Single Sign-On (SSO).
- System Email Upgraded to UTF-8 in order to support many languages and more email clients.
- Additional YubiKey Models
  - The YubiKey 5C NFC is available in Advanced, Premium, and FIPS tiers.
  - The Security Key C NFC by Yubico is available in Base, Advanced, Premium and FIPS tiers.
- **Demo Password Reset**: Console Owners can now reset passwords for Demo users. Those users follow the reset link from the email the system sends them and register passwords. They are not required to have YubiKeys in order to authenticate.

#### 22.61.2 Resolved Issues

• Expedited shipping is not supported for certain countries. Those countries are listed in *Destinations and Quantities*. It is therefore no longer possible to select this option when shipping to those countries.

## 22.61.3 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

# 22.62 Release 1.31.0 (16 February 2023)

## 22.62.1 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

# 22.63 Release 1.30.2 (24 January 2023)

#### 22.63.1 New Features & Enhancements

- New Products: As of the current release, 1.30.2 on 24 January 2023, YubiEnterprise Services offers the following new products:
  - Security Key NFC by Yubico
  - Security Key C NFC by Yubico
  - Security Key NFC by Yubico Enterprise Edition
  - Security Key C NFC by Yubico Enterprise Edition

#### Subscription (2.0)

- **Subscription (2.0)**: YubiEnterprise Services is launching Subscription (2.0) with this release 1.30.2 on 24 January 2023. Available for 500 users or more, it provides:
  - Procurement that is fast, predictable, and cost-effective
  - The opportunity upgrade to higher tiers as needs evolve
  - Form factor flexibility
  - The option to purchase backup YubiKey subscriptions at a discount to ensure your backup authentication mechanism is as strong as your primary one and to enable easy self-service account recovery.
  - 24x7x365 Priority Technical Support, which offers easy access to Yubico security experts (Yubico Support Services Overview)
  - Extended warranty: Warranties cover the initial term of the subscription plus the first renewal the duration of the subscription.

#### Plus Plan

- Replacement licenses allow you to cover up to 25% of subscribed users per year, with an option to add on additional users as needed a la carte, due to turnover, lost or stolen keys, and upgrades.
- Maximum discount on backup licenses
- 5% of base purchase as funds available to apply toward Professional Services
- Option for one bulk customization event per year included.

#### Standard Plan

- Choose the number of replacement licenses for turnover, lost or stolen keys, and upgrades.

### 22.63.2 Known Limitations

- **Inventory/From Stock**: Although Console users can specify the inventory they want to draw from, this option is not available when using the CSV file with the API or when creating bulk shipments. These latter two methods only permit specifying the kind of stock (initial, replacement, buffer). When inventory is not specified or cannot be specified, the system uses the "first in, first out" rule, which means it will deduct from the oldest PO first.
- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.

- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

# 22.64 Release 1.30.0 (19 January 2023)

## 22.64.1 Resolved Issues

- **Console** When a user and/or a password was reset, there was no indication whether the action had been successful. This issue has now been fixed: now a message confirming success is displayed after a user and/or a password is reset.
- **Console**: When you created a custom email and your HTML code was validated, the display of your actual code was stuck on the far right of the frame. This issue occurred whether the code had errors or not, and whether or not it exceeded the 65,000-character limit. This issue has now been fixed, and your HTML code is readable as expected, distributed evenly across the whole area of the frame.
- **Console** The Advanced Search by address did not work as expected unless you had street lines 2 and 3 in the address. The workaround was to add a space after each potential line of the address, including lines whose potential was unrealized, i.e., unoccupied fields. Therefore, when you were searching on an address that did not have a street line 2 or 3 you would have needed to add three spaces between street\_line1 and city. This issue has now been fixed.

## 22.64.2 Known Limitations

- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove

that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com - (https://www.ship24.com/couriers/india-post-tracking).

## 22.65 Release 1.29.2 (22 December 2022)

#### 22.65.1 Resolved Issues

• The refunds CSV download button now works as expected.

#### 22.65.2 Known Issues

• The .csv file created when downloading processed refunds is showing the wrong data in the inventory\_product\_type column. Instead of showing information such as "Standard Products", "Shipping", or "Primary Subscr - Adv. Tier: Initial, it is showing the name of the product that was refunded (e.g. YubiKey 5 NFC) or in the case of Shipping, it it is showing and empty field.

#### 22.65.3 Known Limitations

- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

## 22.66 Release 1.29.0 (15 December 2022)

#### 22.66.1 New Features & Enhancements

• **Console and API** Shipments initiated without using YubiEnterprise Services are now tracked within the Console and via the API. In order to distinguish between requests shipped using YubiEnterprise and those shipped without, we have introduced two types of shipment: "Automated," which are those requested using YubiEnterprise Delivery, and "Manual," which are shipments requested directly from Yubico or a Channel Partner. Therefore the table on the Shipments tab and the CSV download both now have a new column, "Type," upon which one can filter. For more information, see *Shipment Requests*.

## 22.66.2 Resolved Issues

• **Console and API** The limit for the number of alphanumeric characters in the recipient email address, formerly 40, has been expanded to 80 characters. For more information, see the Shipment Request Fields table.

## 22.66.3 Known Limitations

- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

# 22.67 Release 1.28.0 (17 November 2022)

### 22.67.1 New Features & Enhancements

- **Console**: A search produces a filtered list of shipments. Until now, when you investigated one of those results and then clicked the **Go back** button, the results of that search were no longer available. With the current release, YubiEnterprise Delivery 1.28.0, the list of search results is retained even after clicking into a particular result or refreshing the browser window while on a page of search results. (For more details, see *Searching Shipments*.)
- **Console**: Customization of the SHIPPED/DELIVERED/DELIVERY EXCEPTION email template An owner or an admin can edit the templates for these emails notifying a YubiKey recipient about a shipment. The HTML code for the new template is validated as the content is entered. When the user clicks **Update** the **Send sample** button becomes active so that the user can send themselves a sample email from the customized template. For more details, see *Customizing Automated Emails*.
- **Console**: When creating a new shipment, the single shipment tab is shown by default instead of the bulk shipment tab.

## 22.67.2 Resolved Issues

- **Console**: When logging into YubiEnterprise Delivery with the wrong email or password, the error message in the past was "Access denied." Now the error message is "Incorrect email or password."
- The status of some of the GB-destined shipments carried by Royal Mail was not updating promptly. Expected behavior is for the status to be shown as "Delivered" when that is the case; instead the status of shipments that had already been delivered was sometimes shown as "Shipped:In Transit". This issue has now been fixed.

## 22.67.3 Known Limitations

- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

# 22.68 Release 1.27.3 (28 October 2022)

### 22.68.1 Resolved Issues

• There was a brief period of time in which the tracking numbers in the links for Blue Dart's India shipments pointed at nonexistent shipments. Those tracking numbers have been corrected, so the links now point to the appropriate shipments.

### 22.68.2 Known Limitations

- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- 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 or into Parcelsapp.com's page for Bpost tracking, https://parcelsapp.com/en/carriers/belgium-post.

- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

# 22.69 Release 1.27.0 (20 October 2022)

## 22.69.1 Enhancements

• The advanced search feature for shipments has been substantially enhanced (see Searching Shipments).

## 22.69.2 Resolved Issues

• Prior to release 1.27.0, API calls that included saving an excessively long string to the street\_line3 field such as the POST /v1/shipments\_exact API received a peculiar error. Trying to save a string longer than 60 alpha-numeric characters now throws a better error.

## 22.69.3 Known Limitations

- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- 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 or into Parcelsapp.com's page for Bpost tracking, https://parcelsapp.com/en/carriers/belgium-post.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove

that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com - (https://www.ship24.com/couriers/india-post-tracking).

## 22.70 Release 1.26.1 (26 September 2022)

#### 22.70.1 Resolved Issues

• Previously, if the last remaining user of an org attempted to remove themselves from that org, they were automatically logged out of the console. This has been fixed so that users attempting this operation (which is not allowed and will result in an error message) remain logged in.

#### 22.70.2 Known Limitations

- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- 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 or into Parcelsapp.com's page for Bpost tracking, https://parcelsapp.com/en/carriers/belgium-post.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

## 22.71 Release 1.26.0 (22 September 2022)

#### 22.71.1 New Features & Enhancements

- Whitespace is now trimmed from the following fields in the bulk order request CSV file:
  - channel partner ID
  - inventory type
  - delivery type
  - key quantities

Trimming will help prevent the CSV file parser from falsely rejecting these fields.

- When a user attempts to change their account password, and the new password violates any of the password requirements, an error message in red containing the first violated rule will appear on screen.
- The items in the top navigation bar (**Dashboard**, **Shipments**, **Purchase orders**, **Settings**) are now clickable from within a subpage of a particular item/tab. For example, a user can now click on **Shipments** from within a shipment detail page to navigate back to the main Shipments screen.

## 22.71.2 Resolved Issues

- The "Inactive" user status has been renamed as "Deactivated."
- The unused /organization/update-setting API endpoint has been removed.
- Previously, when a console user navigated to the **Users** tab under **Settings** and reduced the number of users shown per page to 5, the delete (trash can) icon for the 4th user disappeared. This has been fixed so that the delete icon is available for all users shown on screen.

## 22.71.3 Known Limitations

- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- 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 or into Parcelsapp.com's page for Bpost tracking, https://parcelsapp.com/en/carriers/belgium-post.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

# 22.72 Release 1.25.2 (24 August 2022)

### 22.72.1 New Features & Enhancements

• API Token: Notification of token expiry is now emailed not only to the token holder but also to the org owner. (For more information on this, see *Generating API Tokens*.)

## 22.72.2 Known Limitations

- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- 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 or into Parcelsapp.com's page for Bpost tracking, https://parcelsapp.com/en/carriers/belgium-post.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

## 22.73 Release 1.25.0 (18 August 2022)

### 22.73.1 Resolved Issues

- **CSV**: If the country code column in the CSV upload file had a space inserted in the country code, for example, a trailing space after "US" so that the system read it as "US ", upload of the CSV file would fail without an error. This issue has now been fixed.
- With shipments to the UK, in rare cases a shipment's status was not progressing beyond Shipped: In Transit, although the carrier's website was showing a delivery exception notice. Without a status update, no delivery exception email could be sent to the shipment recipient. This issue has now been resolved.

## 22.73.2 Known Limitations

- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- 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 or into Parcelsapp.com's page for Bpost tracking, https://parcelsapp.com/en/carriers/belgium-post.
- **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).

- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

## 22.74 Release 1.24.0 (21 July 2022)

### 22.74.1 New Features & Enhancements

• Shipments destined for the US or Canada have been standardized to use the USPS codes for state or province. Every shipment request method now uses this input: individual shipment requests made via the Console or the API and bulk requests using the CSV file all require the USPS codes. The mappings between full names and codes are given in *USPS Region/State Codes*. As of the current release, use of these USPS codes is mandatory. Shipment requests that do not adhere to this standard will generate an error message, and no shipment will be created.

## 22.74.2 Resolved Issues

- **Console**: In the table on the Shipments tab, shipments were not sorting correctly on the ship\_date or the delivery\_date columns. Shipment requests should have been sorted into chronological order based on the selected column. Now the sequencing of requests in these columns is displayed correctly in chronological order when the sort icon for either of these columns is clicked.
- Some shipments sent to India have a status of "Delivered," even though the carrier and tracking number are still showing as "coming soon."
- Some shipments sent through India Post and delivered by the Transnet carrier made no progress through the expected statuses; they remained in the Shipped:In Transit state even after the shipment was delivered. This issue has now been fixed; all India Post shipments sent via Transnet are now tracked and therefore make the expected progress through the statuses.

## 22.74.3 Known Issues

• CSV: If the country code column in the CSV upload file has a space inserted in the country code, for example, a trailing space after "US" so that the system reads it as "US ", upload of the CSV file will fail without an error.

## 22.74.4 Known Limitations

- **CSV**: The CSV bulk upload does not support combining subscription and non-subscription products in a single shipment. **Workaround**: Use the API or the Console (from the **Dashboard** or the **Shipments** tab, Create shipment request > Single shipment) to create single shipment request that includes both types of products.
- 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 or into Parcelsapp.com's page for Bpost tracking, https://parcelsapp.com/en/carriers/belgium-post.
- **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).
- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

## 22.75 Release 1.23.0 (23 June 2022)

## 22.75.1 New Features & Enhancements

- Shipments destined for the US or Canada can use the USPS codes for state or province. Every shipment request method has been standardized for this input: individual shipment requests made via the Console or the API and bulk requests using the CSV file all take the USPS codes. The mappings between full names and codes are given in *USPS Region/State Codes*. As of YubiEnterprise Delivery release 1.24.0 scheduled for 21 July 2022, use of these USPS codes will be mandatory. After this date, shipment requests that do not adhere to this standard will generate an error message, and no shipment will be created.
- **Console** Each Purchase Order now has its own detail page, showing PO number, whether direct or channel sale, and if the latter, the seller's name, the expiring date for initial or perpetual stock, address and contact information. The available inventory is shown as before.

## 22.75.2 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 or into Parcelsapp.com's page for Bpost tracking, https://parcelsapp.com/en/carriers/belgium-post.
- **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).

- **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 Resellers*.
- India shipments: Some of our shipments to India use India Post for the last mile. India Post does not support our automated shipment tracking service, and therefore the tracking ID that YubiEnterprise Delivery displays is not actually a link. Workaround: Copy the India Post tracking number (typically 13 digits starting with E, R, or C) and paste it into either the India Post website https://www.indiapost.gov.in/\_layouts/15/dop.portal. tracking/trackconsignment.aspx ("Evaluate the expression" means do the arithmetic displayed in the box to prove that you are not a bot) or any of the other tracking service sites that support India Post, such as Ship24.com (https://www.ship24.com/couriers/india-post-tracking).

## 22.76 Release 1.22.1 (25 May 2022)

## 22.76.1 Resolved Issues

• For shipments sent to India, status emails declaring that the shipment had been sent were being generated every hour. This issue has now been fixed.

## 22.76.2 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 or into Parcelsapp.com's page for Bpost tracking, https://parcelsapp.com/en/carriers/belgium-post.
- **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).
- **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.

# 22.77 Release 1.22.0 (20 May 2022)

### 22.77.1 New Features & Enhancements

• With the release of version 1.22.0, the tracking of shipments to India becomes more transparent. On the Console, clickable tracking numbers are now provided for shipments delivered by Blue Dart, one of our main carriers on the Indian subcontinent. The API too returns a tracking\_link value.
### 22.77.2 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.
- **Console**: The Purchase Order sorting function did not work. Clicking on a column heading did not result in the content of the column being sorted. This issue has now been fixed, and any column can now be sorted as expected.

## 22.77.3 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 or into Parcelsapp.com's page for Bpost tracking, https://parcelsapp.com/en/carriers/belgium-post.
- **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).
- **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.

## 22.78 Release 1.21.0 (26 April 2022)

#### 22.78.1 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.

## 22.78.2 Known Limitations

- For European shipments using Bpost, also known as the Belgian 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 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**: 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).
- **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 Resellers*.

## 22.79 Release 1.20.0 (24 March 2022)

#### 22.79.1 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** Shipment request statuses will now be updated to reflect changes reported after requests have reached the "Delivery Exception" state.

## 22.79.2 Known Limitations

- For European shipments using Bpost, also known as the Belgian 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 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**: 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).
- **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 Resellers*.

# 22.80 Release 1.19.0 (24 February 2022)

#### 22.80.1 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.

#### 22.80.2 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.

### 22.80.3 Known Limitations

- For European shipments using Bpost, also known as the Belgian 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 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**: 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).
- **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 Resellers*.

## 22.81 Release 1.18.0 (20 January 2022)

#### 22.81.1 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.

#### 22.81.2 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.

## 22.81.3 Known Limitations

- For European shipments using Bpost, also known as the Belgian 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 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 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.

## 22.82 Release 1.17.2 (10 December 2021)

#### 22.82.1 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 *Destinations and Quantities*.

#### 22.82.2 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 Boxes*.

## 22.83 Release 1.17.0 (18 November 2021)

#### 22.83.1 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 *Viewing Processed Refunds*.

#### 22.83.2 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.

#### 22.83.3 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.

#### 22.83.4 Known Limitations

• For European shipments using Bpost, also known as the Belgian 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 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,

## 22.84 Release 1.16.0 (21 October 2021)

#### 22.84.1 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.

#### 22.84.2 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).

### 22.84.3 Known Limitations

• For European shipments using Bpost, also known as the Belgian 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 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.

## 22.85 Release 1.15.0 (23 September 2021)

#### 22.85.1 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.

#### 22.85.2 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.

## 22.85.3 Known Limitations

• For European shipments using Bpost, also known as the Belgian 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 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.

# 22.86 Release 1.14.0 (19 August 2021)

#### 22.86.1 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 Form Fields*.
- The shipment request detail popup has been expanded to a full page in order to display more information.

#### 22.86.2 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.

#### 22.86.3 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).

#### 22.86.4 Known Limitations

• For European shipments using Bpost, also known as the Belgian 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 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.

# 22.87 Release 1.13.0 (22 July 2021)

### 22.87.1 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 *Viewing PO Details*). When requesting individual shipments using the Console, the channel partner is specified via the Channel Partner dropdown (see *Shipping to a Single Address*), while for bulk upload of shipment requests, the ChannelPartnerId column in the CSV file is must be populated see: *Shipment Request Form Fields*). This feature is fully described in *Purchasing through Resellers* in "Requesting Shipment" in this guide. The updated APIs are listed under a heading with the same name, *Purchasing through Resellers*, 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.

## 22.87.2 Resolved Issues

- **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 Resellers*.
- 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.

## 22.87.3 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).

#### 22.87.4 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 Resellers*.

## 22.88 Release 1.12.0 (24 June 2021)

#### 22.88.1 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.

#### 22.88.2 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).

#### 22.88.3 Known Limitations

• For European shipments using Bpost, also known as the Belgian 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 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.

## 22.89 Release 1.11.2 (26 May 2021)

#### 22.89.1 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.

#### 22.89.2 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.

## 22.89.3 Known Limitations

• For European shipments using Bpost, also known as the Belgian 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 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.

# 22.90 Release 1.11.0 (20 May 2021)

### 22.90.1 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.

## 22.90.2 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., "ProductId 3 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.

### 22.90.3 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.

### 22.90.4 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.

# 22.91 Release 1.10.0 (22 April 2021)

#### 22.91.1 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.

## 22.91.2 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).

## 22.92 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 between removed. Please refer to: https://console.yubico.com/apidocs/ for the latest API documentation.

## 22.92.1 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.

## 22.92.2 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.

#### 22.92.3 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.

## 22.93 Release 1.8.3 (9 March 2021)

#### 22.93.1 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.

## 22.94 Release 1.8.0 (18 February 2021)

#### 22.94.1 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*.
- 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.

#### 22.94.2 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.

### 22.94.3 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.

# 22.95 Release 1.7.0 (21 January 2021)

#### 22.95.1 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 Download File*.
- 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.

#### 22.95.2 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 shipping 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.

# 22.96 Release 1.6.0 (19 November 2020)

### 22.96.1 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).
  - 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.

#### Shipping Requests: Listing, Tracking, Searching, Status etc.

Deprecated	Replacement
GET /shipments	GET /shipments_exact
POST /shipments	POST /shipments_exact
GET /shipments/{shipmentId}	<pre>GET /shipments_exact/{shipmentId}</pre>
<pre>PUT /shipments/{shipmentId}</pre>	<pre>PUT /shipments_exact/{shipmentId}</pre>
<pre>DELETE /shipments/{shipmentId}</pre>	<pre>DELETE /shipments_exact/{shipmentId}</pre>
/UpdateShipmentById	<pre>shipments_exact/{shipment_id}</pre>
/organization/update-setting	None

- 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**.

### 22.96.2 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.

## 22.97 Release 1.5.0 (22 October 2020)

### 22.97.1 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.

#### 22.97.2 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.

#### 22.97.3 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.

## 22.98 Release 1.4.0 (24 September 2020)

#### 22.98.1 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.

#### 22.98.2 Resolved Issues

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

## 22.99 Release 1.3.1 (10 September 2020)

### 22.99.1 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:

Product or Inventory Name shown on Purchase Order	Value to use for inventory_type	
YubiKey Lanyard	1	
Security Key C NFC by Yubico (Black)	1	
Security Key C NFC by Yubico - Enterprise Edition	1	
Security Key NFC by Yubico (Black)	1	
Security Key NFC by Yubico - Enterprise Edition	1	
YubiKey 5 Nano	1	
YubiKey 5 Nano FIPS	1	
YubiKey 5 NFC	1	
YubiKey 5 NFC FIPS	1	
YubiKey 5C	1	
YubiKey 5C FIPS	1	
YubiKey 5C Nano	1	
YubiKey 5C Nano FIPS	1	
YubiKey 5C NFC	1	
YubiKey 5C NFC FIPS	1	
YubiKey 5Ci	1	
YubiKey 5Ci FIPS	1	
YubiKey Bio - FIDO Edition	1	
YubiKey C Bio - FIDO Edition	1	
Advanced - Plus - Backup	3	
Advanced - Plus - Backup - Replacement	5	
Advanced - Plus - Primary	3	
Advanced - Plus - Primary - Replacement	5	
Advanced - Standard - Backup	3	

Table 1: <b>Product &lt;&gt; inventory typ</b>	e mapping
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continues on next page

Product or Inventory Name shown on Purchase Order	Value to use for inventory_type
Advanced - Standard - Backup - Replacement	5
Advanced - Standard - Primary	3
Advanced - Standard - Primary - Replacement	5
Advanced/Bio - Plus - Backup	3
Advanced/Bio - Plus - Backup - Replacement	5
Advanced/Bio - Plus - Primary	3
Advanced/Bio - Plus - Primary - Replacement	5
Advanced/Bio - Standard - Backup	3
Advanced/Bio - Standard - Backup - Replacement	5
Advanced/Bio - Standard - Primary	3
Advanced/Bio - Standard - Primary - Replacement	5
Backup Subscr - Adv. Tier: Buffer	4
Backup Subser - Adv Tier: Initial	3
Backup Subser - Adv. Tier: Replacement	5
Backup Subser - Base Tier: Buffer	4
Backup Subser - Base Tier: Initial	3
Backup Subser - Base Tier: Replacement	5
Backup Subser - FIPS Tier: Buffer	4
Backup Subser - FIPS Tier: Initial	3
Backup Subser - FIPS Tier: Replacement	5
Backup Subser - Prom Tier: Ruffer	1
Backup Subser - Frem. Tier: Initial	4
Backup Subser - Frem. Tier: Penlacement	5
Dackup Subset - Frein, Her, Kepfacement	2
Dase - Flus - Dackup Dase Dive Dealer Dealer	5
Dase - Flus - Dackup - Replacement	2
Dase - Plus - Plillial y	5
Dase - Plus - Plinary - Replacement	2
Base - Standard - Backup	5 5
Base - Standard - Backup - Replacement	3
Base - Standard - Primary	3 E
Base - Standard - Primary - Replacement	3
Base/Bio - Plus - Backup	3
Base/Bio - Plus - Backup - Replacement	5
Base/Bio - Plus - Primary	3
Base/Bio - Plus - Primary - Replacement	5
Base/Bio - Standard - Backup	3
Base/Bio - Standard - Backup - Replacement	5
Base/Bio - Standard - Primary	3
Base/Bio - Standard - Primary - Replacement	5
Compliance - Plus - Backup	3
Compliance - Plus - Backup - Replacement	5
Compliance - Plus - Primary	3
Compliance - Plus - Primary - Replacement	5
Compliance - Standard - Backup	3
Compliance - Standard - Backup - Replacement	5
Compliance - Standard - Primary	3
Compliance - Standard - Primary - Replacement	5
Non-subscription - Advanced Tier	2
Non-subscription - Base Tier	2
Non-subscription - FIPS Tier	2

Table I – continued from previous page	Table	1 - continued	from prev	ious page
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Product or Inventory Name shown on Purchase Order	Value to use for inventory_type	
Non-subscription - Premium Tier	2	
Primary Subscr - Adv. Tier: Buffer	4	
Primary Subscr - Adv. Tier: Initial	3	
Primary Subscr - Adv. Tier: Replacement	5	
Primary Subscr - Base Tier: Buffer	4	
Primary Subscr - Base Tier: Initial	3	
Primary Subscr - Base Tier: Replacement	5	
Primary Subscr - FIPS Tier: Buffer	4	
Primary Subscr - FIPS Tier: Initial	3	
Primary Subscr - FIPS Tier: Replacement	5	
Primary Subscr - Prem. Tier: Buffer	4	
Primary Subscr - Prem. Tier: Initial	3	
Primary Subscr - Prem. Tier: Replacement	5	

Table 1 – continued from previous page

- 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.

## 22.100 Release 1.3.0 (28 August 2020)

#### 22.100.1 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
  - 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.

### 22.100.2 Resolved Issues

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

# 22.101 Release 1.2.0 (23 July 2020)

### 22.101.1 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 *Shipment Notifications*.
- **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.

### 22.101.2 Known Issues

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

# 22.102 Release 1.0.0 (18 June 2020)

### 22.102.1 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.

#### 22.102.2 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.

### 22.102.3 Known Issue

• A shipment request whose status is indicated as ShipmentStateError must be recreated and resubmitted.

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

# CHAPTER TWENTYTHREE

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## **23.3 Contact Information**

Yubico AB Gävlegatan 22 113 30 Stockholm Sweden

# 23.4 Getting Help

Documentation is continuously updated on https://docs.yubico.com/ (this site). Additional support resources are available in the Yubico Knowledge Base.

Click the links to:

- Submit a support ticket for YubiEnterprise Delivery
- Submit other support requests
- Contact our sales team

## 23.5 Feedback

Yubico values and welcomes your feedback. If you think you may have discovered a flaw in our product, please submit a support request at https://support.yubico.com/hc/en-us and provide as much detail as you can.

# 23.6 Document Updated

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