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YubiKey Windows Login Configuration Guide

Configuring YubiKeys and Your Computer for YubiKey Windows Login

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Contact Information

Yubico Inc
420 Florence Street, Suite 200
Palo Alto, CA 94301
USA
yubi.co/contact

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Contents

Introduction

Yubico changes the game for strong authentication, providing superior security with unmatched ease-of-use. Our core invention, the [YubiKey,](#) is a small USB and NFC device supporting multiple authentication and cryptographic protocols. With a simple touch, it protects access to computers, networks, and online services for the world's largest organizations.

Our innovative keys offer strong authentication via Yubico one-time passwords (OTP), FIDO Universal 2nd Factor (U2F), and smart card (PIV, OpenPGP, OATH) — all with a simple tap or touch of a button. YubiKeys protect access for everyone from individual home users to the world's largest organizations.

YubiKey Windows Login

Yubico has created a utility (for Microsoft Windows 7 and later), YubiKey Windows Login, that secures access to a Windows account when used with a YubiKey. When properly configured, both the user's password and YubiKey are required to gain access to the account. When configuring your YubiKey for YubiKey Windows Login, we highly recommended that you configure a second, backup YubiKey with the same secret key, in the event that access to the primary YubiKey is lost.

This guide describes how to configure YubiKeys to work with YubiKey Windows Login using the YubiKey Personalization Tool; best practices for implementing YubiKey Windows Login, such as creating multiple YubiKeys with the same secret key; protecting a configured YubiKey; setting up the YubiKey Windows Login application; testing your Windows login; and solutions to common issues.

The following topics are covered in this document:

- [Before You Begin](#)

- [Configuring Your YubiKeys](#)

- [Installing the YubiKey Windows Login Application](#)

- [Logging into Your Computer Using YubiKey Windows Login](#)

- [Disabling YubiKey Windows Login](#)

- [Troubleshooting](#)

- [Changing the Configuration of a YubiKey With an Access Code](#)

Before You Begin

Before you begin installing and using YubiKey Windows Login, be sure you: understand the requirements, install the YubiKey Personalization Tool, understand why you should configure at least two YubiKeys so that you have at least one backup YubiKey, and have the login information for the local account for which you are configuring YubiKey Windows Login.

WARNING: Failure to add a backup YubiKey or enabling Safe Mode can mean the OS will need to be reinstalled (and you could lose data).

In this Chapter

- Requirements

- Installing the YubiKey Personalization Tool

- Configuring Two YubiKeys with the Same Secret Key

- Making Sure You Have the Information for the Local Account

Requirements

This section lists the required components to implement YubiKey Windows Login:

- Two (2) YubiKeys with firmware version 2.2 or later (one will be used as a backup YubiKey)

- The YubiKey Personalization Tool (downloaded from the Yubico website for configuring your YubiKeys for challenge-response authentication with HMAC-SHA1

- A local (not a cloud or domain) account on Microsoft Windows 7, 8, or 10 (32-bit or 64-bit) with administrator privileges

- YubiKey Windows Login software (downloaded from the Yubico website, which includes YubiKey Logon Administration and the YubiKey Client API

- Microsoft .NET Framework 4.0 installed

NOTE: You will be required to restart your computer after you finish configuring your computer for YubiKey Windows Login.

Installing the YubiKey Personalization Tool

Before you install and begin using YubiKey Windows Login, be sure you install the YubiKey Personalization Tool if you have not already done so. The YubiKey Personalization Tool is needed to configure your YubiKeys for challenge-response authentication using HMAC-SHA1.

1. Download the latest version of the YubiKey Personalization Tool from the Yubico website for Microsoft Windows.

2. To install the application, do one of the following:

   a. To launch the installation wizard, click the `yubikey-personalization-gui-x.x.x` file.

   b. Complete the installation wizard.

Configuring Two YubiKeys with the Same Secret Key

These instructions configure two YubiKeys -- one which will be used as a backup YubiKey. For multiple YubiKeys to work with the same Windows login, they need to be configured with the same secret key. When configuring multiple YubiKeys for the same Windows login, be sure you record the secret key so that you can configure each of your YubiKeys with the same secret key.

If you decide to program multiple YubiKeys at one time, the YubiKey Personalization Tool automatically configures each of your YubiKeys with the same secret key. The procedures described in the next chapter, Configuring your YubiKeys, provide detailed instructions about automatically configuring multiple YubiKeys with the same secret key.

IMPORTANT: If you do not configure a secondary YubiKey with the same credential as the original YubiKey, you risk locking yourself out of your computer. If you lock yourself out of your computer and you have enabled Safe Mode, you will need to reinstall the operating system. Be sure to use these instructions to configure at least two YubiKeys with the same credential when you implement YubiKey Windows Login so that you always have a second YubiKey to use to log in to your local Windows account.

CAUTION: When implementing YubiKey Windows Login, if you select **enabled in safemode** and you later both lose your YubiKey and you do not have a backup YubiKey, you will need to reinstall your operating system and you will not be able to recover your data.

Making Sure You Have the Information for the Local Account

Before you begin configuring YubiKeys, be sure you have the login information for the account for which are you configuring YubiKey Windows Login. Be sure the account is a local (not a cloud or domain) account for Windows 7, 8, or 10 (32-bit or 64-bit), and that the account has administrative privileges.

Due to the way credentialing is handled in Microsoft Windows, you must use YubiKey Windows Login with a local account. A local account means you are logging in directly to your computer (rather than logging in to your Outlook.com or domain/corporate account).

Configuring Your YubiKeys

Before you configure your computer for YubiKey Windows Login, you need to configure your YubiKey for challenge-response authentication using the YubiKey Personalization Tool.
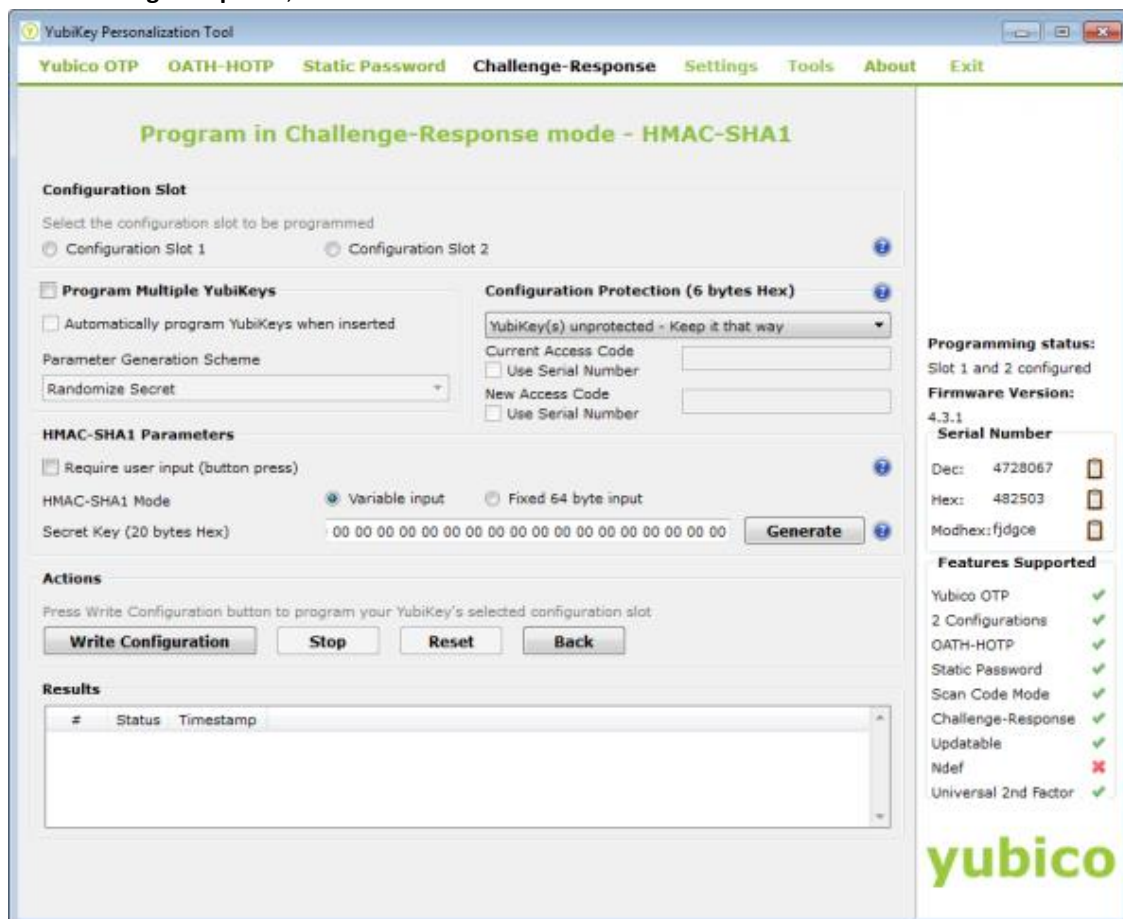
In this Chapter

- Configuring Your YubiKeys with the YubiKey Personalization Tool

Configuring Your YubiKeys with the YubiKey Personalization Tool

Using the challenge-response authentication mode with HMAC-SHA1 algorithm, a challenge and a response are created in combination with a secret key. In this mode, your YubiKey does not make use of any variables and generates an identical response each time if the challenge is the same.

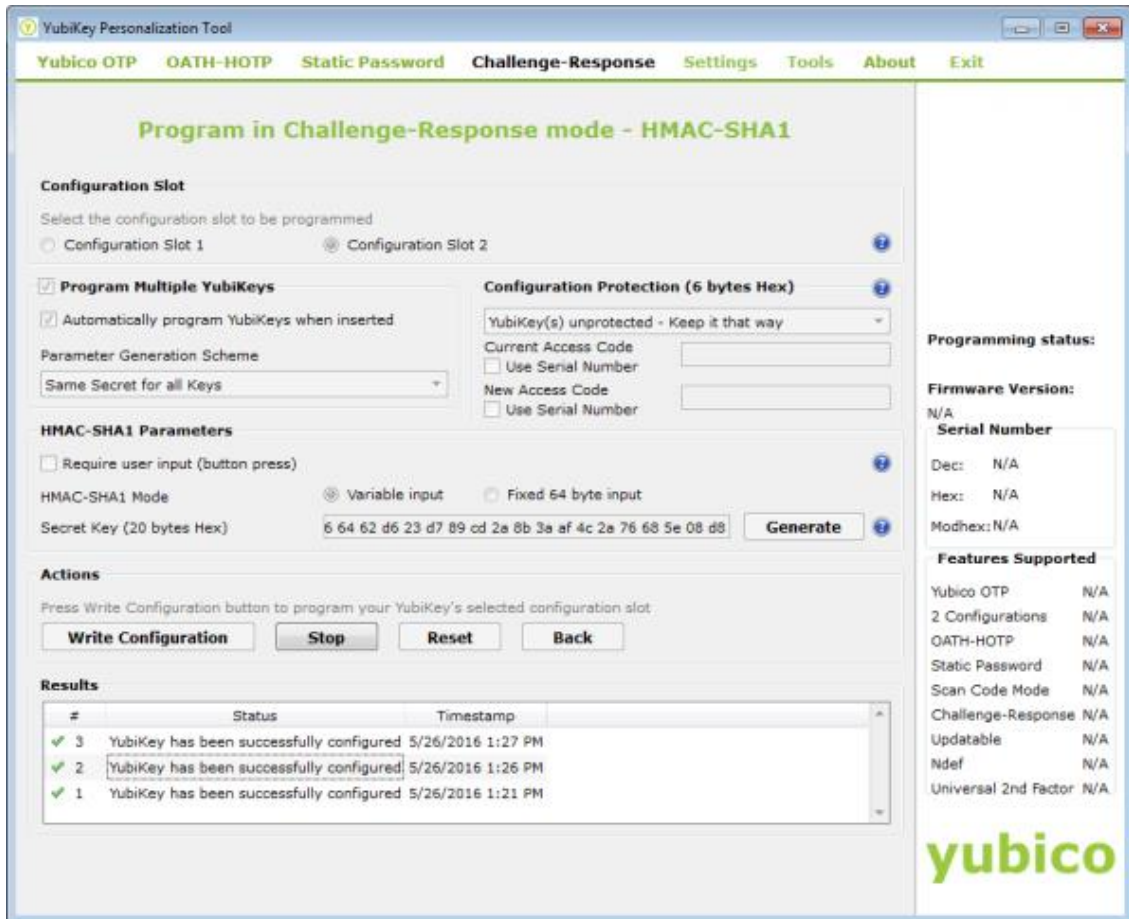**To program Your YubiKey with the YubiKey Personalization Tool**

1. Insert a YubiKey into a USB port of your computer.

2. Launch the YubiKey Personalization Tool.

3. Click **Challenge-Response**, and then click **HMAC-SHA1**.

4. In the Configuration Slot group, select Configuration Slot 2.

5. To program a backup YubiKey (recommended), select **Program Multiple YubiKeys** and **Automatically program YubiKeys when inserted**.
    IMPORTANT: We recommend that you program at least two YubiKeys with the same **secret key** so that you have a backup for YubiKey Windows Login.

6. In the **Parameter Generation Scheme** group, select **Same Secret for all Keys**.

7. In the **Configuration Protection** group, do one of the following:

    - To lock the configuration so that you must type an access code to make changes to the configuration, do the following:

        a. Locate YubiKey(s) unprotected – Keep it that way and set it to YubiKey(s) unprotected – Enable Protection. The New Access Code field below the menu becomes active.

        b. In **New Access Code**, type a 12-digit, numeric access code; or select **Use Serial Number**.
            NOTE: Record this access code in a safe location as the YubiKey configuration slot will not be able to update its configuration without it.

        c. If you do not want to use an access code, keep the default, **YubiKey(s) unprotected – Keep it that way**.

8. In the **HMAC-SHA1 Parameters** group, select the following options:

    - Be sure that **Require user input** is *not* selected.
      CAUTION: It is very important that this checkbox remain clear. Requiring user input will result in errors when attempting to configure the YubiKey in the YubiKey Logon Administration screen. It is possible to get locked out of your account if you require user input.

    - For **HMAC-SHA1 Mode**, select **Variable input**.

    - To create the **Secret Key**, click **Generate**:

        - **IMPORTANT**: If you are only programming one YubiKey at this time, be sure to save the **secret key** in a safe location so that you can use it to program your backup YubiKey in the future.

        - To configure your YubiKey for challenge-response in HMAC-SHA1 mode for use with YubiKey Windows Login, from the **Actions** group, click **Write Configuration**.
          TIP: When your YubiKey configuration is successful, a message displays under **Results** confirming the configuration (for each YubiKey that you configure).

9. To program two YubiKeys with the same secret key:

    - Remove the YubiKey you just configured and insert another YubiKey to be configured into a USB port of your computer.

    - Continue to configure your YubiKeys, one at a time, until you have finished configuring both your YubiKeys.

- If you did not select **Automatically program YubiKeys when inserted**, click **Write Configuration** each time you insert a new YubiKey.

10. Click **Stop** when you are finished configuring both YubiKeys.

Installing the YubiKey Windows Login Application

This chapter provides instructions for downloading and installing the YubiKey Windows Login application, launching YubiKey Logon Administration, and configuring your computer to require a YubiKey when logging in to your Windows account.

TIP: The installation is the same for both Microsoft Windows 64-bit and 32-bit editions.

Before you install YubiKey Windows Login, be sure you have:

- Administrator privileges
- An internet connection

In this Chapter

To install YubiKey Windows Login

1. To download the latest version of YubiKey Windows Login from the Yubico website, under **OS Logon Tools**, click **Microsoft Windows Logon**.

2. Double-click the downloaded fie, `yubico-windows-auth.exe`, and then click **Run**.

3. In the **YubiKey Logon Installer**:

   a. Accept the defaults for the YubiKey Logon Installer, including instructions for installing required additional programs, such as the YubiKey Client COM API, if needed.
   NOTE: The Installer for YubiKey Windows Login automatically downloads and installs the selected supporting components.
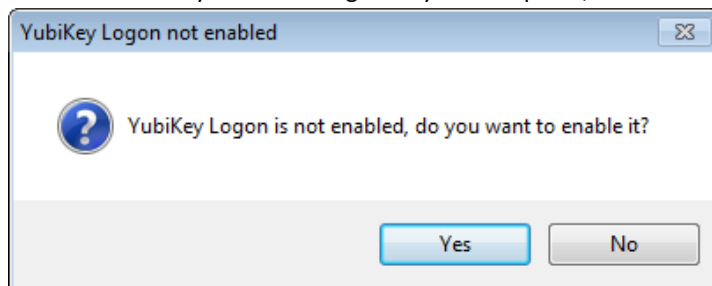
   b. Click **Install**.

4. If the User Account Control window appears, click **Yes**.
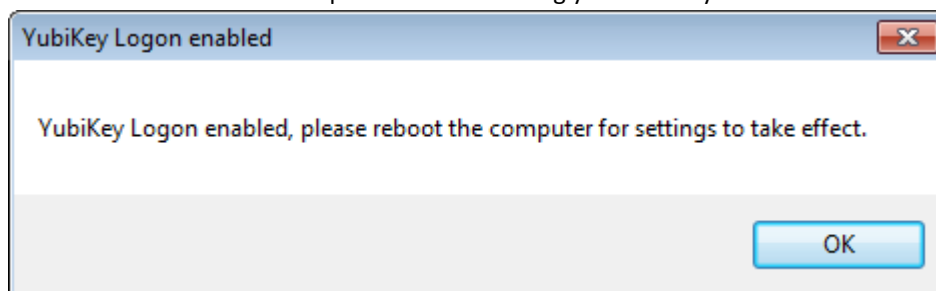   **NOTE**: The window may not appear. It depends on the UAC settings.

5. When the installer program finishes, click **Close** to exit.

6. If Microsoft .NET Framework 4.0 is not installed, be sure to download and install that file yourself. See the Microsoft website for instructions.

7. In the next section, To launch YubiKey Logon Administration and select the user to configure, continue with configuring the user.

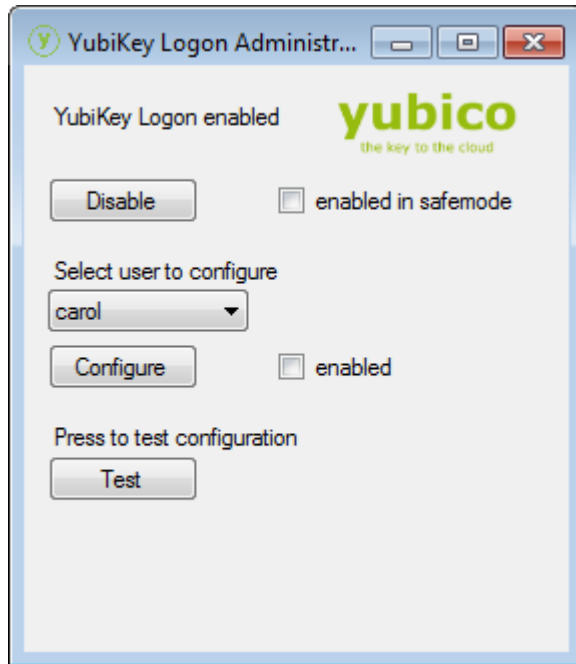**To launch YubiKey Logon Administration and select the user to configure**

8. Open **C:\Program Files > Yubico > YubiKey Logon**, and double-click **YubiKey Logon Administration.exe**.

9. If the User Account Control window appears, click **Yes**.
   NOTE: The window may not appear. It depends on the UAC settings.

10. To enable YubiKey Windows Login for your computer, click **Yes**.

11. Click **OK** to continue with the process of associating your YubiKey with a Windows account:
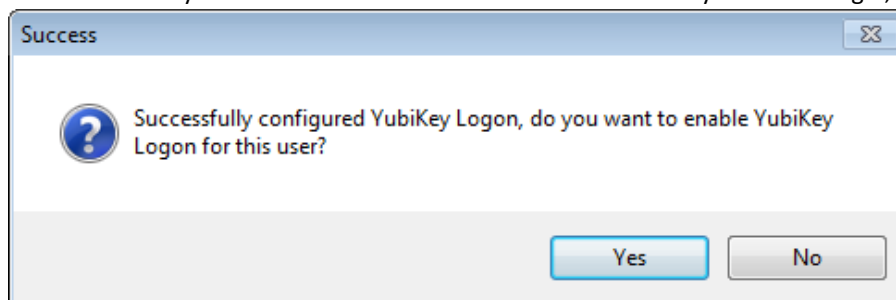

12. In the **YubiKey Logon Administration** window, under **Select user to configure**, select the Windows account you want to configure:

TIP: The **enabled** option is selected for each user account that you configure for YubiKey Windows Login. If an account is not enabled for YubiKey Windows Login, the **enabled** option is clear.

13. If you want to enable the requirement for your YubiKey in Safe Mode, select **enabled in safemode**.
CAUTION: If you select **enabled in safemode** and you later both lose your YubiKey and you do not have a backup YubiKey, you will need to reinstall your operating system and you will not be able to recover your data.

14. Insert your YubiKey into a USB port of your computer, and click **Configure**.

15. To confirm that you want to enable the selected user for YubiKey Windows Login, click **Yes**.

16. (Optional) We recommend that you test your YubiKey once you have finished configuring it. To do this, click **Test**. You will see a message `Correct response!` if the test was successful.
NOTE: If you did not program slot 2 of the YubiKey for challenge-response authentication with HMAC-SHA1, or you selected **require user input (button press)** during programming, then you will see this message instead: `Failed challenge-response`.

17. When you have finished configuring your YubiKey, reboot your computer.
IMPORTANT: Before your settings can take effect, you must restart your computer.

Logging in to Your Computer Using YubiKey Windows Login

Now that your computer is configured for YubiKey Windows Login, you can use your YubiKey to log in to your Windows account.

To log in to your computer using YubiKey Windows Login

- Insert your YubiKey into a USB port of your computer, and log in to the Windows Account.
  NOTE: In the **Password** field, type your Windows password (and not an OTP from your YubiKey). The YubiKey challenge-response occurs in the background without user interaction.
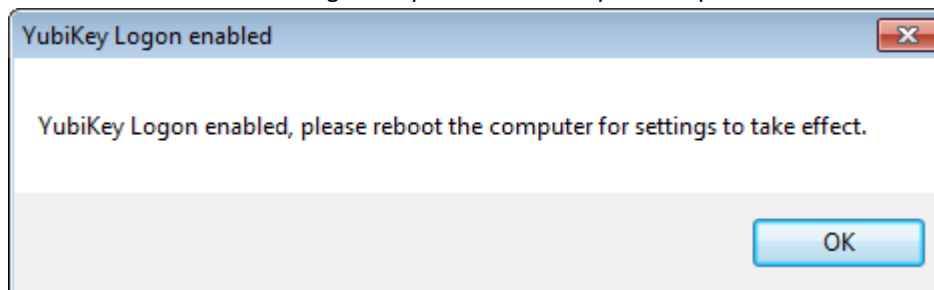
Disabling YubiKey Windows Login

This chapter provides instructions for disabling YubiKey Windows Login for all accounts and for selected accounts so that you do not need the YubiKey to log in to your Windows account.

In this Chapter

- To disable YubiKey Windows Login for all accounts

- To disable YubiKey Windows Login for selected accounts

To disable YubiKey Windows Login for all accounts

1. To launch YubiKey Windows Login Administration, open **C:\Program Files > Yubico > YubiKey Logon**, and double-click **YubiKey Logon Administration.exe**.

2. Click **Disable**.

3. Click **OK** to dismiss the message that you must reboot your computer:

4. Restart your computer.
   IMPORTANT: Before the change to your settings can take effect, you must restart your computer.

To disable YubiKey Windows Login for selected accounts

1. To launch YubiKey Windows Login Administration, open **C:\Program Files > Yubico > YubiKey Logon**, and double-click **YubiKey Logon Administration.exe**.

2. Insert your YubiKey into a USB port of your computer.

3. Under **select user to configure**, select the user account for which you want to disable YubiKey Windows Login.

4. Clear **enabled**, and click **Configure**.

5. Restart your computer.
   IMPORTANT: Before the change to your settings can take effect, you must restart your computer.

Troubleshooting

This chapter lists potential causes and solutions if you receive a message or have unexpected results when logging in to your computer.

Issues and Resolutions

This section describes resolutions to issues.

Issue: I followed instructions, but even though the YubiKey is not inserted into a USB port of my computer, I am able to login with only my password.

Resolution: You most likely have a Microsoft or Cloud account you are using to log in, but this tool only works on a local account (due to the way that credentialing is handled in the Windows Operating System). You need to disable the YubiKey requirement, convert your Microsoft Windows account to a local account, and complete the configuration steps again. For instructions about removing the YubiKey requirement at login, see the previous chapter, Disabling YubiKey Windows Login.

Issue: When clicking **Configure** in YubiKey Logon Administration, I immediately receive an error "Failed challenge--response. Is the YubiKey configured for for challenge-response authentication with HMAC-SHA1 in slot 2?"

Resolution: An HMAC-SHA1 challenge-response credential was not programmed in Configuration Slot 2 of your YubiKey. To resolve this issue, program your YubiKey with the YubiKey Personalization Tool with an HMAC-SHA1 challenge-response credential, and be sure that you do *not* select **Require user input (button press)**.

Issue: Two to three seconds after clicking **Configure** in YubiKey Logon Administration, I receive an error: "Failed challenge--response. Is the YubiKey configured for HMAC-SHA1 challenge--response in slot 2?

Resolution: An HMAC--SHA1 challenge-response credential was programmed in Configuration Slot 2 of your YubiKey, and **Require user input (button press)** was selected during programming. To resolve this issue, re-program the credential with the YubiKey Personalization Tool, and be sure that you do *not* select **Require user input (button press)**.

Issue: In YubiKey Logon Administration, the Configure button appears dimmed and is unavailable.

Resolution: The cause of this issue is one of the following:

- Your YubiKey is not inserted into a USB port of your computer. Insert your YubiKey into a USB port of your computer and try again.
  NOTE: You cannot configure the FIDO U2F Security Key for YubiKey Windows Login, so inserting a Security Key also results in the Configure button appearing dimmed.

- Update the YubiKey Client API installed on the computer. Download the version you need from the Yubico website.
  TIP: Be sure you download the proper version for your Windows Operating System version (32--bit or 64--bit).

Issue: I lost my YubiKey and can no longer log into my account.

Resolution: Do one of the following:

- If you have a backup YubiKey that was already programmed with the same credential, use that YubiKey to log in to your account.

- If you have an admin user that does not have YubiKey Windows Login enabled, you can log in as that user, and run YubiKey Logon Administration to disable the YubiKey Requirement for the user account for which you no longer have your YubiKey.

- Boot to Safe Mode to log in to the account with only your password and then you can disable the YubiKey requirement.
  NOTE: If you do not have a backup YubiKey and you enabled the requirement for your YubiKey in Safe Mode (this option is available in YubiKey Logon Administration but not enabled by default), you must reinstall your Operating System. You will not be able to recover your data.

Issue: I have enabled YubiKey Windows Login, but when I see the login screen, I click on the password field and tap the button on my YubiKey, but I cannot log in.

Resolution: You do not need to tap the button on your YubiKey at any point during the login process. Implementing YubiKey Windows Login requires only that you insert your YubiKey into a USB port of your computer before logging in. Be sure you enter your regular local user name and password to log in. Your login will fail if your YubiKey is not inserted, even if you type the correct password.

Changing the Configuration of a YubiKey With an Access Code

You can choose to protect your YubiKey with an access code. When you use an access code, you are prompted to enter the access code each time you want to change the configuration of your YubiKey. This section provides instructions for authenticating with the access code so that you can change the configuration of protected YubiKeys.

To change the configuration of a YubiKey slot protected with an access code

1. Launch the YubiKey Personalization Tool.

2. In the Configuration Protection group, select YubiKey(s) unprotected – Keep it that way, and set it to YubiKey(s) protected – Keep it that way.

3. In **Current Access Code**, which is now active, type the 12-digit, numeric access code set for that YubiKey configuration slot.

4. Continue to make changes to the YubiKey configuration, as needed.

5. In the Actions group, click Write Configuration.