Windows 11 Home Lab – Installation, Configuration and Troubleshooting Lab Guide

Lab Overview

This lab demonstrates how to install Windows 11 and perform post-installation configuration in a home lab environment, as well as practice common troubleshooting techniques.

Lab Requirements

Hardware:

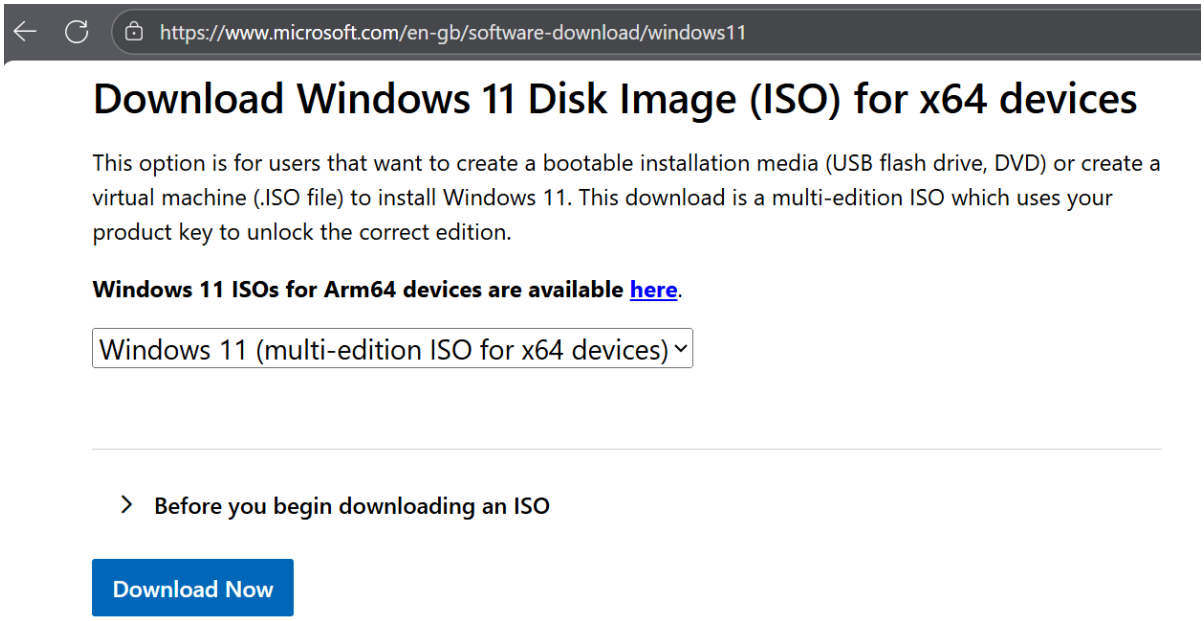
- VirtualBox
- 2 vCPUs
- 8 GB RAM Recommended
- 40 GB Virtual Disk
- TPM Support Enabled (Required for Windows 11)

Software & Tools

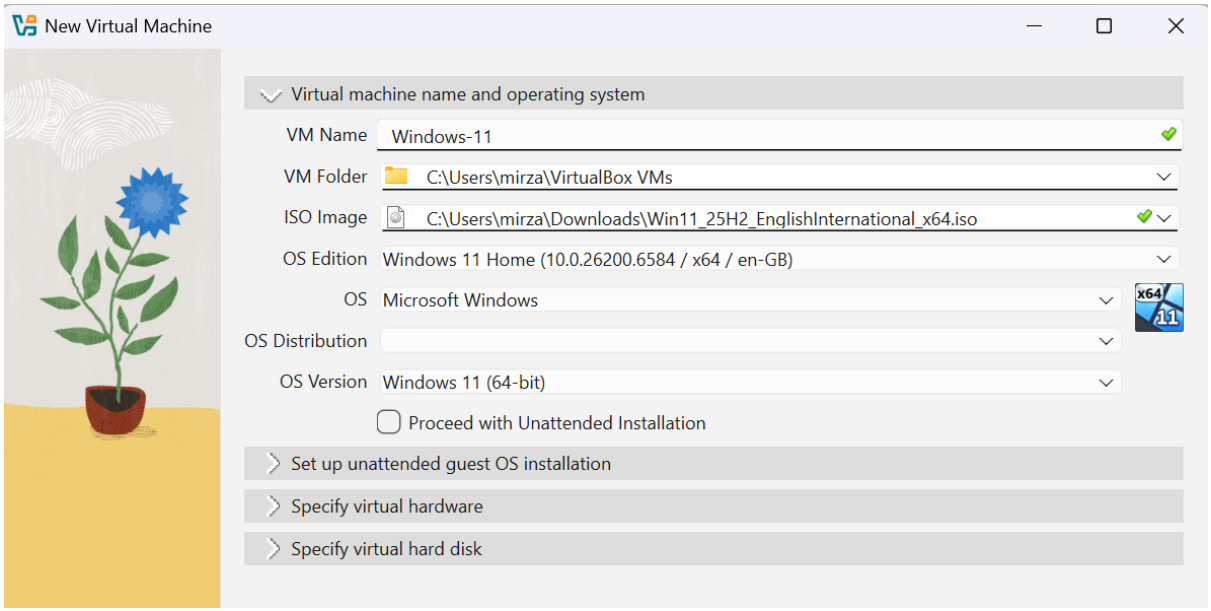
- Windows 11 ISO (from Microsoft)
- Internet connection
- Windows Event Viewer
- Device Manager
- Command Prompt/Powershell

1. Environment Preparation

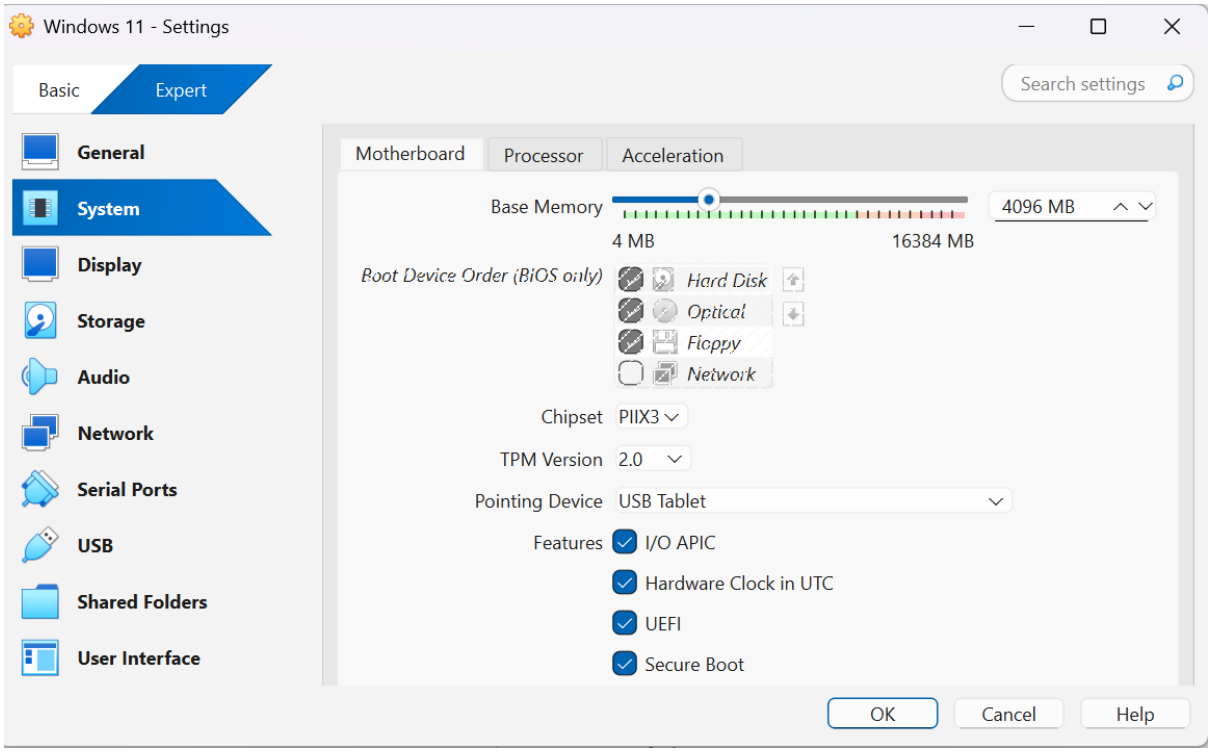
The first step was to download the Windows 11 ISO file from Microsoft's Windows 11 download page



The next step was to create a virtual machine for the Windows 11 home lab using Oracle's VirtualBox. The Windows 11 ISO file that was downloaded in the previous step has been included in the VM setup.

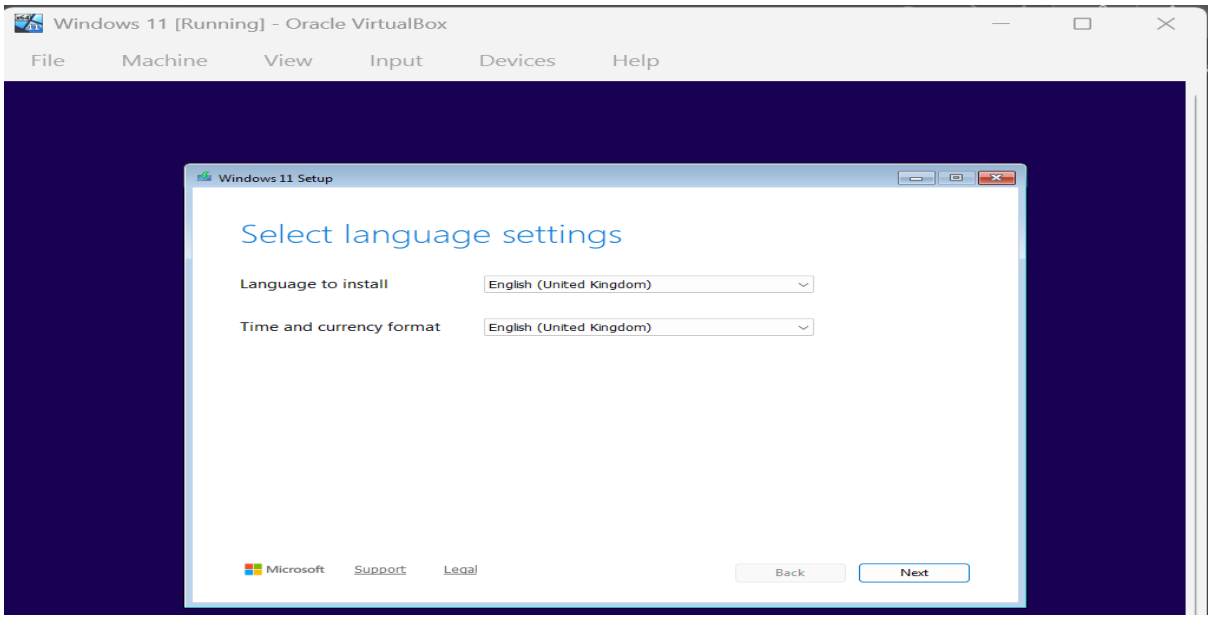


In addition to this, the UEFI and Secure Boot features have been enabled and includes TPM version 2.0. This is a crucial requirement for running a Windows 11 operating system in a virtual environment.

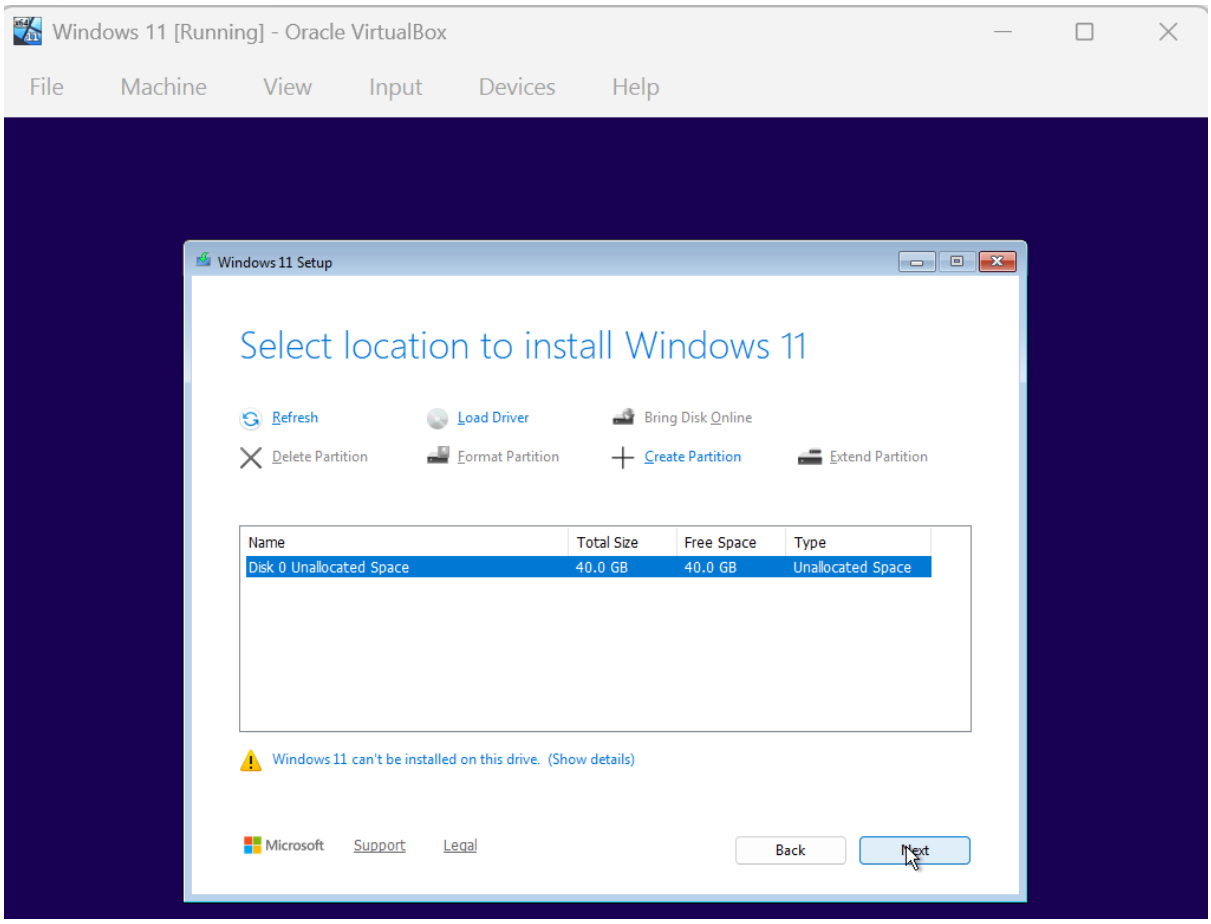


2. Windows 11 Installation

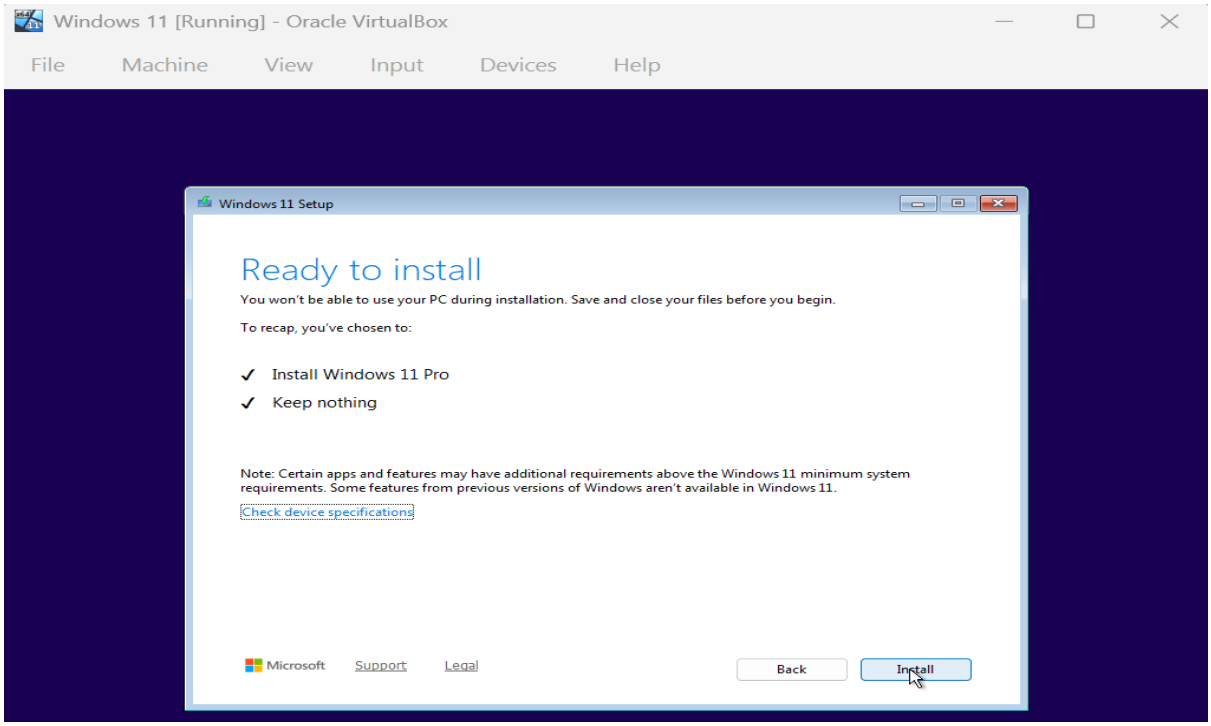
Once the lab environment was set up and the virtual machine was created, the step was to start the Windows 11 VM and perform the clean installation. The first step was to select the language settings for the installation.



The second step was to select the location to install Windows 11. This was done in the unallocated space ‘Disk 0’ which has a total size of 40 GB.

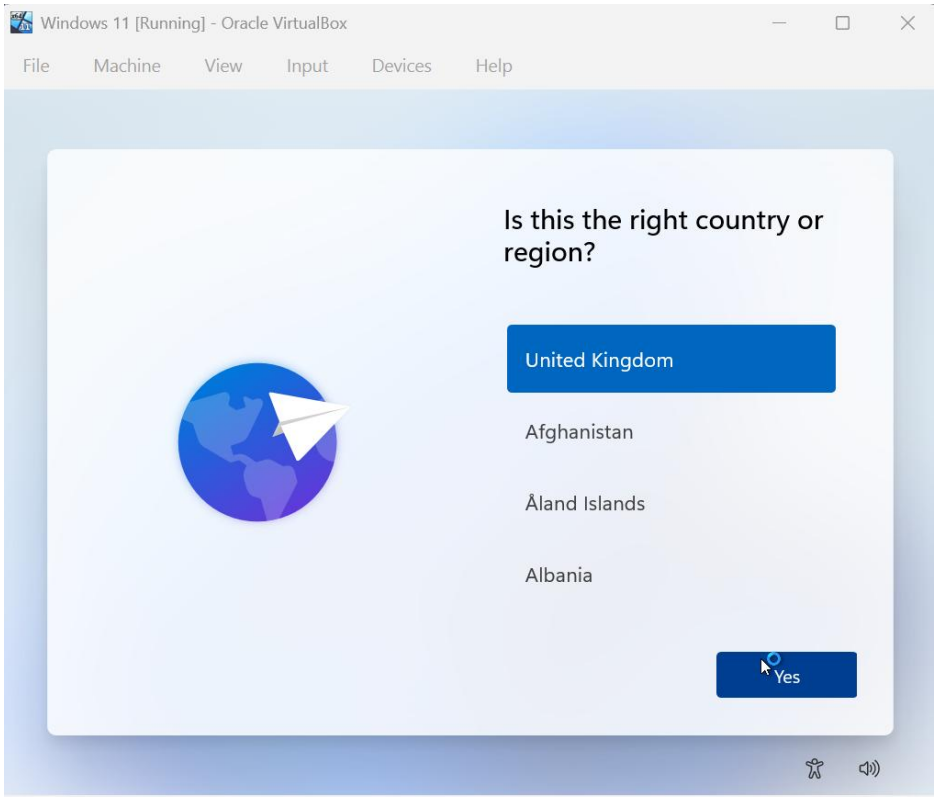


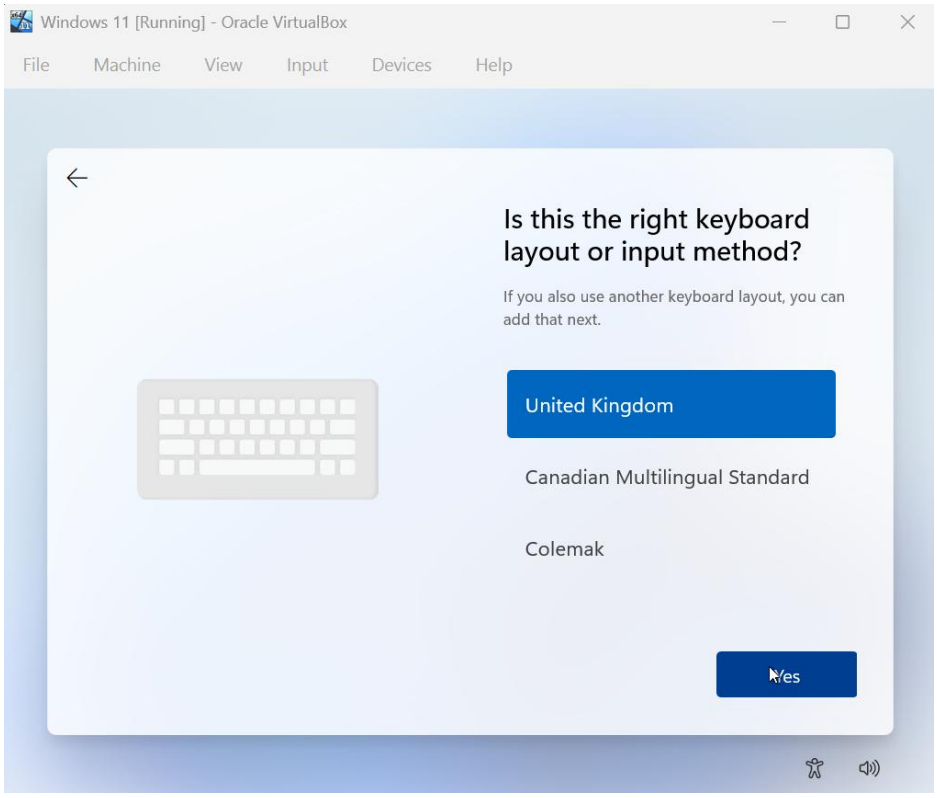
The final step in the installation process was to click the ‘install’ button.



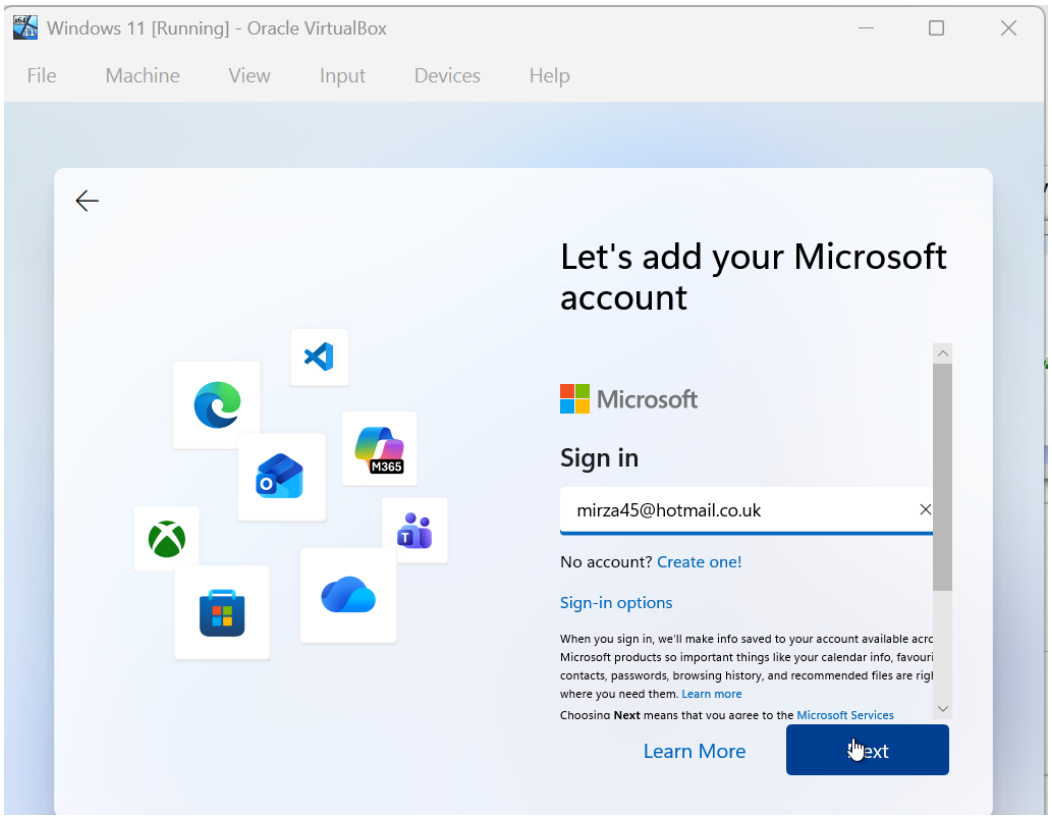
3. Initial Configuration

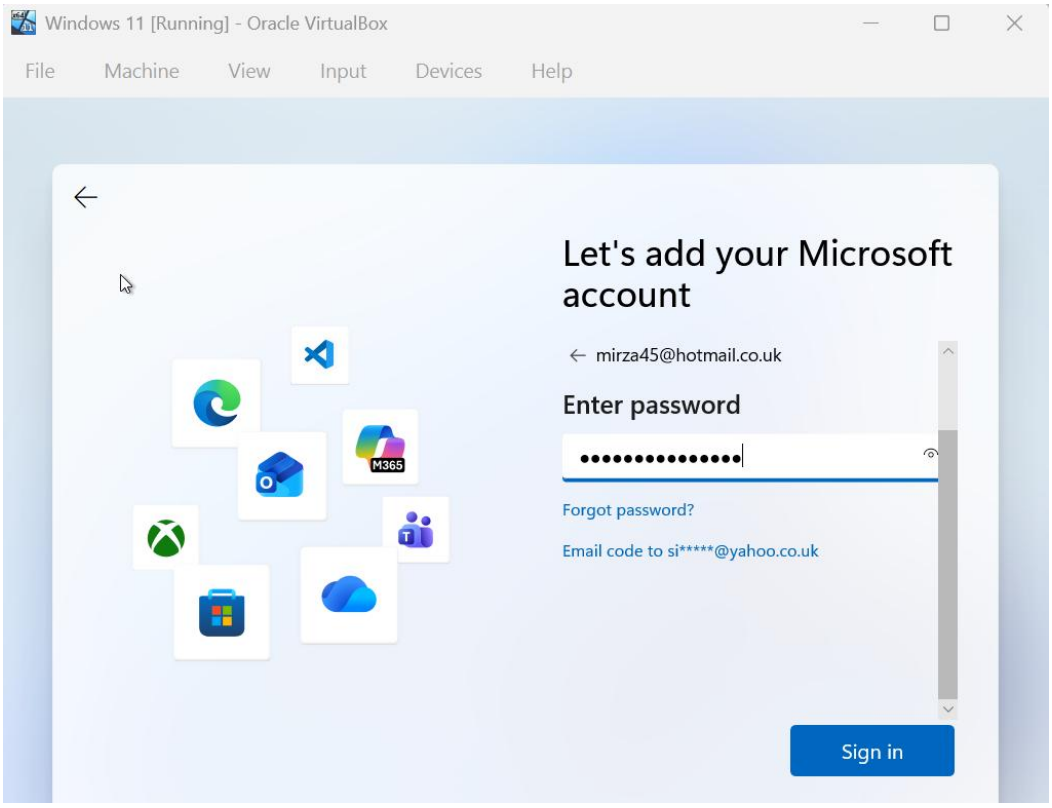
Once the Windows 11 OS had been installed, the next step was to complete the out-of-box settings, including setting the region and keyboard layout.





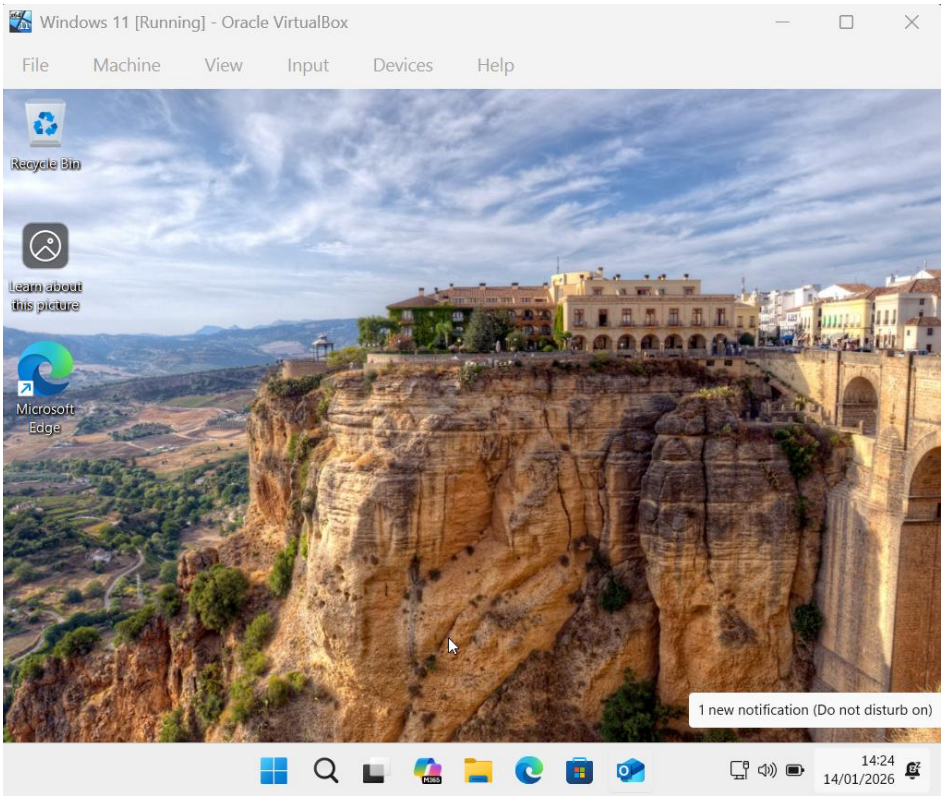
In addition to this, the user account had also been added using the Microsoft account and the password was entered.

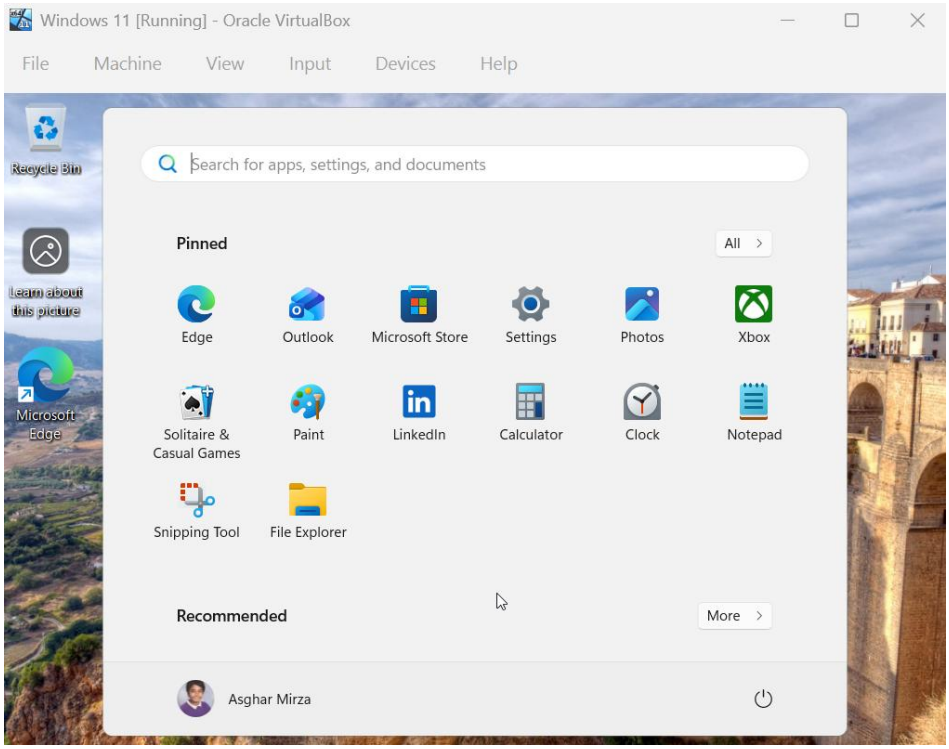




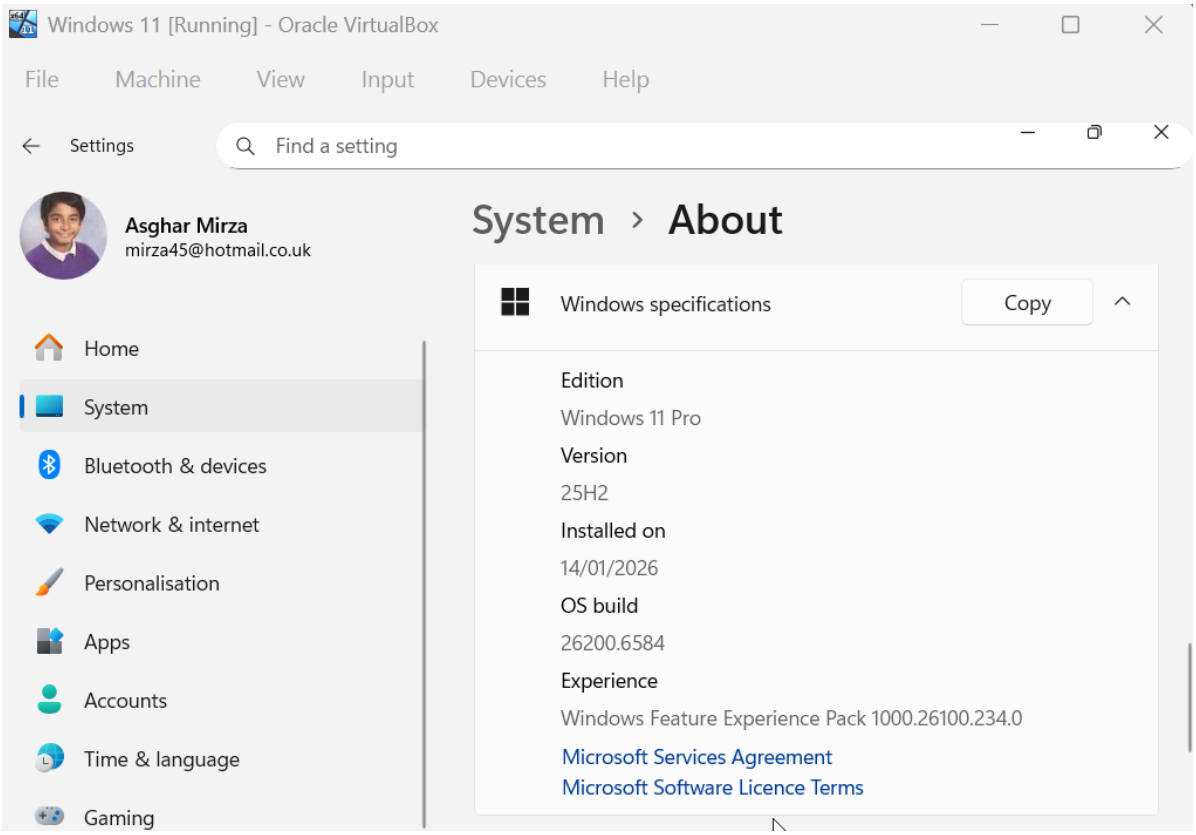
4. Desktop & System Verification

The desktop and system verification confirms the installation was successful and the user can access the graphical user interface (GUI), including the start menu and pinned applications.



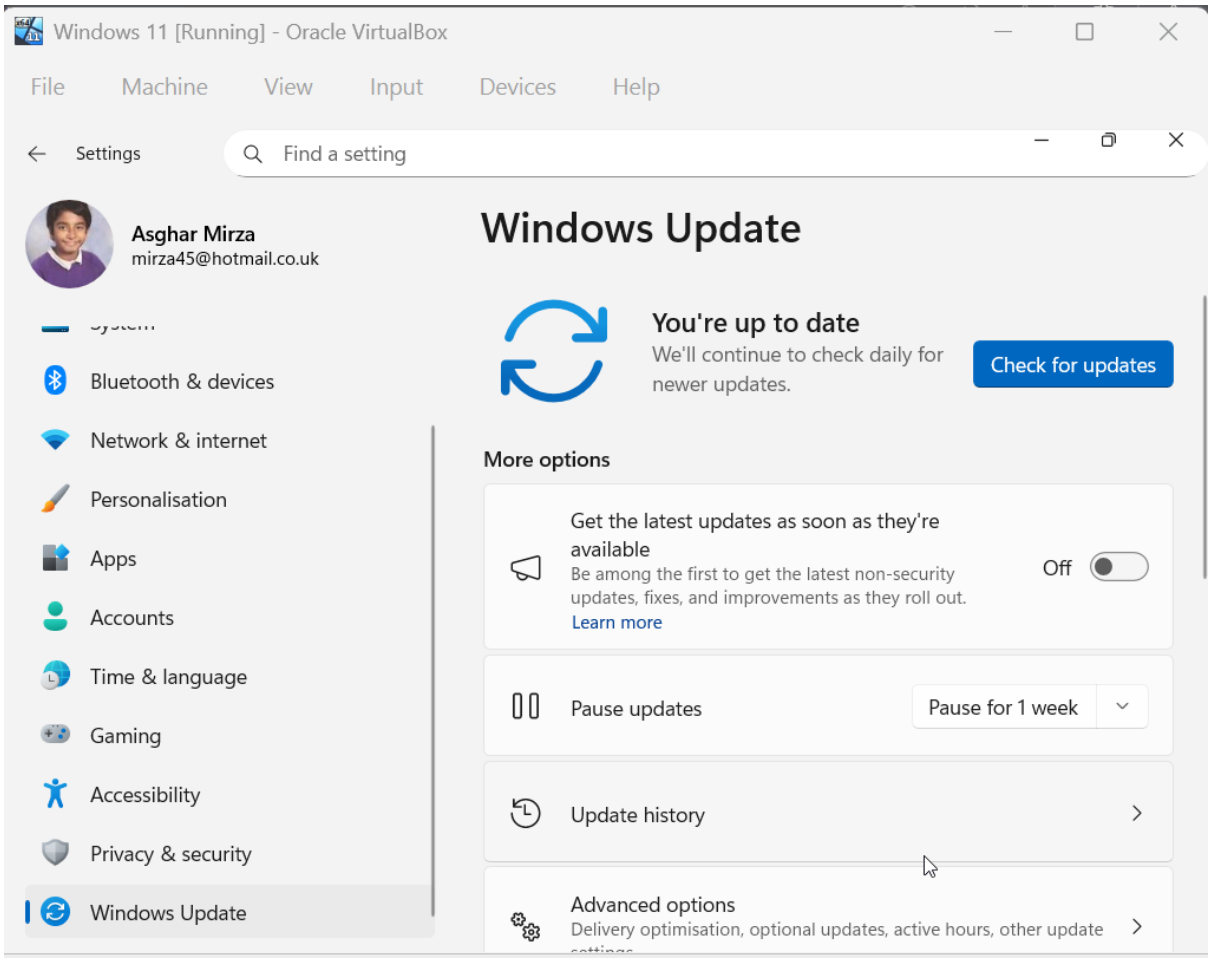


The system information can be viewed in the settings application. This can be achieved through clicking **System > About** to view information about the operating system specifications. This confirms that OS edition installed was Windows 11 Pro version 25H2. Additionally, this also reveals the OS build and the date installed.

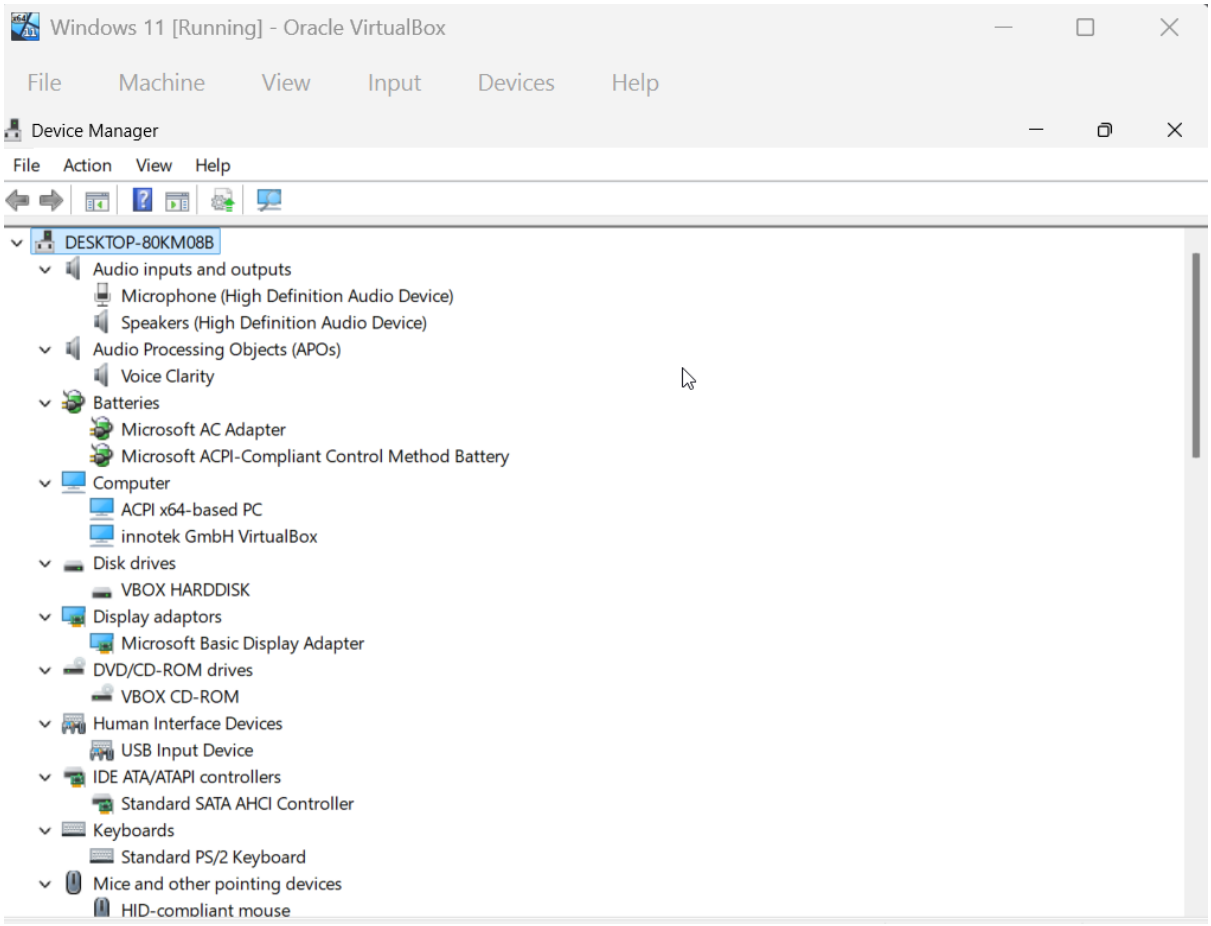


5. Post-Installation Configuration

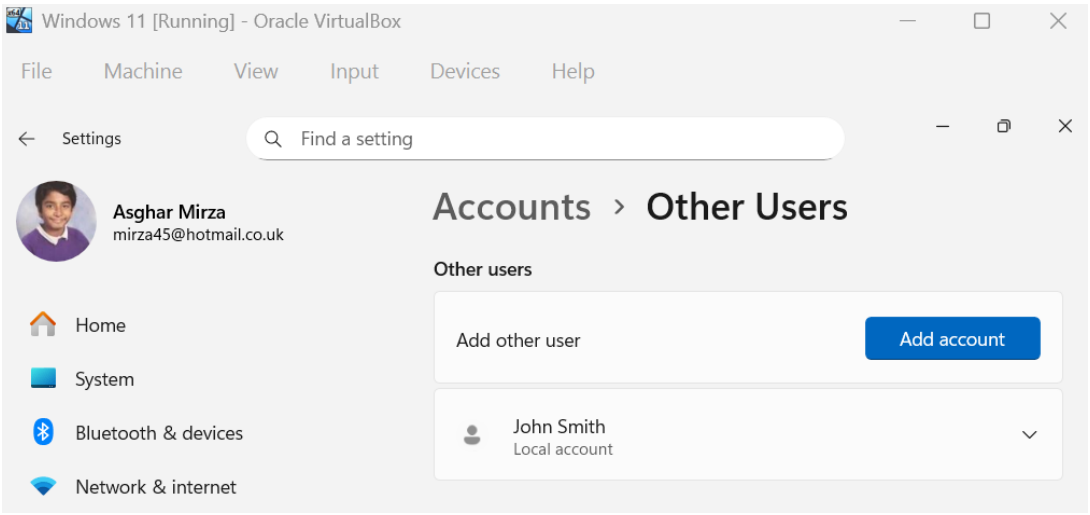
Through navigating the Settings application and clicking on ‘Windows Update’ this shows the update history and whether there is any update available to install. This confirms that the OS is up to date and will continue to check for newer updates.



Furthermore, through clicking on the Device Manager application shows whether the device drivers for all hardware have been installed correctly. If a device driver has not been installed correctly installed, then a yellow warning icon is displayed next to the hardware component. Since there are no warning icons showing this confirms that all drivers have been installed correctly.

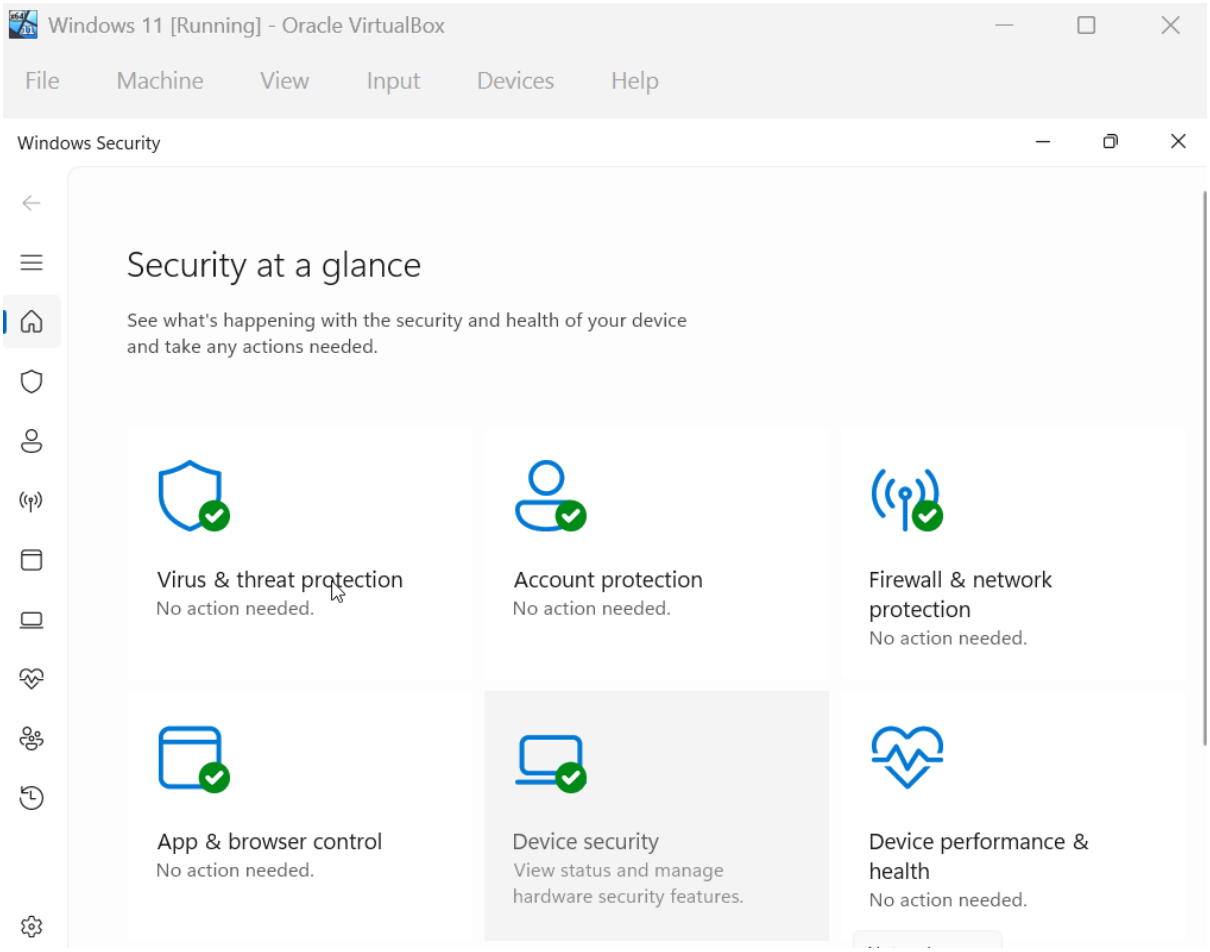


Additional user accounts can be viewed by accessing **Accounts > Other Users** in the settings application. This shows that another local user account called John Smith has been created.

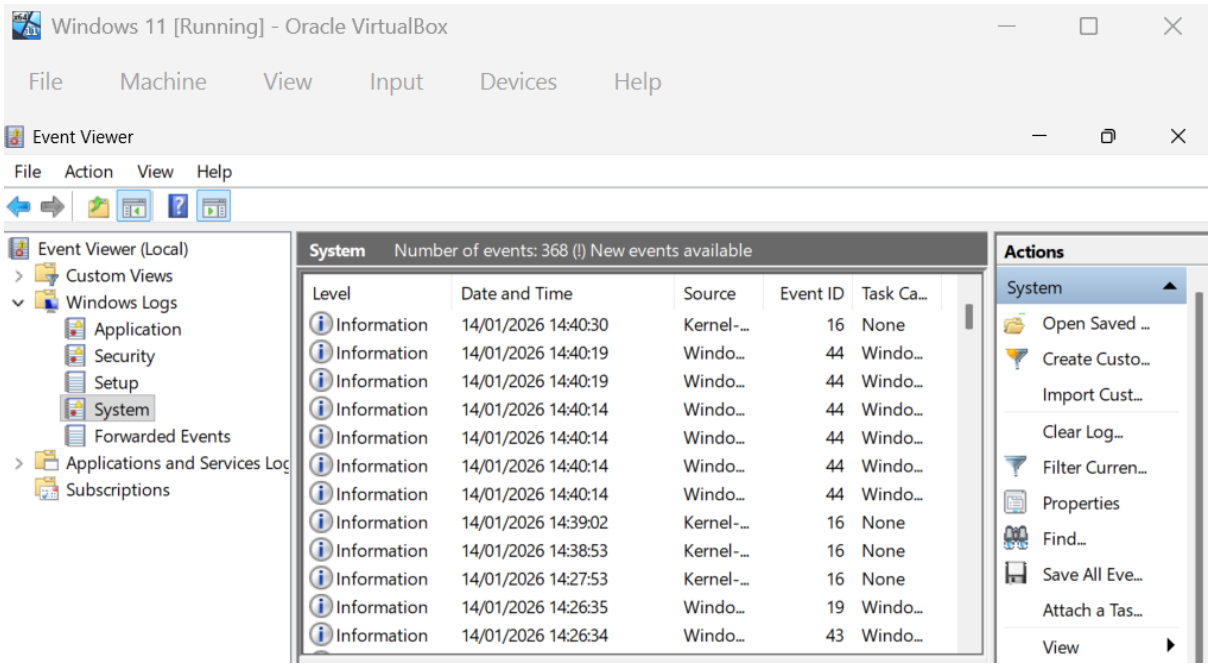


6. Security & Troubleshooting Evidence

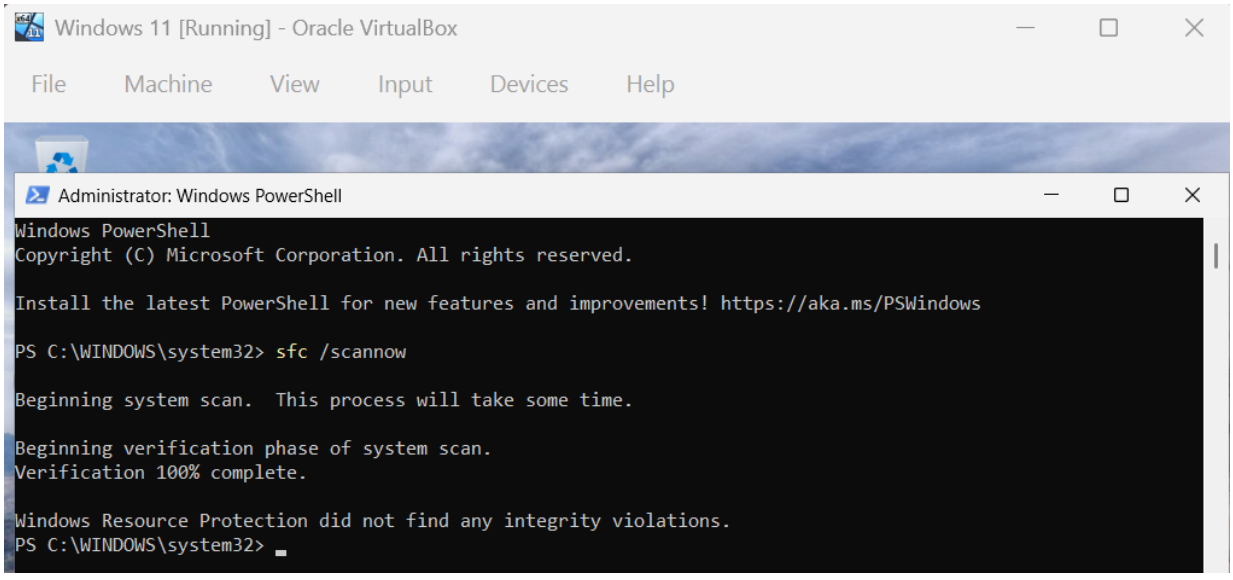
The Windows Security dashboard shows the systems security configuration and protection status, including virus and threat protection, firewall and network protection and device security. It is important to ensure the operating system security has been correctly configured to protect against malicious threats. This confirms there are no further actions required to secure the device.



The Event Viewer is a tool that records system, security and application events and can be used to troubleshoot issues through filtering logs for errors, warnings and critical events. The Event Viewer has been filtered to show recent events and no error, critical or warning events have appeared in the system log.



In addition to this, the **sfc /scannow** is command that was entered in Powershell that can be used scan for and repair corrupted, changed or damaged system files and replace them with the correct version to resolve system instability issues. Once the command had been executed this revealed that there were no corrupted or damaged system files.



7. Recovery & Validation

The Advanced Startup menu can be used to troubleshoot and repair Windows with options including system restore, start-up repair and safe mode. It can be accessed through navigating to the 'Settings' and clicking on **System > Recovery** and selecting 'Advanced Startup'. This restarts the system and loads the Advanced Startup menu.