COMP 3095

Docker Installation

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Installing Docker Desktop on Windows: Step-by-Step Guide
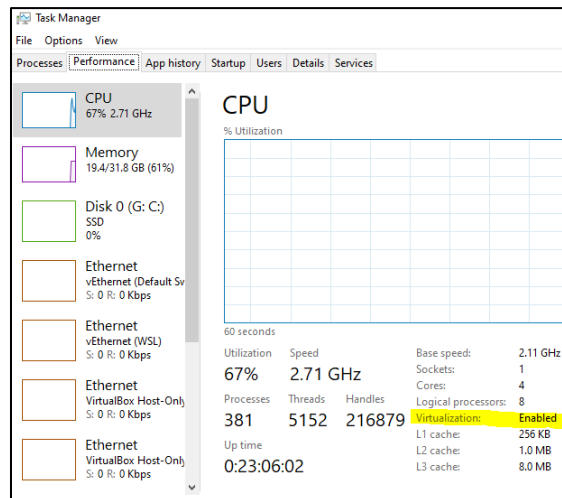### Prerequisites

Before installing Docker Desktop, ensure your system meets the following requirements:

- **Operating System:** Windows 10 64-bit: Pro, Enterprise, or Education (Build 19044 or higher) or Windows 11.
- **Hardware:** At least 4 GB of RAM.
- **Virtualization:** Ensure that your system supports virtualization and that it is enabled in the BIOS settings.

Step 1: Enable Virtualization

1. **Check Virtualization:**
   - Open **Task Manager** by pressing `Ctrl + Shift + Esc`.
   - Go to the **Performance** tab.
   - Check the **Virtualization** section to ensure it is enabled.

2. **Enable Virtualization in BIOS (if necessary):**
   - Restart your computer.
   - Enter the BIOS/UEFI settings by pressing the appropriate key during boot (commonly `F2`, `F10`, `Delete`, or `Esc`).
   - Find the **Virtualization** or **Intel VT-x** setting and enable it.
   - Save changes and exit BIOS.

Step 2: Download Docker Desktop

1. **Visit the Docker Website:**
   - ~~Open your web browser and go to the~~ [Docker Desktop for Windows](#) ~~page.~~
   - Open your web browser and go to https://docs.docker.com/desktop/install/windows-install/
2. **Download the Installer:**
   - Click on the **Download Docker Desktop for Windows** button.
   - The installer file (`Docker Desktop Installer.exe`) will begin downloading.

Step 3: Install Docker Desktop

1. **Run the Installer:**
   - Locate the `Docker Desktop Installer.exe` file in your Downloads folder.
   - Double-click the file to run the installer.
2. **Configure Installation Settings:**
   - When the Docker Desktop installation window appears**, check the box to enable the use of** WSL 2 **instead** of Hyper-V if prompted.
   - Click **OK** to proceed with the installation.
3. **Installation Process:**
   - Docker Desktop will install the necessary components, **including WSL 2** (Windows Subsystem for Linux) if not already installed.
   - Follow any on-screen prompts to complete the installation.

Step 4: Start Docker Desktop

1. **Launch Docker Desktop:**
   - After installation, Docker Desktop may start automatically. If not, you can launch it by searching for "Docker Desktop" in the Start Menu.
2. **Initial Setup:**
   - The first time you run Docker Desktop, it may require some additional configuration. Follow the on-screen instructions to complete the setup.
   - Docker Desktop will also prompt you to sign in with a Docker Hub account. You can create a free account if you don't already have one.

Please note, you're not required to create a **Docker Hub** account to install and use **Docker Desktop**. You can install Docker Desktop and run Docker containers on your local machine without signing into a Docker Hub account.

However, a Docker Hub account becomes useful if you want to:

- **Push images to Docker Hub**: If you need to store and share your images publicly or privately on Docker Hub.
- **Pull images from Docker Hub**: While you can pull public images without logging in, having an account is necessary for accessing private repositories or increased rate limits for image pulls.
- **Use Docker Hub features**: Like automated builds, organization management, or private repositories.

3. **Verify Installation:**
   - Open a Command Prompt or PowerShell window.
   - Type the following command to check if Docker is installed correctly:

   ```
   docker --version
   ```

   - You should see the version number of Docker if the installation was successful.

Step 5: Test Docker Installation

1. **Run a Test Container:**
   - To verify that Docker is working, run the following command in the Command Prompt or PowerShell:

   ```
   docker run hello-world
   ```

   - This command will download and run a test image, displaying a confirmation message in the terminal.

   ```
   C:\Users\santil13
   λ docker run hello-world
   Unable to find image 'hello-world:latest' locally
   latest: Pulling from library/hello-world
   c1ec31eb5944: Pull complete
   Digest: sha256:53cc4d415d839c98be39331c948609b659ed725170ad2ca8eb36951288f81b75
   Status: Downloaded newer image for hello-world:latest

   Hello from Docker!
   This message shows that your installation appears to be working correctly.
   ```

Troubleshooting Tips

- **WSL 2 Installation:** If Docker Desktop prompts you to install the WSL 2 kernel, follow the provided link or visit the Microsoft WSL 2 Installation Guide.
- **Hyper-V Not Enabled:** Docker Desktop requires Hyper-V. If it's not enabled, you may be prompted to enable it. Follow the instructions provided by Docker Desktop or enable it manually via the "Turn Windows features on or off" control panel.
- **Firewall and Network Issues:** Ensure that your firewall or antivirus software is not blocking Docker. You may need to allow Docker through your firewall.