Guide: Adding New Files to a Disk Image for Digital Forensics Study

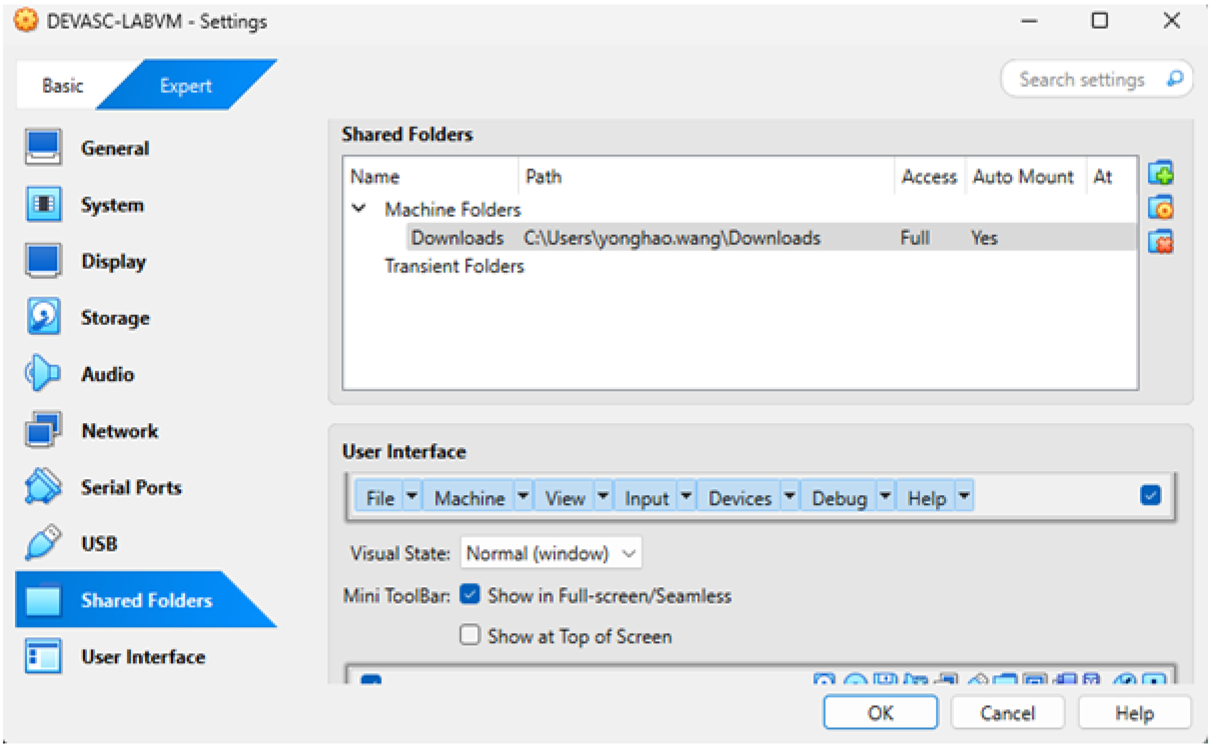
1. Preparation

- Set up a Linux virtual machine (VM). For example:
  - **OS:** Ubuntu 20.04.6 LTS
  - **Codename:** focal
  - **Username:** `devasc`
  - **Password:** `Cisco123!`
- Ensure VirtualBox Guest Additions are installed and updated:

```
sudo apt update
sudo apt install virtualbox-guest-utils virtualbox-guest-x11 virtualbox-guest-dkms -y
```

2. Mount Shared Folder

- On the **Windows host**:
  - Create a shared folder named `Downloads`.
  - Enable **Auto-mount** and **Make Permanent**.



DEVASC-LABVM - Settings

Shared Folders

Name	Path	Access	Auto Mount	At
Machine Folders				
Downloads	C:\Users\yonghao.wang\Downloads	Full	Yes	
Transient Folders				

User Interface

Visual State: Normal (window)

Mini ToolBar: ☑ Show in Full-screen/Seamless

☐ Show at Top of Screen

- On the **Linux guest**:

```
mkdir ~/windown
sudo mount -t vboxsf Downloads /home/devasc/windown/
```

- Verify that the guest can access the host folder.

Note on Auto-Mount Behavior

When VirtualBox auto-mounts shared folders, they often appear under:

```
/media/sf_<SharedFolderName>
```

Example: `/media/sf_Downloads`

To make this consistent:

- Create a symbolic link:

  ```
  ln -s /media/sf_Downloads ~/windown
  ```

- Or disable auto-mount in VirtualBox and manually mount using:

  ```
  sudo mount -t vboxsf Downloads /home/devasc/windown/
  ```

3. Analyze the Current Disk Image

- Navigate to your forensic image directory:

  ```
  cd ~/forensic_image_lab
  ```

- Install SleuthKit if not already installed:

  ```
  sudo apt install sleuthkit
  ```

- Use `mmls` to view partition layout:

  ```
  mmls diskimageMT.001
  ```

Example output:

```
Slot    Start     End       Length    Description
001:    0         62        63        Unallocated
002:    63        224909    224847    NTFS / exFAT (0x07)
003:    224910    240974    16065     FAT12 (0x01)
004:    240975    250878    9904      Unallocated
```

4. Mount the NTFS Partition

- Create a mount point:

  ```
  mkdir mnt_ntfs
  ```

- Calculate the offset: `Start sector × 512 bytes = 63 × 512 = 32256`
- Mount the partition:

  ```
  sudo mount -o loop,offset=32256 diskimageMT.001 mnt_ntfs
  ```

- List files:

  ```
  ls mnt_ntfs/
  ```

5. Add New Files

- Copy the desired files into `mnt_ntfs/` using `cp` or file manager.

6. Unmount and Save

- Sync and unmount:

  ```
  sync
  sudo umount mnt_ntfs
  ```

- The disk image now includes the new files.
