# Restore Requirements — Summary

**Goal:** Every device can perform **both** single‑file restores *and* full bare‑metal recovery from **all** backup locations (local snapshots, USB, off‑site cloud).

| ## 1 Capability Matrix | Device / Layer | Snapshot browse | Local USB restore | Off‑site file restore | Off‑site bare‑metal restore | |—————-|—————–|——————-|———————–|—————————–| | **Linux PCs** | /.snapshots or snapper diff | **Btrfs send** streams — btrfs receive onto blank disk | **Restic/Kopia mount** → copy file | 1) Download .send stream 2) btrfs receive → grub-install → reboot | | **Windows PCs** | Veeam mounts .vbk as drive | Veeam Recovery Media ISO + .vbk image on USB | Restic/Kopia mount of .vbk → Veeam mounts → copy file | Same Veeam Recovery Media, .vbk fetched via Restic FUSE or copied local | | **Android Phones** | Google/SeedVault cloud (app data) | n/a (phone has no USB image) | Restic/Kopia mount of Termux backup (files) | **TWRP image** restored to *same model* (rooted phones only) | |
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| ## 2 How Each Layer Satisfies the Requirement ### Local Snapshots \* **File‑level:** browse read‑only sub‑volume; copy lost file. \* **Bare‑metal:** snapshot can be sent (btrfs send) to a fresh disk. |
| ### USB Drive \* **Linux → Btrfs partition:** houses raw snapshots for instant boot or btrfs receive. \* **Windows → NTFS partition:** holds Veeam .vbk images for full re‑image; file browse via Veeam. |
| ### Cloud (Restic/Kopia repo + Btrfs streams) \* **File‑level:** restic mount/kopia mount exposes per‑host snapshots; copy any path. \* **Bare‑metal Linux:** pull latest send‑stream; receive onto new disk. \* **Bare‑metal Windows:** boot Veeam ISO; point to .vbk inside Restic mount. |

## 3 Quick Restore Cheat‑Sheets

| OS | Bare‑metal Steps | Single File Steps |
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| Linux | 1. Boot live ISO |  |

1. mkfs.btrfs target
2. ssh backup 'btrfs send …' | btrfs receive /mnt
3. grub-install /dev/sdX | restic mount /mnt/tmp → copy file  
   —or—  
   cp /.snapshots/N/path ~/ | | Windows | 1. Boot **Veeam Recovery Media**
4. Browse Restic FUSE (restic mount) or USB
5. Select latest .vbk → Restore | Inside Windows:  
   *Mount .vbk* or browse Restic FUSE → copy file |

## 4 Decision Rationale

* **Duplicate paths:** Restic/Kopia gives platform‑agnostic file granularity; Btrfs send + Veeam .vbk provide block‑accurate images.
* **Encryption:** Restic/Kopia encrypt locally → privacy preserved.
* **Consistency:** All backups taken from read‑only snapshots ensuring crash‑consistent images.

Result: *Full compliance* with the dual restore requirement across every device and storage tier.