

# Proxmox Bare Metal Setup Guide with Trunk Interface and Management VLAN

## Prerequisites

### 1. Hardware Requirements:

- A server that meets Proxmox VE minimum hardware requirements.
- Two or more network interfaces (preferred, but one NIC can work with VLAN tagging).

### 2. Software Requirements:

- Download the latest Proxmox VE ISO from the [Proxmox website](#).
- Create a bootable USB using tools like Rufus or Balena Etcher.

### 3. Network Configuration Details:

- Trunk interface capable of handling multiple VLANs.
  - Management VLAN ID (e.g., VLAN 10).
  - IP address for the Proxmox management interface.
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## Step 1: Install Proxmox VE

### 1. Boot from Proxmox ISO:

- Insert the bootable USB into the server and boot into the Proxmox installer.
- Follow the on-screen instructions to install Proxmox VE on the desired disk.

### 2. Configure the Basics:

- Set a hostname for your Proxmox server (e.g., `proxmox.example.com`).
- Configure the initial network settings. For now, use a static IP for the management VLAN or assign one temporarily.

### 3. Reboot:

- Once the installation is complete, reboot the server. Access the Proxmox web GUI using the IP address configured earlier.
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# Step 2: Configure Networking for VLANs

## 1. Login to Proxmox Shell:

- Access the shell directly or via SSH after initial setup.

## 2. Edit the Network Configuration File:

- Open the network configuration file:

```
nano /etc/network/interfaces
```

- Configure the physical network interface as a trunk port and add the management VLAN interface. Replace `enp0s31f6` with your actual network interface name (check with `ip link`).

Example configuration:

```
auto lo
iface lo inet loopback

auto enp0s31f6
iface enp0s31f6 inet manual

auto vmbr0
iface vmbr0 inet static
    address 192.168.10.2/24
    gateway 192.168.10.1
    bridge-ports enp0s31f6
    bridge-stp off
    bridge-fd 0
    vlan-raw-device enp0s31f6
```

- Add the management VLAN configuration (VLAN ID 10 in this example):

```
auto vmbr0.10
iface vmbr0.10 inet static
    address 192.168.10.2/24
    vlan-raw-device vmbr0
```

## 3. Apply the Configuration:

- Restart networking:

```
systemctl restart networking
```

- Ensure the Proxmox web GUI is accessible via the management VLAN's IP.

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# Step 3: Configure Proxmox for VMs Using VLANs

## 1. Create a Bridge for Each VLAN (Optional):

- If you want VMs to communicate over specific VLANs, create additional bridges for those VLANs in the `/etc/network/interfaces` file. Example:

```
auto vmbr10
iface vmbr10 inet manual
    bridge-ports enp0s31f6.10
    bridge-stp off
    bridge-fd 0
```

## 2. Assign VLANs in VM Settings:

- When creating or editing a VM, go to the **Network** section and:
  - Select the appropriate bridge (e.g., `vmbr10` for VLAN 10).
  - Configure the VLAN tag directly in the VM's network interface settings if using a trunk bridge (e.g., `vmbr0`).

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# Step 4: Verify Configuration

## 1. Test Connectivity:

- Verify that Proxmox is reachable via the management VLAN.
- Ping from a device on the same VLAN to confirm connectivity.

## 2. Test VLAN Trunking:

- Deploy a test VM and assign it to a specific VLAN. Ensure the VM gets an IP address from the correct VLAN and can communicate with other devices.

## 3. Validate Trunking:

- Use `tcpdump` or similar tools to verify tagged packets on the trunk interface:

```
tcpdump -i enp0s31f6 vlan
```

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# Final Notes

- **Firewall:** Ensure your Proxmox firewall rules allow access to the web GUI and SSH on the management VLAN.
- **VLAN-Specific Switch Configuration:** On your network switch, configure the server's switch port as a trunk and allow the necessary VLANs.
- **Backup:** Always back up the `interfaces` file before making changes.

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