

# Multipath Configuration for Oracle ZS9 with OLVM 4.5 and Oracle Linux 8.10

Version [1.0]

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## Purpose statement

This document outlines the recommended multipath configuration for Oracle ZFS Storage Appliance ZS9, deployed with Oracle Linux Virtualization Manager (OLVM) 4.5, on Oracle Linux Server 8.10 (Kernel release: 5.4.17-2136.335.4.el8uek.x86\_64). The configuration ensures optimal path management, failover handling, and performance for enterprise environments using Oracle ZFS Storage.

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## Introduction

This solution paper provides the recommended configuration of multipath.conf file for Oracle ZS9 storage with Oracle Linux Virtualization Manager (OLVM) 4.5, running on Oracle Linux 8.10. Multipath I/O is critical in enterprise environments to ensure high availability, performance, and fault tolerance in storage operations.

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## Multipath Configuration

Listed below is the multipath configuration file recommended for Oracle Linux Virtualization Manager (OLVM) 4.5, on Oracle Linux Server 8.10 (Kernel release: 5.4.17-2136.335.4.el8uek.x86\_64).

```
defaults {
    user_friendly_names no
    polling_interval 5
}

devices {
    device {
        vendor "SUN"
        product "(Sun Storage|ZFS Storage|COMSTAR)"
        failback "immediate"
        path_checker tur
        path_grouping_policy group_by_prio
        prio alua
        no_path_retry 30
        rr_weight priorities
    }
}

blacklist {
    protocol "(scsi:adt|scsi:sbp)"
    devnode "^(rbd)[0-9]*"
}
```

## Explanations and Recommendations

### Defaults

The defaults section of the multipath.conf file contains global settings that apply to all multipath devices, unless overridden by device-specific sections. Below are the recommended values for the defaults section in the multipath.conf file for Oracle ZS9 storage with Oracle Linux Virtualization Manager (OLVM) 4.5, running on Oracle Linux 8.10:

#### **user\_friendly\_names no**

Disables simplified device names (e.g., mpath0). Instead, the actual WWIDs (World Wide Identifiers) are used for precise identification of devices, important for managing storage in virtualized environments like OLVM.

#### **polling\_interval 5**

Sets the path check interval to 5 seconds, ensuring timely detection of path failures without overwhelming system resources.

## Devices

The devices section of the multipath.conf file in Oracle Linux defines device-specific configurations. These settings allow for fine-tuning of the behavior for specific storage devices or types, overriding global defaults when necessary.

Each device section identifies a particular storage model or vendor and customizes multipath handling for that device.

Below are the recommended values for the devices section in the multipath.conf file for Oracle ZS9 storage with Oracle Linux Virtualization Manager (OLVM) 4.5, running on Oracle Linux 8.10:

**vendor "SUN" and product "(Sun Storage|ZFS Storage|COMSTAR)"**

These match the Oracle ZFS Storage devices and apply specific multipath rules to them.

**failback "immediate"**

This ensures that once a preferred path is restored, the system immediately switches back to it, optimizing performance and reducing latency.

**path\_checker tur**

Uses the 'Test Unit Ready' (TUR) SCSI command to check the health of paths. This is lightweight and recommended for Oracle ZFS Storage arrays.

**path\_grouping\_policy group\_by\_prio**

Groups paths based on priority, allowing the most efficient paths to be used first, which enhances load balancing and failover handling.

**prio alua**

Uses Asymmetric Logical Unit Access (ALUA), which assigns priorities to paths dynamically, ensuring that the most optimal paths are used.

**no\_path\_retry 30**

Specifies that the system should retry a failed path 30 times before marking it as down, ensuring resilience to temporary issues.

**rr\_weight priorities**

In a round-robin configuration, paths are weighted based on their priority. This optimizes the load balancing by favoring high-priority paths.

## Blacklist

The blacklist section of the multipath.conf file in Oracle Linux specifies devices that should be excluded from multipath management. This is useful when there are devices that you do not want to be handled by the multipath service, such as internal disks, certain RAID controllers, or other storage devices not intended for multipath. Listed below are some examples.

**protocol "(scsi:adt|scsi:sbp)"**

Blacklists certain protocols that are not relevant to Oracle ZS9, preventing unnecessary management of unsupported devices.

**devnode "^(\rbd)[0-9]\*"**

Blacklists RADOS block devices (typically used in Ceph), ensuring that these devices are not managed by multipath in this configuration.

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