

# FM-KED-001 — VM Disk Space Exhaustion

**Severity:** S2 — High

**Recovery Class:** A — Quick Fix

**Covered by Monthly Support:** Yes

---

## Description

Disk space on a virtual machine reaches critical levels, leading to degraded system behavior, application instability, or failed background operations.

This issue is operational, recurrent, and typically caused by uncontrolled growth of logs, containers, temporary files, or Kubernetes artifacts.

---

## Typical Symptoms

- Services failing to write logs or temporary files
  - Background jobs failing without explicit errors
  - Kubernetes pods entering `Evicted` or `Terminating` state
  - System warnings related to low disk space
- 

## Diagnostic Checklist

### Identify Top Disk Consumers

```
sudo du -ahx / | sort -rh | head -n 20
```

---

## Recovery Procedure

Follow the steps below **as needed**, not necessarily all of them.

---

### 1. Clean Package Manager Artifacts

```
sudo apt-get autoremove
sudo du -sh /var/cache/apt
sudo apt-get autoclean
sudo apt-get clean
```

---

## 2. Clean System Journals

```
sudo journalctl --vacuum-time=3d
```

---

## 3. Truncate Docker Logs

```
sudo truncate -s 0 /var/lib/docker/containers/**/*-json.log
```

---

## 4. Prune Docker Resources

```
sudo docker system prune
```

---

## 5. Remove Obsolete Kubernetes ReplicaSets

```
kubectl get rs -A -o wide | tail -n +2 | \
awk '{if ($3 + $4 + $5 == 0) print "kubectl delete rs -n \"$1, $2 }' | sh
```

---

## 6. Clear Evicted Kubernetes Pods

```
kubectl get pods | grep Evicted | awk '{print $1}' | xargs kubectl delete pod
```

With explicit kubeconfig:

```
kubectl --kubeconfig bank.yaml get pods | grep Evicted | \
awk '{print $1}' | xargs kubectl --kubeconfig bank.yaml delete pod
```

---

## 7. Force Remove Stuck Terminating Pods

```
for p in $(kubectl --kubeconfig bank.yaml get pods | grep Terminating | awk '{print $1}');
do
    kubectl --kubeconfig bank.yaml delete pod $p --grace-period=0 --force
done
```

---

# Optional Diagnostics

## Inspect Memory Usage (for runaway processes)

```
ps -eo size,pid,user,command --sort -size | \  
awk '{ hr=$1/1024 ; printf("%13.2f Mb ",hr) } \  
{ for ( x=4 ; x<=NF ; x++ ) { printf("%s ",$x) } print "" }'
```

---

## Preventive Notes

- Disk usage monitoring is strongly recommended
- Log rotation must be verified after updates
- Kubernetes cleanup should be part of routine maintenance

---

Revision #1

Created 2026-01-07 14:20:58 UTC by Sergei Zhitenev

Updated 2026-01-07 14:24:22 UTC by Sergei Zhitenev