# Maintenance Guide

## 1. Overview

This document describes how to monitor and maintain the deployed in **Kubernetes** and managed via **Rancher**, with observability powered by **Prometheus** and **Grafana**.

## 2. Accessing the Tools

### 2.1 Rancher Dashboard

* **URL**: <RANCHER\_URL>
* **Login Method**: <SSO / Username-Password / Other>
* **Cluster Name**: <CLUSTER\_NAME>
* **Namespace(s)**: <NAMESPACE\_LIST>

**Screenshot:**

<PLACEHOLDER: Rancher cluster overview screenshot>

### 2.2 Prometheus

* **URL**: <PROMETHEUS\_URL>
* **Purpose**: Raw metrics collection and querying.
* **Login Method**: <AUTH\_METHOD>

**Screenshot:**

<PLACEHOLDER: Prometheus UI showing a sample query>

### 2.3 Grafana

* **URL**: <GRAFANA\_URL>
* **Purpose**: Visual dashboards & alerts.
* **Login Method**: <AUTH\_METHOD>

**Screenshot:**

<PLACEHOLDER: Grafana dashboard example>

## 3. Monitoring Workloads

### 3.1 Viewing Pods & Services in Rancher

1. Log into Rancher.
2. Select the <CLUSTER\_NAME>.
3. Navigate to the target namespace.
4. View **Pods** → Status should be Running.
5. View **Services** → Ensure endpoints are active.

**Screenshot:**

<PLACEHOLDER: Rancher namespace pod list>

### 3.2 Checking Metrics in Prometheus

1. Go to Prometheus UI.
2. Use the query bar to search metrics.  
   Example:
3. up{namespace="<NAMESPACE>"}
4. http\_requests\_total{app="<APP\_NAME>"}
5. Check last scrape time and data freshness.

**Screenshot:**

<PLACEHOLDER: Prometheus metrics query example>

### 3.3 Viewing Dashboards in Grafana

1. Go to Grafana and log in.
2. Open the <DASHBOARD\_NAME> dashboard.
3. Review:
   * CPU / Memory usage per pod
   * Request latency
   * Error rates
4. Use time range filters to troubleshoot specific issues.

**Screenshot:**

<PLACEHOLDER: Grafana dashboard with key panels highlighted>

## 4. Alerting & Notifications

### 4.1 Existing Alerts

* Alerts are configured in <PROMETHEUS / GRAFANA / ALERTMANAGER>.
* List of critical alerts:

| **Alert Name** | **Description** | **Severity** | **Action Required** |
| --- | --- | --- | --- |
| <ALERT\_NAME> | <ALERT\_DESCRIPTION> | High | <ACTION> |
| <ALERT\_NAME> | <ALERT\_DESCRIPTION> | Medium | <ACTION> |

### 4.2 Notification Channels

* **Email**: <EMAIL\_GROUP>
* **Slack / Teams**: <CHANNEL\_NAME>
* **PagerDuty / OpsGenie**: <INTEGRATION\_NAME>

**Screenshot:**

<PLACEHOLDER: Screenshot of alert settings>

## 5. Common Maintenance Tasks

### 5.1 Scaling a Deployment

1. Go to Rancher → Namespace → Workloads.
2. Select deployment <DEPLOYMENT\_NAME>.
3. Click **Edit/Scale** → Set replicas to <NEW\_COUNT>.
4. Save changes.

**Screenshot:**

<PLACEHOLDER: Rancher scale deployment dialog>

### 5.2 Restarting a Pod

1. Go to Rancher → Namespace → Pods.
2. Delete the target pod.
3. Kubernetes will recreate it automatically.

**Screenshot:**

<PLACEHOLDER: Rancher pod restart example>

### 5.3 Updating ConfigMaps / Secrets

1. Go to Rancher → Namespace → ConfigMaps / Secrets.
2. Edit and apply changes.
3. Restart affected deployments if required.

## 6. Troubleshooting Tips

| **Issue** | **Possible Cause** | **Steps to Resolve** |
| --- | --- | --- |
| Pod stuck in CrashLoopBackOff | App config issue, missing env vars | Check logs (kubectl logs), verify configs |
| High CPU Usage | Heavy load, memory leak | Check Grafana, scale pods, optimize code |
| Alerts keep firing | Threshold too low, real infra issue | Adjust alert thresholds, check cluster health |