

What is SUSE Rancher Prime?

- **SUSE Rancher Prime** is a Kubernetes management platform to deploy and run clusters anywhere and on any provider. SUSE Rancher Prime provides the ability to provision Kubernetes from a hosted provider, provision compute nodes and then install Kubernetes onto them, or import existing Kubernetes clusters running anywhere.
- **SUSE Rancher Prime** adds significant value on top of Kubernetes, first by centralizing authentication and role-based access control (RBAC) for all of the clusters, giving global admins the ability to control cluster access from one location.
- It then enables detailed monitoring and alerting for clusters and their resources, ships logs to external providers, and integrates directly with Helm via the Application Catalog. If you have an external CI/CD system, you can plug it into **SUSE Rancher Prime**, but if you don't, **SUSE Rancher Prime** even includes Fleet to help you automatically deploy and upgrade workloads.
- **SUSE Rancher Prime** is a *complete* container management platform for Kubernetes, giving you the tools to successfully run Kubernetes anywhere.
 - https://www.suse.com/products/rancher/



SUSE Rancher Kubernetes Engine (RKE2)

• SUSE Rancher Kubernetes Engine (RKE2) is a CNCF-certified Kubernetes distribution that runs entirely within Docker containers. It works on bare-metal and virtualized servers. RKE2 solves the problem of installation complexity, a common issue in the Kubernetes community. With RKE2, the installation and operation of Kubernetes is both simplified and easily automated, and it's entirely independent of the operating system and platform you're running. As long as you can run a supported version of Docker, you can deploy and run Kubernetes with RKE2.

https://documentation.suse.com/cloudnative/rke2/



What Does Radware Kubernetes WAAP Do?

- Radware Kubernetes Web Application and API Protection (KWAAP) is a comprehensive and highly scalable
 Web application security solution for CI/CD environments orchestrated by Kubernetes. In addition to
 market leading data and application protection, Radware Kubernetes WAAP is designed to natively fit these
 environments, meeting the required levels of automation, flexibility and elasticity.
- The solution easily integrates with common software provisioning, testing and visibility tools in the CI/CD pipeline offering both IT security and DevOps personnel detailed insight down to the pod and container levels, and enables organizations to implement effective application and data security in on-premise and cloud-based implementations.
 - OWASP Top 10 API Coverage
 - OWASP Top 10 Web Application Protection
 - DLP
 - Behavioral Based Application security
 - Response based tracking features
 - File based protection
 - Rate-limiting features



High-level Environment Setup

- Deploy a 3 Node Cluster on rke2 managed by Rancher server
- Integrate Private Image Registry into Rancher Server
- Deploy Radware KWAAP Advanced Application security protection Control Plane within RKE in namespace KWAAP
- Deploy Vulnerable applications in their own namespace unprotected with RKE managed by rancher server
- Patch the vulnerable apps with KWAAP enforce to protect the apps
- Configure an application security policy for the apps
- Deploying the following apps in rancher:
 - Neuvector (Security Compliance)
 - CIS Benchmark (Security Compliance)
 - Grafana (Monitoring)



SUSE Rancher Prime Server and RKE2 Deployment

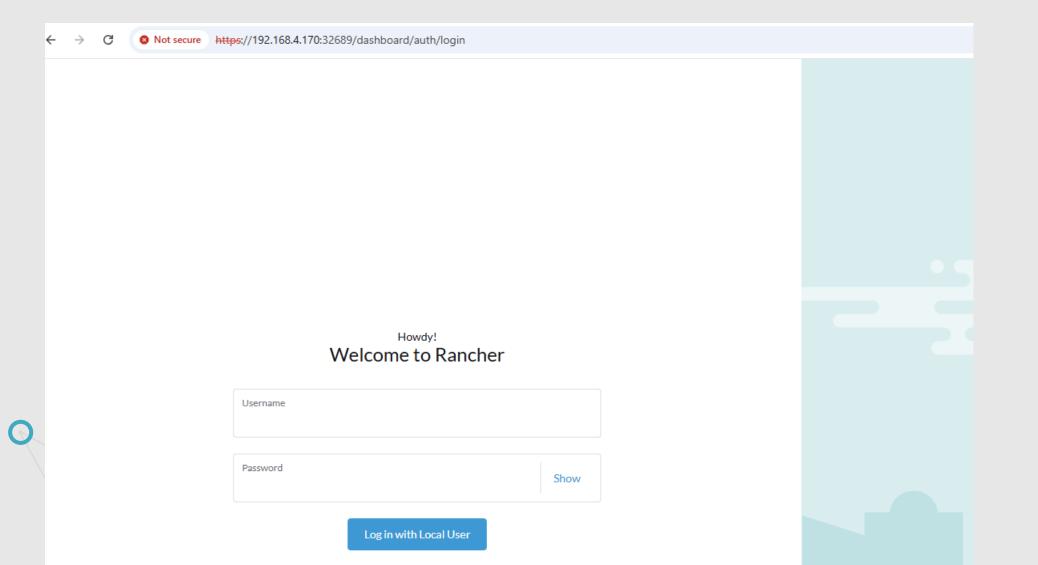
RKE2 Deployment

```
root@suse04170:~# kubectl get node
NAME STATUS ROLES AGE VERSION
Suse04170.intrusis.io Ready control-plane,etcd,master 8h v1.31.5+rke2r1
Suse04171.intrusis.io Ready <none> 8h v1.31.5+rke2r1
Suse04172.intrusis.io Ready <none> 8h v1.31.5+rke2r1
root@suse04170:~# []
```

SUSE Rancher Prime Server management

```
root@suse04170:~# kubectl get node
                                  ROLES
                                                                      VERSION
                         STATUS
                                  control-plane, etcd, master
suse04170.intrusis.io
                                                                      v1.31.5+rke2r1
suse04171.intrusis.io
                         Ready
                                  <none>
                                                                      v1.31.5+rke2r1
suse04172.intrusis.io
                                                                      v1.31.5+rke2r1
                         Ready
                                  <none>
root@suse04170:~# kubectl get svc -n cattle-system
                                                              PORT(S)
                                                                                             AGE
7h8m
                                                EXTERNAL-IP
                                                               80:31489/TCP,443:32689/TCP
                                                <none>
rancher-webh<u>ook</u>
                                                                                             7h5m
                  ClusterIP
                               10.43.254.57
                                                               443/TCP
                                                <none>
root@suse04170:~# □
```

SUSE Rancher Prime Server and RKE2 Deployment



SUSE Rancher Prime Server and RKE2 Deployment

AGE

8h

8h

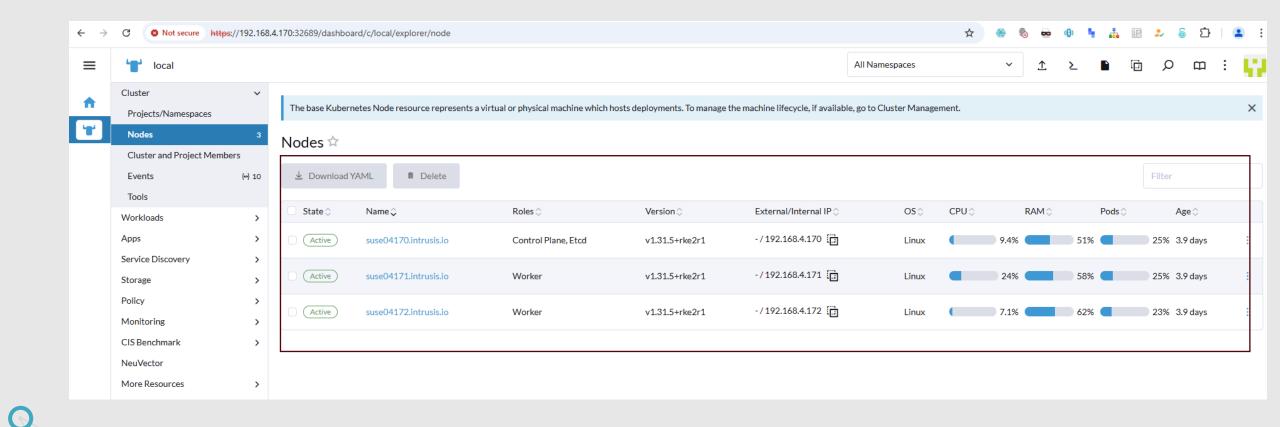
8h

VERSION

v1.31.5+rke2r1

v1.31.5+rke2r1

v1.31.5+rke2r1



INTERNAL-IP

192.168.4.170

192.168.4.171

192.168.4.172

EXTERNAL-IP

<none>

<none>

<none>

OS-IMAGE

Ubuntu 24.04 LTS

Ubuntu 24.04 LTS

Ubuntu 24.04 LTS



suse04170.intrusis.io

suse04171.intrusis.io

suse04172.intrusis.io

oot@suse04170:~# kubectl get node -o wide

STATUS

Ready

Ready

ROLES

<none>

control-plane, etcd, master

CONTAINER-RUNTIME

containerd://1.7.23-k3s2

containerd://1.7.23-k3s2

containerd://1.7.23-k3s2

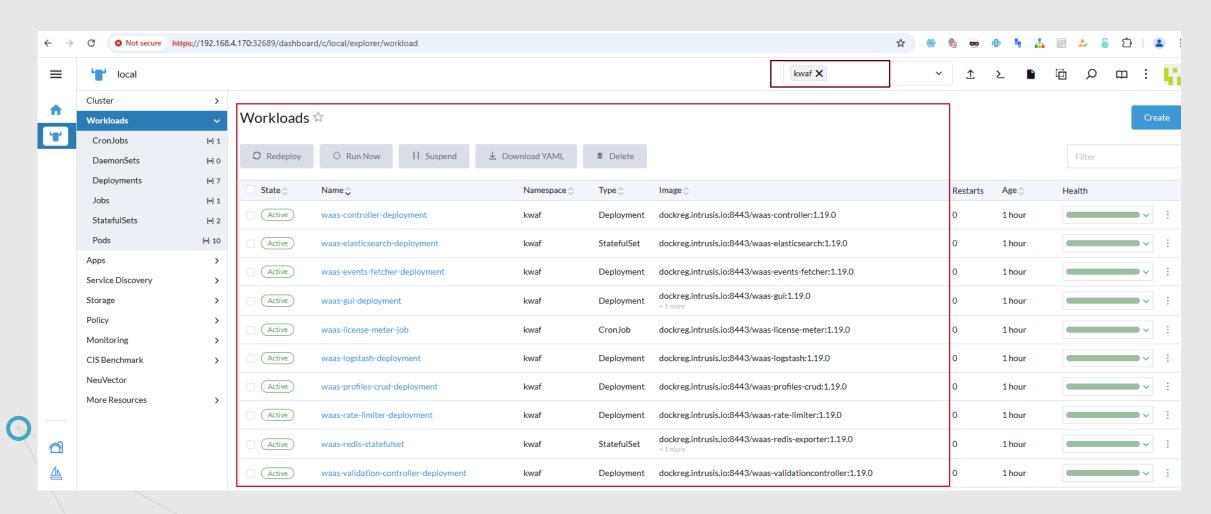
KERNEL-VERSION

6.8.0-31-generic

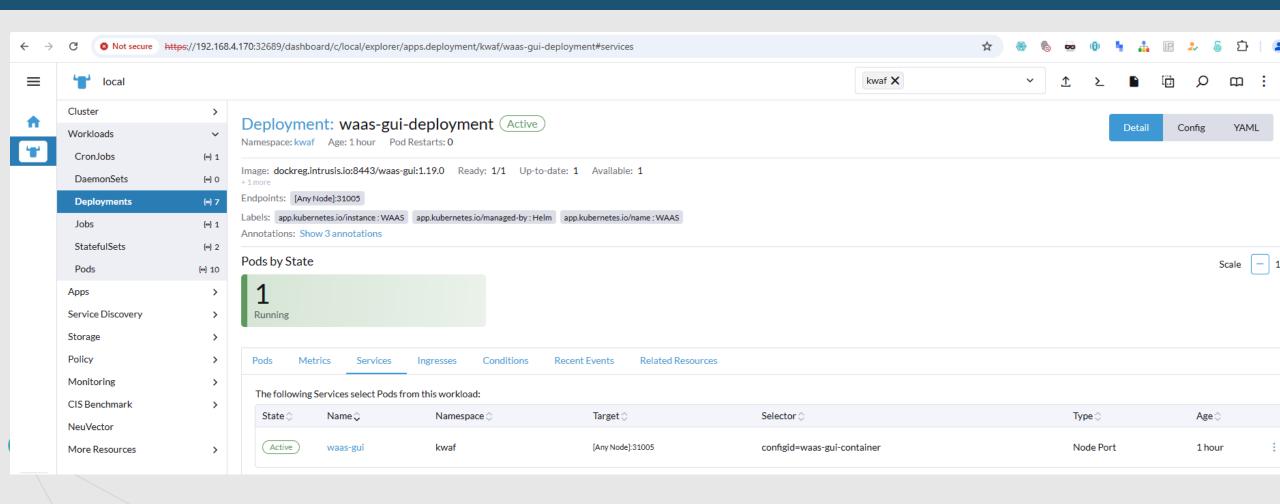
6.8.0-31-generic

6.8.0-31-generic

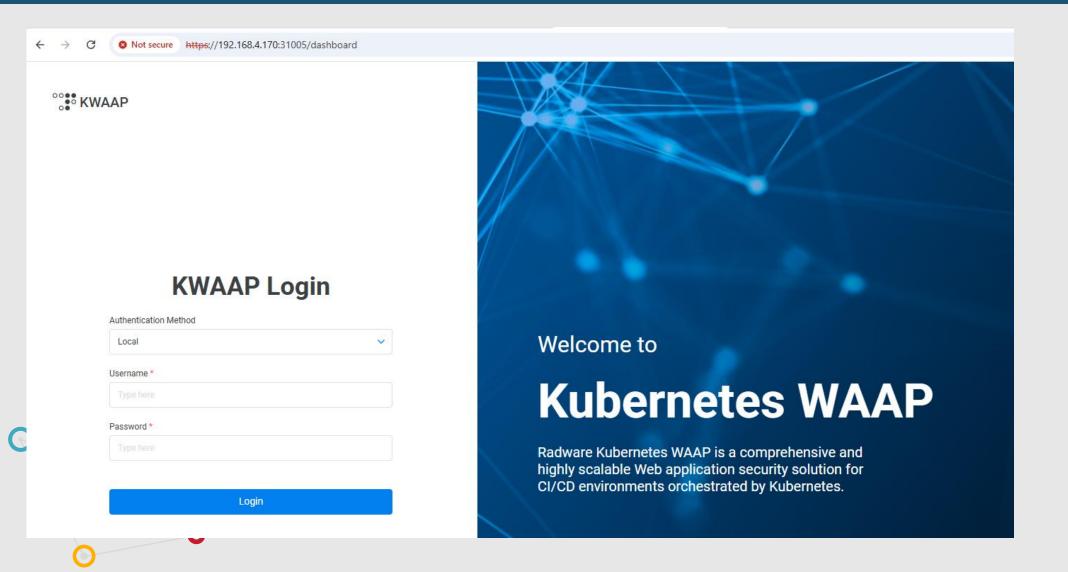
Radware KWAAP Deployment Control Plane



Radware KWAAP Management UI

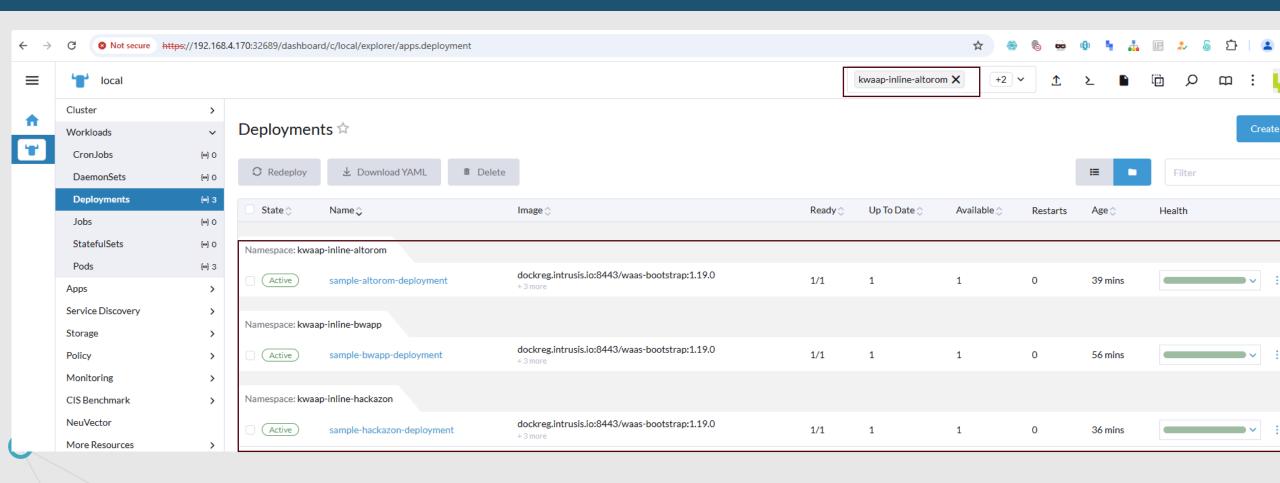


Radware KWAAP Management UI

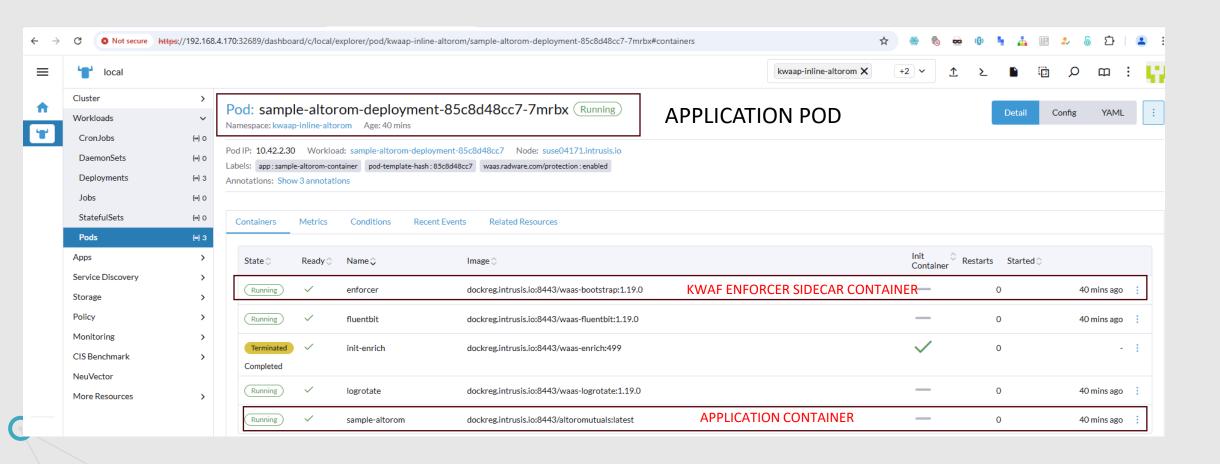


Runtime Vulnerable Apps Deployment in RKE2

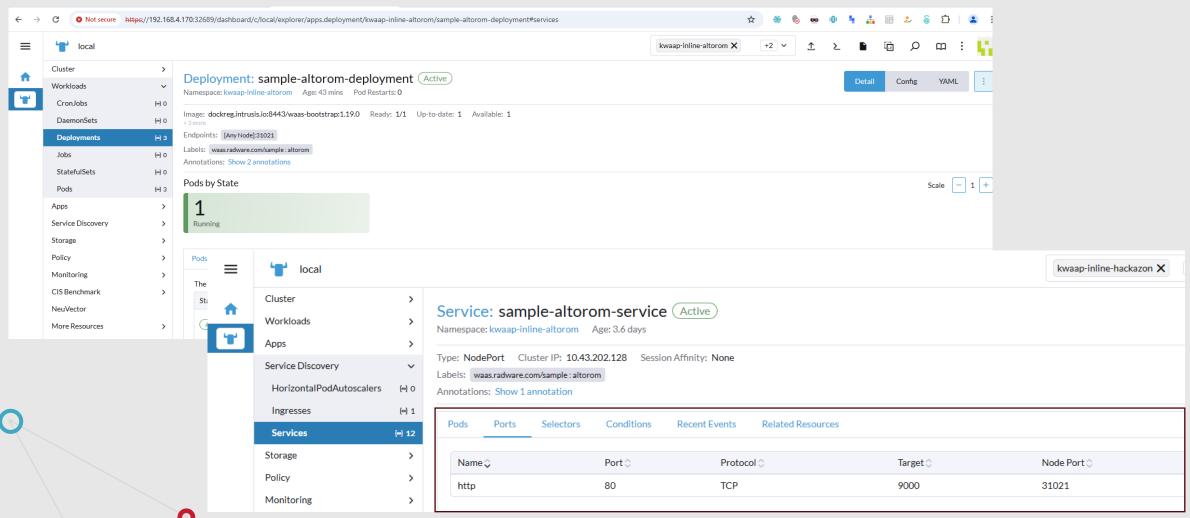
0



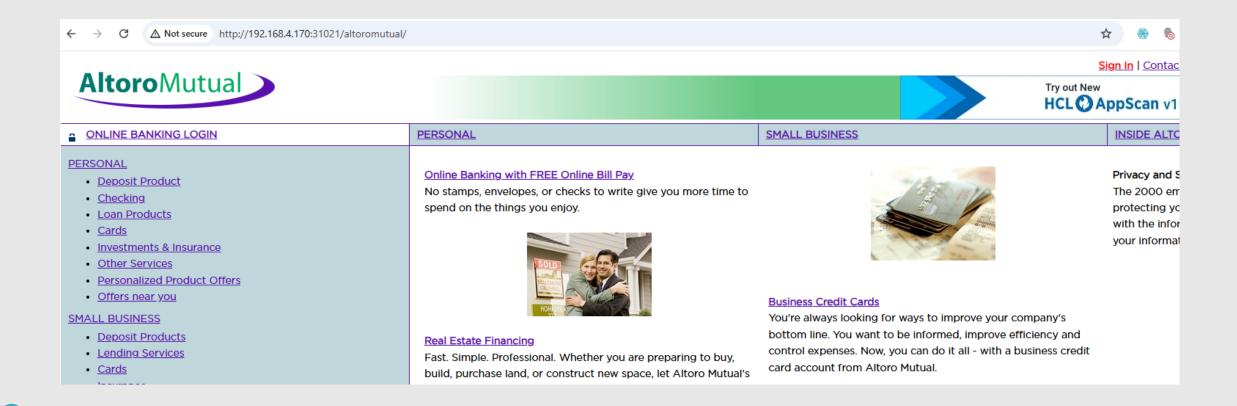
Application with KWAAP Enforcer as Sidecar Container



Accessing Application through RKE2 using NodePort



Accessing Application through RKE2 using NodePort

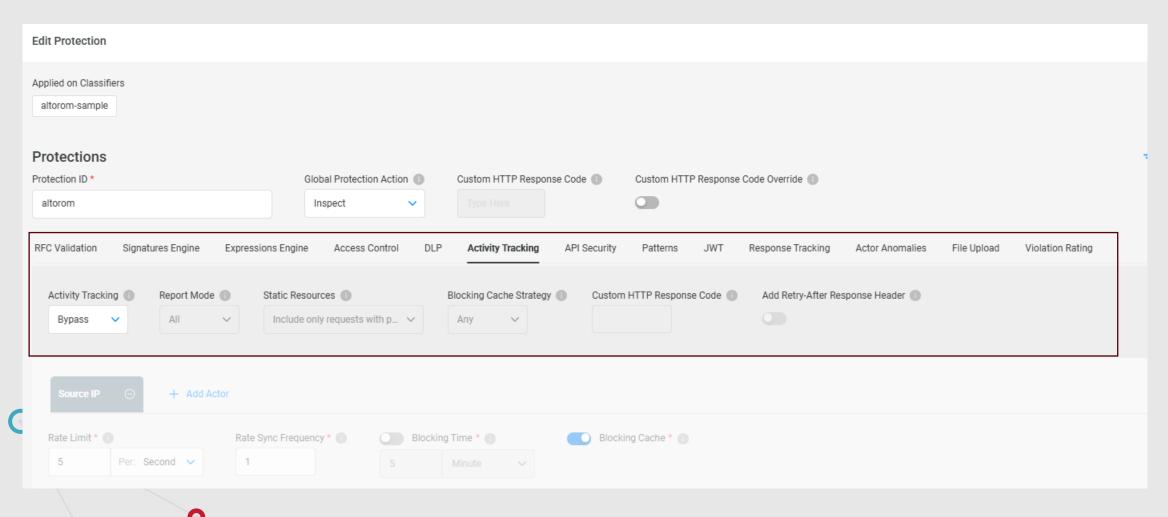


Radware KWAAP Security Policy Configuration





Radware KWAAP Protection Modules

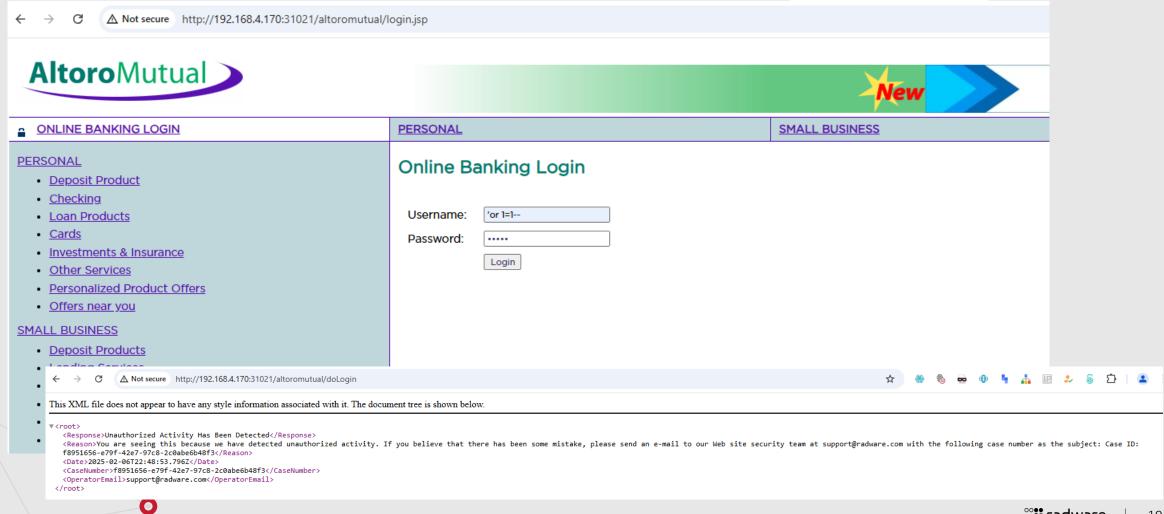


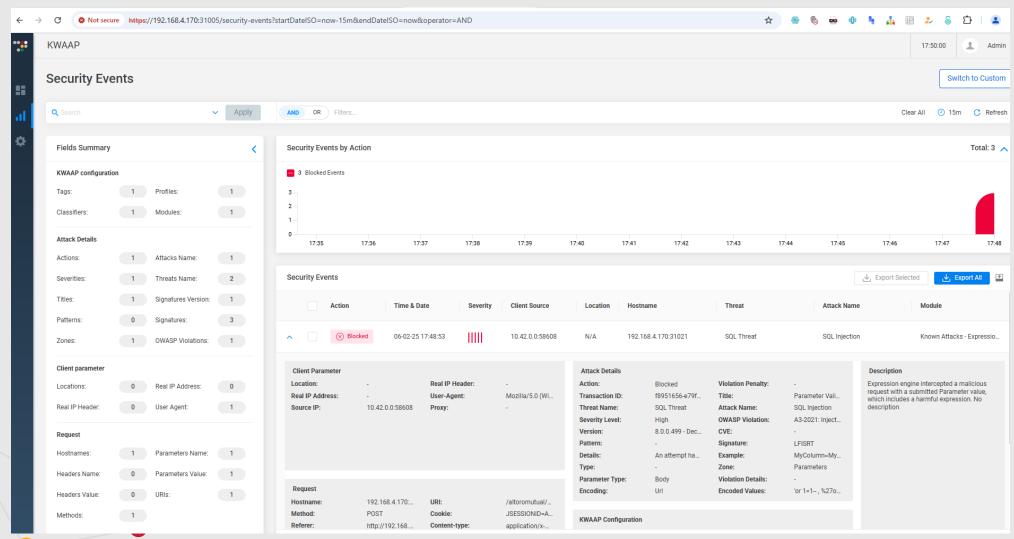
Radware KWAAP Protection Modules

- RFC Validation
- Signature Engine
- Expression Engine
- Access Control
- DLP
- Activity Tracking
- API Security
- Patterns
- JWT
- Response Tracking
- Actor Anomalies
- File Upload Violation Rating

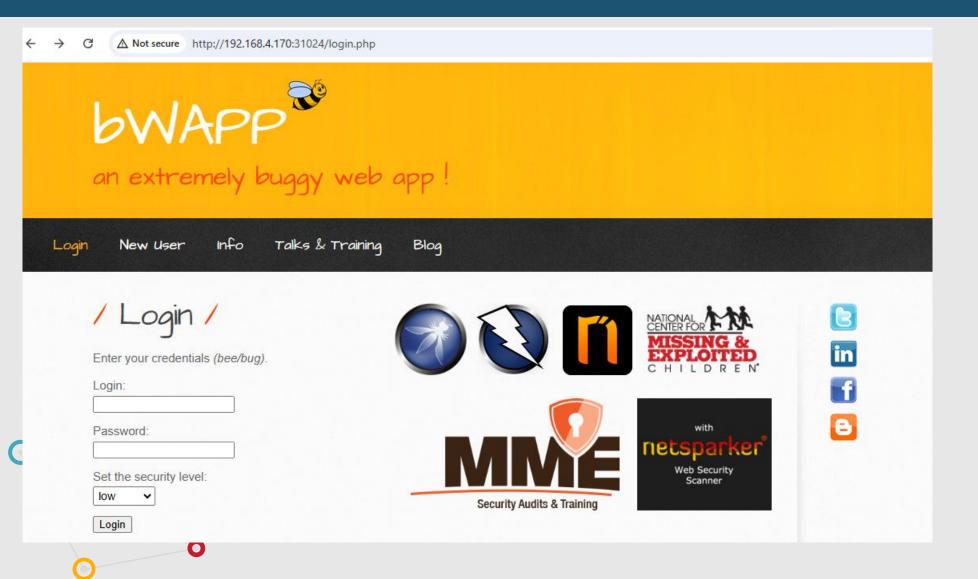


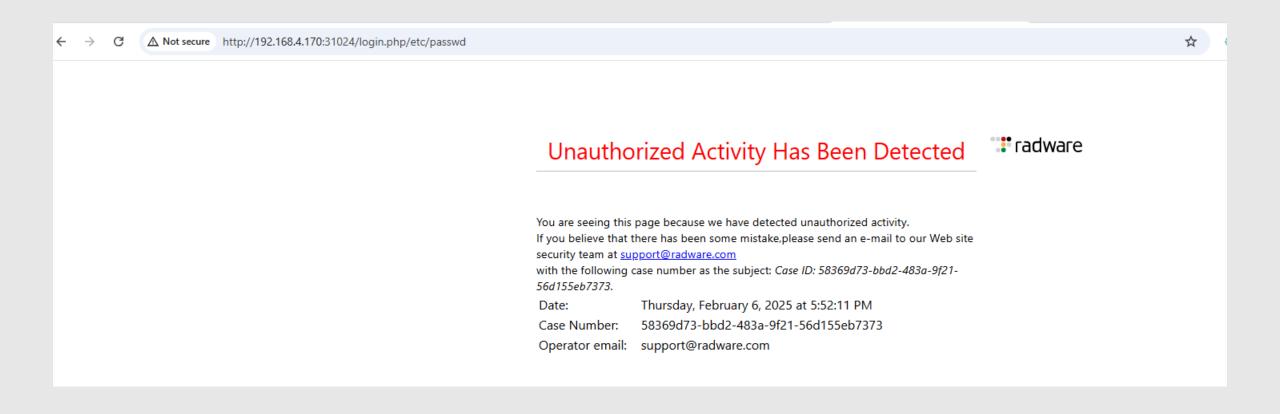
SQL Injection Simple Test



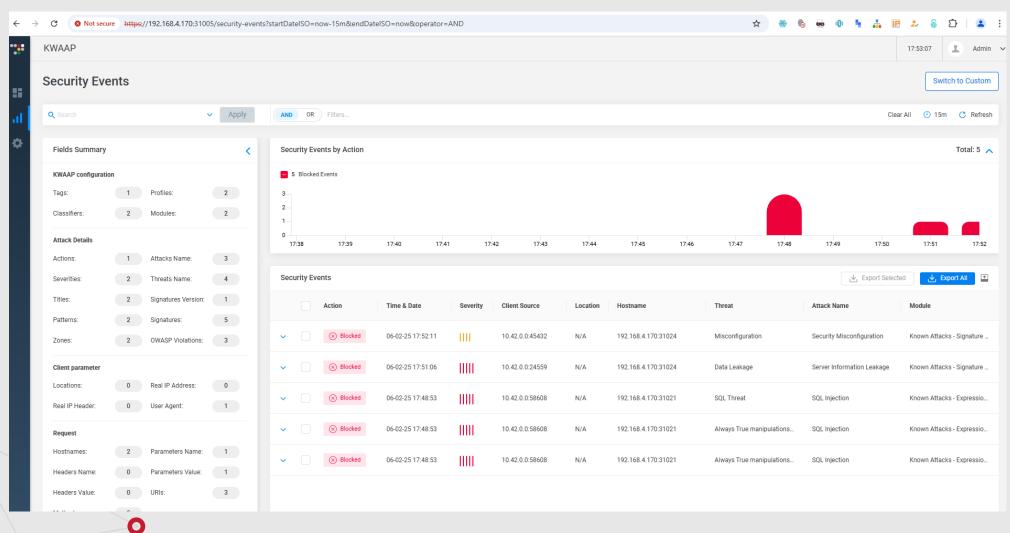


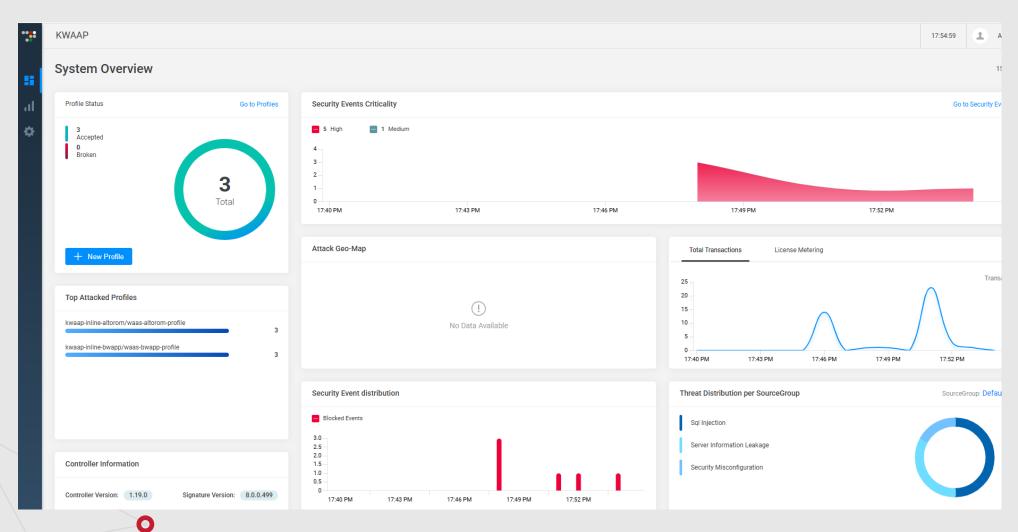
Simple WAAP Test



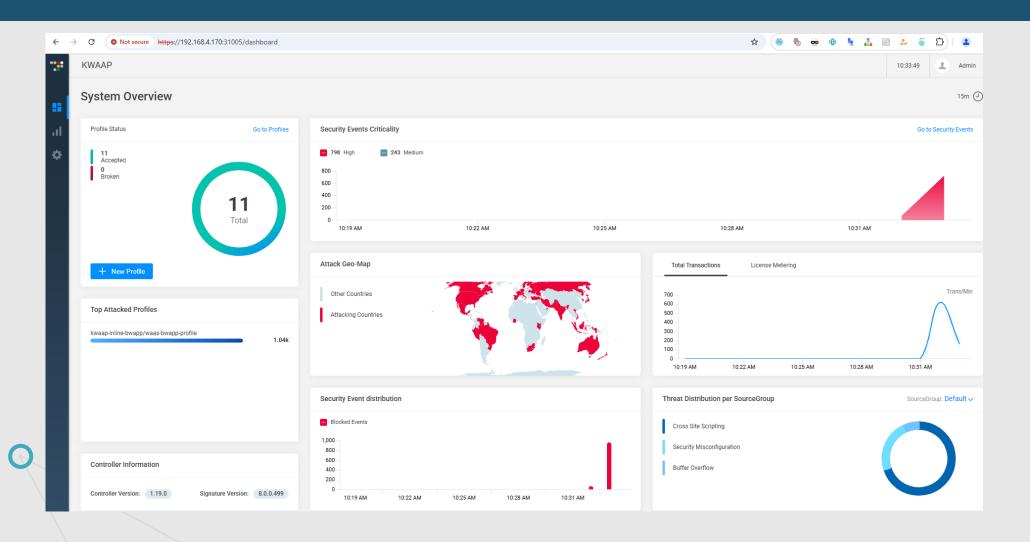




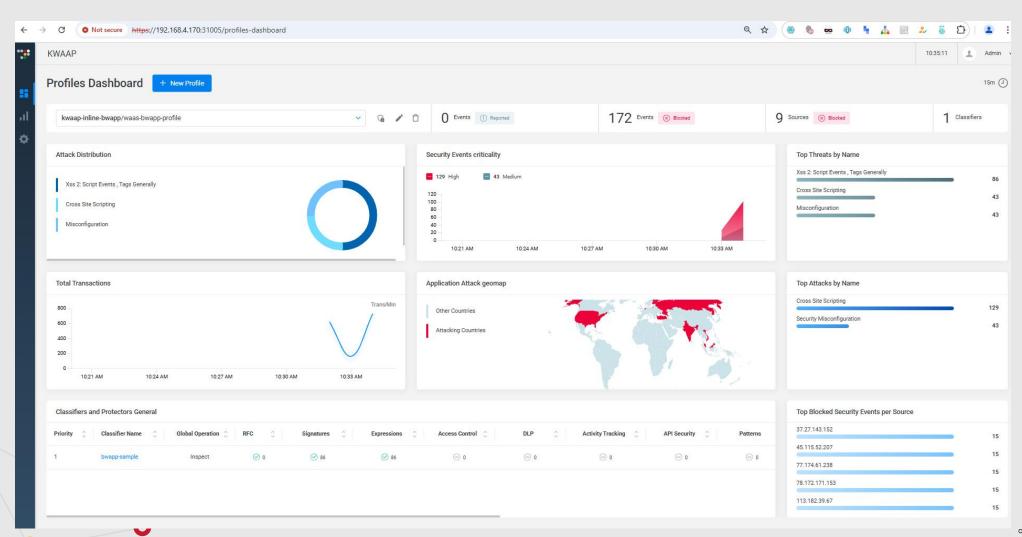




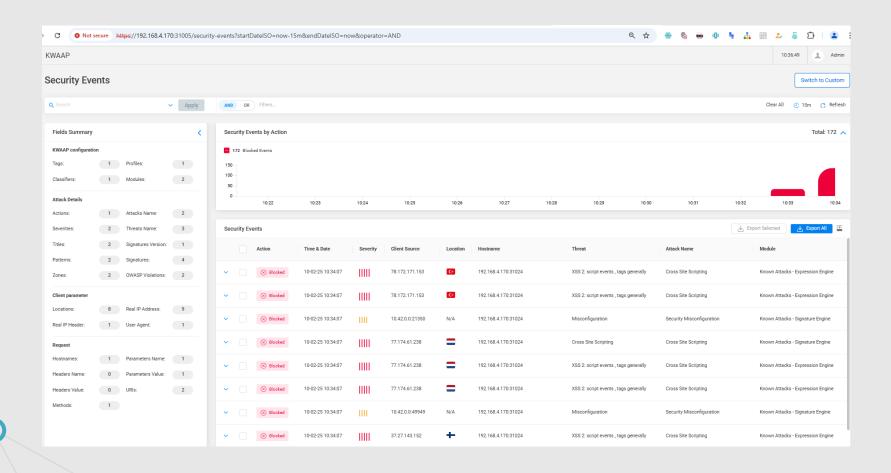
KWAAP Security Dashboard



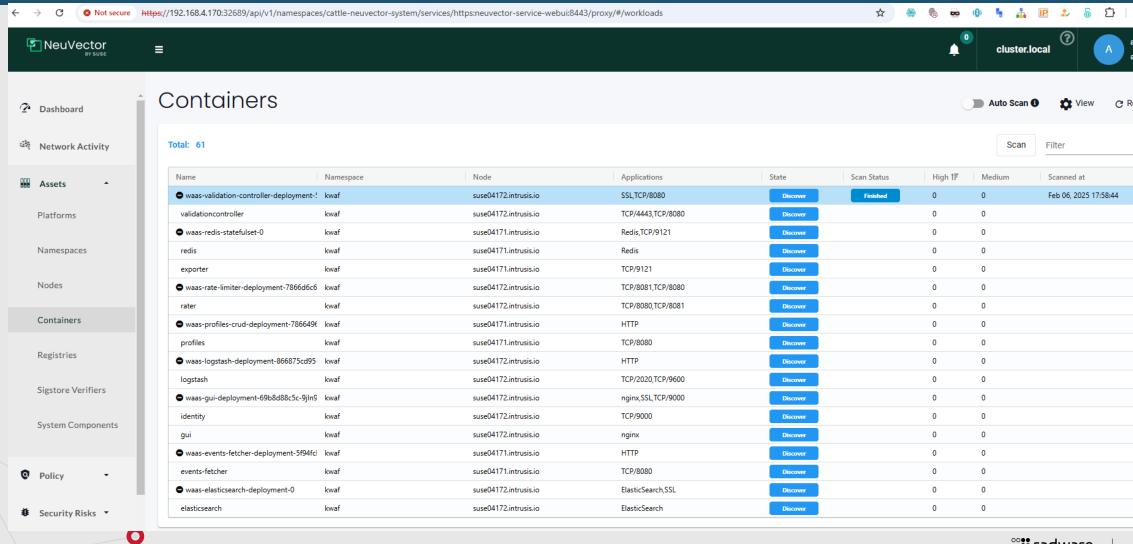
KWAAP Security Dashboard



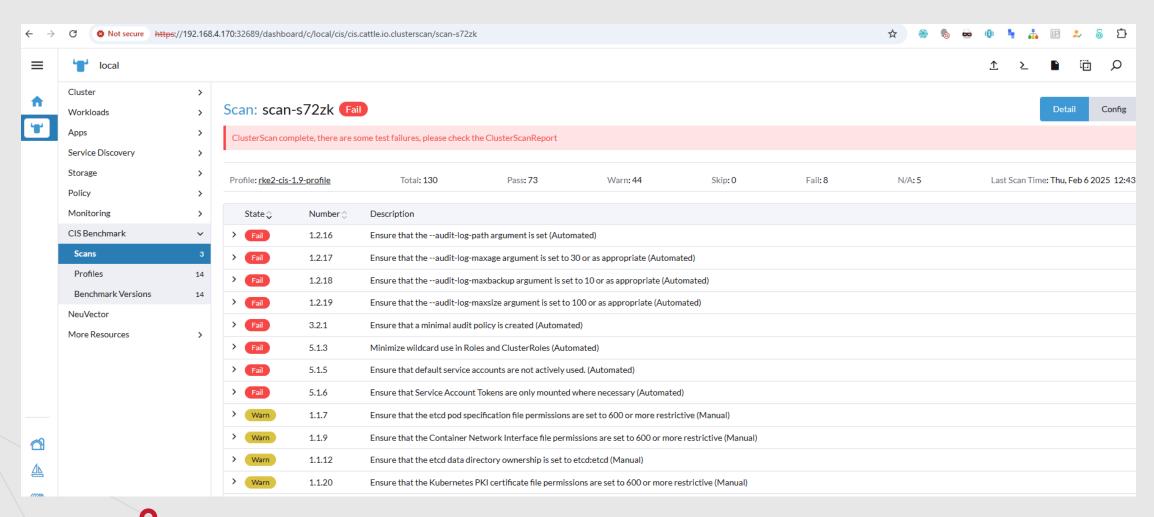
KWAAP Security Event Analysis



Radware KWAAP infrastructure Monitoring in NeuVector



CIS Benchmark Monitoring



Grafana Monitoring

Radware has a number of Grafana Dashboards that can be imported into Rancher

