

# CheatSheet: Kubernetes Security

## CLOUD

- PDF Link: [cheatsheet-k8s-security-A4.pdf](#), Category: Cloud
- Blog URL: <https://cheatsheet.dennyzhang.com/cheatsheet-k8s-security-A4>
- Related posts: [Kubectl CheatSheet](#), [Kubernetes Yaml Templates](#), [#denny-cheatsheets](#)

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## 1.1 Summary

Name	Summary
Kubernetes RBAC	Kubernetes API Security
Pod Security Policy	enable fine-grained authorization of pod creation and updates.
Pod security context	
Admission Controls	Intercepts requests to the Kubernetes API server prior to persistence of the object
Network security policy	a specification of how groups of pods are allowed to communicate with each other.
Linux capabilities	Allow you to break apart the power of root into smaller groups of privileges
SELinux	
Kubelet authentication/authorization	
AppArmor	a Linux kernel security module: reduce application attack surface
Sandboxed Pods & gVisor	

## 1.2 Regulations

Name	Summary
GDPR	EU General Data Protection Regulation
PCI DSS	Payment Card Industry Data Security Standard

## 1.3 Basic Concepts

Name	Summary
IdM	Identity Management
AuthN vs AuthZ	Authentication vs Authorization
OAuth vs OpenID	OAuth: Open Authorization; OpenID: an authentication mechanism
OAuth vs OAuth2	
SAML	
Malware	short for "malicious software"
virus	Infects other programs, carrying out malicious missions
worm	It doesn't need to infect another program. It performs and replicates by itself automatically
trojan horse	A program that contains malware like a virus or worm
ransomware	A link of attachment executes a malware to encrypt your system and demand a ransom
vishing	A common type of social engineering that is done over the phone
phishing	A common type of social engineering that fools you to respond to a malicious email
Data classifications levels	Restricted, Private/Protected, Confidential, Public
PII	Personally identifiable information

## 1.4 Security - PodSecurityPolicy

- A PodSecurityPolicy is a cluster-level resource that controls security sensitive aspects of the pod specification.

Yaml	Summary
<a href="#">podsecurity/securitycontext-user.yaml</a>	Configure userid, at both pod and container levels
<a href="#">podsecurity/podsecurity-privileged.yaml</a>	Create pod security with privileged access
<a href="#">podsecurity/podsecurity-restricted.yaml</a>	Create pod security with restricted access, then apply it later
<a href="#">podsecurity/podsecurity-enforce.yaml</a>	Enforce policy security by defining role and cluster role
<a href="#">podsecurity/podsecurity-advanced.yaml</a>	A more complicated definition of pod security policy
<a href="#">podsecurity/podsecurity-example.yaml</a>	A full example with everything included
Reference	Link: <a href="#">Kubernetes Yaml Templates</a> , Link: <a href="#">kubectl cheatsheet</a>

## 1.5 Security - NetworkPolicy

Yaml	Summary
<a href="#">networksecurity/networksecurity-denyall-ingress.yaml</a>	Allow all ingress
<a href="#">networksecurity/networksecurity-allowall-ingress.yaml</a>	Deny all ingress
<a href="#">networksecurity/networksecurity-denyall.yaml</a>	Deny all ingress and egress
<a href="#">networksecurity/networksecurity-pod.yaml</a>	Whitelist traffic control
<a href="#">networksecurity/networksecurity-complicated.yaml</a>	A comprehensive network policy example
<a href="#">networksecurity/networksecurity-port.yaml</a>	Allow TCP 443 from one namespace
<a href="#">networksecurity/networksecurity-deny-othernamespaces.yaml</a>	Deny all ingress traffic from other namespaces
<a href="#">networksecurity/networksecurity-denyegress-exceptdns.yaml</a>	Deny all egress traffic except DNS
Reference	Link: Kubernetes Yaml Templates, Link: kubectl cheatsheet

## 1.6 Admission Controllers

- An admission controller is a piece of code that intercepts requests to the Kubernetes API server prior to persistence of the object

<https://raw.githubusercontent.com/dennyzhang/cheatsheet.dennyzhang.com/master/cheatsheet-k8s-security-A4/admissioncontroller.yaml>

Name	Summary
Example: admission webhook	GitHub: <a href="#">denyenv-validating-admission-webhook</a>
Example: Admission controller for guarding namespace	GitHub: <a href="#">k8s-namespace-guard</a>

## 1.7 More Resources

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