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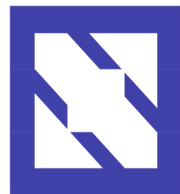
# What's new in SIG-Windows

Mark Rossetti, Microsoft

Aravindh Puthiyaparambil, Softdrive



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**Mark Rossetti**  
Software Engineer  
*Microsoft*



**Aravindh  
Puthiyaparambil**  
Director of Engineering  
Founding Cloud Architect  
*Softdrive*

# Agenda

- What's old
- What's new
- Contributor Spotlights
- Additional Resources
- Q & A



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# What's old

- CNCF and its parent Linux foundation takes a vendor neutral approach
- By extension you can run Windows Server as a Kubernetes worker node
  - Graduated stable in v1.14
- You can also use kubectl in Windows to manage a Kubernetes cluster
- No Control Plane Windows components
- Support in most cloud providers (AWS, Azure, GCE, OpenShift)

- Pre-requisites
  - Windows Server 2022+ with administrative access
  - A running Kubernetes cluster with a control plane
  - A container runtime like containerd
- Configure the node
  - Kubeadm / Cluster API
  - Windows Machine Config Operator (OpenShift)
  - CAPZ (used in CI)
- Network configuration (multiple CNI support)
  - Flannel
  - Calico
  - OVN-Kubernetes
  - Azure-CNI

- Most Kubernetes concepts work similarly with Windows
- Pods
  - Use the `.spec.os.name` field to indicate a Windows pod
  - Fields like `spec.hostPID`, `spec.hostIPC` etc should not be set
  - Only the `securityContext.runAsNonRoot` and `securityContext.windowsOptions` from the Pod `securityContext` fields work on Windows
- Linux has privileged containers, Windows has HostProcess containers
- Full support for CSI plugins, device plugins, etc
- HPA, Pod metrics, `kubectl exec` etc
- Striving for parity with Linux node features



- Identity
  - Linux uses UIDs and GIDs shared between host and container
  - Windows uses SIDs stored in SAM not shared between host and container
- File permissions
  - Linux uses bitmasks and UID+GID
  - Windows use ACLs based on SIDs
- File paths
  - \ vs /
- Signals
  - WM\_CLOSE, Control Handler, SERVICE\_CONTROL\_STOP
- DNS resolution
  - Partially qualified names (kubernetes.default or kubernetes.default.svc) are not supported

- [Windows in Kubernetes](#)
- [Adding Windows worker nodes](#)
  - One stop page for adding a Windows worker



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# What's new

# Windows Memory-Pressure Eviction

- Merged in v1.31
- On by default
- Default hard eviction threshold of **memory.available < 500Mi**
- Based on the node's global *CommitLimit*
- Node's *CommitLimit* and *CommitTotal* now exposed in */stats/summary*
- If overcommitting memory resources on Windows it is important to monitor commit memory usage!
- More info in the [eviction signals and thresholds](#) page on k8s.io.

- Alpha implementation available in v1.32!
  - WindowsCPUAndMemoryAffinity feature-gate
- Support for **Static** cpu manager policy
  - Guaranteed pods with integer CPU requests can get exclusive access to CPUs on the node
- New **BestEffort** memory manager policy
  - Behaves similarly to Static memory manager policy on Linux but with a new name.....
- More info on [cpu\\_management\\_policies](#) and [memory\\_manager](#) pages at k8s.io
- Try it out!

# Windows Graceful Node Shutdown

- Alpha implementation available in v1.32!
  - WindowsGracefulNodeShutdown feature-gate
- Trigger graceful shutdown of Pods on Windows worker shutdown
- Extending existing feature on Linux to Windows
- Node shutdown is handled agnostically
- Allows for respecting lifecycle events such as pre-stop hooks
- More info on the [node\\_shutdown](#) page on k8s.io



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# Ecosystem Updates

# Windows 2019 Server

- Mainstream support ended January 9, 2024
- Windows Server 2019 has been dropped from K8s testing matrix
- Please upgrade



- Portability for Windows Server containers
  - Run containers built on Windows Server 2022 images on Windows server 2025 as **process isolated** containers!
- Tested on K8s v1.32
- Testgrid validation coming soon!



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# Contributor Spotlight

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- Yuanliang ([@zylxjtu](#)) for delayed shutdown support on Windows nodes!
- Ritika ([@ritikaguptams](#)) for work in migrating SIG-Windows test passes to community infrastructure!



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# Additional Resources

# How To Contribute

- Visit our [SIG-Windows community page](#)
- Follow our [contributing guide](#)
- Join our [community meetings](#) (12:30pm EST every tuesday)
- File bugs or review open PRs from our project boards - [Issues](#) - [PRs](#)



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# Q & A

Please use the QR code to give us feedback

