


GolangKubernetes

GOMAXPROCS Golang GOMAXPROCS Runtime Scheduler ProcessorP P P Golang Runtime GOMAXPROCS CPU Docker cgroup CPU Kubernetes CPU Golang GOMAXPROCS Golang Runtime


 [Goroutine](#)

PCPUGolangcgroup

Golang

Golang/

- GOMAXPROCS Processor
- GOMEMLIMIT GCGo 1.19OOMOOM

 GOMEMLIMITGCGCGOGCGOGCGC 100heap size100%GCGOGC=100live heap sizeGCGOGC=200, live heap size2GC GC GOGC=offGCGOGCGC

KubernetesNode32128G

Golang

```
env:
- name: GOMEMLIMIT
  valueFrom:
    resourceFieldRef:
      resource: limits.memory
- name: GOMAXPROCS
  valueFrom:
    resourceFieldRef:
      resource: limits.cpu
```

limitsGolang

Content Menu

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```

apiVersion: v1
kind: Pod
metadata:
  name: gomaxprocs-test
spec:
  containers:
  - name: main
    image: golang:1.22
    imagePullPolicy: IfNotPresent
    args:
      - bash
      - -c
      - |
        cat <<EOF > /tmp/code.go
        package main

        import (
            "fmt"
            "os"
            "runtime"
            "runtime/debug"
        )

        func main() {
            fmt.Printf("GOMAXPROCS(env): %s\n", os.Getenv("GOMAXPROCS"))
            fmt.Printf("GOMEMLIMIT(env): %s\n", os.Getenv("GOMEMLIMIT"))
            fmt.Printf("GOMAXPROCS: %d\n", runtime.GOMAXPROCS(0))
            fmt.Printf("GOMEMLIMIT: %d\n", debug.SetMemoryLimit(-1))
        }
        EOF
        go run /tmp/code.go

```

```

$ kubectl logs pod/gomaxprocs-test
GOMAXPROCS(env):
GOMEMLIMIT(env):
GOMAXPROCS: 32
GOMEMLIMIT: 9223372036854775807

```

GolangNodeCPU 9223372036854775807int64

limitsGolang

```

apiVersion: v1
kind: Pod
metadata:
  name: gomaxprocs-test
spec:
  containers:
  - name: main
    image: golang:1.22
    imagePullPolicy: IfNotPresent
    args:
      - bash
      - -c
      - |
        cat <<EOF > /tmp/code.go
        package main

        import (
            "fmt"
            "os"
            "runtime"
            "runtime/debug"
        )

        func main() {
            fmt.Printf("GOMAXPROCS(env): %s\n", os.Getenv("GOMAXPROCS"))
            fmt.Printf("GOMEMLIMIT(env): %s\n", os.Getenv("GOMEMLIMIT"))
            fmt.Printf("GOMAXPROCS: %d\n", runtime.GOMAXPROCS(0))
            fmt.Printf("GOMEMLIMIT: %d\n", debug.SetMemoryLimit(-1))
        }
        EOF
        go run /tmp/code.go
    resources:
      env:
      - name: GOMEMLIMIT
        valueFrom:
          resourceFieldRef:
            resource: limits.memory
      - name: GOMAXPROCS
        valueFrom:
          resourceFieldRef:
            resource: limits.cpu

```

```

$ kubectl logs pod/gomaxprocs-test
GOMAXPROCS(env): 32
GOMEMLIMIT(env): 127719542784
GOMAXPROCS: 32
GOMEMLIMIT: 127719542784

```

GolangNodeCPULimitslimits.cpulimits.memoryNodeCPU

limits

```

apiVersion: v1
kind: Pod
metadata:
  name: gomaxprocs-test
spec:
  containers:
  - name: main
    image: golang:1.22
    imagePullPolicy: IfNotPresent
    args:
      - bash
      - -c
      - |
        cat <<EOF > /tmp/code.go
        package main

        import (
            "fmt"
            "os"
            "runtime"
            "runtime/debug"
        )

        func main() {
            fmt.Printf("GOMAXPROCS(env): %s\n", os.Getenv("GOMAXPROCS"))
            fmt.Printf("GOMEMLIMIT(env): %s\n", os.Getenv("GOMEMLIMIT"))
            fmt.Printf("GOMAXPROCS: %d\n", runtime.GOMAXPROCS(0))
            fmt.Printf("GOMEMLIMIT: %d\n", debug.SetMemoryLimit(-1))
        }
        EOF
        go run /tmp/code.go
    resources:
      limits:
        cpu: 200m
        memory: 512M
      requests:
        cpu: 100m
        memory: 128M

```

```

$ kubectl logs pod/gomaxprocs-test
GOMAXPROCS(env):
GOMEMLIMIT(env):
GOMAXPROCS: 32
GOMEMLIMIT: 9223372036854775807

```

Golangcgroup

Golangcgroup

```

apiVersion: v1
kind: Pod
metadata:
  name: gomaxprocs-test
spec:
  containers:
  - name: main
    image: golang:1.22
    imagePullPolicy: IfNotPresent
    args:
      - bash
      - -c
      - |
        cat <<EOF > /tmp/code.go
        package main

        import (
            "fmt"
            "os"
            "runtime"
            "runtime/debug"
        )

        func main() {
            fmt.Printf("GOMAXPROCS(env): %s\n", os.Getenv("GOMAXPROCS"))
            fmt.Printf("GOMEMLIMIT(env): %s\n", os.Getenv("GOMEMLIMIT"))
            fmt.Printf("GOMAXPROCS: %d\n", runtime.GOMAXPROCS(0))
            fmt.Printf("GOMEMLIMIT: %d\n", debug.SetMemoryLimit(-1))
        }
        EOF
        go run /tmp/code.go
    resources:
      limits:
        cpu: 200m
        memory: 512M
      requests:
        cpu: 100m
        memory: 128M
    env:
      - name: GOMEMLIMIT
        valueFrom:
          resourceFieldRef:
            resource: limits.memory
      - name: GOMAXPROCS
        valueFrom:
          resourceFieldRef:
            resource: limits.cpu

```

```

$ kubectl logs pod/gomaxprocs-test
GOMAXPROCS(env): 1
GOMEMLIMIT(env): 512000000
GOMAXPROCS: 1
GOMEMLIMIT: 512000000

```

GolangCPUlimitsCPUlimitsCPU CPU limits100mGolangGOMAXPROCS1

GolangcgroupcgroupGolangGolangcgroup<https://github.com/uber-go/automaxprocs> cgroup

- [Goroutine](#)
- <https://gaocegege.com/Blog/maxprocs-cpu>
- <https://blog.howardjohn.info/posts/gomaxprocs/>
- <https://www.ardanlabs.com/blog/2024/02/kubernetes-cpu-limits-go.html>
- <https://weaviate.io/blog/gomemlimit-a-game-changer-for-high-memory-applications>