

# vCPU and RAM distribution

This reference provides the configuration details for vCPU and RAM distribution across the infrastructure.


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# Introduction

The vCPU resource allocation is a configuration process that manages how physical processor cores and memory are assigned to Cisco IOx applications.

- vCPU is also known as physical processor.

# Distribution of vCPU and RAM resources for Cisco IOx applications

Distribution of vCPU and RAM resources for Cisco IOx applications refers to the allocation of processing and memory resources to optimize application performance on Cisco Catalyst IR8100 router.

- Resource distribution enables running multiple IOx applications simultaneously.
- Templates are available for Data Plane Heavy and Service Plane Heavy configurations.
- vCPU is also known as physical processor.

### Templates for vCPU and RAM distribution

Two main templates are used to distribute vCPU and RAM resources for IOx applications on the Catalyst IR8100 router:

- **Data Plane Heavy** —Refers to a router configuration where most of the system resources are dedicated to the data plane, which is responsible for processing and forwarding network packets. This template maximizes throughput and ensures high-speed packet transfer, providing more processing power and memory to handle increased data plane load. The Data Plane Heavy template is the default for vCPU and RAM distribution in the IR8100 router.
- **Service Plane Heavy** —Refers to a router configuration where most of the system resources are allocated to the service plane, which provides network services such as Quality of Service (QoS), security functions, and load balancing. This template allocates additional vCPU and RAM to IOx applications but reduces data throughput (bandwidth).



**Note** Routers with 2 GB RAM and a single core vCPU (IOx resources) cannot run multiple IOx applications such as Unified Threat Defense and Cisco Cyber Vision.

# Higher CPU and RAM allocation for IOx applications

The IR8100 router with 8 GB RAM, starting from Cisco IOS XE Release 17.15.1, supports Data Plane Heavy and Service Plane Heavy distribution templates for hosting Cisco IOx applications.

- Allows allocation of 3 GB RAM and two vCPU cores to the IR8100 router for IOx applications.
- Supports Data Plane Heavy and Service Plane Heavy distribution templates.
- Service Plane Heavy template is recommended for hosting IOx applications.

# Configure data plane heavy template

**Procedure**

**Step 1** Use the **configure terminal** command to enter the global configuration mode.

**Example:**

```
Router# configure terminal
```

**Step 2** Use the **platform resource data-plane-heavy** command to enable the data plane heavy template:

**Example:**

```
Router(config)# platform resource data-plane-heavy
```

**Step 3** Use the **reload** command to reboot the router and activate the data plane heavy template.

**Example:**

```
Router# reload
```

### What to do next

Verify the active vCPU and RAM distribution.

# Verify the active vCPU and RAM distribution

Follow these steps to verify the active vCPU and RAM distribution for IOx applications.

### Procedure

**Step 1** Use the **show platform software cpu allocation** command to verify the vCPU core allocation for IOx applications.

**Example:**

```
Router# show platform software cpu allocation
CPU alloc information:
Control plane cpu alloc: 0-1
Data plane cpu alloc: 2-3
Service plane cpu alloc: 0-1
Slow control plane cpu alloc:
Template used: CLI-data_plane_heavy
```

**Step 2** Use the **show app-host resource** command to verify the RAM allocation for IOx applications.

**Example:**

```
Router# show app-host resource
Resource Allocation:
CPU Quota: 33%
Memory Quota: 2048MB
Storage Total: 6350MBStorage Available: 1404MB
```

**Step 3** Use the **show app-host infra** command to verify the CPU units resource allocation for IOx applications.

**Example:**

```
Router# show app-host infraIOX version: 2.11.0.3
App signature verification: disabled
CAF Health: Stable
Internal working directory: /vol/harddisk/iox
CPU:
Quota: 33%
Available: 33%
Quota: 1617(Units)
Available: 1617(Units)
```

# Configure the Service Plane Heavy Template

### Procedure

**Step 1** Use the **platform resource service-plane-heavy** command to enable the service plane heavy template.

**Example:**

```
Router(config)# platform resource service-plane-heavy
```

**Step 2** Use the **reload** command to reboot the router and activate the service plane heavy template.

**Example:**

```
Router# reload
```

### What to do next

Verify the active vCPU and RAM distribution.

# Verify the active vCPU and RAM distribution

Use this procedure to confirm the allocation of vCPU cores, RAM, and CPU units for IOx applications on your router after applying the service plane heavy template.

### Procedure

**Step 1** Use the **show platform software cpu allocation** command to verify the vCPU cores allocation for IOx applications.

**Example:**

```
Router#show platform software cpu allocation
CPU Allocation Information:Control plane cpu alloc: 0-1
Data plane cpu alloc: 3
Service plane cpu alloc:
0-2
Template used:
CLI-service_plane_heavy
```

**Step 2** Use the **show app-host resource** command to verify the RAM allocation for IOx applications.

**Example:**

```
Router#show app-host resource
Resource Allocation:
CPU Quota: 38%
Memory Quota:3072MB
Storage Total: 6350MB
Storage Available: 1403MB
```

**Step 3** Use the **show app-host infra** command to verify the CPU units resource allocation for IOx applications.

**Example:**

```
Router#show app-host infra
IOX version: 2.11.0.3
App signature verification: disabled
CAF Health: Stable
Internal working directory: /vol/harddisk/iox
CPU:
Quota: 38%
Available: 38%
Quota: 1862(Units)
Available: 1862(Units)
```