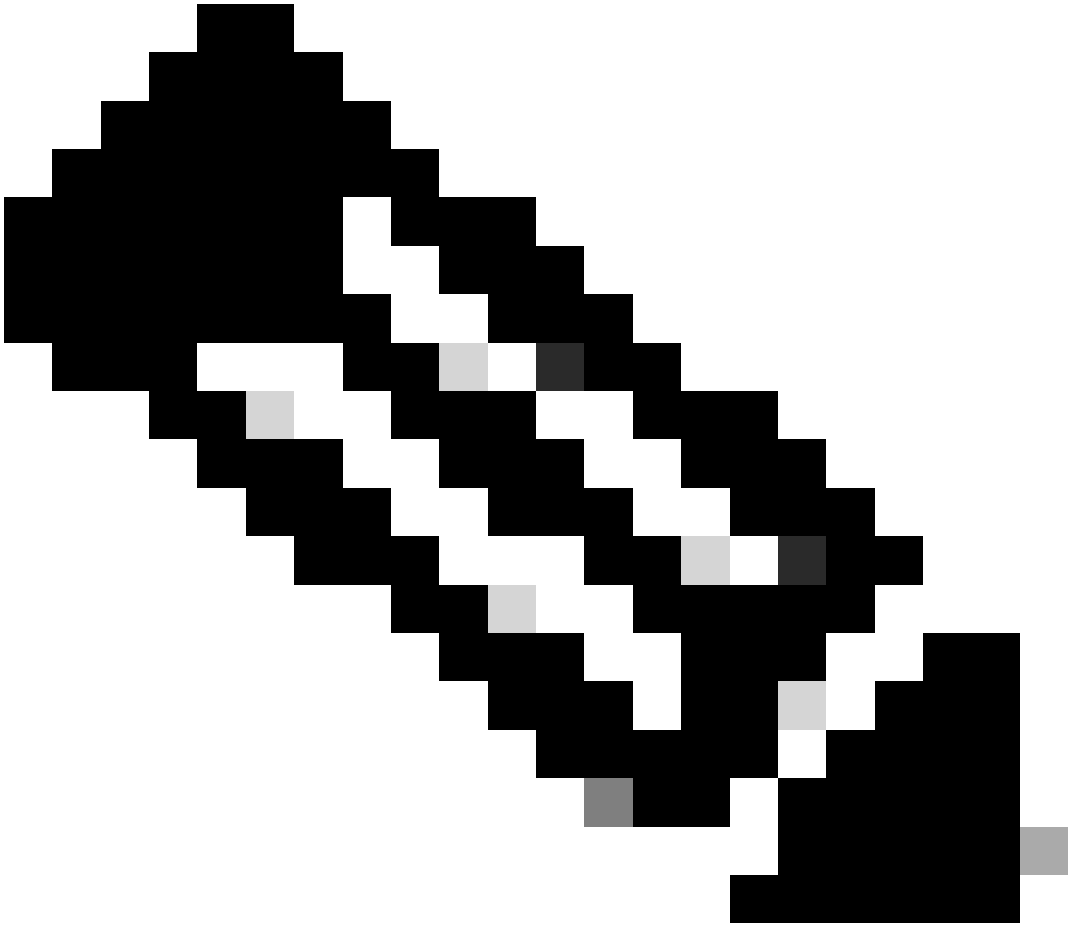
CPU and Memory Guidelines for IOx Applications on Industrial Routers

Contents

Introduction

This document describes CPU and RAM allocation for IOx with Industrial Routers based on deployment needs. A proper distribution of resources aids with running multiple IOx applications simultaneously.



Note: A proper distribution of resources helps with running multiple IOx applications simultaneously.

Templates

The Cisco IR8340, IR1835, and IR8100 routers offers higher vCPU and RAM allocation to host Cisco IOx applications. This can be done on the routers by the support of Data Plane Heavy and Service Plane Heavy distribution templates.

You can allocate 3 GB of RAM and two vCPU cores to the IR1835 and IR8100 routers, and 3 GB of RAM and three vCPU cores to the IR8340 router.

Template definitions

- Data Plane Heavy— This template points to a router configuration where majority of system resources are dedicated to the data plane, which is responsible for processing and forwarding network packets.

Data Plane Heavy template maximizes throughput and ensures high-speed packet transfer, which is essential

for network traffic demands.

This ensures more processing power and memory to handle the increased load on the data plane, enhancing the ability of the router to move large volumes of data efficiently.

Service Plane Heavy— This template points to a router configuration where majority of system resources are allocated to the service plane, which is responsible for providing network services such as Quality of Service (QoS), security functions, and load balancing.

Service Plane Heavy template allocates additional vCPU and RAM to IOx applications. However, it reduces data throughput (bandwidth).

IR8340 CPU & Memory Profile

Profile	Memory 17.14.1 and Earlier	Memory 17.15.1	CPU Core Allocations 17.14.1 (Total No of Cores - 8)	CPU Core Allocations 17.15.1 (Total No of Cores - 8)
Service Plane Heavy (Default Profile)	6 Gb - IOS 2 Gb - IOX	5 Gb - IOS 3 Gb - IOX	Data Plane Process : 4-7 Service plane Process : 1-3 Control Plane Process : 0 Slow control plane : 1-3	Data Plane Process : 4-7 Service plane Process : 1-3 Control Plane Process : 0 Slow control plane : 1-3
Data Plane Heavy	6 Gb - IOS 2 Gb - IOX	6 Gb - IOS 2 Gb - IOX	Data Plane Process : 2-7 Service plane Process : 1 Control Plane Process : 0 Slow control plane : 1-2	Data Plane Process : 2-7 Service plane Process : 0-1 Control Plane Process : 0-1 Slow control plane : 0-1
Control Plane Heavy	6 Gb - IOS 2 Gb - IOX	6 Gb - IOS 2 Gb - IOX	Data Plane Process : 4-7 Service plane Process : 2-3 Control Plane Process : 0 Slow control plane : 1-3	Data Plane Process : 4-7 Service plane Process : 2-3 Control Plane Process : 0 Slow control plane : 1-3

IR1835 CPU & Memory Profile

Profile	Memory Profile 17.14.1 and before (Total Memory - 8Gig)	Memory Profile 17.15.1 (Total Memory - 8Gig)	CPU Core Allocations 17.14.1 and Before (Total No of Cores - 4)	CPU Core Allocations 17.15.1 (Total No of Cores - 4)
Data Plane Heavy (Default Profile)	6 Gb - IOS 2 Gb - IOX	6 Gb - IOS 2 Gb - IOX	Data Plane Process : 2-3 Service plane Process : 0-1 Control Plane Process : 0-1	Data Plane Process : 2-3 Service plane Process : 0-1 Control Plane Process : 0-1
Service Plane Heavy (Newly Added in 17.15.1)	NA	5 Gb - IOS 3 Gb - IOX	NA	Data Plane Process : 3 Service plane Process : 0-2 Control Plane Process : 0-1

Configuration

IR 8100 & IR 1835:

platform resource {data-plane-heavy|service-plane-heavy}

IR 8340:

platform resource {control-plane-heavy-|data-plane-heavy|service-plane-heavy}

This command can be used to adjust the cores across control plane, service plane, and data plane. Once the configuration is saved, reboot the device for the profile to take effect.

Verification

CPU allocation

Show platform software cpu alloc

Show platform software cpu share

Memory allocation

Show app-hosting resource

CPU units resource allocation:

Show app-host infra

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**.