



# Configuring the vCPU Distribution across the Data, Control and Service Planes

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## Information About vCPU Allocation and Distribution

You can allocate and distribute the vCPUs of the following planes: Control Plane(CP), Data Plane(DP), and Service Plane(SP) by using templates. Note that the Service Plane includes containers running SNORT.

Use one of the following templates for vCPU distribution:

### vCPU Distribution: Control Plane Extra heavy

The following table shows the vCPU distribution for the Control Plane Extra heavy template.

**Table 1: Control Plane Extra heavy—vCPU Distribution**

Number of vCPUs	1	2	4	8
Control Plane	1/3	1/2	1 1/2	1 1/2
Service Plane	1/3	1/2	1 1/2	1 1/2
Data Plane	1/3	1	1	5



**Note** Using an Control Plane Extra heavy template, a service plane app can obtain 1.5 full cores for its operation. Example: WAAS.

## vCPU Distribution: Control Plane heavy

The following table shows the vCPU distribution for the Control Plane heavy template.

**Table 2: Control Plane heavy—vCPU Distribution**

Number of vCPUs	1	2	4	8
Control Plane	1/3	1/2	1	1
Service Plane	1/3	1/2	1	1
Data Plane	1/3	1	2	6



**Note** The Control Plane heavy template allocates an extra core to the Control Plane/Service Plane services, compared to the Data Plane heavy template (there is one core for the Control Plane and another core for the Service Plane). If there is no Service Plane application, the Control Plane can utilize all of the resources (2 cores).

## vCPU Distribution: Data Plane heavy



**Note** The Data Plane heavy template is the default vCPU Distribution template. Even if the configuration output reads 'None' as the value for the Template option, the Data Plane heavy template is still applied.

The above mentioned statement is not applicable for Cisco CSR1000V and Cisco ISRv instances running in the controller mode.

The following table shows the vCPU distribution for the Data Plane heavy template.

**Table 3: Data Plane heavy—vCPU Distribution**

Number of vCPUs	1	2	4	8
Control Plane	1/3	1/2	1/2	1/2
Service Plane	1/3	1/2	1/2	1/2
Data Plane	1/3	1	3	7



**Note** By default, the Cisco CSR 1000v core allocation favors a larger data plane for performance. If there is no Service Plane application, the Control Plane can utilize the Service Plane's resources.

## vCPU Distribution: Data Plane normal

You can use the vCPU distribution for the Data Plane normal template to force the Cisco CSR 1000v to behave in the same way as before using a template for vCPU distribution.

For example, after creating a Cisco CSR 1000v VM using the Data Plane heavy template for vCPU distribution, specified in the ovf-env.xml file, you can later use CLI commands in the Data Plane normal template to override the XML file settings that were previously applied by the Data Plane heavy template.

## vCPU Distribution: Service Plane heavy

The following table shows the vCPU distribution for the Service Plane heavy template.

**Table 4: Service Plane heavy - vCPU Distribution**

Number of vCPUs	1	2	4	8
Control Plane	1/3	1/2	1	2
Service Plane	1/3	1/2	1	2
Data Plane	1/3	1	2	4



**Note** Using a Service Plane heavy template, a Service Plane application (such as Snort IPS) can use up to 2 full cores for its operation.

## vCPU Distribution: Service Plane medium

The following table shows the vCPU distribution for the Service Plane medium template.

**Table 5: Service Plane medium—vCPU Distribution**

Number of vCPUs	1	2	4	8
Control Plane	1/3	1/2	1	1
Service Plane	1/3	1/2	1	1
Data Plane	1/3	1	2	6

## How to Boot the Cisco CSR 1000v with an OVA image

To boot the Cisco CSR 1000v with an OVA image, boot from a CDROM containing the ovf-env.xml file. This XML file contains the vCPU distribution templates. A template is simply an additional bootstrap property. For more information about bootstrap properties, see [Bootstrapping the CSR Configuration](#).

This is an example of the part of the XML file that specifies a Service Plane medium template: `<Property oe:key="com.cisco.csr1000v.resource-template.1" oe:value="service_plane_medium"/>`

# How to Configure vCPU Distribution across the Data, Control and Service Planes

Enter the `platform resource` command on the Cisco CSR 1000v to select a template for vCPU distribution.

**configure template**

**platform resource *template***

Example:

```
Router# configure template
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# platform resource ?
  control-plane-extra-heavy Use Control Plane Extra Heavy template
  control-plane-heavy      Use Control Plane Heavy template
  data-plane-heavy         Use Data Plane Heavy template
  data-plane-normal        Use Data Plane Normal template
  service-plane-heavy      Use Service Plane Heavy template
  service-plane-medium     Use Service Plane Medium template
Router(config)# platform resource service-plane-heavy
```




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**Note** After entering the `platform resource` command, you must reboot the Cisco CSR 1000v to activate the template.

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## Determine the Active vCPU Distribution Template

To determine which template is being used for vCPU distribution, use the following command:

**show platform software cpu alloc**

Example:

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




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**Note** The Control plane and the Service plane share cores 0 and 1.

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