

Cisco 7500 Series: Frequently Asked Questions

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Introduction

This document answers some of the frequently asked questions about the power supply requirements of the Cisco 7500 Series Router.

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

Q. Can I power the two power supplies of the Cisco 7500 Series Router from two different feeds?

A. Yes, you can power the two power supplies from different feeds. However, be aware of potential differences in the grounds; take this consideration very seriously.

Connect the neutral-to-ground bond of the generator to the neutral-to-ground bond of the utility service entrance to eliminate any potential differences or, at least, bring them down to acceptably low levels.



Caution: Cisco does not recommend hardware products for use on floating feeds. If you do not perform neutral-to-ground bonding on floating feeds properly, you can expect effects that range from unexplained system hangs to potential differences (that are possibly

lethal to system hardware) between the separately grounded systems. Naturally, the bigger the back-up generator (hundreds of kVA, for example), the more serious the effects.

Q. How do I perform load sharing of power supply (PS1 and PS2) in Cisco 7513 Series Routers?

A. You can divide load sharing of power 40%/60% or better on the +5V and +12V. This value can vary from 50% to 100% based on the load between any two power supplies PS1 and PS2.

Here is an example of the load sharing between the two power supplies PS1 and PS2:

Example 1
PS1 + 5V Current measured at 51.76A (capacity 200 A) PS1 + 12V Current measured at 1.92 A (capacity 35 A) PS1 - 12V Current measured at 0.04 A (capacity at 3 A) PS1 output is 285 W

Example 2
PS2 + 5V Current measured at 60.39 A (capacity 200 A) PS2 + 12V Current measured at 2.61 A (capacity 35 A) PS2 - 12 V Current measured at 0.02 A (capacity 3 A) PS2 output is 337 W

So, the total power is $285\text{ W} + 337\text{ W} = 622\text{ W}$.

PS1: $285/622 = 0.45$, or a 45/55 load-sharing ratio.

PS2: $337/622 = 0.55$ or a 55/45 load-sharing ratio.

Q. Why does my Cisco 7507 Series Router report "PS1 Output is 0 W"?

A. The Cisco 7507 Series Router does not report the current consumption (measured in amperes) used, and therefore cannot compute the power (watts). The Cisco 7507 Series Router does report the individual bus voltage, but that is all.

The Cisco 7513 Series Router reports the current consumption and, therefore, can also report the power.

Q. What are the minimum circuit breaker requirements for a Cisco 7500 Series Router DC power supply?

A. Size the breaker for the Cisco 7513 Series Router to deliver 40 A (amperes) to the system. The breaker for the Cisco 7507 Series Router must provide 24 A.

You must respect local codes when you size breakers, but as a general rule of thumb you must have 25 percent extra current capacity. Therefore:

- ◆ For the Cisco 7513 Series Router, choose the 50 A breaker.
- ◆ For the Cisco 7505 Series Router, a breaker of 30 A is necessary.

These sizes are based on the minimum input voltage of –40.5 Volts of Direct Current (VDC). Each of these systems has redundant power supplies as an option. Connect each supply to a separate breaker and branch to maintain redundancy.

Q. How do I perform an Online Insertion and Removal (OIR)?

A. For safety, power down the router when you perform any hardware changes, but here are some recommendations if you need to perform an OIR on a Cisco 7500 Series Router:

- ◆ Remove or insert only one interface processor at a time.
- ◆ You must allow the system time to complete the previous tasks before you remove or insert another interface processor. If you disrupt the sequence before the system completes verification, the system begins to spuriously detect hardware failures.
- ◆ Insert the cards swiftly and firmly, but do not slam them in.
- ◆ Use the little plastic levers on the side of the card to lock the card in.
- ◆ If you receive a `LONGSTALL` message after an OIR, or a `CPUHOOG` message during the OIR process, but encounter no other problems, you can safely ignore those messages.
- ◆ Versatile Interface Processor (VIP) cards and other interface processors support OIR, but port adapters do not.
- ◆ You do not need to schedule a reload after a successful OIR.
- ◆ Never insert a VIP without port adapters, because the configuration is not supported. Each unused interface processor slot must contain an interface processor filler (which is an interface processor carrier without a printed circuit board) to keep dust out of the router and to maintain proper airflow through the interface processor compartment.

Note: The system indicates a hardware failure if you do not follow proper procedures.

Note: In Cisco 7507 (or Cisco 7507–MX) or Cisco 7513 (or Cisco 7513–MX) Series Routers with the High System Availability (HSA) feature active, OIR of any interface processor in either CyBus can cause the slave Route/Switch Processor (RSP2) to reboot with a bus error or a processor memory parity error. The master RSP recovers from this event and issues a `cBus Complex Restart` message. This issue does not affect systems that you have configured with an RSP4 or an RSP8 as the system slave.

Q. What happens during an Online Insertion and Removal (OIR)?

A. When you insert the second-generation Versatile Interface Processor (VIP2), power is available on the VIP. The VIP initializes to get ready to download the VIP kernel code. In the meantime, the VIP has powered up the Port Adapter (PA), which goes through some initialization steps to prepare the hardware.

The VIP kernel is downloaded, and the VIP discovers what PAs are present. The VIP then sizes the SRAM and DRAM memory, and communicates with the Route/Switch Processor (RSP) as to what has to be done to the PA hardware to make the PA hardware fully functional.

Q. What happens if I insert a Versatile Interface Processor (VIP) without a Port Adapter (PA)?

A. A VIP without a PA is not a supported hardware configuration, and can heavily impact the stability of the router. When you insert VIPs without PAs, the VIPs start to crash continuously, and heavily disrupt the communication between the Route/Switch Processor

(RSP) and the other VIPs.

A typical side-effect of these disruptions are VIPs, known to be working fine, that start to show `VIP Controller Memory Size: Unknown`. The RSP is unable to recover from this situation. In order to fix this problem, perform a reload, after you remove the VIP that causes the disruption.

Q. Why do I lose part of the configuration after some Versatile Interface Processor (VIP) crashes?

A. After a VIP crash, the Route/Switch Processor (RSP) is no longer able to initialize the VIP. This problem can be due to a hardware failure in the VIP (which can be put into `disabled analyzed wedged` state by the RSP). Because the VIP is disabled, all the physical interfaces that belong to the VIP no longer exist for the RSP. The configuration disappears from the running configuration. In addition, you cannot issue a **show interfaces** command for such interfaces. If a virtual interface uses disabled physical interfaces, the virtual interface is also affected.

A workaround is to keep a backup configuration in a secure place. After a replacement, when the VIP is up and running, you can copy the startup configuration to the running configuration (whether or not the startup configuration was previously synchronized to the actual running configuration). Alternatively, you can manually edit the configuration to ensure that the configuration is the same as it was before the VIP crash.

Q. How can I find the serial number of my Cisco 7500 Series Routers chassis?

A. The **show rsp chassis** command was introduced in Cisco IOS® Software Releases 12.0(13)S and 12.0(13)SC.

```
Router>show rsp chassis-info
Backplane NVRAM(ver 1) contents:
  Chassis model: 0x01
  Chassis S/N: 50014400
  MAC base: 0060.5C51.1A00
  MAC block size: 1024
  RMA failure: 0
  RMA number: 0
  Manufactured Date: 96 12 10
Router>
```

Q. What is the fan transfer point in a Cisco 7513 Series Router?

A. The Route/Switch Processor (RSP) is able to adjust the speed of the blower on the Cisco 7513 Series Router, based on the detected temperature. The fan transfer point is an indication of the RSP correction on the fan speed (1 percent represents minimum speed, and 100 percent represents full speed).

Q. How many Hot Standby Routing Protocol (HSRP) groups can I configure on a VIP ?

A. Even if, theoretically, you can configure up to 255 different groups, the MAC address filter table on each VIP interface has a limit of 32 entries.

If some entries are already used for multicast Cisco Discovery Protocol, Inter-Switch Link (ISL), and so on the number of HSRP groups that you can configure on any interface on a specific VIP varies a little.

After the integration of CSCuk29834 (registered customers only) in Cisco IOS Software Releases 12.2(8) and 12.2(8)T, the **show standby capability** command indicates how many entries are left for HSRP groups. Moreover, a warning appears when someone tries to configure more groups than what is allowed due to the MAC address list filter size limitation.

In order to bypass this limitation, use the **standby use-bia** interface configuration command to use the burned-in address instead of a virtual MAC address from the router pool.

Q. What are the steps to take if the serial number is missing in the show rsp chassis-info command?

A. This output shows that the serial number is missing:

```
#show rsp chassis-info
Backplane NVRAM(ver 255) contents:
  Chassis model: 0xFF
  Chassis S/N: 0
  MAC block size: 416
  RMA failure: 255
  RMA number: 16777215
  Manufactured Date: 255 255 255
```

In case the serial number information is missing, this can be resolved using a EPROM programming command using the actual S/N obtained from the exterior of the device.

This is the procedure for EEPROM programming of the serial number:

1. In order to program the serial number on the EEPROM, you need to write the address 2,3,4,5. For example, if the serial number is 63918102, then in hexadecimal, it is 0x03CF5016. Therefore, address 2 equals to 03, address 3 equals CF, address 4 equals to 50, address 5 equals to 16.
2. In order to program the EEPROM, configure these commands:

```
7513-RR2#test rsp ds1201 write 2 03
7513-RR2#test rsp ds1201 write 3 CF
7513-RR2#test rsp ds1201 write 4 50
7513-RR2#test rsp ds1201 write 5 16
```

3. Reload the router and then check the **show rsp chassis-info** command to verify the serial number.

Q. What is the capacity of the VIP6-80?

A. The VIP6-80 capacity is 6000 MSU/sec bi-directional, as in 6000 in and 6000 out for a given second in time.

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