



# Getting Started With the Cisco NCS 520 Series Router

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## Overview

Cisco NCS 520 family of routers include:

PID	Short Description	Front Panel Ports
N520-4G4Z-A	Base NID, AC Power	2X1GE SFP +2X1GE Cu+ 4X1/10 GE SFP+
N520-X-4G4Z-A	Premium NID, AC Power	
N520-X-4G4Z-D	Premium NID, DC Power(Dual Power supply)	
N520-20G4Z-A	Base Switch/Router, AC Power	16X1GE SFP + 4X1 GE Cu + 4X1/10 GE SFP+ All variants have dual PSU.
N520-20G4Z-D	Base Switch/Router, DC Power	
N520-X-20G4Z-A	Premium Switch/Router, AC Power	
N520-X-20G4Z-D	Premium Switch/Router, DC Power	

In addition to the 1G/10G interfaces, the Cisco NCS 520 Series Routers also have the following hardware interfaces for management, and timing and synchronization features:

- One Copper 10/100/1000Base-T LAN management port
- One console port with RJ45 connector
- Time of Day (ToD) port with RS422 interface
- 1PPS port SMA port
- 10M port SMA port

- External Alarm interface with 4 Dry Contact Alarm inputs
- ZTP button for Zero Touch Provisioning



**Caution** A short press of the ZTP button starts the provisioning of the router. Pressing this button for more than 8 seconds causes the router to reboot.

- Various LEDs for system and interface status

**Table 1: Feature Comparison for Cisco NCS 520 Series Routers**

Feature or Functionality	N520-4G4Z-A	N520-X-4G4Z-A	N520-X-4G4Z-D	N520-20G4Z-A	N520-20G4Z-D	N520-X-20G4Z-A	N520-X-20G4Z-D
CPU operating at	1 GHz	1 GHz	1 GHz	1 GHz	1 GHz	1 GHz	1 GHz
DRAM	4GB	4GB	4GB	4GB	4GB	4GB	4GB
SD Flash	4GB eMMC	4GB eMMC	4GB eMMC	4GB eMMC	4GB eMMC	4GB eMMC	4GB eMMC
1G-10G Dual Rate Ports	4	4	4	4	4	4	4
Time of Day port	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Auto-MDIX Combo Port	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported
Copper Ports	2	2	2	4	4	4	4
SFP Ports	2	2	2	16	16	16	16
Smart SFP	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported
SFP+ Ports	4	4	4	4	4	4	4
Copper SFP	Supported	Supported	Supported	Supported	Supported	Supported	Supported
XFP Ports	NA	NA	NA	NA	NA	NA	NA
ZTP Button	Supported	Supported	Supported	Supported	Supported	Supported	Supported
PoE	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported

Feature or Functionality	N520-4G4Z-A	N520-X-4G4Z-A	N520-X-4G4Z-D	N520-20G4Z-A	N520-20G4Z-D	N520-X-20G4Z-A	N520-X-20G4Z-D
GNSS	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported

## Restrictions

- Cisco ASR-920-12SZ-A, and Cisco ASR-920-12SZ-D routers support Y.1564 only in 1 GE mode. It does not support when the ports are configured with 10 GE mode.
- The Cisco NCS 520 Series Routers do not support the **hw-module slot/subslot reload** command.
- Duplicate Address Detection (DAD) is not supported.
- Starting with Cisco IOS XE Everest 16.9.1, ASR 920-12SZ-IM, Cisco ASR-920-12SZ-A, and Cisco ASR-920-12SZ-D routers only load No Payload Encryption (NPE) images. If a non-NPE image is loaded, the routers stop responding.
- Specific License Reservation (SLR) is not supported on Cisco ASR 920 routers.

## Interface Naming

The following table shows the interface naming of the N520-4G4Z-A/ N520-X-4G4Z-A/ N520-X-4G4Z-D Cisco ports: Ports 2, 3, 4, and 5 when operating in 1G Mode become operationally up only when the peer connecting interfaces are in Auto negotiation mode.

- Interfaces 0–1 are Copper only ports with RJ45 connector.

1G Cu	1G SFP	10G SFP+/1G SFP	
1	3	5	7
0	2	4	6

- Interfaces 2 and 3 are GigabitEthernet SFP only ports.
- Interfaces 0 through 3 are referred to as GigabitEthernet 0/0/0 and GigabitEthernet 0/0/3, respectively.
- Interfaces 4 to 7 are dual rate ports. These ports support 1G or 10G mode depending on the optics (SFP or SFP+, respectively) installed in these ports.



**Note** Dual-Rate functionality is supported only with the Supported SFPs, listed in the *Cisco NCS 520 Series Aggregation Services Router Hardware Installation Guide*.

- Interfaces 4 to 7 are named as TenGigabitEthernet 0/0/4 and TenGigabitEthernet 0/0/7, respectively. The interface name remains unchanged even if an SFP is installed in the port and the port is operating in 1G mode.

Out of Band Management Network port is referred as interface Gig0.

The following table shows the interface naming of the N520-20G4Z-A / N520-20G4Z-D / N520-X-20G4Z-A / N520-X-20G4Z-D Cisco ports: Ports 2, 3, 4, and 5 when operating in 1G Mode will become operationally up only when the peer connecting interfaces are in Auto negotiation mode.

- Interfaces 0–3 are Copper only ports with RJ45 connector.

1G Cu		1G SFP								10G SFP+/1G SFP	
1	3	5	7	9	11	13	15	17	19	21	23
0	2	4	6	8	10	12	14	16	18	20	22

- Interfaces 4–19 are GigabitEthernet SFP only ports.
- Interfaces 0 to 19 are referred to as GigabitEthernet 0/0/0 and GigabitEthernet 0/0/19, respectively.
- Interfaces 20 to 23 are dual rate ports. These ports support 1G or 10G mode depending on the optics (SFP or SFP+, respectively) installed in these ports.



**Note** Dual-Rate functionality is supported only with the Supported SFPs, listed in the *Cisco NCS 520 Series Aggregation Services Router Hardware Installation Guide*.

- Interfaces 4 to 7 are named as TenGigabitEthernet 0/0/20 and TenGigabitEthernet 0/0/23, respectively. The interface name remains unchanged even if an SFP is installed in the port and the port is operating in 1G mode..
- Out of Band Management Network port is referred as interface Gig0.

## Interface Speed Based on Port Type

Speed	Cu Ports			SFP ports (With Fiber SFP plugged in)			SFP ports (With Copper SFP plugged in)			SFP+ plugged in
	10M	100M	1G	10M	100M	1G	10M	100M	1G	
<b>1G Copper /SFP ports</b>	Yes	Yes	Yes	Not Supported	Yes	Yes	Yes	Yes	Yes	NA
<b>10G Dual rate ports</b>	NA	NA	NA	NA	Not Supported	Yes	Not Supported	Not Supported	Yes	Yes

### Interface Limitations

- Copper ports can work with 1Gbps speed only if auto negotiation is enabled. 10 or 100Mbps can work with both auto negotiation enabled or disabled mode.
- 10G ports cannot operate in 100Mbps speed. 100BASE SFPs are not supported on 10G ports; however, there is no such limitation on 1G ports.

- There are no LEDs to indicate current working speed of the interface. However, duplex LEDs are available only on Copper ports

