



## Gigabit Ethernet Combo Ports WAN

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## Gigabit Ethernet Combo Ports WAN

Two Combo ports, Copper and Fiber ports (SFP) ports are available on the ESR6300. A combo port means that you can use either the RJ45 port or the SFP port. They are paired in two (which ports that are paired are usually indicated by arrows, lines or the like). Only one of the ports in the pair can be active at any given time. Usually the first port that gets a valid link will be the active one, but in some cases you need to specifically configure whether you want to use the RJ45 port or the SFP port.

The Copper ports support standard 3-speed, 10/100/1000Base-T protocol. The SFP supports standard 1000Base-X or 100Base-FX Ethernet over single-mode or multi-mode optics. A complete list of the supported SFPs can be found in the ESR6300 Hardware Technical Manual: <https://www.cisco.com/c/en/us/td/docs/routers/embedded/6300/hardware/tech-guide/ESR6300-tech-guide.html>

The interface names for the two combo ports are g0/0/0 and g0/0/1.



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**Note** The GLC-T and GLC-TE are the only copper SFPs supported by Cisco, and the **service unsupported-transceiver** CLI must be mandatorily enabled if they are used.

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Before you configure the combo ports, note the following:

- Copper FE SFPs are not supported on ESR6300
- Auto-negotiation for 10Mbps, 100Mbps, 1000Mbps in full-duplex and half-duplex mode is supported. For half duplex, support is only on 10Mbps and 100Mbps.
- Auto-select is supported. Whichever interface is detected first is selected. Typically fiber SFP bring-up is faster than RJ45 Copper is faster than Copper SFP.
- All Standard Cisco Layer 3 Routing Protocols are Supported on ESR6300 WAN interfaces.
- If running IOS-XE version 17.1.x and below, Jumbo MTU support is not available on the ESR6300. MTU >1500 packets will be fragmented. If running IOS-XE release 17.2.1 and above, MTU support is 64 - 9216 on the interface. If there are bursts of fragmented traffic expected beyond the device Non-drop

rate capability, IOS-XE implements a throttling mechanism and transmits MAC pause frames to other end to reduce rate of traffic. To resume normal operation, arp has to be sent again to re-negotiate. The default ip arp timeout is 14,000 seconds. In such corner case scenarios, it is recommended to have a much shorter arp timeout configuration.

- Auto-select is supported. Whichever interface is detected first is selected. Typically, fiber SFP bring-up is faster than RJ45 Copper, which is faster than Copper SFP.
- Auto-failover is supported as well between like GE Ethernet and GE SFP. In case one physical link goes down, the other mode will immediately kick-in.
- RJ45 to SFP mode conversion involves an interface reset (shut/no shut, interface DOWN/UP). The syslog can be observed accordingly.




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**Note** For ARP, you must configure Ethernet II frames instead of 802.3 frames. If 802.3 frames are used, they may be recorded as SNAP encapsulation, which is currently not supported.

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## Command Line Interface

The following CLIs are available.

To configure a WAN port as RJ45 or SFP:

```
Router#config terminal
Router(config)#interface g0/0/{0|1}
Router(config-if)#media-type ?
  auto-select  Use whichever connector is attached
  rj45         Use RJ45 connector
  sfp          Use SFP connector
```

To configure auto-failover:

```
Router(config-if)#media-type {rj45|sfp} ?
  auto-failover  Automatic Fail over
```

To change the media type:

```
Router#conf t
Router(config)#int g 0/0/0
Router(config-if)#no shut
Router(config-if)#media-type sfp
GigabitEthernet0/0/0: Changing media to SFP
Router(config-if)#end
```

Other helpful commands to verify your configuration:

To verify if SFP is detected:

```
Router#show inventory
```

```
+++++
INFO: Please use "show license UDI" to get serial number for licensing.
+++++
```

```
NAME: "Chassis", DESCR: "Embedded Services Router with 2 Gigabit Ethernet routed ports,4
Gigabit Ethernet switched ports, no cooling plate"
PID: ESR-6300-NCP-K9 , VID: V00 , SN: FOC23032UUN
```

```
NAME: "Power Supply Module 0", DESCR: "External Power Supply Module"  
PID: PWR-12V , VID: , SN:
```

```
NAME: "module 0", DESCR: "Cisco ESR-6300-NCP-K9 Fixed and pluggable Interface Module  
controller"  
PID: ESR-6300-NCP-K9 , VID: , SN:
```

```
NAME: "NIM subslot 0/1", DESCR: "ESR-6300-ES-4"  
PID: ESR-6300-ES-4 , VID: V01 , SN:
```

```
NAME: "NIM subslot 0/0", DESCR: "Front Panel 2 port Gigabitethernet Module"  
PID: ESR-6300-2x1GE , VID: V01 , SN:
```

```
NAME: "module R0", DESCR: "Cisco ESR-6300-NCP-K9 Route Processor"  
PID: ESR-6300-NCP-K9 , VID: V00 , SN: FOC23032UUN
```

```
NAME: "module F0", DESCR: "Cisco ESR-6300-NCP-K9 Forwarding Processor"  
PID: ESR-6300-NCP-K9 , VID: , SN:
```

To verify if the configuration has taken effect:

```
Router#Conf t  
Router(config)#int g 0/0/0  
Router(config-if)#no shut  
Router(config-if)#media-type sfp  
GigabitEthernet0/0/0: Changing media to SFP  
Router(config-if)#end
```

To reload the Gigabit Ethernet module:

```
Router#hwmodule subslot 0/0 reload force
```

