

Ring Coupling for Turbo Ring V2

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This Tech Note applies to the following Moxa switches:

- EDS-400A series
- EDS-500A series (includes the EDS-G509 and EDS-P510 series)
- EDS-600 series
- EDS-700 series
- EDS-800 series
- IKS-6524/6526 Series
- IKS-6726 Series
- PT-7828 Series
- PT-7700 Series
- PT-G7509 Series
- TN-5500 Series

What is Ring Coupling for Turbo Ring V2?

For some systems, it may not be suitable to connect all the devices in the system to create one big redundant ring, since some devices could be located in a remote area. For these systems, "**Ring Coupling**" can be used to separate the devices into different smaller redundant rings, but in such a way that they can still communicate with each other.

Note that the ring coupling settings for a "**Turbo Ring V2**" ring are different from that of a "**Turbo Ring**" ring. You do not need to set up a coupling control port, so a "**Turbo Ring V2**" ring does not require a coupling control line.

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About Moxa

Moxa manufactures one of the world's leading brands of device networking solutions. Products include serial boards, USB-to-serial hubs, media converters, device servers, embedded computers, Ethernet I/O servers, terminal servers, Modbus gateways, industrial switches, and Ethernet-to-fiber converters. Our products are key components of many networking applications, including industrial automation, manufacturing, POS, and medical treatment facilities.

How to Contact Moxa

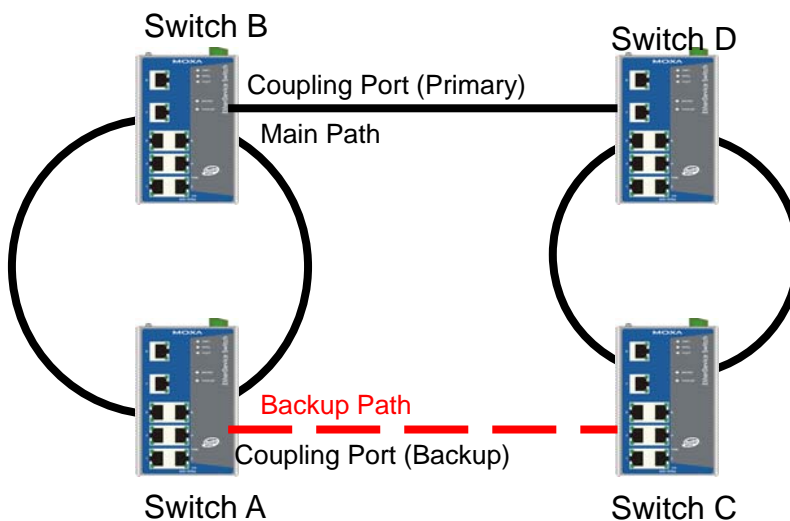
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For example, in the diagram below, Ring Coupling is enabled by configuring the “**Coupling Port (Primary)**” on Switch B, and the “**Coupling Port (Backup)**” on Switch A only.

The “**Coupling Port (Backup)**” on Switch A is used for the backup path, and connects directly to an extra network port on Switch C. The “**Coupling Port (Primary)**” on Switch B monitors the status of the main path, and connects directly to an extra network port on Switch D. With ring coupling established, Switch A can activate the backup path as soon as it detects a problem with the main path.



Enabling Ring Coupling

Method 1

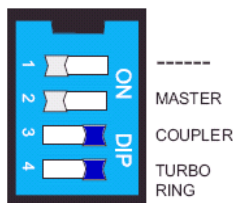
Enabling Ring Coupling with DIP switches for the EDS-400A, 500A, and 600 series

Before performing the following steps, restore the Moxa switch default settings via web console.

1. Make sure that all DIP switches are set to OFF and then power on the Moxa switch.
2. Make sure that the Moxa switch and the host PC are properly connected to the network.
3. Adjust the Moxa switch's IP settings as necessary so that it is on the same network as your PC. You may also need to modify the host PC's IP configuration. Make sure you can ping the Moxa switch from your host PC.

Note: The IP addresses of the Moxa switch and the PC must be on the same subnet. If one IP address is modified, you may need to modify the other IP address.

4. Enable the Turbo Ring DIP switches to configure the EDS switches for a "Turbo Ring V2" ring. It can be found through the web console as follows: **Turbo Ring DIP Switches→Set DIP switch as Turbo Ring V2.**
5. Enable "Turbo Ring V2" by setting the "4th Turbo Ring" DIP switch to the ON position on switch C and D, separately.
6. Enable "Turbo Ring V2" and "Ring coupling (backup)" by setting the "1st -----", "3rd Coupler," and "4th Turbo Ring" DIP switches to the ON position on switch A.
7. Enable "Turbo Ring V2" and "Ring coupling (Primary)" by setting the "3rd Coupler" and "4th Turbo Ring" DIP switches to the ON position and "1st -----" to the OFF on position switch B.



8. The following table shows the default Turbo Ring Ports and Ring Coupling Port(s) when using DIP switches to configure the EDS for "Turbo Ring" and "Ring Coupling"

Model name	Default Turbo Ring Port(s)	Default Ring Coupling Port(s)
EDS-405A series	1st Port : 4 2nd Port : 5	Coupling Port : 2
EDS-408A series	1st Port : 7 2nd Port : 8	Coupling Port : 5
EDS-505A series	1st Port : 4 2nd Port : 5	Coupling Port : 2
EDS-508A series	1st Port : 7 2nd Port : 8	Coupling Port : 5
EDS-510A series	1st Port : G2 2nd Port : G3	Coupling Port : G1
EDS-P510series	1st Port : G2 2nd Port : G3	Coupling Port : G1
EDS-G509 series	1st Port : G2 2nd Port : G3	Coupling Port : G1
EDS-608 series	1st Port : 2-3 2nd Port : 2-4	Coupling Port : 2-2
EDS-611 series	1st Port : G2 2nd Port : G3	Coupling Port : G1
EDS-616 series	1st Port : 4-3 2nd Port : 4-4	Coupling Port : 4-2
EDS-619 series	1st Port : G2 2nd Port : G3	Coupling Port : G1

9. Finally, connect the coupling ports of both switch A and B to the adjacent ring (e.g., Switch C and D) ,

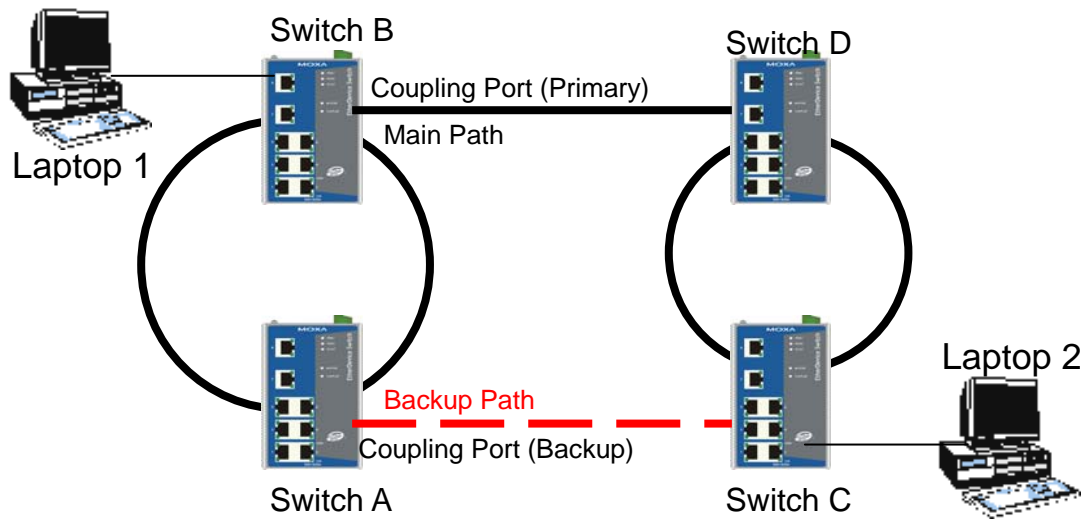
Method II

Enabling Ring Coupling by web console for the EDS-400A/500A/600/700/800 series, IKS-6524/6526 Series, IKS-6726 Series, PT-7828 Series, PT-G7509 Series, PT-7700 Series and TN-5500 Series

Before performing the following steps, restore the Moxa switch's default settings via web console.

1. Make sure that all DIP switches are set to OFF and then power on the Moxa switch.
2. Make sure that the Moxa switch and the host PC are properly connected to the network.
3. Adjust the Moxa switch's IP settings as necessary so that it is on the same network as your PC. You may also need to modify the host PC's IP configuration. Make sure you can ping the Moxa switch from your host PC.
Note: The IP addresses of the Moxa switch and the PC must be on the same subnet. If one IP address is modified, you may need to modify the other IP address.
4. Prepare 4 Turbo Ring devices (i.e., Switch A, B, C and D as in the diagram above) to form 2 Turbo Rings.
5. Enable Ring Coupling on Switch A and B via web console, separately. It can be found through the web console as follows:
Communication Redundancy→Turbo Ring V2→ Enable Ring Coupling→ Coupling mode: Ring coupling.
6. Decide which ports in switch A and B to use as the "1st Redundant Port", "2nd Redundant Port," "Ring coupling (Primary)," and "Ring coupling (Backup)".
7. Enable Turbo Ring V2 on Switch C and D via web console, separately. It can be found through the web console as follows:
Communication Redundancy→Turbo Ring V2
8. Decide which ports in switch C and D are appropriate to be used as "1st Redundant Port" and "2nd Redundant Port."
9. Carefully connect the cables between the 2 Turbo Rings to create ring coupling.
10. Monitor the status of "Ring coupling (Primary)" and "Ring coupling (Backup)" on switch A and B.

Testing Ring Coupling



1. Configure Laptop 1 and 2 to be located in the same subnet.
2. Connect Laptop 1 and 2 to switch B and C, separately.
3. Run a **Ping** x.x.x.x command from Laptop 1. (x.x.x.x is Laptop 2's IP address)
4. Unplug the primary path of switch B and make sure the ping session recovers immediately.
5. Plug in the primary path of switch B and make sure the ping session can recover immediately.