Turbo Ring

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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 Turbo Ring?

Moxa developed the proprietary Turbo Ring protocol to optimize communication redundancy and achieve a faster recovery time on the network.

The Turbo Ring protocols identify one switch as the *master* of the network, and then automatically block packets from traveling through any of the network's redundant loops. In the event that one branch of the ring gets disconnected from the rest of the network, the protocol automatically readjusts the ring so that the part of the network that was disconnected can reestablish contact with the rest of the network.

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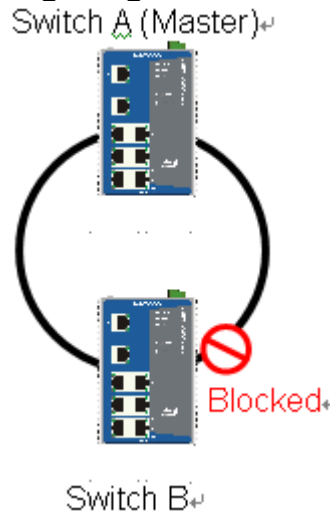
"Turbo Ring" rings with 2 EDS units

On above ring network, one Switch (Ex: Switch A) is set as Master, to form a redundant ring. For a "Turbo Ring" ring, the "Blocked" redundant port is calculated from a formula.

Enabling Turbo Ring

Method I

Enabling Turbo Ring 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" ring. It can be found through the web console as follows: **Turbo Ring DIP Switches→Set DIP switch as Turbo Ring.**

5. Enable "Turbo Ring" by setting the "4.Turbo Ring" DIP switch to the ON position on switch A and B (as in the above diagram), separately.

6. The following tables shows the default Turbo Ring Ports Port(s) when using DIP switches to configure the EDS for "Turbo Ring"

| Model name	Default Turbo Ring Port(s)
EDS-405A series	1st Port：4 2nd Port：5
EDS-408A series	1st Port：7 2nd Port：8
EDS-505A series	1st Port：4 2nd Port：5
EDS-508A series	1st Port：7 2nd Port：8
EDS-510A series	1st Port：G2 2nd Port：G3
EDS-P510series	1st Port：G2 2nd Port：G3
EDS-G509 series	1st Port：G8 2nd Port：G9
EDS-608:	1st Port：2-3 2nd Port：2-4
EDS-611	1st Port：G2 2nd Port：G3
EDS-616	1st Port：4-3 2nd Port：4-4
EDS-619	1st Port：G2 2nd Port：G3

Method II

Enabling Turbo Ring 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 default settings via web console.

1. Make sure that all DIP switches are set to OFF and then turn the Moxa switch on.

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 2 Turbo Ring devices (i.e., Switch A, B as in the above diagram) to form 1 Turbo Ring group.

5. Decide which ports in switch A and B to use as the "1st Redundant Port" and "2nd Redundant Port". It can be found through the web console as follows:

   Communication Redundancy→ Redundancy Protocol→"Turbo Ring"

6. Carefully connect the Turbo Ring cables.

7. Monitor the status of the "1ˢᵗ Redundant Port" and "2ⁿᵈ Redundant Port."

Testing Turbo Ring
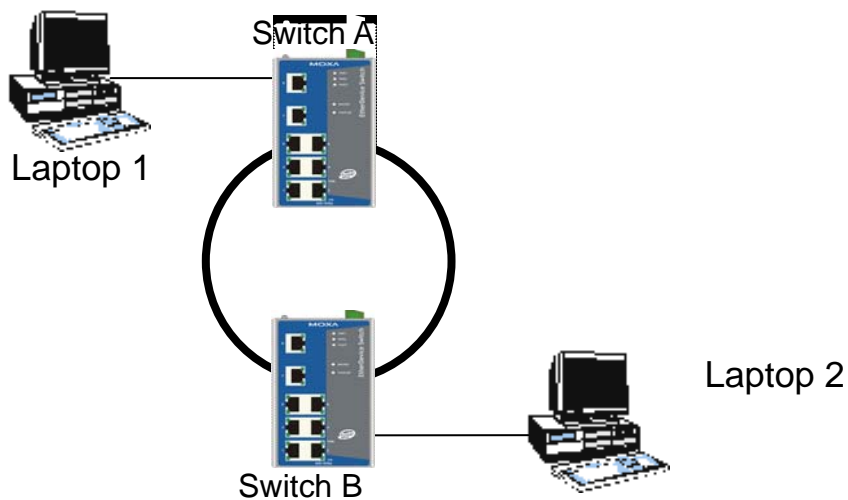
1. Configure Laptop 1 and 2 to be located in the same subnet.

2. Connect Laptop 1 and 2 to switch A and B, 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 main path cable of switch A and make sure the ping session recovers immediately.

5. Monitor the status of the 1ˢᵗ and 2ⁿᵈ Redundant Port

6. Plug in the main path cable of switch A and make sure the ping session recovers immediately.

7. Monitor the status of the 1ˢᵗ and 2ⁿᵈ Redundant Port