

Troubleshooting Procedures for Common Ethernet Media Problems

Media Problem	Suggested Actions
Excessive Noise	<p>Step 1 Use the <code>show interfaces ethernet EXEC</code> command to determine the status of the router Ethernet interfaces. The presence of many cyclic-redundancy-check (CRC) errors but not many collisions is an indication of excessive noise.</p> <p>Step 2 Check cables to determine whether any are damaged.</p> <p>Step 3 Look for badly spaced taps causing reflections.</p> <p>Step 4 If you are using 100BASE-TX, make sure you are using Category 5 cabling and not another type, such as Category 3.</p>
Excessive Collisions	<p>Step 1 Use the <code>show interfaces ethernet</code> command to check the rate of collisions. The total number of collisions with respect to the total number of output packets should be approximately 0.1 percent or less.</p> <p>Step 2 Use a time domain reflectometer (TDR) to find any unterminated Ethernet cables.</p> <p>Step 3 Look for a jabbering transceiver attached to a host. (This might require host-by-host inspection or the use of a protocol analyzer.)</p>
Excessive Runt Frames	<p>Step 1 In a shared Ethernet environment, runt frames are almost always caused by collisions. If the collision rate is high, refer to the problem "Excessive collisions" earlier in this table.</p> <p>Step 2 If runt frames occur when collisions are not high or in a switched Ethernet environment, then they are the result of underruns or bad software on a network interface card (NIC).</p> <p>Step 3 Use a protocol analyzer to try to determine the source address of the runt frames.</p>
Late Collisions ¹	<p>Step 1 Use a protocol analyzer to check for late collisions. Late collisions should never occur in a properly designed Ethernet network. They usually occur when Ethernet cables are too long or when there are too many repeaters in the network.</p> <p>Step 2 Check the diameter of the network and make sure it is within specification.</p>
No Link Integrity on 10BASE-T, 100BASE-T, or 100BASE-TX	<p>Step 1 Make sure you are not using 100BASE-T4 when only two pairs of wire are available; 100BASE-T4 requires four pairs.</p> <p>Step 2 Check for 10BASE-T, 100BASE-T4, or 100BASE-TX mismatch (for example, a card different from the port on a switch).</p> <p>Step 3 Determine whether the cross-connects are (for example, be sure straight-through cables are being used between stations and the switch).</p> <p>Step 4 Check for excessive noise (see the problem "Excessive noise" earlier in this table).</p>

¹A late collision is a collision that occurs beyond the first 64 bytes of an Ethernet frame.