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Q&A

Troubleshooting an Alarm Condition on the ADTRAN TSU IQ+

Q:

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A:

Introduction

An alarm condition on the ADTRAN TSU IQ+ indicates a problem on the Frame Relay circuit. This condition must be cleared before the application can operate.

Troubleshooting the Alarm Condition

Question: My alarm light is on. What should I do?

Check the physical layer first. Under network port statistics, check the TSU state. There are seven possible states:

Open Loop: No RX signal.
Test From TELCO: Loopback code received from the service provider.
AIS Alarm: Unframed all ones received.
Red Alarm: Loss of frame synchronization.
Yellow Alarm: Telco side loss of frame synchronization.
ESF Normal: Normal condition for ESF link.
D4 Normal: Normal condition for D4 link.

If the TSU state is anything other than ESF normal or D4 normal, that is the cause of the alarm light. The network port statistics should show the T1 UA time and port UA time incrementing.

Question: How can I fix the TSU LOOP STATE?

- If the TSU Loop State is Open Loop, this typically indicates a cabling problem between the TSU IQ+ and the service provider's smart jack.

1. Verify that your service from your provider is a T1 and not a DDS signal.
2. Try replacing the cable between the TSU IQ and the service provider jack.
3. If the TSU IQ+ is located at an extended demarcation point, try moving the unit to the demarcation point in order to eliminate an in-house wiring problem.
4. Verify that wires 1, 2, 4, and 5 are straight through from the demarcation point to the network port.
5. Connect the TSU IQ to the ADTRAN-provided T1 loopback plug. Be sure to set the network clock source to internal and the network signal type to none and power cycle (for this test only). This should cause the alarm light to go out. If it does, then the unit is not causing the problem.

- If the TSU Loop State is Test From Telco, this indicates your service provider has sent a loop up code to the CSU. Contact your service provider to clear this condition.
- If the TSU Loop State is AIS Alarm, the TSU IQ+ is receiving what is often called a Blue alarm from a device in your service provider's network. Contact your service provider to clear this condition.
- If the TSU Loop State is Red Alarm, this indicates the TSU IQ+ cannot achieve frame synchronization with the T1.
    1. Typically a Frame Relay network uses ESF as the framing format, but try changing this configuration option to D4.
    2. Try replacing the cable between the TSU IQ and the service provider jack.
    3. If the TSU IQ+ is located at an extended demarcation point, try moving the unit to the demarcation point in order to eliminate an in-house wiring problem.
    4. Verify that wires 1, 2, 4, and 5 are straight through from the demarcation point to the network port.
    5. Connect the TSU IQ to the ADTRAN-provided T1 loopback plug. Be sure to set the network clock source to internal and the network signal type to none (for this test only). This should cause the alarm light to go out. If it does, you know the unit is not causing the problem.
    6. Change the Line Build Out (LBO) to a lower setting of 7.5, 15.0, or 22.5, waiting at least 15 seconds for the condition to clear after trying each setting.

- If the TSU Loop State is Yellow Alarm, this indicates that a device in your service provider's network cannot achieve frame synchronization with the T1.
    1. Change the Line Build Out (LBO) to a lower setting of 7.5, 15.0, or 22.5, waiting at least 15 seconds for the condition to clear after trying each setting.
    2. Try replacing the cable between the TSU IQ and the service provider jack.
    3. If the TSU IQ+ is located at an extended demarcation point, try moving the unit to the demarcarcation point in order to eliminate an in-house wiring problem.
    4. Verify that wires 1, 2, 4, and 5 are straight through from the demarcation point to the network port.
    5. Connect the TSU IQ to the ADTRAN-provided T1 loopback plug. Be sure to set the network clock source to internal and the network signal type to none (for this test only). This should cause the alarm light to go out. If it does, you know the unit is not causing the problem.

If none of these efforts eliminate the alarm light, contact the service provider.

Question: Now the TSU state says normal, but the alarm light is still on. What do I try next?

Check layer two. Under network port statistics, check the signaling state. If it says down, this is the cause of the alarm light. Check the following network port statistics: RX Full Status, TX Full Status, RX LI only, and TX LI only. If you see TX, but no RX, the service provider's Frame Relay switch is not responding to the TSU IQ+ signaling. Try changing the network signal type. Try all four options (ANSI, ITU-T, LMI, and auto) one at a time. Remember to wait at least a full minute after each change to see if the signal state changes to up. This will allow the TSU IQ+ and Frame Relay switch to trade a sufficient number of polls to determine if the circuit is up. If you have tried each signaling type and the signal state remains down, contact the service provider.

If you experience any problems using your ADTRAN product, please contact ADTRAN Technical Support @ 888-423-8726