

# HP 5920 & 5900 Switch Series Troubleshooting Guide

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# Introduction

This document provides information about troubleshooting common software and hardware problems with the HP 5920 & 5900 switch series.

This document is not restricted to specific software or hardware versions.

## General guidelines

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### ⓘ IMPORTANT:

To prevent a problem from causing loss of configuration, save the configuration each time you finish configuring a feature. For configuration recovery, regularly back up the configuration to a remote server.

When you troubleshoot the switch, follow these general guidelines:

- To help identify the cause of the problem, collect system and configuration information, including:
  - Symptom, time of failure, and configuration.
  - Network topology information, including the network diagram, port connections, and points of failure.
  - Log messages and diagnostic information. For more information about collecting this information, see "[Collecting log and operating information.](#)"
  - Physical evidence of failure:
    - Photos of the hardware.
    - Status of the LEDs.
  - Steps you have taken, such as reconfiguration, cable swapping, and reboot.
  - Output from the commands executed during the troubleshooting process.
- To ensure safety, wear an ESD-preventive wrist strap when you replace or maintain a hardware component.
- If hardware replacement is required, use the release notes to verify the hardware and software compatibility.

## Collecting log and operating information

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### ⓘ IMPORTANT:

By default, the information center is enabled. If the feature is disabled, you must use the **info-center enable** command to enable the feature for collecting log messages.

---

[Table 1](#) shows the types of files that the system uses to store operating log and status information. You can export these files by using FTP, TFTP, or USB.

In an IRF system, these files are stored on the master device. Multiple devices will have log files if master/subordinate switchovers have occurred. You must collect log files from all these devices. To more easily locate log information, use a consistent rule to categorize and name files. For example, save log files to a separate folder for each member device, and include their slot numbers in the folder names.

**Table 1 Log and operating information**

Category	File name format	Content
Common log	<b>logfile.log</b>	Command execution and operational log messages.
Diagnostic log	<b>diagfile.log</b>	Diagnostic log messages about device operation, including the following items: <ul style="list-style-type: none"><li>• Parameter settings in effect when an error occurs.</li><li>• Information about a card startup error.</li><li>• Handshaking information between member devices when a communication error occurs.</li></ul>
Operating statistics	<i>file-basename.gz</i>	Current operation statistics for feature modules, including the following items: <ul style="list-style-type: none"><li>• Device status.</li><li>• CPU status.</li><li>• Memory status.</li><li>• Configuration status.</li><li>• Software entries.</li><li>• Hardware entries.</li></ul>

## Collecting common log messages

1. Save common log messages from the log buffer to a log file.  
By default, the log file is saved in the **logfile** directory of the Flash memory on each member device.

```
<Sysname> logfile save
```

```
The contents in the log file buffer have been saved to the file  
flash:/logfile/logfile.log
```

2. Identify the log file on each member device:

```
# Display the log file on the master device.
```

```
<Sysname> dir flash:/logfile/
```

```
Directory of flash:/logfile
```

```
0 -rw-          21863 Jul 11 2013 16:00:37  logfile.log
```

```
524288 KB total (107944 KB free)
```

```
# Display the log file on each subordinate device:
```

```
<Sysname> dir slot2#flash:/logfile/
```

```
Directory of slot2#flash:/logfile
```

```
0 -rw-          21863 Jul 11 2013 16:00:37  logfile.log
```

```
524288 KB total (107944 KB free)
```

3. Transfer the files to the desired destination by using FTP, TFTP, or USB. (Details not shown.)

## Collecting diagnostic log messages

1. Save diagnostic log messages from the diagnostic log file buffer to a diagnostic log file.

By default, the diagnostic log file is saved in the **diagfile** directory of the Flash memory on each member device.

```
<Sysname> diagnostic-logfile save
```

```
The contents in the diagnostic log file buffer have been saved to the file
flash:/diagfile/diagfile.log
```

**2.** Identify the diagnostic log file on each member device:

# Display the diagnostic log file on the master device.

```
<Sysname> dir flash:/diagfile/
```

```
Directory of flash:/diagfile
```

```
  0 -rw-          161321 Jul 11 2013 16:16:00  diagfile.log
```

```
524288 KB total (107944 KB free)
```

# Display the diagnostic log file on each subordinate device:

```
<Sysname> dir slot2#flash:/diagfile/
```

```
<Sysname> dir slot2#flash:/diagfile/
```

```
Directory of slot2#flash:/diagfile
```

```
  0 -rw-          161321 Jul 11 2013 16:16:00  diagfile.log
```

```
524288 KB total (107944 KB free)
```

**3.** Transfer the files to the desired destination by using FTP, TFTP, or USB. (Details not shown.)

## Collecting operating statistics

You can collect operating statistics by saving the statistics to a file or displaying the statistics on the screen.

When you collect operating statistics, follow these guidelines:

- Log in to the device through a network port or management port instead of the console port, if possible. Network and management ports are faster than the console port.
- Do not execute commands during operating statistics collection.
- HP recommends saving operating statistics to a file to retain the information.

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**NOTE:**

The amount of time to collect statistics increases along with the number of IRF member devices.

---

To collect operating statistics:

- 1.** Disable pausing between screens of output if you want to display operating statistics on the screen. Skip this step if you are saving statistics to a file.

```
<Sysname> screen-length disable
```

- 2.** Collect operating statistics for multiple feature modules.

```
<Sysname> display diagnostic-information
```

```
Save or display diagnostic information (Y=save, N=display)? [Y/N] :
```

- 3.** At the prompt, choose to save or display operating statistics:

# To save operating statistics, enter **y** at the prompt and then specify the destination file path.

```
Save or display diagnostic information (Y=save, N=display)? [Y/N] :y
```

```

Please input the file name(*.tar.gz)[flash:/diag.tar.gz] :flash:/diag.tar.gz
Diagnostic information is outputting to flash:/diag.tar.gz.
Please wait...
Save successfully.
<Sysname> dir flash:/
Directory of flash:
...
   6 -rw-          898180 Jun 26 2013 09:23:51   diag.tar.gz

524288 KB total (107944 KB free

# To display operating statistics on the monitor terminal, enter n at the prompt.
Save or display diagnostic information (Y=save, N=display)? [Y/N] :N
=====
=====display clock=====
07:46:55 UTC Sat 10/10/2014
=====
=====display version=====
.....

```

## Contacting technical support

If you cannot resolve a problem after using the troubleshooting procedures in this document, contact HP Support. When you contact an authorized HP support representative, be prepared to provide the following information:

- Information described in "[General guidelines](#)."
- Product serial numbers.
- Technical support registration numbers (if applicable).

This information will help the support engineer assist you as quickly as possible.

The following is the contact of HP Support for networking products:

<http://www.hp.com/networking/support>

## Troubleshooting hardware

This section provides troubleshooting information for common hardware problems.

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### NOTE:

This section describes how to troubleshoot unexpected switch reboot, power supply failure, and fan tray failure. To troubleshoot ports, see "[Troubleshooting ports](#)."

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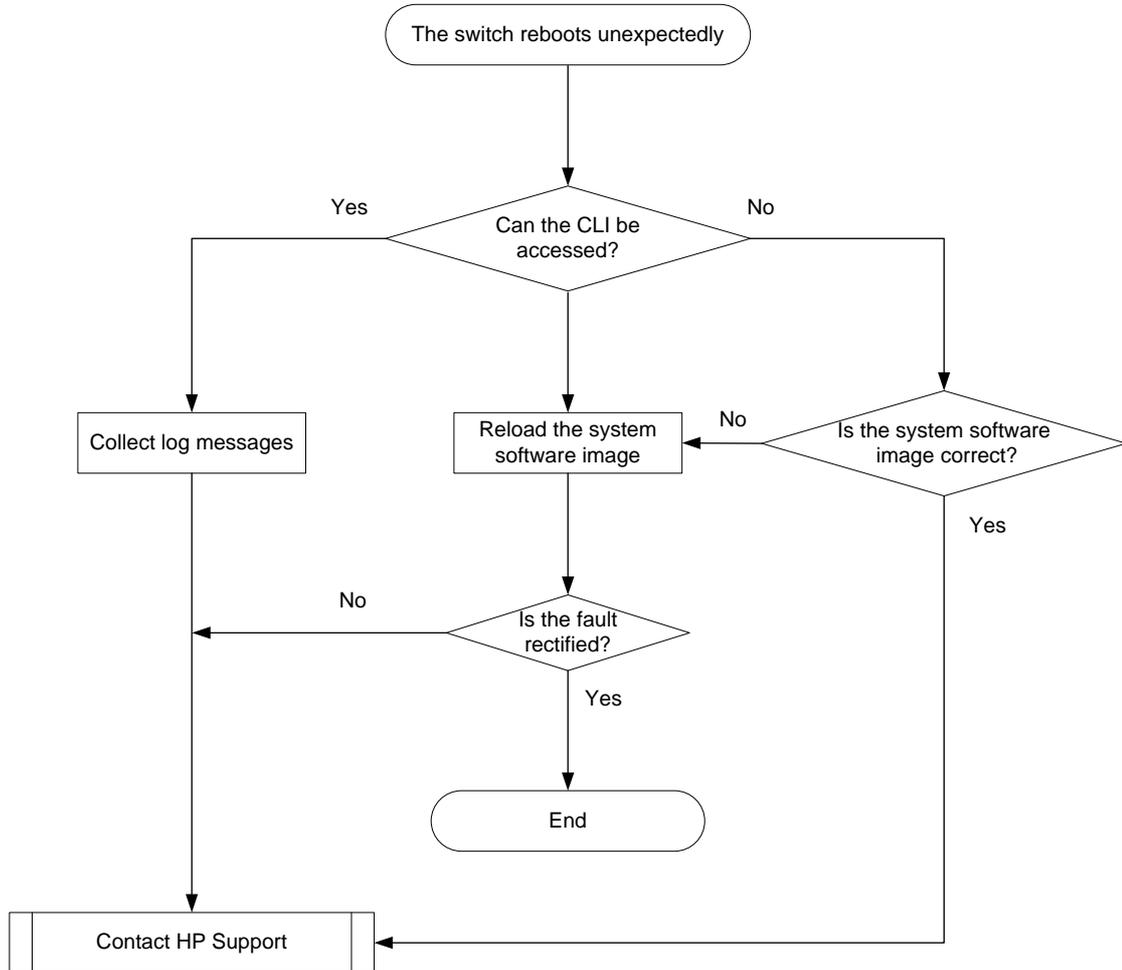
## Unexpected switch reboot

### Symptom

The switch reboots unexpectedly when it is operating.

## Troubleshooting flowchart

Figure 1 Troubleshooting unexpected switch reboot



## Solution

To resolve the problem:

1. Verify that you can access the CLI after the switch reboots.
  - If you can access the CLI, execute the **display diagnostic-information** command to collect log messages.
  - If you cannot access the CLI, go to step 2.
2. Verify that the system software image on the switch is correct.

Log in to the switch through the console port and restart the switch. If the system reports that a CRC error has occurred or that no system software image is available, reload the system software image. The system software image is automatically set to the current system software image during the Boot ROM image running process.
3. If the problem persists, contact HP Support.

# Operating power supply failure

## Symptom

A trap or log is generated indicating that an operating power supply is faulty.

## Solution

To resolve the problem:

1. Execute the **display power** command to display power supply information.

```
<Sysname> display power
Slot 1
  Input Power      : 203(W)
  Power           1
  State           : Normal
  Type            : AC
  Power           2
  State           : Absent
```

If the power supply is in **Absent** state, go to step 2. If the power supply is in **Fault** state, go to step 3.

2. Remove and reinstall the power supply to make sure the power supply is installed securely. Then, execute the **display power** command to verify that the power supply has changed to **Normal** state. If the power supply remains in **Absent** state, replace the power supply.
3. When the power supply is in **Fault** state, do the following:
  - a. Verify that the power supply is connected to the power source securely. If it has been disconnected from the power source (The switch is being powered up with another power supply.), connect the power source to it.
  - b. Determine whether the power supply is in high temperature. If dust accumulation on the power supply causes the high temperature, remove the dust. Then remove and reinstall the power supply. Execute the **display power** command to verify that the power supply has changed to **Normal** state. If the power supply remains in **Fault** state, go to step c.
  - c. Install the power supply into an empty power supply slot. Then execute the **display power** command to verify that the power supply has changed to **Normal** state in the new slot. If the power supply remains in **Fault** state, replace the power supply.
4. If the problem persists, contact HP Support.

# Newly installed power supply failure

## Symptom

A trap or log is generated indicating that a newly installed power supply is faulty.

## Solution

To resolve the problem:

1. Execute the **display power** command to display power supply information.

```
<Sysname> display power
Slot 1
  Input Power      : 203(W)
  Power           1
  State           : Normal
  Type            : AC
  Power           2
  State           : Absent
```

If the power supply is in **Absent** state, go to step 2. If the power supply is in **Fault** state, go to step 3.

2. When the power supply is in **Absent** state, do the following:
  - a. Remove and reinstall the power supply to make sure the power supply is installed securely. Then execute the **display power** command to verify that the power supply has changed to **Normal** state. If the power supply remains in **Absent** state, go to step b.
  - b. Remove and install the power supply into an empty power supply slot. Then execute the **display power** command to verify that the power supply has changed to **Normal** state in the new slot. If the power supply remains in **Absent** state, go to step 4.
3. Remove and install the power supply into an idle power supply slot. Then execute the **display power** command to verify that the power supply has changed to **Normal** state in the new slot. If the power supply remains in **Fault** state, go to step 4.
4. If the problem persists, contact HP Support.

## Fan tray failure

### Symptom

A trap or log is generated indicating that an operating fan tray or a newly installed fan tray is faulty.

### Solution

To resolve the problem:

1. Execute the **display fan** command to display the operating states of the fan tray.

```
<Sysname> display fan
Slot 1
  FAN      1
  State    : FanDirectionFault
  Wind Direction :Port-to-Power
  Prefer Wind Direction :Power-to-Port
  FAN      2
  State    : FanDirectionFault
  Wind Direction :Port-to-Power
  Prefer Wind Direction :Power-to-Port
```

- o If the **Wind Direction** value is different from the **Prefer Wind Direction** value, replace the fan tray with one that has an airflow direction as required, or execute the **fan prefer-direction** command to configure the preferred airflow direction as required.

- If the fan tray is in **Absent** state, go to step 2.
  - If the fan tray is in **Fault** state, go to step 3.
2. Remove and reinstall the fan tray to make sure the fan tray is installed securely. Then execute the **display fan** command to verify that the fan tray has changed to **Normal** state. If the fan tray remains in **Absent** state, replace the fan tray.
  3. Execute the **display environment** command to display temperature information. If the temperature continues to rise, put your hand at the air outlet to feel if air is being expelled out of the air outlet. If no air is being expelled out of the air outlet, remove and reinstall the fan tray. Then execute the **display fan** command to verify that the fan tray has changed to **Normal** state. If the fan tray remains in **Fault** state, replace the fan tray.

You must make sure the switch operating temperature is below 60°C (140°F) while you replace the fan tray. If a new fan tray is not readily available, power off the switch to avoid damage caused by high temperature.

4. If the problem persists, contact HP Support.

## Related commands

This section lists the commands that you might use for troubleshooting the hardware.

Command	Description
<b>dir</b>	Displays information about files and directories.
<b>display boot-loader</b>	Displays current configuration files and system software images.
<b>display environment</b>	Displays temperature information.
<b>display fan</b>	Displays the operating states of the fan tray.
<b>display logbuffer</b>	Displays the state of the log buffer and the log information in the log buffer.
<b>display power</b>	Displays power supply information.

# Troubleshooting ACL

This section provides troubleshooting information for common problems with ACLs.

## ACL application failure with an error message

### Symptom

The system fails to apply a packet filter or an ACL-based QoS policy to the hardware. It also displays the "Reason: Not enough hardware resource" message.

### Solution

To resolve the problem:

1. Execute the **display qos-acl resource** command, and then check the **Remaining** field for ACL resources insufficiency.  
If this field displays 0, the ACL hardware resources are exhausted.
2. To free hardware resources, delete unnecessary ACLs.
3. If the problem persists, contact HP Support.

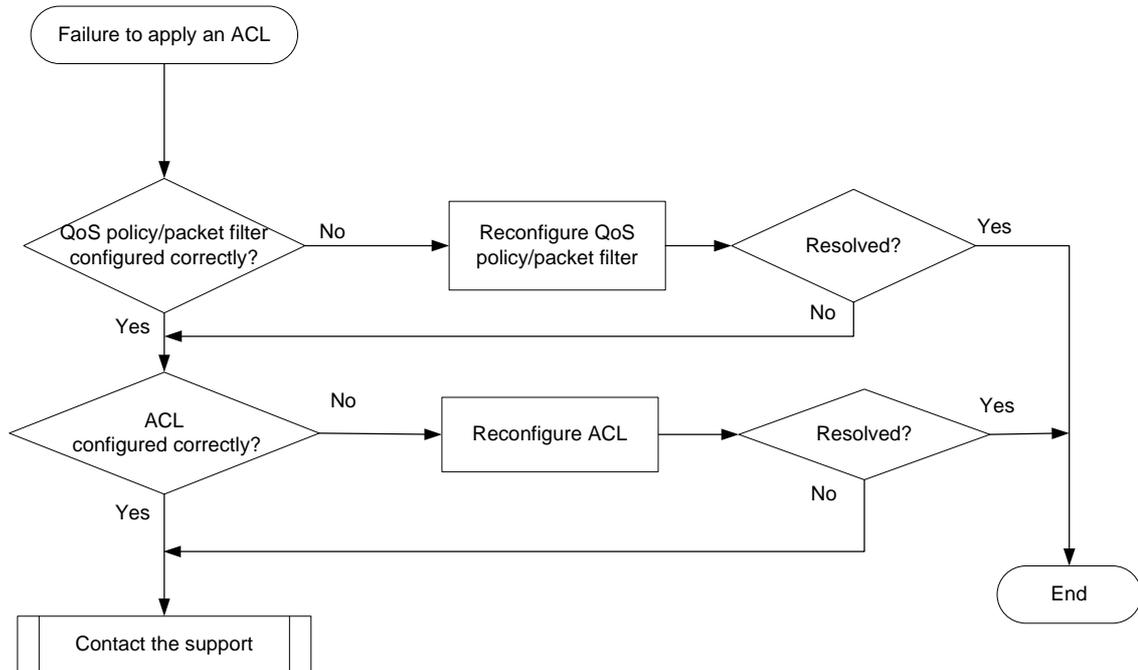
## ACL application failure without an error message

### Symptom

The system applies a packet filter or an ACL-based QoS policy to the hardware. However, the ACL does not take effect.

# Troubleshooting flowchart

Figure 2 Troubleshooting ACL application failure



## Solution

Choose a solution depending on the module that uses the ACL.

### ACL used in a QoS policy

To resolve the problem when the ACL is used in a QoS policy:

1. Verify that the QoS policy is configured correctly:
  - a. Use one of the following commands to check the QoS policy for configuration errors, depending on the policy application destination:

Destination	Command
Interface	<b>display qos policy interface</b>
VLAN	<b>display qos vlan-policy</b>
Global	<b>display qos policy global</b>
Control plane	<b>display qos policy control-plane slot</b> <i>slot-number</i>

- b. If the QoS policy does not contain a class-behavior association, associate the traffic behavior with the traffic class.
- c. If the QoS policy contains a class-behavior association, execute the **display traffic classifier user-defined** command and the **display traffic behavior user-defined** command to check for traffic class and behavior configuration errors, respectively.
  - If they are configured incorrectly, reconfigure them.

- If they are configured correctly, go to step 2.
- 2. Verify that the ACL is configured correctly.  
Execute the **display acl** command to check whether the ACL is configured correctly.
  - If the ACL is configured incorrectly, reconfigure it.
  - If the ACL is configured correctly, go to step 3.
- 3. If the problem persists, contact HP Support.

### ACL used in a packet filter

To resolve the problem when the ACL is used in a packet filter:

1. Verify that the packet filter is configured correctly.  
Execute the **display packet-filter** command to check whether the packet filter is configured correctly.
  - If there are any configuration errors, reconfigure the packet filter.
  - If there is no configuration error, go to step 2.
2. Verify that the ACL is configured correctly.  
Execute the **display acl** command to check whether the ACL is configured correctly.
  - If the ACL is configured incorrectly, reconfigure it.
  - If the ACL is configured correctly, go to step 3.
3. If the problem persists, contact HP Support.

## Related commands

This section lists the commands that you might use for troubleshooting ACLs.

Command	Description
<b>display acl</b>	Displays configuration and match statistics for ACLs.
<b>display diagnostic-information</b>	Displays operating statistics for multiple feature modules in the system.
<b>display packet-filter</b>	Displays whether an ACL has been successfully applied to an interface for packet filtering.
<b>display qos-acl resource</b>	Displays QoS and ACL resource usage.
<b>display qos policy control-plane</b>	Displays information about the QoS policies applied to the specified control plane.
<b>display qos policy global</b>	Displays information about global QoS policies.
<b>display qos policy interface</b>	Displays information about the QoS policies applied to an interface or to all interfaces.
<b>display qos policy user-defined</b>	Displays user-defined QoS policies.
<b>display qos vlan-policy</b>	Displays information about QoS policies applied to VLANs.
<b>display traffic classifier user-defined</b>	Displays traffic class configuration.
<b>display traffic behavior user-defined</b>	Displays traffic behavior configuration.

# Troubleshooting IRF

This section provides troubleshooting information for common problems with IRF.

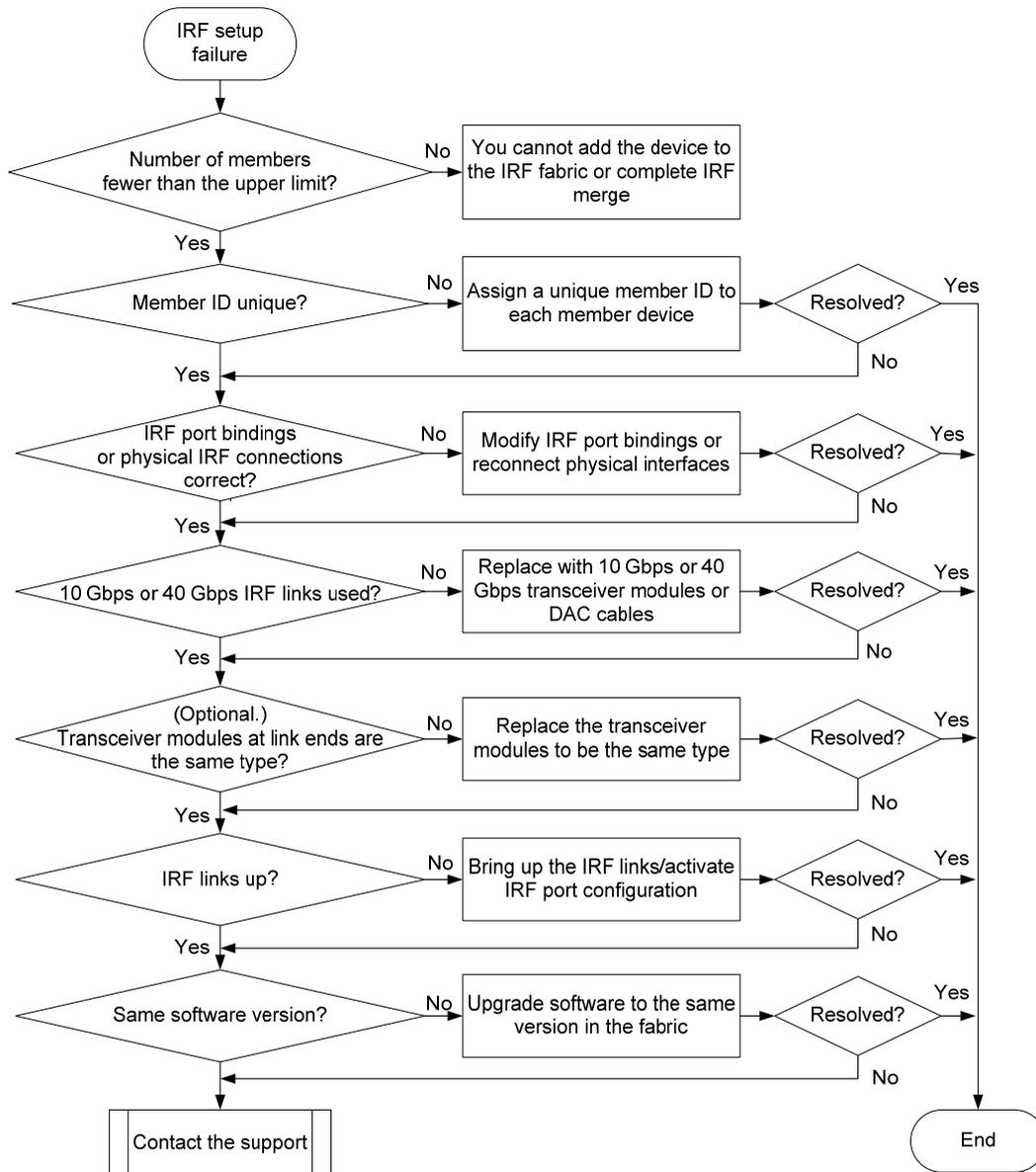
## IRF fabric setup failure

### Symptom

An IRF fabric cannot be set up.

# Troubleshooting flowchart

Figure 3 Troubleshooting IRF fabric setup failure



## Solution

To resolve the problem:

1. Verify that the number of member devices does not exceed the upper limit.

If you are adding a new member device to an existing IRF fabric or merging IRF fabrics, use the **display irf** command to identify the number of member devices in the IRF fabrics. If the total number of member devices exceeds the upper limit, the IRF setup will fail.

The upper limit varies by software version:

- o **Release 22xx**—Four.

- **Release 2307 and later versions**—Nine.
- 2. Verify that the member ID of each member device is unique:
  - a. Execute the **display irf** command to view the member ID of each member device.
  - b. Assign a unique member ID to each member.
    - If you are adding a new member device to an existing IRF fabric, assign the member device a member ID that is not being used in the IRF fabric.
    - If you are merging IRF fabrics, make sure each member device in these IRF fabrics has a unique member ID.
- 3. Verify that the IRF port bindings and physical IRF link connections are correct:

---

**!** **IMPORTANT:**

When you connect two neighboring IRF members, you must connect the physical interfaces of IRF-port 1 on one member to the physical interfaces of IRF-port 2 on the other.

---

- a. Execute the **display irf configuration** command on each member device, and check the **IRF-Port1** and **IRF-Port2** fields for IRF port bindings.
  - b. Verify that all or none of the ports in a port group are used as IRF physical interfaces.
 

The following are port grouping rules:

    - The 10-GE ports or SFP+ ports are grouped by port number in order, starting from 1. Each port group contains four ports.
    - The 10-GE breakout interfaces split from a QSFP+ port belong to the same port group.
  - c. Verify that the physical IRF connections are consistent with the IRF port bindings.
  - d. If there are binding errors or connection inconsistencies, reconfigure the IRF port bindings or reconnect the IRF physical interfaces.
4. Verify that the IRF links are 10 Gbps or 40 Gbps:
- a. Verify that the transceiver modules or DAC cables for IRF connection are labeled with **10Gbps**, **SFP+**, **40Gbps**, or **QSFP+**.
  - b. Replace the transceiver module or DAC cable if it is not for 10 Gbps or 40 Gbps connection.
5. (Optional.) Verify that transceiver modules at the two ends of an IRF link are the same type. If the transceiver modules are not the same type, replace them to be the same type. Skip this step if you are using SFP+ or QSFP+ DAC cables to connect IRF member devices.
6. Verify that all IRF links are up:
- a. Execute the **display irf topology** command, and then check the **Link** field.
    - If the **Link** field for each IRF port does not display **DOWN**, go to step 7.
    - If the **Link** field for an IRF port displays **DOWN**, go to step b.
  - b. Execute the **display irf link** command, and then check the **Status** field of the physical interfaces bound to the IRF port.
    - If the field displays **DOWN** or **ADM** (administratively down) for all the physical interfaces, remove the link failures or use the **undo shutdown** command to bring up the administratively down physical interfaces.
    - If the field displays **UP** for at least one of the physical interfaces, go to step c.
  - c. Save the configuration, and then execute the **irf-port-configuration active** command in system view to activate the IRF port configuration.

---

**!** **IMPORTANT:**

Activating IRF port configuration requires a reboot. To prevent configuration loss, you must save the configuration before you execute the **irf-port-configuration active** command.

---

7. Verify that all member devices use the same software version:
    - a. Execute the **display version** command to identify the software version of each member device.
    - b. Upgrade the software of all member devices to the same version.
- 

**NOTE:**

Typically, the **irf auto-update enable** command can automatically synchronize a member device with the software version of the master device. However, the synchronization might fail when the gap between the software versions is too large. For more information, see the release notes.

---

8. If the problem persists, contact HP Support.

## Related commands

This section lists the commands that you might use for troubleshooting IRF.

Command	Description
<b>display interface</b>	Displays interface information. Use this command to verify that each IRF port has a minimum of one physical interface in up state.
<b>display irf</b>	Displays IRF fabric information, including the member ID, role, priority, bridge MAC address, and description of each IRF member.
<b>display irf configuration</b>	Displays basic IRF settings, including the current member ID, new member ID, and physical interfaces bound to the IRF ports on each IRF member device. The new member IDs take effect at reboot.
<b>display irf topology</b>	Displays the IRF fabric topology, including the member IDs, IRF port state, and adjacencies of IRF ports.
<b>display version</b>	Displays system version information.
<b>irf-port-configuration active</b>	Activates IRF configuration on IRF ports.
<b>undo shutdown</b>	Brings up an Ethernet interface or subinterface.

# Troubleshooting Ethernet link aggregation

This section provides troubleshooting information for common problems with Ethernet link aggregation.

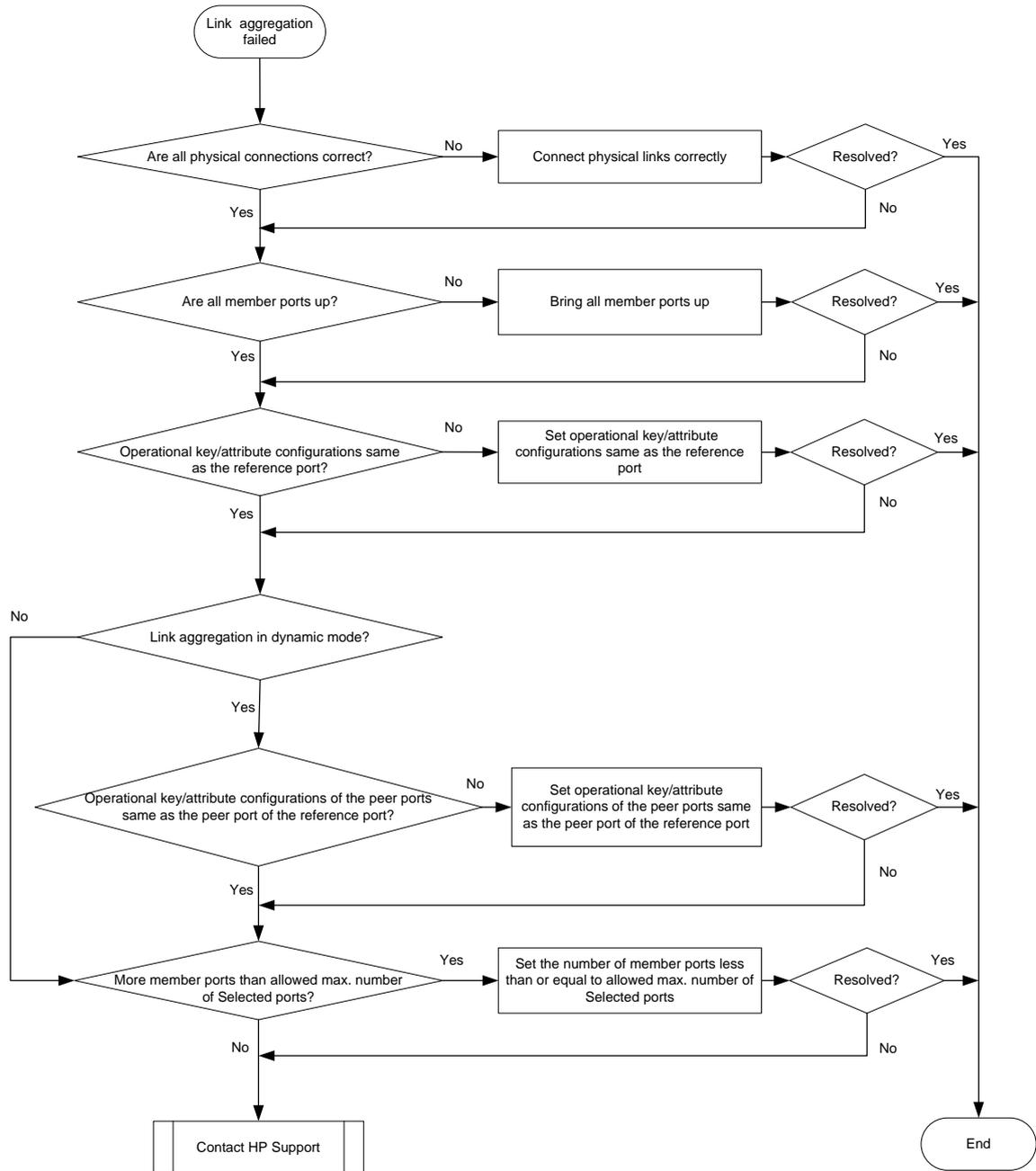
## Link aggregation failure

### Symptom

Some member ports fail to be placed in Selected state, and link aggregation does not operate correctly.

# Troubleshooting flowchart

Figure 4 Troubleshooting link aggregation failure



## Solution

To resolve the problem:

1. Verify that all physical connections are correct.  
You can verify the physical connections against your network plan.
2. Verify that all member ports are up:

- a. Execute the **display interface** command to display the status of the member ports.
  - b. If the member ports are down, follow the solution in "[Troubleshooting ports](#)" to troubleshoot the problem.
3. Verify that the member ports have the same operational key and attribute configurations as the reference port:
  - a. Execute the **display link-aggregation verbose** command to display the Selected state of the member ports.
  - b. Execute the **display current-configuration interface** command to display the configurations of the aggregate interface and the Unselected ports.
  - c. Configure the Unselected ports to make sure they have the same operational key and attribute configurations as the reference port.
4. Identify the aggregation mode of the aggregation group.
  - o If the aggregation mode is static, proceed to step 6.
  - o If the aggregation mode is dynamic, proceed to step 5.
5. Verify that the peer member ports have the same operational key and attribute configurations as the peer port of the reference port:
  - a. Execute the **display current-configuration interface** command on the peer device to display the configurations of the peer member ports.
  - b. Configure the peer member ports to make sure the peer ports have the same operational key and attribute configurations as the peer port of the reference port.
6. Verify that the number of member ports in the aggregation group does not exceed the configured maximum number of Selected ports.
  - a. Execute the **link-aggregation selected-port maximum** command to set the maximum number of Selected ports allowed in the aggregation group. The value range is 1 to 16.
  - b. Execute the **display link-aggregation verbose** command to verify that the number of member ports does not exceed the configured maximum number of Selected ports.  
If the number of member ports exceeds the maximum number of Selected ports, the ports with higher port numbers are in Unselected state.
  - c. Use the **undo port link-aggregation group** command to remove undesired member ports from the aggregation group.  
This makes sure all member ports you assign to the aggregation group can become Selected ports.
7. If the problem persists, contact HP Support.

## Related commands

This section lists the commands that you might use for troubleshooting Ethernet link aggregation.

Commands	Description
<b>display current-configuration interface</b>	Displays interface configuration.
<b>display interface</b>	Displays Ethernet interface information.
<b>display link-aggregation verbose</b>	Display detailed information about the aggregation groups that correspond to the existing aggregate interfaces.

Commands	Description
<b>link-aggregation selected-port maximum</b>	Configure the maximum number of Selected ports allowed in an aggregation group.

# Troubleshooting ports

This section provides troubleshooting information for common port problems.

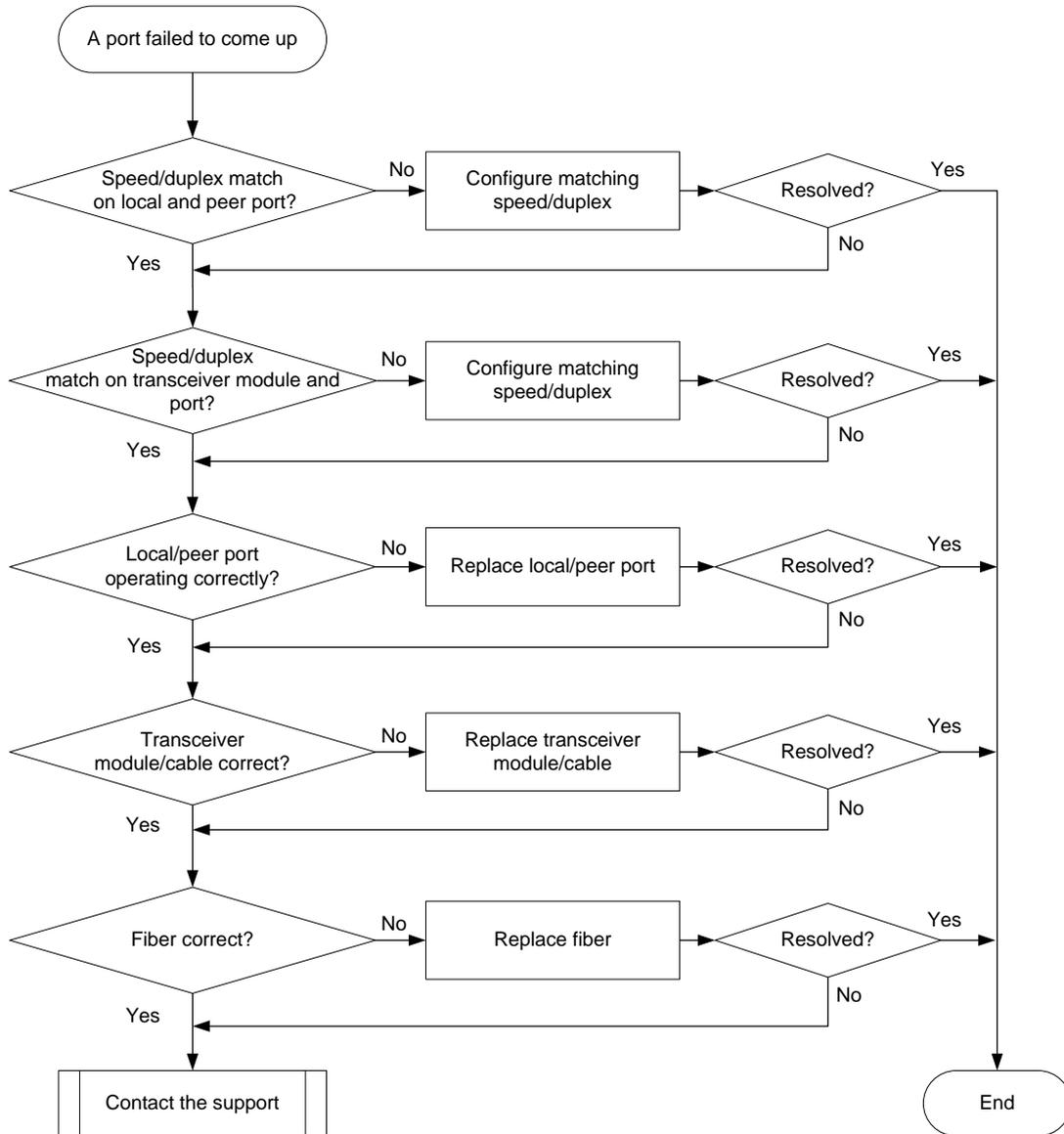
## A 10-GE SFP+ fiber port or 40-GE QSFP+ fiber port fails to come up

### Symptom

A 10-GE SFP+ fiber port or 40-GE QSFP+ fiber port fails to come up.

# Troubleshooting flowchart

Figure 5 Troubleshooting link up failure on a copper port



## Solution

To resolve the problem:

1. Verify that the speed and duplex mode of the local port match the speed and duplex mode of the peer port:
  - a. Execute the **display interface brief** command to examine whether the speed and duplex mode of the port match the speed and duplex mode of the peer port.
  - b. If they do not match, use the **speed** command and the **duplex** command to set the rate and duplex mode for the port.

2. Verify that the speed and duplex mode of the local port match the speed and duplex mode of the transceiver module:
  - a. Execute the **display interface brief** command to examine whether the speed and duplex mode of the port match the speed and duplex mode of the transceiver module.
  - b. If they do not match, use the **speed** command and the **duplex** command to set the rate and duplex mode for the port.
3. Verify that the ports at both ends are operating correctly:
  - a. For a 10-GE SFP+ fiber port, use an SFP+ cable (used for short-haul connection) to directly connect it to another 10-GE SFP+ fiber port on the local end. For a 40-GE QSFP+ port, use a QSFP+ cable (used for short-haul connection) to directly connect it to another 40-GE QSFP+ port on the local end.
  - b. Identify whether the port can come up:
    - If the port can come up, you can determine that the peer port fails. Replace the peer port with a new port operating correctly.
    - If the port cannot come up, you can determine that the local port fails. Replace the local port with a new port operating correctly.
4. Verify that the transceiver module and cable are operating correctly:
  - a. Use the **display transceiver alarm interface** command to check for alarms on the transceiver module:
    - The device displays **None** if no error has occurred.
    - The device displays alarms if the transceiver module has failed or if the type of the transceiver module does not match the port type.
  - b. Use an optical power meter to verify that the Tx power and Rx power of the transceiver module are stable and are within the correct range.
  - c. Execute the **display transceiver interface** command to verify that the local transceiver module has the same wavelength and transmission distance as the peer transceiver module.
  - d. If the transceiver module is not operating correctly, replace it with a HP transceiver module that matches the fiber port.

For more information about transceiver modules and cables, see the installation guide for the switch.

---

**NOTE:**

When you use a QSFP+ to SFP+ cable to connect a 40-GE QSFP+ fiber port, you must use an optical attenuator because the Tx optical power of the QSFP+ transceiver module exceeds the upper Rx optical power limit of the SFP+ transceiver module.

---

5. Verify that the fiber matches the transceiver module. If they do not match, replace the fiber with a new one that matches the transceiver module.

For more information about fibers, see the installation guide for the switch.
6. If the problem persists, contact HP Support.

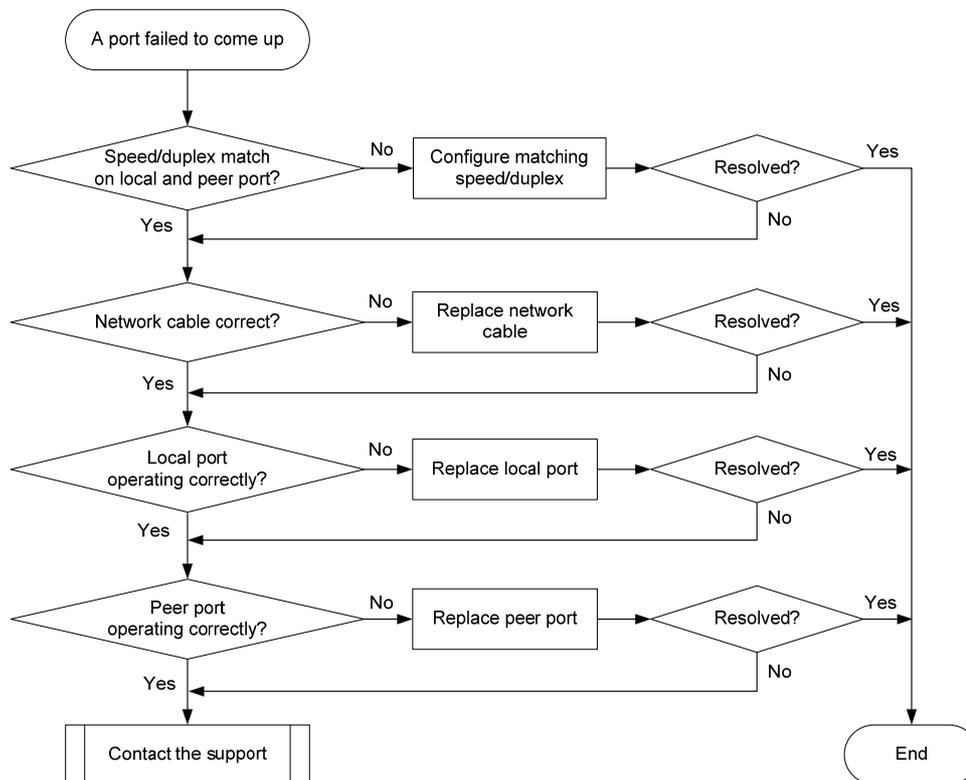
# A 10/100/1000Base-T GE copper port or 1/10GBase-T 10-GE copper port fails to come up

## Symptom

A 10/100/1000Base-T GE copper port or 1/10GBase-T 10-GE copper port fails to come up.

## Troubleshooting flowchart

Figure 6 Troubleshooting link up failure on a copper port



## Solution

To resolve the problem:

1. Verify that the speed and duplex mode of the local port match the speed and duplex mode of the peer port:
  - a. Execute the **display interface brief** command to examine whether the speed and duplex mode of the port match the speed and duplex mode of the peer port.
  - b. If they do not match, use the **speed** command and the **duplex** command to set the rate and duplex mode for the port.
2. Replace the network cable with a new one to verify that the network cable is in good condition.
3. Replace the local port with a new one to verify that the local port is operating correctly.

4. Replace the peer port with a new one to verify that the peer port is operating correctly.
5. If the problem persists, contact HP Support.

## Non-HP transceiver module error message

### Symptom

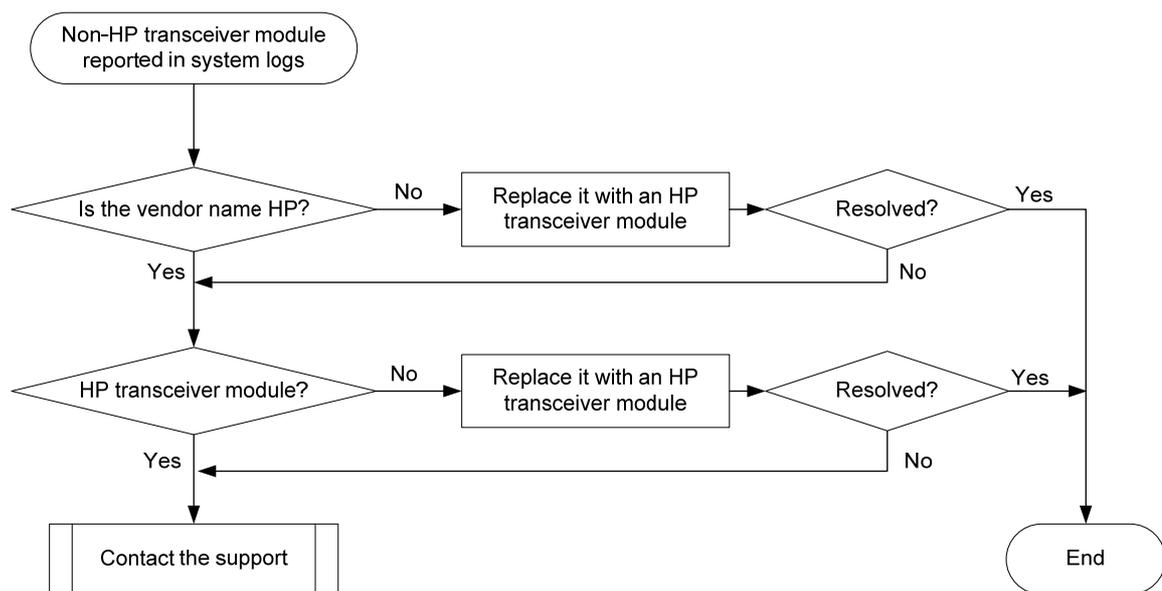
The output from the **display logbuffer** command shows that the transceiver module is not an HP transceiver module.

```
<Sysname> display logbuffer
```

```
Ten-GigabitEthernet1/0/5: This transceiver is NOT sold by HP. HP therefore shall NOT
guarantee the normal function of the device or assume the maintenance responsibility
thereof!
```

### Troubleshooting flowchart

Figure 7 Troubleshooting non-HP transceiver module error message



### Solution

To resolve the problem:

1. Verify that the transceiver module is an HP transceiver module:

Execute the **display transceiver interface** command to view the vendor name of the transceiver module.

```
[Sysname] display transceiver interface ten-gigabitethernet 1/0/1
```

```
Ten-GigabitEthernet1/0/1 transceiver information:
  Transceiver Type           : 10G_BASE_SR4_SFP
  Connector Type             : MPO
  Wavelength(nm)            : 850
```

```
Transfer Distance(m)          : 100(OM3),150(OM4)
Digital Diagnostic Monitoring : YES
Vendor Name                    : HP
```

- If the vendor name field does not display HP, replace the transceiver module with an HP transceiver module.
- If the vendor name field displays HP, perform the following tasks:
  - Execute the **display transceiver register interface** command for Release 22xx and execute the **display hardware internal transceiver register interface** command in probe view for Release 2307 and later versions to save the transceiver module information.
  - Provide the information to HP Support to verify that the transceiver module is an HP transceiver module. If it is not, replace it with an HP transceiver module.

```
[Sysname-probe] display hardware internal transceiver register interface
ten-gigabitethernet 1/0/49:1 device 0 address 0 length 128
=====
0x00:  00 00 02 00 00 00 00 00 00 00 00 00 00 00 00 00
0x10:  00 00 00 00 00 00 1f 06 1f 06 81 58 00 00 00 00
0x20:  00 00 00 00 00 00 00 00 00 00 07 00 00 00 00 00
0x30:  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x40:  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x50:  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x60:  00 00 00 00 00 00 00 00 00 00 00 00 00 00 81 28
0x70:  21 4d 00 00 00 00 00 00 00 00 00 00 00 00 00 01
```

2. If the problem persists, contact HP Support.

## Transceiver module does not support digital diagnosis

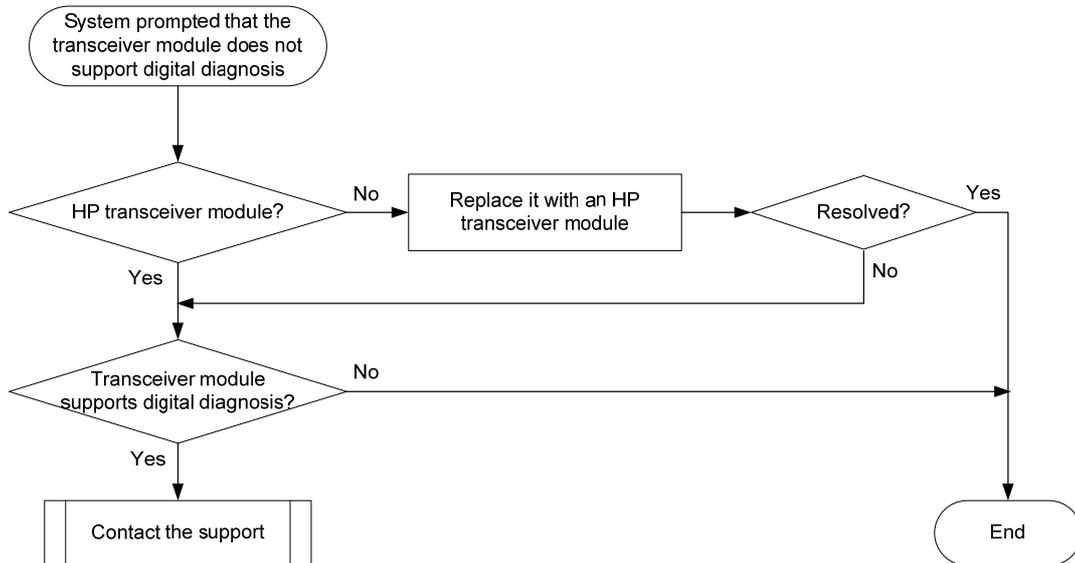
### Symptom

The output from the **display transceiver diagnosis interface** command shows that the transceiver module does not support the digital diagnosis function.

```
<Sysname> display transceiver diagnosis interface ten-gigabitethernet 1/0/1
The transceiver does not support this function.
```

# Troubleshooting flowchart

Figure 8 Troubleshooting digital diagnosis failure on a transceiver module



## Solution

To resolve the problem:

1. Verify that the transceiver module is an HP transceiver module:

Execute the **display transceiver interface** command to view the vendor name of the transceiver module.

- If the vendor name field does not display HP, replace the transceiver module with an HP transceiver module.
- If the vendor name field displays HP, perform the following tasks:
  - Execute the **display transceiver manuinfo interface** command to save the transceiver module information.
  - Provide the information to HP Support to verify that the transceiver module is an HP transceiver module. If the module is not from HP, replace it with an HP transceiver module.

2. Execute the **display transceiver interface** command to save the transceiver module information, and contact HP Support to verify that the transceiver module supports the digital diagnosis function.

```
<Sysname> display transceiver interface ten-gigabitethernet 1/0/1
```

```
Ten-GigabitEthernet1/0/1 transceiver information:
```

```
Transceiver Type       : 10G_BASE_SR4_SFP
Connector Type         : MPO
Wavelength(nm)        : 850
Transfer Distance(m)   : 100(OM3),150(OM4)
Digital Diagnostic Monitoring : YES
Vendor Name            : HP
```

3. If the problem persists, contact HP Support.

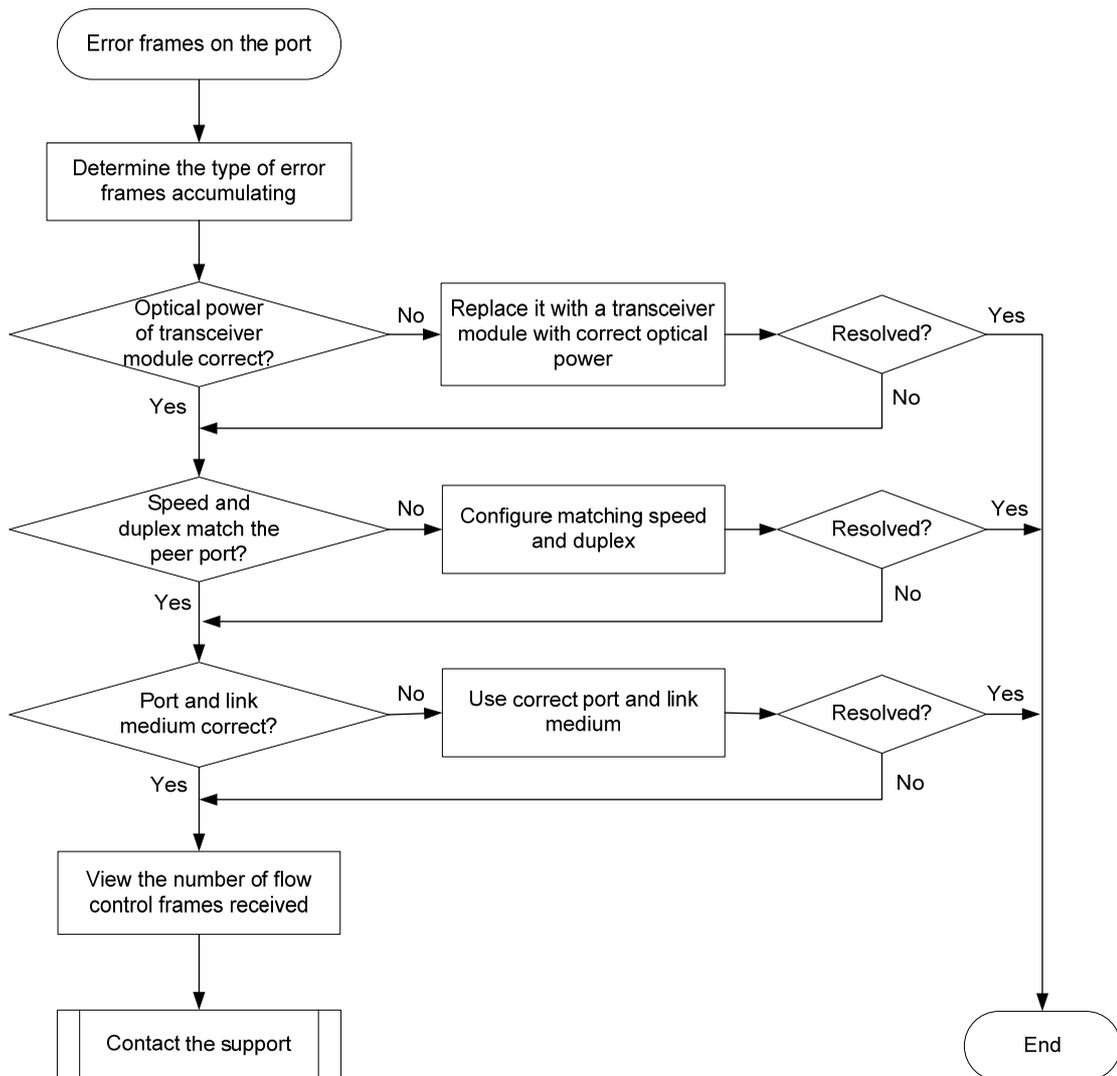
# Error frames (for example, CRC errors) on a port

## Symptom

The output from the **display interface** command shows that error frames exist (for example, CRC error frames) on a port.

## Troubleshooting flowchart

Figure 9 Troubleshooting error frames (for example, CRC errors) on a port



## Solution

To resolve the problem:

1. Examine the error frame statistics and identify the error frame type:

- a. (Optional.) Use the **reset counter interface** command in user view to clear the packet statistics of the port.  
This command resets all packet counters to 0, so that you can view the statistics changes more clearly.
  - b. Use the **display interface** command to display the incoming packet statistics and outgoing packet statistics of the port.
  - c. Determine the type of error frames that are accumulating.
2. If the port is a fiber port, verify that the optical power of the transceiver module is operating correctly:

- a. Use the **display transceiver diagnosis interface** command to view the present measured values of the digital diagnosis parameters for the transceiver module.

```
[Sysname] display transceiver diagnosis interface ten-gigabitethernet 1/0/1
Ten-GigabitEthernet1/0/1 transceiver diagnostic information:
```

Current diagnostic parameters:

```
[module] Temp.(°C)
          1stTX   2ndTX   1stRX   2ndRX
          N/A    N/A    N/A    N/A
Voltage(V)
          3.3VTX 12VTX   3.3VRX 12VRX
          3.29  N/A    3.40  N/A

[channel] TX Bias(mA)   RX power(dBm) TX power(dBm)
1          6.09         0.91         -0.77
2          5.95         1.09         -0.16
3          6.05         1.58         -0.17
4          5.85         1.58         -0.14
5          6.07         2.23         -0.30
6          5.72         2.85         -0.47
7          6.11         3.01         -0.08
8          5.50         1.17         -0.02
```

Alarm thresholds:

```
[module] Temp.(°C) Voltage(V) Bias(mA) RX power(dBm) TX power(dBm)
High     0          3.63     10.00     1.58     5.44
Low      0          2.97     0.50     3.13    -11.61
```

- b. If the optical power of the transceiver module is not within the correct range, replace the transceiver module with a transceiver module of the same model that is operating correctly.
3. Verify that the port configurations are correct:
- a. Execute the **display interface brief** command.
  - b. Determine whether the speed and duplex mode of the port match the speed and duplex mode of the peer port.
  - c. If they do not match, use the **speed** command and the **duplex** command to set the speed and duplex mode for the port.
4. Verify that the link medium connected to the port is operating correctly.  
Plug the link medium into a new port that is operating correctly. If the new port cannot receive packets, replace the link medium.

5. Verify that the port is operating correctly:
  - If the port is a copper port, connect the port directly to a PC.
  - If the port is a fiber port, replace the transceiver module in the port.
 If the port can receive packets, troubleshoot the remaining possible points of failure on the transmission path. The troubleshooting process is beyond the scope of this document.
6. Determine whether the port has received a large amount of flow control frames:
  - a. Use the **display interface** command to view the number of pause frames.
 

If the number of pause frames is accumulating, you can determine that the port has sent or received a large amount of flow control frames.
  - b. Verify that the incoming traffic and outgoing traffic have not exceeded the maximum traffic processing capability of the local device and the peer device.
7. If the problem persists, contact HP Support.

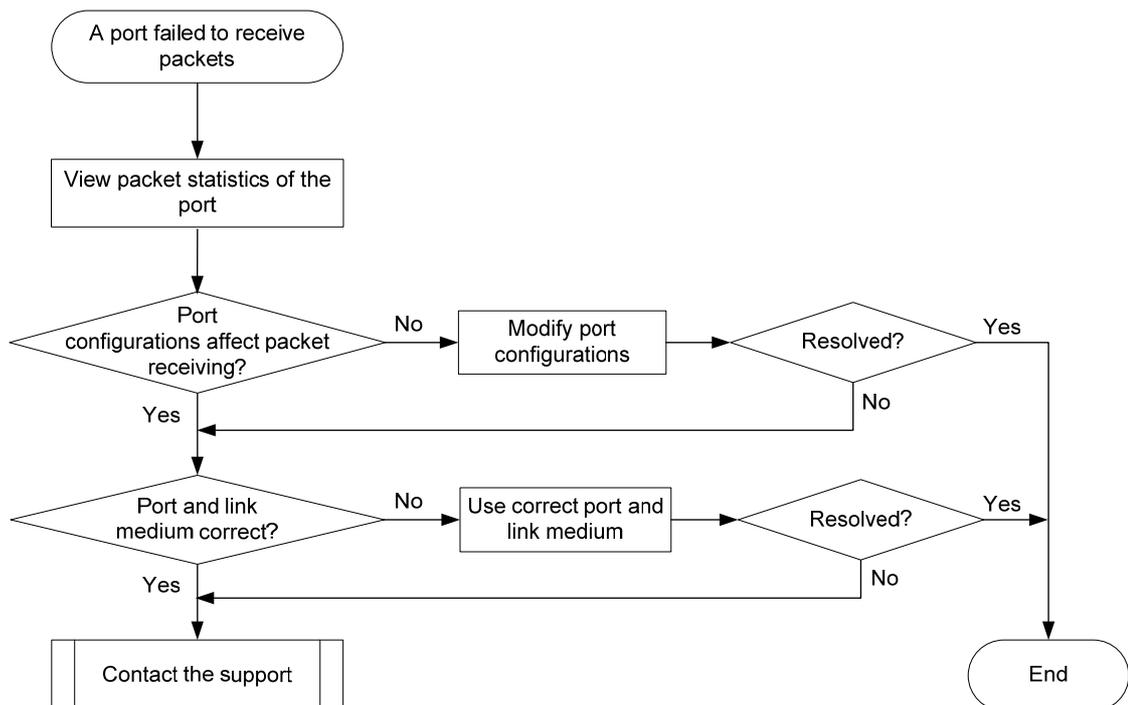
## Failure to receive packets

### Symptom

A port is up, but it cannot receive packets.

### Troubleshooting flowchart

Figure 10 Troubleshooting failure to receive packets



# Solution

To resolve the problem:

1. Verify that the ports at both ends are up.
2. Examine the packet statistics of the port:
  - a. (Optional.) Use the **reset counter interface** command to clear the packet statistics of the port. This command resets all packet counters to 0, so that you can view the statistics changes more clearly.
  - b. Use the **display interface** command to verify that the number of incoming packets is accumulating.
  - c. Verify that the number of error frames is not accumulating. If the number of error frames is accumulating, remove errors, see "[Error frames \(for example, CRC errors\) on a port.](#)"
3. Verify that the port configurations do not affect packet receiving:
  - a. Use the **display interface brief** command to verify that the port configurations are correct. The port configurations include the duplex mode, speed, port type, and VLAN configurations of the ports at both ends of the link. If configuration errors exist, modify the port configurations. If the port fails to receive packets, use the **shutdown** command and then the **undo shutdown** command to re-enable the port.
  - b. If the port is configured with the spanning tree feature, use the **display stp brief** command to verify that the port is not in the discarding state. If the port is set to the discarding state by the spanning tree feature, examine and modify the spanning tree feature configurations to resolve the problem. HP recommends that you configure the port as an edge port or disable STP on the port if it is directly connected to a terminal.
  - c. If the port is in an aggregation group, use the **display link-aggregation summary** command to verify that the status of the port is **Selected**. If the status of the port is **Unselected**, the port cannot send or receive data packets. Determine the reasons why the port becomes **Unselected**, for example, the attribute configurations of the port are different from the reference port. Modify the attribute configurations of the port to make the port become **Selected**.
4. Verify that the link medium connected to the port is operating correctly. Plug the link medium into a new port that is operating correctly. If the new port cannot receive packets, replace the link medium.
5. Verify that the port is operating correctly:
  - o If the port is a copper port, connect the port directly to a PC.
  - o If the port is a fiber port, replace the transceiver module in the port.If the port can receive packets, troubleshoot the remaining possible points of failure on the transmission path. The troubleshooting process is beyond the scope of this document.
6. If the problem persists, contact HP Support.

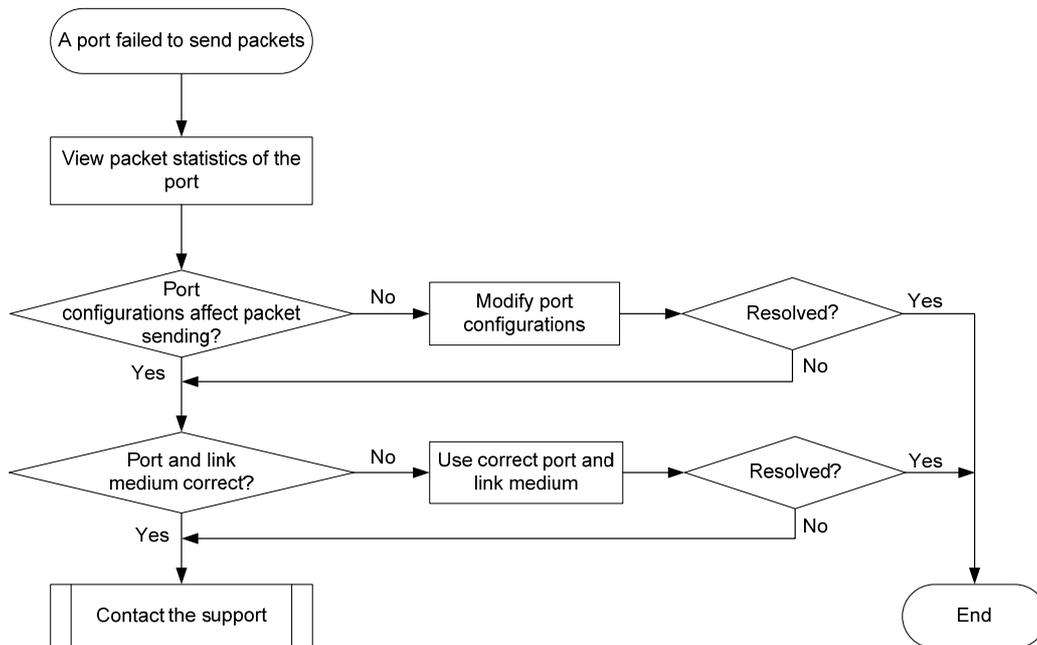
# Failure to send packets

## Symptom

A port is up, but it cannot send packets.

## Troubleshooting flowchart

Figure 11 Troubleshooting failure to send packets



## Solution

To resolve the problem:

1. Verify that the ports at both ends are up.
2. Examine the packet statistics of the port:
  - a. (Optional.) Use the **reset counter interface** command to clear the packet statistics of the port. This command resets all packet counters to 0, so that you can view the statistics changes more clearly.
  - b. Use the **display interface** command to verify that the number of outgoing packets is accumulating.
  - c. Verify that the number of error frames is not accumulating. If the number of error frames is accumulating, remove errors, see "[Error frames \(for example, CRC errors\) on a port.](#)"
3. Verify that the port configurations do not affect packet sending:
  - a. Use the **display interface brief** command to verify that the port configurations are correct.

The port configurations include the duplex mode, speed, port type, and VLAN configurations of the ports at both ends of the link. If configuration errors exist, modify the port configurations. If the port fails to send packets, use the **shutdown** command and then the **undo shutdown** command to re-enable the port.

- b. If the port is configured with the spanning tree feature, use the **display stp brief** command to verify that the port is not in the discarding state.

If the port is set to the discarding state by the spanning tree feature, examine and modify the spanning tree feature configurations to resolve the problem.

HP recommends that you configure the port as an edge port or disable the spanning tree feature on the port if it is directly connected to a terminal.

- c. If the port is in an aggregation group, use the **display link-aggregation summary** command to verify that the status of the port is **Selected**.

If the status of the port is **Unselected**, the port cannot send or receive data packets. Determine the reasons why the port becomes **Unselected**, for example, the attribute configurations of the port are different from the reference port. Modify the attribute configurations of the port to make the port become **Selected**.

- 4. Verify that the link medium connected to the port is operating correctly.

Plug the link medium into a new port that is operating correctly. If the new port cannot receive packets, replace the link medium.

- 5. Verify that the port is operating correctly:

- o If the port is a copper port, connect the port directly to a PC.
- o If the port is a fiber port, replace the transceiver module in the port.

If the port can receive packets, troubleshoot the remaining possible points of failure on the transmission path. The troubleshooting process is beyond the scope of this document.

- 6. If the problem persists, contact HP Support.

## Related commands

This section lists the commands that you might use for troubleshooting ports.

Command	Description
<b>display diagnostic-information</b>	Displays or saves running status data for multiple feature modules.
<b>display interface</b>	Displays Ethernet interface information.
<b>display interface brief</b>	Displays brief interface information.
<b>display link-aggregation summary</b>	Displays the summary information for all aggregation groups.
<b>display logbuffer</b>	Displays the state of the log buffer and the log information in the log buffer.
<b>display stp brief</b>	Displays brief spanning tree status and statistics.
<b>display transceiver alarm interface</b>	Displays the current transceiver module alarms.
<b>display transceiver diagnosis</b>	Displays the present measured values of the digital diagnosis parameters for transceiver modules.

<b>Command</b>	<b>Description</b>
<b>display transceiver interface</b>	Displays the key parameters of transceiver modules.
<b>display transceiver manuinfo interface</b>	Displays electronic label information for the transceiver module in an interface.

# Troubleshooting system management

This section provides troubleshooting information for common system management problems.

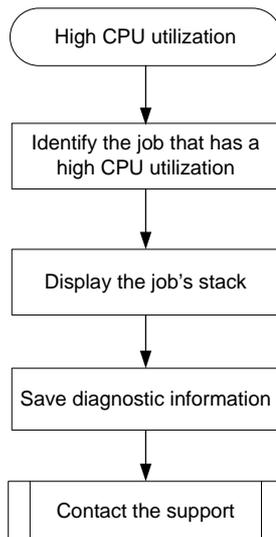
## High CPU utilization

### Symptom

The sustained CPU utilization of the device is over 80%.

### Troubleshooting flowchart

Figure 12 Troubleshooting high CPU utilization



### Solution

To resolve the problem:

1. Identify the job that has a high CPU utilization.

For Release 22xx, enter the hide view first. For Release 2307 or later, enter the probe view first. The following example was created in probe view.

```
[Sysname-probe] display process cpu slot 1
CPU utilization in 5 secs: 3.7%; 1 min: 3.1%; 5 mins: 3.8%
  JID      5Sec      1Min      5Min      Name
  ---      ---      ---      ---      ---
    1      0.0%      0.0%      0.0%      scmd
    2      0.0%      0.0%      0.0%      [kthreadd]
    3      0.0%      0.0%      0.0%      [migration/0]
    4      0.0%      0.0%      0.0%      [ksoftirqd/0]
    5      0.0%      0.0%      0.0%      [watchdog/0]
```

```

6      0.0%    0.0%    0.0%    [migration/1]
7      0.0%    0.0%    0.0%    [ksoftirqd/1]
8      0.0%    0.0%    0.0%    [watchdog/1]
9      0.0%    0.0%    0.0%    [migration/2]
10     0.0%    0.0%    0.0%    [ksoftirqd/2]
11     0.0%    0.0%    0.0%    [watchdog/2]
12     0.0%    0.0%    0.0%    [migration/3]
13     0.0%    0.0%    0.0%    [ksoftirqd/3]
14     0.0%    0.0%    0.0%    [watchdog/3]
15     0.0%    0.0%    0.0%    [migration/4]
16     0.0%    0.0%    0.0%    [ksoftirqd/4]
17     0.0%    0.0%    0.0%    [watchdog/4]
18     0.0%    0.0%    0.0%    [migration/5]
19     0.0%    0.0%    0.0%    [ksoftirqd/5]
20     0.0%    0.0%    0.0%    [watchdog/5]
21     0.0%    0.0%    0.0%    [migration/6]

```

---- More ----

The output shows the average CPU usage values of jobs for the last 5 seconds, 1 minute, and 5 minutes. Typically, the average CPU usage of a job is less than 5%.

2. Display the job's stack. In this example, the job uses the ID of 14.

For Release 22xx, enter the hide view first. For Release 2307 or later, enter the probe view first. The following example was created for job 14 in probe view.

```

[Sysname-probe] follow job 14
Attaching to process 14 ([watchdog/3])
Iteration 1 of 5
-----
Kernel stack:
[<80379b24>] schedule+0x954/0x1270
[<80199e5c>] watchdog+0xac/0x440
[<8016fd88>] kthread+0xe8/0x120
[<801221f0>] kernel_thread_helper+0x10/0x20

```

```

Iteration 2 of 5
-----
Kernel stack:
[<80379b24>] schedule+0x954/0x1270
[<80199e5c>] watchdog+0xac/0x440
[<8016fd88>] kthread+0xe8/0x120
[<801221f0>] kernel_thread_helper+0x10/0x20

```

```

Iteration 3 of 5
-----
Kernel stack:
[<80379b24>] schedule+0x954/0x1270
[<80199e5c>] watchdog+0xac/0x440
[<8016fd88>] kthread+0xe8/0x120
[<801221f0>] kernel_thread_helper+0x10/0x20

```

```

Iteration 4 of 5
-----
Kernel stack:
[<80379b24>] schedule+0x954/0x1270
[<80199e5c>] watchdog+0xac/0x440
[<8016fd88>] kthread+0xe8/0x120
[<801221f0>] kernel_thread_helper+0x10/0x20

```

```

Iteration 5 of 5
-----
Kernel stack:
[<80379b24>] schedule+0x954/0x1270
[<80199e5c>] watchdog+0xac/0x440
[<8016fd88>] kthread+0xe8/0x120
[<801221f0>] kernel_thread_helper+0x10/0x20

```

3. Save the information displayed in the previous steps.
4. Contact HP Support.

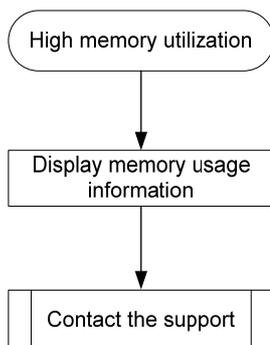
## High memory utilization

### Symptom

The memory utilization of the device is higher than 60% for more than 30 minutes.

### Troubleshooting flowchart

**Figure 13 Troubleshooting high memory utilization**



### Solution

To resolve the problem:

1. Execute the **display system internal kernel memory pool** command multiple times to display memory usage information.

```

[Sysname-probe] display system internal kernel memory pool slot 1
Active      Number  Size      Align Slab Pg/Slab ASlabs  NSlabs Name

```

```

255      255      40      0      85      1      3      3      ARP_Private_Cachep
0        0        40      0      85      1      0      0      L3VPN_IFCB
0        0        64      0      56      1      0      0      L3VPN_VRF
50       50       152     0      25      1      2      2      FIB_VNEntry_cache
256     256     24      0      128     1      2      2      FIB_REF_cache
529     532     8184   0      4      8      133    133    kmalloc-8184
23      23      164     0      23      1      1      1      FIB6_RADIX_Cache
0        0        52      0      64      1      0      0      FIB6_NDHost_Cache
21      21      262136 0      1      64     21     21     kmalloc-262136
0        0        28      0      128     1      0      0      L2VFIB_VlanCacheName(6)
0        0        24      0      128     1      0      0      L2VFIB_VlanCacheName(5)
0        0        20      0      170     1      0      0      L2VFIB_VlanCacheName(4)
0        0        16      0      170     1      0      0      L2VFIB_VlanCacheName(3)
0        0      8388600 0      1      2048   0      0      kmalloc-8388600
0        0        12      0      256     1      0      0      L2VFIB_VlanCacheName(2)
0        0        8       0      256     1      0      0      L2VFIB_VlanCacheName(1)
0        0        32      0      102     1      0      0      SPBM_FDB_MMAC_Port_Node_cache
0        0        4       0      512     1      0      0      L2VFIB_VlanCacheName(0)
0        0        72      0      51      1      0      0      SPBM_FDB_MMAC_Node_cache
0        0        8       0      256     1      0      0      L2VFIB_Ac_Ctr_Cache
0        0        68      0      51      1      0      0      SPBM_FDB_UMAC_Node_cache
0        0        8       0      256     1      0      0      L2VFIB_Ac_Cem_Cache
---- More ----

```

Each value line shows the memory information for a slab. The **Number** field shows the number of objects (memory blocks) allocated to the module. The **Active** field shows the number of objects used. If the percentage of the used objects keeps increasing, the slab might have memory leakage problems.

2. Save the information displayed in the previous step.
3. Contact HP Support.

---

**!** **IMPORTANT:**

HP recommends not rebooting the device before you contact HP Support. You might lose critical diagnostic information if you reboot the device.

---

## Related commands

This section lists the commands that you might use for troubleshooting system management.

Command	Description
<code>display cpu-usage</code>	Displays the current CPU usage statistics.
<code>display memory</code>	Displays memory usage statistics.
<code>display process cpu</code>	Displays the CPU usage statistics for jobs. This command is available in one of the following views: <ul style="list-style-type: none"> <li>• <b>Hide view</b>—For Release 22xx.</li> <li>• <b>Probe view</b>—For Release 2307 or later.</li> </ul>

Command	Description
<code>display system internal kernel memory pool</code>	<p>Displays memory block usage statistics. This command is available in one of the following views:</p> <ul style="list-style-type: none"> <li>• <b>Hide view</b>—For Release 22xx.</li> <li>• <b>Probe view</b>—For Release 2307 or later.</li> </ul>
<code>follow job <i>job-id</i></code>	<p>Displays the stack of a job. This command is available in one of the following views:</p> <ul style="list-style-type: none"> <li>• <b>Hide view</b>—For Release 22xx.</li> <li>• <b>Probe view</b>—For Release 2307 or later.</li> </ul>

## Troubleshooting other problems

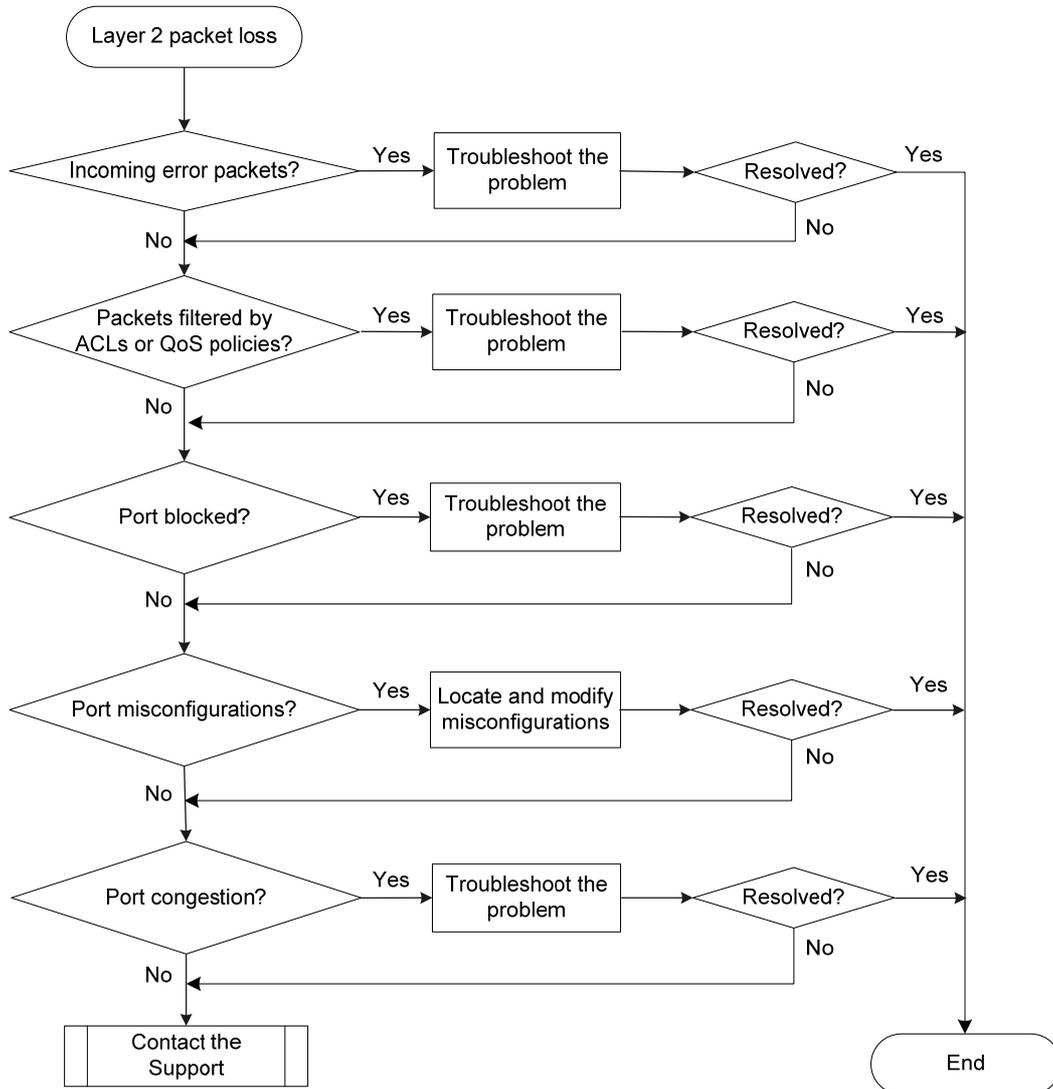
### Layer 2 forwarding failure

#### Symptom

Layer 2 packet loss occurs when the switch forwards packets to a peer on the same network segment and in the same VLAN.

# Troubleshooting flowchart

Figure 14 Troubleshooting Layer 2 packet loss failure



## Solution

To resolve the problem:

1. Verify that no error packets have been received on the local port:
  - a. Execute the **display interface** command and check for error packets.

```
<Sysname> display interface Ten-GigabitEthernet1/0/36
Ten-GigabitEthernet1/0/36 current state: UP
Line protocol state: UP
IP Packet Frame Type: PKTFMT_ETHNT_2, Hardware Address: 000f-e200-002b
.....
Last 300 seconds input:  0 packets/sec 10 bytes/sec 0%
Last 300 seconds output: 0 packets/sec 10 bytes/sec 0%
```

```

Input (total): 1438 packets, 480292 bytes
                0 unicasts, 0 broadcasts, 1438 multicasts, 0 pauses
Input (normal): 1438 packets, - bytes
                0 unicasts, 0 broadcasts, 1438 multicasts, 0 pauses
Input: 0 input errors, 0 runts, 0 giants, 0 throttles
       0 CRC, 0 frame, - overruns, 0 aborts
       - ignored, - parity errors
Output (total): 1440 packets, 475200 bytes
                0 unicasts, 0 broadcasts, 1440 multicasts, 0 pauses
Output (normal): 1440 packets, - bytes
                0 unicasts, 0 broadcasts, 1440 multicasts, 0 pauses
Output: 0 output errors, - underruns, - buffer failures
       0 aborts, 0 deferred, 0 collisions, 0 late collisions
       0 lost carrier, - no carrier

```

- b. If the statistics are not zero, the following failures might occur:
- **Interface hardware failure**—To test such a failure, connect the cable that is connected to the local port to a correctly operating port (for example, Port A) with the same configurations as the local port. If Port A forwards traffic correctly, you can determine that the hardware of the local port fails. In this event, you must replace the local port with a correctly operating port.
  - **Transceiver module, fiber, or twisted pair failure**—To test and resolve such a failure, replace the transceiver module, fiber, or twisted pair with a good one.
  - **Inconsistent configurations**—Verify that the configurations (including speed and duplex mode) of the peer are consistent with the local port. If they are inconsistent, modify the configurations of the local port.
- c. If the problem persists, contact HP Support.

When you contact HP Support, provide the following diagnostic information if packet loss occurs on the chip port with which the interface is associated:

# In Release 22xx, use the **en\_diag** command to enter en\_diag view. In Release 2307 and later versions, use the **probe** command to enter probe view. In en\_diag or probe view, execute the **debug port map** command to identify the chip port with which the interface is associated.

```
[Sysname-diagnose] debug port map 1
```

```

[Interface] [Unit] [Port] [Name] [Combo?] [Active?] [IfIndex] [MID] [Link]
=====
=
XGE1/0/1      0      1      xe0      no       no       0x1      4      up
XGE1/0/2      0      2      xe1      no       no       0x2      4      down
XGE1/0/3      0      3      xe2      no       no       0x3      4      down
XGE1/0/4      0      4      xe3      no       no       0x4      4      down
XGE1/0/5      0      5      xe4      no       no       0x5      4      down
XGE1/0/6      0      6      xe5      no       no       0x6      4      down
XGE1/0/7      0      7      xe6      no       no       0x7      4      down
XGE1/0/8      0      8      xe7      no       no       0x8      4      down
XGE1/0/9      0      9      xe8      no       no       0x9      4      down
XGE1/0/10     0     10      xe9      no       no       0xa      4      down
XGE1/0/11     0     11      xe10     no       no       0xb      4      down
XGE1/0/12     0     12      xe11     no       no       0xc      4      down
XGE1/0/13     0     13      xe12     no       no       0xd      4      down

```

XGE1/0/14	0	14	xe13	no	no	0xe	4	down
XGE1/0/15	0	15	xe14	no	no	0xf	4	down

The output shows that Ten-GigabitEthernet 1/0/1 is associated with chip port xe0.

# Execute the **bcm 1 0 show/c/xex0** command to check the RDBGc and TDBGc fields for Rx and Tx dropped packet statistics, respectively. The statistics displayed were generated between the last and the current execution of the command. To view the change in dropped packet statistics, execute the command twice or more.

```
[Sysname-diagnose] bcm 1 0 show/c/xex0
RDBGc2.xex0      :                8,118          +8,118
R511.xex0        :                8,118          +8,118
RPKT.xex0        :                8,118          +8,118
RMCA.xex0        :                8,118          +8,118
RPOK.xex0        :                8,118          +8,118
RBYT.xex0        :            2,726,553      +2,726,553
T511.xex0        :                8,208          +8,208
TPOK.xex0        :                8,208          +8,208
TPKT.xex0        :                8,208          +8,208
TMCA.xex0        :                8,208          +8,208
TBYT.xex0        :            2,741,472      +2,741,472
PERQ_PKT(3).xex0 :                8,208          +8,208
PERQ_BYTE(3).xex0 :            2,741,472      +2,741,472          330/s
```

2. Verify that packets are not mistakenly filtered out by ACLs:
  - a. Examine the ACL and QoS policy configurations for packet filtering on the port, on the VLAN of the port, or globally. If packets are mistakenly filtered out, modify the ACL or QoS policy configuration.
    - To display the ACL configuration on the port for packet filtering, execute the **display packet-filter** command.
    - To display the QoS policy configuration on the port, execute the **display qos policy** command.
    - To display the QoS policy configuration on the VLAN of the port, execute the **display qos vlan-policy** command.
    - To display the global QoS policy configuration, execute the **display qos policy global** command.
  - b. Verify that packets are not filtered out by ACLs automatically created by some features.
    - Execute the **display this** command in Ethernet interface view to verify that the **ip source binding** or **ip verify source** command is configured on the port. To display source guard binding entries, execute the **display ip source binding** or **display ipv6 source binding** command. If IP source guard is configured but the packets match no entry, further troubleshoot the problem based on the way the binding entries are created.
    - Determine whether the port is configured with the portal authentication. Packets of users that fail to pass the portal authentication will be dropped by the port. Use the **display portal interface** command to display the portal configuration information of the specified VLAN interface. Determine whether the portal authentication can be disabled based on the network conditions. To disable the portal authentication at Layer 3, use the **undo portal server server-name** command in VLAN interface view of the VLAN to which the port belongs.

- Determine whether MFF is configured on the VLAN to which the port belongs. Use the **display mac-forced-forwarding vlan** command to display the MFF information of the specified VLAN. If no gateway information is displayed in the output, verify that ARP snooping or DHCP snooping is correctly configured based on the MFF operation mode.
3. Verify that the port is not blocked:
    - Execute the **display stp brief** command to verify that STP does not set the state of the port to **discarding**. When the port is in **discarding** state, it cannot forward traffic. HP recommends disabling STP on the port, or configuring the port as an edge port if the port is connected to a terminal device.
    - If the port belongs to an aggregation group, execute the **display link-aggregation verbose** command to identify the port status. When the port is an Unselected port, it cannot forward traffic. Locate the reasons why the port is in Unselected state. For example, the attribute configurations of the port are different from the configurations of the reference port.
    - Identify whether the port is blocked by smart link. Use the **display smart-link group** command to view the port status. If the state of the port is **STANDBY** or **DOWN**, the port cannot forward traffic.
      - If the state of the port is **DOWN**, locate the reason for the port to be down. The possible reasons include: its uplink device is configured with monitor link, the link of the port fails, or the port is shut down. Further troubleshoot the problem based on the reason for the port to be down.
      - If the state of the port is **STANDBY**, perform an active/standby switchover in the smart link group.
  4. Examine the following configurations that might cause packet loss:
    - **VLAN configuration**—Execute the **display this** command in Ethernet interface view to verify that the port is in the VLAN of the packets. If it is not, add the port to the VLAN.
    - **Blackhole MAC address entries**—Execute the **display mac-address blackhole** command to display blackhole MAC address entries. If the packets are discarded because they match a blackhole MAC address entry, delete the entry. To delete the blackhole MAC address entry, execute the **undo mac-address blackhole mac-address vlan vlan-id** command.
    - **Rate limit**—Execute the **display qos lr interface** command to display the rate limit configuration on the port. If rate limit is configured on the port, make sure the committed information rate (CIR) and the committed burst size (CBS) are appropriate. To adjust the CIR and CBS values, execute the **qos lr { inbound | outbound } cir committed-information-rate [ cbs committed-burst-size ]** command.
    - **Storm suppression**—Execute the **display this** command in Ethernet interface view to display the configuration of storm suppression. Storm suppression includes broadcast suppression, multicast suppression, and unknown unicast suppression. To adjust the suppression thresholds, execute the **broadcast-suppression**, **multicast-suppression**, and **unicast-suppression** commands, respectively.
  5. Verify that no congestion occurs by using the **display qos queue-statistics interface** command. If congestion occurs, locate and resolve the problem by referencing related congestion management documents.
  6. If the problem persists, contact HP Support.

## Related commands

This section lists the commands that you might use for troubleshooting Layer 2 packet loss failure.

<b>Command</b>	<b>Description</b>
<b>display interface</b>	Displays Ethernet interface information.
<b>display packet-filter</b>	Displays whether an ACL has been successfully applied to an interface for packet filtering.
<b>display qos policy</b>	Displays user-defined QoS policy configuration information.
<b>display qos policy interface</b>	Displays information about the QoS policies applied to an interface or all interfaces.
<b>display qos vlan-policy</b>	Displays information about QoS policies applied to VLANs.
<b>display qos policy global</b>	Displays information about global QoS policies.
<b>display this</b>	Displays the running configuration in the current view.
<b>display ip source binding/display ipv6 source binding</b>	Displays source guard binding entries.
<b>display portal interface</b>	Displays portal configuration and portal running state on an interface.
<b>display dot1x</b>	Displays information about 802.1X.
<b>display mac-forced-forwarding vlan</b>	Displays the MFF configuration information for a VLAN.
<b>display link-aggregation verbose</b>	Displays detailed information about the aggregation groups that correspond to the aggregate interfaces.
<b>display smart-link group</b>	Displays information about the specified or all smart link groups.
<b>display mac-address blackhole</b>	Displays blackhole MAC address entries.
<b>display qos lr interface</b>	Displays the rate limit configuration and statistics on a specified interface or all the interfaces.
<b>display qos queue-statistics interface</b>	Displays traffic statistics collected for an interface on a per-queue basis.

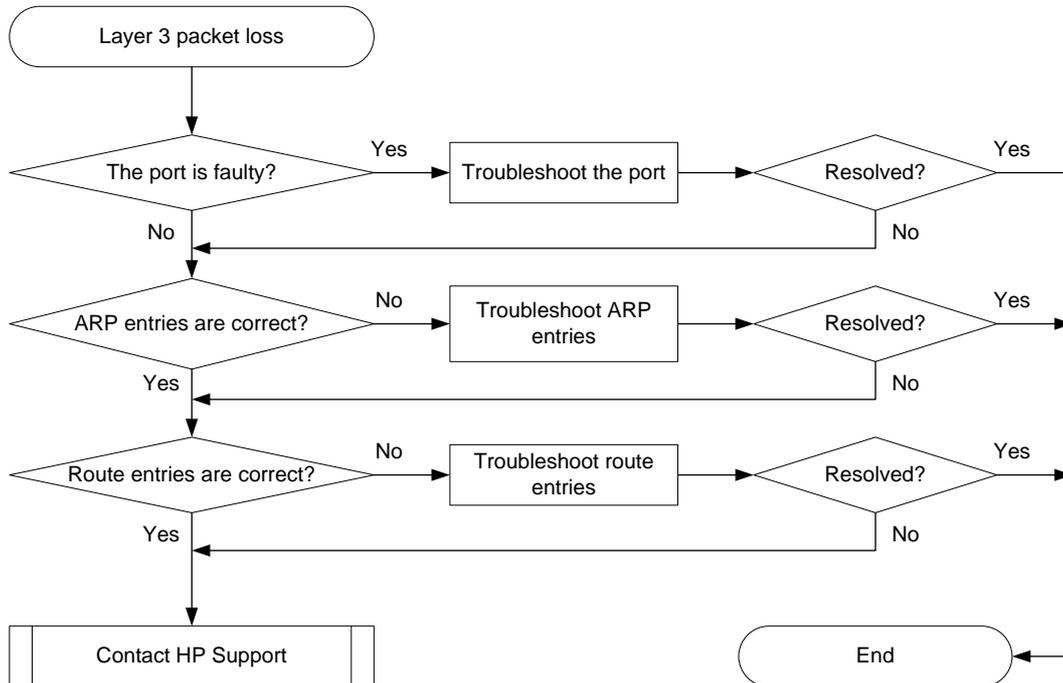
## Layer 3 forwarding failure

### Symptom

Packet loss occurs when the switch forwards packets to a different network.

# Troubleshooting flowchart

Figure 15 Troubleshooting Layer 3 forwarding failure



## Solution

To resolve the problem:

1. Verify that the port is not faulty (due to hardware or configuration problems).  
If the port is faulty, follow the solution in "[Layer 2 forwarding failure](#)" to troubleshoot the problem.
2. Verify that ARP entries are correct:
  - a. Execute the **display arp** command to verify that ARP entries are correct.
    - If incorrect ARP entries exist, execute the **debugging arp packet** command to locate the problem.
    - If the switch learns no ARP entries, you can execute the **arp static** command to configure static ARP entries.
  - b. Execute the **display mac-address** command to verify that the output interfaces in the MAC address entries and ARP entries are the same by using the **display mac-address** command.  
If the output interfaces are not the same, execute the **reset** command to clear the ARP entries. Then the switch can learn ARP entries again.
3. Verify that route entries are correct:
  - a. Execute the **display ip routing-table** command to verify that route entries are correct.  
If incorrect route entries exist, troubleshoot the protocol that learns the route entries.
  - b. Execute the **display fib** command to verify that the output interfaces in the FIB entries and route entries are the same.

If the output interfaces are not the same, execute the **reset** command to clear the route entries. Then the switch can learn route entries again.

4. If the problem persists, contact HP Support.

## Related commands

This section lists the commands that you might use for troubleshooting Layer 3 forwarding failure.

Command	Description
<b>debugging arp packet</b>	Enables ARP packet debugging.
<b>display arp</b>	Displays ARP entries.
<b>display ip routing-table</b>	Displays brief information about active routes in the routing table.
<b>display mac-address</b>	Display MAC address entries
<b>display fib</b>	Display FIB entries

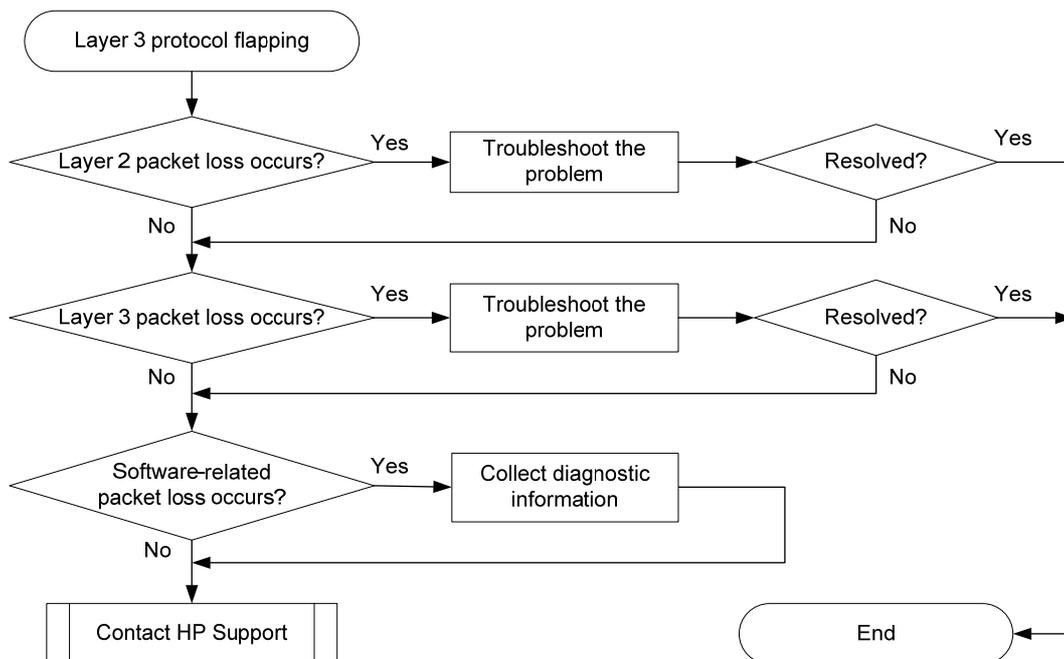
## Protocol flapping

### Symptom

The switch cannot send or receive protocol packets.

### Troubleshooting flowchart

Figure 16 Troubleshooting protocol flapping



## Solution

To resolve the problem:

1. Verify that Layer 2 is operating correctly, as described in "[Layer 2 forwarding failure.](#)"
2. Verify that Layer 3 is operating correctly, as described in "[Layer 3 forwarding failure.](#)"
3. Execute the **debug rxtx softcar show 1** command in en\_diag view to check for software-related packet loss.

```
[Sysname-diagnose] debug rxtx softcar show 1
```

ID	Type	RcvPps	Rcv_All	DisPkt_All	Pps	Dyn	Swi	Hash	ACLmax
0	ROOT	0	0	0	300	S	On	SMAC	0
1	ISIS	0	0	0	200	D	On	SMAC	8
2	ISIS	0	0	0	100	S	On	SMAC	8
3	CLNP	0	0	0	100	S	On	SMAC	8
4	VRRP	0	0	0	1024	S	On	SMAC	8
5	UNKNOWN_IPV4MC	0	0	0	100	S	On	SMAC	8
6	UNKNOWN_IPV6MC	0	0	0	100	S	On	SMAC	8
7	IPV4_MC_RIP	0	0	0	150	D	On	SMAC	8
8	IPV4_BC_RIP	0	0	0	150	D	On	SMAC	8

4. If the problem persists, contact HP Support.

When you contact HP Support, provide diagnostic information if software-related packet loss occurred.

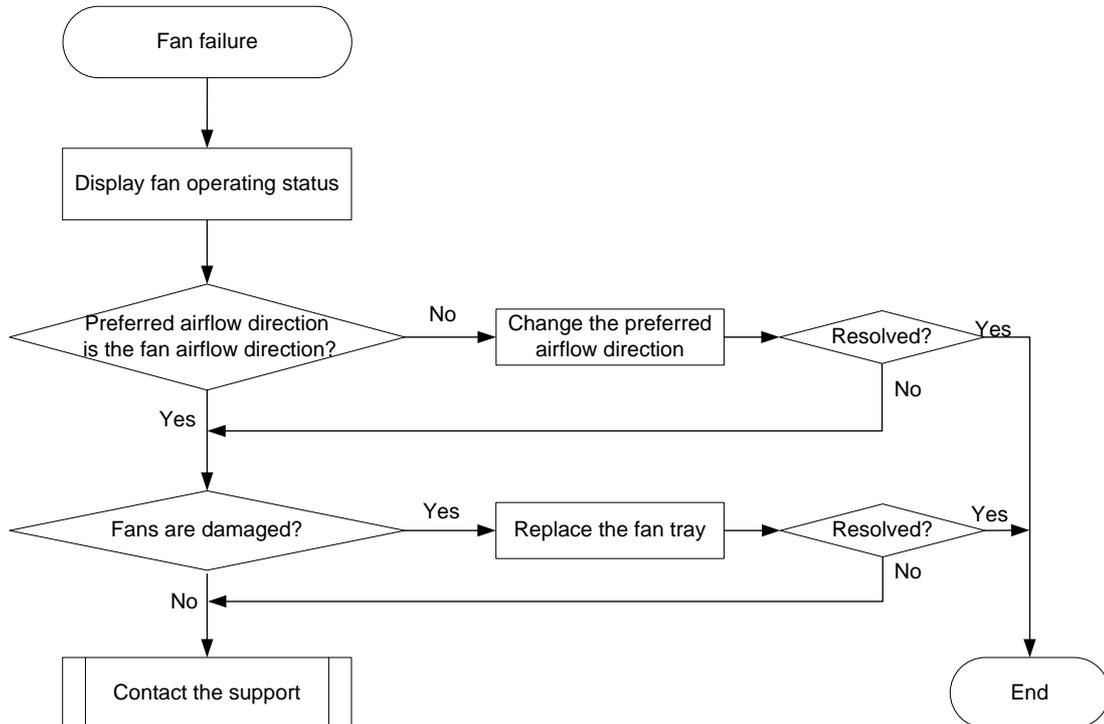
## Fan failure

### Symptom

The fans do not operate correctly.

# Troubleshooting flowchart

Figure 17 Flowchart for troubleshooting fan failure



## Solution

To resolve the problem:

1. Verify that the preferred airflow direction specified for the fans is the same as the airflow direction of the fans:

- a. Display fan operating status.

```
[Sysname]display fan
Slot 1
  FAN    1
  State  : FanDirectionFault
  Wind Direction :Port-to-Power
  Prefer Wind Direction :Power-to-Port
  FAN    2
  State  : FanDirectionFault
  Wind Direction :Port-to-Power
  Prefer Wind Direction :Power-to-Port
```

- b. If the preferred airflow direction is different, use the **fan prefer-direction slot slot-number { power-to-port | port-to-power }** command to change the setting.

```
[Sysname] fan prefer-direction slot 1 port-to-power
```

- c. Verify the modification.

```
[Sysname]display fan
Slot 1
```

```

FAN 1
State : Normal
Wind Direction :Port-to-Power
Prefer Wind Direction :Port-to-Power
FAN 2
State : Normal
Wind Direction :Port-to-Power
Prefer Wind Direction :Port-to-Power

```

2. If the fans still cannot operate correctly, check whether the fans are damaged. If the fan status is **fault**, replace the fan tray.
3. If the problem persists, contact HP Support.

## Related commands

This section lists the commands that you might use for troubleshooting fans.

Command	Description
<b>display fan</b>	Displays fan operating status.
<b>fan prefer-direction slot <i>slot-number</i> { power-to-port   port-to-power }</b>	Specifies the preferred airflow direction.