

HP MSR Routers

Troubleshooting Guide (Comware V7)

H3C MSR1000 Router Series

H3C MSR2000 Router Series

H3C MSR3000 Router Series

H3C MSR4000 Router Series

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Introduction

This document provides information about troubleshooting common software and hardware problems with HP MSR routers.

The MSR4000 routers are distributed devices. All other router series are centralized devices.

General guidelines

ⓘ 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 HP MSR routers, 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 card, power, and fan status LEDs.
 - Steps you have taken, such as reconfiguration, cable swapping, and rebooting.
 - 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


ⓘ IMPORTANT:

By default, the information center is enabled. If the feature has been 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. To more easily locate log information, use a consistent rule to categorize and name files. For example, save log information files to a separate

folder for each MPU on a distributed device, and include their chassis and slot numbers in the folder names.

Table 1 Log and operating information

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

NOTE:

For common and diagnostic log files, the system automatically compresses them into .gz files when they are full.

Collecting common log messages

Collecting common log messages on a standalone centralized device

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 storage medium on the device.

```
<Sysname> logfile save
```

The contents in the log file buffer have been saved to the file cfa0:/logfile/logfile8.log

Identify the log file on the device.

```
<Sysname> dir cfa0:/logfile/
```

```
Directory of cfa0:/logfile
```

```
  0 -rw-          21863 Jul 11 2013 16:00:37  logfile8.log
```

```
1021104 KB total (421552 KB free)
```

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

Collecting common log messages on an IRF fabric that contains centralized devices

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 storage medium on the master device.

```
<Sysname> logfile save
The contents in the log file buffer have been saved to the file
cfa0:/logfile/logfile8.log
```

2. Identify the log file on each member device:

Display the log file on the master device.

```
<Sysname> dir cfa0:/logfile/
Directory of cfa0:/logfile
  0 -rw-          21863 Jul 11 2013 16:00:37  logfile.log

1021104 KB total (421552 KB free)
```

Display the log file on each subordinate device.

```
<Sysname> dir slot2#cfa0:/logfile/
Directory of slot2#cfa0:/logfile
  0 -rw-          21863 Jul 11 2013 16:00:37  logfile.log

1021104 KB total (421552 KB free)
```

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

Collecting common log messages on a standalone distributed device or on an IRF fabric that contains distributed devices

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 storage medium on the active MPU (in standalone mode) or global active MPU (in IRF mode).

```
<Sysname> logfile save
The contents in the log file buffer have been saved to the file
cfa0:/logfile/logfile8.log
```

2. Identify the log file on each MPU:

Display the log file on the active MPU (in standalone mode) or global active MPU (in IRF mode).

```
<Sysname> dir cfa0:/logfile/
Directory of cfa0:/logfile
  0 -rw-          21863 Jul 11 2013 16:00:37  logfile8.log

1021104 KB total (421552 KB free)
```

Display the log file on each standby MPU:

- o In standalone mode, display the log file on the standby MPU.

```
<Sysname> dir slot1#cfa0:/logfile/
Directory of slot1#cfa0:/logfile
  0 -rw-          21863 Jul 11 2013 16:00:37  logfile8.log

1021104 KB total (421552 KB free)
```

1021104 KB total (421552 KB free)

- o In IRF mode, display the log file on each standby MPU.

```
<Sysname> dir chassis2#slot0#cfa0:/logfile/
Directory of chassis2#slot0#cfa0:/logfile
  0 -rw-          21863 Jul 11 2013 16:00:37  logfile8.log

1021104 KB total (421552 KB free)
```

NOTE:

If a subordinate chassis has two MPUs, make sure you identify and export the log files on both MPUs.

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

Collecting diagnostic log messages

Collecting diagnostic log messages on a standalone centralized device

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 storage medium on the device.

```
<Sysname> diagnostic-logfile save
The contents in the diagnostic log file buffer have been saved to the file
cfa0:/diagfile/diagfile18.log
```

Identify the diagnostic log file on the device.

```
<Sysname> dir cfa0:/diagfile/
Directory of cfa0:/diagfile
  0 -rw-          161321 Jul 11 2013 16:16:00  diagfile18.log
```

1021104 KB total (421416 KB free)

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

Collecting diagnostic log messages on an IRF fabric that contains centralized devices

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 storage medium on the master device.

```
<Sysname> diagnostic-logfile save
The contents in the diagnostic log file buffer have been saved to the file
cfa0:/diagfile/diagfile18.log
```

2. Identify the log file on each member device:

Display the log file on the master device.

```
<Sysname> dir cfa0:/diagfile/
Directory of cfa0:/diagfile
  0 -rw-          161321 Jul 11 2013 16:16:00  diagfile18.log
```

1021104 KB total (421416 KB free)

Display the log file on each subordinate device.

```
<Sysname> dir slot2#cfa0:/diagfile/
Directory of slot2#cfa0:/diagfile
```

```
0 -rw-      161321 Jul 11 2013 16:16:00  diagfile18.log
```

```
1021104 KB total (421416 KB free)
```

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

Collecting diagnostic log messages on a standalone distributed device or on an IRF fabric that contains distributed devices

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 storage medium on the active MPU (in standalone mode) or global active MPU (in IRF mode).

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

```
The contents in the diagnostic log file buffer have been saved to the file
cfa0:/diagfile/diagfile18.log
```

2. Identify the diagnostic log file on each MPU:

Display the diagnostic log file on the active MPU (in standalone mode) or global active MPU (in IRF mode).

```
<Sysname> dir cfa0:/diagfile/
```

```
Directory of cfa0:/diagfile
```

```
0 -rw-      161321 Jul 11 2013 16:16:00  diagfile18.log
```

```
1021104 KB total (421416 KB free)
```

Display the diagnostic log file on each standby MPU:

- In standalone mode, display the diagnostic log file on the standby MPU.

```
<Sysname> dir slot1#cfa0:/diagfile/
```

```
Directory of slot1#cfa0:/diagfile
```

```
0 -rw-      161321 Jul 11 2013 16:16:00  diagfile18.log
```

```
1021104 KB total (421416 KB free)
```

- In IRF mode, display the diagnostic log file on each standby MPU.

```
<Sysname> dir chassis2#slot0#cfa0:/diagfile/
```

```
Directory of chassis2#slot0#cfa0:/diagfile
```

```
0 -rw-      161321 Jul 11 2013 16:16:00  diagfile18.log
```

```
1021104 KB total (421416 KB free)
```

NOTE:

If a subordinate chassis has two MPUs, make sure you identify and export the **diagnostic log files on both MPUs**.

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 or management port instead of the console port, if possible. Network and management ports are faster than the console port.
- Do not execute commands while operating statistics are being collected.
- HP recommends saving operating statistics to a file to retain the information.

NOTE:

The amount of time to collect statistics increases along with the number of cards.

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)[cfa0:/diag.tar.gz] :cfa0:/diag.tar.gz
Diagnostic information is outputting to cfa0:/diag.tar.gz.
Please wait...
Save successfully.
<Sysname> dir cfa0:/
Directory of cfa0:
...
   6 -rw-      898180 Jun 26 2013 09:23:51   diag.tar.gz

1021808 KB total (259072 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 alarm=====
No alarm information.
=====
=====display boot-loader=====
Software images on slot 0:
Current software images:
  cfa0:/MSR-CMW710-BOOT-R7328_mrpnc.bin
  cfa0:/MSR-CMW710-SYSTEM-R7328_mrpnc.bin
Main startup software images:
  cfa0:/MSR-CMW710-BOOT-R7328_mrpnc.bin
  cfa0:/MSR-CMW710-SYSTEM-R7328_mrpnc.bin
Backup startup software images:
  None
=====
=====display counters inbound interface=====
Interface          Total (pkts)  Broadcast (pkts)  Multicast (pkts)  Err (pkts)
```


BAGG1	0	0	0	0
GE4/0/1	0	0	0	0
GE4/0/2	2	2	0	0
GE4/0/3	0	0	0	0
GE4/0/4	0	0	0	0
GE4/0/5	0	0	0	0
GE4/0/6	0	0	0	0
GE4/0/7	0	0	0	0
GE4/0/8	0	0	0	0
GE4/0/9	0	0	0	0
GE4/0/10	0	0	0	0
.....				

Contacting technical support

If you cannot resolve a problem by 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 information for HP Networking Support:

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

Troubleshooting Ethernet interfaces

This section provides troubleshooting information for common problems with Ethernet interfaces.

Failure to ping the directly connected device

Symptom

An Ethernet interface cannot ping the directly connected device.

Solution

To resolve the problem:

1. Execute the **display interface** command and perform the following tasks:
 - Verify that the interface is up.
 - Verify that the speed and duplex mode of the local end match the speed and duplex mode of the peer end.

- Verify that the cable and interface are operating correctly by viewing the packet statistics of the interface.
- Verify that the transceiver module of the local end matches the transceiver module of the peer end if the interface is a fiber port.
- 2. Use the **display arp** command to verify that the interface can receive ARP packets sent by the directly connected device. If not, use the **debugging arp packet** command to verify that the interface can send and receive ARP packets correctly.
- 3. Use the **debugging ip packet** command to verify that the interface can send and receive packets correctly.
- 4. Use the **debugging ip icmp** command to verify that the interface can send and receive ICMP packets correctly.
- 5. Collect the following information for the interface:
 - Execute the **display hardware internal module *interface-name interface-number* statistics** command in probe view to collect the interface statistics.
 - Execute the **display hardware internal module *interface-name interface-number* status** command in probe view to collect the status information.
 - Execute the **display hardware internal module *interface-name interface-number* reg 1** command in probe view to collect the FPGA information.
 - Execute the **display hardware internal module *interface-name interface-number* reg 2** command in probe view to collect the MAC information.
 - Execute the **display hardware internal module *interface-name interface-number* reg 3** command in probe view to collect the PHY information.
- 6. Contact HP Support.

Failure to forward packets

Symptom

An Ethernet interface on an intermediate router cannot forward packets.

Solution

To resolve the problem:

1. Verify that the Ethernet interface can ping the directly connected device. If the ping operation fails, see "[Failure to ping the directly connected device.](#)"
2. Use the **debugging ip packet** command to verify that the interface can transmit packets correctly.
3. Collect the following information for the interface:
 - Execute the **display hardware internal module *interface-name interface-number* statistics** command in probe view to collect the interface statistics.
 - Execute the **display hardware internal module *interface-name interface-number* status** command in probe view to collect the status information.

- Execute the **display hardware internal module** *interface-name interface-number reg 1* command in probe view to collect the FPGA information.
 - Execute the **display hardware internal module** *interface-name interface-number reg 2* command in probe view to collect the MAC information.
 - Execute the **display hardware internal module** *interface-name interface-number reg 3* command in probe view to collect the PHY information.
4. Contact HP Support.

Packet dropping

Symptom

An Ethernet interface drops packets.

Solution

To resolve the problem:

1. Determine whether the packets are dropped by the local end or the peer end by executing the following commands to compare the rates of the two ends:
 - Execute the **display counters rate inbound interface** command on the local end to view the inbound traffic rate statistics.
 - Execute the **display counters rate outbound interface** command on the peer end to view the outbound traffic rate statistics.

The end with a lower rate drops packets.
2. Use the **display interface** command to view the traffic statistics for the interface to verify that no packets are dropped by the interface.
3. Collect the following information for the interface:
 - Execute the **display hardware internal module** *interface-name interface-number statistics* command in probe view to collect the interface statistics.
 - Execute the **display hardware internal module** *interface-name interface-number status* command in probe view to collect the status information.
 - Execute the **display hardware internal module** *interface-name interface-number reg 1* command in probe view to collect the FPGA information.
 - Execute the **display hardware internal module** *interface-name interface-number reg 2* command in probe view to collect the MAC information.
 - Execute the **display hardware internal module** *interface-name interface-number reg 3* command in probe view to collect the PHY information.
 - Execute the **display hardware internal ibd pkt-info slot** *slot-number slot-number* command in probe view to collect inter-card packet statistics.
4. Contact HP Support.

Related commands

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

Command	Description
<code>display interface</code>	Displays Ethernet interface information.
<code>display arp [[all dynamic multiport static] vlan <i>vlan-id</i> interface <i>interface-type</i> <i>interface-number</i>] [count verbose]</code>	Displays ARP entries.
<code>display counters rate inbound interface</code>	Displays outbound traffic rate statistics.
<code>display counters rate outbound interface</code>	Displays inbound traffic rate statistics.
<code>display hardware internal module <i>interface-name</i> <i>interface-number</i> statistics</code>	Displays Ethernet interface statistics.
<code>display hardware internal module <i>interface-name</i> <i>interface-number</i> status</code>	Displays status information for an Ethernet interface.
<code>display hardware internal module <i>interface-name</i> <i>interface-number</i> message</code>	Displays configuration information for an Ethernet interface.
<code>display hardware internal module <i>interface-name</i> <i>interface-number</i> reg 1</code>	Displays FPGA information for an Ethernet interface.
<code>display hardware internal module <i>interface-name</i> <i>interface-number</i> reg 2</code>	Displays MAC information for an Ethernet interface.
<code>display hardware internal module <i>interface-name</i> <i>interface-number</i> reg 3</code>	Displays PHY information for an Ethernet interface.
<code>display hardware internal ibd pkt-info slot <i>slot-number</i> <i>slot-number</i></code>	Displays inter-card packet statistics.
<code>debugging arp packet</code>	Enables ARP debugging.
<code>debugging ip packet</code>	Enables IP debugging.
<code>debugging ip icmp</code>	Enables ICMP debugging.