

---

## APPLICATION NOTE

### Ten Most Common Fault Messages in Log Files

#### Purpose

This document will describe the formatting of log messages, various sources that can generate log messages, various levels of logging, and ten of the most common messages that indicate a fault in the system. Not all messages that appear in the log file are faults and this document will focus only on the ones that may indicate system trouble.

#### Log Message Formatting

Messages are dynamically generated based on the system layout, error type, and error location, but always follow a specific pattern. This can be seen in the example message below:

Jun 26 14:54:52.929579 CONFIG,CRITICAL: process\_quickstick\_type: Set MOTOR FAMILY to 1

Jun 26 14:54:52.929579: Date and Time - drawn from the system clock on the Controller.

CONFIG: Message Source - The subroutine or area in code related to the log entry.

CRITICAL: Log level - importance of the message.

process\_quickstick...: Message Content - the information to be conveyed.

## Message Sources

Messages are marked with a source based on what section of the code generated that message. The section of code that generated a message will be related to the content of that message. Some of the most common message sources and their descriptions are as follows for the Node Controller (NC) and High Level Controller (HLC) logs:

**Table 1: Log Sources and Contents**

Source	Contents in HLC Log	Contents in NC log
<b>SYSTEM</b>	NC image version, general information not covered by other categories	NC image version, general information not covered by other categories, and motor programming status
<b>CONFIG</b>	Success or description of configuration problem	None written to this log
<b>COMM</b>	Messages related to the TCP connections out of the Ethernet port	Messages related to the TCP connections out of the Ethernet port
<b>STARTUP</b>	None written to this log	Messages related to locating vehicles
<b>VEHICLE</b>	Vehicle status reports, including Jam reports	Vehicle status reports, excluding Jam reports
<b>HOST</b>	Reports on connection to Host	None written to this log
<b>ENET_IP</b>	Reports on connection to PLC	None written to this log
<b>PEER</b>	Reports on connections to other NCs	Reports on connections to other NCs
<b>FAULTS</b>	Path faults set and cleared	Motor faults set and cleared

## Logging Levels

The messages that appear in the log files are based on the log level set in the Node Controller Web Interface on the log settings page. Log level can be set separately for each message source and separately for the NC and HLC logs. For more information about using this page, please see the Node Controller Web Interface Manual (990000377), Section 3 (Node Controller Administration). The levels of logging are as follows:

**Table 2: Log Levels**

Level	Description
<b>CRITICAL</b>	Key system event notifications and fault announcements
<b>WARNING</b>	Non-critical status messages, communications contents, and more granular versions of critical log messages
<b>INFO</b>	Highly detailed status updates regarding system elements
<b>OFF</b>	No log entries shown

Do not change your log settings unless advised by MagneMotion technical support. Increasing the number of messages written to the log occupies processor resources and can negatively affect the operation of your system. It will also increase the size of the log file, making it harder to locate relevant information and reducing the time window captured in the file.

## Significant Fault Log Entries

Shown below are ten log entries that indicate a potential problem in the system or its connection to the Host. They do not necessarily indicate that a component has failed or that there is a non-recoverable system failure. They only indicate that a given condition exists, which could indicate that something is wrong. This is not an exhaustive list, but reflects the most common messages.

### 1. UnderVoltage Fault

#### *Appearance:*

Nov 14 10:11:53.564959 FAULTS,CRITICAL: FAULT ACTIVE: Path ID: 2 (Return Path)  
master #1: Block 1: Under voltage fault

#### *Fault Clear Message:*

Nov 14 10:11:55.823779 FAULTS,CRITICAL: FAULT CLEARED: Path ID: 2 (Return Path)  
master #1: Block 1: Under voltage fault

#### *Reported to the Host:*

TCP/IP: Motor Status (0xD7)  
Ethernet/IP: MMI\_path\_ml\_faults\_status OR MMI\_path\_qs\_faults\_status OR  
MMI\_path\_qs\_ht\_faults\_status

#### *Meaning:*

This fault indicates that the voltage of the input propulsion power to this motor block has dropped more than 10% below the nominal input voltage. When this fault is reported on all blocks in a motor, it means that motor is not receiving propulsion power. When it is reported on only one or more, but not all, blocks in a motor, it means there is a disruption of propulsion power inside the motor.

#### *Resolution:*

If the all blocks in the motor do not have propulsion power, check your power supply and wiring to ensure you are providing power to the motor. Seeing this on all blocks in a motor is normal if you are intentionally turning off propulsion power to the motor.

If some blocks in a motor report this fault but not all, you may need to replace the motor and return it to MMI for analysis.

# TECHNICAL SUPPORT NOTICE

990000672

Rev. A

MMI-AT019A-EN-P

---



---

## 2. Motor Not Responding

### *Appearance:*

Nov 05 09:53:18.053255 FAULTS,CRITICAL: faults\_handle\_periodic\_timeout: Path ID: 1 ()  
Master #7 (Comm ID: 7) NOT responding to polls for faults

### *Fault Clear Message:*

Nov 05 09:53:18.723158 FAULTS,CRITICAL: faults\_handle\_error\_status\_2\_report: Path ID: 1  
( ) Master #7 (Comm ID: 7) OK, fault status received

### *Reported to the Host:*

TCP/IP: Motor Status (0xD7)

Ethernet/IP: MMI\_path\_ml\_faults\_status OR MMI\_path\_qs\_faults\_status OR

MMI\_path\_qs\_ht\_faults\_status

### *Meaning:*

This fault indicates that this motor is not responding to requests from the NC for its current fault status. This means that there is something preventing communication between the motor and the NC. Reasons for this can include damaged or incorrectly connected communications cables, a motor not having power, or a motor defined in the configuration file but not present in the system. This can also be caused by a motor running a version of runtime code that is incompatible with the runtime image on the NC.

If a motor upstream of the motor reporting this fault has lost communications with the NC as well, the problem would be between the first motor that is not responding and the NC. All communications to the NC are routed through the upstream end of the path, so an unresponsive motor will block communications with any motors downstream of it.

### *Resolution:*

Verify that the most upstream motor on the path that is not responding has logic power and that all communication cables are properly connected. Verify that the configuration file matches the physical configuration of the system. Attempt to program the master board of the motor with a version of motor code compatible with the current NC image. Reseat all cables if they appear to be connected correctly and there is power present at the power connector.

If none of the above actions are successful, replace the communications cables and motor one at a time. If a replacement does not resolve the issue, replace the removed component and exchange another, until the failed component is located and the motor responds.

---

### 3. Link Failed

*Appearance:*

Nov 14 09:23:40.741368 HLC,CRITICAL: hlc\_send\_link\_status\_report: Path ID: 1 path end: UPSTREAM link status: FAILED

Nov 14 09:23:40.741834 HLC,CRITICAL: hlc\_send\_link\_status\_report: Path ID: 1 path end: DOWNSTREAM link status: FAILED

*Fault Clear Message:*

Nov 14 09:23:40.741368 HLC,CRITICAL: hlc\_send\_link\_status\_report: Path ID: 1 path end: UPSTREAM link status: OK

Nov 14 09:23:40.741834 HLC,CRITICAL: hlc\_send\_link\_status\_report: Path ID: 1 path end: DOWNSTREAM link status: OK

*Reported to the Host:*

TCP/IP: Path Status (0xD4)

Ethernet/IP: MMI\_path\_status

*Meaning:*

The NC cannot contact the motor directly connected to it. This means that there is something preventing communication between the motor and the NC. This can include incorrectly connected or damaged communications cables. If it appears in conjunction with a “motor not responding” fault it can also indicate a motor not having power or the motor not present in the system. This can also be caused by a motor running a version of runtime code that is incompatible with the runtime image on the NC.

*Resolution:*

If upstream link is reported down, check that the cables are correctly connected and that the first motor in the path has power. If both are correct, ensure that the motor is running the correct version of runtime software.

If the downstream link is reported down, ensure all motors in the path are responding to fault requests. If the motors are not responding, troubleshoot according to the “motor not responding” procedures above. If all motors are responding, check that the connection between the NC and motor is correctly connected.

---

## 4. Suspended Movement

### *Appearance:*

Jun 26 14:54:53.818529 FAULTS,CRITICAL: FAULT ACTIVE: Path ID: 1 (1) master #1:  
Movement suspended by Node Controller

### *Fault Clear Message:*

Jun 26 14:55:14.149855 FAULTS,CRITICAL: FAULT CLEARED: Path ID: 1 (1) master #1:  
Movement suspended by Node Controller

### *Reported to the Host:*

TCP/IP: Motor Status (0xD7)

Ethernet/IP: MMI\_path\_ml\_faults\_status OR MMI\_path\_qs\_faults\_status OR  
MMI\_path\_qs\_ht\_faults\_status

### *Meaning:*

All movement on path 1 motor 1 has been suspended by the NC. The motor will not grant permission requests if blocks within that motor are requested by a vehicle. This can be induced by resetting a path. This condition will appear if a reset or suspend command has been issued to the path containing this motor as well. This command could be sent deliberately from the Host, from a digital IO based E-Stop or interlock, or as the result of “Suspend On Host Disconnect” being triggered if that option is enabled in the configuration file.

### *Resolution:*

If the motor is not in the operational state, send a startup command to make it operational.

If the motor is operational but suspended, ensure no digital IO based E-Stops or interlocks are triggered, then send a resume command to the path containing the stopped motor. Any vehicles on that motor will resume their commanded motion. An active E-Stop or interlock will be visible in the path status for the path containing the motor.

---

## 5. Vehicle Jammed

### *Appearance:*

Jun 26 14:55:57.182009 VEHICLE,CRITICAL: vehicle\_check\_for\_jam: Vehicle ID: 3 on path 4 (up drive) @ position 0.2922 target: 0.2500 JAMMED

### *Fault Clear Message:*

Jun 26 14:56:05.977305 VEHICLE,CRITICAL: vehicle\_check\_for\_jam: Vehicle ID: 3 on path 3 (Leg Path 3) @ position 0.2488 target: 0.2500 NO LONGER JAMMED - not under a command

### *Reported to the Host:*

TCP/IP: Vehicle Status (0xD5)

Ethernet/IP: MMI\_vehicle\_status

### *Meaning:*

The vehicle is not making progress moving towards the position it has most recently been granted permission to move to, whether that position is on the way to its final destination or the actual final destination. A vehicle is defined as “not making progress” when it is traveling below the arrival velocity threshold specified in the configuration file. This can happen when a vehicle is held back by some external force, when the PID settings are not strong enough to move the vehicle, or if propulsion power has been disabled. The motor will continue to attempt to apply force on the vehicle to try and move it indefinitely.

### *Resolution:*

Remove the cause of the jam. If the vehicle is being held in place or blocked, remove the physical condition constraining the vehicle. Adjust PID settings if required. Ensure that the motor under the vehicle has propulsion power.



---

## 6. Node Controller Disconnected

### *Appearance:*

Jul 06 17:30:31.635862 PEER,CRITICAL: handle\_peer\_connect\_timeout: retries exhausted waiting for connection to node controller @ IP address: 192.168.110.208 to complete Jul 06 17:30:37.225843

### *Fault Clear Message:*

Jul 06 17:30:33.543695 COMM,CRITICAL: comm\_connect\_socket: connect to 192.168.110.208 completed

### *Reported to the Host:*

TCP/IP: Node Controller Status (0xD2)

Ethernet/IP: MMI\_node\_controller\_status

### *Meaning:*

A node controller is unable to contact another node controller. This could be due to the other node controller being off, disconnected from the network, or configured with a different IP address than specified in the configuration file.

### *Resolution:*

Check the connections and power to the unresponsive node controller. Verify that the IP address of the node controller matches the setting in the configuration file. This fault will clear when the node controllers can contact each other again.

---

## 7. PLC Link Closed or Down

*Appearance:*

Dec 03 21:12:13.609386 ENET\_IP,CRITICAL: enet\_ip\_disconnect\_socket: CLOSED socket connection to PLC at IP: 192.168.110.82

Dec 03 21:12:13.609487 ENET\_IP,CRITICAL: enet\_ip\_host\_kill\_link: Ethernet/IP LINK DOWN

*Fault Clear Message:*

Dec 03 15:33:42.405546 ENET\_IP,CRITICAL: enet\_ip\_connect\_socket: connect to 192.168.109.74 completed

Dec 03 15:33:43.080632 ENET\_IP,CRITICAL: enet\_ip\_host\_heartbeat\_callback: Ethernet/IP LINK UP

*Reported to the Host:*

TCP/IP: High Level Controller Status (0xD1)

Ethernet/IP: MMI\_HLC\_status

*Meaning:*

The HLC has closed the link to the PLC using EtherNet/IP acting as Host. This will occur if the PLC has not sent a command for 2 minutes, if the HLC cannot open a connection to the PLC, or if the HLC is unable to write a tag to the PLC memory due to insufficient array size. If the socket is closed due to a failure to write, the message will be accompanied by a message of the format:

Dec 01 15:36:10.941451 ENET\_IP,CRITICAL: handle\_cip\_msg\_router\_response: Tag: MMI\_node\_controller\_dio\_status Type: 0x02a0 Array Index: 1,0 Operation: 2 FAILED, general status: 0x04

This tag will tell you which tag element could not be written and needs to be changed in the PLC memory. If the socket is closed due to the HLC being unable to open a connection to the PLC, it message will be accompanied by messages in the following format.

Dec 01 15:36:33.635531 ENET\_IP,CRITICAL: handle\_enet\_ip\_connect\_timeout: retries exhausted waiting for connection to PLC @ IP address: 192.168.110.82 to complete

Dec 01 15:36:33.635721 ENET\_IP,CRITICAL: enet\_ip\_connect\_socket: connect failed, errno: 101 (Network is unreachable)

Dec 01 15:36:33.635768 ENET\_IP,CRITICAL: handle\_enet\_ip\_connect\_timeout: enet\_ip\_connect\_socket failed

This could be due to the PLC being off or a network connection issue.

*Resolution:*

---

Ensure that PLC is online and sending commands and that the status arrays are adequately sized. When the PLC sends a command or when the array size in the PLC is corrected, the HLC will reconnect.

## 8. Exchanging a Motor

### *Appearance:*

FAULTS,CRITICAL: faults\_handle\_error\_status\_report: error status report from path ID: 1 (Path 1) master w/ Comm ID: 2 but currently working with path ID: 1 (Path 1) master #1 w/ Comm ID: 1

### *Fault Clear Message:*

Not Applicable

### *Reported to the Host:*

TCP/IP: Not Applicable

Ethernet/IP: Not Applicable

### *Meaning:*

A motor is operating with a communications ID (motor number) that differs from its actual position in the path. This is normally seen when motors are moved to a different location in the system but not given a new configuration with their new motor number.

### *Resolution:*

Restart services on the NC to push a new configuration down to the motors. Send a reset command to the path containing the new motors so that they start using their new configuration.

---

## 9. Over Temperature Fault

### *Appearance:*

Dec 03 20:23:17.015820 FAULTS,CRITICAL: FAULT ACTIVE: Path ID: 2 (Path2) master #1:  
Block 1: Over temperature fault

### *Fault Clear Message:*

Dec 03 20:24:20.236187 FAULTS,CRITICAL: FAULT CLEAR: Path ID: 2 (Path2) master #1:  
Block 1: Over temperature fault

### *Reported to the Host:*

TCP/IP: Motor Status (0xD7)

Ethernet/IP: MMI\_path\_ml\_faults\_status OR MMI\_path\_qs\_faults\_status OR

MMI\_path\_qs\_ht\_faults\_status

### *Meaning:*

The motor temperature reached its maximum limit and the motor has shut down to protect itself from thermal damage. A motor overheating can be caused by any event that causes heat to be generated more rapidly than it dissipates. Any time a coil is active, it generates heat. That heat dissipates into the rest of the motor, the surrounding air, and the track structure. A jammed vehicle, for example, will cause the coils to remain on constantly, which would generate heat. If a section of motor is accelerating vehicles very frequently, it will become warmer than the areas around it. Heat dissipation rates will vary based on track design and atmospheric conditions.

### *Resolution:*

Ensure the motor is not overworked and the vehicle is not jammed. The fault will clear automatically once the motor temperature is within safe limits.

---

## 10. TCP Host Disconnect

### *Appearance:*

Sep 15 12:36:46.959306 COMM,CRITICAL: comm\_receive: readv() on port Host Status 1  
Socket failed, errno: 104 (Connection reset by peer)

OR

Sep 18 17:11:10.924646 COMM,CRITICAL: comm\_receive: readv() on port Host Socket  
returned EOF

### *Fault Clear Message:*

Dec 03 14:57:53.148171 HOST,CRITICAL: host\_throttle\_listen\_socket: NEW Host Socket TCP  
connection from 192.168.109.134

### *Reported to the Host:*

TCP/IP: Unable to get status from HLC

Ethernet/IP: Not Applicable

### *Meaning:*

HLC lost network communication to the Host controller. Possible causes include damaged or unplugged Ethernet cables, unpowered switches, or a damaged Ethernet port. This is also seen if the Host intentionally closes the socket or is powered off. If a second Host attempts to connect to the same HLC, you will see the fault clear message above referencing the IP address of the new Host.

### *Resolution:*

Reestablish communications from the Host to the HLC to clear the fault. If “Suspend On Host Disconnect” is enabled, you will need to issue a resume command before you can restart motion.

## TECHNICAL SUPPORT NOTICE

990000672

Rev. A

MMI-AT019A-EN-P



---

### Related Documents:

990000377 - Node Controller Web Interface User's Manual

990000410 - MagneMover LITE User's Manual

990000436 - Host Controller TCP Communication Protocol User's Manual

990000437 - Host Controller EtherNet/IP Communication Protocol User's Manual

990000460 - QuickStick User's Manual

---

### More Information

MagneMotion Website: [www.magnemotion.com](http://www.magnemotion.com)

Questions & Comments: [www.magnemotion.com/about-magnemotion/contact.cfm](http://www.magnemotion.com/about-magnemotion/contact.cfm)

---

### Revision History

Rev.	Change Description
------	--------------------

A	Initial release
---	-----------------