Troubleshooting Guide

Troubleshooting n-Command MSP Missed Check-In

ADTRAN products use the **auto-link** command to enable the auto-link feature and to specify the communication method between an AOS device and the n-Command MSP server. This feature is configured using the command line interface (CLI) and is configured in four basic steps: enabling auto-link, specifying the auto-link server, specifying the recontact interval, and specifying the communication method.

Auto-link must be configured on the AOS product before the unit will be able to communicate with or be managed by the server. Without auto-link enabled and configured, the n-Command MSP server cannot automatically detect the AOS product for management. Communication can be either via Hypertext Transfer Protocol (HTTP) or Hypertext Transfer Protocol over Secure Socket Layer (HTTPS).

NOTE: This guide assumes the AOS device has already been configured with the correct Internetworking information (IP address, subnet mask, default route, etc.). Further, it assumes the AOS device shows up in the n-Command MSP server, but under the "Device Alerts" tab, it has a "Management Alert" of "missed check-in." Similar troubleshooting steps will be taken during the initial installation of the device, if it is not "checking-in" to the n-Command MSP server.)

Troubleshooting Steps

1. Is the physical port that routes to the n-Command MSP up?
2. Are there errors on the interface?
3. Does the unit have connectivity to the n-Command MSP server?
4. Is auto-link configured properly?
5. Are the NTP server and time zone settings configured properly?
6. How can the auto-link process be restarted?
7. Does the unit show it is connected to the n-Command MSP server?

Is the physical port that routes to the n-Command MSP up?

In this example the Ethernet port is the interface that traffic routes out to the n-Command MSP server. One way to view if the physical port is up is by navigating to the **System Summary** page in the web interface and looking at the "Ethernet Summary" portion of the page. From there you can view the "Link" for a quick view of the status of this port. (Figure 1 (a.)).

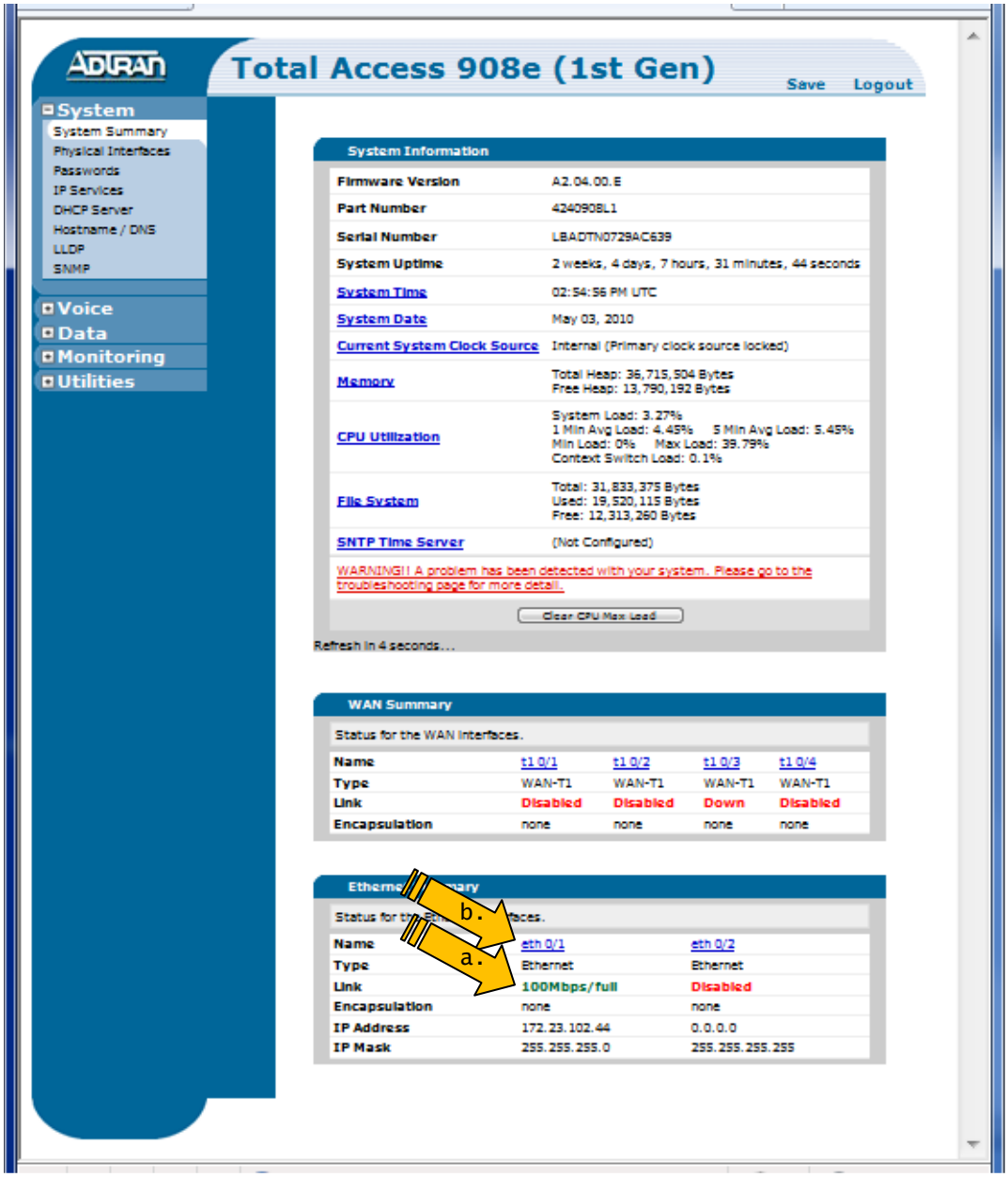
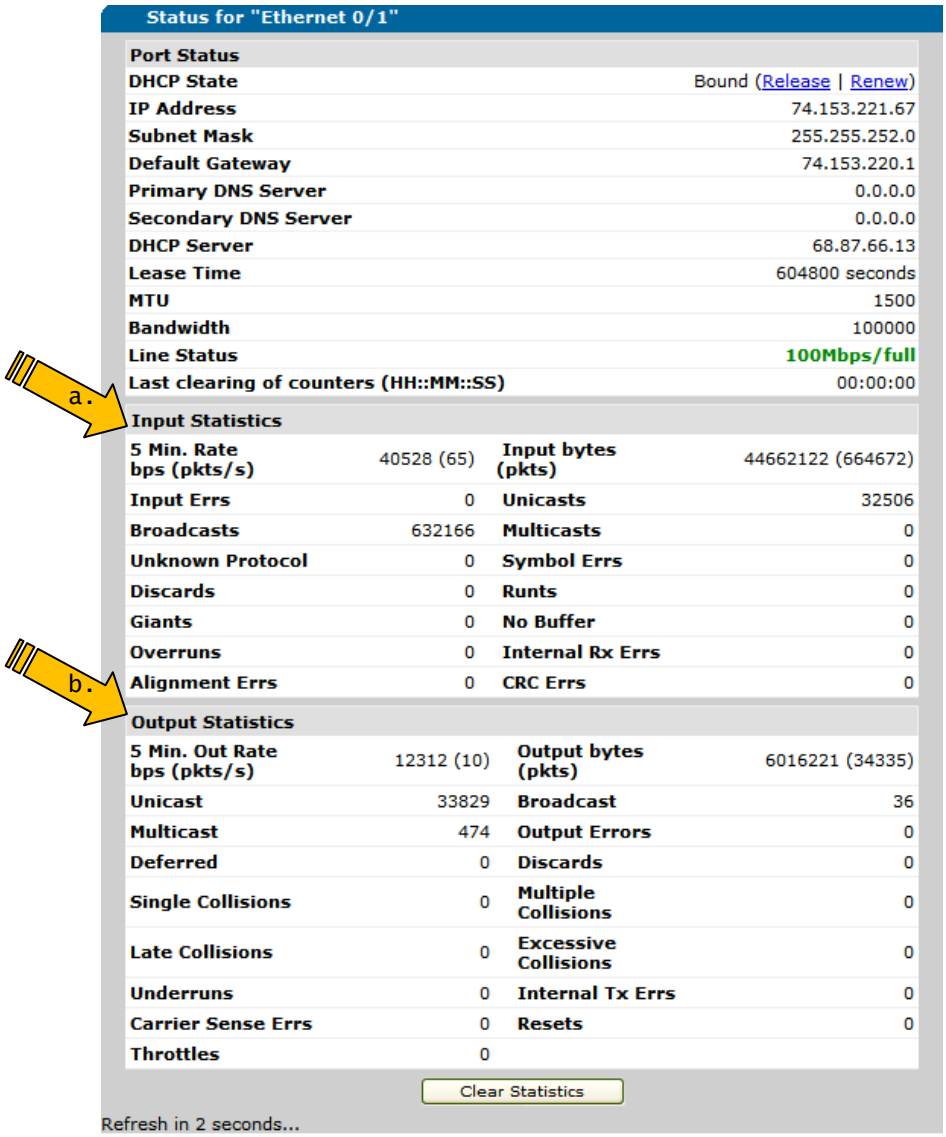


Figure 1.

Are there errors on the interface?

One way to view this is by navigating from the **System Summary** page to "Ethernet Summary" and then clicking on the Ethernet interface hyperlink (Figure 1 (b.)). From there you can scroll down to view the "Input Statistics" (Figure 2 (a.)) and "Output Statistics" (Figure 2 (b.)).



Status for "Ethernet 0/1"

Port Status	
DHCP State	Bound (Release | Renew)
IP Address	74.153.221.67
Subnet Mask	255.255.252.0
Default Gateway	74.153.220.1
Primary DNS Server	0.0.0.0
Secondary DNS Server	0.0.0.0
DHCP Server	68.87.66.13
Lease Time	604800 seconds
MTU	1500
Bandwidth	100000
Line Status	100Mbps/full
Last clearing of counters (HH::MM::SS)	00:00:00

Input Statistics

5 Min. Rate bps (pkts/s)	40528 (65)	Input bytes (pkts)	44662122 (664672)
Input Errs	0	Unicasts	32506
Broadcasts	632166	Multicasts	0
Unknown Protocol	0	Symbol Errs	0
Discards	0	Runts	0
Giants	0	No Buffer	0
Overruns	0	Internal Rx Errs	0
Alignment Errs	0	CRC Errs	0

Output Statistics

5 Min. Out Rate bps (pkts/s)	12312 (10)	Output bytes (pkts)	6016221 (34335)
Unicast	33829	Broadcast	36
Multicast	474	Output Errors	0
Deferred	0	Discards	0
Single Collisions	0	Multiple Collisions	0
Late Collisions	0	Excessive Collisions	0
Underruns	0	Internal Tx Errs	0
Carrier Sense Errs	0	Resets	0
Throttles	0		

Clear Statistics

Refresh in 2 seconds...

Figure 2.

Does the unit have connectivity to the n-Command MSP server?

One way to determine if the unit has connectivity to the n-Command MSP server is to ping the n-Command MSP server's IP address from the CLI of the unit? To do this, acquire CLI access and type **ping <ip address>** where "<ip address>" is the MSP server's IP address. Output should be similar to the example below:

```
# ping 10.100.13.250
Type CTRL+C to abort.
Legend: '!' = Success, '?' = Unknown host, '$' = Invalid host address
      '*' = Request timed out, '-' = Destination host unreachable
      'x' = TTL expired in transit
Sending 5, 100-byte ICMP Echos to 10.100.13.250, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 3/3.4/5 ms
```

Note: To ensure proper communication between the n-Command server and AOS devices, the Network Security Considerations from the n-Command MSP Quick Start Guide should be evaluated.

Is auto-link configured properly?

Enabling Auto-Link

By default, auto-link is disabled on AOS products. To enable auto-link, enter the **auto-link** command from the unit's Global Configuration mode as follows:

(config)# **auto-link**

Auto-link is now enabled. To disable auto-link, use the **no** form of this command

Specifying the Communication Method

The AOS device can communicate with the server using either HTTP or HTTPS. By default, the unit communicates with the server using HTTPS. If you want to change the communication method to HTTP, you can do so by entering the **auto-link http** command from the unit's Global Configuration mode prompt. To change the communication method to HTTP, enter the command as follows:

(config)# **auto-link http**

If you want to change the communication method back to HTTPS, enter the **auto-link https** command from the unit's Global Configuration mode prompt. To change the communication method to HTTPS, enter the command as follows:

(config)# **auto-link https**

The communication method is now specified.

Specifying the Recontact Interval

Each AOS device recontacts the auto-link server at specified intervals. By default, the AOS device recontacts the server every 3600 seconds. You can specify a recontact interval different than the default by specifying the number of seconds the unit will wait before recontacting the server. The range of recontact intervals is 20 to 604800 seconds. You can also set the recontact interval to 0 seconds, which disables the recontact feature. To specify a recontact interval different than the default, enter the **auto-link recontact-interval <*value*>** command from the Global Configuration mode prompt as follows:

(config)# **auto-link recontact-interval 4000**

Warning: ADTRAN recommends that the recontact-interval is never set below the default of 3600 seconds. More frequent auto-link recontacts can limit the number of devices the server can support. Further, configuring the ***recontact interval*** *to 0 disables auto-link, and will cause the device not to communicate with the MSP server.*

Are the NTP server and time zone settings configured properly?

Having the correct time server and time zone specified on the unit is required to ensure proper communication between the device and the n-Command MSP server. This can be viewed from the **System Summary** page, by clicking on "SNTP Time Server" (Figure 3 (a.)).

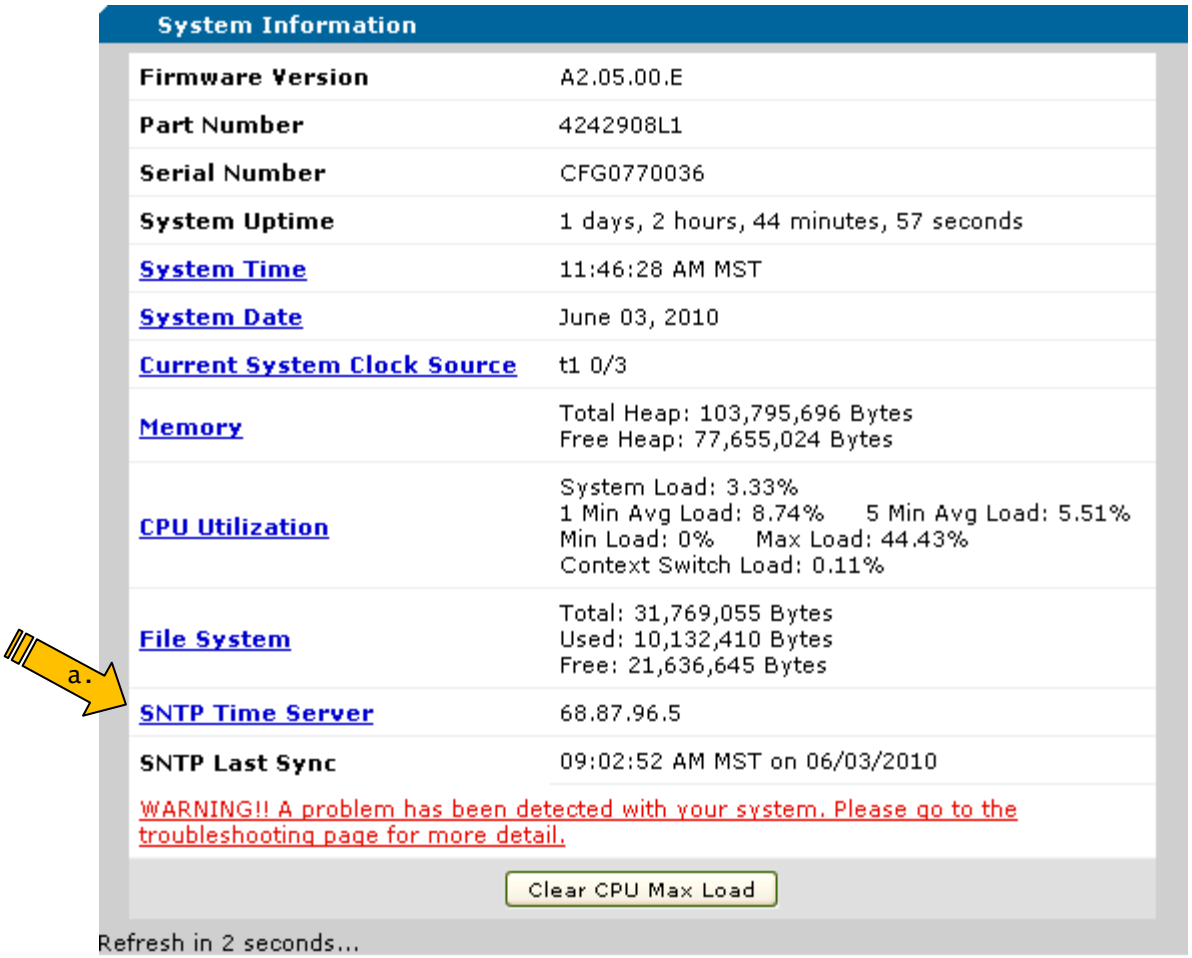


Figure 3.

Then, the “Time Zone” and “SNTP Server Hostname” can be verified (Figure 4 (a.) and (b.)).

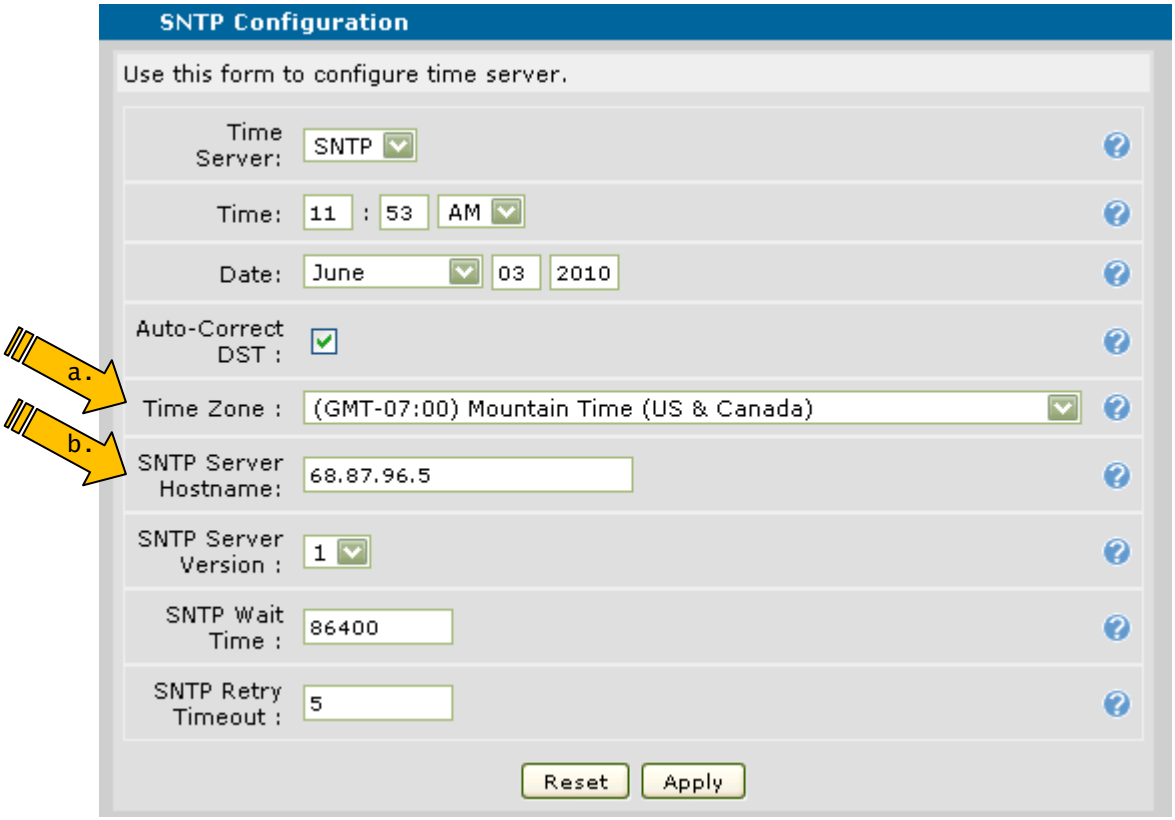


Figure 4.

How can the auto-link process be restarted?

One way to force the unit to attempt to recontact the n-Command MSP server is to disable then enable auto-link on the unit. To do this, follow these steps:

(config)# **no auto-link**
(config)# **auto-link**

It may be beneficial to enable debugging before this process to view the auto-link negotiation between the unit and the n-Command MSP server during this process.

debug auto-link

Successful output will be similar to this (notice the keyword “Success”):

11:15:41 AUTOLINK. Sending inital discovery message to
10.100.13.250/al/DiscoveryProcessor?action=devinfo.
11:15:41 AUTOLINK. OnWaitForReply.
11:15:42 AUTOLINK. OnWaitForReply.
11:15:42 AUTOLINK. OnDiscoverySuccess().

11:15:42 AUTOLINK. OnDiscoverySuccess: Heartbeat/discovery time: Wed, June 2, 2010 11:15:42 AM.
11:15:42 AUTOLINK. resetHttpClientStreams().
11:15:42 AUTOLINK. closeHttpConnection().
11:15:42 AUTOLINK. deleteHttpClientStreams().
11:15:43 AUTOLINK. OnProcessCommand().
11:15:43 AUTOLINK. OnProcessCommand: Device info message type
11:15:43 AUTOLINK. ProcessDeviceInfoMessage:
11:15:43 AUTOLINK. resetHttpClientStreams().
11:15:43 AUTOLINK. closeHttpConnection().
11:15:43 AUTOLINK. deleteHttpClientStreams().
11:15:44 AUTOLINK. getDeviceInfo - **Success**.
11:15:44 AUTOLINK. getAutoLinkInfo - **Success**.
11:15:44 AUTOLINK. getProcessesCPU - **Success**.
11:15:44 AUTOLINK. OnSendResponse:
11:15:44 AUTOLINK. resetHttpClientStreams().
11:15:44 AUTOLINK. closeHttpConnection().
11:15:44 AUTOLINK. deleteHttpClientStreams().
11:15:44 AUTOLINK. OnSendResponse: Sending response 1627 bytes.
11:15:44 AUTOLINK. OnSendResponse: **success**.
11:15:45 AUTOLINK. OnWaitForReply.
11:15:46 AUTOLINK. OnWaitForReply.
11:15:46 AUTOLINK. OnDiscoverySuccess().
11:15:46 AUTOLINK. OnDiscoverySuccess: Initial discovery.
11:15:46 AUTOLINK. OnDiscoverySuccess: Heartbeat/discovery time: Wed, June 2, 2010 11:15:46 AM.
11:15:46 AUTOLINK. resetHttpClientStreams().
11:15:46 AUTOLINK. closeHttpConnection().
11:15:46 AUTOLINK. deleteHttpClientStreams().
11:15:47 AUTOLINK. OnProcessCommand().
11:15:47 AUTOLINK. OnProcessCommand: Filesystem info message type
11:15:47 AUTOLINK. ProcessFileSysInfoMessage:
11:15:47 AUTOLINK. resetHttpClientStreams().
11:15:47 AUTOLINK. closeHttpConnection().
11:15:47 AUTOLINK. deleteHttpClientStreams().
11:15:47 AUTOLINK. processFileSysRequest:fsReq vol NONVOL path / element T900G2A-A2-06-00-E.biz recurse false.
11:15:47 AUTOLINK. processFileSysRequest:infoValue NONVOL:/
11:15:47 AUTOLINK. processFileSysRequest:SKIP HIDDEN FILE .boot-config.bak
11:15:47 AUTOLINK. processFileSysRequest:SKIP HIDDEN FILE .boot-config
11:15:47 AUTOLINK. processFileSysRequest:SKIP HIDDEN FILE ..mfgcert
11:15:47 AUTOLINK. processFileSysRequest:SKIP HIDDEN FILE ..certmgr
11:15:47 AUTOLINK. processFileSysRequest:SKIP HIDDEN FILE .currentTime
11:15:47 AUTOLINK. processFileSysRequest:SKIP HIDDEN FILE .shkeys.dat
11:15:47 AUTOLINK. processFileSysRequest: (file) T900G2A-A2-06-00-E.biz
11:15:47 AUTOLINK. processFileSysRequest - **Success**.

11:15:47 AUTOLINK. OnSendResponse:
11:15:47 AUTOLINK. resetHttpClientStreams().
11:15:47 AUTOLINK. closeHttpConnection().
11:15:47 AUTOLINK. deleteHttpClientStreams().
11:15:47 AUTOLINK. OnSendResponse: Sending response 377 bytes.
11:15:47 AUTOLINK. OnSendResponse: **success**.
11:15:48 AUTOLINK. OnWaitForReply.
11:15:49 AUTOLINK. OnWaitForReply.
11:15:49 AUTOLINK. OnDiscoverySuccess().

Here is an example of a failed auto-link (notice the keyword "Failed"):

11:24:25 AUTOLINK. Sending inital discovery message to 10.1.1.1/al/DiscoveryProcessor?action=devinfo.
11:24:25 AUTOLINK. OnWaitForReply.
11:24:25 AUTOLINK. OnDiscoveryFailed: Discovery **failed**: HTTP: Could not send initial message to HTTP server.
11:24:25 AUTOLINK. closeHttpClientAndDeleteStreams().
11:24:25 AUTOLINK. closeHttpConnection().
11:24:25 AUTOLINK. deleteHttpClientStreams().
11:24:25 AUTOLINK. closeHttpClientAndDeleteStreams().
11:24:25 AUTOLINK. closeHttpConnection().
11:24:25 AUTOLINK. deleteHttpClientStreams().
11:24:25 AUTOLINK. closeHttpFileTransferClientAndDeleteStreams().
11:24:38 AUTOLINK. HeartbeatTimerEvent::attemptExecution scheduledExecution == true.
11:24:38 AUTOLINK. HeartbeatTimerEvent::attemptExecution _client->start().
11:24:38 AUTOLINK. HeartbeatTimerEvent::createDefaultPeriodicTimer.
11:24:38 AUTOLINK. HeartbeatTimerEvent::getRetryTimer() == 3600.
11:24:39 AUTOLINK. OnSendDiscovery.
11:24:39 AUTOLINK. resetHttpClientStreams().
11:24:39 AUTOLINK. closeHttpConnection().
11:24:39 AUTOLINK. deleteHttpClientStreams().

Does the unit show it is connected to the n-Command MSP server?

One way to view this information is via the **show auto-link** command. The output should show "Discovered" when the unit is connected to the MSP server:

```
# show auto-link
AutoLink: Enabled
   Use Http: Disabled
   Server URL: 10.100.13.250/al/DiscoveryProcessor?action=devinfo
   Server SERVER: 10.100.13.250
   Recontact Interval: 3600 seconds
```

Last Contact: Wed, June 2, 2010 01:22:17 PM
Next Contact: Wed, June 2, 2010 02:21:49 PM
Status: **Discovered**