

How to Enable/Disable TCP Offload Overview

When troubleshooting a problem, it is helpful to be able to eliminate variables. The primary variable that Alacritech introduces into the network environment is the TCP offload driver. Furthermore, Server 2008 ships with chimney disabled, and KB948496 for Server 2003 disables all SNP features (see below). For these reasons, it is useful to know how to enable or disable TCP offload both globally and on a per interface basis.

Alacritech Support Advisory #5

Date: 04/03/2008

Affected Systems or Releases:

Windows Server 2003 hosts using Alacritech SNP (release 9.x) drivers

Issue:

Microsoft has issued a Windows Update that disables TCP Chimney (TCP Offload), RSS (Receive Side Scaling), and TCPA (Stateless TCP Offload) on all Windows Server 2003 SP2 hosts. This update will install by default when Windows Update is run.

For information about the update, see: <http://support.microsoft.com/kb/948496>

In order to understand why this hotfix was released, see the following discussion.
<http://msexchangeteam.com/archive/2007/07/18/446400.aspx>.

Workaround:

Simply use netsh to re-enable TCP Chimney. Follow the guide below:

Permanent Solution:

The above fix is permanent.

For an overview of TCP chimney in Windows Server 2008, see [Microsoft KB 951037](http://support.microsoft.com/kb/951037)
<http://support.microsoft.com/kb/951037>

Our [ATCP driver \[SNP ATCP Drivers What Does SNP Mean.docx\]](#) (ATCP.sys, included in Release 7 and earlier) is essentially a separate TCP stack from the Microsoft stack that enables us to offload the TCP connection to our Accelerator card (both network and iSCSI accelerators). If you disable this driver on an Alacritech interface and then reboot the system, that interface will henceforth behave as an ordinary NIC, using the Microsoft TCP stack.

Our [SNP driver \[SNP ATCP Drivers What Does SNP Mean.docx\]](#) (slic.sys, sxg.sys, etc., included in Release 9 and later) hooks into the Microsoft Chimney API. Changing the global TCP Chimney setting with netsh or changing the per interface setting via the network properties pane should take effect immediately. Changing the per interface setting via the registry requires the interface to be disabled and re-enabled for the change to take effect.

Enable/Disable TCP Offload for SNP Aware Drivers.

In Windows Scalable Networking Pack, TCP Offload can be disabled both globally and on a per interface basis.

Globally Enable/Disable TCP Offload for Microsoft SNP

The easiest way to globally enable or disable TCP Offload in chimney is to use the netsh command.

For **Windows Vista** and **Server 2008**, use:

```
Enable: netsh int tcp set global chimney=enabled
Disable: netsh int tcp set global chimney=disabled
```

You can also look at chimney status:

```
C:\Users\csl>netsh int tcp show global
Querying active state...
```

```
TCP Global Parameters
-----
Receive-Side Scaling State           : enabled
Chimney Offload State                : enabled
Receive Window Auto-Tuning Level    : disabled
Add-On Congestion Control Provider  : ctcp
ECN Capability                       : disabled
RFC 1323 Timestamps                 : disabled
```

For **Server 2003** and **XP x64**, use:

```
Enable: netsh int ip set chimney enabled
Disable: netsh int ip set chimney disabled
```

Unfortunately, you can't query chimney status in Server 2003. Instead you need to query the registry either with regedit or with the reg command. Here is an example of the latter starting with TCP Offload disabled and then enabled:

```
C:\Temp>reg query
HKLM\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters /v
EnableTCPChimney

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters
    EnableTCPChimney    REG_DWORD    0x0

C:\Temp>netsh int ip set chimney enabled
Ok.

C:\Temp>reg query
HKLM\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters /v
EnableTCPChimney

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters
    EnableTCPChimney    REG_DWORD    0x1
```

The change should take effect immediately, but it does not always, especially on Server 2003. Sometimes it is necessary to disable and re-enable an interface, or to reboot.

You can verify offload status by checking the "Offload State" with netstat -nt

```
C:\Temp>netstat -nt

Active Connections

    Proto Local Address           Foreign Address        State
Offload State

    TCP    172.16.50.108:1104     172.16.50.1:53        TIME_WAIT
InHost

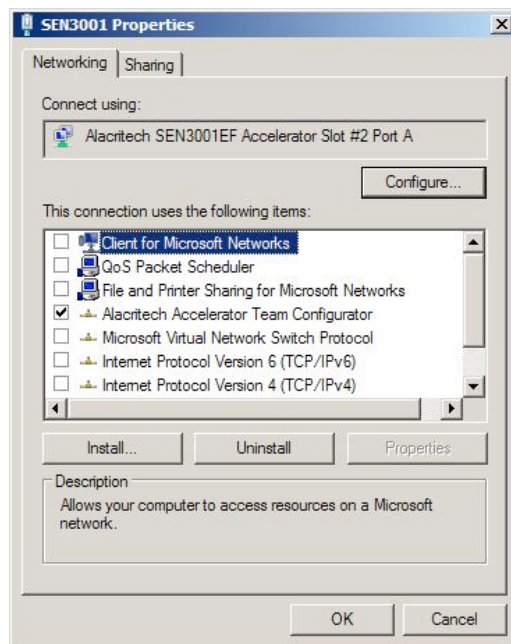
    TCP    192.168.50.108:1027   192.168.51.3:3260    ESTABLISHED
Offloaded

    TCP    192.168.50.108:1028   192.168.51.3:3260    ESTABLISHED
Offloaded
```

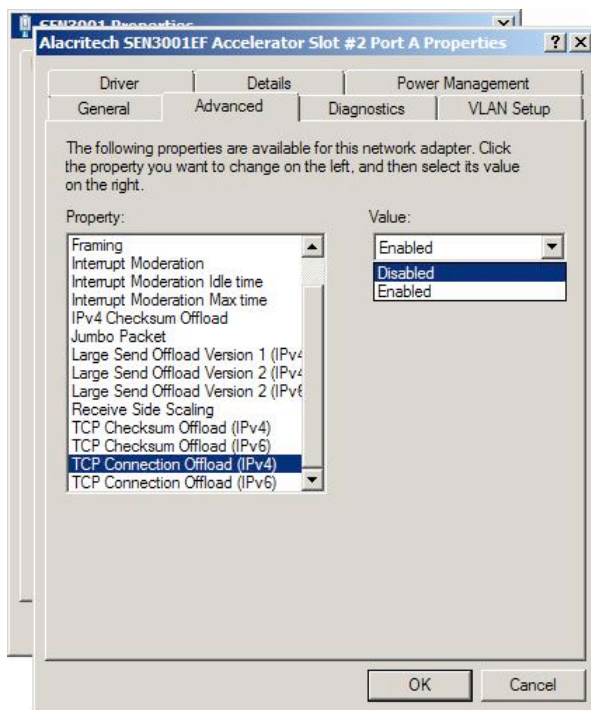
Interface Enable/Disable TCP Offload for Driver Release 10.x.

With the 10.x release TCP offload can once again be enabled/disabled on a per interface basis through the driver advanced properties pane. Furthermore, on SEN3000 series products, IPv6 TCP connection offload can be enabled/disabled separately from IPv4 TCP connection offload. This example shows TCP offload for IPv4, but IPv6 is handled exactly the same way.

First just bring up the network interface properties and click *Configure*.



Then go to the *Advanced* tab and set *TCP Connection Offload (IPv4)* to *Disabled*.



The change will take place as soon as you exit network connection properties.

Interface Enable/Disable TCP Offload for Driver Version 9.x.

Some versions of the release 9 driver do not have a way to enable/disable TCP offload via the driver advanced properties pane. For those drivers, TCP Offload can only be enabled or disabled on a per interface basis by editing the registry.

Anyway, the relevant key is:

HKLM\SYSTEM\CurrentControlSet\Control\Class\{4D36E972-E325-11CE-BFC1-08002BE10318}\(instance)

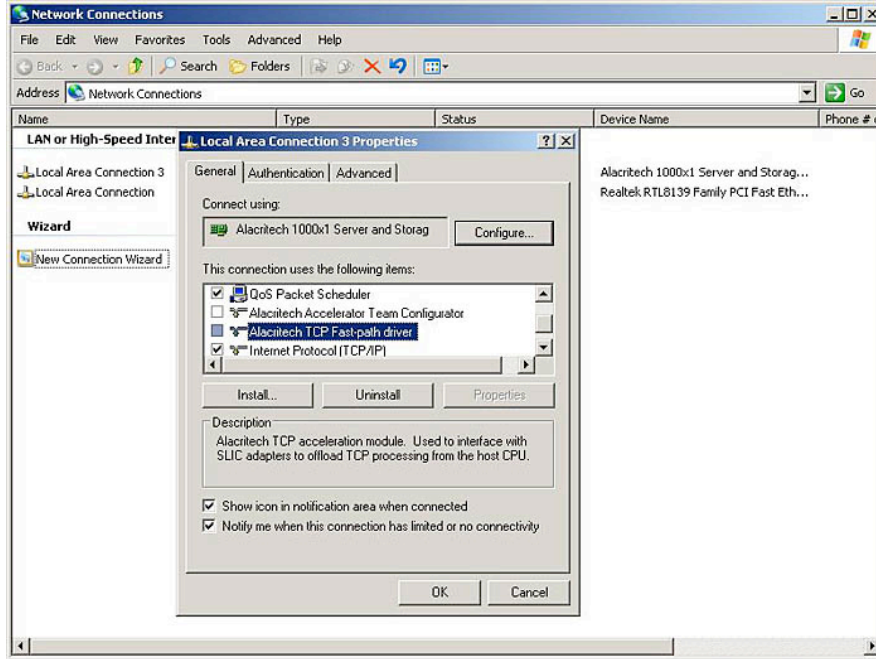
Where **(instance)** is a four digit zero padded number, e.g. 0001,0002,... that corresponds to the network interface in question.

The value that controls TCP Offload is:

TCPOffload

Description	Controls whether TCP Offload is enabled for device
Data Type	REG_SZ
Range	0,1
Effect	TCPOffload = 0: TCP Offload is disabled for this interface TCPOffload = 1: TCP Offload is enabled for this interface

This is what it looks like in regedit on server 2008



Disabling TCP Offload will result in a performance hit, so we recommend that you do this only as a troubleshooting step or as a work around for a bug.