TCP Performance Tuning for WAN Transfers

Category: Network

Summary: You can maximize your wide-area network bulk data transfer performance by tuning the TCP settings on your local host. This article shows some common configuration tasks for enabling high-performance data transfers on your system.

Note that making changes to your system should only be done by a lead system administrator or someone who is authorized to make changes.

Linux

1. Edit the file **`sysctl.conf`** located under the **`/etc`** directory, and add the following lines:

```
net.core.wmem_max = 4194304
net.core.rmem_max = 4194304
```

2. Then have them loaded by running **`sysctl -p`**

Windows

We recommend using a tool like Dr. TCP.

1. Set the "Tcp Receive Window" to at least 4000000
2. Turn on "Window Scaling," "Selective Acks,"and "Time Stamping"

Other options for tuning Windows XP TCP are the SG TCP Optimizer or using Windows Registry Editor to edit the registry, but the latter is only recommended for Windows users who are already familiar with registry parameters.

Mac

To tune your data transfer performance on a Mac without using command line settings see: http://support.apple.com/kb/DL420?viewlocale=en_US&locale=en_US.

For OS 10.4

Note that these changes require root access.

In order to allow the Mac operating system to retain the parameters after a reboot, edit the following variables in **`/etc/sysctl.conf`**:

1. Set maximum TCP window sizes to 4 megabytes

```
net.inet.tcp.sendspace= 4194304
net.inet.tcp.recvspace= 4194304
```

2. Set maximum Socket Buffer sizes to 4 megabytes

```
kern.ipc.maxsockbuf= 4194304
```

For OS 10.5 and up

Use the **`sysctl`** command for the following variable:

```
sysctl -w net.inet.tcp.win_scale_factor=8
```

If you follow these steps and are still getting less than your expected throughput, please contact the NAS network group at support@nas.nasa.gov (attn: Networks). We will work with you on tuning your system to optimize file transfers.

You can also try the additional steps outlined in the related articles listed below.

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http://www.nas.nasa.gov/hecc/support/kb/entry/137/?ajax=1