Tcl Speed Test

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Chapter 1

Preface

This is the user manual for the Tcl Speed Test.

Chapter 2

Tcl Coded Speed Test -- client side

Tcl Coded Speed Test Client program

2.1 SYNOPSIS

TclSpeedTest [-server ""] [-port 8080] [-time 10]

2.2 DESCRIPTION

This program is the client side for the Tcl Coded Speed Test. It connects to the Tcl Coded Speed Test Server (using HTTP) to measure download and upload speeds. It does this by first downloading data files staring with a 1 megabyte sized file, and increasing the size by powers of 2 (1, 2, 4, 8, 16, 32, etc.) megabytes. It expects the server to serve files named 1, 2, 4, 8, 16, 32, etc. that are files of that size. The contents of the file are discarded. The real time to download the file is measured and once a download time that excedes the specified time (10 seconds by default), the download test completes with the time in MBits/sec of the printed to the terminal. Then the upload test commences. The program POSTs a data file starting with a 1 megabyte sized file, and increasing the size by powers of 2 (1, 2, 4, 8, 16, 32, etc.) megabytes. Again the transfer is timed and once an upload excedes the specified time (10 seconds by default), the upload test completes with the time in MBits/sec of the printed to the terminal.

2.3 PARAMETERS

none

2.4 OPTIONS

- -server hostname The name or IP address of the server host. Defaults to "".
- -port portnumber The Tcp/Ip port to connect on. Defaults to 8080.
- -time seconds The time limit threshold in seconds. Defaults to 10.

2.5 AUTHOR

Robert Heller <heller@deepsoft.com>

Chapter 3

Tcl Coded Speed Test -- server side

Tcl Coded Speed Test Server program

3.1 SYNOPSIS

TclSpeedTestServer [-bindhost ""] [-port 8080] [-pidfile /var/run/TclSpeedTestServer.pid] [-log /var/log/TclSpeedTestServer/access.log]

3.2 DESCRIPTION

This program is the server side for the Tcl Coded Speed Test. It accepts HTTP GET and POST requests. For GET requests, the local part is an integer that specifies the number of megabytes of random (text) data to send. The POST request can have anything as the local part and the query content is dropped on the floor. A status code of 200 is always sent, unless the local part of a get request cannot be parsed as an integer, in which case a 400 (Bad Request) is sent.

3.3 PARAMETERS

none

3.4 OPTIONS

- -bindhost hostname The name or IP address of the host to bind to. Defaults to "" (binds to all interfaces).
- -port portnumber The Tcp/Ip port to listen on. Defaults to 8080.
- -log filename The log file name. Defaults to /var/log/TclSpeedTestServer/access.log
- -pidfile filename The pid filename, Defaults to /var/run/TclSpeedTestServer.pid
- -debug Turns on debug logging.

3.5 AUTHOR

Robert Heller <heller@deepsoft.com>

Chapter 4

Class Index

4.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

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Chapter 5

Class Documentation

5.1 TclSpeedTest Class Reference

Public Member Functions

- TclSpeedTest (name,...)
- downloadtest (size)
- uploadtest (size)

Static Public Member Functions

- static HumanFormatBitsPerSec (bpersec)

Private Member Functions

- _complete (token)
- _uploaddata (token, bufferName)

Static Private Member Functions

- static randomprintable ()

Private Attributes

- starttime
- endtime

- complete
- bytesreceived
- remainingbytesuploaded

Static Private Attributes

- static testbuffer
- static bufsize

5.1.1 Detailed Description

Client side of the Tcl Coded Speed Test

5.1.2 Constructor & Destructor Documentation

5.1.2.1 TclSpeedTest::TclSpeedTest (name , ...)

Create a tester instance.

Parameters

...	Options (all readonly): • -server The server to test with. Defaults to sharky3.deepsoft.com. • -port The port to use. Defaults to 8080. • -time The time in sections to test for. Defaults to 10.

5.1.3 Member Function Documentation

5.1.3.1 TclSpeedTest::_complete (token) [private]

Completion callback function.

Parameters

token	The http token.

5.1.3.2 TclSpeedTest::_uploaddata (token , bufferName) [private]

The upload data callback function.

Parameters

token	The http token.
bufferName	The name of a buffer variable to fill up with data.

Returns

The number of bytes in the buffer or -1 if EOF.

5.1.3.3 TclSpeedTest::downloadtest (size)

Perform one download test.

Asks the server to download a chunk of data.

Parameters

size	The size of the download in megabytes.

Returns

The number of seconds (accurate to the millisecond) the download took.

5.1.3.4 static TclSpeedTest::HumanFormatBitsPerSec (bpersec) [static]

Function to format a number of bits per second into some human friendly. The number is reduced and a multiplier is included in the units label appended to the result.

Parameters

bpersec	The bits per second as an integer.

Returns

A string representation of the bits per second with a multiplier: k (=1,000), m (=1,000,000), or g (=1,000,000,000) or none if the bpersec $<$ 1000).

5.1.3.5 static TclSpeedTest::randomprintable ( ) [static, private]

Generate a random printable character.

Returns

A single printable character.

5.1.3.6 TclSpeedTest::uploadtest (size)

Perform one upload test.

Uploads a chunk of data to the server.

Parameters

size	The size of the upload in megabytes.

Returns

The number of seconds (accurate to the millisecond) the upload took.

5.1.4 Member Data Documentation

5.1.4.1 TclSpeedTest::bufsize [static, private]

Buffer size

5.1.4.2 TclSpeedTest::bytesreceived [private]

The number of bytes received.

5.1.4.3 TclSpeedTest::complete [private]

Completion flag.

5.1.4.4 TclSpeedTest::endtime [private]

The end time.

5.1.4.5 TclSpeedTest::remainingbytesuploaded [private]

The number of bytes remaining to be uploaded.

5.1.4.6 TclSpeedTest::starttime [private]

The start time.

5.1.4.7 TclSpeedTest::testbuffer [static, private]

Test buffer

5.2 TclSpeedTestServer Class Reference

This class implements the Tcl Speed Test Server.

Public Member Functions

- TclSpeedTestServer (name,...)
- ~TclSpeedTestServer ()
- HttpdRead ()
- HttpdRespond ()
- HttpdError (code)
- Httpd_Log (reason,...)
- SendRandomTextData (bytes)

Static Private Member Functions

- static LogPuts (level, message)
- static HttpdAccept (newsock, ipaddr, remport)
- static HttpdDate (clicks)
- static randomprintable ()

Private Attributes

- state
- proto
- url
- query
- mime

Static Private Attributes

- static version
- static defaultport
- static port
- static bindhost
- static default
- static bufsize
- static sockblock
- static host
- static defaultlogfilename
- static logfilename
- static defaultpidfilename
- static pidfilename
- static listen
- static accepts
- static testbuffer
- static logchan
- static HttpdErrors
- static HttpdErrorFormat

5.2.1 Detailed Description

This class implements the Tcl Speed Test Server.

∗ The static members implement global initialization and the listener. The class instances are client connections.

Adapted from the simple HTTPD server that is included in sdx, by Stephen Uhler / Brent Welch (c) 1996 Sun Microsystems.

Main changes: 1) Hardwired the data. This server never touches the file system, except for a PID file and a log file. It never serves files and does no CGI or cookies, etc. It only sends random data in 1, 2, 4, 8, 16, 32, etc. megabyte chunks. 2) It does nothing with the POST or GET query, but will accept an arbitrary abount of data uploaded.

Basicaly it is a like /dev/random (GET) and /dev/null (POST). And I reimplemented the server to use a SNIT type object instead of global variables and upvar.

Author

Robert Heller <heller@deepsoft.com>

5.2.2 Constructor & Destructor Documentation

5.2.2.1 TclSpeedTestServer::TclSpeedTestServer (name , ...)

Create a connection object.

Parameters

...	options: • -sock The connection socket. • -remaddr The remote address. • -remport The remote port.

5.2.2.2 TclSpeedTestServer::~TclSpeedTestServer ( )

Destory (close) a connection.

5.2.3 Member Function Documentation

5.2.3.1 TclSpeedTestServer::Httpd_Log (reason , ...)

Log an Httpd transaction.

Parameters

reason	The reason for the log message.
...	Additional arguments.

5.2.3.2 static TclSpeedTestServer::HttpdAccept (newsock , ipaddr , remport) [static, private]

Accept a connection.

Parameters

newsock	Connection socket.
ipaddr	Remote IP address.
remport	Remote port.

5.2.3.3 static TclSpeedTestServer::HttpdDate (clicks) [static, private]

Generate a date string in HTTP format.

Parameters

clicks	Current time in seconds.

5.2.3.4 TclSpeedTestServer::HttpdError (code)

Display (send) a error message.

Parameters

code	HTTP error code.

5.2.3.5 TclSpeedTestServer::HttpdRead ( )

Read from a connection.

5.2.3.6 TclSpeedTestServer::HttpdRespond ( )

Respond to a request.

5.2.3.7 static TclSpeedTestServer::LogPuts (level , message) [static, private]

Log output function.

Parameters

level	Level of log message.
message	The message text.

5.2.3.8 static TclSpeedTestServer::randomprintable ( ) [static, private]

Generate a random printable character.

Returns

A single printable character.

5.2.3.9 TclSpeedTestServer::SendRandomTextData (bytes)

Send some random data.

Parameters

bytes	The number of bytes to send.

5.2.4 Member Data Documentation

5.2.4.1 TclSpeedTestServer::accepts [static, private]

Accept count.

5.2.4.2 TclSpeedTestServer::bindhost [static, private]

The host or ip to bind to (-bindhost CLI option).

5.2.4.3 TclSpeedTestServer::bufsize [static, private]

The buffer size.

5.2.4.4 TclSpeedTestServer::default [static, private]

The default path.

5.2.4.5 TclSpeedTestServer::defaultlogfilename [static, private]

Default log file name.

5.2.4.6 TclSpeedTestServer::defaultpidfilename [static, private]

Default pid file name.

5.2.4.7 TclSpeedTestServer::defaultport [static, private]

The default port.

5.2.4.8 TclSpeedTestServer::host [static, private]

Advertised host name.

5.2.4.9 TclSpeedTestServer::HttpdErrorFormat [static, private]

Error format string.

5.2.4.10 TclSpeedTestServer::HttpdErrors [static, private]

Http error messages.

5.2.4.11 TclSpeedTestServer::listen [static, private]

Listen socket.

5.2.4.12 TclSpeedTestServer::logchan [static, private]

Log channel.

5.2.4.13 TclSpeedTestServer::logfilename [static, private]

Log file name.

5.2.4.14 TclSpeedTestServer::mime [private]

Mime headers.

5.2.4.15 TclSpeedTestServer::pidfilename [static, private]

Pid file name.

5.2.4.16 TclSpeedTestServer::port [static, private]

The actual port (-port CLI option).

5.2.4.17 TclSpeedTestServer::proto [private]

The protocol (GET or POST)

5.2.4.18 TclSpeedTestServer::query [private]

The query string.

5.2.4.19 TclSpeedTestServer::sockblock [static, private]

Socket blocking or not.

5.2.4.20 TclSpeedTestServer::state [private]

The current state.

5.2.4.21 TclSpeedTestServer::testbuffer [static, private]

Test buffer.

5.2.4.22 TclSpeedTestServer::url [private]

The local part of the URL.

5.2.4.23 TclSpeedTestServer::version [static, private]

The version string.

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