

mTCP 2022-07-01 Release Notes

Welcome to the latest release of mTCP!

It has been nearly two and a half years since the last release of mTCP. This release includes internal changes that make the TCP library more robust, DNS improvements including HOSTS file support (finally!), a new utility making it easy to check for updates right from your DOS machine, and some fixes and new features in several of the programs. Please see the detailed list of changes for the specifics.

Since the last release there are two exciting new projects that use mTCP as their TCP/IP library: [ngIRCd-DOS](https://github.com/ngIRCd/ngIRCd-DOS) (a port of the ngIRCd IRC server to DOS) and [MicroWeb](https://github.com/microweb/microweb), a web browser for DOS. Also of note are Jonathan Pyle's extensions to Telnet (<https://github.com/jhpyle/mTCP>), which adds extended keyboard, printing and sixel graphics support. If you want a pure DOS experience, [Peter Naszvadi](https://github.com/peter-naszvadi/peter-naszvadi) has been modifying everything to build natively under DOS and to use DOS STDIO calls, allowing for the console to be redirected over the serial port.

mTCP has supported SLIP and PPP connections for years, but those required another machine to route the packets for the DOS machine. Rich over at theoldnet.com has done some great work to extend the function of "WiFi modems" to include SLIP and PPP support, removing the need to have a second machine while allowing the DOS machine to connect using WiFi. This release fixes a DNS incompatibility when using the SLIP firmware on these devices. I'll keep testing compatibility and making improvements in mTCP to support these devices. Check out his [Tindie](https://theoldnet.com) page for his specific WiFi modem devices.

There are at least two web sites using the mTCP HTTP server (<https://www.palmtotube.com/> and <https://fsturmat.net/>). One runs on vintage hardware, while the other runs in emulated hardware on a cloud server. Both use a reverse proxy to provide HTTPS support for the mTCP HTTP server, which is a great demonstration of how to mix new and old tech. (In the early days of the web HTTP servers were often assisted by cryptographic coprocessing hardware, so this approach has precedent.) [Mark Sherman](https://www.palmtotube.com/) has been running the 2015 version of the mTCP HTTP server in an emulator on Amazon Web Services since October 10th, 2019. That is correct, it is at 23760 hours (990 days) of runtime as of this writing. Even though the site is minimal, the endurance is amazing. (My own attempt to do something similar ended when after 860 hours my PCjr starting having memory errors.)

Even the documentation has had some upgrades! I have spent almost a month reading and rereading it to ensure it is as clear as it can be.

While there have been some source code changes to clean things up and make the code more maintainable, there have been no major API changes. If you are using mTCP for your project this should be an uneventful upgrade. Testing so far is showing equivalent performance to the last release but a slightly larger code size. (The extra HOSTS file support had to go somewhere ...)

Enjoy!
-Mike Brutman

Detailed list of changes:

- TCP, UDP and IP library:
 - Bug fix: Window size advertisement bug, affected lossy connections.
 - Bug fix: Do not send data more than the remote connection says is allowed.
 - Bug fix: UDP checksums are optional, so don't ignore packets that have not set the UDP checksum.
 - IP routing: Add support for broadcasting to a network. (Previously only local broadcast on 255.255.255.255 was supported.)
 - IP routing: Allow netmask to be set to 255.255.255.255 and interpreted as "send everything through the gateway." (This is needed for some virtual machine environments.)
 - Startup time improvement: Reduce the time spent checking for an IP address conflict.
- DNS library:
 - New feature: Add DOMAIN configuration parameter.
 - New feature: Host file support!
 - Improvement: Simplify DNS resolving by using recursive DNS queries for most mTCP applications.

- Compatibility improvement: Move DNS handler port above 1024 to improve compatibility with some DNS servers and router devices.
- DHCP
 - Bug fix: Parse and use values sent from the server in the final DHCP protocol handshake packet.
 - New feature: Accept hostname and domain from DHCP server if available..
 - New feature: Add DHCP_LEASE_REQUEST_SECS config option.
 - Improvement: More DHCP trace messages.
- FTP server
 - Improvement: Show hidden and system files in directory listings.
 - New feature: Add a SITE QUIT command for performing a remote shutdown.
 - New feature: Add support for Dynamic DNS when using the FTP server behind a NAT firewall.
- SNTP client: Improve accuracy by implementing fractional seconds.
- Ping: New feature: Broadcast ping support.
- HTTP server:
 - Bug fix: Fix broken 401 error message.
 - Bug fix: Do not send data more than the remote connection says is allowed.
 - Improvement: Refactoring to make the code easier to understand (and safer for when I finally release it.)
 - New feature: Remote logging via UDP.
 - New feature: Configuration option for setting content expiration time.
 - New feature: Add proper support for automatically serving INDEX.HTM when it is in a directory. (Previously you had to explicitly tell the HTTP server what file to serve as the default when a directory URL was sent.)
 - New feature: command line option to specify a time to do a shutdown.
- FTP client: Bug fix: Do not send data more than the remote connection says is allowed.
- Services.BAT: This is a batch file wrapping Netcat that allows you to do a quick update check of your mTCP version, right from your DOS machine. It also demonstrates how Netcat can be used to implement simple client programs.