

LANtastic for TCP/IP Installation and Configuration

Performance Objectives

This module is designed to introduce the user to the basic installation and configuration of LANtastic for TCP/IP. There are no comprehensive instructions included in this test. Instead, you will utilize the existing installation and troubleshooting bulletins as well as the product manual.

When you have completed this module, you should be able to do/understand the following:

- Successfully install LANtastic for TCP/IP on 2 nodes.
- PING between the 2 nodes.
- Transfer files between the 2 nodes using FTP.
- Share a printer between the 2 nodes using LPRS.
- Navigate and use the LTCP manager program.
- Connect to TCP/IP host.
- TELNET to that same host.
- Successfully update the LANtastic for TCP/IP licenses.
- Successfully used the DOS and Windows versions of each TCP/IP utility.

Hardware and Software Requirements

- 2 machines with LANtastic 6.0 installed and connected into a 2 node network using NodeRunner adapters.
- A printer attached to one of these nodes.
- 2 singles user disk sets of LANtastic for TCP/IP v1.1.
- The LANtastic for TCP/IP Installation bulletin from the BBS.
- The LANtastic for TCP/IP Troubleshooting bulletin from the BBS.
- The LANtastic for TCP/IP manual.
- The LANtastic for TCP/IP patch file from the BBS, ARTIZIP.EXE. This will be supplied on a disk.
- A TCP/IP host available on the same network.
- A valid account on the TCP/IP host.
- Knowledge of the Host name, account and password.
- The TCP/IP host running the TELNET and FTP daemons.

Overview

LANtastic for TCP/IP installs on an existing LANtastic network, giving all users running it the flexibility of the LANtastic peer to peer network and the ability to access any TCP/IP host such as:

- UNIX
- VMS
- IBM mini and mainframes

or in general, any platform that can run the TCP/IP protocol, either natively or as an add-on.

LANtastic for TCP/IP has the most common utilities and functions available such as:

- TELNET
- FTP
- NFS client
- Terminal Emulation
- Keyboard Remapping
- Printing to UNIX Printers

There are DOS and windows utilities included with the product. The product comes in 1,5,10 and 100 user license packs. These licenses are separate from the user's LANtastic licenses. The user must have LANtastic 4.1 or higher already installed to use LANtastic for TCP/IP.

General Definitions

This module is not intended to be a comprehensive text on TCP/IP, but some general definitions and concepts need to be covered.

- **TCP/IP** -- Transmission Control Protocol / Internet Protocol (Internet is in here somewhere!). It was developed originally by the Department of Defense to allow all of the different computer systems they were using to communicate.
- **DAEMON** -- A "process" running on a "host" like a DOS TSR, usually running in background.
- **DNS** -- Domain Name Server, an Internet "server" that lets you use a "name" vs. an IP address.
- **FINGER** -- Information look-up application, to find information on a specific user@host_name.
- **FTP** -- File Transfer Protocol, used for COPY'ing files between TCP/IP nodes.
- **FTPD** -- FTP Daemon, FTP "server" function for TCP/IP nodes. This allows a node to make its files available to other nodes for copying.

- **ICMP** -- Internet Control Message Protocol, Internet again! -- related to PING.
- **INTERNET** -- Refers to the "Internet", a world wide network of computers most commonly accessed by nodes using the TCP/IP protocol.
- **NFS** -- Network File System, a way to "mount" a file system for access from TCP/IP nodes.
- **PING** -- Packet INternet Groper -- ICMP echo program, like LANcheck or NET PING.
- **RLOGIN** -- Remote Login, login to remote host as if a "local" terminal.
- **RSH** -- Remote Shell, run a Unix command on a remote host, like NET RUN.
- **RCP** -- Remote Copy, copy files from one remote Unix host to another.
- **SNMP** -- Simple Network Management Protocol, a way to "monitor" the network nodes.
- **TELNET** -- Standard Internet terminal emulation protocol, usually VT100, VT220, etc. Used for sending most commands to a TCP/IP host.
- **TFTP** -- Trivial File Transfer Protocol, simplified "command line" form of FTP.

LANtastic for TCP/IP Configurations

LANtastic for TCP/IP is separately licensed from LANtastic NOS for the number of "simultaneous" TCP/IP users. A single user license or a multi-user license can be "shared" by multiple users so long as the users "unload" the L4T drivers when they are not "using" a license. Each node that is running TCP/IP must load the L4T drivers and "consume" one of the L4T licenses while it is running TCP/IP.

Note: L4T is NOT a TCP/IP "gateway" that allows all nodes on the network to become TCP/IP nodes "through" a single node on the network.

LANtastic for TCP/IP can be configured in two ways:

First, as a "Management Server" where all L4T files are installed on a "local" machine (usually a LANtastic server). The L4T files, TCP/IP licenses, and configuration information can then be "shared" across the LANtastic network. This configuration allows central administration of the L4T individual configurations, and saves disk space on each of the "Workstation" nodes that "share" the files from the "Management Server".

The second configuration is the complement to the "Management Server" and is used on "Workstation" nodes. Each "Workstation" node (may also be a LANtastic server) has only an updated low-level driver (if necessary) and updated ALLANBIO (if necessary) installed, and a drive redirection (S: by default) to the "Management Server".

Note: A stand-alone node, running a single-user license of L4T is also generally installed as a "Management Server".

Each installation creates a TCPSTART.BAT file in the C:\LANTASTI directory that "starts" LANtastic for TCP/IP. The TCPSTART.BAT on a "Management Server" loads the L4T drivers and adds the C:\LANTCP directory to the PATH. The TCPSTART.BAT on a "Workstation" makes the redirection to the "Management Server", loads the drivers, and adds the redirected drive (S: by default) to the PATH.

Installation Instructions

Using the LANtastic for TCP/IP Installation bulletin provided, install the product on both nodes. Refer to Chapter 2, page 9 and Chapter 3, page 29 of the manual.

- Install each machine for DOS and WINDOWS.
- Install one machine as a management server and the other as a workstation.
- **Be sure to follow the instructions about backing up your low level drivers.**

During the installation, you will be asked to enter some IP addresses. The following IP addresses are suggested:

- Starting IP Address 198.17.250.190
- Ending IP Address 198.17.250.194
- Management Server IP Address 198.17.250.190
- Workstation IP Address 192.17.250.191

Warning: If you are on an existing network with other TCP/IP hosts and clients attached, make sure the IP addresses you pick for this module do not conflict with any existing IP addresses. Check with your instructor or Network administrator.

After installation is complete, be sure to restore the AILANBIO.EXE and low level driver you made copies of before the install.

About IP Addressing

Internet Protocol (IP) addresses contain 32 bits. See the L4T manual, Appendix H, page 284. The 32 bits are designated by four 8-bit "octets" (one octet is 8-bits). The notation is xxx.xxx.xxx.xxx . The numbers range from 0.0.0.0 to 255.255.255.255 . Any leading zero's are not used. There are also some addresses that are specifically reserved for certain uses. IP addresses beginning with 0 , 127 , or 255 in the "first" octet are reserved. Additionally, 255 is reserved for special use anywhere within the IP address.

There is also a two-tier hierarchy that specifies a "network number" and a "host number". Every node on the Internet is on a specific "network" and is a "host". Note that the term "host" in this context is that related to IP addressing and does not necessarily imply that the "host" is a Unix "server" in any sense.

The "network number" consists of all the bits that are the "same" for every "host" on a local network. The "network number" consists of the "first" portion of the IP address. This is dependent upon the "class" of the network.

General Setup Rules for IP Addressing

If the local network is NOT connected to the Internet (or to any other network), then the LTCP-MGR setting of Subnet Bits: 0 is acceptable. The Gateway's Address: should be set to 0, resulting in a displayed value of <<None>>.

Generally, most networks (that are connected to the Internet) use an LTCP-MGR setting of Subnet Bits: 24 (resulting in a Subnet Bits Mask: of 255.255.255.0). The Gateway's Address will normally be aaa.bbb.ccc.1 where the aaa.bbb.ccc represents the "network number" of the local network. This should be the same first three octets as the local network's Unix "host". Most local networks are Class C networks. If there is any doubt, check with the local network's Unix administrator for the local Unix "host".

Once installed, reboot both systems and verify that they can communicate at the LANtastic level.

Exercises

In each of these exercises, you will either be supplied with specific instructions or you will be referred to the LANtastic for TCP/IP manual by chapter and page.

1. PING one node to another. Refer to Chapter 4, page 53 of the manual.
 - a. PING using the IP address.
 - b. PING using an alias from a HOSTS file. Refer to Appendix C to create the HOSTS file.
 - c. PING the TCP/IP host on your network.
2. Load FTPD on one node to make it an FTP server. Refer to Chapter 9, page 91 of the manual.
3. Use DOS FTP on the other node. Refer to Chapter 8, page 75 of the manual.
4. Do a directory of the FTPD node from the local machine.
5. Copy a file from the FTPD server to the local machine using GET.
6. Copy a file from the local machine to the FTPD server using PUT.
7. Log out and log back into the FTP host.
8. Use FTP and perform the same functions from the workstation with WINDOWS. Refer to Chapter 21, page 201 of the manual.
9. Use the same FTP functions on the TCP/IP host on your network.
10. Start a DOS TELNET session to the TCP/IP host. Refer to Chapter 11, page 105 of the manual. In the session, perform these tasks:

Note: If the error "foreign host [name] not known" appears, it is usually because your path to the LANTCP directory is wrong. Check the following:

Run LTCP-MGR/MAN <enter>.

Select Users Accounts Management <enter>.

Select the IP address and name for the machine you are on and press <enter>.

Select Account Management <enter>.

Select Program Parameter Management <enter>.

Check the Directory path. If this is the Management Server, then the path should be local (C:\LANTCP). If this is the workstation, then it should be the redirected drive that points to the Management Servers LANTCP directory. For example, S: would be redirected to \\SERVERNAME\C-DRIVE\LANTCP. The error is caused by the program not being able to reference the correct HOSTS file.

11. Login with a login name of of your TCP/IP host. Remember to use lowercase.
12. Type in the password for your account and press <enter>.
13. Type `ls` <enter>. This is like a DIR command in DOS.
14. Type `cd /` <enter>. There must be a space between "cd" and the "/". This puts you in the root directory.
15. Use the `ls` command to see what is on the root.
16. Type `cd /etc` <enter>. This changes you to the ETC directory.
17. Use `ls` to see the files in this directory.
18. Type `more motd` <enter>. This will let you see what is in the text file called "motd".
19. Type `logout` <enter>. This returns you back to the DOS prompt.
20. Perform the equivalent TELNET functions using the WINDOWS interface. Refer to Chapter 20, page 191 of the manual.
21. Configure LPRS on the machine with the printer attached to it. Refer to Chapter 13, page 135 of the manual.
22. Configure the other machine with LPR print services at the DOS level and. Refer to Chapter 13, page 127 of the manual.
23. Redirect LPT1 to the LPRS server.
24. Test print to LPT1.
25. Check the status of the printer.
26. Delete the print redirection.
27. Print from the same machine to the LPRS server using the WINDOWS utility. Refer to Chapter 22, page 211 of the manual.

Note: If the workstation will not find to the server with TELNET, check the following:

Exit to DOS.

Run LTCP-MGR/MAN <enter>.

Select User Account Management <enter>.

Select the IP address and name for the machine you are on and press <enter>.

Select Account Management <enter>.

Select Expert Parameters <enter>.

Select Optimize Parameters For and press <enter>.
Until it changes to <<Custom>>.

Select Packet Buffers <enter>.

Change this to 15 and press <enter>.

Press <esc> until you exit the LTCP-MGR program.

Reboot the system and start the LANtastic for TCP/IP again.

28. Run the LTCP program and test its functions. Refer to Chapter 7, page 69 of the manual.
29. Run LTCP-MGR with and without the /MAN switch. Check the explanation for each of the settings with the F1 Help key.
30. Using the ARTIZIP.EXE file from the BBS, follow instructions for updating the license. Refer to the README that is included with ARTIZIP.
31. Remove the LANtastic for TCP/IP drivers from memory. Refer to the following instructions.

Removing LANtastic for TCP/IP

If you have only a Single Node License or more users than the number of licenses, you may have a need to "remove" L4T on a node before another node can use the license. HINT -- To remove the L4T drivers, create a batch file TCPSTOP.BAT that contains the following commands:

```
ASTCPRM -D  
ARTITCP/REM
```

This will remove the L4T drivers from memory and will allow another node to use the license that was in use by this node.

NOTE: These commands must be run outside of Windows..

END OF TRAINING MODULE

Installation, Troubleshooting and Configuration of LANtastic for TCP/IP

**Module TCP_ITC
Revision 2
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Prepared by Curt Langley

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