## MacTCP 2.0.6: Invalid Domain Name, Syntax Error (12/94)

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TOPIC -----------------------------------------------------------

We have discovered a problem when running MacTCP 2.0.6.  We have duplicated the
error on a PowerBook Duo 270c, Macintosh IIci, and Macintosh IIfx. System
software involved is System 7.5 and System 7.0.1 (on IIfx).

When we attempt to connect to an IP host with an underscore character in the
name, we get a MacTCP error.  For example, when we use Telnet 2.6 to connect to
an IP host with a valid name of hlan_pager.pnl.gov.

The error returned was "The connection to <hostname> cannot be opened because
the domain name given was invalid.  Internal error 0.  Mac OS error -23041".
Error -23041 is a name syntax error.  This naming convention caused no problems
with MacTCP 2.0.4, what's wrong?

DISCUSSION ------------------------------------------------------

MacTCP 2.0.6 was changed to adhere to RFC 1034 (Section 3.5) and RFC 1035
(Section 2.3.1) in regards to domain name syntax.

Here is section 3.5 from RFC 1034:

3.5. Preferred name syntax
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The DNS specifications attempt to be as general as possible in the rules for
constructing domain names.  The idea is that the name of any existing object can
be expressed as a domain name with minimal changes. However, when assigning a
domain name for an object, the prudent user will select a name which satisfies
both the rules of the domain system and any existing rules for the object,
whether these rules are published or implied by existing programs.

For example, when naming a mail domain, the user should satisfy both the rules
of this memo and those in RFC-822.  When creating a new host name, the old rules
for HOSTS.TXT should be followed.  This avoids problems when old software is
converted to use domain names.

The following syntax will result in fewer problems with many applications that
use domain names (e.g., mail, TELNET).

<domain> ::= <subdomain> | " "

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<subdomain> ::= <label> | <subdomain> "." <label>

<label> ::= <letter> [ [ <ldh-str> ] <let-dig> ]

<ldh-str> ::= <let-dig-hyp> | <let-dig-hyp> <ldh-str>

<let-dig-hyp> ::= <let-dig> | "-"

<let-dig> ::= <letter> | <digit>

<letter> ::= any one of the 52 alphabetic characters A through Z in
upper case and a through z in lower case

<digit> ::= any one of the ten digits 0 through 9
```

Note that while upper and lower case letters are allowed in domain names, no
significance is attached to the case.  That is, two names with the same spelling
but different case are to be treated as if identical.

The labels must follow the rules for ARPANET host names.  They must start with a
letter, end with a letter or digit, and have as interior characters only
letters, digits, and hyphen.  There are also some restrictions on the length.
Labels must be 63 characters or less.

For example, the following strings identify hosts in the Internet:

A.ISI.EDU  XX.LCS.MIT.EDU  SRI-NIC.ARPA


As you can see, host and domain names that start with a period or that contain
underscore characters are illegal. MacTCP is not going to be changed to allow
illegal host and domain names. The only options we see for the customer is to
revert back to MacTCP 2.0.4 or change their host and domain naming conventions
to be in line with the RFCs. We suspect the latter option is the right one to
take.


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