Is the host localhost always available for the own system?

Asked 16 years, 3 months ago Modified 16 years, 2 months ago

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Is it always possible to ping localhost and it resolves to 127.0.0.1?

I know Windows Vista, XP, Ubuntu and Debian do it but does everyone do it?

localhost ping

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asked Sep 22, 2008 at 5:21

Thomaschaaf

18.2k • 32 • 99 • 130

10 Answers

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17

Any correct implementation of TCP/IP will reserve the address 127.0.0.1 to refer to the local machine. However, the mapping of the name "localhost" to that address is generally dependent on the system `hosts` file. If you were to remove the localhost entry from `hosts`, then the localhost name may no longer resolve properly at all.

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edited Sep 22, 2008 at 6:00

answered Sep 22, 2008 at 5:24

Greg Hewgill
990k ● 191 ● 1.2k ● 1.3k

It is not dependent on the hosts files. It is part of the ip stack. Even under windows there is a separate interface for it (they call them network devices on windows.) – Chris Sep 22, 2008 at 5:32

2 Greg was referring to the 'localhost' name, not the loopback device. Two different things. – Serafina Brocious Sep 22, 2008 at 5:34

i'd like to have this edited to "any CORRECT TCP/IP implementation" I've come across a couple of bad ones, one of them didn't have a loopback IP. – Mez Sep 22, 2008 at 5:47

3 I think it's safe to rely on the "localhost" alias existing, since it's set by default in any modern OS. Users would have to actually *remove* it from the host list, and there's no point worrying about ways users can break their computers. – John Millikin Sep 29, 2008 at 4:58

7

127.0.0.1 is reserved in any IP stack for the local host.

"localhost" as a host name is **not** guaranteed to be there. If the host/DNS settings are misconfigured, localhost will not resolve.

Example on a debian box:

```
topaz:/root# vi /etc/hosts
[comment out localhost entry]

topaz:/root# ping localhost
ping: unknown host localhost
```

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edited Sep 27, 2008 at 22:46

answered Sep 22, 2008 at 5:30

Thorsten79

10.1k ● 6 ● 40 ● 54

> Something defined in /etc/hosts is not a DNS name. Check the man page for nsswitch.conf and see the "hosts:" setting. – tzot Sep 22, 2008 at 23:53

5

No. For a start `localhost` is a convention rather than a rule. Mostly it's set by default, but there's nothing to mandate it.

Secondly, there's nothing to say that you can always ping 127.0.0.1. As an example (on a unix system) try the following:

`sudo ifconfig lo down` `ping 127.0.0.1`

As cruizer said, 127.0.0.1 (if it exists) is defined to be the local machine. But it doesn't have to exist.

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edited May 23, 2017 at 9:57

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answered Sep 22, 2008 at 6:03

Andrew Edgecombe
40.3k • 3 • 38 • 63

5

The pedantic answer (sorry, Greg :), is to read RFC 3330:

```
   127.0.0.0/8 - This block is assigned for use as
the Internet host
   loopback address.  A datagram sent by a higher
level protocol to an
   address anywhere within this block should loop
back inside the host.
   This is ordinarily implemented using only
127.0.0.1/32 for loopback,
   but no addresses within this block should ever
appear on any network
   anywhere [RFC1700, page 5].
```

(The "ordinarily" above should probably be read as "often" - most current operating systems support using all of 127.0.0.0/8 as loopback.)

With regards to whether "localhost" always resolves to 127.0.0.1 - he is correct, it's generally the same, but technically implementation specific:

```
~> dig localhost.t...e.org

...

;; ANSWER SECTION:
localhost.t...e.org. 86400 IN    A       127.0.0.2
```

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answered Sep 22, 2008 at 6:29

Dominic Eidson

779 ● 4 ● 8

If the DNS servers your client is connected to is following rfc1912 then yes, localhost should resolve to 127.0.0.1.

```
RFC1912
4.1
...
   Certain zones should **always be present** in
nameserver configurations:
            primary         localhost
localhost
            primary         0.0.127.in-addr.arpa
127.0
...
   The "localhost" address is a "special" address
which always refers to
   the local host.  It should contain the
following line:

            localhost.      IN      A
127.0.0.1

   The "127.0" file should contain the line:

            1    PTR     localhost.
```

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answered Sep 22, 2008 at 7:59

Zoredache

39.5k ● 9 ● 49 ● 62

Most DNS servers don't obey RFC1912 to be honest. Its a sad thing about ISPs. – Sargun Dhillon Sep 22, 2008 at 8:06

I think localhost pretty much resolves to 127.0.0.1 for most platforms but all IPs that start with 127...* resolve to

0

localhost as well. Try pinging 127.255.255.254 and it'll still respond.

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answered Sep 22, 2008 at 5:24

cruizer

6,151 ● 2 ● 29 ● 34

Not the case for me (OSX Tiger) – da5id Sep 22, 2008 at 5:28

That's an implementation issue for OSX. 127.* is supposed to resolve to the local machine in all cases, IIRC.
– Chris Charabaruk Sep 22, 2008 at 5:33

surely that address is a loopback broadcast address? – Mez Sep 22, 2008 at 5:48

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In theory, there are cases where it might not exist. In practice, it's always there.

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answered Sep 22, 2008 at 5:27

Serafina Brocious

30.6k ● 12 ● 91 ● 115

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Decent firewalls allow you to filter access on the loopback interfaces too. So, it's possible to set up a firewall rule that drops icmp ping packets going to localhost (127.0.0.1). Also, as everyone else has already mentioned, even the existence of the localhost or

127.0.0.1 address and the loopback interface isn't guaranteed.

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answered Sep 22, 2008 at 8:16

Alexander

9,380 ● 2 ● 28 ● 23

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The answer is:

127.0.0.1, often referred to as the "loopback", is required. Although your computer might let you do silly things, like disable it, or configure that range on a physical interface, these are all invalid.

"localhost" is just a hostname, which by convention, should be 127.0.0.1 As a system administrator or hostmaster, you should avoid configurations that allow localhost to point to other addresses.

You should not edit your hosts file to change the address of "localhost". You should configure your domains to have a localhost. and localhost.domain.com entry that points to 127.0.0.1.

You should not let your proxy servers respond to "localhost" or any FQDN that starts with localhost.

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answered Sep 29, 2008 at 4:43

benc

2,011 ● 5 ● 35 ● 42

-3

Ok.

The reason why it resolves it is record in %WINDOWS_DIR%\System32\drivers\etc\hosts file like this:

127.0.0.1 localhost

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answered Sep 22, 2008 at 5:28

dimarzionist

18.7k ● 4 ● 24 ● 23