



CUBE. *exponential power*

The CUBE Tech Menu Guide

December 31, 2013

The CUBE's On-Board Tech Menu

The on-board tech menu can be accessed by connecting a screen and a USB keyboard to the CUBE. Via the tech menu:

- the network settings of the CUBE can be edited
- proper network operation can be verified, and a variety of network diagnostic tests can be performed.

To access the tech menu, please connect a standard computer screen and a USB keyboard to the CUBE. The CUBE should be on and fully started up. At this point the screen should appear blank.

Press (and release) the **TAB** key, then type the letters `techmenu` and within a few seconds, the tech menu should appear.

Note

The tech menu currently requires a QWERTY keyboard. If you are using a different keyboard layout instead, for example the French AZERTY keyboard, then you will likely need to compare your keyboard to a QWERTY layout, and utilize the corresponding keys on your keyboard. As an example, the French AZERTY keyboard has the `?`, `-` key in the same position as the QWERTY `M`-key, therefore to access the tech menu you would have

to type the keys **TAB** `tech,enu` on the AZERTY keyboard instead.

Viewing or Changing CUBE Network Settings

The tech menu contains two tabs, the first of which allows the network settings of the CUBE to be viewed or changed.

Welcome to the CUBE -- Tech Menu

Network Settings (eth0) Network Diagnostics (eth0)

Network Settings (eth0):

NETWORKING:

Mode (X) DHCP () Static
 Address 10.0.0.112
 Netmask 255.255.255.0
 Gateway 10.0.0.1

DNS:

DNS 1 10.0.0.1
 DNS 2
 DNS 3

PROXY:

Proxy () On (X) Off
 Address
 Port
 User Name
 Password

 TAB Next Screen
 ALT+TAB Prev Screen
 F5 Save Changes
 F8 Revert Changes
 ALT+Q Quit

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Viewing and setting network settings

Using the arrow keys, one can navigate to the various fields and input specific proxy server settings or static IP configuration.

Note

The selected field is always highlighted in dark orange with a flashing cursor.

To change the network mode between DHCP and Static (or to turn the use of a proxy server on or off), navigate to the appropriate field and press the **Enter** key or **Space** bar.

Note

The tech menu will not allow entering of static IP parameters if the network mode is set to DHCP, and likewise will not permit entering proxy information if the proxy setting is off. Also note that User Name / Password authentication for proxies is not yet supported for all types of proxy servers.

If any changes are made, **F5** must be pressed to save the changes and have them take effect. (**F8** can also be pressed to revert any changes before they have been saved.) A dialogue will be

displayed to confirm saving or reverting of the changes. Select **Yes** or **No** as appropriate and press the **Enter** key to accept.

Welcome to The CUBE — Tech Menu

Network Settings (eth0) Network Diagnostics (eth0)

Network Settings (eth0):

NETWORKING:

Mode () DHCP (X) Static
 Address 192.168.1.22
 Netmask 255.255.255.0
 Gateway 192.168.1.1

DNS:

DNS 1 192.168.1.1
 DNS 2 8.8.8.8
 DNS 3

PROXY:

Proxy (X) On () Off
 Address 192.168.1.10
 Port 3120
 User Name
 Password

Are you sure you want to save changes?
 < Yes > < No >

TAB Next Screen
 Alt+Tab Prev Screen
 F5 Save Changes
 F8 Revert Changes
 Alt+Q Quit

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Saving and applying network settings

Note

After saving or reverting changes via **F5** or **F8** there may be a few seconds during which the tech menu appears to stop responding to further keystrokes, while it waits for the rest of the system to make the appropriate changes. In future this will be enhanced by adding a "Please Wait..." message.

Performing Network Diagnostics

The network diagnostic feature can be used to troubleshoot network issues. In addition, it can also be used by the installer, while still on site, to confirm that the network connectivity is fully operational.

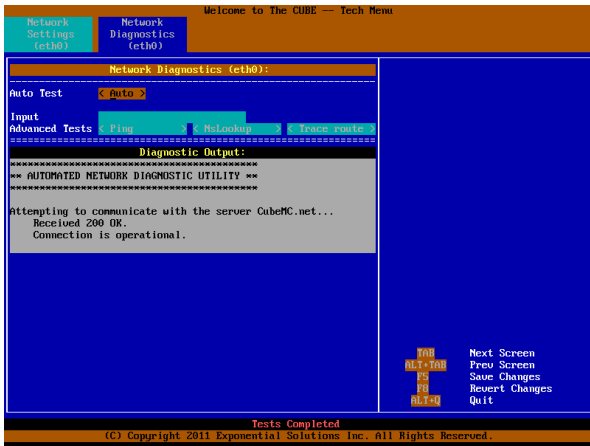
Press the **TAB** key to navigate to the network diagnostics tab.

Note

If you have made changes on the network settings tab, but have forgotten to save them using **F5**, the network diagnostics tab will continue performing diagnostics using the older (still active) network settings.

The arrow keys are used to move between different fields on this screen.

An automated diagnostic test can be performed by selecting the *Auto* field and pressing the **Enter** key or **Space** bar. This is the fastest way to verify if the network connection is fully operational.



Auto test with fully operational connection

If an issue is experienced, the automated diagnostic will conduct a variety of additional checks, such as verifying that:

- ethernet linkbeat is present
- the gateway can be pinged

- DNS name lookups can be performed
- the proxy server appears reachable.

It will also provide suggestions to help pinpoint the possible causes of any networking difficulties.

```

Welcome to The CUBE -- Tech Menu

Network Settings (eth0) | Network Diagnostics (eth0)

Input: canada.com
Advanced Tests: Ping | NSLookup | Trace Route

=====
Diagnostic Output:
=====
** AUTOMATED NETWORK DIAGNOSTIC UTILITY **
=====

Attempting to communicate with the server CubeMC.net through
proxy at 10.0.0.123...
  Couldn't connect to server.

Attempting to communicate with the gateway @ 10.0.0.1...
  Successfully pinged gateway.

Attempting to do DNS lookup on CubeMC.net...
  Successfully did DNS lookup.

Attempting to communicate directly with the server at
67.205.67.209...
  Successfully communicated with 67.205.67.209.

Attempting to test communication with proxy @ 10.0.0.123...
  Unable to ping proxy at 10.0.0.123.

Possible causes:
  Improper proxy settings.
  Proxy is not online, or is unreachable.

=====
Tests Completed
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```

Auto test diagnosing a connection failure

Note

Once the *Diagnostic Output* panel fills up with output, as illustrated in the above image, it will not scroll automatically. Instead, the down and up arrow keys can be used to scroll through all the diagnostic output and back again. This can be done even while tests are still running.

It is also possible to conduct specific *ping*, *name lookup* and *traceroute* tests. These tests help facilitate advanced network troubleshooting.

Welcome to the CUBE -- Tech Menu

Network Settings (eth0) Network Diagnostics (eth0)

Network Diagnostics (eth0):

Auto Test < Auto >

Input 10.0.0.1

Advanced Tests < Ping > < N:NoLoop > < Trace route >

Diagnostic Output:

```

PING 10.0.0.1 (10.0.0.1): 56 data bytes
64 bytes from 10.0.0.1: seq=0 ttl=64 time=1.734 ms
64 bytes from 10.0.0.1: seq=1 ttl=64 time=1.027 ms
64 bytes from 10.0.0.1: seq=2 ttl=64 time=1.082 ms
64 bytes from 10.0.0.1: seq=3 ttl=64 time=1.030 ms
64 bytes from 10.0.0.1: seq=4 ttl=64 time=1.167 ms

--- 10.0.0.1 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 1.027/1.209/1.734 ms

```

TAB Next Screen
ALT+TAB Prev Screen
F5 Save Changes
F8 Revert Changes
ALT+Q Quit

Tests Completed

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To ping a specific address, input the IP address into the Input field and select Ping

Welcome to the CUBE -- Tech Menu

Network Settings (eth0) Network Diagnostics (eth0)

Network Diagnostics (eth0):

Auto Test < Auto >

Input cmn.com

Advanced Tests < Ping > < Nslookup > < Trace route >

Diagnostic Output:

```
Server: 10.0.0.1
Address 1: 10.0.0.1

Name: cmn.com
Address 1: 157.166.255.18 www.cmn.com
Address 2: 157.166.226.26 www.cmn.com
Address 3: 157.166.255.19
Address 4: 157.166.226.25 www.cmn.com
Address 5: 157.166.224.26 www.cmn.com
Address 6: 157.166.224.25
```

TAB Next Screen
 ALT+TAB Prev Screen
 F5 Save Changes
 F8 Revert Changes
 ALT+Q Quit

Tests Completed

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To perform a name lookup, input the domain name into the Input field and select Nslookup

Welcome to the CUBE -- Tech Menu

Network Settings (eth0) Network Diagnostics (eth0)

Network Diagnostics (eth0):

Auto Test < Auto >

Input canada.com

Advanced Tests < Ping > < NoLoopup > < Trace route >

Diagnostic Output:

```

traceroute to canada.com (199.71.40.135), 30 hops max, 38 byte
packets
 1  10.0.0.1 (10.0.0.1)  1.167 ms  0.973 ms  0.792 ms
 2  * * *
 3  rd1no-ge9-0-0-1.cg.shaucable.net (64.59.142.147)  10.458
ms  8.715 ms  10.671 ms
 4  rc1no-ge0-0-0.cg.shaucable.net (66.163.71.113)  11.975 ms
79.023 ms  12.636 ms
 5  rc1so-ge12-0-0.cg.shaucable.net (66.163.71.25)  57.183 ms
11.360 ms  11.863 ms
 6  rc1nr-pos0-8-5-0.up.shaucable.net (66.163.76.86)  26.012
ms  27.880 ms  27.969 ms
 7  rc2sc-tge0-6-1-0.up.shaucable.net (66.163.73.173)  28.585
ms  30.343 ms  27.288 ms
 8  rc1sh-pos15-0.nt.shaucable.net (66.163.76.221)  50.486 ms
52.679 ms  51.127 ms
 9  rx0sh-allstream.nt.shaucable.net (66.163.66.62)  52.359 ms
50.884 ms  52.109 ms
10  10ge1-0.unpmb0273u-dr09.bb.allstream.net (199.212.171.50)
52.277 ms  53.507 ms  53.314 ms
11  64-4-68-6-lana-ptp.dedicated.ntsallstream.net (64.4.68.6)

```

Tab Next Screen
Alt+Tab Prev Screen
F5 Save Changes
F8 Revert Changes
Alt+Q Quit

Test Started. Please be patient...

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To perform a trace route, input the destination into the Input field and select Trace route

Note

A status line at the bottom of the screen indicates when tests are in progress and when tests have completed.

Leaving the Tech Menu

Simply press and hold the **ALT** key, then press the **Q** key. The screen will blank.

The tech menu can be accessed again at any time, as set out earlier in this guide.