Advantech lloT Group

Advantech TPC-100W Software

Advanced Manual

Version <1.1>

Advantech TPC-100W Software Advanced Manual	Version: <1.1>
Advanced Manual	Date: <04/14/2023>

Revision History

Date	Version	Description
2023/04/14	1.1	 Add how to run node-red Add change boot logo
2023/03/16	1.0	1. Add chromium remote debug

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1. Chromium remote debug

Based on the principle of security, this function is only used for debugging .

1.1 Firewall setting

```
$ iptables -A INPUT -p tcp --dport 9222 -j ACCEPT
$ iptables -t nat -A PREROUTING -p tcp --dport 9222 -j DNAT --to-destination
127.0.0.1:9222
$ sysctl -w net.ipv4.conf.eth0.route_localnet=1
$ sysctl -w net.ipv4.conf.eth1.route_localnet=1
```

1.2 Add remote-debugging-port for chromium

modify the last line of /usr/bin/start_chromium.sh

```
systemd-run --scope -p MemoryMax=1024M -p MemoryHigh=800M /usr/bin/chromium -
no-sandbox --disable-gpu --test-type --enable-wayland-ime --start-maximized
--hide-crash-restore-bubble --remote-debugging-port=9222
```

then, Click top bar chromium icon to start chromium.



1.3 Use remote PC (Windows) and remote debug

Start google chrome and input "chrome://inspect " to URL text field.

Click [Discover network target] \rightarrow [Configure] and input the remote device IP:9222

Click [Open dedicated DevTools for Node]



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You can see the remote device info, and click [inspect]

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← → C ③ Chrome chrome://inspect/#devices									
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Devices	Discover LISB devices Port forwarding								
Pages	Port lowarding								
Extensions	✓ Discover network targets Configure								
Apps	Open dedicated DevTools for Node								
Shared workers									
Service workers	Remote Target #LOCALHOST								
Other	Remote Target #172.17.8.54								
	Target (96.0.4664.110) Open tab with url Open trace								
	file:///userdata/user/project/index.html file:///userdata/user/project/index.html								

You can use [DevTools] to control and debug the chromium of the remote device.



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2. How to run node-red

2.1 Install Node Version Manager to manage multiple released Node.js versions.

Open terminal and use the following cURL command to download NVM , and run the profile , then close and reopen your terminal.

```
$ curl -o- https://raw.githubusercontent.com/nvm-sh/nvm/v0.39.3/install.sh
| bash
$ . ~/.profile
```

Install the latest version of Node.js,

```
$ nvm install node #"node" is an alias for the latest version
```

If you want to install a specific version of node (v16.20 is recommended)

\$ nvm install 16 # or 14.7.0, 12.22.1, etc

If the installation is successful, you will see something like the following

To switch between released versions. For example, if the version of Node.js is v16

\$ nvm use 16

2.2 Install Node-RED package

Open terminal and input below command , For example, if the version of Node-RED is

v3.0.2

```
$ npm install -g node-red03.0.2 --unsafe-perm
```

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You can modify the version of node-red , refer : <u>node-red - npm (npmjs.com</u>)

2.3 Firewall setting

You can insert a new rule with the specific port numbers , For example, if the port number is "1880"

\$ iptables -A INPUT -p tcp --dport 1880 -j ACCEPT

After add a new iptbles rule , you can input below command to check firewall setting

\$ iptables -L

To save firewall setting permanently

\$ iptables-save >/etc/iptables/iptables.rules

2.4 run Node-RED

Start node-red with below command

\$ node-red &

Open a browser on your PC and enter the URL : http://<device_ip>:<port>

The <device_ip> shown in the example is localhost on TPC-100W. If user need to remote

access TPC-100W, it must replace this <device_ip> with the real IP address on network.

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Run Dash-board

Usersetting ->palette-> install . Search for "node-red-dashboard" in the search window.

click it and install it .

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If you want to preview your changes, you can enter the following URL on browser

http://127.0.0.1:1880/ui

2.5 Starting Node-RED on boot

Using PM2 to run node-red if you want to automatically run node-red after booting, Ref: https://nodered.org/docs/faq/starting-node-red-on-boot

Install PM2

\$ npm install -g pm2

The following command tells PM2 to run Node-RED, assuming

"/home/root/.nvm/versions/node/v20.2.0/bin/node-red" as the location of the node-red command

\$ pm2 start /home/root/.nvm/versions/node/v20.2.0/bin/node-red -- -v

Tell PM2 to run on boot

\$ pm2 save \$ pm2 startup

Finally, reboot and check everything starts as expected.

If you want remove init script

\$ pm2 unstartup

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3. Change boot logo

You can change the boot logo as below after V1.5



The boot logo only support 24-bits bmp format and total 224 colors.

You can use commands as follows to transfer the bmp file to 224 colors.

```
# the logo.bmp is you want to change and you need try commands in Ubuntu.
$ sudo apt install netpbm
$ bmptoppm logo.bmp > logo.ppm
$ pnmquant 224 logo.ppm > logo224.ppm
$ ppmtobmp -windows -bpp 24 logo224.ppm > logo.bmp
```

Note that the valid logo image is (resolution_width-20 x resolution_height-20).

The last step is just copy logo.bmp to the first partition of emmc then reboot.

\$ cp \$YOUR_LOGO_PATH/logo.bmp /run/media/mmcblk2p1