

Advantech SE Technical Share Document

Date	2020 / 02 / 10	Related Product	ESRP-PCS-WISE710	
Category	☒ FAQ ☐ SOP ☐ Driver Tech Note			
Abstract	How to install Node-Red on the Yocto Linux of WISE-710			
Keyword	Node-Red / WISE-710			
Related OS	YOCTO Linux			
Revision History				
Date	Version	Author	Reviewer	Description
2020/01/20	V1.0	Black Chang	Nick Liu	YOCTO Linux of WISE-710

■ Problem Description & Architecture:

How to install Node-Red on the Yocto Linux of WISE-710

■ Brief Solution - Step by Step:

1. Copy “node-v12.13.0-linux-armv7l.tar.xz” to Micro SD card

“node-v12.13.0-linux-armv7l.tar.xz” download path:

https://advantecho365-my.sharepoint.com/:f/g/personal/automation_solution_advantech_com/Emvu9aAhknVFv1MYhgddVS4BGPadwoBsgQ9zhxinDIW5mg?e=5aSYac

2. Insert Micro SD card to WISE-710 Micro SD slot
3. Create file “SD-temp on the “**root@wise710a1xxx:~#**”

****mkdir SD-temp**

```

COM3 - PuTTY
26/12/2019 14:20:55 WARNING: the warning message printed above for more info.
26/12/2019 14:20:55

The VNC desktop is: wise710a1-4e18:0
Try to unregister hif_driver
usbcore: deregistering interface driver hif_usb
hif_unregister_driver!!!!!!
usbcore: registered new interface driver rtl8188eu
Successfully initialized wpa_supplicant
boots=2
chown: cannot access '/dev/ttyWVAN': No such file or directory
Running local boot scripts (/etc/rc.local).
AdvProgramMgr start
TAGLINK_PATH:/home/sysuser
Config file: /home/sysuser/project/AdvProgramMgr.acr
Starting tcf-agent: OK

Freescale i.MX Release Distro 4.1.15-2.0.0 Yocto 2.1 (krogoth) wise710a1-4e18 /dev/ttymx0

wise710a1-4e18 login: root
root@wise710a1-4e18:~# mkdir SD-temp
root@wise710a1-4e18:~# ls
SD-temp
root@wise710a1-4e18:~#
  
```

4. Mount the Micro SD card to SD-temp

4-1. check the device name of Micro SD card

**** fdisk -l**

```
COM3 - PuTTY
root@wise710al-4e18:~# fdisk -l
Disk /dev/ram0: 64 MiB, 67108864 bytes, 131072 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes

Disk /dev/ram1: 64 MiB, 67108864 bytes, 131072 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes

Disk /dev/ram2: 64 MiB, 67108864 bytes, 131072 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes

Disk /dev/ram3: 64 MiB, 67108864 bytes, 131072 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes

Disk /dev/ram4: 64 MiB, 67108864 bytes, 131072 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes

Disk /dev/ram5: 64 MiB, 67108864 bytes, 131072 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes
```

4-2. mount SD-temp on the /dev/mmcblk1p1

**** mount /dev/mmcblk1p1 SD-temp/**

```
COM3 - PuTTY
Device      Boot      Start         End Sectors  Size Id Type
/dev/mmcblk0p1  20480     122879   102400    50M  b W95 FAT32
/dev/mmcblk0p2 122880     5341183 5218304    2.5G  83 Linux
/dev/mmcblk0p3 5341184     7184383 1843200    900M  83 Linux
/dev/mmcblk0p4 7184384    14942207 7757824    3.7G  83 Linux

Disk /dev/mmcblk0boot1: 2 MiB, 2097152 bytes, 4096 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/mmcblk0boot0: 2 MiB, 2097152 bytes, 4096 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/mmcblk1: 29.9 GiB, 32111591424 bytes, 62717952 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0xa309d3d8

Device      Boot      Start         End Sectors  Size Id Type
/dev/mmcblk1p1 8192    62717951 62709760 29.9G  c W95 FAT32 (LBA)
root@wise710al-4e18:~# mount /dev/mmcblk1p1 SD-temp/
root@wise710al-4e18:~# ls
SD-temp
root@wise710al-4e18:~#
```

- Copy “node-v12.13.0-linux-armv7l.tar.xz” from Micro SD card to “root@Wise710a1-xxxxx:/#”

**** cp /home/root/SD-temp/node-v12.13.0-linux-armv7l.tar.xz ./**

```
COM3 - PuTTY
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/mmcblk0boot0: 2 MiB, 2097152 bytes, 4096 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/mmcblk1: 29.9 GiB, 32111591424 bytes, 62717952 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0xa309d3d8

Device            Boot Start      End  Sectors  Size Id Type
/dev/mmcblk1p1      8192 62717951 62709760 29.9G  c W95 FAT32 (LBA)
root@wise710a1-4e18:~# mount /dev/mmcblk1p1 SD-temp/
root@wise710a1-4e18:~# ls
SD-temp
root@wise710a1-4e18:~# cd SD-temp/
root@wise710a1-4e18:~/SD-temp# ls
'System Volume Information' node-v12.13.0-linux-armv7l.tar.xz
root@wise710a1-4e18:~/SD-temp# cd /
root@wise710a1-4e18:~# cp /home/root/SD-temp/node-v12.13.0-linux-armv7l.tar.xz
cp: missing destination file operand after '/home/root/SD-temp/node-v12.13.0-linux-armv7l.tar.xz'
Try 'cp --help' for more information.
root@wise710a1-4e18:~# cp /home/root/SD-temp/node-v12.13.0-linux-armv7l.tar.xz ./
root@wise710a1-4e18:~# ls
bin  boot  cache  dev  etc  home  lib  media  mk_inand  mnt  node-v12.13.0-linux-armv7l.tar.xz  opt  proc  run  sbin
sys  tmp   tools  usr  var
root@wise710a1-4e18:~#
```

- Untar “node-v12.13.0-linux-armv7l.tar.xz” on the “root@Wise710a1-xxxxx:/#”

6-1. tar Jxvf node-v12.13.0-linux-arm7l.tar.xz

```
root@wise710a1-4e18:/# tar Jxvf node-v12.13.0-linux-armv7l.tar.xz
```

6-2. sync

```
COM3 - PuTTY
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/is-extraneous.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/actions.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/inflate-bundled.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/diff-trees.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/check-permissions.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/realize-shrinkwrap-specifier.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/is-prod-dep.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/access-error.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/copy-tree.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/audit.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/is-dev-dep.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/validate-args.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/save.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/exists.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/and-finish-tracker.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/is-opt-dep.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/has-modern-meta.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/validate-tree.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/writable.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/mutate-into-logical-tree.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/report-optional-failure.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/is-only-dev.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/module-staging-path.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/set.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/init.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install-ci-test.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/repo.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/npm.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/version.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/profile.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/help-search.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/substack.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/pack.js
root@wise710a1-4e18:~# sync
root@wise710a1-4e18:~#
```

7. Use npm to install node-red and target device need to surf internet for download
(Please connect to Internet on the WISE-710 LAN port)

7-1. cd /node-v12.13.0-linux-armv7l/bin/

```
COM3 - PuTTY
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/is-dev-dep.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/validate-args.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/save.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/exists.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/and-finish-tracker.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/is-opt-dep.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/has-modern-meta.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/validate-tree.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/writable.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/mutate-into-logical-tree.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/report-optional-failure.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/is-only-dev.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install/module-staging-path.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/set.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/init.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/install-ci-test.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/repo.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/npm.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/version.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/profile.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/help-search.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/substack.js
node-v12.13.0-linux-armv7l/lib/node_modules/npm/lib/pack.js
root@wise710al-4e18:/# sync
root@wise710al-4e18:/# cd /node-v12.13.0-linux-armv7l/bin/
```

7-2. cp /node-v12.13.0-linux-armv7l/bin/node /bin

```
root@wise710al-4e18:/node-v12.13.0-linux-armv7l/bin# cp /node-v12.13.0-linux-armv7l/bin/node /bin
root@wise710al-4e18:/node-v12.13.0-linux-armv7l/bin# sudo ./npm install -g node-red
```

7-3. sudo ./npm install -g node-red

```
COM3 - PuTTY
tar.tar      ypdomainname.net-tools
chmod        dnsdomainname.net-tools  gunzip      lsmod        netstat.net-tools  rmdir.
coreutils touch      zcat
chmod.coreutils  domainname      gunzip.gzip  lsmod.kmod   nisdomainname      run-pa
rts           touch.coreutils  zcat.gzip    mkmod        nisdomainname.net-tools  sed
chown         domainname.net-tools      gzip         mkdir         pidof              sed.se
      tracepath
chown.coreutils  dumpkmap          gzip.gzip    mkdir.coreutils  pidof              sed.se
d             tracepath6
clockdiff       echo              hostname     mkmod           pidof.procps       sh
      traceroute6
root@wise710al-4e18:/bin# cd /
root@wise710al-4e18:/# ls
bin  cache  etc  lib  mk_inand  node-v12.13.0-linux-armv7l  opt  run  sys  tools  var
boot  dev  home  media  mnt      node-v12.13.0-linux-armv7l.tar.xz  proc /sbin  tmp  usr
root@wise710al-4e18:/# cd /node
-sh: cd: /node: No such file or directory
root@wise710al-4e18:/# cd /node-v12.13.0-linux-armv7l/
root@wise710al-4e18:/node-v12.13.0-linux-armv7l# ls
CHANGELOG.md  LICENSE  README.md  bin  include  lib  share
root@wise710al-4e18:/node-v12.13.0-linux-armv7l# cd bin
root@wise710al-4e18:/node-v12.13.0-linux-armv7l/bin# ls
node  npm  npx
root@wise710al-4e18:/node-v12.13.0-linux-armv7l/bin# cd node
-sh: cd: node: Not a directory
root@wise710al-4e18:/node-v12.13.0-linux-armv7l/bin# cp /node-v12.13.0-linux-armv7l/bin/node /bin
root@wise710al-4e18:/node-v12.13.0-linux-armv7l/bin# sudo ./npm install -g node-red
[.....] \ fetchMetadata: [ERR] resolveWithNewModule node-red@1.0.3 checking installable status
```

```
COM3 - PuTTY
./modules/node-gyp/bin/node-gyp.js configure --fallback-to-build --module=/lib/node_modules/node-red/node_modules/
bcrypt/lib/binding/bcrypt_lib.node --module_name=bcrypt_lib --module_path=/lib/node_modules/node-red/node_modules
/bcrypt/lib/binding --napi_version=5 --node_abi_napi=napi --napi_build_version=0 --node_napi_label=node-v72' (1)
node-pre-gyp ERR! stack at ChildProcess. (/lib/node_modules/node-red/node_modules/node-pre-gyp/lib
./util/compile.js:83:29)
node-pre-gyp ERR! stack at ChildProcess.emit (events.js:210:5)
node-pre-gyp ERR! stack at maybeClose (internal/child_process.js:1021:16)
node-pre-gyp ERR! stack at Process.ChildProcess._handle.onexit (internal/child_process.js:283:5)
node-pre-gyp ERR! System Linux 4.1.15
node-pre-gyp ERR! command "/bin/node" "/lib/node_modules/node-red/node_modules/.bin/node-pre-gyp" "install" "--fa
llback-to-build"
node-pre-gyp ERR! cwd /lib/node_modules/node-red/node_modules/bcrypt
node-pre-gyp ERR! node -v v12.13.0
node-pre-gyp ERR! node-pre-gyp -v v0.12.0
node-pre-gyp ERR! not ok
Failed to execute '/bin/node /node-v12.13.0-linux-armv7l/lib/node_modules/npm/node_modules/node-gyp/bin/node-gyp.
js configure --fallback-to-build --module=/lib/node_modules/node-red/node_modules/bcrypt/lib/binding/bcrypt_lib.n
ode --module_name=bcrypt_lib --module_path=/lib/node_modules/node-red/node_modules/bcrypt/lib/binding --napi_ver
sion=5 --node_abi_napi=napi --napi_build_version=0 --node_napi_label=node-v72' (1)
[.....] \ postinstall:remove-trailing-separator: info lifecycle remove-trailing-separator@1.1.0-post
[.....] \ postinstall:universalify: info lifecycle universalify@0.1.2-postinstall: universalify@0.1.
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: bcrypt@3.0.6 (node_modules/node-red/node_modules/bcrypt):
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: bcrypt@3.0.6 install: 'node-pre-gyp install --fallback-to-build'
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: Exit status 1

+ node-red@1.0.3
added 313 packages from 311 contributors in 142.561s
root@wise710al-4e18:/node-v12.13.0-linux-armv7l/bin#
```

7-4. sync

```
COM3 - PuTTY
bcrypt/lib/binding/bcrypt_lib.node --module_name=bcrypt_lib --module_path=/lib/node_modules/node-red/node_modules
/bcrypt/lib/binding/bcrypt_lib --module_name=napi --napi_build_version=0 --napi_label=node-v72' (1)
node-pre-gyp ERR! stack at ChildProcess.<anonymous> (/lib/node_modules/node-red/node_modules/node-pre-gyp/lib
/utl/compile.js:83:29)
node-pre-gyp ERR! stack at ChildProcess.emit (events.js:210:5)
node-pre-gyp ERR! stack at maybeClose (internal/child_process.js:1021:16)
node-pre-gyp ERR! stack at Process.ChildProcess._handle.onexit (internal/child_process.js:283:5)
node-pre-gyp ERR! System Linux 4.1.15
node-pre-gyp ERR! command "/bin/node" "/lib/node_modules/node-red/node_modules/.bin/node-pre-gyp" "install" "--fa
llback-to-build"
node-pre-gyp ERR! cwd /lib/node_modules/node-red/node_modules/bcrypt
node-pre-gyp ERR! node -v v12.13.0
node-pre-gyp ERR! node-pre-gyp -v v0.12.0
node-pre-gyp ERR! not ok
Failed to execute '/bin/node /node-v12.13.0-linux-armv7l/lib/node_modules/npm/node_modules/node-gyp/bin/node-gyp.
js configure --fallback-to-build --module=/lib/node_modules/node-red/node_modules/bcrypt/lib/binding/bcrypt_lib.n
ode --module_name=bcrypt_lib --module_path=/lib/node_modules/node-red/node_modules/bcrypt/lib/binding --napi_ver
sion=5 --node_abi_napi=napi --napi_build_version=0 --node_napi_label=node-v72' (1)
[ ... ] \ postinstall:remove-trailing-separator: info lifecycle remove-trailing-separator@1.1.0-post
[ ... ] \ postinstall:universalify: info lifecycle universalify@0.1.2-postinstall: universalify@0.1.
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: bcrypt@3.0.6 (node_modules/node-red/node_modules/bcrypt):
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: bcrypt@3.0.6 install: 'node-pre-gyp install --fallback-to-build'
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: Exit status 1

+ node-red@1.0.3
added 313 packages from 311 contributors in 142.561s
root@wise710a1-4e18:/node-v12.13.0-linux-armv7l/bin# sync
root@wise710a1-4e18:/node-v12.13.0-linux-armv7l/bin#
```

8. Launch node-red

8-1. node-red

```
COM3 - PuTTY
root@wise710a1-4e18:/# node-red
26 Dec 06:58:28 - [info]

Welcome to Node-RED

26 Dec 06:58:28 - [info] Node-RED version: v1.0.3
26 Dec 06:58:28 - [info] Node.js version: v12.13.0
26 Dec 06:58:28 - [info] Linux 4.1.15 arm LE
26 Dec 06:58:28 - [info] Palette editor disabled : npm command not found
26 Dec 06:58:28 - [info] Loading palette nodes
26 Dec 06:58:32 - [info] Settings file : /home/root/.node-red/settings.js
26 Dec 06:58:32 - [info] Context store : 'default' [module=memory]
26 Dec 06:58:32 - [info] User directory : /home/root/.node-red
26 Dec 06:58:32 - [warn] Projects disabled : editorTheme.projects.enabled=false
26 Dec 06:58:32 - [info] Flows file : /home/root/.node-red/flows_wise710a1-4e18.json
26 Dec 06:58:32 - [info] Creating new flow file
26 Dec 06:58:32 - [warn]

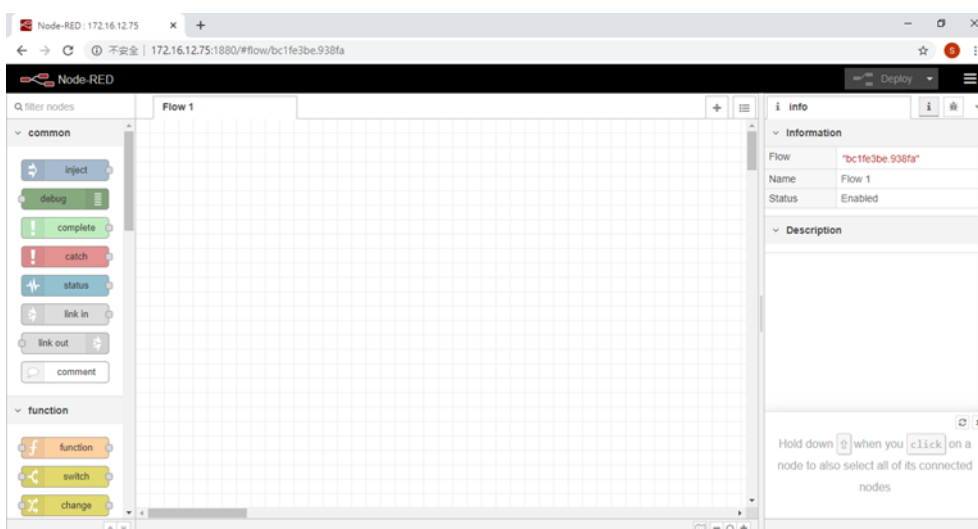
-----
Your flow credentials file is encrypted using a system-generated key.

If the system-generated key is lost for any reason, your credentials
file will not be recoverable, you will have to delete it and re-enter
your credentials.

You should set your own key using the 'credentialSecret' option in
your settings file. Node-RED will then re-encrypt your credentials
file using your chosen key the next time you deploy a change.
-----

26 Dec 06:58:32 - [info] Server now running at http://127.0.0.1:1880/
26 Dec 06:58:32 - [info] Starting flows
```

9. Launch browser and use <http://xxx.xxx.xxx.xxx:1880> for node-red service



- **Pin Definition (in case of serial connection):**

- **Reference:**