

Restoring Neuron State in LonWorks Gateway

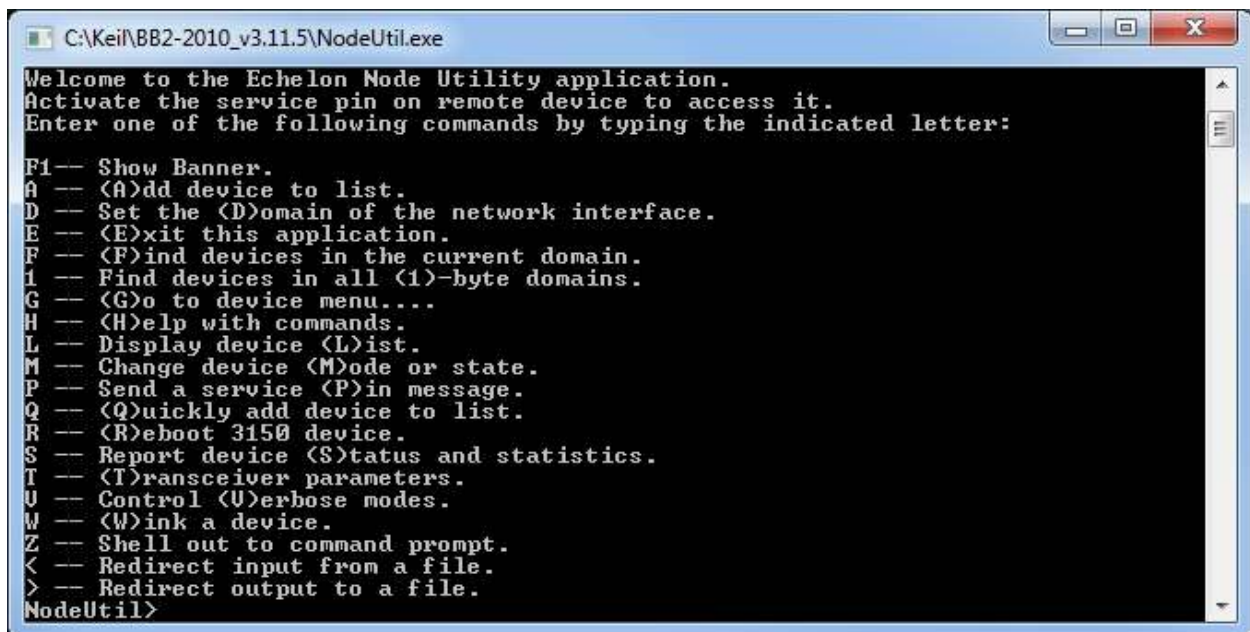
Restoring Neuron State in Babel Buster LonWorks Gateways

Network management tools including LonMaker will sometimes leave a node in either unconfigured or applicationless state if network commissioning did not complete normally for any reason. This will be indicated by the LON Status LED on the gateway remaining solid red after power-up. It will also be indicated by the configuration tool being unable to read the Neuron ID from the gateway. Unfortunately this state can only be changed by network command from the LON network and cannot be changed via the USB console interface.

Changing the Neuron state will require that either your network management tool has the ability to force node state changes, or you download NodeUtil.exe from Echelon's web site (under the Support menu at www.echelon.com). It will also require that you have a LonWorks interface such as Echelon's U10 available on your PC, and that you have first installed OpenLDV also downloaded from Echelon's web site (under Support).

The following is a series of screen shots showing use of NodeUtil to force the Neuron state change on a gateway whose LON Status LED remains red, thus recovering the gateway to a functional status.

Upon opening the NodeUtil tool the menu will appear as follows:

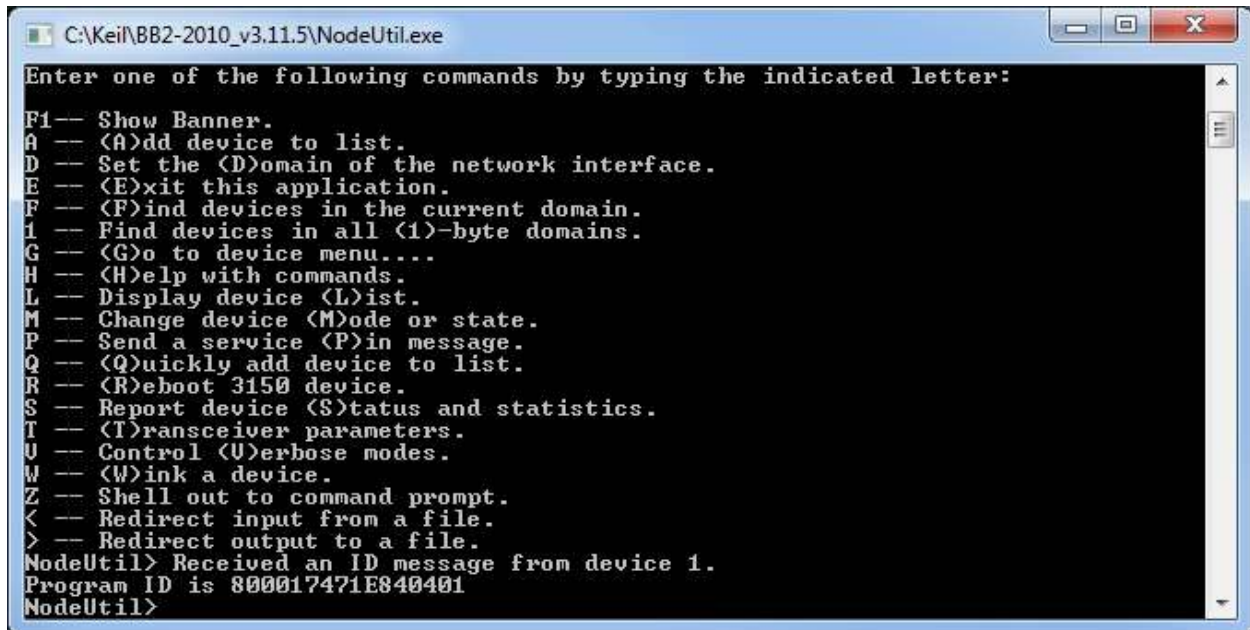
A screenshot of a Windows command prompt window titled "C:\Keii\BB2-2010_v3.11.5\NodeUtil.exe". The window contains a text-based menu for the Echelon Node Utility application. The menu lists various commands and their functions, such as "Show Banner", "Add device to list", "Set the domain of the network interface", etc. The prompt "NodeUtil>" is visible at the bottom of the window.

```
C:\Keii\BB2-2010_v3.11.5\NodeUtil.exe
Welcome to the Echelon Node Utility application.
Activate the service pin on remote device to access it.
Enter one of the following commands by typing the indicated letter:

F1— Show Banner.
A — <A>dd device to list.
D — Set the <D>omain of the network interface.
E — <E>xit this application.
F — <F>ind devices in the current domain.
i — Find devices in all <I>-byte domains.
G — <G>o to device menu....
H — <H>elp with commands.
L — Display device <L>ist.
M — Change device <M>ode or state.
P — Send a service <P>in message.
Q — <Q>uickly add device to list.
R — <R>eboot 3150 device.
S — Report device <S>tatus and statistics.
T — <T>ransceiver parameters.
U — Control <U>erbose modes.
W — <W>ink a device.
Z — Shell out to command prompt.
< — Redirect input from a file.
> — Redirect output to a file.
NodeUtil>
```

Press the service button on the Babel Buster LonWorks gateway. To do this, simply press the white tab to the right of the 5-position terminal block at the bottom of the gateway. Upon

pressing the service button, NodeUtil will show that a message has been received, and its program ID will be displayed as illustrated here:



```
C:\Keii\BB2-2010_v3.11.5\NodeUtil.exe
Enter one of the following commands by typing the indicated letter:
F1— Show Banner.
A — <A>dd device to list.
D — Set the <D>omain of the network interface.
E — <E>xit this application.
F — <F>ind devices in the current domain.
i — Find devices in all <i>-byte domains.
G — <G>o to device menu...
H — <H>elp with commands.
L — Display device <L>ist.
M — Change device <M>ode or state.
P — Send a service <P>in message.
Q — <Q>uickly add device to list.
R — <R>eboot 3150 device.
S — Report device <S>tatus and statistics.
T — <T>ransceiver parameters.
U — Control <U>erbose modes.
W — <W>ink a device.
Z — Shell out to command prompt.
< — Redirect input from a file.
> — Redirect output to a file.
NodeUtil> Received an ID message from device 1.
Program ID is 800017471E840401
NodeUtil>
```

Next, type the G command to “Go” to the device number that responded when pressing the service button, most likely 1 unless you have multiple devices on the network.



```
C:\Keii\BB2-2010_v3.11.5\NodeUtil.exe
E — <E>xit this application.
F — <F>ind devices in the current domain.
i — Find devices in all <i>-byte domains.
G — <G>o to device menu...
H — <H>elp with commands.
L — Display device <L>ist.
M — Change device <M>ode or state.
P — Send a service <P>in message.
Q — <Q>uickly add device to list.
R — <R>eboot 3150 device.
S — Report device <S>tatus and statistics.
T — <T>ransceiver parameters.
U — Control <U>erbose modes.
W — <W>ink a device.
Z — Shell out to command prompt.
< — Redirect input from a file.
> — Redirect output to a file.
NodeUtil> Received an ID message from device 1.
Program ID is 800017471E840401
NodeUtil> <G>o to device menu...
ID Neuron ID      Program ID      Key
0 04353BAA3600  USBLTA          *** network interf
ace
1 07000950C900  800017471E840401
Enter device id for the device menu to enter <0-1> [1] :1_
```

Upon entering the G command and either entering a device number, or simply hitting Enter to select the default device number shown, the following menu will appear:

```
C:\Keii\BB2-2010_v3.11.5\NodeUtil.exe
F -- Configuration <F>iles.
G -- <G>o to another device.
H -- <H>elp with device commands.
I -- Network variable al<I>as table.
J -- <J>am network variable type.
K -- Chec<K> Neuron executable.
L -- <L>ist network variables.
M -- Change device <M>ode or state.
N -- <N>etwork Variable configuration table.
P -- <P>oll network variable.
Q -- <Q>uickly send a message.
R -- <R>ead device memory.
S -- Report device <S>tatus and statistics.
T -- <T>ransceiver parameters.
U -- <U>pdate input network variable.
V -- Control <U>erbose modes.
W -- <W>rite device memory.
X -- Create device interface <<X>IF) file.
Y -- Download Neuron executable.
I -- Performance test.
= -- Signal strength.
* -- Refresh memory.
< -- Redirect input from a file.
> -- Redirect output to a file.
DEVICE:1>
```

Type the S command to verify Neuron state. One likely abnormal state will be “Unconfigured” as illustrated here:

```
C:\Keii\BB2-2010_v3.11.5\NodeUtil.exe
< -- Redirect input from a file.
> -- Redirect output to a file.
DEVICE:1> Report device <S>tatus and statistics
Device status:
Packet errors detected           = 0
Transaction timeouts            = 0
Receive trans full errors       = 0
Lost msgs (no app buff)         = 0
Missed msgs (no net buff)       = 0
Packets received by device      = 4
Packets addressed to device     = 4
Messages sent to MAC layer      = 3
Retries                          = 0
Backlog overflows               = 0
Late acks or responses          = 0
Collisions detected             = 0
EEPROM lock                     = Clear
Last reset cause                 = External
Device state                    = Unconfigured, On-line
Firmware version number         = 19
Build number                    = 0
Neuron model                    = FT 5000
Last error logged               = None
Do you want to clear node status? <Y/[N]>:
```

The other most likely abnormal state will be “Applicationless” as indicated in the following screen shot. The gateway has not actually lost its application, the network management tool has simple set it to this state to keep it from running just because the management tool couldn’t figure something out.

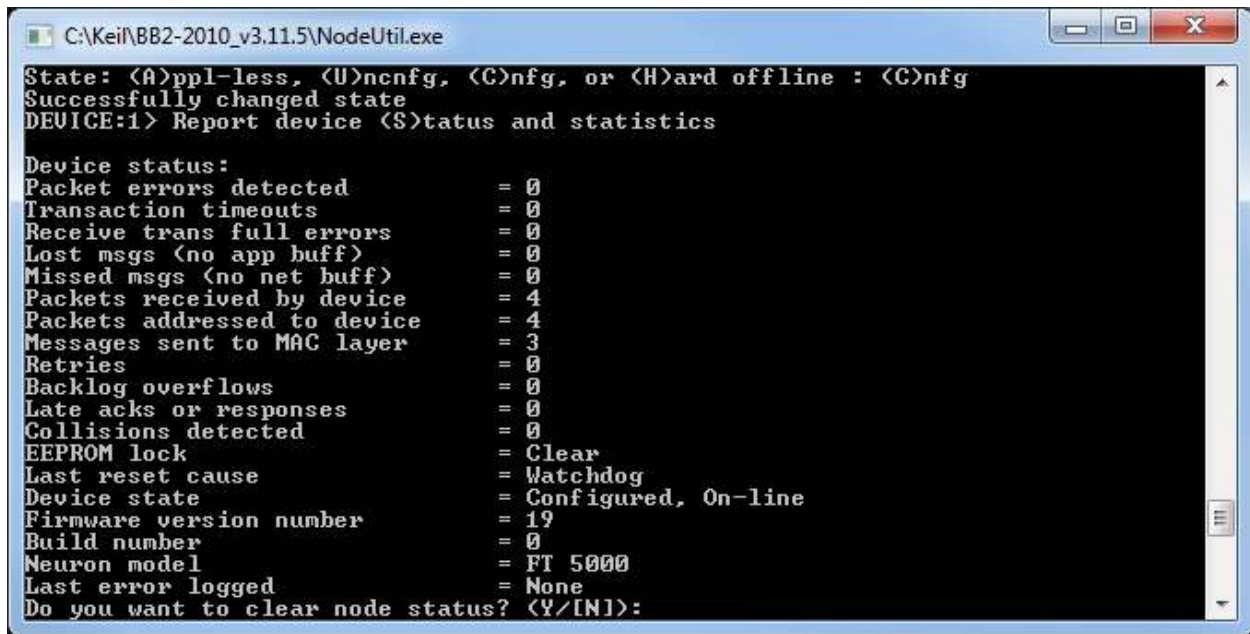
```
C:\Keil\BB2-2010_v3.11.5\NodeUtil.exe
Last error logged = None
Do you want to clear node status? (Y/[N]):N
DEVICE:1> Report device (S)tatus and statistics

Device status:
Packet errors detected = 0
Transaction timeouts = 0
Receive trans full errors = 0
Lost msgs (no app buff) = 0
Missed msgs (no net buff) = 0
Packets received by device = 4
Packets addressed to device = 4
Messages sent to MAC layer = 3
Retries = 0
Backlog overflows = 0
Late acks or responses = 0
Collisions detected = 0
EEPROM lock = Clear
Last reset cause = External
Device state = Applicationless, On-line
Firmware version number = 19
Build number = 0
Neuron model = FT 5000
Last error logged = None
Do you want to clear node status? (Y/[N]):_
```

To force the state change, select the M command for Mode change, then use option S for State change, followed by C for Configured.

```
C:\Keil\BB2-2010_v3.11.5\NodeUtil.exe
Transaction timeouts = 0
Receive trans full errors = 0
Lost msgs (no app buff) = 0
Missed msgs (no net buff) = 0
Packets received by device = 4
Packets addressed to device = 4
Messages sent to MAC layer = 3
Retries = 0
Backlog overflows = 0
Late acks or responses = 0
Collisions detected = 0
EEPROM lock = Clear
Last reset cause = External
Device state = Applicationless, On-line
Firmware version number = 19
Build number = 0
Neuron model = FT 5000
Last error logged = None
Do you want to clear node status? (Y/[N]):N
DEVICE:1> Change device (M)ode or state
Mode: (R)eset, o(N)line, o(F)flne, (S)tate change, or app(H)alt : (S)tate chang
e
State: (A)ppl-less, (U)ncnfg, (C)nfg, or (H)ard offline : (C)nfg
Successfully changed state
DEVICE:1>
```

Following completion of this command, type the S command again to verify the state change. You will hopefully see “Configured, On-line”. If not, repeat the M/S/C sequence. When you do see “Configured, On-line”, the LON Status LED should now be green, and you can resume normal gateway operation.



```
C:\Kei\BB2-2010_v3.11.5\NodeUtil.exe
State: <A>pp1-less, <U>ncnfg, <C>nfg, or <H>ard offline : <C>nfg
Successfully changed state
DEVICE:1> Report device <S>tatus and statistics

Device status:
Packet errors detected           = 0
Transaction timeouts            = 0
Receive trans full errors       = 0
Lost msgs (no app buff)         = 0
Missed msgs (no net buff)       = 0
Packets received by device      = 4
Packets addressed to device     = 4
Messages sent to MAC layer      = 3
Retries                          = 0
Backlog overflows                = 0
Late acks or responses          = 0
Collisions detected             = 0
EEPROM lock                      = Clear
Last reset cause                 = Watchdog
Device state                     = Configured, On-line
Firmware version number         = 19
Build number                     = 0
Neuron model                     = FT 5000
Last error logged                = None
Do you want to clear node status? <Y/[N]>:
```

To exit NodeUtil, type the E command twice (once to exit the Device menu, and a second time to exit the program).

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