

Hit list

• Configure Hit list

- The Hit list is a useful tool for filtering events which are relevant. It can be configured to only show events which you are interested in, and which have occurred for a number of consecutive days. For more on Hit Lists see *Reports*.

User: joel

- User Administration
- Network Maintenance
- Profiles
- Logical Groups
- System Parameters
- BranchNode Manager
- Integration Management
- System Configuration
- Manage Messages
- Configure Hit List**

Configure Range

Lamp reduced power: 5 Days

Lamp strike failed: 3 Days

Ballast thermal shutdown: 2 Days

Lamp aged lamp shutdown: 5 Days

Ballast timeout: 1 Days

Node time reset: 2 Days

Node uhf comms failed: 3 Days

Ballast low lamp volts shutdown: 3 Days

Ballast strike fail shutdown: 3 Days

Drag the slider to the desired number of days an event should occur before being included.

Lamp reduced power: Included

Lamp strike failed: Included

Ballast thermal shutdown: Included

Lamp aged lamp shutdown: Included

Ballast timeout: Included

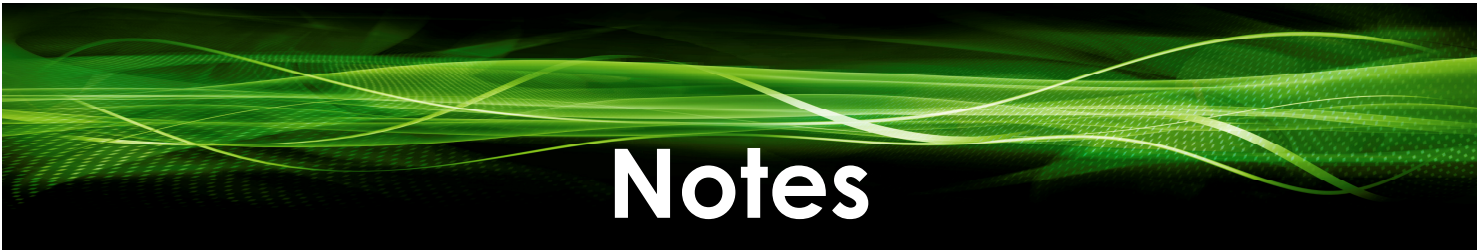
Node time reset: Included

Node uhf comms failed: Included

Node not monitored: Excluded

Select the events you wish to include by clicking the included/excluded box.

Note that changes will only be included in a hit list after the next sync.



Notes

Handwriting practice lines consisting of 15 horizontal rows. Each row is defined by three dashed green lines: a top line, a middle line, and a bottom line, providing a guide for letter height and placement.



Health Check

LeafNut Login

Please login to continue

Username:

Password:

Login



Health Check



User: joel

Logout

Home

About

Health Check

Create a new report

View reports

The Health Check is a useful tool for diagnosing the cause of events and testing columns

Health Check

User: joel

Health Check

Create a new report

View reports

Day Scout Report

Select the LeafNode or Nodes you want to check.

Select the test you wish to check. Tests can only be selected from the top of the list down.

	Node Id	Branch Id	Node Type	Column	Street	City
<input type="checkbox"/>	2345676	2939	WIMAC	1	Westland Road	Leeds
<input type="checkbox"/>	2345678	2939	WIMAC	2	Westland Road	Leeds
<input type="checkbox"/>	16830626	2939	WIMAC	1	Westland Road	Leeds

Next

- ☐ 1. Branch comms
- ☐ 2. Node comms
- ☐ 3. Ballast comms
- ☐ 4. Node errors
- ☐ 5. Strike lamp

Back

Done

Report name: joel 6 Oct 2010 13:53

2 nodes selected. [Change](#)

Selected checks: [Change](#)

- 1. Branch comms
- 2. Node comms
- 3. Ballast comms
- 4. Node errors
- 5. Strike lamp

Email me when done ☒

[Cancel](#) [OK](#)

[Add more people](#)

As you have to talk to each node individually, a Health Check can take several minutes or more. LeafNut will e-mail you when the tests are finished.

Harvard
LeafNut

Harvard
LeafNut

Health Check

User: joel

Health Check

Create a new report

View reports

Day Scout Report

Select the report you want to view and click

View Selected

	Name	Owner	Submitted	Started	Finished
<input type="radio"/>	joel 6 Oct 2010 13:53	joel	2010-10-06 13:59:44	2010-10-06 14:00:48	2010-10-06 14:01:25

1 — Records from 1 to 1 of 1

Edit Selected View Selected

The report shows each node and which tests failed for each node. Column 19 on this check failed to strike the lamp. See Troubleshooting for more information.

	Node Id	Column Id	Branch Id	Branch Comms	Node Comms	Ballast Comms	Node Errors	Strike Lamp
<input type="radio"/>	16807279	20	2506	✓		✓	3	✓
<input type="radio"/>	16807294	16	2506	✓		✓	0	✓
<input type="radio"/>	16807342	41	2506	✓		✓	0	✓
<input type="radio"/>	16807655	19	2506	✓		✓	0	✗
<input type="radio"/>	16807741	17	2506	✓		✓	2	✓

1 — Records from 1 to 2 of 2

Export To CSV

Back Select

Health Check

User: joel

Health Check

Create a new report

View reports

Day Scout Report

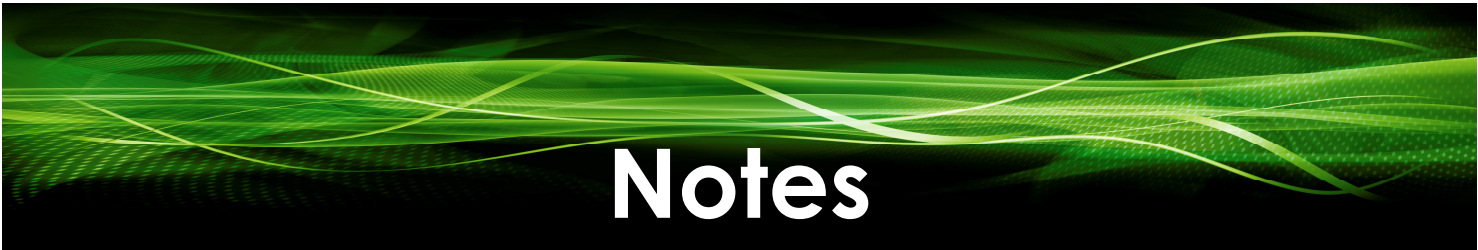
The Day Scout report shows nodes which were on during the previous Sunday afternoon, and columns where communication with the ballast or node was not possible.



Current Day Scout Report

Branch Id	Node Id	Column Id	Street	Status	Via SDP	Timeout	Day Light	Faults	Comms %
3146	3146	4	St Stephen's Road	Ballast: Aged, shutdown	false	false	true	1	100
2213	16793175	2	Unna Way	Ballast: Running 100%	false	false	true	0	100
2213	16793211	3	Unna Way	Ballast: Running 100%	false	false	true	0	99
2213	16792933	4	Unna Way	Ballast: Running 100%	false	false	true	0	100
2213	16793199	5	Unna Way	Ballast: Running 100%	false	false	true	0	99
2213	16786901	6	Unna Way	Ballast: Running 100%	false	false	true	0	99
2213	16786985	7	Unna Way	Ballast: Running 100%	false	false	true	0	100
2213	16792942	8	Unna Way	Ballast: Running 100%	false	false	true	1	99
2213	16793086	9	Unna Way	Ballast: Running 100%	false	false	true	0	100
2213	16786778	10	Unna Way	Ballast: Running 100%	false	false	true	0	99
2213	16793008	11	Unna Way	Ballast: Running 100%	false	false	true	0	99
2213	16793120	12	Unna Way	Ballast: Running 100%	false	false	true	0	100
2213	16789913	13	Unna Way	Ballast: Running 100%	false	false	true	0	99
2213	16789916	14	Unna Way	Ballast: Running 100%	false	false	true	0	99
2213	16793289	15	Unna Way	Ballast: Running 100%	false	false	true	0	99
2213	16793059	16	Unna Way	Ballast: Running 100%	false	false	true	0	100
2213	16786983	17	Unna Way	Ballast: Running 100%	false	false	true	0	99
2213	16789903	18	Unna Way	Ballast: Running 100%	false	false	true	0	99
2213	2213	1	Unna Way	Ballast: Running 100%	false	false	true	0	100
2515	16807339	55	Whitehall Road	Ballast: Strike Failed	false	false	true	0	100
2672	2672	11	Bromley Street	Failed to connect	false	false	false	0	0
2511	16807647	9	Leymoor Road	No Ballast Comms	true	false	true	1	58
2511	16807709	5	Longwood Gate	No Ballast Comms	false	true	true	0	100
2510	16807378	30	Listing Lane	No Ballast Comms	false	true	true	0	99

Ballasts with no comms may need checking.



Notes

Handwriting practice area consisting of 15 horizontal rows of dashed green lines on a white background.



The Interactive Monitor

LeafNut Login

Please login to continue

Username:



Password:

The Interactive Monitor
allows you to directly
communicate with a
BranchNode in real time



Interactive Monitor

Home Logical Group Controller **BranchNode** LeafNode About Logout: joel

	Branch Id	Column	Street	City	Nodes Count	SDP Count	Slot	SDP Support	Active
	2939	1	Westland Road	Leeds	3	0	9		true

Harvard
LeafNut 

Select

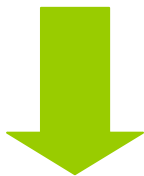
Connect

Harvard
LeafNut 

The Interactive Monitor

The symbol in the top right shows green when the Interactive Monitor is connected to a BranchNode

The Interactive Monitor shows a snapshot of communications at the time of connection.
IT IS A DIAGNOSIS TOOL NOT A PROBLEM FINDING TOOL.
Use reports to find problems.



Home Logical Group Controller BranchNode **LeafNode** Disconnect About Logout: joel
List BranchNodes View BranchNode Details Manage SDP List Light Level History Solar Clock Data Branch Time Clear All Comm Stats



Colour coded flags show the current status of node comms. Nodes with no comms may show that they think it's dark. So long as they've had comms in the past, they will not be day burning.

Loaded: 26/26 Nodes

	Node Id	Node Type	Column Id	Street	% Comms	Eligible to be SDP	Event Count	Comms Via SDP	Ballast Status	Knows Light or Dark
<input type="radio"/>	16794129	WIMAC	6	Westland Road	99		0			
<input type="radio"/>	16794130	WIMAC	16	Westland Road	98		0			
<input type="radio"/>	16794131	WIMAC	9	Westland Road	99		0			
<input type="radio"/>	16794133	WIMAC	2	Westland Road	91		0			
<input type="radio"/>	16794135	WIMAC	12	Westland Road	87		0			
<input type="radio"/>	16794136	WIMAC	1	Westland Road	99		0			
<input type="radio"/>	16794137	WIMAC	4	Westland Road	99		0			
<input type="radio"/>	16794138	WIMAC	7	Westland Road	99		0			
<input type="radio"/>	16794140	WIMAC	13	Westland Road	99		0			
<input type="radio"/>	16794142	WIMAC		Westland Road	100		0			
<input type="radio"/>	16794115	WIMAC	1	Westland Road	87		0			
<input type="radio"/>	16820345	WIMAC	Goose In	Harvard House	99		0			
<input type="radio"/>	16794119	WIMAC	1	Westland Square	90		0			
<input type="radio"/>	16794118	WIMAC	14	Westland Road	99		0			

If not all nodes are loaded, click the refresh button here until loading completes

Harvard
LeafNut

Harvard
LeafNut

The Interactive Monitor

• Testing a LeafNode

Loaded:  26/26 Nodes

	Node Id	Node Type	Column Id	Street	% Comms	Eligible to be SDP	Event Count	Comms Via SDP	Ballast Status	Knows Light or Dark
<input type="radio"/>	16794129	WIMAC	6	Westland Road	99		0			
<input type="radio"/>	16794130	WIMAC	16	Westland Road	98		0			
<input type="radio"/>	16794131	WIMAC	9	Westland Road	99		0			
<input type="radio"/>	16794133	WIMAC	2	Westland Road	91		0			
<input type="radio"/>	16794135	WIMAC	12	Westland Road	87		0			
<input type="radio"/>	16794136	WIMAC	1	Westland Road	99		0			
<input type="radio"/>	16794137	WIMAC	4	Westland Road	99		0			
<input type="radio"/>	16794138	WIMAC	7	Westland Road	99		0			
<input type="radio"/>	16794140	WIMAC	13	Westland Road	99		0			
<input type="radio"/>	16794142	WIMAC	5	Westland Road	100		0			
<input type="radio"/>	16794115	WIMAC	17	Westland Road	87		0			
<input type="radio"/>	16820345	WIMAC	Goods In	Harvard House	99		0			
<input type="radio"/>	16794119	WIMAC	1	Westland Square	90		0			
<input type="radio"/>	16794118	WIMAC	14	Westland Road	99		0			

Select a node you wish to test.

Select

Home Logical Group Controller BranchNode LeafNode Disconnect About Logout: joel
List LeafNodes Find LeafNode LeafNode Details **Test LeafNode** Channel Stats Seven Day Profile Event Log

Testing LeafNode: 16794122

Select a new value for the lamp:

☐ Off
☐ 50%
☐ 75%
☐ 100%

Send

Current Lamp Setting

Ballast status: Lamp off.
Lamp Test Status Not Set

Refresh

Refresh the lamp setting data to confirm normal operation or alternatively confer with an engineer on site.

Select and send the state you want the lamp to change to.

Harvard
LeafNut

Harvard
LeafNut

The Interactive Monitor

- Adding an SDP

SDP's – Spacial Diversity Providers can be selected from the Interactive Monitor and take immediate effect. SDP's can help reduce UHF black spots on a Branch.

Home Logical Group Controller **BranchNode** LeafNode Disconnect About Logout: joel
List LeafNodes Find LeafNode LeafNode Details Test LeafNode Channel Stats Seven Day Profile Event Log

Home Logical Group Controller BranchNode **LeafNode** Disconnect About Logout: joel
List BranchNodes View BranchNode Details **Manage SDP List** Light Level History Solar Clock Data Branch Time Clear All Comm Stats

SDP Enabled	Node Id	Node Type	Column Id	Street	City	% Comms
<input type="checkbox"/>	16794124	WIMAC	Bollard Test	Harvard House	Leeds	0.0
<input type="checkbox"/>	16785159	WIMAC	John's Office	Harvard House	Leeds	99.0
<input type="checkbox"/>	16785150	WIMAC	Goods Out	Harvard House	Leeds	99.0
<input type="checkbox"/>	16794136	WIMAC	1	Westland Road	Leeds	99.0
<input type="checkbox"/>	16794133	WIMAC	2	Westland Road	Leeds	95.0
<input type="checkbox"/>	16794120	WIMAC	3	Westland Road	Leeds	98.0
<input type="checkbox"/>	16794137	WIMAC	4	Westland Road	Leeds	99.0
<input type="checkbox"/>	16794142	WIMAC	5	Westland Road	Leeds	99.0
<input type="checkbox"/>	16794129	WIMAC	6	Westland Road	Leeds	98.0
<input type="checkbox"/>	16794138	WIMAC	7	Westland Road	Leeds	98.0
<input type="checkbox"/>	16794125	WIMAC	8	Westland Road	Leeds	87.0

Select the node you wish to act as an SDP. This may take a second or two to process. There is no need to submit changes as this is an immediate action.

The Interactive Monitor

- Node Map (Bolt-on)

The node map provides a live mapped status of your nodes.
This shows the same snapshot as the LeafNode screen, but plotted on a map.
You can add SDP's and view comms history for each node.

Home Logical Group Controller BranchNode **LeafNode** Disconnect About Logout: joel
List LeafNodes Find LeafNode LeafNode Details Test LeafNode Channel Stats Seven Day Profile Event Log



Home Logical Group Controller BranchNode **LeafNode** WiMAC Disconnect About Logout: Joel
List LeafNodes **Node Map** Find LeafNode LeafNode Details Test LeafNode Channel Stats Seven Day Profile
Connected to Node: 100001 Hardware Version: 8 Software Version: 48 Protocol Version: 11 No Node Selected



Mapped Nodes for Branch: 100001

Map Size:
Full Screen ☐
Display Slot Range:
Display ☐
Slot Range Radius:
Range Radius: 0.5km



Harvard
LeafNut

Harvard
LeafNut

The Interactive Monitor

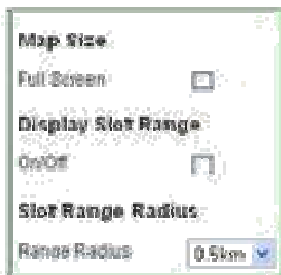
- Node Map pt. 2 (Bolt-on)

Selecting a node will display information about that node. The tools tab allows you to add/remove a node as an SDP.

If you have node location data stored for your nodes, they will be displayed on the map.

Icons shown denote the status of the lamp. All these lamps are shown as ON. A star icon denotes SDP status

Mapped Nodes for Branch: 100001



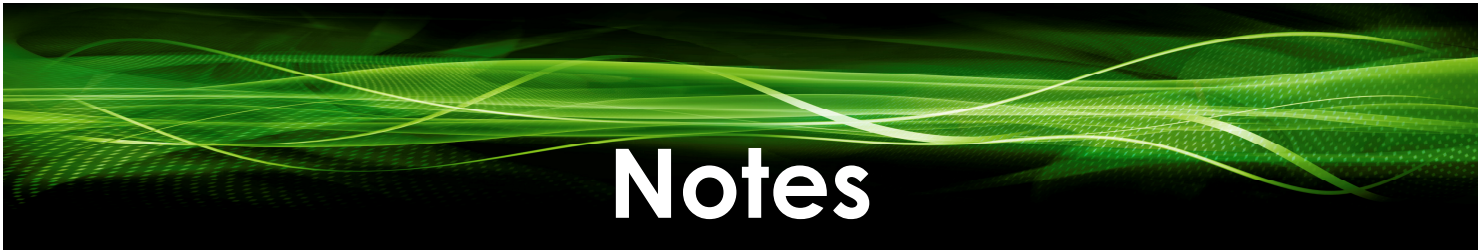
Selecting a branch allows you to change it's slot number in real-time.

The Interactive Monitor

• Hints and Tips

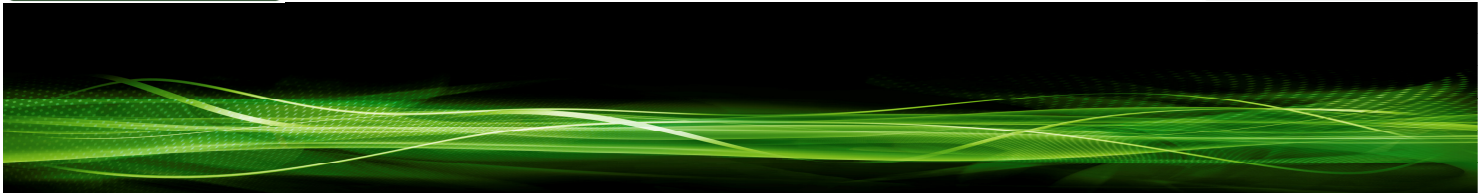


- Always disconnect from the branch when finished to allow other users to communicate with the branch.
- Select SDP's after confirming consistently good communication using comms reports.
- Watch out for Nodes with good comms but displaying a Ballast Timeout. It is likely these lamps are not behaving correctly and need lantern connections checking to resolve.
- Remember, just because a node has low communications stats on the Interactive Monitor, does not necessarily mean it has a problem.
 - Check the reports for the node.
 - Has it ever communicated in the Edit Node page?
 - Does it have good communication stats historically?



Notes

Handwriting practice area with 15 sets of dashed green lines.



Reports

There are two basic types of report. Communication reports and Event Reports:

- UHF Comms reports are generated by the Branch when it has not talked to a node in an 18 hour period.
- Event reports are generated by a Ballast/Node during operation.

LeafNut Login

Please login to continue

Username:

Password:



User: joel	▲
Branch History	▲
Event Reports	▼
Hit List	
Hit List by Date	
Current Events	
Events by Date	
Events by LeafNode	
Seven Day Node Summary	
Seven Day Summary	
Inventory Reports	▲
Early Warnings	▲
Power	▲
Communications	▲
Branch Temperature	▲
Audit	▲

Take some time to familiarise yourself with the Event reports. There are various different criteria by which reports can be displayed.

All reports are sortable, searchable and can be exported to CSV format.

Reports

- Reports pt. 2

User: joel	▲
Branch History	▲
Event Reports	▲
Inventory Reports	▼
Abbreviated Inventory	
Inventory	
LeafNode Inventory	
SDP Inventory	
Branch Inventory	
Early Warnings	▲
Power	▲
Communications	▲
Branch Temperature	▲
Audit	▲

Inventory Reports display a list of all the equipment allocated to your Trunk in various forms.

All data is sortable, searchable and can be exported to CSV.

Remember, reports are put on the trunk at 2am every day, so Current Events refer to yesterday!

Communications reports show a full breakdown of communications to each node, as well as communications events and nodes which have not communicated at all in the previous day.

User: joel	▲
Branch History	▲
Event Reports	▲
Inventory Reports	▲
Early Warnings	▲
Power	▲
Communications	▼
Node Communication Stats	
Seven Day Comms Stats	
Communication via SDP	
No UHF Communications	
Node UHF Communications	
Communication Audit	
Branch Temperature	▲
Audit	▲

Reports

• Reports pt. 3

LeafNut Login

Please login to continue

Username:

Password:

The Report Summary provides a quick and easy summary of yesterday's events and a quick copy of Hit list and Day Scout reports.



Home **Report Summary** System Summary Your Profile Preferences About

Hit List Report **Current Events**

Search | Find N

Current Events

Events listed on this Trunk: 202

- Events (202)
 - Wimac - 65 event(s) on 35 node(s)
 - Lamp strike failed - 6 event(s)
 - 16784903 1 Thomas Street
 - 16784825 5 Road to rear of 5-107 Thorne Road
 - 16784785 2 Access to Rear of 7-83 Springdale Avenue
 - 16784743 4 Moorbottom Road
 - 16784723 2 Springdale Street
 - 16784708 1 Hall Avenue
 - Lamp aged lamp shutdown - 35 event(s) on 23 node(s)
 - Node time reset - 24 event(s) on 12 node(s)
 - Nema - 0 event(s) on 0 node(s)
 - Wimac Common - 137 event(s)

Selecting a node will display an entire history for that node to easily see if the event is a recurring problem.

Selecting an event type will automatically go to the Health Check and select all the nodes which experienced that event on the previous day.

Reports

- Reports pt. 4

The screenshot shows a web interface with three tabs: 'Home', 'Report Summary', and 'System Summary'. The 'Report Summary' tab is active, and within it, the 'Hit List Report' sub-tab is selected and circled in red. Below the tabs, the main content area is titled 'Hit List and Day Scout Events'. It displays a hierarchical tree structure:

- Events (132)
 - Hit List - 0 event(s)
 - Day Scout - 132 event(s)
 - Out of Communication - 114 node(s)
 - Day Burners - 18 node(s)
 - 16793175 2 Unna Way
 - 16793211 3 Unna Way
 - 16792933 4 Unna Way
 - 16793199 5 Unna Way
 - 16786901 6 Unna Way
 - 16786985 7 Unna Way
 - 16792942 8 Unna Way
 - 16793086 9 Unna Way
 - 16786778 10 Unna Way
 - 16793008 11 Unna Way
 - 16793120 12 Unna Way
 - 16789913 13 Unna Way
 - 16789916 14 Unna Way
 - 16793289 15 Unna Way
 - 16793059 16 Unna Way
 - 16786983 17 Unna Way
 - 16789903 18 Unna Way
 - 2213 1 Unna Way

Each node in the list has a small icon to its right, representing a report or status page.

The Hit List report summary shows the Hit List and Day Scout reports for your trunk. The day scout checks every ballast status on Sunday afternoon and reports ballasts which are not off, and ballasts which it cannot talk to.

Selecting a node will display daytime status report for that node.

Reports

- Event Report E-mail

From: admin-do-not-reply@leafnut-host.net
To:
Cc:
Subject: UHF Event Report: Staging: 14/08/2010

UHF Event Report E-mail deliver
yesterdays UHF communication
failure tallies direct to your inbox
for easy viewing.

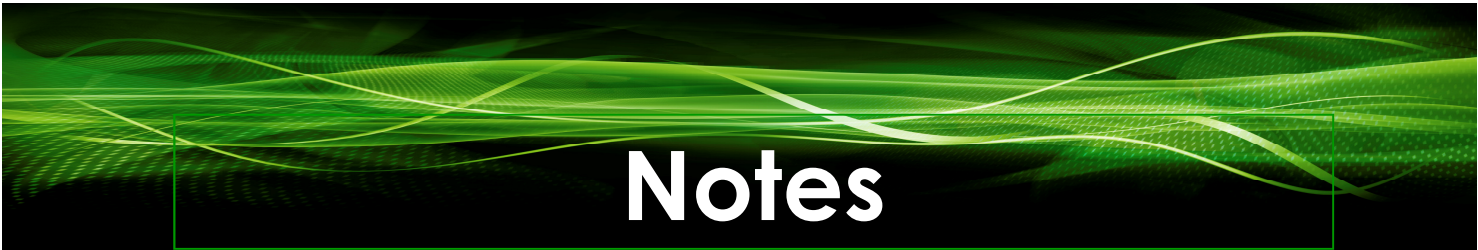
Node Id	Branch Id	Column Id	Location	Event Count	Occurred
16824937	2239	3	Marshall Street,	2	00:55 26/Jul/2010
16824445	2070	No # Opposite Chippy	Leeds Road	4	18:45 25/Jul/2010
16816248	2050	1	Henries Street,	4	22:55 25/Jul/2010
16816617	2012	4	Leeds Road	4	00:26 26/Jul/2010

- UHF Event Report E-mail

From: admin-do-not-reply@leafnut-host.net
To:
Cc:
Subject: Event Report: Sales: 16/09/2010

Event Report E-mail deliver
yesterdays lamp events
direct to your inbox for
easy viewing.

Node Id	Column Id	Location	Event	Occurred
16824937	Furyo - 2	Harvard House,	Lamp strike failed	10:16 24/Mar/2010
16824937	Furyo - 2	Harvard House,	Lamp Strike Ok	10:15 24/Mar/2010
16824937	Furyo - 2	Harvard House,	Lamp strike failed	10:05 24/Mar/2010
16824937	Furyo - 2	Harvard House,	Lamp Strike Ok	10:04 24/Mar/2010
16824937	Furyo - 2	Harvard House,	Lamp strike failed	09:54 24/Mar/2010
16824445	Column 99	Westland road,	Ballast timeout	09:56 15/Sep/2010
16810565	bb1	barry,	Node time reset	09:58 15/Sep/2010



Notes

Handwriting practice area with 15 sets of dashed green lines.



Troubleshooting

• 0% Communication Statistics

When	Why	Action
Column is reporting 0% communication on E-mail or Trunk Reports.	<p>Incorrect Leaf-Node ID.</p> <p>Out of radio communication range or in radio black spot.</p> <p>No power to the column or Leaf-Node.</p> <p>BranchNode has not synchronised.</p>	<p>Check the Leaf-Node ID.</p> <p>Deploy a suitable SDP or relocate BranchNode.</p> <p>Check supply to column and connections in lantern.</p> <p>Perform Branch-Node Update using the Branch-Node Manager.</p>



Use a WiMac Sniffer as a quick way to check ID numbers and test node to ballast connections

Troubleshooting

- 0% communication Reports but lantern still switches on at dusk.

When	Why	Action
Column is lighting at dusk, but is reporting no communications.	Node has lost communication with the branch but has had communication in the past.	Deploy an SDP or relocate BranchNode. Check Node has not become obscured by tree growth etc.

Using the Communications section in Reports! Identify the ones that have communication problems and check them with the rest of LeafNodes on the street.



Troubleshooting

• Day Burners

When	Why	Action
<p>Column is lit during the day.</p> <p>(Can be found in the day scout report created every Sunday)</p>	<p>Incorrect LeafNode ID input into Trunk.</p> <p>Out of RF range or in a radio black spot.</p> <p>Incorrect Time Profile input into Trunk.</p> <p>Light pollution to the BranchNode photocell.</p> <p>BranchNode has not synchronised.</p>	<p>Input correct ID on trunk and run Branch update.</p> <p>Deploy SDP or relocate BranchNode.</p> <p>Check Time Profile settings and Seven Day Profile activation type.</p> <p>Ensure Branch-Node is in suitable location.</p> <p>Perform an update from the Branch-Node Manager.</p>

Use a WiMac Sniffer as a quick way to check ID numbers!



Troubleshooting

• Unable to Connect to BranchNode

When	Why	Action
When using the Interactive Monitor or updating the Branch using the BranchNode Manager.	Branch Column has no supply.	Check power to BranchLamp.
	Branch Is set to inactive on the Trunk.	Check Branch in Administration on Trunk. Set to active and update.
	GSM signal is poor or network is experiencing outages.	Relocate Branch if persistent. Try again in 30 minutes if outage suspected.
	Someone else is connected to the branch.	Wait for other users to disconnect.

If you have any significant problems with connecting to a branch, contact your LeafNut Support Account Manager who will be able to perform additional checks and further assist you.



Troubleshooting

Other Events

Node Time Resets

When	Why	Action
A LeafNode will report this every time it comes back into power.	The cause is usually intermittent power supply to the column.	No action required in the first instance. Regular occurrence may warrant investigation of the supply stability.
When being serviced by a contractor.	Power has been intentionally removed.	Ensure power is restored after work is complete.

Troubleshooting

Other Events pt. 2

Lamp Aged Lamp Shutdown

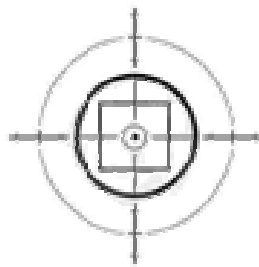
When	Why	Action
<p>During normal operation.</p> <p>If possible, ballast will operate lamp at reduced power and reports as such.</p>	<p>Ballast has failed to maintain an arc in the lamp.</p> <p>The lamp needs replacing or the ballast is unable to create a high enough voltage to maintain an arc.</p>	<p>No action required in the first instance.</p> <p>Multiple occurrences means lamp needs replacing or supply voltage needs checking. Can be caused by ballast or wiring faults.</p>

BranchNode Optimum Placement Guide

Remember the 3 rules of radio

1. Sight

UHF communication works best if the BranchNode has line-of-sight communication with it's nodes. This is aided by the branch being on a good tall column. Try to place a branch where it will get a good "view" of as many nodes as possible. Don't worry though, full line of sight not a requirement.



2. Signal

BranchNodes require GSM signal to communicate with the trunk. Check an area has O2 signal if in doubt, before installing your Branch.



3. Surroundings

The operation of a BranchNode will be affected by it's surroundings. Trees, tall buildings, metal structures etc. Will all affect operation as they absorb or reflect or break up radio signals. Choose a tall, clear column on which to place your BranchNode. Don't place it under a bridge.



BranchNode Optimum Placement Guide pt. 2

Basic Requirements

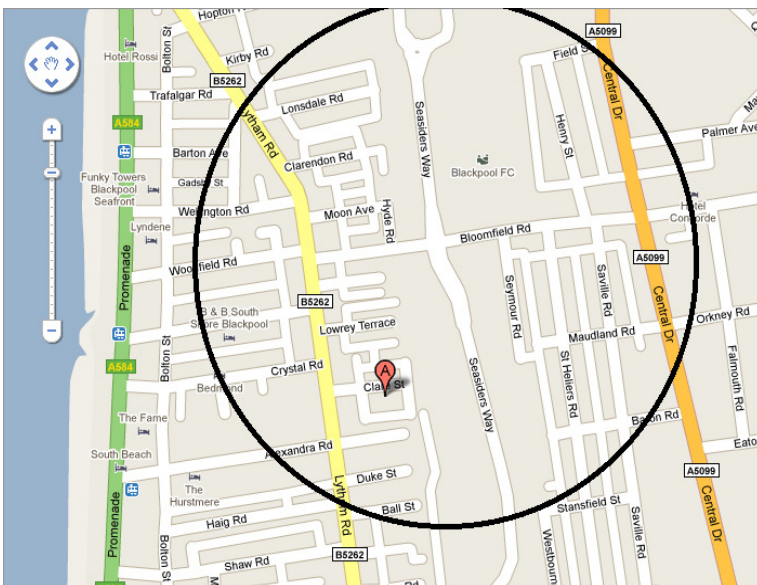
A BranchNode must be mounted vertically on a column, with a clear sky view. It must also be mounted in an area with reasonable GSM signal (On 02 in the UK.) The BranchNode must have a constant supply 24/7.

Choosing a Slot

A branch must be on a different slot number to any other branches within a minimum 3km radius, to prevent branches interfering with each other. If you have the mapping tools, these will help to identify unused slot number in the area. Be strategic, and consider future deployments. Two branches 5km apart can't have another branch on the same slot in between. Two nodes 6km apart can.

Choosing a column

A Branch should be added in the centre of a deployment, with nodes placed all around it. As nodes communicate best with line-of-sight communication with their branch, junctions of two long straight roads often make great branch locations. Choose a tall column, in a clear area. Avoid columns which are very close to buildings or trees. The column **MUST** have a constant supply to it. This is important for a LeafNode and VITAL for a BranchNode.



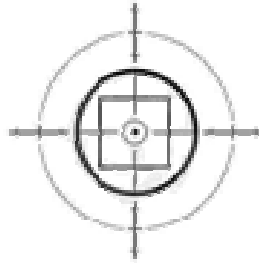
Assuming the branch is currently at point A and all nodes lie within the black circle, where would you relocate this branch to?

Adding a Spatial Diversity Provider to improve communication black spots.

Remember the 3 rules of radio

1. Sight

SDP's will work best if they have line-of-sight communication with nodes in a black-spot. When selecting a node to use as an SDP, choose one which has a good sight of the majority of nodes with communication issues. Don't worry though, full line of sight not a requirement.



2. Signal

SDP's require good signal to operate. They cannot "pass on" a message which they didn't "hear".



3. Surroundings

SDP's operation, as BranchNodes, will be affected by their surroundings. Trees, tall buildings, metal structures etc. Will all affect the operation of an SDP as they absorb or reflect or break up radio signals. Choose a tall, clear column.



Adding a Spatial Diversity Provider to improve communication black spots Pt. 2.

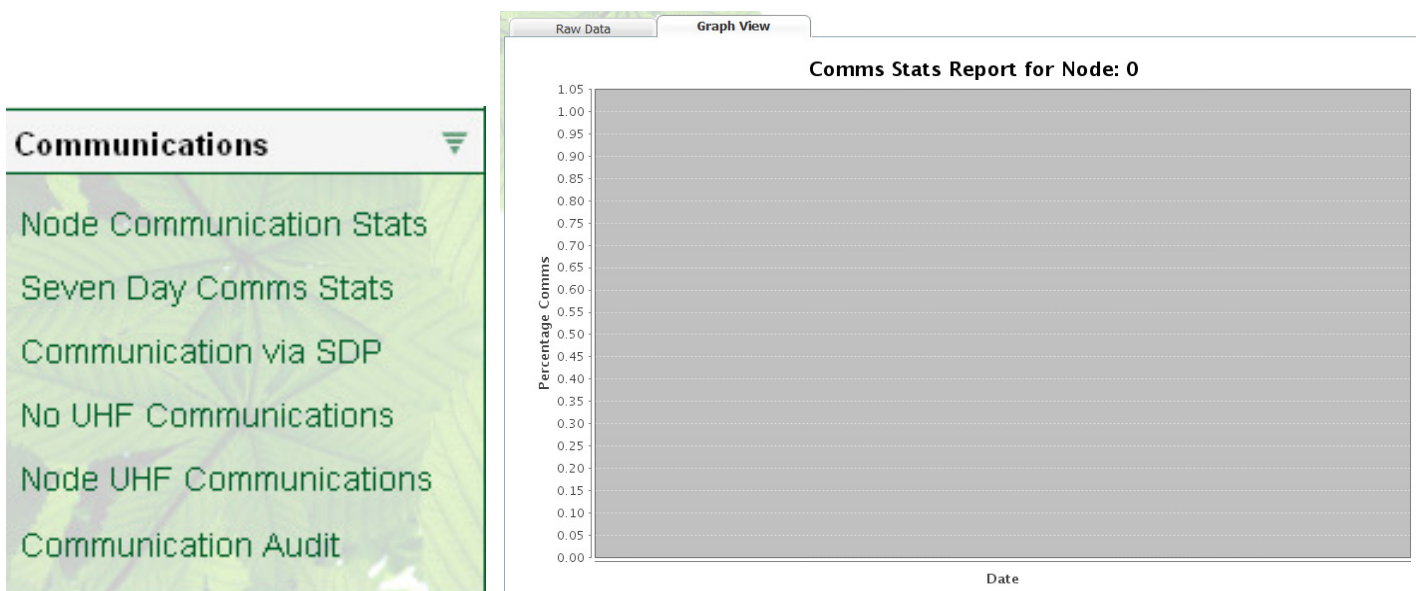
Identifying a need

Before adding an SDP, ensure that it is actually required. As the number of SDP's is limited, do not waste one trying to communicate with nodes which have no power, or which are very near to a branch. By all means use one as a test to ensure that signal is a problem, but nodes near a branch with comms issues may benefit more from having the branch relocated by a few columns, hence still allowing you to add more nodes around the perimeter of the coverage area using an SDP to communicate. SDP's should not be used to resolve problems caused by poorly located branches.

Choosing a Node

The IM is a good starting point when choosing an SDP. If there is a whole street with low comms, look for a node on an adjacent or joining road, near the junction, with good comms which is not already using an SDP to communicate. Make a list of a few options.

Go to the reports section and check the “communication by node” history for the shortlisted nodes. The graph tab at the top of the report will give you a good visual representation to ensure that the node has consistently good communication.



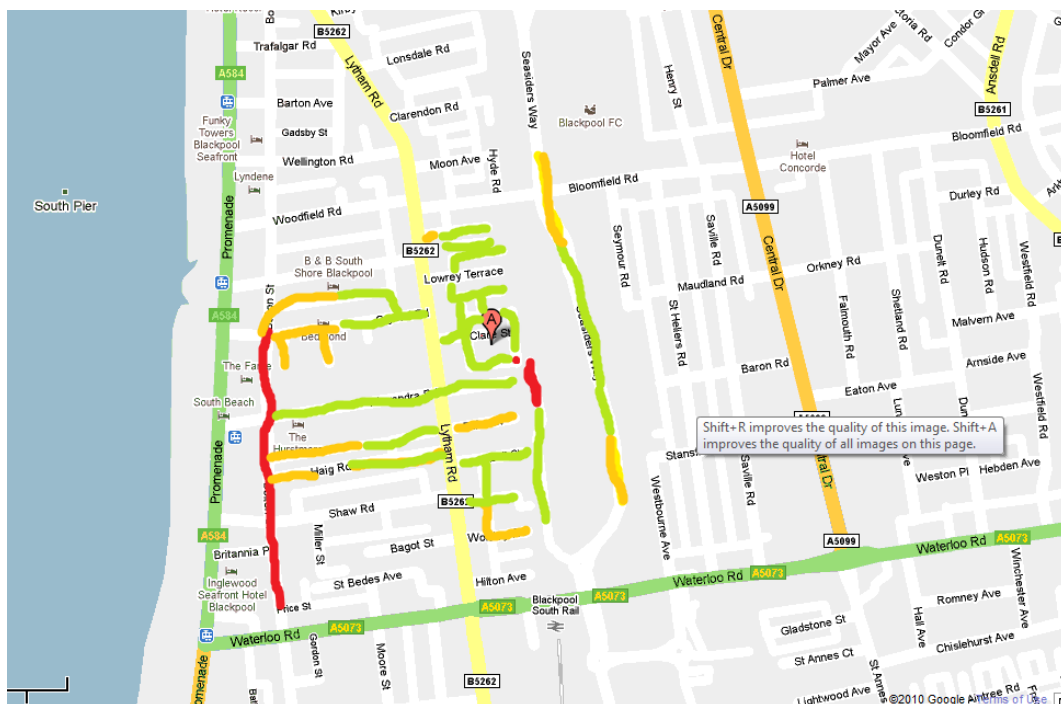
Adding a Spatial Diversity Provider to improve communication black spots Pt. 3.

Enabling the SDP

Once the Node has been chosen to be an SDP, go back to the IM, and check the box next to the appropriate node in the Manage SDP's section. Leave the trunk for about 36-48 hours, until it has synced twice, to ensure that communications have settled down, then go back to the IM and check that the change has been successful. If not, try one of the other shortlisted nodes and repeat the process. This follow-up is important to ensure the changes have been worthwhile. Remember that if you leave an ineffective SDP active, it will not be available for use elsewhere.

Larger branches and keeping a fluid process

As more nodes are added to a branch, you may find it worthwhile going back and removing SDP's added early on in installation, to place them somewhere with greater efficacy. For larger branches, it is often worth removing all SDP's, then colour coding streets on a printed map, red for no comms, orange for poor comms, and green for ok or good comms. You can then visually see where the most black spots are and choose an optimum position for an SDP.



Events Explanations

Node time reset

Occurs when the node is power cycled. This fault can indicate there are supply problems, glitches, brownouts, surges etc. If a node time reset occurs every day around dusk then it is likely the column is on a switched supply. This is usually accompanied by several UHF fails during the day. It is recommended that nodes are connected to a constant 24/7 supply.

Strike Fails

Occur when the ballast cannot “see” the correct voltage at the lamp terminals. This can be caused by a missing/broken lamp, bad wiring, ballast fault or a hot lamp. A hot lamp can occur if the column is power cycled shortly before dusk, gets turned off by the BranchNode (whilst still light) then subsequently is told it is dark and will try to re-strike a hot lamp. The hot lamp situation will correct itself when the ballast tries to successfully re-strike, so there will be a matching “Strike OK” in the events report some minutes later. The other causes of strike failure can only be ascertained by opening the luminaire.

Aged Lamp Shut-downs

Occur when the arc fails in the strike tube, this is usually due to the lamp being old and the voltage required to keep the arc running is higher than the ballast’s capability. It can also occur with faulty wiring or lamp socket. The ballast will attempt to re-strike the lamp after a cool down period. If successful will run at reduced power (The ballast assumes it is an aged lamp and therefore may run happily for many hours at 75%). If the lamp is known to be good then it is more likely a wiring or ballast fault.

Ballast Comms Fail

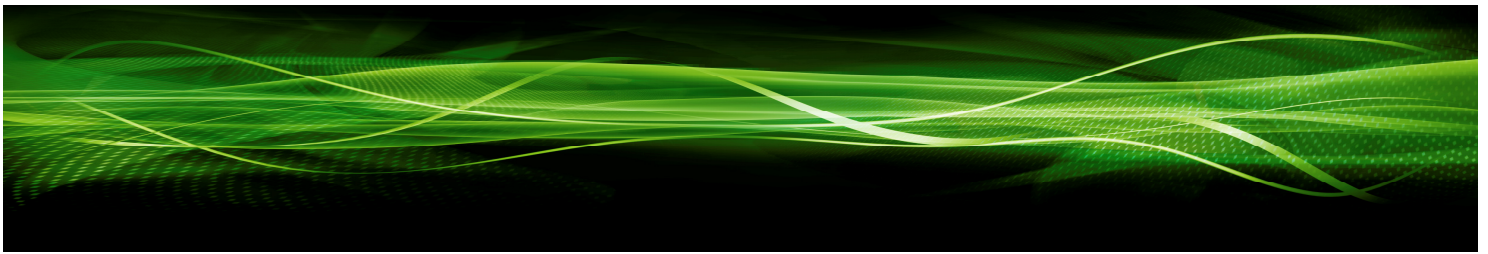
Occurs when the node has power but the node cannot communicate with the ballast. This is usually due to the connector not being pushed home fully or one of the pins being loose. There are ballast and node faults that also cause this event, and are usually caused by a node being plugged into a live ballast. It is difficult to ascertain whether it is the node or ballast that is faulty.

UHF Comms Fail

Occurs when a BranchNode cannot contact a node in it’s database. The obvious problems are node fault, range, column power, incorrect serial number, ballast fault (even if a ballast is day burning it does not necessarily mean power is being supplied to the node). If there are corresponding UHF OK events in the event report then the node can communicate sometimes. This indicates a range problem or a supply problem to the column (in which case there should also be a corresponding “Node Time Reset” event.)

Ballast Strike Fail Shutdown

This event occurs when a lamp has repeatedly failed to strike. Rather than continuously cycling the lamp after several failed attempts, the ballast shuts down and will try to re-strike the lamp again the next night. For more information, see Strike Fails.



FCC warning statement:

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment



