



Wireless Embedded Systems and Networking

Lab Day 2: Part 3: Custom analysis of the networking

Lab Assistant: Jaein Jeong
University of California, Berkeley



AIT Summer Course - D#

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Before the site survey

- Discuss the connectivity that you have seen.
- At what RSSI does a node forego a link and try an alternative?
- How does the tree change over time?



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How to do site survey using API

- Requestor

- Use `rpcExecuteconnectivityTestStart()` function to request a site survey from node A to B.
- Get the address of all the nodes in the network and iterate RPC for all permutations of source and destination.
- Example code: `rpc_connectivity_test_start.php`

- Viewer

- A `ConnectivityTestReceiverReport` event is triggered for each site survey.
- Retrieve recent occurrences of `ConnectivityTestReceiverReport` using `eventsReadRelative()` function.
- Example code: `get_connectivity_survey_web.php`



Requesting Site Survey

```
$ php rpc_connectivity_test_start.php 192.168.0.2
```

Surveying link from 00173b000c827501 to 21888.

Mote 00173b000c827501 Time 1183003949.4916

Surveying link from 00173b000c827501 to 1708.

Mote 00173b000c827501 Time 1183003949.6586

Surveying link from 00173b000c827501 to 10611.

Mote 00173b000c827501 Time 1183003949.8156

Surveying link from 00173b000c827501 to 12423.

Mote 00173b000c827501 Time 1183003949.9836

Surveying link from 00173b000c827501 to 21828.

Mote 00173b000c827501 Time 1183003950.2036

Surveying link from 00173b000c827501 to 22897.

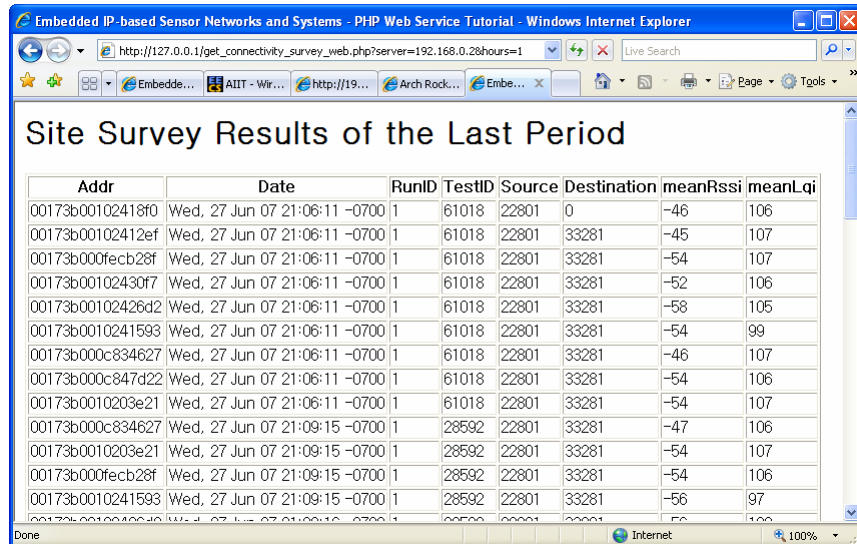
Mote 00173b000c827501 Time 1183003950.4436

Surveying link from 00173b000c827501 to 10954.

Mote 00173b000c827501 Time 1183003950.6406



Getting the site survey results



The screenshot shows a web browser window titled "Embedded IP-based Sensor Networks and Systems - PHP Web Service Tutorial - Windows Internet Explorer". The address bar shows the URL "http://127.0.0.1/get_connectivity_survey_web.php?server=192.168.0.28&hours=1". The page content is titled "Site Survey Results of the Last Period" and displays a table with the following data:

Addr	Date	RunID	TestID	Source	Destination	meanRssi	meanLqi
00173b00102418f0	Wed, 27 Jun 07 21:06:11 -0700	1	61018	22801	0	-46	106
00173b00102412ef	Wed, 27 Jun 07 21:06:11 -0700	1	61018	22801	33281	-45	107
00173b000fecb28f	Wed, 27 Jun 07 21:06:11 -0700	1	61018	22801	33281	-54	107
00173b00102430f7	Wed, 27 Jun 07 21:06:11 -0700	1	61018	22801	33281	-52	106
00173b00102426d2	Wed, 27 Jun 07 21:06:11 -0700	1	61018	22801	33281	-58	105
00173b0010241593	Wed, 27 Jun 07 21:06:11 -0700	1	61018	22801	33281	-54	99
00173b000c834627	Wed, 27 Jun 07 21:06:11 -0700	1	61018	22801	33281	-46	107
00173b000c847d22	Wed, 27 Jun 07 21:06:11 -0700	1	61018	22801	33281	-54	106
00173b0010203e21	Wed, 27 Jun 07 21:06:11 -0700	1	61018	22801	33281	-54	107
00173b000c834627	Wed, 27 Jun 07 21:09:15 -0700	1	28592	22801	33281	-47	106
00173b0010203e21	Wed, 27 Jun 07 21:09:15 -0700	1	28592	22801	33281	-54	107
00173b000fecb28f	Wed, 27 Jun 07 21:09:15 -0700	1	28592	22801	33281	-54	106
00173b0010241593	Wed, 27 Jun 07 21:09:15 -0700	1	28592	22801	33281	-56	97

Run site survey for your network

- Discuss correlation between environmental conditions and network changes.