

How to Use iKommunicate's Diagnostic Tools

Assuming that software will always have bugs could be seen as being pessimistic, but we prefer to think of it as pragmatic. With this in mind we have built-in to iKommunicate some useful diagnostic tools.... just in case !

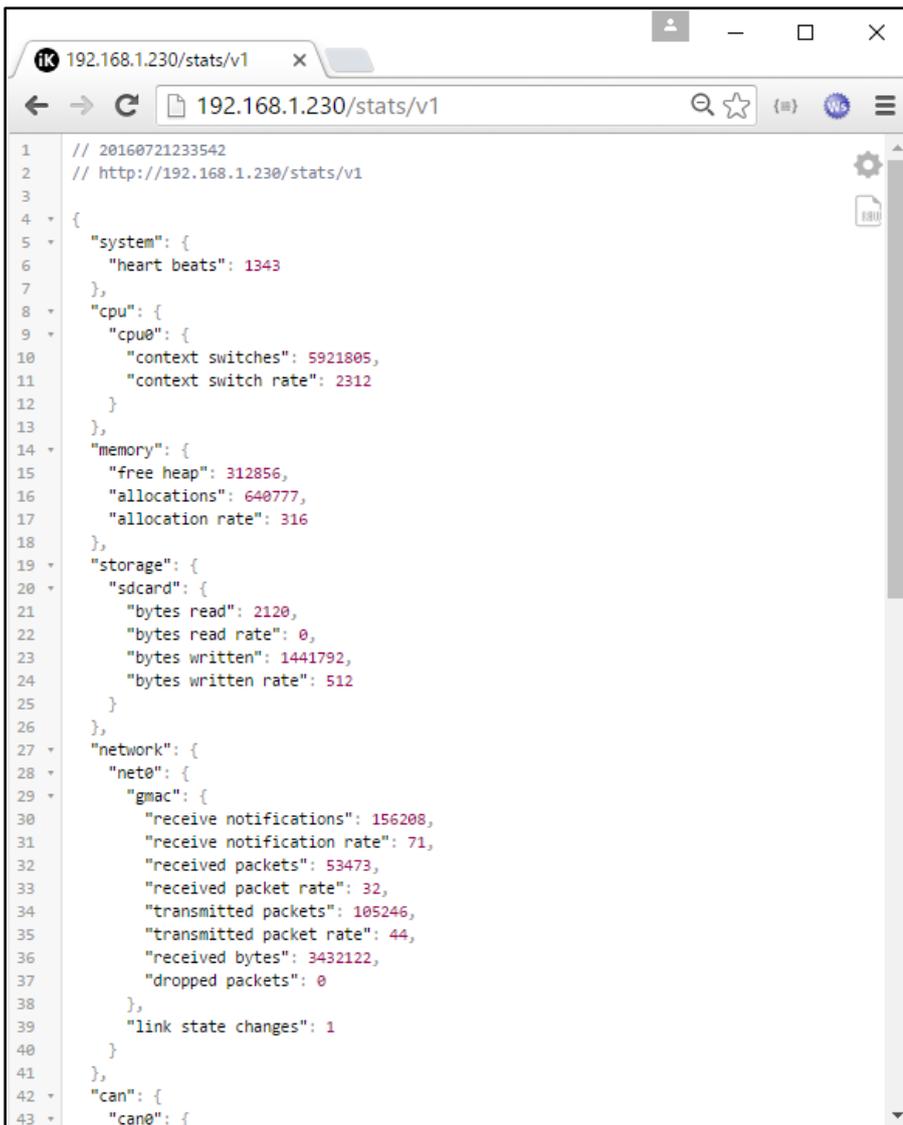
1. Display System Statistics

The first tool is a means to get the latest system stats via your browser. Simply enter the following URL in your browser's address bar...

<http://<ip>/stats/v1/>

Where <ip> is the IP address of your iKommunicate unit.

This will return a complete list of the latest iKommunicate system stats, which include loads of information about the operations completed, memory usage, etc. An example is shown below...



```
1 // 20160721233542
2 // http://192.168.1.230/stats/v1
3
4 {
5   "system": {
6     "heart beats": 1343
7   },
8   "cpu": {
9     "cpu0": {
10      "context switches": 5921805,
11      "context switch rate": 2312
12    }
13  },
14  "memory": {
15    "free heap": 312856,
16    "allocations": 640777,
17    "allocation rate": 316
18  },
19  "storage": {
20    "sdcard": {
21      "bytes read": 2120,
22      "bytes read rate": 0,
23      "bytes written": 1441792,
24      "bytes written rate": 512
25    }
26  },
27  "network": {
28    "net0": {
29      "gmac": {
30        "receive notifications": 156208,
31        "receive notification rate": 71,
32        "received packets": 53473,
33        "received packet rate": 32,
34        "transmitted packets": 105246,
35        "transmitted packet rate": 44,
36        "received bytes": 3432122,
37        "dropped packets": 0
38      },
39      "link state changes": 1
40    }
41  },
42  "can": {
43    "can0": {
```

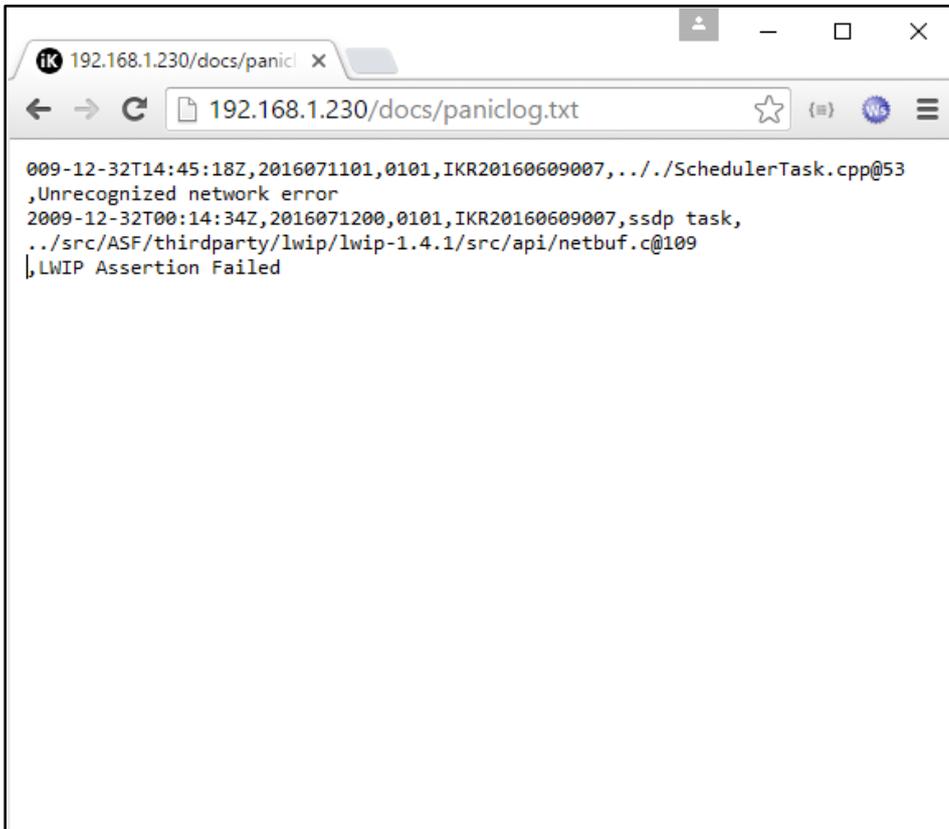
2. Panic Log

The second tool is a Panic Log that is created if iKommunicate crashes. To access the Panic Log simply type the following URL in to your browser's address bar...

`http://<ip>/docs/paniclog.txt`

Where <ip> is the IP address of your iKommunicate unit.

This will return a CSV type "Panic Log" file of any crashes that iKommunicate has suffered. An example is shown below...



```
009-12-32T14:45:18Z,2016071101,0101,IKR20160609007,..../SchedulerTask.cpp@53
,Unrecognized network error
2009-12-32T00:14:34Z,2016071200,0101,IKR20160609007,ssdp task,
../src/ASF/thirdparty/lwip/lwip-1.4.1/src/api/netbuf.c@109
,LWIP Assertion Failed
```

The Panic Log output is not that easy for most people to understand, but it is very useful data for Digital Yacht and our engineers will be able to work out what has caused the crash.

If iKommunicate has not crashed or generated a Panic Log then a standard HTTP 404 "Page not found" error will be returned.

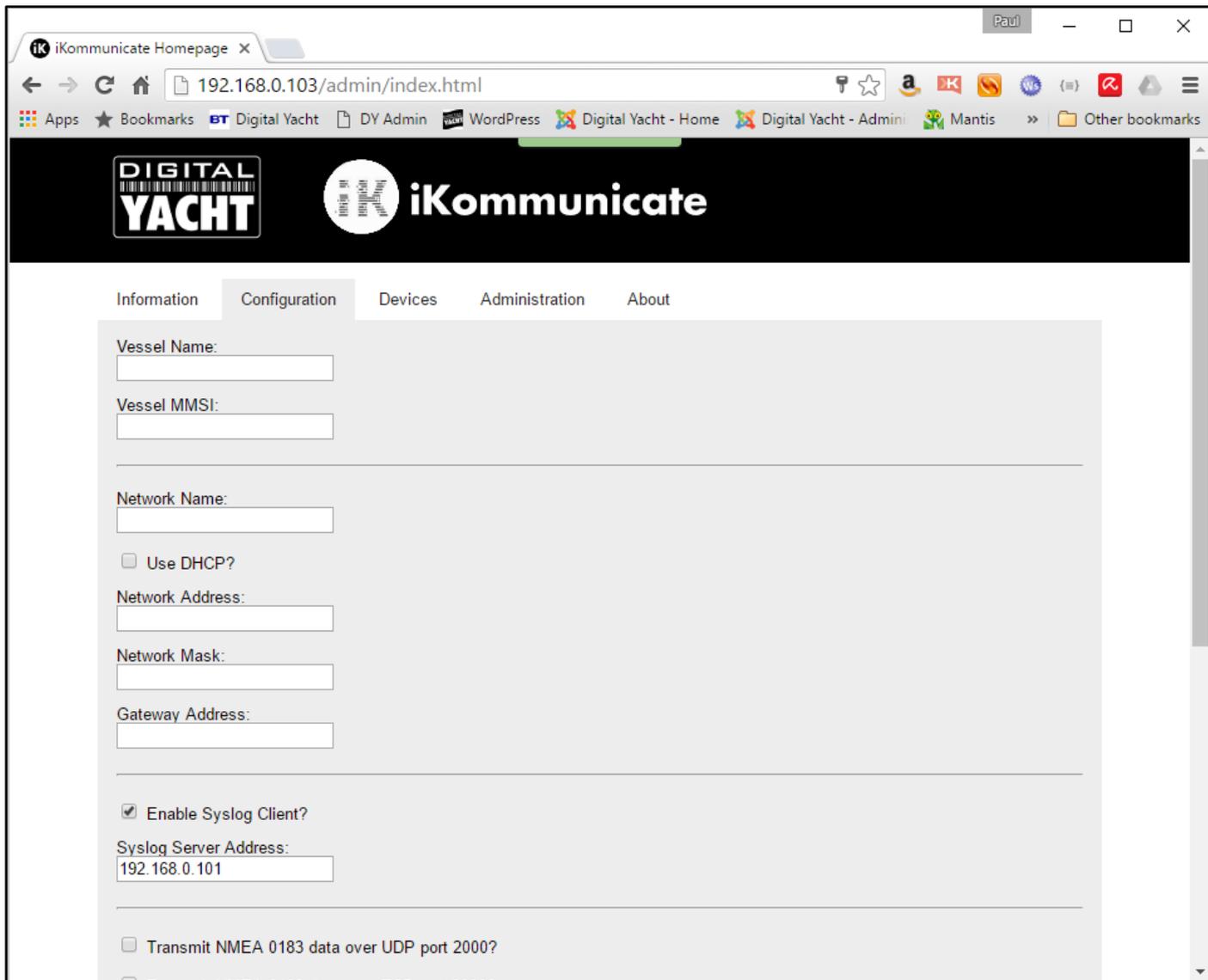
3. SysLog Client Output

Finally, the last diagnostic tool is the SysLog Output, which sends messages about all of the important system tasks to a SysLog server which you run on a computer that is on the same network as iKommunicate. There are a number of SysLog server programs that you can use but the one we use is...

<http://maxbelkov.github.io/visualsyslog/>

Basically, if you download, install and set this program running on your PC then it will capture all SysLog output from iKommunicate. By default the SysLog function of iKommunicate is OFF, so you need to open a browser and go to the iKommunicate webpage where you will see the Syslog Setting, as shown on the top of the next page.

Tick the Enable Syslog Client box and enter the IP address of your PC that is running the Syslog Server program. Then Apply the changes and wait for iKommunicate to reboot.



As soon as iKommunicate has rebooted and got a network address, you should start to see Syslog entries appear in the Syslog program, as shown on the next page.

The SysLog can provide a lot of useful information and you can leave it running for long periods to capture those difficult to find bugs.

Visual Syslog Server 1.6.3

Setup Font Processing Highlighting Goto new More View prev View next View file Clear About Terminate

Display

View file: syslog

Message filtering: All messages match

Displaying 13 messages

Time	IP	Host	Facility	Priority	Tag	Message
Dec 31 00:02:54	192.168.0.103	iKommunicate	kern	info	Uptime	00 days, 00 hours, 00 minutes, 17 seconds
Dec 31 00:02:54	192.168.0.103	iKommunicate	kern	warning	CAN1	Failed to write to bus...dropping request.
Dec 31 00:02:55	192.168.0.103	iKommunicate	kern	warning	CAN1	Failed to write to bus...dropping request.
Dec 31 00:02:55	192.168.0.103	iKommunicate	kern	info	mDNS	Announcing our name 'iKommunicate.local'
Dec 31 00:02:56	192.168.0.103	iKommunicate	kern	info	mDNS	Announcing our name 'iKommunicate._http._tcp.local'
Dec 31 00:02:56	192.168.0.103	iKommunicate	kern	info	mDNS	Announcing our name 'iKommunicate._signalk-ws._tcp.local'
Dec 31 00:02:56	192.168.0.103	iKommunicate	kern	info	mDNS	Announcing our name 'iKommunicate._signalk-http._tcp.local'
Dec 31 00:02:57	192.168.0.103	iKommunicate	kern	warning	CAN1	Failed to write to bus...dropping request.
Dec 31 00:02:59	192.168.0.103	iKommunicate	kern	warning	CAN1	Failed to write to bus...dropping request.
Dec 31 00:03:01	192.168.0.103	iKommunicate	kern	warning	CAN1	Failed to write to bus...dropping request. Throttling further reports.
Dec 31 00:03:04	192.168.0.103	iKommunicate	kern	warning	Web Server	HTTP Request Thread: caught exception 'ClientTCPSocket - Socket closed attempting to read'
Dec 31 00:03:04	192.168.0.103	iKommunicate	kern	warning	Web Server	HTTP Request Thread: caught exception 'ClientTCPSocket - Socket closed attempting to read'
Dec 31 00:03:23	192.168.0.103	iKommunicate	kern	info	HTTP Request	Admin password authorization succeeded.

UDP 0.0.0.0:514 TCP 0.0.0.0:514 [0]

Software bugs can be a real night mare, but hopefully with these three tools, it should be much easier to find them and fix them on iKommunicate systems.

Please email any data that you collect using these tools to support@digitalyacht.co.uk

Signal K enabling the "Internet of Things Afloat"