

Wzzard™ Mesh Gen2 Starter Bundle

# Stack Light Monitoring Kit

SETUP MANUAL



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**STACK LIGHT MONITORING STARTER KIT****Kit Model BB-WSK-SLM-2**

The Wzzard™ Mesh Stack Light Monitoring Application is a non-invasive way to track machine utilization and setup times, along with remote notification of errors and excessive downtime.

Installation costs are kept low using the Wzzard wireless sensing platform. The platform creates a self-forming, self-healing wireless mesh network that eliminates the need for wires and requires no special skills to install. Each Wzzard sensor node is powered by long life batteries.

Using Node-RED™, a simple, browser based application preinstalled on the gateway, you can monitor current draw from any web browser on your network.

**The contents of the kit include:**

Qty 1	BB-WCD1H3001HP100	Wzzard Mesh Com 3AI Node, 100ms Power Out
Qty 1	BB-WCD-LSSCBL	Commercial Node Light Stack Sensor Cable
Qty 1	SmartSwarm 342	Ethernet Gateway with Wzzard Mesh

**WZZARD NETWORK SETUP**

The Wzzard node and gateway in this kit are preconfigured. If this is the only Wzzard device in your vicinity, it will automatically join only this gateway. If other Wzzard gateways or nodes are nearby and unclaimed, you will need to claim the gateway and the node. See respective node and gateway manuals for instructions.

## DOWNLOADING STACK LIGHT MONITOR NODE-RED™ FLOW TO GATEWAY

1. Follow the instructions in the Gateway's Quick Start Guide to claim your gateway.
2. Select **View Devices** from the dropdown menu on the WISE-PaaS WebAccess/DMP home screen.

The screenshot shows the 'WebAccess/DMP Dashboard' for user 'knelson@advantech-bb.com'. The 'Devices' menu is open, and 'View Devices' is highlighted with a red circle. Other options include 'Claim/release Device'. The dashboard also shows a status pie chart and a list of devices.

Device ID	Name	Type	Profile	Tenant	Online	Password	Custom 1	Custom 2
203-01-6500021	Advantech B+B POD2							
203-01-6500010								
203-01-6500016								
203-01-6500020								

3. Select your device from the list of available devices.


The screenshot shows the 'View Devices' page with a search filter of '433'. The table below shows the results.

Device ID	Name	Type	Profile	Tenant	Online	Password	Custom 1	Custom 2
203-01-6500433	203-01-6500433	SmartSwarm342		BB-OTTAWA		*****		

Showing 1 to 1 of 1 entries (filtered from 36 total entries)

## 4. Select **Add/Upgrade Apps** tab.

**WebAccess/DMP** Manage Device
Log off | API | Help



Dashboard
Devices ▾
Users ▾
Tenants
Configuration Profiles
Password ▾
Contact

Dashboard > Devices > Manage Device

**Device ID** 203-01-6500433

**Name**

**Status**

**Firmware**  Push

**Device Type** SmartSwarm342


**MAC Address** 00:0A:14:86:77:C6

**Custom 1**

**Custom 2**

**Online** 🔴

**Settings**



Save
Cancel
History
Device Status
Add/Upgrade Apps
Geo Location
Wizzard Mesh

**Manage Apps**

Remove Selected

	Name	Tag	Type	Version	Help	Added
<input type="checkbox"/>	Components-342	Components-342	Component	1.4.2		05/09/2018 15:16:21
<input type="checkbox"/>	Wizzard Mesh	Wizzard Mesh	Application	1.0.8		05/09/2018 15:16:21

5. Check the box next to **SLM**. A list of components to be updated will appear.

The screenshot shows the 'WebAccess/DMP Select Applications' page. At the top, there are navigation links for 'Log off', 'API', and 'Help', along with the user email 'Hello, slarsen@advantech-bb.com'. Below the navigation bar, there are tabs for 'Dashboard', 'Devices', 'Users', 'Tenants', 'Configuration Profiles', 'Password', 'Contact', and 'Reports'. The main content area has a breadcrumb trail 'Dashboard > Devices > Manage Device > Select Applications' and two buttons: 'Add/Upgrade Selected' and 'Cancel'. A table lists applications with columns for 'Name', 'Tag', 'Type', and 'Version'. The 'SLM' row is highlighted, and its checkbox is circled in red. Below the table are pagination controls for '1' and '2' items, and a 'Privacy Policy' link at the bottom left.

Name	Tag	Type	Version
<input type="checkbox"/> REF		Package	1.0.0
<input checked="" type="checkbox"/> SLM		Package	1.0.0

6. Click **OK** to accept the download.

The screenshot shows a 'Requirements' dialog box for the 'Stack Light Monitoring Application'. It contains a table with columns for 'File', 'Version', 'Size MB', and 'Status'. The 'Status' column shows green checkmarks for 'Firmware', 'Components', 'NodeRED', 'Endora', and 'RSMMessageBroker', and blue download arrows for 'BB.png' and 'BB-WSK-SLM-2.txt'. Below the table, it states 'Total Download size: 00.09 MB'. At the bottom right, the 'OK' button is circled in red, next to a 'Cancel' button.

File	Version	Size MB	Status
Firmware	2.2.4	15.00	✓
Components	1.5.0	06.00	✓
NodeRED	1.0.13	00.01	✓
Endora	1.1.0	02.00	✓
RSMMessageBroker	1.0.5	00.07	✓
BB.png		00.00	↓
BB-WSK-SLM-2.txt	1.0.0	00.09	↓

Total Download size: 00.09 MB

7. Click **Add/Upgrade Selected** to start the download.

**WebAccess/DMP** Select Applications

Log off | API | Help  
Hello, slarsen@advantech-bb.com

Dashboard | Devices | Users | Tenants | Configuration Profiles | Password | Contact | Reports

Dashboard > Devices > Manage Device > Select Applications

**Add/Upgrade Selected** Cancel

	Name	Tag	Type	Version	
<input type="checkbox"/>	REF	<input type="text"/>	Package	1.0.0	<a href="#">i</a>
<input checked="" type="checkbox"/>	SLM	<input type="text"/>	Package	1.0.0	<a href="#">i</a>

1 2

Privacy Policy © Advantech B+B SmartWorx 2018 v1.9.0.0

8. The download could take several minutes. To monitor the progress, select **History** from the **Manage Device** screen.

Dashboard | Devices | Users | Technology Providers | Configuration Profiles | Password | Contact

Dashboard > Devices > Manage Device

Device ID: 203-01-6500433

Name:

Status:

Firmware:  **Push**


Device Type: SG30000525-42

MAC Address: 00:0A:14:86:77:C6

Online:

Settings:

**Save** Cancel **History** Add/Upgrade Apps Geo Location **Wzzard Mesh**






As each component is updated, it will be indicated with a check mark.

**Note:** If Node-RED™ nodes are current, they will show with an X.

WebAccess/DMP History

[Log off](#) | [API](#) | [Help](#)  
 Hello, slarsen@advantech-bb.com



Dashboard
Devices ▾
Users ▾
Tenants
Configuration Profiles
Password ▾
Contact
Reports

Dashboard > Devices > Manage Device > History

**Device Name** 203-01-ACZ1100000378619

**Device ID** 203-01-ACZ1100000378619

**Registered On** 13/03/2019 08:42:50

**Last Check In** 19/03/2019 11:44:35

Show  entries

Search:

Command	Created by	Name	Queued	Completed	Success	Response
UploadConfig	203-01-ACZ1100000378619	2.2.4	19/03/2019 11:44:34	19/03/2019 11:44:34	✓	{"config":{"swm_firewa...
UploadConfig	203-01-ACZ1100000378619	2.2.4	19/03/2019 11:44:00	19/03/2019 11:44:00	✓	{"config":{"swm_firewa...
UploadConfig	203-01-ACZ1100000378619	2.2.4	19/03/2019 11:43:59	19/03/2019 11:43:59	✓	{"config":{"swm_firewa...
AddFlow	slarsen@advantech-bb.com	SLM	19/03/2019 11:43:55	18/03/2019 23:46:54	✓	Success, ["7480a9ae.0be598"]
GetFlow	slarsen@advantech-bb.com	SLM	19/03/2019 11:43:55	19/03/2019 11:44:00	✓	
InstallNewApp	slarsen@advantech-bb.com	SLM	19/03/2019 11:43:55	19/03/2019 11:43:55	✓	Completed

**Note:** If, for some reason all or a portion of the installation fails, repeat the procedure to install the rest of the package.

## POINT THE MQTT DATA TO THE INTERNAL MQTT BROKER

1. From the **Manage Device** screen, click the **Wzzard Mesh** application.

Dashboard > Devices > Manage Device

Device ID: 203-01-6500433

Name: 203-01-6500433

Status: Operational

Firmware: 2.2.0 Push

Device Type: SG30000525-42

MAC Address: 00:0A:14:86:77:C6

Online:

Settings: Select...

Save Cancel History Add/Upgrade Apps Geo Location Wzzard Mesh

### Manage Apps

Remove Selected

Name	Tag	Type	Version	Help	Added
<input type="checkbox"/> <a href="#">NodeJS</a>	NodeJS	Component	6.2.1		18/04/2018 14:51:22
<input type="checkbox"/> <a href="#">Wzzard Mesh</a>	Wzzard Mesh	Application	1.0.6		29/03/2018 17:55:17
<input type="checkbox"/> <a href="#">NodeRED</a>	NodeRED	Application	1.0.10		17/04/2018 20:57:46
<input type="checkbox"/> <a href="#">RSMMessageBroker</a>	RSMMessageBroker	Application	1.0.4		17/04/2018 20:57:46
<input type="checkbox"/> <a href="#">Components-342</a>	Components-342	Component	1.4.0		29/03/2018 17:55:17

2. Fill in the **Application Settings** screen as shown and click the **Apply Changes** button.

MQTT

### Application Settings

Device ID: 203-01-6500433

Application Name: Wzzard Mesh

Version: 1.0.6

Tag:

\* Required Field

MQTT

Host:	<input type="text" value="192.168.1.1"/>
Port:	<input type="text" value="1883"/>
Username:	<input type="text"/>
Password:	<input type="password"/>
Client ID:	<input type="text" value="122"/> *
Timeout (secs):	<input type="text" value="60"/>
Retry Interval (secs):	<input type="text" value="10"/>
Keep Alive (secs):	<input type="text" value="60"/>
Reliability:	<input checked="" type="checkbox"/>
Clean Session:	<input checked="" type="checkbox"/>
Enable TLS:	<input style="border: none; border-bottom: 1px solid #ccc; width: 100%;" type="text" value="No"/> ▼
Verify Server Cert:	<input type="checkbox"/>

## WAKE UP WZZARD™ MESH EDGE NODE

1. Attach the antenna to the Wzzard antenna port on the gateway.
2. Attach the external antenna to the node
3. Press and hold the **Config/Status** button for 5 seconds until the Status LED starts blinking.
4. Check LED.
5. After you have awakened the node, the LED will begin to blink. This indicates that the node is attempting to establish a network connection. The LED will cease blinking when a connection is made or after 10 seconds. Press the **Config/Status** LED for approximately 1 second to view the LED status.

LED Indicator	Status
OFF (after button press)	Node is asleep or dead battery.
Slow Blink (1 per second)	Attempting to establish connection with Wzzard mesh network.
Solid ON	Node is connected to a gateway.
Fast Blink (10 per second)	Firmware update in progress.

**Note:** Refer to the Wzzard Mesh Industrial Quick Start Guide and Manual for further instructions on claiming the node and troubleshooting tips.

**ATTACHING THE SENSORS ON THE INTELLIGENT EDGE NODES****1. Connect the Sensor to the Wzzard Mesh Node.****2. Mount Your Sensors.**

- Peel the protective layer off of the light sensor strip.
- Center the sensor on the Yellow light of the stack light so that a sensor is over each of the three colored lights.

**Note** that unusually bright lighting conditions (extreme sun or artificial sources) may affect stack light sensor readings.

**ACCESS Node-RED™ UI IN THE GATEWAY**

1. Attach the Ethernet cable to the ETH0 port on the gateway and the other end to your PC. You will use an Ethernet connection to configure the gateway and to communicate with it.
2. Attach the supplied power supply and plug it in.
3. Open a browser on your computer and open the Node-RED configuration page. The default address is: **192.168.1.1:1880/ui**. (Chrome™ or Firefox™ recommended.)

Configuration

**Wzzard**

**Wzzard Node Info**

Dust MAC Address: 00170D0000310A8F The software will automatically use the Dust MAC Address of the device.

Serial No : 0919084117      Hardware Version : 3      Model Type : WCD1H3001HP100

Firmware : 1.5.1      Manufacture Date : 20180919

**Select Cellular Carrier Info for Text and Email alerts**

Select Carrier: Select an Option    Enable Text Alerts:     Enter Phone # (no dashes)    Enable Email Alerts:     Enter an Email Address

Enable Line Down Time Alert:     Line Down Time Limit (Minutes)

Enable Line Setup Time Limit Alert:     Line Setup Time Limit (Minutes)

Enable Line Up Time Alert:     Line Up Time Limit (Minutes)

Enable Machine Off Alert:     Machine Off Time Limit (Minutes)

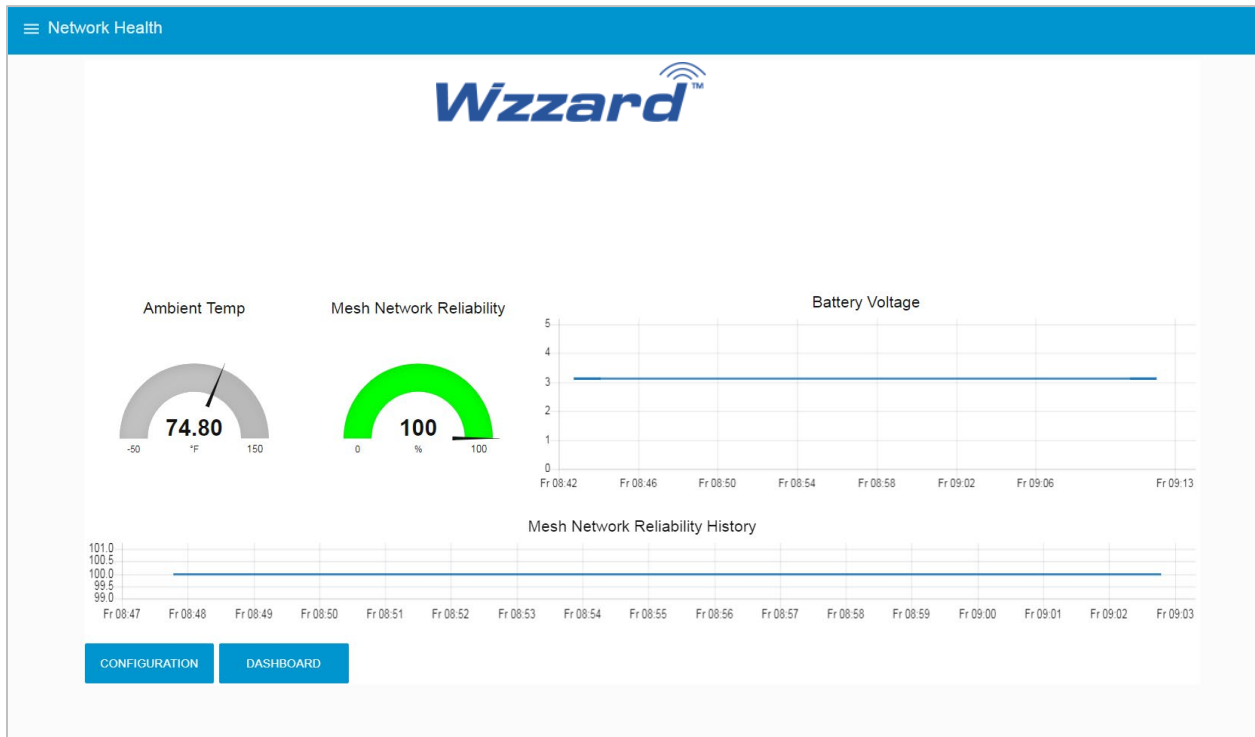
Enable Alert for Total Up-Time %:     Total Up-Time Percentage

**NETWORK HEALTH**    DASHBOARD

4. The Wzzard node information values on this page will populate when the node joins the network.
5. You can set up a phone number to receive text messages; an e-mail address for receiving alerts on this page. For text messaging, you will need to select the cellular carrier of the receiving phone. If the carrier is not on the list, select custom, and add the URL of the carrier to the phone number (ie: 1-123-2345@txt.abcphone.com). See Appendix A for carrier text addresses. If your carrier is not listed, contact your carrier for the address of their SMS gateway.
6. You can also enable or disable alerts as well as set the trigger values on this page.

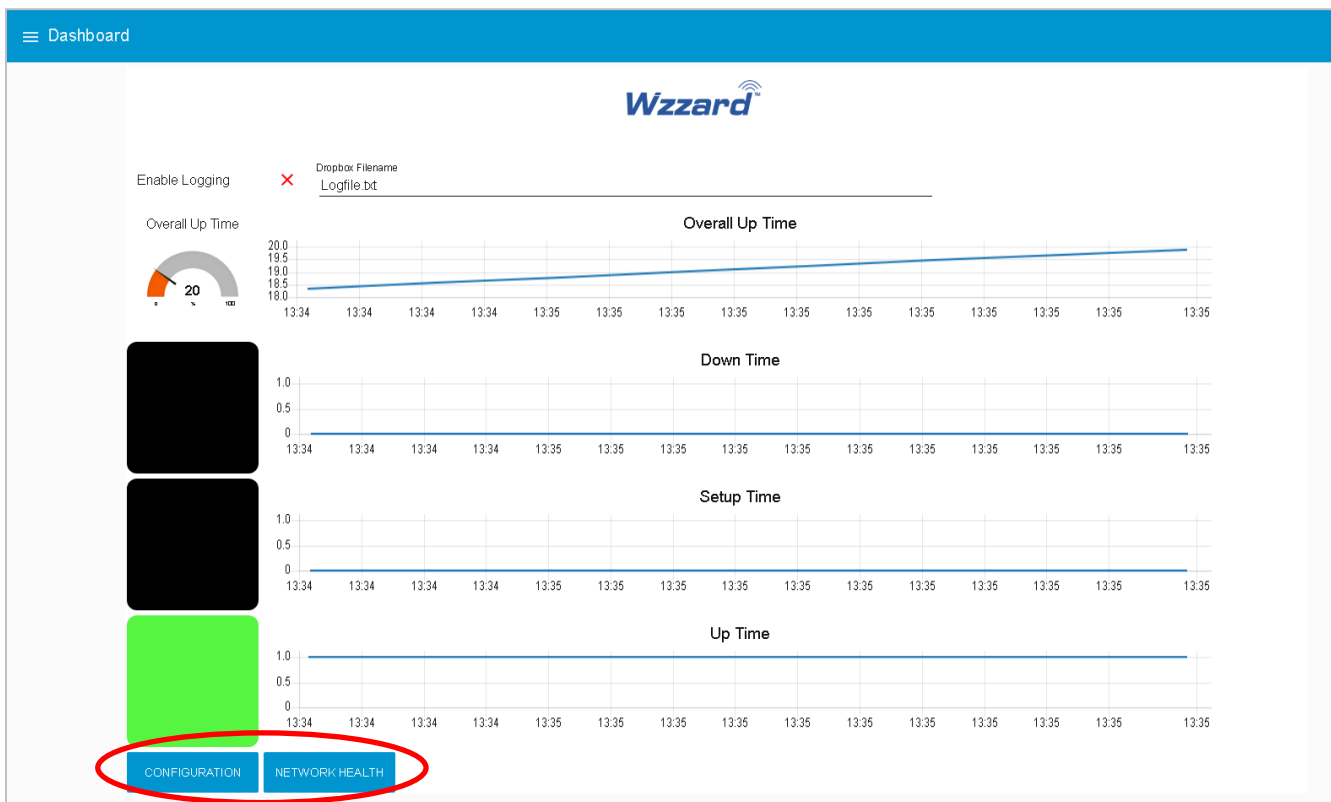
## NETWORK HEALTH PAGE

1. Click the **Network Health** button on the lower left corner of the configuration page (see previous screen). The page below appears. This page shows the status of the network.



## ACCESSING THE DASHBOARD

1. Open a browser on your computer and open the Node-RED™ configuration page. The default address is: **192.168.1.1:1880/ui**
2. Click on the **Dashboard** button on the lower left corner of the configuration page.
3. The dashboard should look like the screen below.

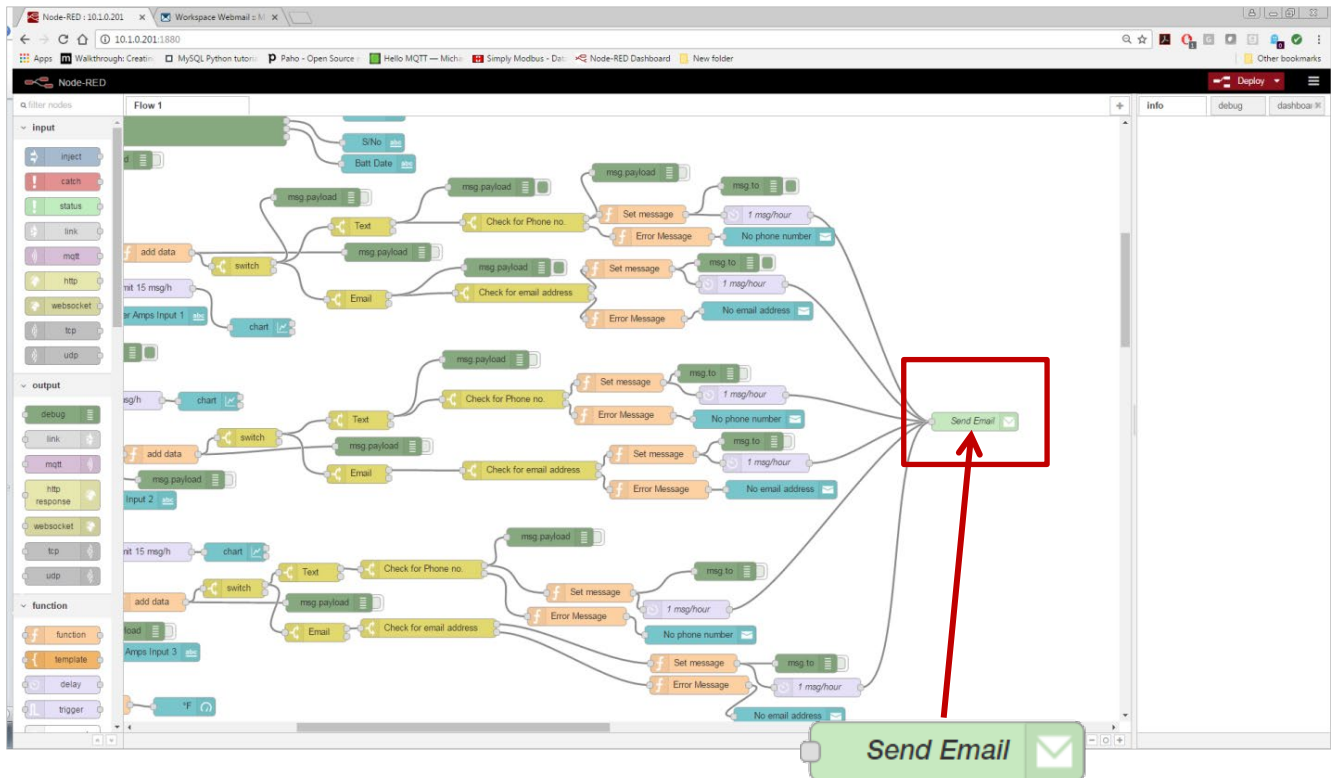


4. You can switch to the **Configuration** page or **Network Health** page by clicking on their respective buttons at the lower left.

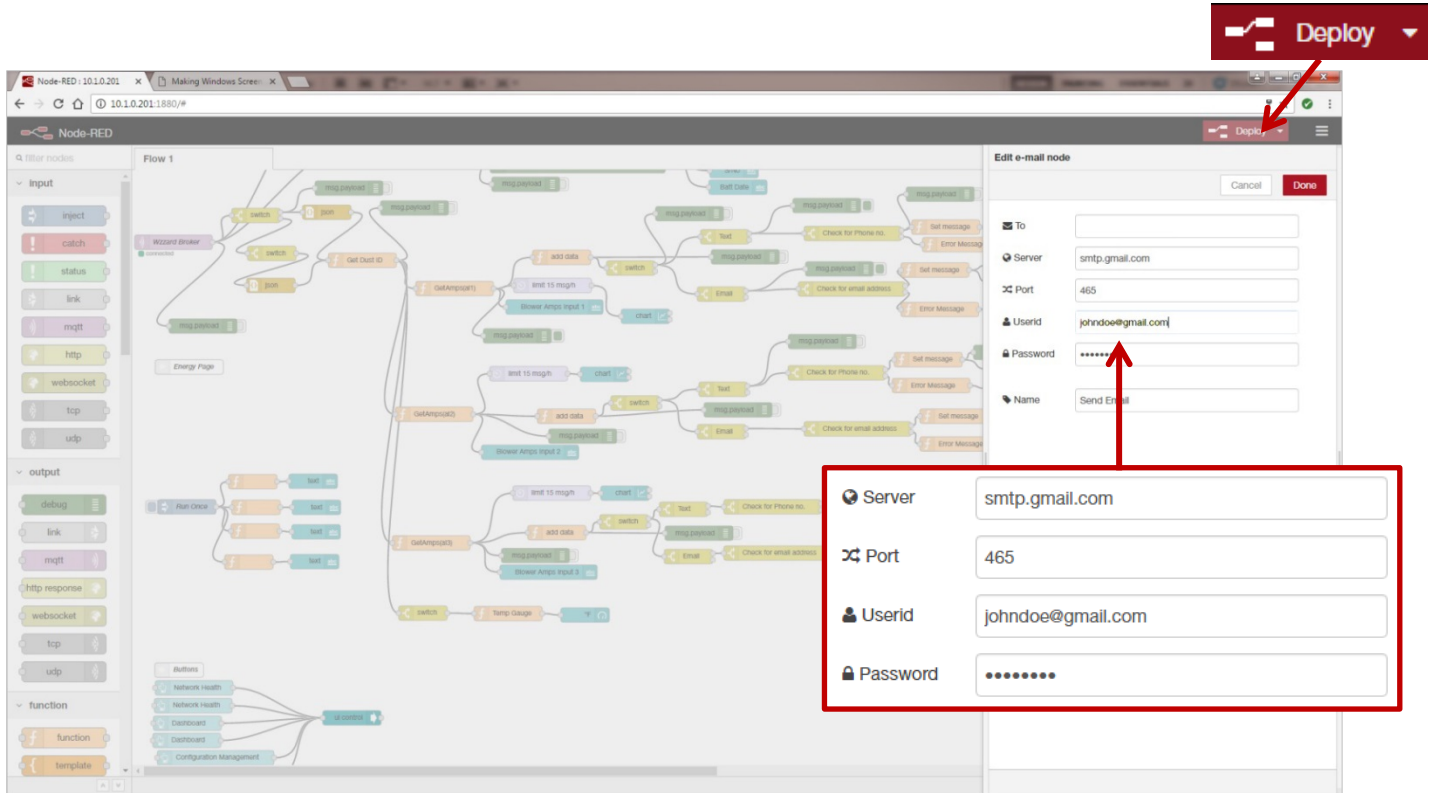


## SETTING UP AN E-MAIL ACCOUNT

1. From your browser, open the Node-RED™ flow at **192.168.1.1:1880**.
2. Enter your user name and password. Default is:  
 Username: **NodeRED**  
 Password: **5mart5warm** (set to same as the SmartSwarm 342 password).

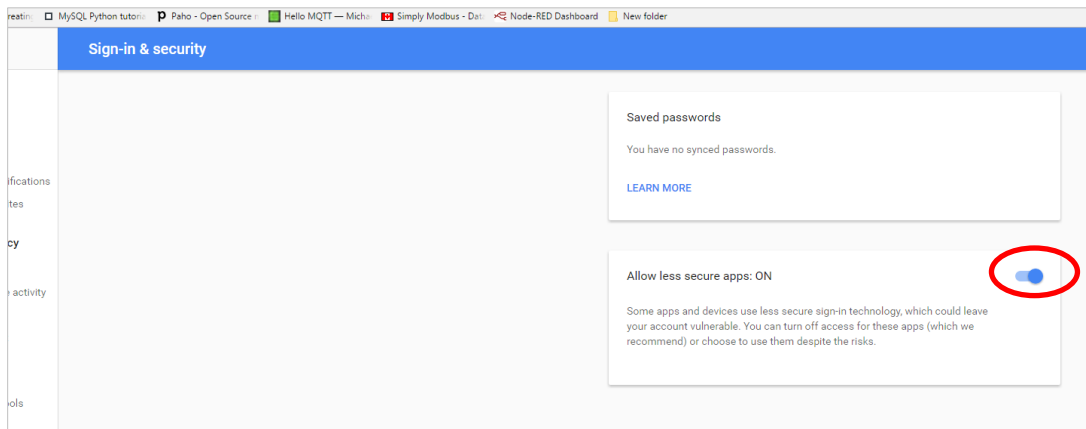


3. Find the **Send Email** node on the right; double-click on it.



3. Enter the **Server** address, **Port**, **UserID** and **Password** for your e-mail server in the appropriate boxes. (Leave the “To” field blank.)

**Note:** If you are using a G-Mail™ account, you need to enable **Allow Less Secure Apps** in the Google security settings. See below.



4. Click **Done**. Then click the **Deploy** button in the upper right corner of the page.

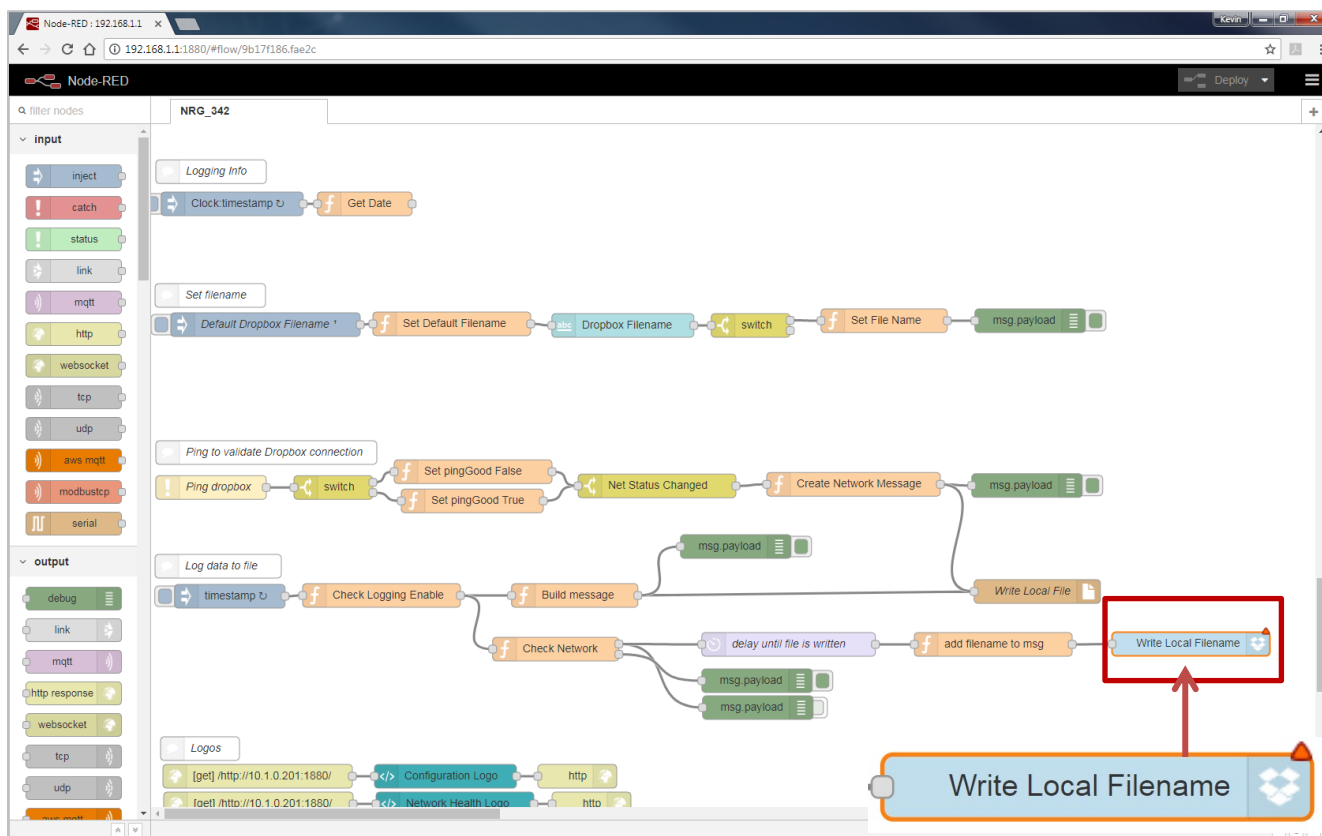
**Note:** Once you deploy the edited flow, you will have to re-enter any alert settings on the Configuration screen of the Dashboard.

## SETTING UP YOUR DROPBOX FOR LOGGING

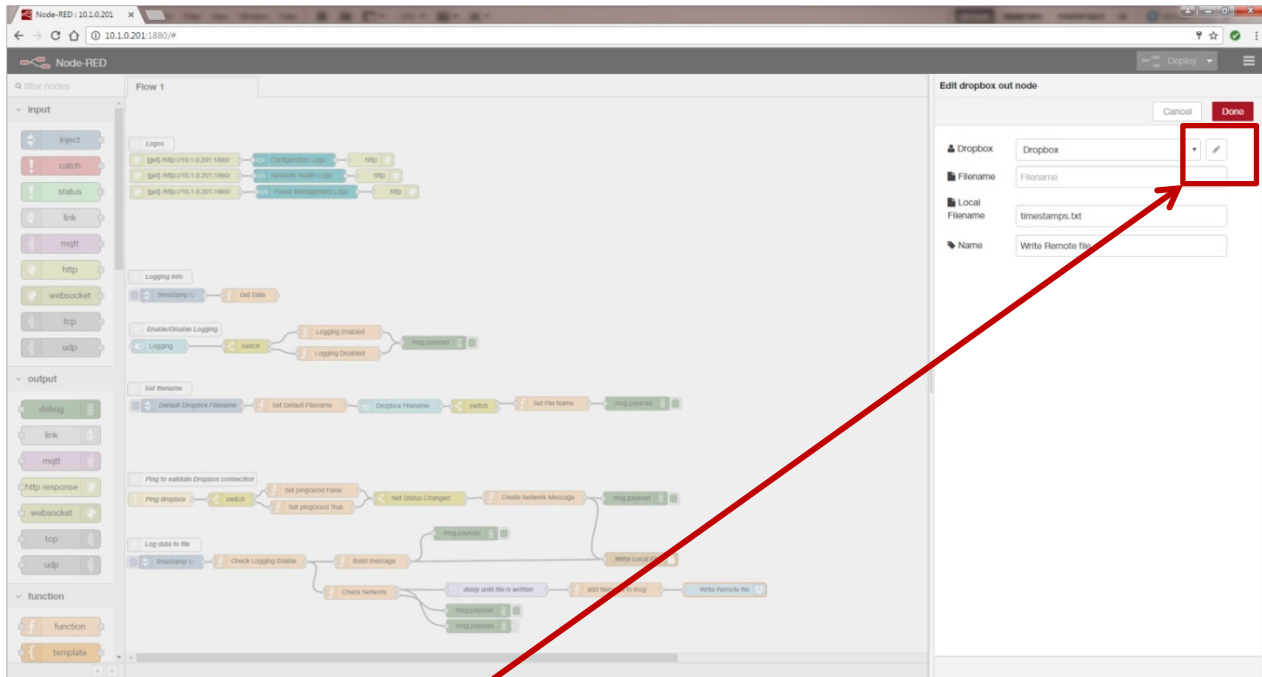
1. Log in to your Dropbox™ account or sign up for a new one.
2. Once signed up or logged in:
  - Go to <https://www.dropbox.com/developers>
  - Click **Create your app** box in the center of the screen.
  - Select **Dropbox API app**.
  - Choose an appropriate answer as to whether your node should be limited to its own folder or given full access. (TIP: This can be changed later, so choose **'Yes'** to restrict the application while testing might be a good idea.)
  - Choose an app name.
  - Click **'Create app'**.

The subsequent app page will contain the App key, App secret and a 'Generate' button to produce a suitable 'access token'. Save these strings so you can enter them into the application later.
3. From your browser, open the Node-RED™ flow at **192.168.1.1:1880**.

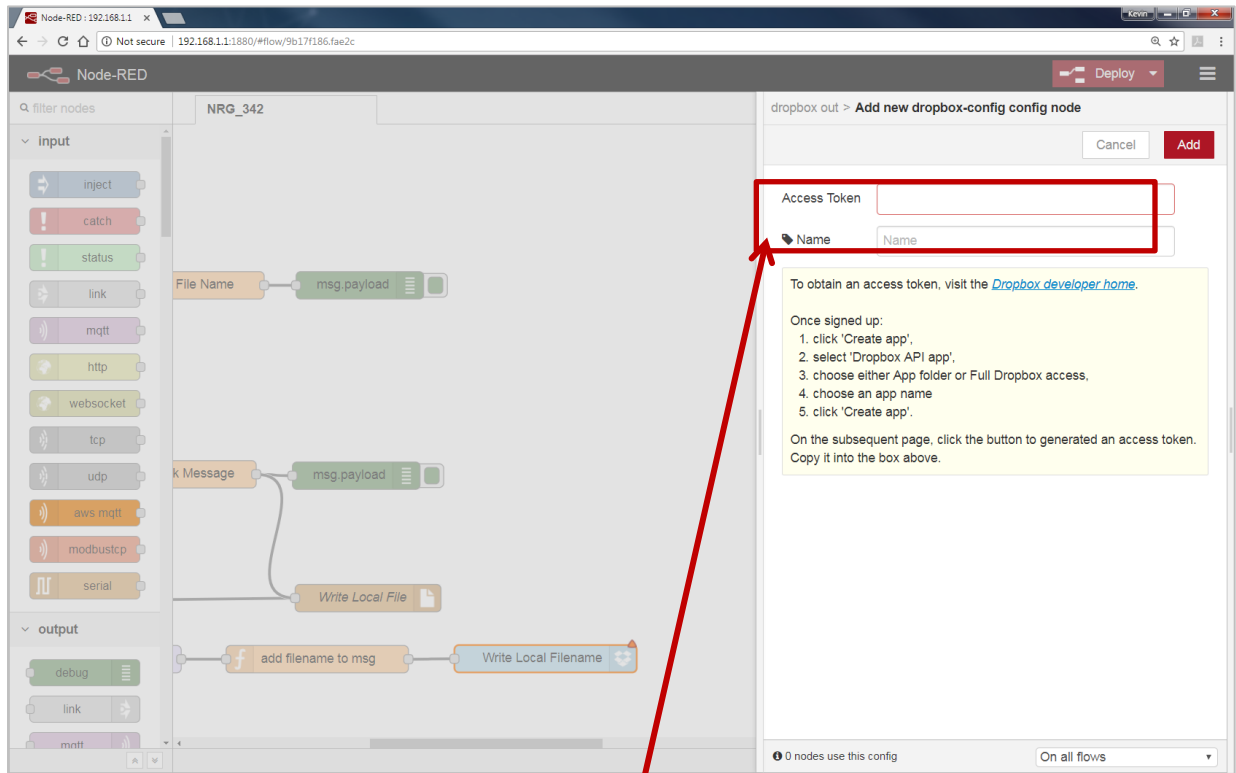
**Note:** Enter username **NodeRED**. Password is the same as Gateway password (**5mart5warm** default).



4. Double-click on the blue **Write Local Filename** node.



5. Then click on the **pencil icon** next to the Dropbox text window at upper right.



6. Fill in the App Key, App Secret, and **Access Token** that you got from Dropbox in their respective fields. (See yellow box for more information.)
7. Click **Done**, then **Done** again to close both windows.
8. Click the **Deploy** button in the upper right corner of the page.

**Note:** Once you deploy the edited flow, you will have to re-enter any alert settings on the Configuration screen of the Dashboard.

## APPENDIX A. CARRIER TEXT MESSAGING URL ADDRESSES

U.S.A. Carriers	
Alltel	[10-digit phone number]@message.alltel.com Example: 1234567890@message.alltel.com
AT&T (formerly Cingular)	[10-digit phone number]@txt.att.net [10-digit phone number]@cingularme.com Example: 1234567890@txt.att.net
Boost Mobile	[10-digit phone number]@myboostmobile.com Example: 1234567890@myboostmobile.com
Nextel (now Sprint Nextel)	[10-digit telephone number]@messaging.nextel.com Example: 1234567890@messaging.nextel.com
Sprint PCS (now Sprint Nextel)	[10-digit phone number]@messaging.sprintpcs.com Example: 1234567890@messaging.sprintpcs.com
T-Mobile	[10-digit phone number]@tmomail.net Example: 1234567890@tmomail.net
US Cellular	[10-digit phone number]email.uscc.net (SMS) Example: 1234567890@email.uscc.net
Verizon	[10-digit phone number]@vtext.com Example: 1234567890@vtext.com
Virgin Mobile USA	[10-digit phone number]@vmobl.com Example: 1234567890@vmobl.com

International Carriers	Email to SMS Gateway
7-11 Speakout (USA GSM)	number@cingularme.com
Airtel (Karnataka, India)	number@airtelkk.com
Airtel Wireless (Montana, USA)	number@sms.airtelmontana.com
Alaska Communications Systems	number@msg.acsalaska.com
Aql	number@text.aql.com
AT&T Enterprise Paging	number@page.att.net
BigRedGiant Mobile Solutions	number@tachyonsms.co.uk
Bell Mobility & Solo Mobile (Canada)	number@txt.bell.ca
BPL Mobile (Mumbai, India)	number@bplmobile.com
Cellular One (Dobson)	number@mobile.celloneusa.com
Cingular (Postpaid)	number@cingularme.com
Centennial Wireless	number@cwemail.com
Cingular (GoPhone prepaid)	number@cingularme.com (SMS)
Claro (Brasil)	number@clarotorpedo.com.br
Claro (Nicaragua)	number@ideasclaro-ca.com
Comcel	number@comcel.com.co
Cricket	number@sms.mycricket.com (SMS)
CTI	number@sms.ctimovil.com.ar
Emtel (Mauritius)	number@emtelworld.net
Fido (Canada)	number@fido.ca
General Communications Inc.	number@msg.gci.net

<b>Globalstar (satellite)</b>	<i>number@msg.globalstarusa.com</i>
<b>Helio</b>	<i>number@messaging.sprintpcs.com</i>
<b>Illinois Valley Cellular</b>	<i>number@ivctext.com</i>
<b>Iridium (satellite)</b>	<i>number@msg.iridium.com</i>
<b>Iusacell</b>	<i>number@rek2.com.mx</i>
<b>i wireless</b>	<i>number.iws@iwspcs.net</i>
<b>Koodo Mobile (Canada)</b>	<i>number@msg.koodomobile.com</i>
<b>LMT (Latvia)</b>	<i>number@sms.lmt.lv</i>
<b>Meteor (Ireland)</b>	<i>number@sms.mymeteor.ie</i>
<b>Mero Mobile (Nepal)</b>	<i>977number@sms.spicenepal.com</i>
<b>MetroPCS</b>	<i>number@mymetropcs.com</i>
<b>Movicom (Argentina)</b>	<i>number@sms.movistar.net.ar</i>
<b>Mobitel (Sri Lanka)</b>	<i>number@sms.mobitel.lk</i>
<b>Movistar (Colombia)</b>	<i>number@movistar.com.co</i>
<b>MTN (South Africa)</b>	<i>number@sms.co.za</i>
<b>MTS (Canada)</b>	<i>number@text.mtsmobility.com</i>
<b>Nextel (United States)</b>	<i>number@messaging.nextel.com</i>
<b>Nextel (Argentina)</b>	<i>TwoWay.11number@nextel.net.ar</i>
<b>Orange Polska (Poland)</b>	<i>9digit@orange.pl</i>
<b>Personal (Argentina)</b>	<i>number@alertas.personal.com.ar</i>
<b>Plus GSM (Poland)</b>	<i>+48number@text.plusgsm.pl</i>
<b>President's Choice (Canada)</b>	<i>number@txt.bell.ca</i>
<b>Qwest</b>	<i>number@qwestmp.com</i>
<b>Rogers (Canada)</b>	<i>number@pcs.rogers.com</i>
<b>SL Interactive (Australia)</b>	<i>number@slinteractive.com.au</i>
<b>Sasktel (Canada)</b>	<i>number@sms.sasktel.com</i>
<b>Setar Mobile email (Aruba)</b>	<i>297+number@mas.aw</i>
<b>Suncom</b>	<i>number@tms.suncom.com</i>
<b>T-Mobile (Austria)</b>	<i>number@sms.t-mobile.at</i>
<b>T-Mobile (UK)</b>	<i>number@t-mobile.uk.net</i>
<b>Telus Mobility (Canada)</b>	<i>number@msg.telus.com</i>
<b>Thumb Cellular</b>	<i>number@sms.thumbcellular.com</i>
<b>Tigo (Formerly Ola)</b>	<i>number@sms.tigo.com.co</i>
<b>Tracfone (prepaid)</b>	<i>number@mmst5.tracfone.com</i>
<b>Unicel</b>	<i>number@utext.com</i>
<b>Virgin Mobile (Canada)</b>	<i>number@vmobile.ca</i>
<b>Vodacom (South Africa)</b>	<i>number@voda.co.za</i>
<b>Vodafone (Italy)</b>	<i>number@sms.vodafone.it</i>
<b>YCC</b>	<i>number@sms.ycc.ru</i>
<b>MobiPCS (Hawaii only)</b>	<i>number@mobipcs.net</i>

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**TECHNICAL SUPPORT**

**USA/Canada:** 1 (800) 346-3119 (Ottawa IL USA location)

**Europe:** +353 91 792444 (Ireland location)

**Email:** [Advantech Technical Support](mailto:Advantech Technical Support)

**Web:** [www.advantech.com](http://www.advantech.com)