

# Powercode BMU MAXX Guide

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The purpose of this document is to provide a guide to the web interface of the Powercode BMU MAXX.

The default information on the BMU MAXX is as follows:

**Default IP Address:** 192.168.1.20/24

**Default Username:** admin

**Default Password:** admin123

To access the BMU, connect your laptop to Eth0, set your IP address to 192.168.1.1 with a subnet mask of 255.255.255.0 and open **https://192.168.1.20** in a web browser.

## Navigation

To navigate the sections of the BMU, use the navigation bar at the top of the page. There are seven areas – **Home, Configure, Control, Monitor, Routing** and **Tools**. Screenshots and descriptions of each option follow.

## Home

Uptime 2.97 days CPU: 0% CPU Temp: 45.5c Devices: 0 DHCP server failure

Home Configure Control Monitor Routing Tools Log Out

Welcome to the Powercode BMU MicroMAXX v1.0.3

### Router Information

#### Interface Information

Eth0   Up at 1000Mb/s, Full duplex	<a href="#">Graph</a>
Eth1   Down	<a href="#">Graph</a>
Eth2   Down	<a href="#">Graph</a>
Eth3   Up at 1000Mb/s, Full duplex	<a href="#">Graph</a>

### BMU Health

Legend:

- CPU Temp (Celsius)
- Device Capacity Utilized (%)
- CPU Usage (%)

#### BMU MAXX Interface

Please select an option from the navigation bar at the top of the screen to begin configuration.

This page shows statistics and information on the BMU MAXX.

Click on an interface name to expand information on that interface.

The most up to date version of the BMU MAXX manual is available at [our website](#). For additional support, please visit our [website](#).

This is the **Home** screen. This page gives an overview of information on the BMU. The **Interface Information** section gives a list of the interfaces on the BMU along with their operational status. You can click on an interface to expand the box to show additional information on the interface – the MAC Address, any errors, all IP addresses bound to the interface, along with any VLAN tags associated and the ARP table. You can also set interface speed and duplex manually in this section.

The **Notification Bar** at the top of the screen shows information on the BMU. This bar shows the BMU uptime, CPU usage, CPU temperature and number of devices being rate limited. It also shows if any services have failed on the right hand side. This bar is shown on every page and updates every 15 seconds automatically.

The **BMU Health** graph shows a real time graph of the BMU health.

## Configure

The screenshot shows the 'Administrator Password' configuration page. At the top, there is a navigation bar with 'Home', 'Configure', 'Control', 'Monitor', 'Routing', and 'Tools'. Below this is a sub-navigation bar with 'WAN Interface', 'SNMP Configuration', and 'Accounts'. The main content area has a title 'Administrator Password' and two input fields: 'New Password' and 'New Password Again'. A 'Change Password' button is located below the input fields. On the right side, there is a sidebar titled 'Account' with the text: 'Change the password for the admin and ospf user by modifying the Administrator Password.'

## Admin Accounts

This area allows you to modify the password for the **admin** user (the user which has access to the web GUI) and the **ospf** user, which is used if configuring OSPF.

The screenshot shows the 'Billing Server' configuration page. At the top, there is a navigation bar with 'Home', 'Configure', 'Control', 'Monitor', 'Routing', 'Tools', and 'Log Out'. Below this is a sub-navigation bar with 'Admin Account', 'Billing Server', 'NTP', 'SNMP Configuration', 'User Accounts', and 'WAN Interface'. The main content area has a title 'Billing Server' and two input fields: 'Billing Server IP' (with the value '127.0.0.1') and 'Secret Key' (with the value 'powercode'). An 'Update Access List' button is located below the input fields. On the right side, there is a sidebar titled 'Billing Server' with the text: 'Enter the IP of your billing server here. This allows your billing server to issue commands to your BMU. You must also enter a secret key and match it to the secret key entered in your billing server for this BMU. If you do not enter your billing server IP here then your BMU will reject any commands issued by the billing server.'

## Billing Server

Configure your billing server IP here. If you do not enter your billing server IP in this field, the BMU will reject any attempts from the billing server to push configuration to it. You must also enter a secret key in the **Secret Key** field and match this secret key in your Powercode configuration.

The screenshot shows the 'NTP Server' configuration page. At the top, there is a navigation bar with 'Home', 'Configure', 'Control', 'Monitor', 'Routing', 'Tools', and 'Log Out'. Below this is a sub-navigation bar with 'Admin Account', 'Billing Server', 'NTP', 'SNMP Configuration', 'User Accounts', and 'WAN Interface'. The main content area has a title 'NTP Server' and one input field: 'NTP Server' (with the value 'pool.ntp.org'). A 'Change NTP Server' button is located below the input field. On the right side, there is a sidebar titled 'NTP Server' with the text: 'If you would like your BMU clock to be synced using NTP, enter the address of the NTP server here.'

The screenshot shows the 'WAN Interface' configuration page. The navigation bar includes 'Home', 'Configure', 'Control', 'Monitor', 'Routing', and 'Tools'. Below the navigation bar, there are links for 'Accounts', 'Modules', 'SNMP Configuration', and 'WAN Interface'. The main content area is titled 'WAN Interface' and contains the following fields:

- IP Address: 192.168.1.20
- Gateway: 192.168.1.1
- Subnet Mask: 255.255.255.0
- Mode: Router (dropdown)
- Interface: Eth0 (dropdown)

There is an 'Update Configuration' button at the bottom left. On the right side, there is a 'WAN Configuration' section with the following text:

**WAN Configuration**

Enter your WAN uplink information here and set the BMU MAXX to router or bridge mode. Select the interface you wish to use as the WAN interface using the Interface drop down box.

After pressing Update Configuration the interface will immediately be changed to the new IP address.

## NTP

Enter an NTP server here you wish to use to sync the time on your BMU.

The screenshot shows the 'SNMP Configuration' page. The navigation bar includes 'Home', 'Configure', 'Control', 'Monitor', 'Routing', and 'Tools'. Below the navigation bar, there are links for 'WAN Interface', 'SNMP Configuration', and 'Accounts'. The main content area is titled 'SNMP Configuration' and contains the following field:

- Read Community String: meh

There is an 'Update SNMP Community' button at the bottom left. On the right side, there is a 'SNMP Configuration' section with the following text:

**SNMP Configuration**

Enter a string here for SNMP read access. The BMU MAXX supports only SNMP read, not write.

## SNMP Configuration

This area allows you to set a read only SNMP community string in order to gather statistics from the BMU. The BMU supports typical Ethernet MIBs, allowing you to graph usage and errors on the Ethernet interfaces.

The screenshot shows the 'User Accounts' page. The navigation bar includes 'Home', 'Configure', 'Control', 'Monitor', 'Routing', 'Tools', and 'Log Out'. Below the navigation bar, there are links for 'Admin Account', 'Billing Server', 'NTP', 'SNMP Configuration', 'User Accounts', and 'WAN Interface'. The main content area is titled 'User Accounts' and contains the following fields:

- Select User: Create New User (dropdown)
- Username: [input field]
- Password: [input field]
- Password Again: [input field]

On the right side, there is a 'User Accounts' section with the following text:

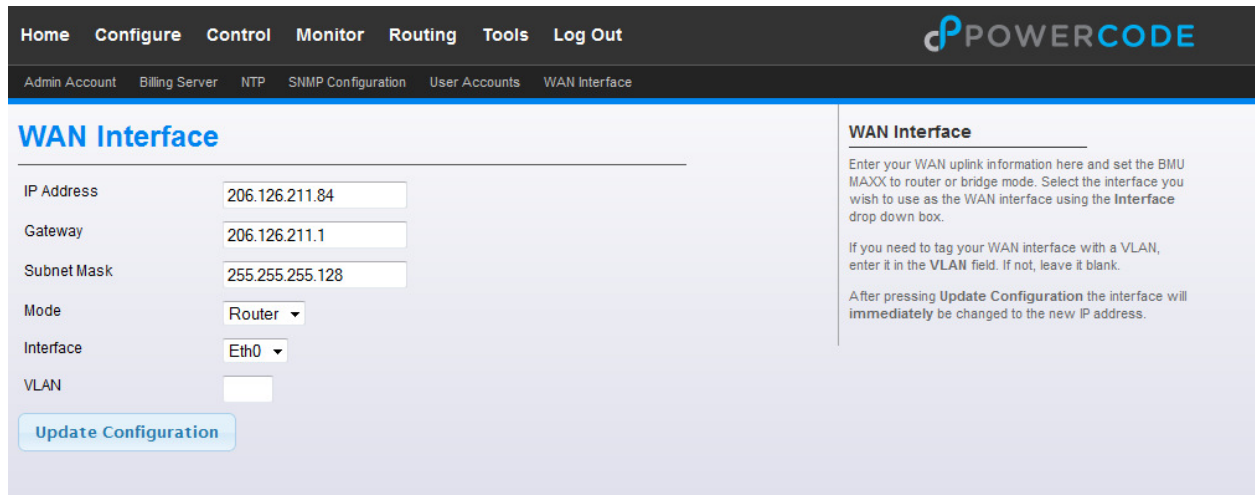
**User Accounts**

You can modify the permissions for a user here or create a new user account. Users can be given access to specific sections of the BMU.

Users given permission to a particular section of the BMU have full read/write access in that section.

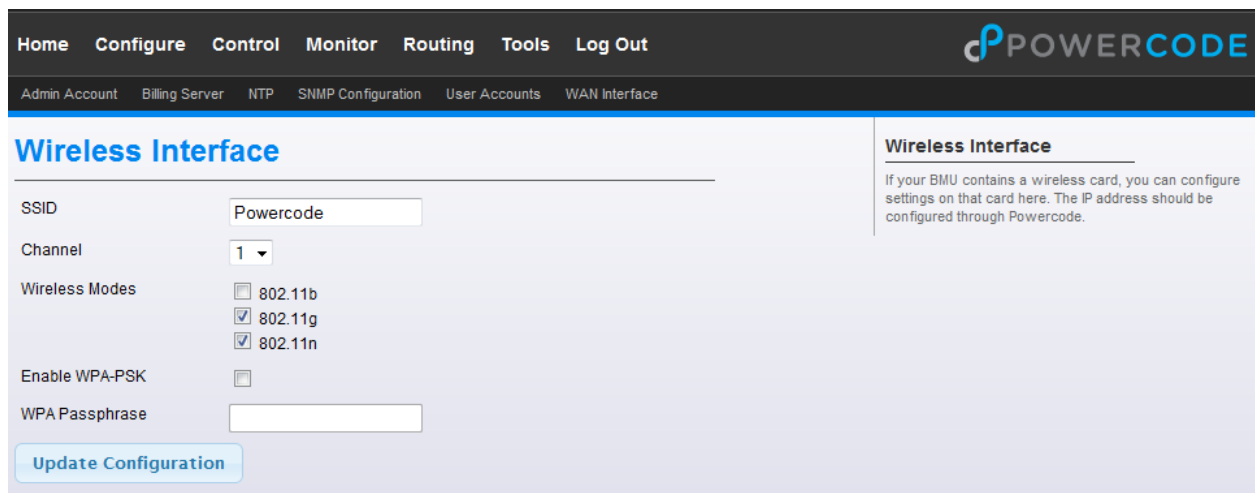
## User Accounts

You can define individual users here who will only have access to specific sections in Powercode. Select the section you wish them to have access to using the checkboxes.



## WAN Interface

The WAN Interface area allows you to configure the WAN interface of the BMU. Set the IP address, gateway and subnet mask here. You can also switch between **Router** and **Bridge** mode here. Running in **Bridge** mode allows you to insert the BMU into your network without modifying any routing. Refer to the specific quick start guide for your BMU to determine which ports to use for bridge mode. Use the **Interface** drop down box to select the interface you wish to use for your WAN connection. The default is **Eth0**.



## Wireless Interface

If your BMU has a wireless interface, you can configure some wireless specific settings for it here. The IP address should be configured through Powercode.

In this section you can set the SSID, channel, wireless modes and WPA encryption, if desired.

## Control

## BMU Control

The BMU Control area allows you to reboot the BMU or reset it to factory default. Both of these actions take effect immediately upon pressing the button.

## Update Firmware

The Update Firmware area allows you to apply firmware updates to the BMU directly through the web interface. The BMU will automatically pull a list of new firmware revisions from the Powercode firmware repository. The changelog for the firmware update will also be displayed.

You can also update from a USB stick if needed.

Press **Update** to update the BMU to the new firmware revision. Do not power the BMU off while it is being upgraded or the BMU will not be able to boot.

## Monitor

The screenshot shows the 'Customer Monitor' page. At the top, there is a navigation bar with 'Home', 'Configure', 'Control', 'Monitor', 'Routing', and 'Tools'. Below this is a sub-menu with 'CPU Usage', 'Customer Monitor', 'Interface Throughput', and 'System Log'. The main heading is 'Customer Monitor'. There is a text input field for 'Customer IP Address' and a 'Get Speed' button. Below the button, a message states: '\_\_\_\_\_ is currently provisioned for 3Mbps download and 2Mbps upload on interface eth1'. A line graph shows 'Customer Download (Mbps)' in yellow and 'Customer Upload (Mbps)' in blue. The y-axis ranges from 0.00 to 0.35. The x-axis shows time from 75 to 104. A single sharp peak in the yellow line reaches approximately 0.32 Mbps at time 78.

### Customer Monitor

The customer monitor allows you to view statistics on an individual customer that is provisioned on the BMU. It shows their provisioned speed, the interface they are attached to and a real time graph of their usage.

The screenshot shows the 'Interfaces' page. At the top, there is a navigation bar with 'Home', 'Configure', 'Control', 'Monitor', 'Routing', and 'Tools'. Below this is a sub-menu with 'CPU Usage', 'Customer Monitor', 'Interface Throughput', and 'System Log'. The main heading is 'Interfaces'. A note says: 'Data is shown for a 30 second block in 1 second increments.' There is a dropdown menu 'Select interface to graph:' with 'Eth0' selected. Below this is a line graph for 'Eth0' showing 'Eth0 In (Mbps)' in yellow and 'Eth0 Out (Mbps)' in blue. The y-axis ranges from 0 to 25. The x-axis shows time from 83 to 112. The yellow line fluctuates between approximately 10 and 20 Mbps, while the blue line stays below 5 Mbps.

## Interfaces

The Interfaces area allows you to generate real time graphs on any physical interface on the BMU. Select a different interface from the drop down box to view applicable data. This graph automatically updates every two seconds and shows 60 seconds worth of data.

Home
Configure
Control
Monitor
Routing
Tools

CPU Usage
Customer Monitor
Interface Throughput
System Log

### System Log

```

Oct 8 23:35:21 Maxx dhcpd: DHCPREQUEST for 172.16.2.203 from 08:10:74:26:53:49 via eth1.32
Oct 8 23:35:21 Maxx dhcpd: DHCPACK on 172.16.2.203 to 08:10:74:26:53:49 via eth1.32
Oct 8 23:35:22 Maxx dhcpd: DHCPREQUEST for 172.16.2.205 from 08:10:74:36:d1:49 via eth1.32
Oct 8 23:35:22 Maxx dhcpd: DHCPACK on 172.16.2.205 to 08:10:74:36:d1:49 via eth1.32
Oct 8 23:35:22 Maxx dhcpd: DHCPREQUEST for 172.16.2.29 from 08:10:74:26:54:e7 via eth1.32
Oct 8 23:35:22 Maxx dhcpd: DHCPACK on 172.16.2.29 to 08:10:74:26:54:e7 via eth1.32
Oct 8 23:35:22 Maxx dhcpd: DHCPREQUEST for 172.16.2.213 from 08:10:74:36:d0:67 via eth1.32
Oct 8 23:35:22 Maxx dhcpd: DHCPACK on 172.16.2.213 to 08:10:74:36:d0:67 via eth1.32
Oct 8 23:35:22 Maxx dhcpd: DHCPREQUEST for 172.16.2.203 from 08:10:74:26:53:49 via eth1.32
Oct 8 23:35:22 Maxx dhcpd: DHCPACK on 172.16.2.203 to 08:10:74:26:53:49 via eth1.32
Oct 8 23:35:23 Maxx dhcpd: DHCPREQUEST for 172.16.2.205 from 08:10:74:36:d1:49 via eth1.32
Oct 8 23:35:23 Maxx dhcpd: DHCPACK on 172.16.2.205 to 08:10:74:36:d1:49 via eth1.32
Oct 8 23:35:23 Maxx dhcpd: DHCPREQUEST for 172.16.2.29 from 08:10:74:26:54:e7 via eth1.32
Oct 8 23:35:23 Maxx dhcpd: DHCPACK on 172.16.2.29 to 08:10:74:26:54:e7 via eth1.32
Oct 8 23:35:23 Maxx dhcpd: DHCPREQUEST for 172.16.2.213 from 08:10:74:36:d0:67 via eth1.32
Oct 8 23:35:23 Maxx dhcpd: DHCPACK on 172.16.2.213 to 08:10:74:36:d0:67 via eth1.32
Oct 8 23:35:23 Maxx dhcpd: DHCPDISCOVER from 00:1e:58:3c:fb:2a via 172.17.7.1: network VLANShare: no free leases
Oct 8 23:35:23 Maxx dhcpd: DHCPREQUEST for 172.16.2.203 from 08:10:74:26:53:49 via eth1.32
Oct 8 23:35:23 Maxx dhcpd: DHCPACK on 172.16.2.203 to 08:10:74:26:53:49 via eth1.32
Oct 8 23:35:24 Maxx dhcpd: DHCPREQUEST for 172.16.2.205 from 08:10:74:36:d1:49 via eth1.32
Oct 8 23:35:24 Maxx dhcpd: DHCPACK on 172.16.2.205 to 08:10:74:36:d1:49 via eth1.32
Oct 8 23:35:24 Maxx dhcpd: DHCPREQUEST for 172.16.2.29 from 08:10:74:26:54:e7 via eth1.32
Oct 8 23:35:24 Maxx dhcpd: DHCPACK on 172.16.2.29 to 08:10:74:26:54:e7 via eth1.32
Oct 8 23:35:24 Maxx dhcpd: DHCPREQUEST for 172.16.2.213 from 08:10:74:36:d0:67 via eth1.32
Oct 8 23:35:24 Maxx dhcpd: DHCPACK on 172.16.2.213 to 08:10:74:36:d0:67 via eth1.32
                    
```

#### System Log

This page will automatically update every 2 seconds with the last 25 lines from the system log. Much of the information contained in this log is expected and does not signify any problem.

If you have any questions or concerns about an entry in the log, please post on the Powercode [forum](#) or [email support](#).

## System Log

The System Log area shows you a real time log from the BMU. This area is generally not needed unless troubleshooting with Powercode support. The System Log area updates automatically every 2 seconds with new log entries.

## Routing

Home
Configure
Control
Monitor
Routing
Tools

Routing Table
Static Route
OSPF Configuration
OSPF Neighbors

### Routing Table

Destination	Gateway	Mask	Flags	Metric	Ref	Use	Interface
192.168.1.0	Local	255.255.255.0	U	0	0	0	eth0
default	192.168.1.1	0.0.0.0	UG	0	0	0	eth0

#### Routing Table

This is a real time view of the routing table in the BMU. It automatically updates every 5 seconds.

## Routing Table

The Routing Table area shows the routing table from the BMU. This screen automatically updates every 5 seconds with any changes to the routing table.

The screenshot shows a web interface with a dark navigation bar at the top containing 'Home', 'Configure', 'Control', 'Monitor', 'Routing', and 'Tools'. Below this is a sub-menu with 'Routing Table', 'Static Route', 'OSPF Configuration', and 'OSPF Neighbors'. The main content area is titled 'Add Static Route' and features a form with a 'Reach' field containing 'Network IP', a dropdown menu set to '/1', and a 'Gateway' field. An 'Add Static Route' button is below the form. Underneath is a 'Delete Existing Route' section with a table header: 'Network', 'Subnet', 'Gateway', and 'Delete'. A 'Delete Selected Routes' button is at the bottom of this section. On the right side, there is a 'Static Route' sidebar with explanatory text.

**Add Static Route**

Reach  /1 via

**Delete Existing Route**

Network	Subnet	Gateway	Delete
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**Static Route**

You may add and delete static routes on the BMU here. **Please note** that regular static routes should be added to the BMU via Powercode. This section is only for subnets that you do not wish to be controlled by Powercode.

For example, if you add a static route to 192.168.1.0/24 in this section, any device and customer in 192.168.1.0/24 will be able to pass through the BMU with no restriction.

## Static Route

The Static Route area allows you to add and delete static routes from the BMU. **Please note that regular static routes should be added to the BMU via Powercode. This section is only for subnets that you do not wish to be controlled by Powercode.**

For example, if you add a static route to 192.168.1.0/24 in this section, any device and customer in 192.168.1.0/24 will be able to pass through the BMU with no restriction.

**OSPF Configuration**

**General**

Router ID:

**Route Redistribution**

Default

Connected

Static

**Metrics**

Default Route Metric:

Connected Routes Metric:

Static Routes Metric:

**Interfaces**

Eth0	Passive
Eth1	Passive
Eth2	Passive
Eth3	Passive
Eth4	Passive
Eth5	Passive
Eth6	Passive
Eth7	Passive

**OSPF**

Use this page to configure OSPF on your BMU. This page allows you to control and configure most aspects of your OSPF configuration.

For more complex configurations, you may wish to use the OSPF CLI. To use the OSPF CLI, you must SSH to your BMU and login using the username `ospf` and your admin password. The OSPF CLI is very similar to Cisco. For more details, please see the BMU manual.

## OSPF Configuration

The OSPF area shows the current OSPF configuration from the BMU. This area allows you to configure most basic OSPF features directly from the web interface. You may also access the OSPF cli by connecting to the BMU via SSH and logging in with the username `ospf` and your admin password. For configuration assistance with the OSPF CLI, please visit <http://www.quagga.net/docs/docs-info.php#SEC57>.

**OSPF Neighbors**

Neighbor	Priority	State	Dead Time	Address	Interface

**OSPF Neighbors**

If you are running OSPF on this BMU, this page will show a list of current OSPF neighbors.

## OSPF Neighbors

The OSPF Neighbors area shows the current OSPF neighbors. This page only shows data if you are running OSPF and peered with at least one other router.

## Tools

The screenshot shows the 'Backup/Restore Configuration' tool interface. At the top, there is a navigation bar with 'Home', 'Configure', 'Control', 'Monitor', 'Routing', and 'Tools'. The 'Tools' menu is active, showing sub-options: 'Backup/Restore Configuration', 'Intervision', 'Ping', 'Port Scan', and 'Traceroute'. The main content area is titled 'Backup Configuration' and contains a 'Backup Configuration' button. Below it is the 'Restore Configuration' section, which includes a text input field, a 'Browse...' button, and a 'Restore' button. On the right side, there is a sidebar with the title 'Backup/Restore Configuration' and a description: 'Use this page to backup your current configuration or restore a previous configuration.' The top right corner of the interface displays 'BMU MAXX v0.9.9 | Uptime 2.97 days'.

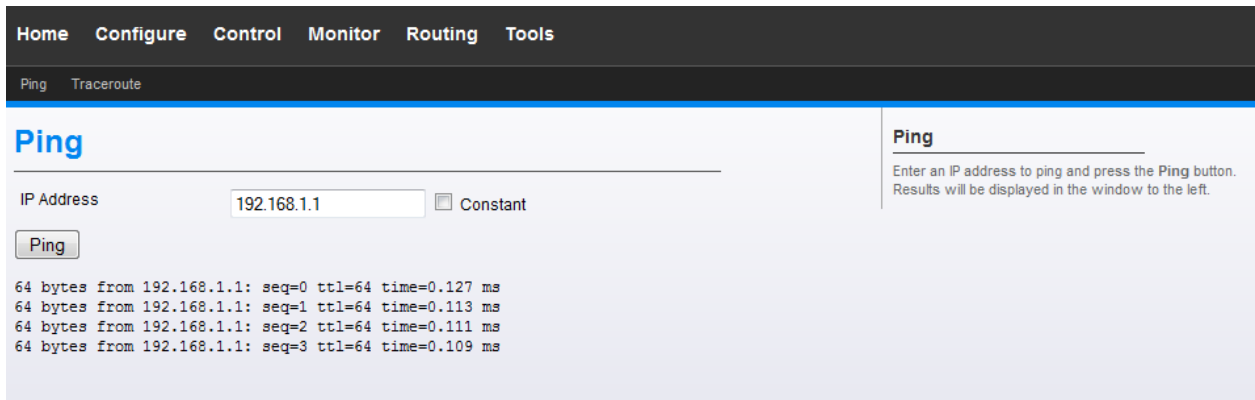
### Backup/Restore Configuration

Use this tool to backup the configuration from your BMU. The BMU will output a single file which can be fed back into the tool to restore the prior configuration.

The screenshot shows the 'Intervision' tool interface. At the top, there is a navigation bar with 'Home', 'Configure', 'Control', 'Monitor', 'Routing', and 'Tools'. The 'Tools' menu is active, showing sub-options: 'Backup/Restore Configuration', 'Intervision', 'Ping', 'Port Scan', and 'Traceroute'. The main content area is titled 'Intervision' and contains a form with the label 'IP Address/Port'. The form has two input fields: the first contains '127.0.0.1' and the second contains '80'. Below the form is a 'View' button. On the right side, there is a sidebar with the title 'Intervision' and a description: 'The Intervision function allows you to view devices within your network that the BMU has a route to but you cannot access externally. For example, if you have a device inside your network with a private IP address that you cannot reach externally but the BMU can reach on an internal interface, entering the IP of that device here will allow you to view it by proxying through the BMU. If the page runs on a port other than 80, enter that port in the second box.' The top right corner of the interface displays 'BMU MAXX v0.9.9 | Uptime 2.97 days'.

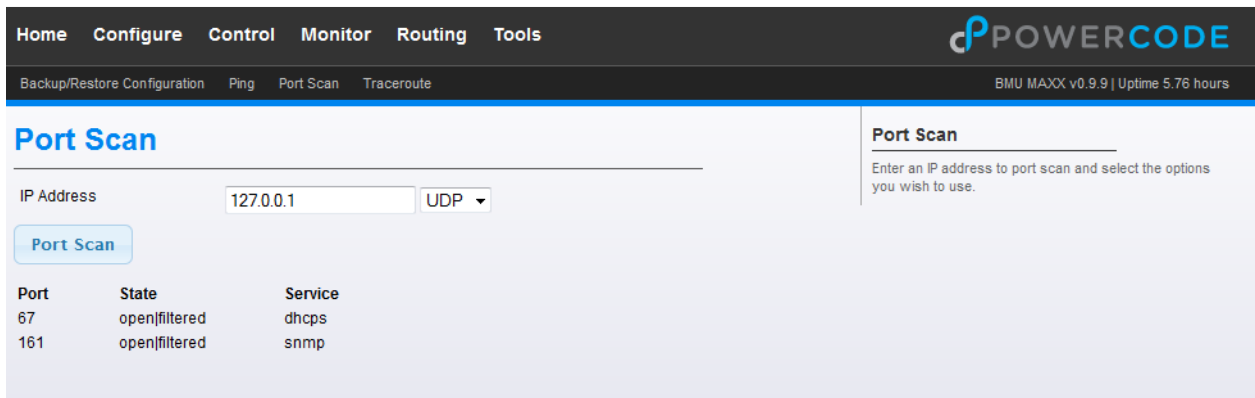
### Intervision

The Intervision function is identical to the Intervision function in Powercode. Intervision allows you to remotely access devices inside your network by using the BMU as a proxy. For example, if the BMU has a device with the IP address 10.0.0.2 attached to an inside interface and you are coming into the BMU on its WAN interface, you can enter 10.0.0.2 in the field and click **View** to access the privately addressed device from the Internet.



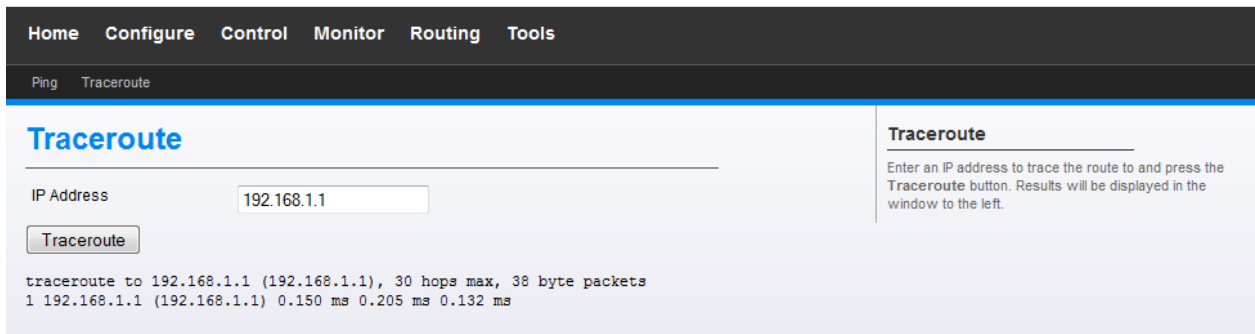
## Ping

The Ping area allows you to do a test ping to a remote IP address. Enter the IP address in the field and press **Ping**. The BMU will send 4 pings and report the results. If you check the **Constant** box, the BMU will do a non-stop ping and output the results in real time.



## Port Scan

The port scan page allows you to do a TCP or UDP port scan to a specified IP address.



## Traceroute

The Traceroute area allows you to run a traceroute from the BMU. Enter the IP you want to traceroute to and press **Traceroute**. You can also do a constant traceroute which will show the path to your destination with updated ping times to each hop.

## Powercode Documentation – BMU MAXX Guide

If you have any questions regarding the Powercode BMU MAXX, please visit the forum at <http://www.powercode.com/forum>, contact support via email at [support@powercode.com](mailto:support@powercode.com) or contact support via telephone at (920) 351-1010.