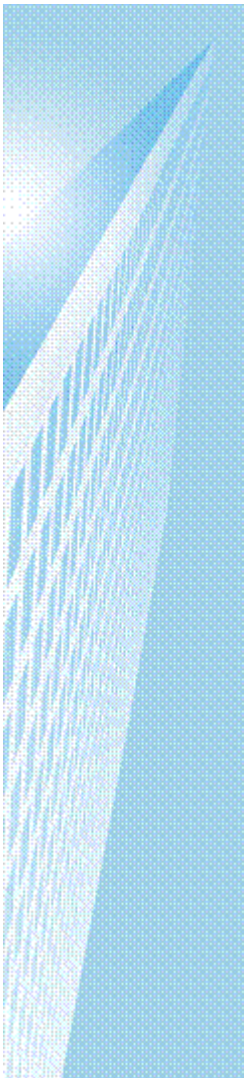


**Cimetrics, Inc**

**B6000 BACnet/IP to  
BACnet/MSTP Router**



***User Manual***

V.2

March, 2012

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## Introduction



The Cimetrics B6000 is a BACnet/IP to BACnet/MSTP Router. It helps route BACnet communications from a BACnet/IP to BACnet/MSTP local area network, thus allowing BACnet/IP devices to communicate with BACnet devices on a BACnet/MSTP network. The Ethernet connection conforms to the BACnet/IP standard which is complemented by many network friendly features such as password protected browser based setup screens.

This device requires no mapping because ALL data on the one side (for example, the BACnet/IP side) is transparently passed to the other side (BACnet MS/TP) and vice versa. Configuration is easy and the hardware has been designed to professional electrical standards and is housed in a robust metal housing.

## Logging in

Connect the B6000 Ethernet connector to an Ethernet hub, and run another Ethernet cable (patch cable) from that hub to your laptop or PC. Make sure that the laptop or PC is the *only* other unit in this small LAN.

**NOTE:** If you do not have a hub, you can use a "crossover cable" to connect between the B6000 and your laptop.

Set your PC's IP address to **192.168.88.90** with a subnet mask of **255.255.255.252**

**Open your browser and enter the following URL: <http://192.168.88.89>**

You will be prompted to login: The username is = admin and the password = admin

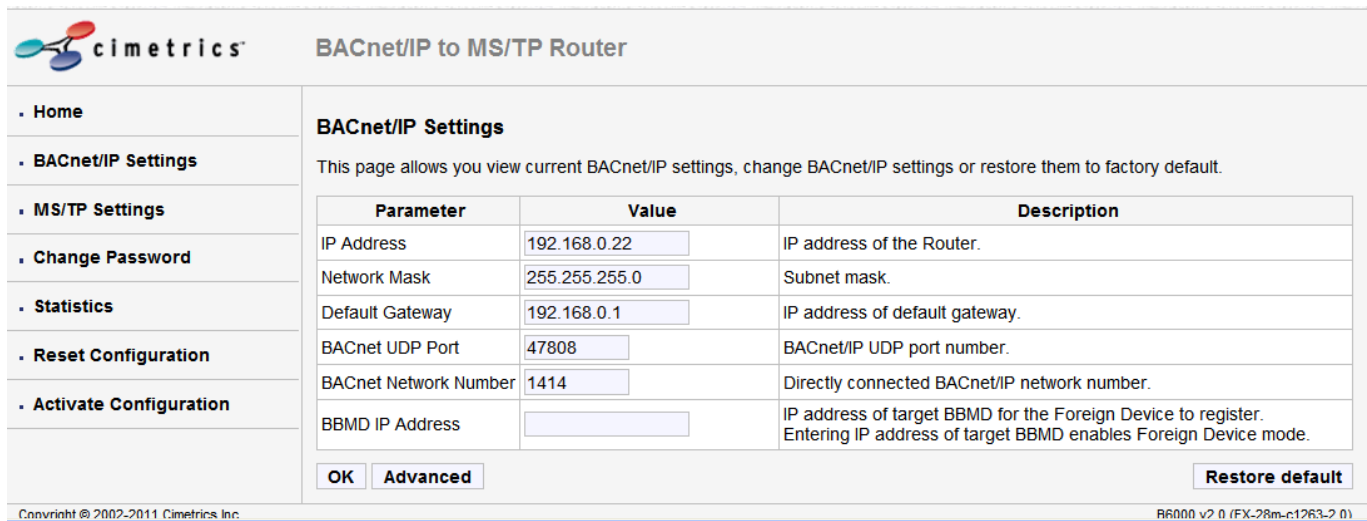
From within the browser interface you can change all settings in the entry fields to configure your router

For improved access security, you should change your password from the default values. **Make sure you SAVE your new password!** When you click on "Activate Configuration" and "confirm" then the configuration process is completed.

**Please Note:** A user will be able to access the B6000 using the above mentioned IP address at ALL TIMES (even if you have changed the IP address under BACnet/IP settings)

**Note!** We strongly recommend that the power be recycled on the unit at least once every six months

## BACnet/IP Settings



**BACnet/IP Settings**

This page allows you view current BACnet/IP settings, change BACnet/IP settings or restore them to factory default.

Parameter	Value	Description
IP Address	192.168.0.22	IP address of the Router.
Network Mask	255.255.255.0	Subnet mask.
Default Gateway	192.168.0.1	IP address of default gateway.
BACnet UDP Port	47808	BACnet/IP UDP port number.
BACnet Network Number	1414	Directly connected BACnet/IP network number.
BBMD IP Address		IP address of target BBMD for the Foreign Device to register. Entering IP address of target BBMD enables Foreign Device mode.

OK Advanced Restore default

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On this screen, a user can configure the following parameters

1. **IP Address** – IP address of device.
2. **Network Mask** – Subnet mask for the subnet your device is on.
3. **Default Gateway** – IP address of default gateway
4. **BACnet UDP Port** – BACnet UDP port (Default is 47808. In some cases e.g. a situation where it is desirable for two groups of BACnet devices to coexist independently on the same IP subnet, the UDP port may be configured locally to a different value.
5. **BACnet Network Number** – Network number of a directly connected network.
6. **BBMD IP Address** – If you want the B6000 to be a foreign device then here you specify the IP address of the target BBMD. This will enable Foreign Device mode.

To find out more about Foreign device and BBMD visit:

<http://www.bacnet.org/Bibliography/ES-7-99/IPPART2.HTM>

<http://www.bacnet.org/Tutorial/BACnetIP/sld015.html>

### Advanced Settings

If you click on the **Advanced** button you will see the settings for the Foreign Device subscription Time to Live. Make sure you are familiar with this BACnet Foreign Device concept. Otherwise leave these settings as default. The recommended number is between 30 min. and an hour.



## BACnet/IP to MS/TP Router

- Home
- **BACnet/IP Settings**
- MS/TP Settings
- Change Password
- Statistics
- Reset Configuration
- Activate Configuration

### BACnet/IP Settings

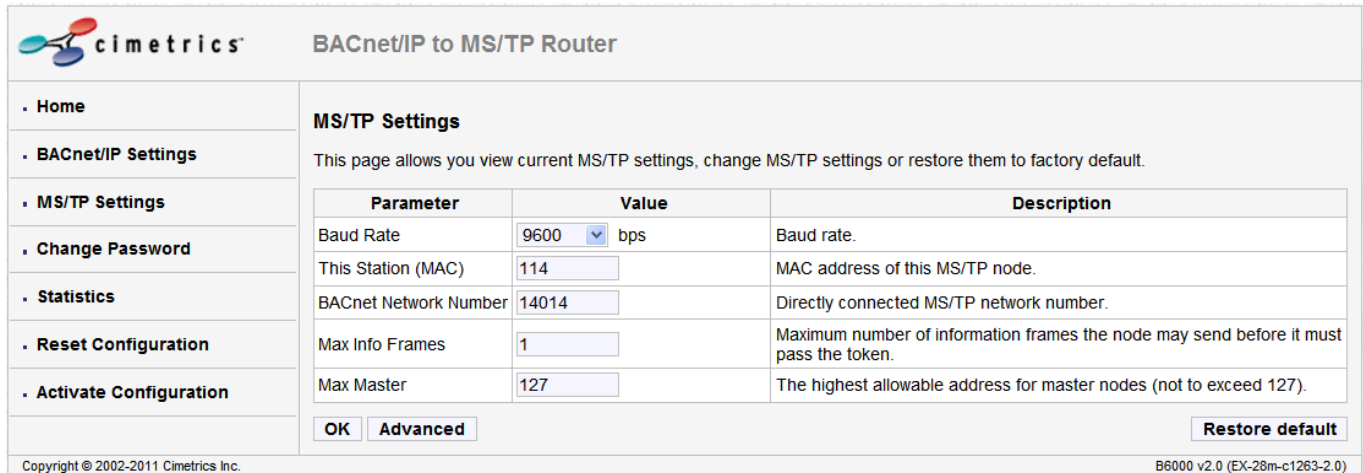
This page allows you view current BACnet/IP settings, change BACnet/IP settings or restore them to factory default.

Parameter	Value	Description
IP Address	<input type="text" value="10.10.1.6"/>	IP address of the Router.
Network Mask	<input type="text" value="255.0.0.0"/>	Subnet mask.
Default Gateway	<input type="text" value="10.10.1.1"/>	IP address of default gateway.
BACnet UDP Port	<input type="text" value="47808"/>	BACnet/IP UDP port number.
BACnet Network Number	<input type="text" value="1414"/>	Directly connected BACnet/IP network number.
BBMD IP Address	<input type="text" value="192.168.0.5"/>	IP address of target BBMD for the Foreign Device to register. Entering IP address of target BBMD enables Foreign Device mode.

Advanced settings are better kept to factory default values. Changes to these settings might negatively impact operation of the device.

FD Subscription TTL	<input type="text" value="30"/> min	Effective only if BBMD address is set. It is recommended to set this number between 30 minutes and an hour.
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## MSTP Settings



**BACnet/IP to MS/TP Router**

**MS/TP Settings**

This page allows you view current MS/TP settings, change MS/TP settings or restore them to factory default.

Parameter	Value	Description
Baud Rate	9600 bps	Baud rate.
This Station (MAC)	114	MAC address of this MS/TP node.
BACnet Network Number	14014	Directly connected MS/TP network number.
Max Info Frames	1	Maximum number of information frames the node may send before it must pass the token.
Max Master	127	The highest allowable address for master nodes (not to exceed 127).

OK Advanced Restore default

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### Baud Rate:

The B6000 supports all Baud Rates specified by the BACnet Standard. From the drop down list, please choose the appropriate baud rate for your MSTP network. Please keep in mind that ALL your Devices on the MSTP network, including THIS router need to be on the SAME baud rate. If the baud rates are different, they will not be able to communicate with each other.

### This station MAC:

This is the Media Access Control address of the router. Please note that ALL devices on the MSTP network need to have a unique MAC address. Prior to configuring this, you will need to know the MAC addresses of all your devices on the MSTP Network. Once you have this information, enter a unique value (1 through 127) here.

### Directly Connected Network Number (DNET):

This stands for Directly Connected Network Number. Please assign a Network Number to this MSTP Network. This has to be a unique number on your network. It is best to speak with your Network Administrator to get a unique Number assigned to this interface of the Router. Also note that there is a parameter called DNET under your BACnet/IP Settings. The number here has to be unique as well.

A typical setting would be BACnet/IP settings DNET = 5 and MSTP/Settings DNET = 6. (Assuming there are no other networks with the same Network Number connected to your BACnet network).

## Advanced Settings


If you click on the **Advanced** button you will see the settings for the advanced MSTP options. Make sure you are familiar with the settings concept. Otherwise leave these settings as default.

### Reply Timeout:

This is the minimum time that a node must wait for a station to begin replying to a confirmed request. **Do not change this value unless you are sure.**

**Usage Timeout:**

This is the minimum time that a node must wait for a remote node to begin using a token or replying to a poll for Master frame. **Do not change this value unless you are sure.**



### BACnet/IP to MS/TP Router

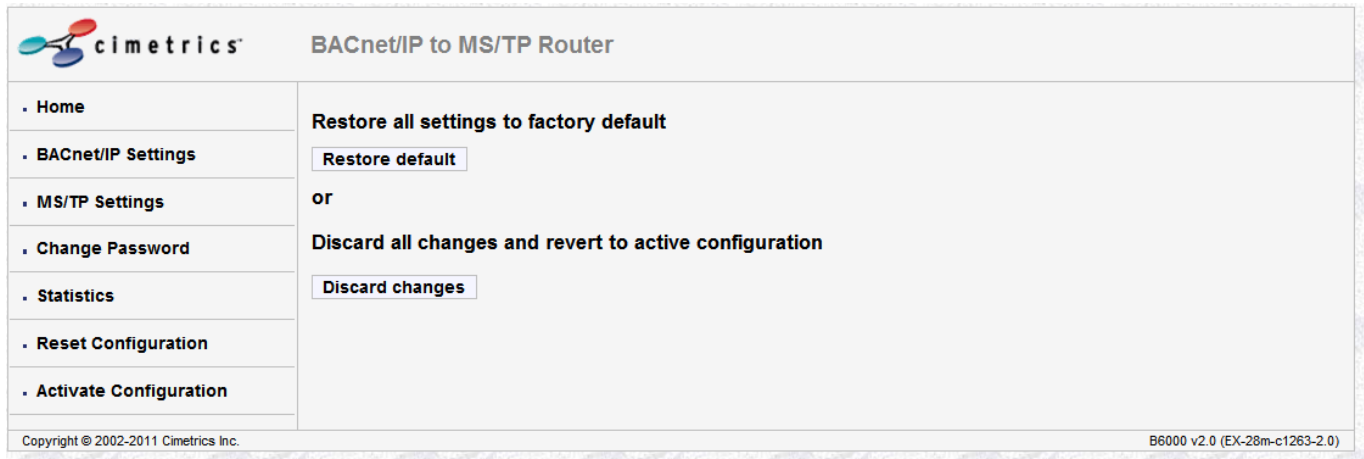
<ul style="list-style-type: none"> <li>• Home</li> <li>• BACnet/IP Settings</li> <li>• MS/TP Settings</li> <li>• Change Password</li> <li>• Statistics</li> <li>• Reset Configuration</li> <li>• Activate Configuration</li> </ul>	<p><b>MS/TP Settings</b></p> <p>This page allows you view current MS/TP settings, change MS/TP settings or restore them to factory default.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Parameter</th> <th style="width: 30%;">Value</th> <th style="width: 40%;">Description</th> </tr> </thead> <tbody> <tr> <td>Baud Rate</td> <td>115200 <input type="button" value="v"/> bps</td> <td>Baud rate.</td> </tr> <tr> <td>This Station (MAC)</td> <td>114</td> <td>MAC address of this MS/TP node.</td> </tr> <tr> <td>BACnet Network Number</td> <td>14014</td> <td>Directly connected MS/TP network number.</td> </tr> <tr> <td>Max Info Frames</td> <td>1</td> <td>Maximum number of information frames the node may send before it must pass the token.</td> </tr> <tr> <td>Max Master</td> <td>127</td> <td>The highest allowable address for master nodes (not to exceed 127).</td> </tr> </tbody> </table> <p>Advanced settings are better kept to factory default values. Changes to these settings might negatively impact operation of the device.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 30%;">Reply Timeout</td> <td style="width: 30%;">255 <input type="button" value="ms"/></td> <td style="width: 40%;">The minimum time that a node must wait for a station to begin replying to a confirmed request (255 - 300 ms).</td> </tr> <tr> <td>Usage Timeout</td> <td>20 <input type="button" value="ms"/></td> <td>The minimum time that a node must wait for a remote node to begin using a token or replying to a Poll For Master frame (20 - 100 ms).</td> </tr> </tbody> </table> <p style="text-align: right;"> <input type="button" value="OK"/> <input type="button" value="Basic"/> <input style="float: right;" type="button" value="Restore default"/> </p>	Parameter	Value	Description	Baud Rate	115200 <input type="button" value="v"/> bps	Baud rate.	This Station (MAC)	114	MAC address of this MS/TP node.	BACnet Network Number	14014	Directly connected MS/TP network number.	Max Info Frames	1	Maximum number of information frames the node may send before it must pass the token.	Max Master	127	The highest allowable address for master nodes (not to exceed 127).	Reply Timeout	255 <input type="button" value="ms"/>	The minimum time that a node must wait for a station to begin replying to a confirmed request (255 - 300 ms).	Usage Timeout	20 <input type="button" value="ms"/>	The minimum time that a node must wait for a remote node to begin using a token or replying to a Poll For Master frame (20 - 100 ms).
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## Reset Configuration


Clicking on **Restore default** will reset the entire device's configuration to factory defaults. Clicking on **Discard changes** will discard all changes and revert to active configuration.



The screenshot shows a web interface for a BACnet/IP to MS/TP Router. On the left is a navigation menu with the following items: Home, BACnet/IP Settings, MS/TP Settings, Change Password, Statistics, Reset Configuration, and Activate Configuration. The main content area is titled "BACnet/IP to MS/TP Router" and contains the following text: "Restore all settings to factory default", a button labeled "Restore default", the word "or", "Discard all changes and revert to active configuration", and a button labeled "Discard changes". At the bottom left of the page, it says "Copyright © 2002-2011 Cimetrics Inc." and at the bottom right, it says "B6000 v2.0 (EX-28m-c1263-2.0)".

## Change Password

A user can change the username and password on this screen.


BACnet/IP to MS/TP Router

<ul style="list-style-type: none"> <li>• Home</li> <li>• BACnet/IP Settings</li> <li>• MS/TP Settings</li> <li>• <b>Change Password</b></li> <li>• Statistics</li> <li>• Reset Configuration</li> <li>• Activate Configuration</li> </ul>	<p><b>Change Administrator Login and Password</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Parameter</th> <th style="width: 30%;">Value</th> <th style="width: 40%;">Description</th> </tr> </thead> <tbody> <tr> <td>Login:</td> <td><input type="text" value="admin"/></td> <td>Login to access this Router WebSetup.</td> </tr> <tr> <td>Current password:</td> <td><input type="password"/></td> <td>Current administrator password.</td> </tr> <tr> <td>New password:</td> <td><input type="password"/></td> <td>New administrator password.</td> </tr> <tr> <td>Confirm new password:</td> <td><input type="password"/></td> <td>The same password.</td> </tr> </tbody> </table> <p style="text-align: center;"><input type="button" value="OK"/></p>	Parameter	Value	Description	Login:	<input type="text" value="admin"/>	Login to access this Router WebSetup.	Current password:	<input type="password"/>	Current administrator password.	New password:	<input type="password"/>	New administrator password.	Confirm new password:	<input type="password"/>	The same password.
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## Activate Configuration

Once changes are made to any configuration on the B6000, the changes get saved only after clicking on the "Confirm" button in the **Activate Configuration** screen. Clicking on this will initiate a reboot of the device and will save the changes that have been made.

