

### Example 3 – Remote Building (Access Point Bridge with Repeater Enabled)

1. Review Example #1 diagram (Figure 1) and locate the 195Eg marked as Example 3. This ESTeem is connected to a Remote Building network that will be bridged to the Plant network through the Access Point Router (Example #1) via the repeater. This modem should be configured for Access Point Bridge mode and the configuration for this 195Eg will be identical to Example 2 except that the IP addressing and the Repeater Peer table. You would follow all steps 1-11 in Example 2 to configure this 195Eg also but Figures 31 & 32 will show the changes.

The screenshot shows the 'Setup' page of the EST195E Web Configuration Manager. The page title is 'EST195E Web Configuration Manager' and the ESTEEM logo is in the top right. A navigation bar includes links for Top, Status, Log, Setup, Advanced, Backup, Restore, SoftwareUpdate, Reboot, and About. The main content area is titled 'Setup' and contains the following information:

- Mode of operation: AP Bridge
- DHCP Services: Off
- Enter IP address for bridge device: 172.16.2.10 (with a Help link)
- Enter netmask for bridge device: 255.255.0.0 (with a Help link)
- Buttons: Previous, Next

Figure 31: Example 3 Bridge IP Address

The screenshot shows the 'Setup' page of the EST195E Web Configuration Manager, specifically the Repeater configuration section. The page title is 'EST195E Web Configuration Manager' and the ESTEEM logo is in the top right. A navigation bar includes links for Top, Status, Log, Setup, Advanced, Backup, Restore, SoftwareUpdate, Reboot, and About. The main content area is titled 'Setup' and contains the following information:

- Select whether to enable repeater capability. If the **repeater** capability is disabled, the peer list is ignored. If the **repeater** capability is enabled, then a link is established with each peer in the list.
- You may add a peer to the list, remove an existing peer or modify an existing peer by clicking the appropriate button below.
- The following configurations are for the wireless LAN device.
- Enable the **repeater** capability?  Yes  No (with a Help link)
- Set as **root** bridge?  Yes  No
- Repeater Peer List table:

MAC Addr	Port Priority	Path Cost	Encrypt Type	Data Rate	Enable
00:04:3f:00:09:01	128	201	WEP128	Dynamic	true
00:04:3f:00:09:05	128	100	WEP128	Dynamic	true

Buttons: Add, Remove, Modify, Previous, Next

Figure 32: Example 3 Repeater Routing Table

### Example 4 – Mobile Vehicle with Single Ethernet Device (EtherStation Mode)

Review the Example Diagram #1 (Figure 1) and locate the 195Eg marked as Example 4. This ESTeem is connected to a single Ethernet device in a mobile application and will be configured for EtherStation mode. In this mode the 195Eg will gain access to the wireless Ethernet canopy created by the three Access Points (Examples 1-3), but will be emulating the MAC address for the connected Ethernet device and will no longer have an IP address in the network. To reprogram the 195Eg after configuration in EtherStation mode requires the ESTeem Discovery Utility or direct connection to the RS-232 port.

1. Access the ESTeem Web page using your computer's Web Browser as per instructions in Chapter 4. Select Setup from the menu items. From the Select Mode of Operation pull down box, select EtherStation (Figure 33) and push the *Next* button below the pull down box.

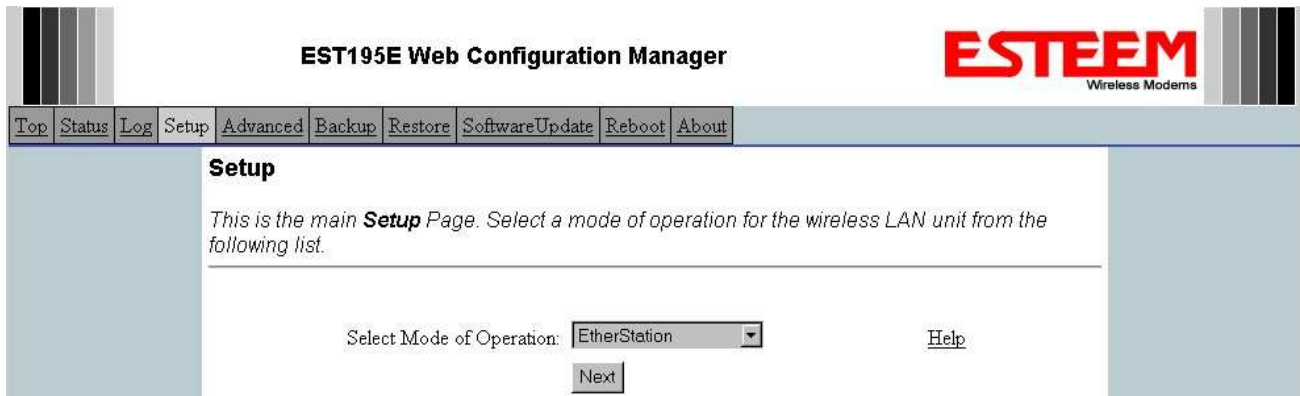


Figure 33: EtherStation Selection

2. Enter the SSID for you 802.11g network. The SSID is the unique identification for your wireless network and all 802.11g devices that share a wireless network MUST have the same SSID code. This identification code is case sensitive and must NOT contain spaces. Select the encryption level for the wireless network to match the level of the Access Point canopy. Enter the MAC address of the connected Ethernet device. Reference Figure 34.

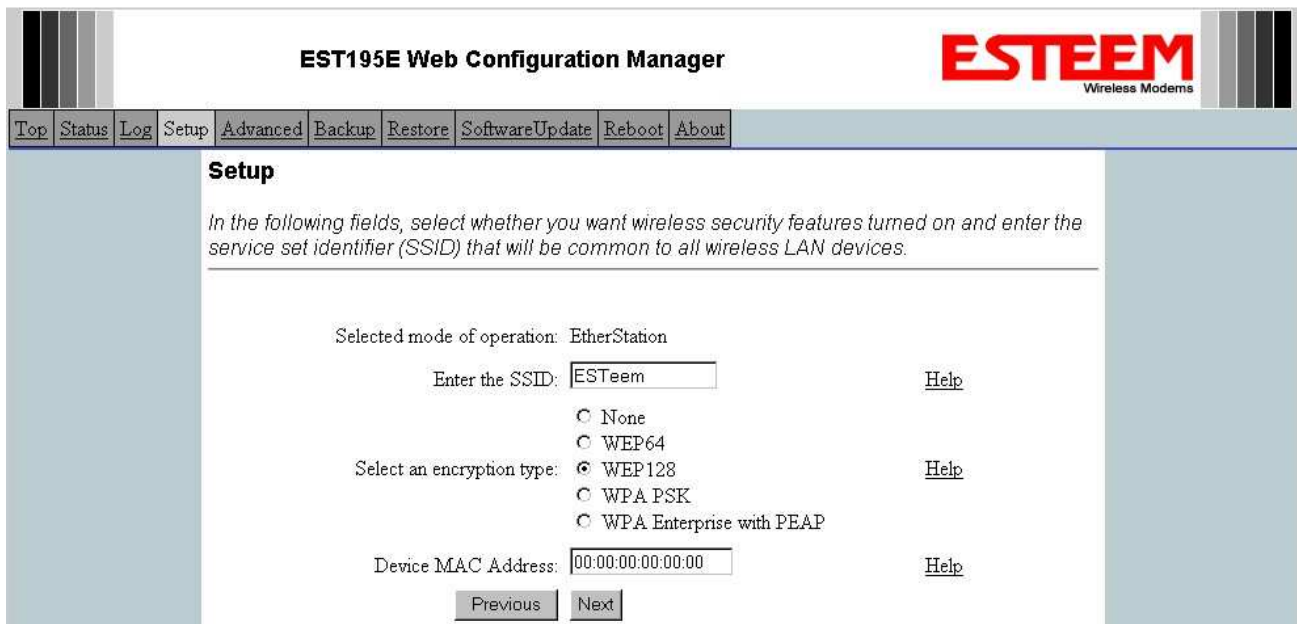


Figure 34: SSID and Device MAC Input

3. Enter the WEP key values for your application that will be used by all devices on the wireless network. Reference Figure 35.

**EST195E Web Configuration Manager**

ESTEEM  
Wireless Modems

Top Status Log Setup **Advanced** Backup Restore SoftwareUpdate Reboot About

**Setup**

Enter 13 hexadecimal bytes, separated by colons, for each of the following 128-bit WEP keys and select which key should be used as the default WEP key. These values are configured for the wireless LAN device.

Encryption type: 128-Bit WEP for the wireless LAN device

Enter WEP Key 1  
(13 hex bytes):  [Help](#)

Enter WEP Key 2  
(13 hex bytes):

Enter WEP Key 3  
(13 hex bytes):

Enter WEP Key 4  
(13 hex bytes):

Select the default WEP key:  WEP Key 1  
 WEP Key 2  
 WEP Key 3  
 WEP Key 4

[Help](#)

Figure 35: WEP Key Input

4. Select Commit Changes to write the programming to Flash memory and reboot the Model 195Eg. When the reboot process has completed (approximately 30 seconds) the modem will be ready to place in operation. Reference Figure 36.

**EST195E Web Configuration Manager**

ESTEEM  
Wireless Modems

Top Status Log Setup **Advanced** Backup Restore SoftwareUpdate Reboot About

**Setup**

To permanently commit your changes, click on the "Commit Changes" button below. Once the changes have been permanently saved, the system will reboot with the new settings in effect.

Figure 36: EtherStation Selection

### Example 5 – Mobile Vehicle #1 (Station Router)

Review the Example Diagram #2 (Figure 2) and locate the 195Eg marked as Example 5. This ESTEem is connected to multiple Ethernet devices in a mobile application and will be configured Station Router mode. In this mode the 195Eg's will gain access to the wireless Ethernet canopy created by the Access Point and act as the router between the devices connected to the Ethernet port and wireless network. Each of these networks will require a unique subnet to operate. If Ethernet devices on the wired LAN network want to access Ethernet devices on the Station Router 195Eg, a network router is required on the wired LAN to resolve the IP conflict created by having the wired and wireless networks on separate subnets (Figure 37).

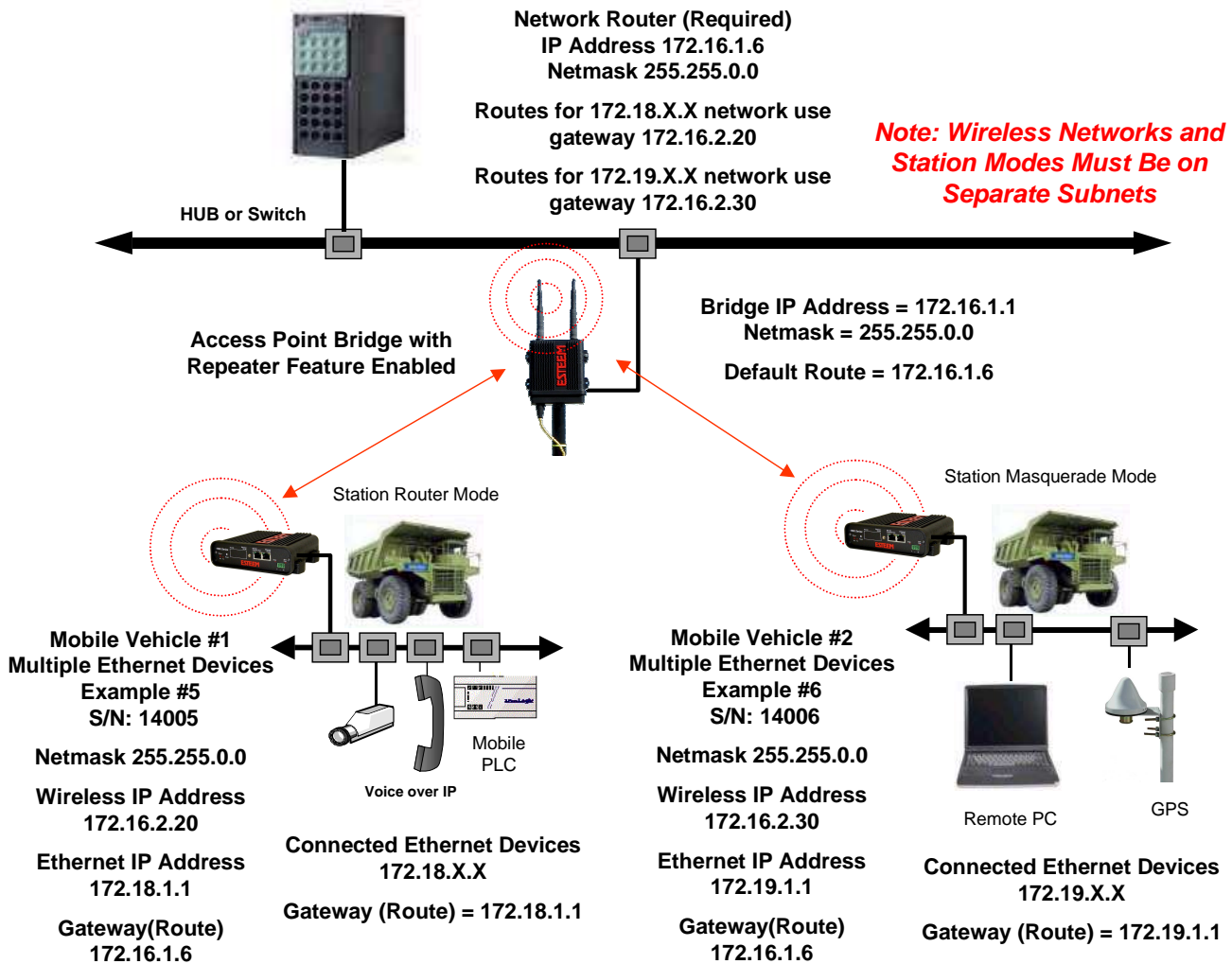


Figure 37: Station Router IP Addressing Diagram

1. Access the ESTeem Web page using your computer's Web Browser as per instructions in Chapter 4. Select Setup from the menu items. From the Select Mode of Operation pull down box , select Station Router (Figure 38) and push the *Next* button below the pull down box.

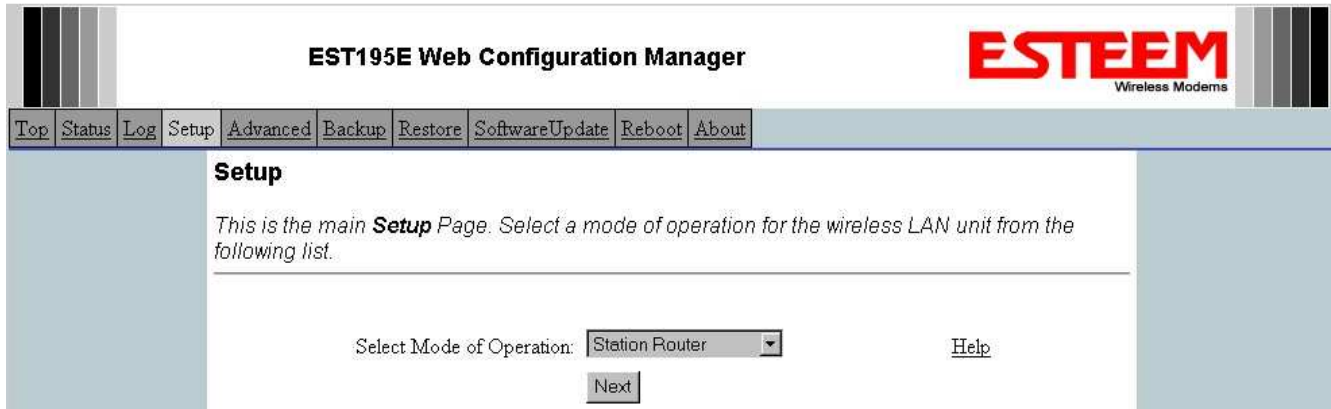


Figure 38: Station Router Selection

2. Select *Yes* if you would like to use DHCP services on either the **wireless** or **ethernet** connections. Enter the SSID for you 802.11g network. The SSID is the unique identification for your wireless network and all 802.11g devices that share a wireless network **MUST** have the same SSID code. This identification code is case sensitive and must **NOT** contain spaces. Select the encryption level for the wireless network to match the level of the Access Point canopy. Reference Figure 39.

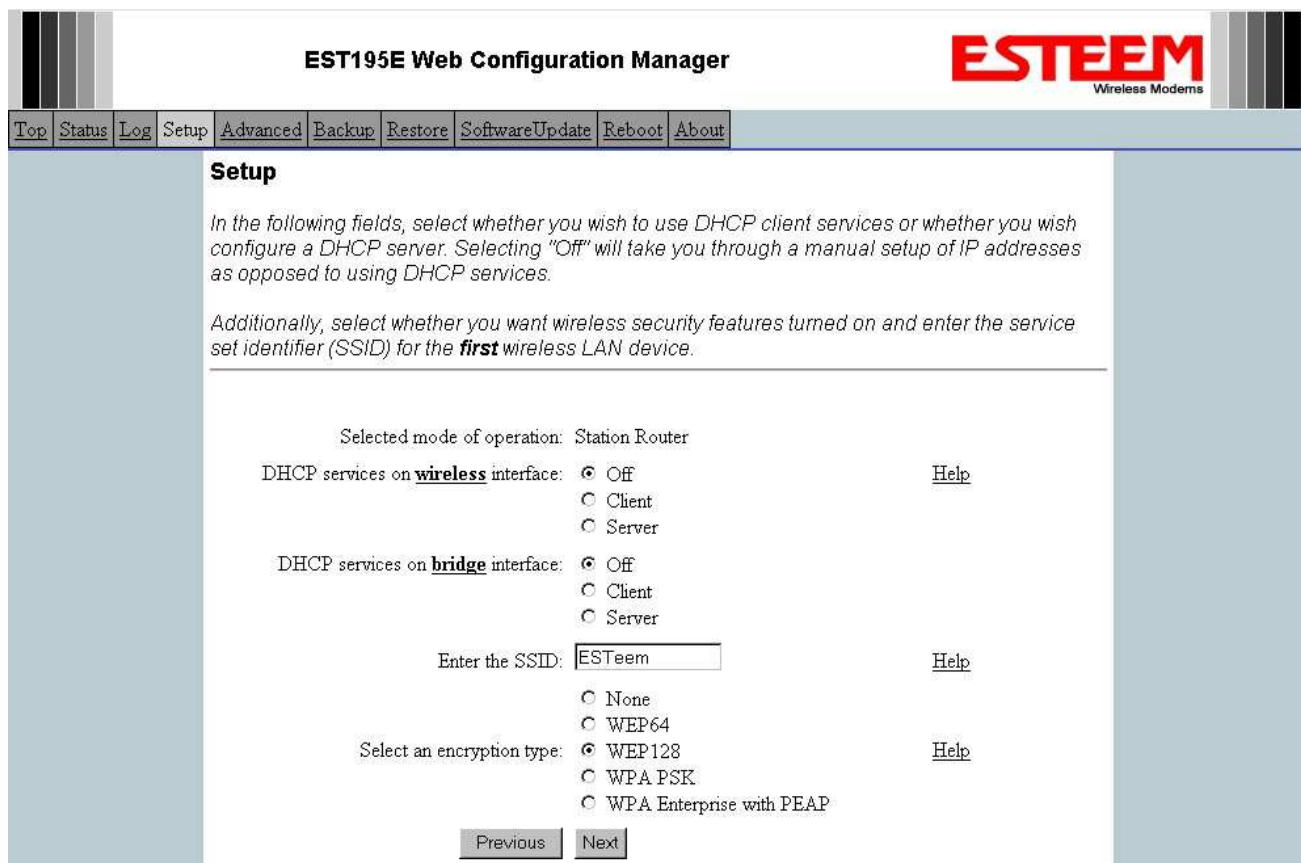


Figure 39: DHCP, SSID and Encryption Settings

3. Enter the WEP key values for your application that will be used by all devices on the wireless network. Reference Figure 40.

The screenshot shows the 'EST195E Web Configuration Manager' interface. At the top, there is a navigation menu with buttons for 'Top', 'Status', 'Log', 'Setup', 'Advanced', 'Backup', 'Restore', 'SoftwareUpdate', 'Reboot', and 'About'. The 'Setup' button is highlighted. The main content area is titled 'Setup' and contains the following text: 'Enter 13 hexadecimal bytes, separated by colons, for each of the following 128-bit WEP keys and select which key should be used as the default WEP key. These values are configured for the wireless LAN device.' Below this text, there are four input fields for WEP keys, each labeled 'Enter WEP Key 1' through '4' and '(13 hex bytes):'. Each field contains the default value '11:22:33:44:55:66:77:88:99:00:aa:bb:cc'. To the right of each field is a 'Help' link. Below the input fields, there are four radio buttons labeled 'WEP Key 1' through '4'. The 'WEP Key 1' radio button is selected. Below the radio buttons, there is a label 'Select the default WEP key:' and a 'Help' link. At the bottom of the form, there are two buttons: 'Previous' and 'Next'.

Figure 40:WEP Key Input

4. Refer to the IP address in Table 1 and enter the **wireless** IP Address and IP Netmask for the Station Router. Reference Figure 41.

The screenshot shows the 'EST195E Web Configuration Manager' interface. At the top, there is a navigation menu with buttons for 'Top', 'Status', 'Log', 'Setup', 'Advanced', 'Backup', 'Restore', 'SoftwareUpdate', 'Reboot', and 'About'. The 'Setup' button is highlighted. The main content area is titled 'Setup' and contains the following text: 'Enter values for the following fields for manual IP setup.' Below this text, there are two input fields. The first is labeled 'Enter IP address for the wireless LAN interface:' and contains the value '172.16.2.20'. The second is labeled 'Enter netmask for the wireless LAN interface:' and contains the value '255.255.0.0'. To the right of each field is a 'Help' link. Below the input fields, there are two buttons: 'Previous' and 'Next'.

Figure 41:Wireless IP Address

5. Refer to the IP address in Table 1 and enter the **ethernet** IP address and IP netmask. Reference Figure 42.

*Note: When configuring the Ethernet devices connected to the Station Router 195Eg, the ethernet IP address will be their Gateway address (Figure 37).*

The screenshot shows the 'Setup' page of the ESTEEM Web Configuration Manager. The page title is 'EST195E Web Configuration Manager' and the ESTEEM logo is in the top right. A navigation menu at the top includes 'Top', 'Status', 'Log', 'Setup', 'Advanced', 'Backup', 'Restore', 'SoftwareUpdate', 'Reboot', and 'About'. The main content area is titled 'Setup' and contains the instruction: 'Enter values for the following fields for manual IP setup of the **wired bridging** device.' Below this, the configuration options are: 'Mode of operation: Station Router', 'DHCP Services: Off', 'Enter IP address for **wired bridge** device: 172.18.1.1', and 'Enter netmask for **wired bridge** device: 255.255.0.0'. Each input field has a 'Help' link to its right. At the bottom are 'Previous' and 'Next' buttons.

Figure 42:Wired Ethernet IP Address

6. All IP requests for the Ethernet devices connected to the 195Eg Station Router (Example #5) will need to be resolved by the Network Router (Figure 37). Enter the default route (Gateway) IP address for the Network Router in the 195Eg. Enter any DNS server information and press the *Next* button. Figure 43.

The screenshot shows the 'Setup' page of the ESTEEM Web Configuration Manager. The page title is 'EST195E Web Configuration Manager' and the ESTEEM logo is in the top right. A navigation menu at the top includes 'Top', 'Status', 'Log', 'Setup', 'Advanced', 'Backup', 'Restore', 'SoftwareUpdate', 'Reboot', and 'About'. The main content area is titled 'Setup' and contains the instruction: 'Enter values for the following fields to set up the default route and DNS settings'. Below this, the configuration options are: 'Mode of operation: Station Router', 'Enter default route IP address: 172.16.1.6', 'Use DNS client services?  Yes  No', 'Enter DNS domain:', 'Enter primary DNS server IP address:', and 'Enter secondary DNS server IP address:'. Each input field has a 'Help' link to its right. At the bottom are 'Previous' and 'Next' buttons.

Figure 43:Default Route (Gateway) Address and DNS Input

7. Select *Commit Changes* to write the programming to Flash memory and reboot the Model 195Eg. When the reboot process has completed (approximately 30 seconds) the modem will be ready to place in operation.

### Example 6 – Mobile Vehicle #2 (Station Masquerade)

Review the Example Diagram #2 (Figure 2) and locate the 195Eg marked as Example 6. This ESTeem is connected to multiple Ethernet devices in a mobile application and will be configured Station Masquerade mode. In this mode the 195Eg's will gain access to the wireless Ethernet canopy created by the Access Point and act as a firewall between the devices connected to the Ethernet port and wireless network. Each of these networks will require a unique subnet to operate. In this configuration the Ethernet devices connected to the Station Masquerade 195Eg can access the wired LAN network, but not the other way around. This mode could be used if the Remote PC connected to the Station Masquerade needed to access the Internet (connected to the wired LAN), but did not want to be seen by other Ethernet devices on the network.

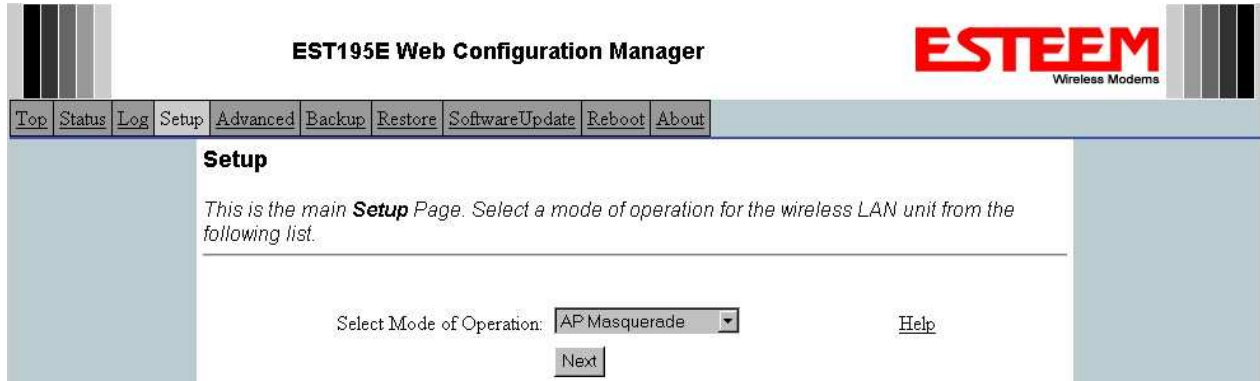


Figure 44: Station Masquerade Selection

1. Access the ESTeem Web page using your computer's Web Browser as per instructions in Chapter 4. Select Setup from the menu items. From the Select Mode of Operation pull down box, select Station Masquerade (Figure 44) and push the *Next* button below the pull down box.

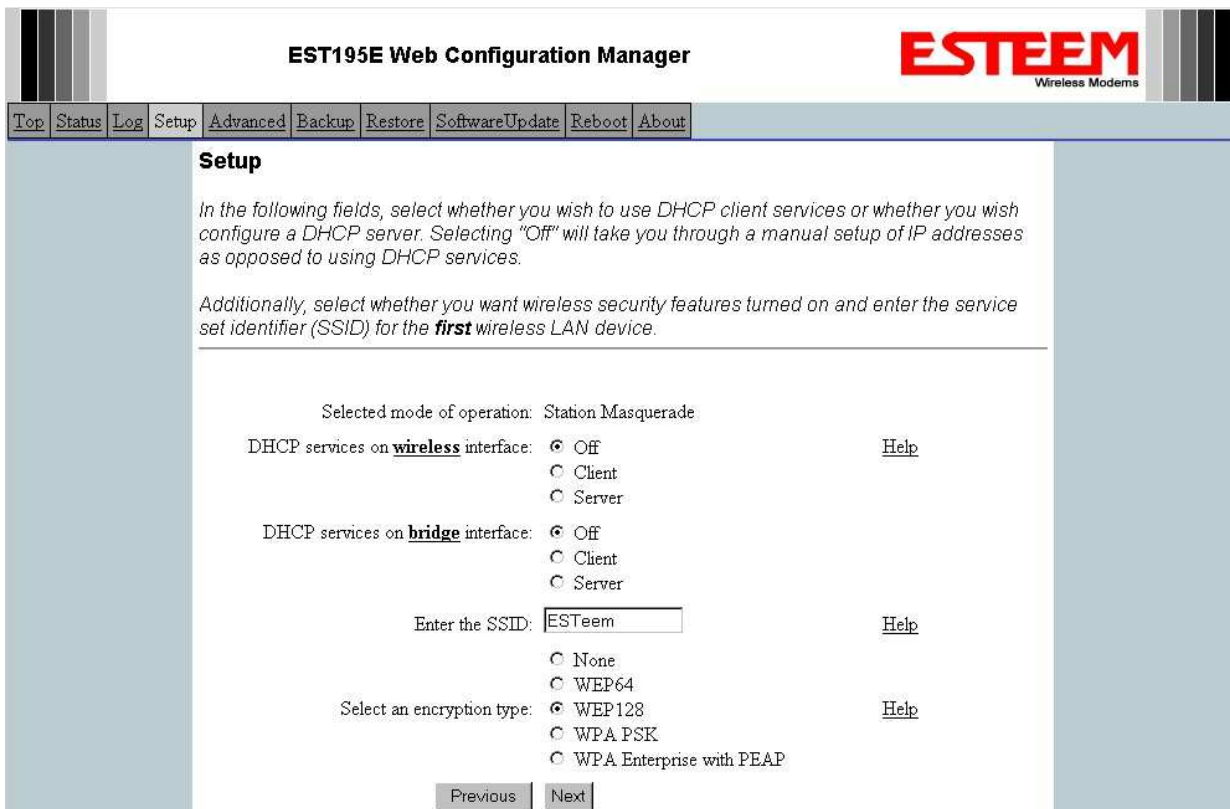


Figure 45: DHCP, SSID and Encryption Settings



2. Select *Yes* if you would like to use DHCP services on either the **wireless** or **ethernet** connections. Enter the SSID for you 802.11g network. The SSID is the unique identification for your wireless network and all 802.11g devices that share a wireless network **MUST** have the same SSID code. This identification code is case sensitive and must **NOT** contain spaces. Select the encryption level for the wireless network to match the level of the Access Point canopy. Reference Figure 45.

The screenshot shows the 'EST195E Web Configuration Manager' interface. At the top, there is a navigation menu with options: Top, Status, Log, Setup, Advanced, Backup, Restore, SoftwareUpdate, Reboot, and About. The 'Setup' tab is selected. Below the navigation menu, the page title is 'Setup'. A descriptive text reads: 'Enter 13 hexadecimal bytes, separated by colons, for each of the following 128-bit WEP keys and select which key should be used as the default WEP key. These values are configured for the wireless LAN device.' The main content area shows 'Encryption type: 128-Bit WEP for the wireless LAN device'. There are four input fields for WEP keys, each labeled 'Enter WEP Key X (13 hex bytes):' and containing the value '11:22:33:44:55:66:77:88:99:00:aa:bb:cc'. To the right of each field is a 'Help' link. Below the key fields, there are four radio buttons labeled 'WEP Key 1', 'WEP Key 2', 'WEP Key 3', and 'WEP Key 4'. The 'WEP Key 1' radio button is selected. Below the radio buttons, there is a label 'Select the default WEP key:' followed by the same four radio buttons. A 'Help' link is also present to the right. At the bottom of the form, there are 'Previous' and 'Next' buttons.

Figure 46:WEP Key Entry

3. Enter the WEP key values for your application that will be used by all devices on the wireless network. Reference Figure 46.
4. Refer to the IP address in Table 1 and enter the **wireless** IP Address and IP Netmask for the Station Router. Reference Figure 47.

The screenshot shows the 'EST195E Web Configuration Manager' interface. At the top, there is a navigation menu with options: Top, Status, Log, Setup, Advanced, Backup, Restore, SoftwareUpdate, Reboot, and About. The 'Setup' tab is selected. Below the navigation menu, the page title is 'Setup'. A descriptive text reads: 'Enter values for the following fields for manual IP setup.' The main content area shows 'Mode of operation: Station Masquerade' and 'DHCP Services: Off'. There are two input fields: 'Enter IP address for the wireless LAN interface:' with the value '172.16.2.30' and 'Enter netmask for the wireless LAN interface:' with the value '255.255.0.0'. To the right of each field is a 'Help' link. At the bottom of the form, there are 'Previous' and 'Next' buttons.

Figure 47:Wireless IP Settings

5. Refer to the IP address in Table 1 and enter the **ethernet** IP address and IP netmask. Reference Figure 48.

*Note: When configuring the Ethernet devices connected to the Station Router 195Eg, the ethernet IP address will be their Gateway address (Figure 37).*

The screenshot shows the 'Setup' page of the EST195E Web Configuration Manager. The page title is 'EST195E Web Configuration Manager' and the ESTEEM logo is in the top right. A navigation bar at the top includes links for Top, Status, Log, Setup, Advanced, Backup, Restore, SoftwareUpdate, Reboot, and About. The main content area is titled 'Setup' and contains the instruction: 'Enter values for the following fields for manual IP setup of the **wired bridging** device.' Below this, the 'Mode of operation' is set to 'Station Masquerade' and 'DHCP Services' are 'Off'. There are two input fields: 'Enter IP address for wired bridge device:' with the value '172.16.38.189' and 'Enter netmask for wired bridge device:' with the value '255.255.0.0'. Each input field has a 'Help' link to its right. At the bottom of the form are 'Previous' and 'Next' buttons.

Figure 48:Wired Ethernet Interface

6. All IP requests for the Ethernet devices connected to the 195Eg Station Router (Example #5) will need to be resolved by the Network Router (Figure 37). Enter the default route (Gateway) IP address for the Network Router in the 195Eg. Enter any DNS server information and press the *Next* button. Figure 49.

The screenshot shows the 'Setup' page of the EST195E Web Configuration Manager. The page title is 'EST195E Web Configuration Manager' and the ESTEEM logo is in the top right. A navigation bar at the top includes links for Top, Status, Log, Setup, Advanced, Backup, Restore, SoftwareUpdate, Reboot, and About. The main content area is titled 'Setup' and contains the instruction: 'Enter values for the following fields to set up the default route and DNS settings'. Below this, the 'Mode of operation' is set to 'Station Masquerade'. There are five input fields: 'Enter default route IP address:' with the value '172.16.1.6', 'Use DNS client services?' with radio buttons for 'Yes' and 'No' (where 'No' is selected), 'Enter DNS domain:', 'Enter primary DNS server IP address:', and 'Enter secondary DNS server IP address:'. Each input field has a 'Help' link to its right. At the bottom of the form are 'Previous' and 'Next' buttons.

Figure 49:Default Route (Gateway) and DNS Input

7. Select *Commit Changes* to write the programming to Flash memory and reboot the Model 195Eg. When the reboot process has completed (approximately 30 seconds) the modem will be ready to place in operation.