

SECURITY LOG

- **Malformed packet: Failed parsing** – a packet has been blocked because it is malformed.
- **Maximum security enabled service** – a packet has been accepted because it belongs to a permitted service in the maximum security level.
- **Multicast IGMP connection** – a multicast packet has been accepted.
- **NAT Error: Connection pool is full - No connection created** – a connection has not been created because the connection pool is full.
- **NAT Error: Conflict mapping already exists** – a conflict occurred because the NAT mapping already exists, so NAT failed.
- **NAT Error: No free NAT IP** – no free NAT IP, so NAT has failed.
- **NAT out failed** – NAT failed for this packet.
- **Outbound Auth1X** – an outbound Auth1X packet has been accepted.
- **Packet invalid in connection** – an invalid connection packet has been blocked.
- **Parental controls** – a package has been blocked because of parental controls.
- **Passive attack on ftp-server: Client attempted to open Server ports** – a packet has been blocked.
- **Service** – a packet has been accepted because of a certain service, as specified in the event type.

-
- **Spoofing protection** – a packet from the Internet with a source IP belong to the local network has been blocked.
 - **STP packet** – STP (Spanning Tree Protocol) packet has been accepted/rejected.
 - **SynCookies protection** – a SynCookies packet has been blocked.
 - **Trusted device** – a packet from a trusted device has been accepted.
 - **UDP flood protection** – a packed has been blocked, stopping a UDP flood.
 - **User authentication** – a message arrived during login time, including both successful and failed authentication.
 - **Wildcard connection hooked** – debug message regarding connection.
 - **Wildcard connection opened** - debug message regarding connection.
 - **WinNuke protection** – a WinNuke attack has been blocked.

To view the security log:

1. Select **Security Log**.

SECURITY LOG

fios
by verizon

Main Wireless Settings Voice My Network **Firewall** Parental Controls Advanced System Monitoring

Main
General
Access Control
Port Forwarding
Port Triggering
DMZ Host
Remote Administration
Static NAT
Security Log
Logout

Security Log

[Close >](#) [Clear log >](#) [Save log >](#) [Hazard >](#) [Settings >](#) [Refresh >](#)

Press the Refresh button to update the data.

Time	Event-Type	Log Level	Details
Aug 12 13:37:49 2016	System	info<166>	Successful login to web UI from 192.168.1.253:49373
Aug 12 12:58:39 2016	System	info<166>	Successful login to web UI from 192.168.1.253:53275
Aug 12 12:58:28 2016	System	info<166>	Successful login to web UI from 192.168.1.253:53271

2. To modify the types of events that display in the log, click **Settings**.



- Main
- General
- Access Control
- Port Forwarding
- Port Triggering
- DMZ Host
- Remote Administration
- Static NAT
- Security Log**
- Logout

Log Settings

Accepted Events

Accepted Incoming Connections

Accepted Outgoing Connections

Blocked Events

All Blocked Connection Attempts

Winnuke

Multicast/Broadcast

ICMP Replay

Defragmentation Error

Spoofed Connection

ICMP Redirect

Blocked Fragments

Packet Illegal Options

ICMP Multicast

Syn Flood

UDP Flood

ICMP Flood

Echo Chargen

Other Events

Remote Administration Attempts

Connection States

Log Buffer

Prevent Log Overrun

Apply >

Cancel >

SECURITY LOG

3. In the **Accepted Events** section, select the type of activities that generates a log message:
 - **Accepted Incoming Connections** – generates a log message for each successful attempt to establish an inbound connection to the local network.
 - **Accepted Outgoing Connections** - generates a log message for each successful attempt to establish an outbound connection to the public network.
4. In the **Blocked Events** section, select the type of blocked events you want logged.
5. To log a message for each remote administration connection attempt, click the **Remote Administration Attempts** check box.
6. To log the connection for handling by the firewall and application level Fios Routers, click the **Connection States** check box.
7. Click **Apply** to save changes. The Security Log page displays.

07/ CONFIGURING
SECURITY SETTINGS

120

08/

SETTING PARENTAL CONTROLS

8.0 Activating Parental
Controls

8.1 Rule Summary

The abundance of harmful information on the Internet poses a serious challenge for employers and parents alike as they ask “How can I regulate what my employee or child does on the Internet?”

With that question in mind, your Fios Router’s Parental Controls were designed to allow control of Internet access on all locally networked devices.

ACTIVATING PARENTAL CONTROLS

8.0/ ACTIVATING PARENTAL CONTROLS

You can create a basic access policy for any computer or device on your Fios Router network. Parental controls limit Internet access to specific websites based on a schedule that you create.

Access can be limited on specific websites or keywords embedded in a website. For example, you can block access to the 'www.anysite.com' as well as block any website that has the word 'any' in its site name.

To limit computer access:

1. Select Parental Controls.

The screenshot shows the Fios Router web interface. At the top, the 'fios by verizon' logo is on the left, and a navigation menu includes 'Main', 'Wireless Settings', 'Voice', 'My Network', 'Firewall', 'Parental Controls' (highlighted in red), 'Advanced', and 'System Monitoring'. On the left side of the page, a sidebar menu has 'Parental Controls' selected. The main content area is titled 'Parental Controls' and contains the following text: 'The Router provides basic Parental Controls that allow you to create a list of website addresses and keywords embedded in website addresses that will limit the computer user's Internet access. Simply follow the 3 Steps below and click the Apply button to set up your Parental Controls.' Below this is a 'Note' about monitoring and content cleanup. A 'Step 1' indicator is followed by the instruction: 'Select the Primary/Guest Network Device for this Allow or Block Rule.' A 'What's this?' help icon is present. The configuration area is divided into two columns: 'Primary Network & Guest Network Device List' and 'Selected Devices'. The first column contains a list box with 'asus-pc', 'iPhone', and 'Work-Laptop'. Between the columns are two red buttons: 'Add >' and '< Remove'.

-
2. In **Step 1** (optional), select the computers or device where you are limiting access in the **Networked Computer/Device** list box, then click **Add**. The devices display in the **Selected Devices** section.
 3. To remove a device from the **Selected Devices** list box, select the device, then click **Remove**. The device displays in the **Networked Computer/Device** list box.
 4. In **Step 2**, click one of the following options in the **Limit Access By** section:
 - **Block the following Websites and Embedded Keywords within a Website** – blocks the specified websites and websites with names contained the specified keyword.
 - **Allow the following Websites and Embedded Keywords within a Website** – allows the specified websites and websites with names contained the specified keyword.
 - **Block ALL Internet Access** – will not allow the device to access the Internet.
 5. Enter the name of the website or keyword, then click **Add**.

ACTIVATING PARENTAL CONTROLS AND RULE SUMMARY

Step 2 Create the Parental Control Rules and Schedules.

Limit Access By: [What's this?](#)

Block the following Websites and Embedded Keywords within a URL
 Allow the following Websites and Embedded Keywords within a URL
 Blocking ALL Internet Access

Website:

Add >

Example: www.example.com

Embedded keyword within a URL:

< Remove

Example: "sample" within www.sample.com

- To remove a website or keyword, select the word, then click **Remove**.
- Create a schedule by selecting the days of the week when the rule will be active or inactive.

Create Schedule: [What's this?](#)

Days:

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

Times:

Rule will be Active at the Scheduled Time
 Rule will be Inactive at the Scheduled Time

Start Time:

: AM / PM

End Time:

: AM / PM

- Set the time when the rule will be active or inactive, then specify the start time and end time.
- Create a rule name and description.

- Click **Apply** to save changes.

8.1/ RULE SUMMARY

You can view the rules created for your Fios Router.

- To view the rule summary, select **Rule Summary**. The Rule Summary page opens with the rule name, description, and computer or device displayed.

The screenshot shows the Fios Parental Controls interface. At the top, there is a navigation menu with the following items: Main, Wireless Settings, My Network, Firewall, Parental Controls (highlighted), Advanced, and System Monitoring. Below the navigation menu is a sidebar with the following items: Main, Parental Controls, Rule Summary (highlighted), and Logout. The main content area is titled 'Rule Summary' and contains a table with the following data:

Rule Name	Description	Computer/Device	Enable Rule	View Rule	Edit Rule	Delete Rule
Block_Selected	Block only websites with any of the listed words in their URLs.	Nothing selected	<input checked="" type="checkbox"/>	View	Edit	Remove
Block_bn.com	Block only bn.com	android-31b61a6441...	<input checked="" type="checkbox"/>	View	Edit	Remove

Below the table, there are two buttons: **Apply >** and **Cancel >**.

You can enable, view, edit, or delete the rule, refer to **Scheduler Rules** for additional setting details.

09/

CONFIGURING ADVANCED SETTINGS

- 9.0** Using Advanced Settings
- 9.1** Utilities
- 9.2** DNS Settings
- 9.3** Network Settings
- 9.4** Routing
- 9.5** Date and Time
- 9.6** Configuration Settings

Advanced settings cover a wide range of sophisticated configurations for your Fios Router's firmware and network.

USING ADVANCED SETTINGS AND UTILITIES

Caution: Many of the settings described in this section should only be configured by experienced network technicians. Changes could adversely affect the operation of your Fios Router and local network.

9.0/ USING ADVANCED SETTINGS

You can access the following settings:



Utilities



Date & Time



DNS Settings



Routing



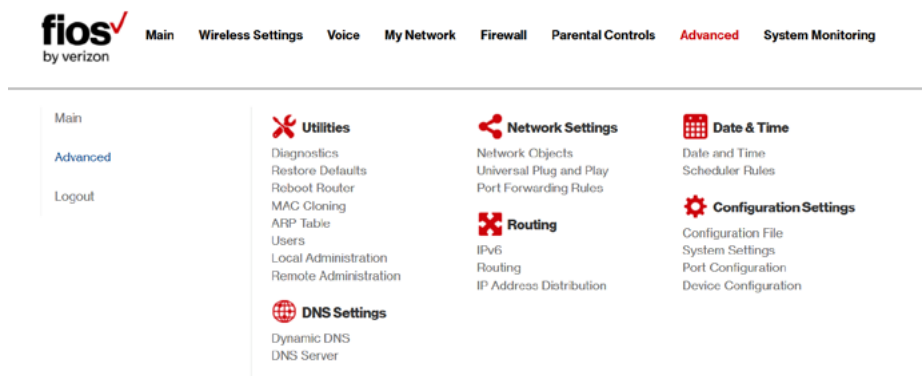
Network Settings



Configuration Settings

To access the advanced settings:

1. Select **Advanced**. A warning page displays, asking if you want to proceed.
2. Click **Yes**. The Advanced page displays.



3. Select a topic by clicking the topic name.

9.1/ UTILITIES

You can access the following advanced settings:

- **Diagnostics** – performs diagnostic tests
- **Restore Defaults** – resets your Fios Router to its default settings
- **Reboot Router** – restarts your Fios Router
- **MAC Cloning** – clones the MAC address
- **ARP Table** – displays active devices with their IP and MAC addresses
- **Users** – creates and manages remote users

UTILITIES

- **Local Administration** – allows you to grant local SSH access
- **Remove Administration** – detailed in Chapter 6 Configuring Your Network Settings

9.1a/ DIAGNOSTICS

You can use diagnostics to test network connectivity.

To diagnose network connectivity:

1. Select **Diagnostics** in the Advanced page.

The screenshot shows the Fios by Verizon Advanced page. The navigation menu includes Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, Advanced (highlighted), and System Monitoring. On the left sidebar, there are links for Main, Advanced (highlighted), and Logout. The main content area is titled "Diagnostics" and contains the following text: "Diagnostics can assist in testing network connectivity. This feature pings (ICMP echo) an IP address and displays the results, such as the number of packets transmitted and received, round trip time, and success status". Below this text is a "Ping (ICMP Echo)" section with a form. The form has a "Destination:" label, a text input field containing "google.com", and a red "Go >" button. Below the input field is a "Number of Pings:" label and a text input field containing "4". At the bottom of the form is a "Status:" label and a red "Close >" button.

2. To ping an IP address, enter the IP address or domain name in the **Destination** field and click **Go**.

The diagnostics will display the number of pings, status, packets sent, and round trip time.

If no diagnostic status displays, click **Refresh** in your web browser.

3. Click **Close** to exit the session.

9.1b/ RESTORE DEFAULTS

You can restore your configuration settings to your Fios Router factory default settings. Restoring the default settings erases the current configuration, including user defined settings and network connections. All connected DHCP client must request new IP addresses. Your Fios Router must restart.

Prior to restoring the factory defaults, you may want to save your current configuration to a file. This allows you to reapply your current settings and parameters to the default settings, as needed. For additional information, refer to the **Configuration File** section.

***Note:** When restoring defaults, the setting and parameters of your Fios Router are restored to their default values. This includes the Administrator password. A user-specified password will no longer be valid.*

To restore your Fios Router's factory default settings:

1. Select **Restore Defaults** in the Advanced page.

UTILITIES

fios
by verizon

Main Wireless Settings Voice My Network Firewall Parental Controls **Advanced** System Monitoring

Main
Advanced
Logout

Attention

Restoring your router to default settings will erase the current router configuration. If you would like to save the current configuration, click the "Save Configuration File" button.

Save Configuration File +

If you do not wish to save the current configuration file, click the "Restore" button.

All Router Defaults
 All Defaults except User Settings
 All ONT Defaults
 All Device Defaults (router and ONT)

Restore >

2. To save your current configuration file, click **Save Configuration File**.
3. To restore the factory default settings, click **OK**.
 - **All Router Defaults** – will erase all router settings including user settings for SSID and Passwords.
 - **All Defaults except User Settings** – will erase all router settings but will retain the user settings for SSID and Passwords.
 - **All ONT Defaults** – will erase recent ONT network management changes made by Verizon. Use only if instructed to do so by Verizon support.
 - **All Device Defaults (router and ONT)** – will erase all custom router settings and recent ONT network management changes. Use only if instructed to do so by Verizon support.

4. The factory default settings are applied and your Fios Router restarts. Once complete, the Login page for the First Time Easy Setup Wizard displays.

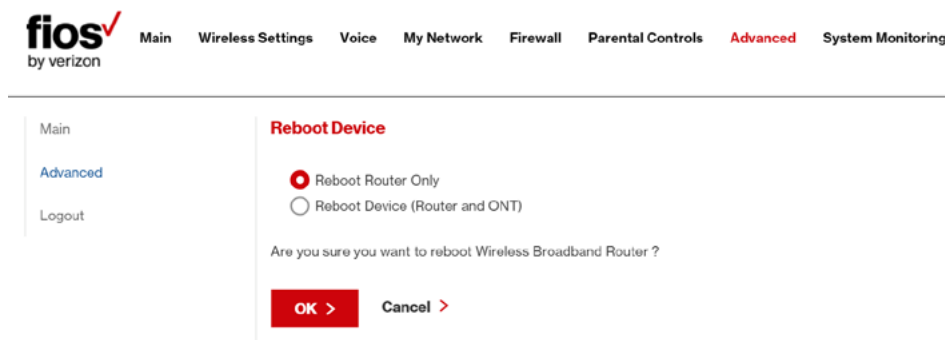
9.1c/ REBOOT FIOS ROUTER

Warning: Only select Reboot Device if instructed to do so by Verizon support.

You can reboot your Fios Router using the Reboot Router Only feature. Refer to 1.3b/ REAR PANEL for power button options.

To reboot your Fios Router's router using the user interface:

1. Select **Reboot Router Only** in the Advanced page.



2. To reboot, click **OK**. Your router will reboot. This may take up to a minute.

UTILITIES

3. To access your Fios Router user interface, refresh your web browser.

If instructed by Verizon support to reboot the entire Fios Router (the Router and ONT):

1. Select Reboot Device (Router and ONT) in the Advanced page.
2. To continue with the reboot, click OK. Your Fios Router will reboot. This may take a few minutes.
3. After the front panel Unified Button LED turns solid white you will automatically be sent to the web browser login page.

9.1d/ MAC CLONING

A MAC address is a hexadecimal code that identifies a device on a network. All networkable devices have a unique MAC address.

When replacing a network device on your Fios Router, you can simplify the installation process by copying the MAC address of the existing device to your Fios Router.

To copy the MAC address of the existing device:

1. Select **MAC Cloning** in the Advanced page.

The screenshot shows the Fios by Verizon website interface. The top navigation bar includes links for Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, Advanced (highlighted in red), and System Monitoring. On the left, a sidebar menu has links for Main, Advanced (highlighted in blue), and Logout. The main content area is titled "MAC Cloning" and contains the following text: "MAC Address Cloning provides the ability to emulate the routers MAC address to appear identical to the original hardware address. Use this feature only if your ISP requires MAC Address authentication". Below this text, there is a section for "Set MAC of Device:" with a dropdown menu currently set to "Broadband Connection(Ethernet)". Underneath, the "To Physical Address:" field is populated with the MAC address "c8 : a7 : 0a : d2 : a1 : x1". A red button labeled "Restore factory MAC address >" is positioned below the address field. At the bottom of the form, there are two red buttons: "Apply >" and "Cancel >".

2. In the **To Physical Address** field, enter the MAC address of your new device.
3. To locate the MAC address, refer to the documentation from the device manufacturer.
4. Click **Apply** to save changes.

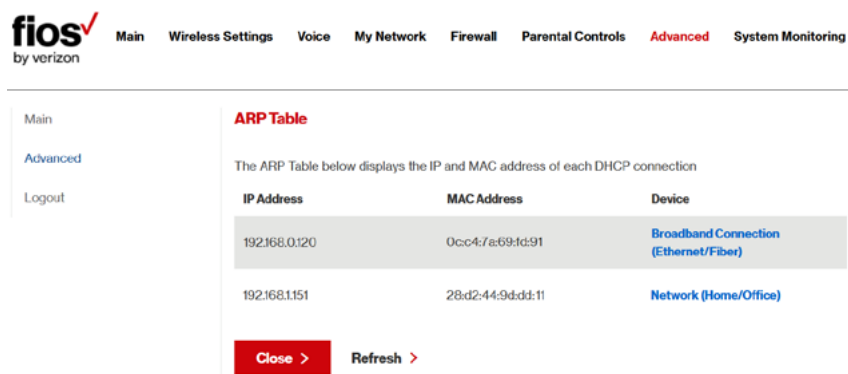
9.1e/ ARP TABLE

You can view the IP and MAC addresses of each DHCP connection.

To view the IP and MAC addresses:

1. Select **ARP Table**.

UTILITIES



The screenshot shows the Fios Advanced page with the ARP Table section. The page has a navigation bar with links: Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, Advanced (highlighted), and System Monitoring. On the left, there is a sidebar with links: Main, Advanced (highlighted), and Logout. The main content area is titled "ARP Table" and contains the following text: "The ARP Table below displays the IP and MAC address of each DHCP connection". Below this text is a table with three columns: IP Address, MAC Address, and Device. The table contains two rows of data. At the bottom of the table, there are two buttons: "Close >" and "Refresh >".

IP Address	MAC Address	Device
192.168.0.120	0cc4:7a:69:fd:91	Broadband Connection (Ethernet/Fiber)
192.168.1.151	28:d2:44:9d:d3:11	Network (Home/Office)

2. Review the IP and MAC address for each device.
3. When complete, click **Close**.

9.1f/ USERS

You can view the users that can currently access your wireless network. In addition, you can modify their login password and name as well as manage the number of unsuccessful login attempts a user can enter before your Fios Router temporarily denies all further login attempts by that user.

To view users:

1. Select **Users** in the Advanced page.

fios by verizon

Main Wireless Settings Voice My Network Firewall Parental Controls **Advanced** System Monitoring

Main
Advanced
Logout

Users

The User page provides the ability to edit router administrator settings.

Login Configuration

Maximum Unsuccessful Login Attempts:

Users

Full Name	UserName	Permissions	Action
Administrator	admin	Administrator	Edit

[Apply >](#) [Close >](#)

2. In the **Login Configuration** section, enter the maximum number of unsuccessful login attempts.
3. To edit usernames and passwords, click the **Edit** icon in the **Action** column. The User Settings page displays.

fios by verizon

Main Wireless Settings Voice My Network Firewall Parental Controls **Advanced** System Monitoring

Main
Advanced
Logout

User Settings

General

Full Name:

User Name (case sensitive):

Set a new password

[? Tips for creating secure passwords](#)

Permissions:

DNS SETTINGS

4. To edit the username and set a new password, as needed.
5. To add a new user, specify the following parameters:
 - **Full Name** - name of the user.
 - **User Name** – name the user enters to remotely access the home or office network. This field is case-sensitive.
6. To set a new Password, select the **Set a new password** check box. The **New Password** fields display.
7. Verify the level of access for the user in the **Permissions** field.
8. Click **Apply** to save changes. The Users page opens with the user information displayed.
9. Click **Apply** again to save changes and exit.

9.1g/ LOCAL ADMINISTRATION

You can grant local access on a specific port.

To grant access:

1. Select **Local Administration** in the Advanced page.

The screenshot shows the Fios by Verizon Advanced page. The navigation menu includes Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, **Advanced**, and System Monitoring. On the left sidebar, the navigation options are Main, **Advanced**, and Logout. The main content area is titled **Local Administration** and contains a note: "NOTE: Only advanced technical users should use this feature." Below the note, there is a section titled "Allow local SSH access" with two checkboxes: Using Primary SSH Port (22) and Using Secondary SSH Port (8022).

2. To grant access, select the check box for the specific SSH access.
3. Click **Apply** to save changes. Local access is granted.
4. To remove access, clear the checkbox, then click **Apply**. No local access is granted.

9.1h/ REMOTE ADMINISTRATION

The Remote Administration parameters are detailed in **Chapter 4 Configuring Your Network Settings**.

9.2/ DNS SETTINGS

You can view and manage the DNS server host name and IP address as well as add a new computer. The DNS server does not require configuration.

9.2a/ DYNAMIC DNS

Typically, when connecting to the Internet, your router is assigned an unused public IP address from a pool, and this address changes periodically.

Dynamic DNS allows a static domain name to be mapped to the dynamic IP address, allowing a computer within your network to be more easily accessible from the Internet.

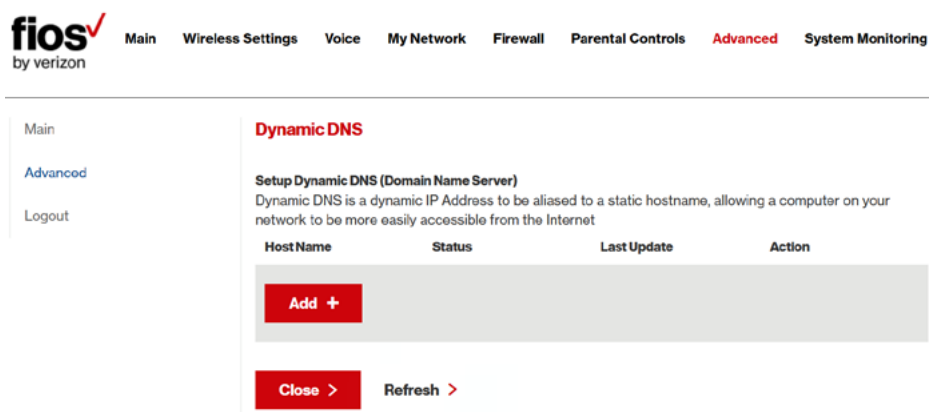
When using Dynamic DNS, each time the public IP address changes, the DNS database is automatically updated with the new IP address.

DNS SETTINGS AND NETWORK SETTINGS

In this way, even though the IP address changes often, the domain name remains constant and accessible.

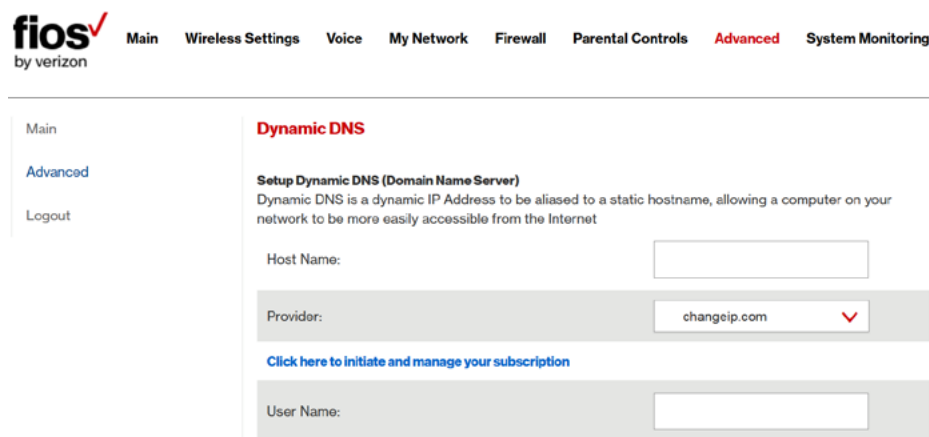
To set up dynamic DNS:

1. Select Dynamic DNS



The screenshot shows the fios by verizon interface. The top navigation bar includes: Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, **Advanced**, and System Monitoring. On the left, a sidebar menu has: Main, **Advanced**, and Logout. The main content area is titled "Dynamic DNS" and contains the following text: "Setup Dynamic DNS (Domain Name Server)" and "Dynamic DNS is a dynamic IP Address to be aliased to a static hostname, allowing a computer on your network to be more easily accessible from the Internet". Below this is a table with headers: Host Name, Status, Last Update, and Action. A red "Add +" button is positioned below the table. At the bottom of the table area, there are two buttons: "Close >" and "Refresh >".

2. To set up a new entry, click the Add button.



The screenshot shows the fios by verizon interface. The top navigation bar includes: Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, **Advanced**, and System Monitoring. On the left, a sidebar menu has: Main, **Advanced**, and Logout. The main content area is titled "Dynamic DNS" and contains the following text: "Setup Dynamic DNS (Domain Name Server)" and "Dynamic DNS is a dynamic IP Address to be aliased to a static hostname, allowing a computer on your network to be more easily accessible from the Internet". Below this is a form with the following fields: "Host Name:" with an empty text input box; "Provider:" with a dropdown menu showing "changeip.com" and a downward arrow; a blue link "Click here to initiate and manage your subscription"; and "User Name:" with an empty text input box.

-
3. Configure the following parameters:
 - **Host Name** – enter the full domain name for your Dynamic DNS domain.
 - **Provider** – select the Dynamic DNS account provider from the menu.
 - **User Name** – enter your user name for your Dynamic DNS account.
 - **Password** – enter the password for your Dynamic DNS account.
 - **SSL Mode** – select if your Dynamic DNS service supports SSL.

Click **Apply** to save your changes.

To edit the host name or IP address:

1. In the Action column, click the Edit icon. The DNS Entry page displays.
2. Edit the settings.
3. Click **Apply** to save the changes.

9.2b/ DNS SERVER

You can edit the host name and/or IP address, if the host was manually added to the DNS table. If not, you can only modify the host name.

NETWORK SETTINGS

To access the DNS server:

1. Select **DNS Server** in the Advanced page.

The screenshot shows the Fios by Verizon network settings interface. The top navigation bar includes: Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, **Advanced**, and System Monitoring. On the left, a sidebar menu has: Main, **Advanced**, and Logout. The main content area is titled **DNS Server** and contains the instruction: "Add, edit or delete computers known by the router's DNS Server". Below this is a table with the following data:

Host Name	IP Address	Source	Action
android	192.168.1152	DHCP	
Host_DNS_Server	192.168.140	User Defined	Edit Remove
Best_DNS_Server	192.168.150	User Defined	Edit Remove

Below the table is a red button labeled "Add dns entry +" and a "Close >" button at the bottom.

2. To view and add computers stored in the DNS table, click **Add DNS Entry**. The Add DNS Entry page displays.
3. In the **Host Name** field, enter the name of the computer, then enter the IP address and click **Apply** to save changes. The DNS Server page displays.
4. To edit the host name or IP address, click the **Edit** icon in the **Action** column. The DNS Entry page displays. Edit the host name and/or IP address, then click **Apply** to save changes.
5. To remove a host from the DNS table, click the **Delete** icon in the **Action** column.

9.3/ NETWORK SETTINGS

You can configure the following network settings:

- **Network Objects** – define a group, such as a group of computers
- **UPnP** – checks the validity of all UPnP services and rules
- **Port Forwarding Rules** – displays port forwarding rules

9.3a/ NETWORK OBJECTS

Network objects define a group, such as a group of computers, on your Fios Router network by MAC address, IP address, and /or host name. The defined group becomes a network object. You can apply settings, such as configuring system rules, to all devices defined in the network object.

For example, instead of setting the same website filtering configuration individually to five computers one at a time, you can define the computers as a network object. Website filtering can then be simultaneously applied to all the computers.

You can use network objects to apply security rules based on host names, instead of IP addresses. This is useful since IP addresses change from time to time. In addition, you can define network objects according to MAC address to make the rule application more persistent against network configuration settings.

To define a network object:

1. Select **Network Objects** in the Advanced page.

NETWORK SETTINGS

The screenshot shows the fios by verizon interface. The top navigation bar includes: Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, **Advanced**, and System Monitoring. On the left, a sidebar menu has: Main, **Advanced**, and Logout. The main content area is titled "Network Objects" and contains the following text: "A Network Object is a set of host names, IP addresses, or MAC addresses. Security rules can be applied to a distinct LAN subnet using Network Objects." Below this text is a table with three columns: "Network Object", "Items", and "Action". The table is currently empty, and a red "Add +" button is visible at the bottom left of the table area. A red "Close >" button is located below the table.

2. To define a network object, click **Add**. The Edit Network Objects page displays.

The screenshot shows the fios by verizon interface. The top navigation bar includes: Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, **Advanced**, and System Monitoring. On the left, a sidebar menu has: Main, **Advanced**, and Logout. The main content area is titled "Edit Network Objects" and contains the following form fields: "Network Object" (empty), "Description" (with the text "Global Object" entered), and "Items" (with columns "Item" and "Action"). Below the form fields is a red "Add +" button. At the bottom, there are two red buttons: "Apply >" and "Cancel >".

3. In the **Description** field, enter a name for the network object.

4. Click **Add**. The Edit Item page displays.

The screenshot shows the Fios by Verizon Advanced Settings interface. The navigation menu includes Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, **Advanced**, and System Monitoring. The 'Advanced' section is active, showing a sidebar with Main, **Advanced**, and Logout. The main content area is titled 'Edit Item' and features a 'Network Object Type' dropdown menu set to 'IP Address'. Below this is an 'IP Address' input field with four '0' characters. At the bottom, there are 'Apply >' and 'Cancel >' buttons.

5. Select the type of network object as IP address, IP subnet, IP range, MAC address, host name, DHCP option, or protocol, and click **Apply** to save changes.
6. Repeat the above steps to create additional network objects.
7. When complete, click **Apply** to save changes.

9.3b/ UNIVERSAL PLUG AND PLAY

You can use Universal Plug and Play (UPnP) to support new devices without configuring or rebooting your Fios Router.

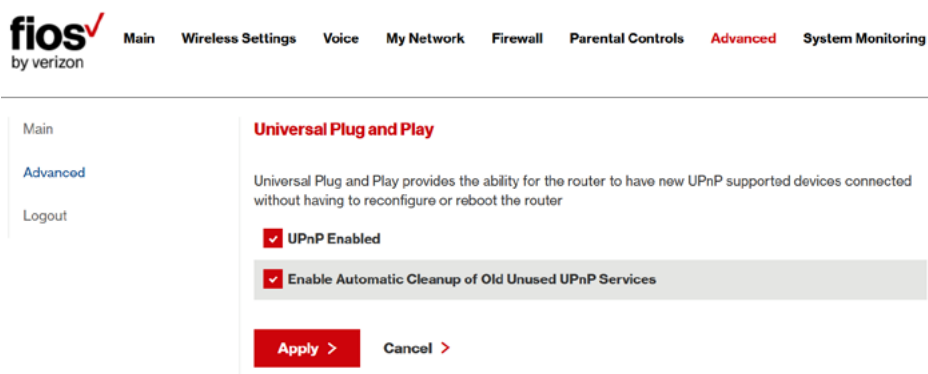
In addition, you can enable the automatic cleanup of invalid rules. When enabled, this functionality verifies the validity of all UPnP services and rules every five minutes. Old and unused UPnP defined services are removed, unless a user-defined rule depends on it.

NETWORK SETTINGS

UPnP services are not deleted when disconnecting a computer without proper shutdown of the UPnP applications, such as messenger. Services may often not be deleted and eventually this leads to the exhaustion of rules and services, and no new services can be define. The cleanup feature locates the invalid services and removes them, preventing services exhaustion.

To access this setting:

1. Select **Universal Plug and Play** in the Advanced page.



2. To enable UPnP and allow UPnP services to be defined on any network hosts, select the **UPnP Enabled** check box.
3. To enable automatic cleanup of invalid rules, select **Enable Automatic Cleanup of Old Unused UPnP Services** check box.
4. Click **Apply** to save changes.

9.3c/ PORT FORWARDING RULES

You can view, modify, and delete port forwarding rules.

To access the rules:

1. Select Port Forwarding Rules in the Advanced page.

fios
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Main Wireless Settings Voice My Network Firewall Parental Controls **Advanced** System Monitoring

Main
Advanced
Logout

Port Forwarding Rules

Below is a list of currently configured Protocols that are implemented in the Wireless Broadband Router.

Protocols	Ports	Action
FTP	TCP Any -> 21	Edit Remove
HTTP	TCP Any -> 80	Edit Remove
HTTPS	TCP Any -> 443	Edit Remove
IMAP	TCP Any -> 143	Edit Remove
L2TP	UDP Any -> 1701	Edit Remove
Ping	ICMP Echo Request	Edit Remove
POP3	TCP Any -> 110	Edit Remove
SMTP	TCP Any -> 25	Edit Remove
SNMP	UDP Any -> 161	Edit Remove
Telnet	TCP Any -> 23	Edit Remove
TFTP	UDP 1024 - 65535 -> 69	Edit Remove
Traceroute	UDP 32769 - 65535 -> 33434 - 33523	Edit Remove
VoiceWing VoIP Phone Service	UDP Any -> 53 UDP Any -> 69 UDP Any -> 5060 - 5061 UDP Any -> 20000 - 60000	Edit Remove

Add +

Close >

ROUTING

2. To edit a protocol rule, click the **Edit** icon in the **Action** column. The Edit Service page displays.

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Main Wireless Settings Voice My Network Firewall Parental Controls **Advanced** System Monitoring

Main
Advanced
Logout

Edit Service

Service Name:

Service Description:

Server Ports

Protocol	Server Ports	Action
TCP	Any -> 143	Edit Remove

[Add server ports +](#)

[Apply >](#) [Cancel >](#)

3. Modify the **Service Name** and **Service Description**, as needed.
4. To modify the current protocol, click the **Edit** icon in the Action column.
5. To add server ports, click **Add Server Ports**.
6. Click **Apply** to save changes.

9.4/ ROUTING

You can configure the following settings:

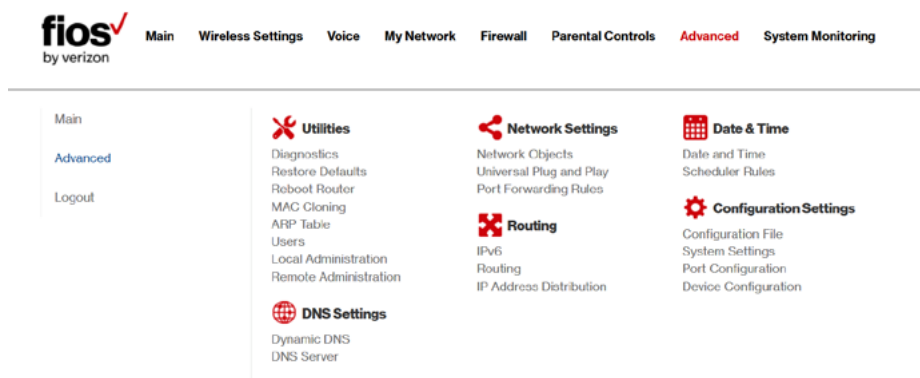
- **IPv6** – enables IPv6 support.

- **Routing** – manages the routing and IP address distribution rules.
- **IP Address Distribution** - adds computers configured as DHCP clients to the network

9.4a/ IPv6

Use the IPv6 feature settings to enable, disable, or configure an IPv6 Internet connection and IPv6 LAN settings.

1. To configure your network to use the IPv6 Internet connection type. Select IPv6 from the Advanced page to display the IPv6 service options:



2. Select **Enable** under the Enable IPv6 Support option. (Once IPv6 is enabled the default setting will be IPv6 WAN as DHCPv6 and IPv6 LAN as Stateless).

ROUTING

fios
by verizon

Main Wireless Settings Voice My Network Firewall Parental Controls **Advanced** System Monitoring

Main
Advanced
Logout

IPv6 Configuration Control

1. Enable IPv6 Support

Enabled Disabled

2. Specify the method to be used to obtain your WAN IPv6 Address

IPv6 WAN Configuration:

Obtain IPv6 DNS Server address automatically
 Use the following IPv6 DNS Server addresses

3. Specify the method to be used to assign LAN IPv6 addresses

IPv6 LAN Configuration:

LAN Prefix:

LAN IPv6 Link Local Address: fo80::caa7:aff:f0d2:34ad

Router Advertisement Lifetime: minutes (0-150)

3. Select the appropriate IPv6 connection **method** from the drop-down list, as shown below to specify the method to be used to obtain your WAN IPv6 Address.

2. Specify the method to be used to obtain your WAN IPv6 Address

IPv6 WAN Configuration:

Obtain IPv6 DNS Server address
 Use the following IPv6 DNS Ser

None
Static
DHCPv6

4. Click Apply to have changes take effect.

Note: The Internet IPv6 service is required for this feature to work over the Internet.

5. To disable the IPv6 service click on the “Disable” option as shown below and click **Apply** to have changes take effect.

IPv6 Configuration Control

1. Enable IPv6 Support
 Enabled Disabled

Once configured using valid IPv6 WAN and LAN configurations you should not see any errors when you click on the “Apply” button and the Main page will reflect the router’s new IPv6 address as shown below.

You should also see the IPv6 address for all IPv6 supported devices on your local network displayed on the My Network page and under the Broadband Connection (Ethernet/Fiber) Properties as shown on the two pages below.

Status

Router Status:
Ethernet Status: **Connected**
Connection Type: DHCP
IP Address: 0.0.0.0
IPv6 Address:
2001:0:9d38:6abd:
3400:6a60:49aa:d79a

↑
Once configured your IPv6 address will show here



- Main
- Network Status
- Network Connections
- Logout

My Network

Primary Network



MacBookPro-600308A07A07
Connection: Ethernet
IP Address: 192.168.1.151
IP Address Allocation: DHCP
IPv6 Address: fec0:e1da:f83:8ff0:6e39
MAC Address: 28:d2:9d:9d:db:cc
Status: Active

- Block this Device
- Website Blocking
- Block Internet Services
- Port Forwarding
- View Device Details
- Rename This Device

Connected Devices

Ethernet:	3
Wireless 5G:	1
Wireless 2.4G:	0

ROUTING

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Main Wireless Settings My Network Firewall Parental Controls Advanced **System Monitoring**

Main
Device Status
Advanced Status
Logout

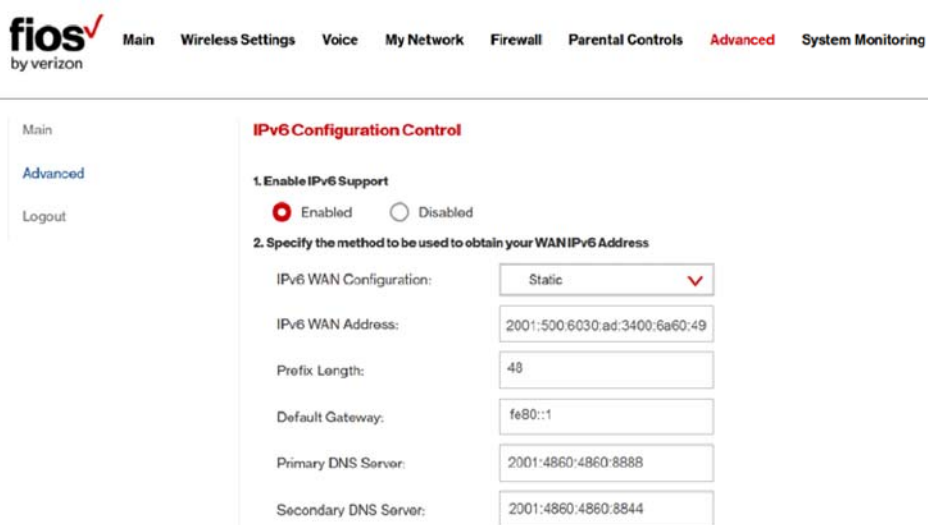
Router Status

UI Version:	v1.0.211
Router Firmware Version:	01.04.00.02 Mon Apr 18 16:14:48 UTC 2016
ONT Firmware Version:	R4.2.70.029(3FE01000029000) 2016-04-14 15:32:00
Quantenna Firmware Version:	37.4.0.01 Mon Apr 18 16:14:48 UTC 2016
Model Name:	Fios-G2100
Hardware Version:	1.01
Serial Number:	S12SG0300037J01
Physical Connection Type:	Ethernet
Broadband Connection Type:	DHCP
Broadband Connection Status:	Connected
Broadband IP Address:	10.0.7.180
Subnet Mask:	255.255.255.0
Broadband MAC Address:	c8:a7:0a:d2:ad:ad
Default Gateway:	10.0.7.1
DNS Server:	10.0.7.1, 0.0.0.0

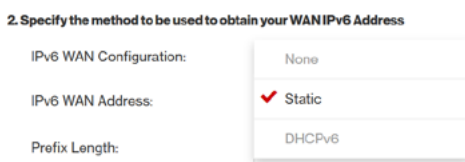
STATIC - WAN IPv6 ADDRESS CONNECTION

The IPv6 WAN Static configurations are IPv6 settings that you enter manually. These specific IPv6 addresses and settings are not expected to change frequently.

1. To configure IPv6 WAN **Static** mode, select the Static option on the IPv6 Configuration Control Page as shown below:



2. Specify the **Static** method to be used to obtain your WAN IPv6 Address by entering:
 - **IPv6 WAN Configuration (select Static)** as shown in drop-down list and page below:



- **IPv6 WAN Address**
- **Prefix Length** (A numeric value between 16 and 128)

ROUTING

- Default Fios Router
 - Primary DNS Server
 - Secondary DNS Server
3. After entering all appropriate IPv6 settings click Apply to have changes take effect.

STATIC - WAN IPv6 ADDRESS CONNECTION

1. To configure IPv6 LAN Stateful mode with Static WAN, select the Stateful (DHCPv6) option on the IPv6 Configuration Control Page as shown below:

3. Specify the method to be used to assign LAN IPv6 addresses

IPv6 LAN Configuration: Stateful (DHCPv6) ▼

LAN Prefix: fe80::1/64

LAN IPv6 Link Local Address: fe80::caa7:aff:fed2:3dad

LAN IPv6 Address Range: 2 - ffff

Router Advertisement Lifetime: 3 minutes (0-150)

IPv6 Address Lifetime: 30 minutes (3-150)

Interfaces

- Ethernet IPv6 Enabled
- 5.0GHz Wireless Access Point 1 IPv6 Enabled
- 2.4GHz Wireless Access Point 2 IPv6 Enabled

Apply > Cancel >

2. Specify the **Stateful (DHCPv6)** settings to be used to assign LAN IPv6 addresses by entering the following details:
 - **IPv6 LAN Configuration** (select **Stateful** from the drop-down list) as shown in drop-down list and page below:

3. Specify the method to be used to assign LAN IPv6 addresses

IPv6 LAN Configuration: Stateful (DHCPv6)
LAN Prefix: Stateless
LAN IPv6 Link Local Address: Stateless

- LAN Prefix
- LAN IPv6 Link Local Address (automatically populated)
- LAN IPv6 Address Range (*start and end*)
- Router Advertisement Lifetime (*minutes between 0-150*)
- IPv6 Address Lifetime (*minutes between 3-150*)
- **Interfaces** - check one or more of the box(s) to apply IPv6 LAN settings to the selected interfaces:
 - Ethernet IPv6 Enabled
 - Wireless Access Point 1 IPv6 Enabled
 - Wireless Access Point 2 IPv6 Enabled

3. After entering all appropriate IPv6 settings click Apply to have changes take effect.

STATIC WAN WITH LAN IPv6 STATELESS SETTINGS:

1. To configure LAN IPv6 Stateless mode with **Static WAN**, select the Stateless option on the IPv6 Configuration Control Page as shown below:

ROUTING

2. Specify the settings to be used to assign LAN IPv6 addresses by entering the following details:

3. Specify the method to be used to assign LAN IPv6 addresses

IPv6 LAN Configuration:	<input type="text" value="Stateless"/>
LAN Prefix:	<input type="text" value="fec0::1/64"/>
LAN IPv6 Link Local Address:	<input type="text" value="fe80::caa7:aff:fed2:3dad"/>
Router Advertisement Lifetime:	<input type="text" value="3"/> minutes (0-150)

- **IPv6 LAN Configuration** (select **Stateless** from the drop-down list) *as shown in drop-down list and page below:*

3. Specify the method to be used to assign LAN IPv6 addresses

IPv6 LAN Configuration:	<input type="text" value="Stateful (DHCPv6)"/>
LAN Prefix:	<input type="text" value=""/>
LAN IPv6 Link Local Address:	<input type="text" value=""/>

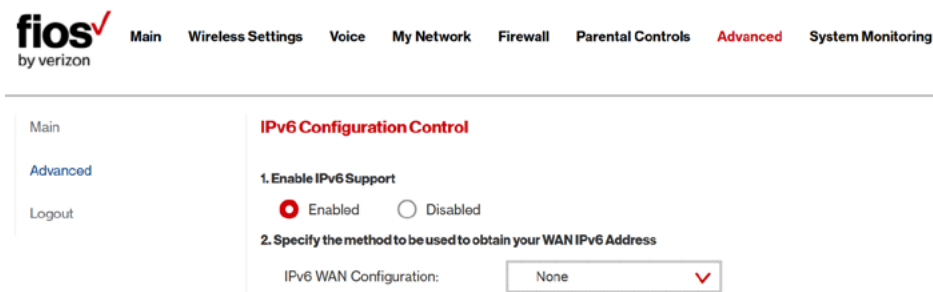
- **LAN Prefix**
- **LAN IPv6 Link Local Address** *(automatically populated)*
- **Router Advertisement Lifetime** *(minutes between 0-150)*
- **Interfaces** - check one or more of the box(s) to apply IPv6 LAN settings to the selected interfaces:
 - Ethernet IPv6 Enabled
 - Wireless Access Point 1 IPv6 Enabled
 - Wireless Access Point 2 IPv6 Enabled

3. After entering all appropriate IPv6 settings click Apply to have changes take effect.

DHCPv6 - WAN IPv6 ADDRESS CONNECTION

The IPv6 WAN DHCPv6 configurations are IPv6 settings that you enter that will allow your IPv6 connection to be updated by the ISP as needed.

1. To configure IPv6 WAN Stateful (DHCPv6) mode, select the Stateful (DHCPv6) option on the IPv6 Configuration Control Page as shown below:



2. Specify the DHCPv6 method to be used to obtain your WAN IPv6 Address by entering:
 - **IPv6 WAN Configuration** (select **DHCPv6** from the drop-down list) *as shown in drop-down list and page below:*

ROUTING

2. Specify the method to be used to obtain your WAN IPv6 Address

IPv6 WAN Configuration:	None
<input checked="" type="radio"/> Obtain IPv6 DNS Server address automatically	Static
<input type="radio"/> Use the following IPv6 DNS Server addresses	<input checked="" type="checkbox"/> DHCPv6

3. Check to either 'Obtain IPv6 DNS Server address automatically', or to 'Use the following IPv6 DNS Server addresses'
4. After entering all appropriate IPv6 settings click Apply to have changes take effect.

DHCPv6 WAN WITH LAN IPv6 STATEFUL (DHCPv6) SETTINGS:

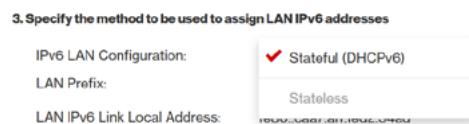
1. To configure IPv6 WAN Stateful (DHCPv6) mode, select the Stateful (DHCPv6) option on the IPv6 Configuration Control Page as shown below:

3. Specify the method to be used to assign LAN IPv6 addresses

IPv6 LAN Configuration:	Stateful (DHCPv6) <input checked="" type="checkbox"/>
LAN Prefix:	fec0::1/64
LAN IPv6 Link Local Address:	fe80::caa7:aff:fed2:3dad
LAN IPv6 Address Range:	2 - ffff
Router Advertisement Lifetime:	3 minutes (0-150)
IPv6 Address Lifetime:	30 minutes (3-150)

2. Specify the Stateful (DHCPv6) settings to be used to assign LAN IPv6 addresses by entering the following details:

- **IPv6 LAN Configuration** (select **Stateful** from the drop-down list) *as shown in drop-down list and page below:*



- **LAN Prefix**
 - **LAN IPv6 Link Local Address** *(automatically populated)*
 - **LAN IPv6 Address Range** *(start and end)*
 - **Router Advertisement Lifetime** *(minutes between 0-150)*
 - **IPv6 Address Lifetime** *(minutes between 3-150)*
 - **Interfaces** - check one or more of the box(s) to apply IPv6 LAN settings to the selected interfaces:
 - Ethernet IPv6 Enabled
 - Wireless Access Point 1 IPv6 Enabled
 - Wireless Access Point 2 IPv6 Enabled
3. After entering all appropriate IPv6 settings click Apply to have changes take effect.

ROUTING

DHCPv6 WAN WITH LAN IPv6 STATELESS SETTINGS:

1. To configure IPv6 LAN Stateless mode with DHCPv6 WAN, select the Stateless option on the IPv6 Configuration Control Page as shown below:



3. Specify the method to be used to assign LAN IPv6 addresses

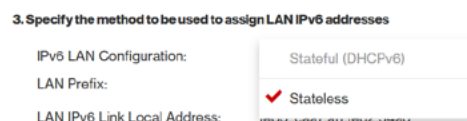
IPv6 LAN Configuration: Stateless

LAN Prefix:

LAN IPv6 Link Local Address: fe80::caa7:aff:fed2:34ad

Router Advertisement Lifetime: 3 minutes (0-150)

2. Specify the Stateless settings to be used to assign LAN IPv6 addresses by entering the following details:
 - **IPv6 LAN Configuration** (select **Stateless** from the drop-down list) *as shown in drop-down list and page below:*



3. Specify the method to be used to assign LAN IPv6 addresses

IPv6 LAN Configuration: Stateful (DHCPv6)

LAN Prefix:

LAN IPv6 Link Local Address: fe80::caa7:aff:fed2:34ad

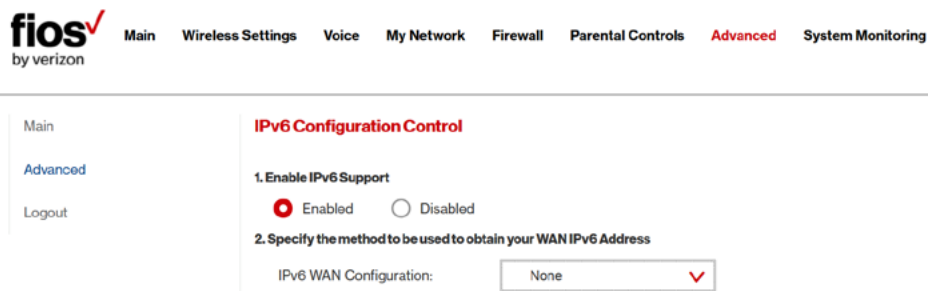
Stateless

- **LAN Prefix** (*automatically populated*)
- **LAN IPv6 Link Local Address** (*automatically populated*)
- **Router Advertisement Lifetime** (*minutes between 0-150*)
- **Interfaces** - check one or more of the box(s) to apply IPv6 LAN settings to the selected interfaces:
 - Ethernet IPv6 Enabled

- Wireless Access Point 1 IPv6 Enabled
 - Wireless Access Point 2 IPv6 Enabled
3. After entering all appropriate IPv6 settings click Apply to have changes take effect.

LAN IPv6 CONFIGURATION WITHOUT AN IPv6 WAN CONNECTION:

1. To configure IPv6 to use either the IPv6 LAN Stateful or Stateless mode without using an IPv6 Internet WAN connection, select the **None** option on the IPv6 Configuration Control Page as shown below:



2. After entering all appropriate IPv6 settings click Apply to have changes take effect.

ROUTING

LAN IPv6 STATEFUL (DHCPv6) WITH NO WAN SETTINGS:

1. To configure IPv6 LAN Stateful mode with No WAN connection, select the Stateful option on the IPv6 Configuration Control Page as shown below:

IPv6 Configuration Control

1. Enable IPv6 Support
 Enabled Disabled

2. Specify the method to be used to obtain your WAN IPv6 Address
IPv6 WAN Configuration:

3. Specify the method to be used to assign LAN IPv6 addresses
IPv6 LAN Configuration:
LAN IPv6 Link Local Address:
LAN IPv6 Address Range: -
Router Advertisement Lifetime: minutes (0-150)

2. Specify the **Stateful (DHCPv6)** settings to be used to assign LAN IPv6 addresses by entering the following details:
 - **IPv6 LAN Configuration** (select **Stateful** from the drop-down list) as shown in drop-down list and page below:

3. Specify the method to be used to assign LAN IPv6 addresses

IPv6 LAN Configuration:
LAN Prefix:
LAN IPv6 Link Local Address:

- **LAN IPv6 Link Local Address** (automatically populated)
- **LAN IPv6 Address Range** (start and end)

- **Router Advertisement Lifetime** (*minutes between 0-150*)
 - **Interfaces** - check one or more of the box(s) to apply IPv6 LAN settings to the selected interfaces:
 - Ethernet IPv6 Enabled
 - Wireless Access Point 1 IPv6 Enabled
 - Wireless Access Point 2 IPv6 Enable
3. After entering all appropriate IPv6 settings click Apply to have changes take effect.

LAN IPv6 STATELESS WITH NO WAN SETTINGS:

1. To configure IPv6 LAN Stateless mode with No WAN connection, select the Stateless option on the IPv6 Configuration Control Page as shown below:

3. Specify the method to be used to assign LAN IPv6 addresses

IPv6 LAN Configuration:	<input type="text" value="Stateless"/>	▼
LAN IPv6 Link Local Address:	<input type="text" value="fe80::caa7:aff:fed2:3dad"/>	
Router Advertisement Lifetime:	<input type="text" value="3"/>	minutes (0-150)

2. Specify the **Stateless** settings to be used to assign LAN IPv6 addresses by entering the following details:

ROUTING

3. Specify the method to be used to assign LAN IPv6 addresses

IPv6 LAN Configuration:	Stateful (DHCPv6)
LAN Prefix:	<input checked="" type="checkbox"/> Stateless
LAN IPv6 Link Local Address:	FE80::C000:0000:0000:0000

- **IPv6 LAN Configuration** (select **Stateless** from the drop-down list) *as shown in drop-down list and page below:*
- **LAN IPv6 Link Local Address** *(automatically populated)*
- **Router Advertisement Lifetime** *(minutes between 0-150)*
- **Interfaces** - check one or more of the box(s) to apply IPv6 LAN settings to the selected interfaces:
 - Ethernet IPv6 Enabled
 - Wireless Access Point 1 IPv6 Enabled
 - Wireless Access Point 2 IPv6 Enable

3. After entering all appropriate IPv6 settings click Apply to have changes take effect.

9.4b/ ROUTING SETTINGS

You can view the routing and IP address distribution rules as well as add, edit, or delete the rules.

To view the rules:

1. Select **Routing** in the Advanced page.

The screenshot shows the Fios by Verizon Advanced Settings page. The navigation menu includes Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, **Advanced**, and System Monitoring. The left sidebar has links for Main, **Advanced**, and Logout. The main content area is titled "Routing" and contains the following elements:

- A description: "This page provides the ability to add, edit, or delete routing rules"
- A "Routing Table" section with a table header:

Name	Destination	Gateway	Netmask	Metric	Status	Action
------	-------------	---------	---------	--------	--------	--------
- A red button labeled "New route >"
- A "Routing Protocols" section with a checked checkbox for "Internet Group Management Protocol (IGMP)"
- Red buttons for "Apply >" and "Cancel >"

2. To add a new Route, click **Add New Route**.

ROUTING

The screenshot shows the Fios Router configuration interface. At the top left is the 'fios by verizon' logo. A navigation bar contains the following items: Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, **Advanced**, and System Monitoring. On the left side, there is a sidebar with 'Main', 'Advanced', and 'Logout'. The main content area is titled 'Route Settings' and contains the following fields:

- Name:** A dropdown menu with 'Network (Home/Office)' selected.
- Destination:** Four input boxes containing '0', '0', '0', and '0'.
- Netmask:** Four input boxes containing '255', '255', '255', and '255'.
- Gateway:** Four input boxes containing '0', '0', '0', and '0'.
- Metric:** One input box containing '0'.

At the bottom of the form are two buttons: 'Apply >' and 'Cancel >'.

3. Specify the following parameters:
 - **Name** – select the network type.
 - **Destination** - enter the destination IP of the destination host, subnet address, network address, or default route. The destination for a default route is 0.0.0.0.
 - **Netmask** – enter the network mask. This is used in conjunction with the destination to determine when a route is used.
 - **Fios Router** – enter the IP address of your Fios Router.
 - **Metric** – enter a measurement preference of the route. Typically, the lowest metric is the most preferred route. If multiple routes exist to a specific destination network, the route with the lowest metric is used.

-
4. Click **Apply** to save changes.

9.4c/ IP ADDRESS DISTRIBUTION

You can easily add computers configured as DHCP clients to the network. The DHCP server provides a mechanism for allocating IP addresses to these hosts and for delivering network configuration parameters to the hosts.

For example, a client (host) sends a broadcast message on the network requesting an IP address for itself. The DHCP server then checks its list of available addresses and leases a local IP address to the host for a specific period of time and simultaneously designates this IP address as taken. At this point, the host is configured with an IP address for the duration of the lease.

The host can renew an expiring lease or let it expire. If it renews a lease, the host receives current information about network services, as it did during the original lease, allowing it to update its network configurations to reflect any changes that occurred since the first connection to the network.

If the host wishes to terminate a lease before its expiration, it sends a release message to the DHCP server. This makes the IP address available for use by other hosts.

The DHCP server performs the following functions:

- Displays a list of all DHCP host devices connected to your Fios Router

ROUTING

- Defines the range of IP addresses that can be allocated in the network
- Defines the length of time the dynamic P addresses are allocated
- Provides the above configurations for each network device and can be configured and enabled or disabled separately for each network device
- Assigns a static lease to a network computer to receive the same IP address each time it connects to the network, even if this IP address is within the range of addresses that the DHCP server may assign to other computer
- Provides the DNS server with the host name and IP address of each computer connected to the network

To view a summary of the services provided by the DHCP server:

1. Select **IP Address Distribution** in the Advanced page.



The screenshot shows the 'IP Address Distribution' configuration page. On the left is a sidebar with 'Main', 'Advanced' (highlighted in blue), and 'Logout'. The main content area has a red header 'IP Address Distribution' and a sub-header 'IP Address Distribution provides the ability to allocate IP addresses and configuration parameters to selected hosts'. Below this is a table with the following data:

Name	Service	Subnet Mask	Dynamic IP Range	Action
Network (Home/Office)	DHCP Server	255.255.255.0	192.168.1.2-192.168.1.254	Edit

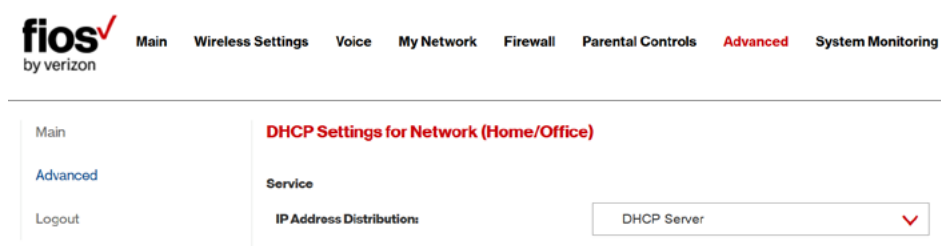
At the bottom of the table area, there are two buttons: a red 'Connection list >' button and a 'Close >' button.

DHCP SERVER SETTINGS

You can edit the DHCP server settings for a device.

To edit the settings:

1. On the IP Address Distribution page, click the **Edit** icon in the **Action** column. The DHCP Settings page opens with the device information displayed.



2. To enable the DHCP server, select **DHCP Server** in the **IP Address Distribution** field.

Once enabled, the DHCP server provides automatic IP assignments (IP leases) based on the preset IP range defined below.

3. To configure the DHCP server complete the following fields:
 - **Start IP Address** – enter the first IP address that your Fios Router will automatically begin assigning IP addresses from. Since your Fios Router’s default IP address is 192.168.1.1, the default start IP address should be 192.162.1.2.

ROUTING AND DATE AND TIME

- **End IP Address** – enter the last IP address that your Fios Router will automatically stop the IP address allocation. The maximum end IP address range that can be entered is 192.168.1.254.
- **WINS Server** – determines the IP address associated with a network device.
- **Lease Time in Minutes** – assigns the amount of time in minutes that each device is assigned an IP address by the DHCP server when it connects to the network.

When the lease expires, the server determines if the computer has disconnected from the network. If it has, the server may reassign this IP address to a newly-connected computer.

4. Click **Apply** to save changes.

DHCP CONNECTIONS

You can view a list of the connections currently assigned and recognized by the DHCP server. In addition, you can add a new connection with a fixed IP address.

***Note:** The fixed IP address of a device is assigned to the MAC address of the network card installed on the network computer. If this network card is replaced, you must update the device entry in the DHCP Connections list with the MAC address of the new network card.*

To view a list of computers:

1. On the IP Address page, click **Connection List**.

The screenshot shows the Fios Advanced settings page. The navigation menu includes Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, **Advanced**, and System Monitoring. On the left sidebar, there are links for Main, **Advanced**, and Logout. The main content area is titled "DHCP Connections" and contains a table with the following data:

Host Name	IP Address	Physical Address	Lease Type	Connection Name	Status	Expires In	Action
Lapto p_Ho me	192.168.1.152	5c:0e:5b:2c:cc:cc	Dynamic	Network (Home/Office)	Active	1295 minutes	Search Edit

Below the table, there is a red button labeled "Add static connection +". Below that, a message says "Press the Refresh button to update the data." At the bottom, there are two red buttons: "Close >" and "Refresh >".

2. To define a new Static Connection with a fixed IP address, click **Add Static Connection**.

The screenshot shows the Fios Advanced settings page with the "DHCP Connection Settings" form. The navigation menu and sidebar are the same as in the previous screenshot. The form fields are:

- Host Name:
- IP Address:
- MAC Address:

At the bottom of the form, there are two red buttons: "Apply >" and "Cancel >".

DATE AND TIME

3. Enter the host name.
4. Enter the fixed IP address to be assigned.
5. Enter the MAC address of the network interface of the computer used with this DHCP static connection.
6. Click **Apply** to save changes.

9.5/ DATE AND TIME

You can configure the following settings:

- **Date and Time Settings** – sets the time zone and enables automatic time updates.
- **Scheduler Rules** – limits the activation of firewall rules to specific time periods.

9.5a/ DATE AND TIME SETTINGS

You can set the time zone and enable automatic time updates.

To configure the settings:

1. Select **Date and Time** in the Advanced page.

The screenshot shows the Fios Router's Advanced Settings page. The navigation menu at the top includes: Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, **Advanced**, and System Monitoring. On the left side, there is a sub-menu with: Main, **Advanced**, and Logout. The main content area is titled "Date and Time" and is divided into two sections: "Localization" and "Automatic Time Update".

Localization

Local Time: Mar 31, 2016 21:11:32

Time Zone: Eastern_Time (GMT-05:00) [v]

Automatic Time Update

Enabled

Protocol: Network Time Protocol (NTP)

Time Server Action

0.north-america.pool.ntp.org	Edit Remove
1.north-america.pool.ntp.org	Edit Remove

[Add +](#)

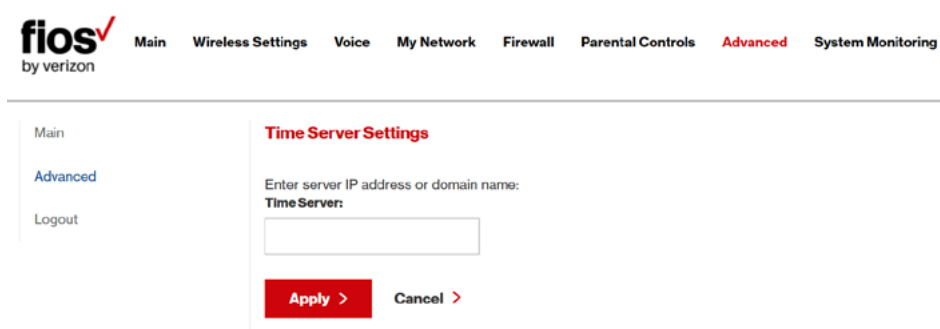
Status: Got time update from server. Last update: Thu Mar 31 20:44:41 2016

Press the Refresh button to update the status.

[Apply >](#) [Cancel >](#) [Clock Set >](#) [Refresh >](#)

2. Select the local time zone. Your Fios Router automatically detects daylight saving times for selected time zone.
3. In the **Automatic Time Update** section, select the **Enabled** check to perform an automatic time update.
4. Define the time server addresses by clicking **Add**. The Time Server Settings page displays.

DATE AND TIME AND CONFIGURATION SETTINGS



The screenshot shows the Fios router's configuration interface. At the top left is the 'fios by verizon' logo. A navigation menu includes 'Main', 'Wireless Settings', 'Voice', 'My Network', 'Firewall', 'Parental Controls', 'Advanced' (highlighted in red), and 'System Monitoring'. On the left side, there is a sidebar with 'Main', 'Advanced' (highlighted in blue), and 'Logout'. The main content area is titled 'Time Server Settings' in red. It contains the instruction 'Enter server IP address or domain name:' followed by 'Time Server:' and an empty text input field. Below the input field are two buttons: a red 'Apply >' button and a grey 'Cancel >' button.

5. Enter the IP address or domain name of the time server, then click **Apply** to save changes.

9.5b/ SCHEDULER RULES

Scheduler rules are used for limiting the activation of firewall rules to specific time periods. The time periods are either for days of the week or for hours of each day based on activity or inactivity.

To define a rule:

1. Verify that the date and time of your Fios Router is correct.
2. Select **Scheduler Rules** in the Advanced page.

The screenshot shows the Fios by Verizon interface. The top navigation bar includes: Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, **Advanced**, and System Monitoring. On the left, a sidebar menu has Main, **Advanced**, and Logout. The main content area is titled "Scheduler Rules" and contains the following text: "Scheduler rules are used for limiting the activation of firewall rules to specific time periods, either for days of the week, or for hours of each day". Below this is a table with headers: Rule Name, Settings, Status, and Action. A red "Add +" button is positioned below the table. At the bottom of the section are "Close >" and "Refresh >" buttons.

3. Click Add. The Set Rule Schedule page displays.

The screenshot shows the "Set Rule Schedule" page in the Fios by Verizon interface. The top navigation bar includes: Main, Wireless Settings, My Network, Firewall, Parental Controls, **Advanced**, and System Monitoring. The left sidebar menu has Main, **Advanced**, and Logout. The main content area is titled "Set Rule Schedule" and contains:

- A "Rule Name:" label followed by a text input field containing "New Rule_No_TV.com".
- A "Rule Settings" section with two radio buttons:
 - Rule will be Active at the Scheduled Time
 - Rule will be Inactive at the Scheduled Time
- A "Rule Schedule" table with headers "Rule Schedule" and "Action". The table contains one row: "Tues and Thurs between 12:30-13:00" with "Edit Remove" as the action.
- A red "Add rule schedule +" button.
- "Apply >" and "Cancel >" buttons at the bottom.

CONFIGURATION SETTINGS

4. Enter the name of the rule.
5. In the **Rule Settings** section, specify if the rule is active at the scheduled time or inactive at the scheduled time.
6. Click the **Add Rule Schedule**. The Edit Rule Schedule page displays.

The screenshot shows the 'Edit Rule Schedule' page in the fios by verizon configuration interface. The top navigation bar includes 'Main', 'Wireless Settings', 'Voice', 'My Network', 'Firewall', 'Parental Controls', 'Advanced' (highlighted), and 'System Monitoring'. A left sidebar contains 'Main', 'Advanced' (highlighted), and 'Logout'. The main content area is titled 'Edit Rule Schedule' and contains the following sections:

- Days of Week:** A list of days with checkboxes: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday. The Tuesday, Thursday, and Saturday rows are highlighted in grey.
- Hours Range:** A table with columns for 'Start', 'End', and 'Action'. A 'New Hours Range Entry' link is present below the table.
- Buttons:** 'Apply >' and 'Cancel >' buttons are located at the bottom.

7. Select the active or inactive days of the week.
8. To define a new active or inactive hourly range, click **New Hours Range Entry**.

-
9. Enter the start and end time, then click **Apply** to save changes.
 10. Click **Apply** again to save the rule schedule.

9.6/ CONFIGURATION SETTINGS

You can configure the following configuration settings:

- **Configuration File** – used for file backups and restoring configuration files
- **System Settings** – configures various system and management parameters
- **Port Configuration** – sets up Ethernet ports
- **Device Configuration** – supports Router Only, ONT only, and Full (Router and ONT)

9.6a/ CONFIGURATION FILE

You can use the Configuration File functionality to view, save, and load configuration files. These files are used to backup and restore the current configuration of your Fios Router.

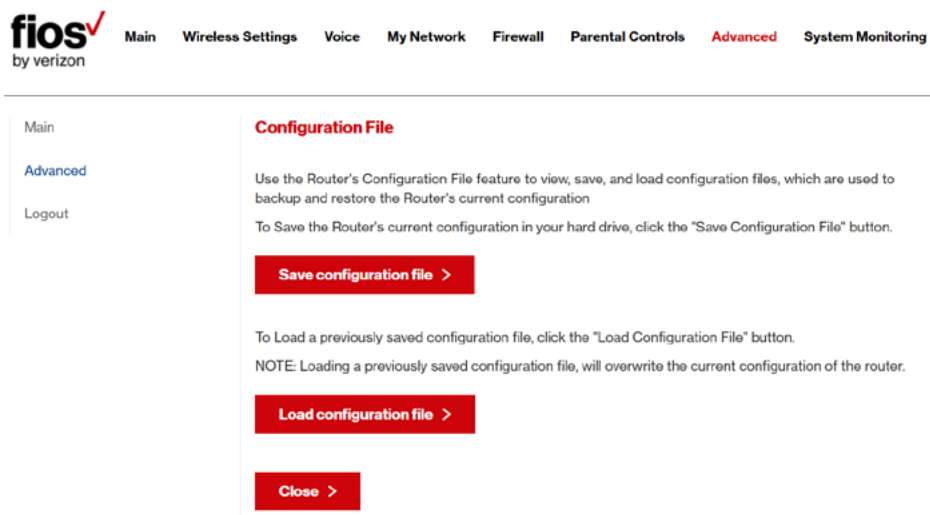
Only configuration files saved on a specific Fios Router can be applied to that Fios Router. You cannot transfer configuration files between Fios Routers.

Warning: *Manually editing a configuration file can cause your Fios Router to malfunction or become completely inoperable.*

CONFIGURATION SETTINGS

To save or load the configuration file:

1. Select **Configuration File**.



The screenshot shows the Fios Router configuration interface. At the top left is the 'fios by verizon' logo. A navigation menu includes 'Main', 'Wireless Settings', 'Voice', 'My Network', 'Firewall', 'Parental Controls', 'Advanced' (highlighted in red), and 'System Monitoring'. On the left side, a sidebar menu has 'Main', 'Advanced' (highlighted in blue), and 'Logout'. The main content area is titled 'Configuration File' and contains the following text: 'Use the Router's Configuration File feature to view, save, and load configuration files, which are used to backup and restore the Router's current configuration. To Save the Router's current configuration in your hard drive, click the "Save Configuration File" button.' Below this is a red button labeled 'Save configuration file >'. Further down, it says 'To Load a previously saved configuration file, click the "Load Configuration File" button. NOTE: Loading a previously saved configuration file, will overwrite the current configuration of the router.' Below this is another red button labeled 'Load configuration file >'. At the bottom of the content area is a red button labeled 'Close >'.

2. To save the current configuration to a file, click **Save Configuration File**. The configuration file is saved to your web browser's download folder.
3. To load a previously saved configuration file, click **Load Configuration File**.

Browse to the location of the file, then click **Apply** to begin the configuration uploading process. Your Fios Router will automatically restart with that configuration.

9.6b/ SYSTEM SETTINGS

You can configure various system and management parameters.

To configure system settings:

1. Select **System Settings** in the Advanced page.

The screenshot shows the Fios by Verizon website's configuration interface. At the top, the navigation menu includes: Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, **Advanced**, and System Monitoring. The left sidebar contains links for Main, **Advanced**, and Logout. The main content area is titled "System Settings" and is divided into several sections:

- Router Status**:
 - Wireless Broadband Router's Hostname: Fios_router
 - Local Domain: fios-router.home
- Wireless Broadband Router**:
 - Automatic Refresh of System Monitoring Web Pages
 - Prompt for Password When Accessing via LAN
 - Warn User Before Configuration Changes
 - Session Lifetime: 600 Seconds
 - Configure number of concurrent users that can be logged into the router: 5
- Remote Administration**:
 - Management Application Ports**:
 - Primary HTTPS Management Port: 443
 - Secondary HTTPS Management Port: 8443
 - Primary SSH Port: 22
 - Secondary SSH Port: 8022

CONFIGURATION SETTINGS

2. In the **Router Status** section, configure the following:
 - **Wireless Broadband Route's Hostname** – enter the host name or URL address of your Fios Router. Both names are the same.
 - **Local Domain** – view the local domain of the network.
3. In the **Wireless Broadband Router** section, configure the following by selecting the check box:
 - **Automatic Refresh of System Monitoring Web Pages** – activates the automatic refresh of system monitoring web pages.
 - **Prompt for Password when Accessing via LAN** – causes your Fios Router to ask for a password when trying to connect to the network.
 - **Warn User Before Configuration Changes** – activates user warnings before network configuration changes take effect.

In the **Session Lifetime** field, specify the length of time required before reentering a user name and password after your Fios Router has been inactive.

In the **Configure a Number of Concurrent Users** field, select the number of users that can access your Fios Router at any time.

4. Select **Remote Administration** to configure the remote administration to your Fios Router.

5. In the **Management Application Ports** section, change the primary and secondary HTTP management and SSH ports.
6. In the **System Logging** section, configure the following system log options:
 - **Enable Logging** – activates system logging.
 - **Remote System Notify Level** – specify the type of information, such as none, error, warning, and information, received for remote system logging.

System Logging

Enable Logging

Remote System Notify Level: ▼

Security Logging

Remote Security Notify Level: ▼

Auto WAN Detection

DHCP Timeout: Seconds

Apply > **Cancel >**

CONFIGURATION SETTINGS

7. In the **Security Logging** section, configure the following security logging options:
 - **Low Capacity Notification Enabled** – activates low capacity notification. This works in conjunction with the Allowed Capacity before Email Notification and System Log Buffer Size.
 - **Allowed Capacity before Email Notification** – specify the capacity before an email notification is sent.
 - **System Log Buffer Size** – specify the size of the system log buffer.
 - **Remote System Notify Level** – specify the type of information, such as none, error, warning, and information, received for remote system logging.
8. In the **Auto WAN Detection** section, specify the DHCP timeout.
9. Click **Apply** to save changes.

9.6c/ ETHERNET PORT CONFIGURATION

Ethernet port configuration allows you to set up the Ethernet ports as either full- or half-duplex ports, at either 10 Mbps, 100 Mbps, or 1000 Mbps.

To configure the ports:

1. Select **Port Configuration** in the Advanced page.

Port	Speed & Duplex	Status
WAN Port	100 Full-Duplex	Connected / CRC 0
LAN Port 1	1000 Full-Duplex	Connected
LAN Port 2	Auto	Disconnected
LAN Port 3	10 Half-Duplex	Disconnected
LAN Port 4	10 Full-Duplex	Disconnected

2. To emulate the speed and duplex configuration of the port with which it's communicating, select **Auto** or select the port speed and duplicity.
3. Click **Apply** to save changes.

9.6d/ DEVICE CONFIGURATION

Caution: The Device Configuration settings should only be configured by experienced network technicians to avoid adversely affecting the operation of your Fios Router, your local network or your Internet access.

Method displayed should represent current configuration.

CONFIGURATION SETTINGS

- **Router Only** – Used when there is already an existing ONT or modem providing broadband service. Selecting this option will disable the Fios Router’s ONT functionality.
- **ONT only** – Used when there is already an existing router providing networking service. Selecting this option will disable the Fios Router’s router functionality.
- **Full (Router and ONT)** – This default setting is used when both the ONT and router services are utilized. Selecting this option will enable both the Fios Router’s ONT and router functionality.



Main Wireless Settings Voice My Network Firewall Parental Controls **Advanced** System Monitoring

Main

Advanced

Logout

Device Configuration

- Router Only
- ONT only
- Full (Router and ONT)

Apply >

Cancel >

10/

MONITORING YOUR FIOS ROUTER

- 10.0** Fios Router Status
- 10.1** Advanced Status
- 10.2** System Logging
- 10.3** Full Status/System wide
Monitoring of Connections
- 10.4** Traffic Monitoring
- 10.5** Bandwidth Monitoring
- 10.6** Voice Diagnostics
- 10.7** Optical Status

System Monitoring displays system information, including basic settings, system log, key network device parameters and network traffic statistics.

FIOS ROUTER STATUS AND ADVANCED STATUS

10.0/ FIOS ROUTER STATUS

You can view the basic settings of your Fios Router.

To view the basic settings:

1. Select **System Monitoring** in the Main menu. The Router Status page displays.

The screenshot shows the Fios Router System Monitoring page. The top navigation bar includes: **fios by verizon**, Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, Advanced, and System Monitoring. A left sidebar contains: Main, Device Status, Advanced Status, and Logout. The main content area is titled **Router Status** and displays the following information:

UI Version:	v1.0.228
Router Firmware Version:	01.04.00.06 2016-08-12 08:42:58
ONT Firmware Version:	01.01.00.56.003 2016-08-12 15:05:43
Quantenna Firmware Version:	37.4.8.62 2016-08-16 22:14:57
Model Name:	Fios-G2100
Hardware Version:	1.03
Serial Number:	S12SG0300037037
Physical Connection Type:	Fiber
Broadband Connection Type:	DHCP
Broadband Connection Status:	Connected
Broadband IP Address:	10.10.10.02
Subnet Mask:	255.255.255.128
Broadband MAC Address:	20:c0:47:00:01:05
Default Gateway:	10.10.10.1
DNS Server:	10.0.10.1, 0.0.0.0
Broadband IPv6 Address:	
Active Status (Router Has Been Active For):	0:12:05
NATs Supported (Used/Max):	24/30,000

DECT Puck Firmware Status

Handset Name	Hardware Version and Firmware Version
--------------	---------------------------------------

2. To refresh the page, click **Refresh**.
3. To continuously refresh the page, click **Automatic Refresh On**.

10.1/ ADVANCED STATUS

You can view the details and status of:

- System Logging
- Full Status/System wide Monitoring of Connections
- Traffic Monitoring
- Bandwidth Monitoring
- Voice Diagnostics
- Optical Diagnostic Status

To view the advanced status:

1. Select **Advanced Status**. A warning page displays.
2. Click **Yes**. The Advanced Status page displays.

fios by verizon

Main Wireless Settings Voice My Network Firewall Parental Controls **Advanced** System Monitoring

Main
Device Status
Advanced Status
Logout

Advanced Status

Click on the link you wish to view

NOTE: Only advanced technical users should use this feature.

[System Logging](#)

[Full Status/System wide Monitoring of Connections](#)

SYSTEM LOGGING AND FULL STATUS/ SYSTEM WIDE MONITORING OF CONNECTIONS

3. To view the details of the listed monitoring options, click the link.

10.2/ SYSTEM LOGGING

System logging provides a view of the most recent activity of your Fios Router. In addition, you can view additional logs, such as the security, advanced, firewall, WAN, DHCP, and LAN DHCP.

To view the system log:

1. In the Advanced Status page, click the **System Logging** link.

The screenshot shows the Fios by Verizon interface. The top navigation bar includes links for Main, Wireless Settings, Voice, My Network, Firewall, Parental Controls, Advanced, and System Monitoring. The System Monitoring page is active, displaying a sidebar with navigation options: Main, System Log (selected), Security Log, Advanced Log, Firewall Log, WAN DHCP Log, LAN DHCP Log, and Logout. The main content area is titled "System Log" and features a table of log entries. Above the table are buttons for "View Options", "Close", "Clear Log", "Save Log", and "Refresh". The table has columns for Time, Event-Type, Log Level, and Details. The log entries are as follows:

Time	Event-Type	Log Level	Details
Apr 1 00:44:41 2016	dhcpd	info<158>	Sending on Socket/fallback/fallback-net
Apr 1 00:44:41 2016	dhcpd	info<158>	Sending on LPF/br-lan/c8:a7:0a:d2:34:ad /192.168.1.0/24
Apr 1 00:44:41 2016	dhcpd	info<158>	Listening on LPF/br-lan/c8:a7:0a:d2:34:ad /192.168.1.0/24
Apr 1 00:44:41 2016	dhcpd	err<155>	
Apr 1 00:44:41 2016	dhcpd	err<155>	to which interface br-guest is attached. **
Apr 1 00:44:29 2016	dhcpd	info<158>	All rights reserved.

Below the table is a "Load more" button.

2. To view a specific type of log event such as Security Log, WAN DHCP Log, etc., click the appropriate link in the menu in the left column.
3. To update the data, click **Refresh**.

10.3/ FULL STATUS/SYSTEM WIDE MONITORING OF CONNECTIONS

You can view a summary of the monitored data collected for your Fios Router.

To view your Fios Router's full system status:

1. In the Advanced Status page, click **Full Status/System wide Monitoring of Connections**.

fios by verizon | Main | Wireless Settings | Voice | My Network | Firewall | Parental Controls | Advanced | **System Monitoring**

Main
Device Status
Advanced Status
Logout

Full Status/System wide Monitoring of Connections

Name	Network (Home/Office)	Broadband Connection (Ethernet/Fiber)	5.0GHz Wireless Access Point 1	2.4GHz Wireless Access Point 2	Ethernet
Status	Connected	Connected	Connected	Connected	Connected
Network	Network (Home/Office)	Broadband Connection	Network (Home/Office)	Network (Home/Office)	Network (Home/Office)
Underlying Device	5.0GHz Wireless Access Point 1 2.4GHz Wireless Access Point 2 Ethernet				

TRAFFIC MONITORING AND BANDWIDTH MONITORING

2. To modify the connection properties, click the individual connection links.
3. To refresh the page, click **Refresh**.
4. To continuously refresh the page, click **Automatic Refresh On**.

10.4/ TRAFFIC MONITORING

Your Fios Router continually monitors traffic in the local area network and between the local network and the Internet. You can view up to the second statistical information about data received from and transmitted to the Internet as well as data received from and transmitted to computers in the local network.

To view the traffic monitoring data:

1. In the Advanced Status page, select **Traffic Monitoring**.

fios by verizon

Main Wireless Settings Voice My Network Firewall Parental Controls Advanced **System Monitoring**

Main
Device Status
Advanced Status
Logout

Traffic Monitoring

Name	Network (Home/Office)	Broadband Connection (Ethernet/Fiber)	5.0GHz Wireless Access Point 1	2.4GHz Wireless Access Point 2	Ethernet
Status	Connected	Cable Disconnected	Disabled	Disabled	Connected
Network	Network (Home/Office)	Broadband Connection	Network (Home/Office)	Network (Home/Office)	Network (Home/Office)
Underlying Device	5.0GHz Wireless Access Point 1 2.4GHz Wireless Access Point 2 Ethernet				

2. To refresh the page, click **Refresh**.
3. To continuously refresh the page, click **Automatic Refresh On**.

10.5/ BANDWIDTH MONITORING

You can view and monitor the recorded bandwidth usage measured in Kbps.

To view the bandwidth:

1. In the Advanced Status page, select **Bandwidth Monitoring**.

fios by verizon

Main Wireless Settings Voice My Network Firewall Parental Controls Advanced **System Monitoring**

Main
Device Status
Advanced Status
Logout

Bandwidth Monitoring

Last Minute	1 Minute	2 Minutes	3 Minutes	4 Minutes	5 Minutes	6 Minutes	7 Minutes	8 Minutes
Tx Rate	0 kb/s	0 kb/s	0 kb/s	0 kb/s	0 kb/s	0 kb/s	0 kb/s	0 kb/s
Rx Rate	0 kb/s	0 kb/s	0 kb/s	0 kb/s	0 kb/s	0 kb/s	0 kb/s	0 kb/s

Last Hour	1 Hour	2 Hours	3 Hours	4 Hours	5 Hours	6 Hours	7 Hours	8 Hours
Tx Rate	0 kb/s	0 kb/s	0 kb/s	0 kb/s	0 kb/s	0 kb/s	0 kb/s	0 kb/s
Rx Rate	0 kb/s	0 kb/s	0 kb/s	0 kb/s	0 kb/s	0 kb/s	0 kb/s	0 kb/s

2. To refresh the page, click **Refresh**.
3. To continuously refresh the page, click **Automatic Refresh On**.

VOICE DIAGNOSTICS AND OPTICAL DIAGNOSTIC STATUS

10.6/ VOICE DIAGNOSTICS

The Voice Status page provides details about the provisioned lines and discovered DECT handsets known to the Fios Router. This page will not be available if your voice service has not been enabled or configured. Refer to the voice section under '4.0 Voice' for the voice configuration options and details.



[Main](#) [Wireless Settings](#) [Voice](#) [My Network](#) [Firewall](#) [Parental Controls](#) [Advanced](#) [System Monitoring](#)

- Main
- Device Status
- Advanced Status
- Logout

Voice Status

Number of lines provisioned:

Line 1: 300-622-6800
Line 2: 300-622-6801

Voice IP Address:

Base Mode - This indicates the range of DECT handsets which can connect.

Off [What's this?](#)
 Normal
 ECO

Diagnostics

Parameter Name:

Voice Profile:

Value:

-

Fax:

-

Fax T38 Enable

true

[Apply >](#)

10.7/ OPTICAL DIAGNOSTIC STATUS

Optical Status provides basic statistics for fiber connection for Optical Network Terminal (ONT) including: Network, Management, Optical Measurements for the ONT-Side (including: Rx & Tx, Voltage, Laser Bias, Ranging Detail and Bit Error Rates)

To view the Fios Router's current optical statistics, refer to the Optical Status page located under the Advanced Diagnostic's feature.

- **OpticRXPower** – (-27dBm, -8dBm) – Optical power of the received signal.
- **OpticTXPower** – (1dBm, 4dBm) Optical power of the transmitted signal.
- **OpticTXBias** – (2mA, 25mA) – Electric current on the transmitted optical signal.
- **OpticVoltage** – 3.3v – Optical signal voltage.
- **Laser Bias Current** – Electric charge on the laser signal.
- **Temperature** – (-5C, 80C) – Temperature of the optical HW module.
- **Ranging** – Connection status of the fiber signal – 0: Connecting; 1: Connected; 2: Disconnected.
- **Bit Error Rates** – $<10^{-10}$ – Optical transmission bit error rate.

VOICE DIAGNOSTICS AND OPTICAL DIAGNOSTIC STATUS

Note: This page is not available if an optical connection has not been established.



- Main
- Wireless Settings
- My Network
- Firewall
- Parental Controls
- Advanced
- System Monitoring

Main

Device Status

Advanced Status

Logout

Optical Status

ONT:

Network: Connected

Management: Connected

ONT-Side Optical Measurements

Rx Optical Signal Level	-	-14.53	dBm
Tx Optical Signal Level	-	2.17	dBm
Optics Module Voltage	-	3.30	V
Laser Bias Current	-	15120	uA
Optics Module Temperature	-	47	°C
Ranging Detail	-	1	
Bit Error Rates	-	0.0000000001	

10/ MONITORING
YOUR FIOS ROUTER

198

11/

TROUBLE SHOOTING

11.0 Troubleshooting Tips

11.1 Frequently Asked
Questions

This chapter lists solutions for issues that may be encountered while using your Fios Router as well as frequently asked questions.

Although the majority of the Fios Router's Internet connectivity is automatic and transparent, if an issue does occur accessing the Internet (e.g. complete loss of connectivity, inability to access services, etc.), you may need to take additional steps to resolve the problem.

TROUBLESHOOTING TIPS

Note: The advanced settings should only be configured by experienced network technicians to avoid adversely affecting the operation of your Fios Router and your local network.

11.0/ TROUBLESHOOTING TIPS

11.0a/ IF YOU ARE UNABLE TO CONNECT TO THE INTERNET:

- The first thing to check is whether your Fios Router is powered on and it is connected to the Internet. Check the front panel's Unified Button light on the front of the Fios Router. Be sure to refer to the Router Lights quick link to determine status of the Fios Router. Check the WAN cable (Ethernet or Fiber) connecting your Fios Router to the Internet to make sure it is properly connected on both ends.
- If the prior tips do not resolve your connection issue, try restarting (rebooting) the router portion of the Fios Router by manually pressing the protruding 'red' power button on the rear panel of the Fios Router for 2-4 seconds (the Unified Button LED should go off) and then press the power button again to begin rebooting your Fios Router. Your Fios Router will begin rebooting and returning to service in 3 - 5 minutes depending on your network connection, check Fios Router's Unified Button LED status and if it is solid white, try again to access the Internet.
- If rebooting your router does not resolve your connection issue, try power cycling the Fios Router by unplugging the power cable from the adapter or the wall and wait 2 minutes. During the 2 min. wait period, also power cycle the network device (e.g. the computer, tablet, etc.) and then plug the power cable back in

back into the Fios Router, after 3-5 minutes recheck the Fios Router's Unified Button LED status and try again to access the Internet.

11.0b/ IF YOU ARE UNABLE TO CONNECT TO YOUR FIOS ROUTER USING WI-FI:

- Be sure your wireless device is within range of your Wi-Fi Fios Router, move it closer to see if your connection improves.
- Check your network device's Wi-Fi settings to be sure your device's Wi-Fi is on (enabled) and that you have the correct Wi-Fi network and password (if using a Wi-Fi password) as configured on your Fios Router.
- Be sure you are connecting to the correct Wi-Fi network, check to be sure you are using your Fios Router's ESSID. In some cases, if using a wireless password, you may need to enter the Wi-Fi password into your network device again to be sure your device accepts the password.
- Check to be sure you are running the latest software for your network device.
- Try turning your network device's Wi-Fi off and on and try to connect.
- If you have made any changes in your network settings and turning your network device's Wi-Fi off and on does not help, try to restart your network device.

TROUBLESHOOTING TIPS

- You may need to turn your Fios Routers' Wi-Fi settings from on to off, and back to on again and apply the changes.
- If you are still unable to access your Fios Router may need to try connecting to the Fios Router using another network device. If the issue goes away with another network device, the issue is likely with that individual network device's configuration.

11.0c/ ACCESSING YOUR FIOS ROUTER IF YOU ARE LOCKED OUT

If your Fios Router connection is lost while making configuration changes, a setting that locks access to your Fios Router's GUI may have inadvertently been activated.

The common ways to lock access to your Fios Router are:

- **Scheduler** - If a schedule has been created that applies to the computer over the connection being used, your Fios Router will not be accessible during the times set in the schedule.
- **Access Control** - If the access control setting for the computer is set to block the computer, access to your Fios Router is denied.

To gain access, restore the default settings to your Fios Router.

11.0d/ RESTORING YOUR FIOS ROUTER'S DEFAULT SETTINGS

There are two ways to restore your Fios Router's default settings. It is important to note that after performing either procedure, all previously saved settings on your Fios Router will be lost.

For additional information regarding the Restore Defaults feature refer to the section 9.1b/ Restore Defaults

- Using the tip of a ballpoint pen or pencil, press and hold the **Reset** button on the back of your Fios Router for three seconds.
- Access the GUI and navigate to the Advanced Settings page. Select the **Restore Defaults** option. After saving your configuration, if desired, click the **Restore Defaults** button. For additional details, refer to the **Restore Defaults** section of this guide.

***Note:** If you reset or reboot your Fios Router, you may also need to disconnect your Fios Router's power supply for a few minutes (3 or more) and then reconnect the power cable. In some cases simply pressing the power button on the Fios Router, as indicated, should restore Internet connectivity. However, in order to provide full synchronization to the fiber network, disconnecting and reconnecting the power may be required. To avoid adversely affecting the operation of your Fios Router 'DO NOT' use the restore defaults options for "All ONT Defaults" or "All Device Defaults (router and ONT)" unless expressly instructed to do so by a Verizon support technician.*

11.0e/ LAN CONNECTION FAILURE

To troubleshoot a LAN connection failure:

- Verify your Fios Router is properly installed, LAN connections are correct, and that the Fios Router and communicating network devices are all powered on.
- Confirm that the computer and Fios Router are both on the same network segment.

TROUBLESHOOTING TIPS

If unsure, let the computer get the IP address automatically by initiating the DHCP function, then verify the computer is using an IP address within the default range of 192.168.1.2 through 192.168.1.254.

If the computer is not using an IP address within the correct IP range, it will not connect to your Fios Router.

- Verify the subnet mask address is set to 255.255.255.0.

11.0f/ TIMEOUT ERROR OCCURS WHEN ENTERING THE URL OR IP ADDRESS

Verify the following:

- All computers are working properly.
- IP settings are correct.
- Fios Router is on and connected properly.
- Fios Router settings are the same as the computer.

For connections experiencing lag or a slow response:

- Check for other devices on the network utilizing large portions of the bandwidth and if possible temporarily stop their current utilization and recheck the connection.
- If lag still exists clear the cache on the computer and if still needed unplug the Ethernet cable or disable the wireless connection to the computer experiencing the slow connection and then reconnect or enable the wireless connection and try the connection again.

In rare cases you may also need to:

- Unplug the Ethernet cable to Fios Router and restart the Fios Router, wait 1-2 mins. and reinsert the Ethernet cable.
- Under limited circumstances you may elect to use a port forwarding configuration on the router, based on the application you are using (refer to the Port Forwarding section or Verizon's support online help for more details).

11.0g/ FRONT UNIFIED BUTTON

The front panel's Unified Button allows quick access to the Wi-Fi Protected Setup (WPS) feature and handset paging/paring mode. In addition, the Unified Button a provides a visual display of the Fios Router's current condition. Refer to the chart below for details.

Condition Status	LED Color	BHR5
Normal	WHITE	Normal Operation (solid) Router is booting (fast blink) ONT is booting (slow blink)
	BLUE	Pairing Mode (slow blink) Paging Mode (fast blink)
	GREY	Wi-Fi has been turned off
Issue(s)	YELLOW	No internet Connection (slow blink)
	RED	Hardware/System Failure detected (solid) Overheating (fast blink)
Mode Changed	GREEN	Device is set to Router only mode (ONT/DECT disabled)
	OFF	Device is set to ONT only mode (Router off) or Fiber cable is not connected, dirty or possibly damaged.

FREQUENTLY ASKED QUESTIONS

11.0h/ REAR LIGHTED INDICATORS

Flash Speed

- **Slow flash** – Two times per second
- **Fast flash** – Four times per second

WAN Ethernet

- **Unlit** – Indicates no Ethernet link
- **Solid green** – Indicates a network link
- **Fast flash green** – Indicates network activity. The traffic can be in either direction.

LAN Ethernet – Upper LED

- **Unlit** – Indicates no 1 Gbps link
- **Solid green** – Indicates 1 Gbps link
- **Fast flash green** – Indicates LAN activity. The traffic can be in either direction.

LAN Ethernet – Lower LED

- **Unlit** – Indicates no 10/100 Mbps link
- **Solid green** – Indicates 10/100 Mbps link
- **Fast flash green** – Indicates LAN activity. The traffic can be in either direction.

GPON

- **Solid green** – System ON
- **Slow blink green** – Booting/Updating System
- **Slow flash red** – Warning. Error in the provisioning process will trigger an alarm and cause a warning condition.
- **Solid red** – Hardware failure detected

NTWK

- **Off** – Fiber not connected
- **Solid green** – ONT is synced with the OLT
- **Slow blink green** – Attempting OLT sync
- **Slow flash red** – Not provisioned/connection error
- **Solid red** – Hardware failure detected

MGMT

- **Solid green** – ONT is ranged, recovered and communicating with the EMS/Mgmt
- **Slow blink green** – ONT is in the ranging process
- **Slow flash red** – ONT/EMS not provisioned (rouge device)
- **Solid red** – Provisioned and cannot connect to the EMS/OLT

FREQUENTLY ASKED QUESTIONS

VOICE

- **Solid green** – Voice service active/provisioned
- **Slow blink green** – Off hook condition(line in use)
- **Slow flash red** – Warning/Booting/Updating
- **Solid red** – Critical Issue

11.1/ FREQUENTLY ASKED QUESTIONS

11.1a/ I'VE RUN OUT OF ETHERNET PORTS ON MY FIOS ROUTER. HOW DO I ADD MORE COMPUTERS OR DEVICES?

Plugging in an Ethernet hub or switch expands the number of ports on your Fios Router.

- Run a straight-through Ethernet cable from the Uplink port of the new hub to the Fios Router.

Use a crossover cable if there is no Uplink port/switch on your hub, use a crossover cable.

- Remove an existing device from the yellow Ethernet port on your Fios Router and use that port.

11.1b/ HOW DO I CHANGE THE PASSWORD ON MY FIOS ROUTER GUI?

To change the password:

1. On the Main screen, select **Advanced**, then select **Users**.

-
2. In the Users page, select **Admin**. The User Settings page displays.
 3. In the **General** section, change the password.

11.1c/ IS THE WIRELESS OPTION ON BY DEFAULT ON MY FIOS ROUTER?

Yes, your Fios Router's wireless option is activated out of the box.

11.1d/ IS THE WIRELESS SECURITY ON BY DEFAULT WHEN THE WIRELESS OPTION IS ACTIVATED?

Yes, with the unique WPA2 (Wi-Fi Protected Access II) key that is printed on the sticker on the side of your Fios Router.

11.1e/ WHICH CONNECTION SPEEDS DOES MY FIOS ROUTER SUPPORT?

The Ethernet WAN Internet connection supports 10/100/1000 Mbps. The LAN Ethernet connections support 10/100/1000 Mbps. The 802.11ac wireless connection supports up to 1300 Mbps and the 802.11n supports up to 450 Mbps, depending on signal quality.

FREQUENTLY ASKED QUESTIONS

11.1f/ ARE MY FIOS ROUTER'S ETHERNET PORTS AUTO-SENSING?

Yes. Either a straight-through or crossover Ethernet cable can be used.

11.1g/ CAN I USE AN OLDER WIRELESS DEVICE TO CONNECT TO MY FIOS ROUTER?

Yes, your Fios Router can interface with 802.11b, g, n, or ac devices. Your Fios Router can be setup to handle only n wireless cards, g wireless cards, b wireless cards, or any combination of the three.

11.1h/ CAN MY WIRELESS SIGNAL PASS THROUGH FLOORS, WALLS, AND GLASS?

The physical environment surrounding your Fios Router can have a varying effect on signal strength and quality. The denser the object, such as a concrete wall compared to a plaster wall, the greater the interference. Concrete or metal-reinforced structures experience a higher degree of signal loss than those made of wood, plaster, or glass.

11.1i/ HOW DO I LOCATE THE IP ADDRESS THAT MY COMPUTER IS USING?

In Windows 7 or Windows 10, click the **Windows** button and select **Control Panel**, then click **View Network Status and Tasks**. In the next window, click **Local Area Connection**. In the Local Area Network Connection Status window, click **Details**.

On Mac OS X, open **System Preferences** and click the **Network** icon. The IP address displays near the top of the screen.

11.1j/ I USED DHCP TO CONFIGURE MY NETWORK. DO I NEED TO RESTART MY COMPUTER TO REFRESH MY IP ADDRESS?

No. In Windows 7, Windows 10 and OSX, unplug the Ethernet cable or wireless card, then plug it back in.

11.1k/ I CANNOT ACCESS MY FIOS ROUTER GUI. WHAT SHOULD I DO?

If you cannot access the GUI, verify the computer connected to your Fios Router is set up to dynamically receive an IP address.

11.1l/ I HAVE A FTP OR WEB SERVER ON MY NETWORK. HOW CAN I MAKE IT AVAILABLE TO USERS ON THE INTERNET?

For a web server, enable port forwarding for port 80 to the IP address of the server. Also, set up the web server to receive that port. Configuring the server to use a static IP address is recommended.

For a FTP server, enable port forwarding for port 21 to the IP address of the server. Also, set up the web server to receive

FREQUENTLY ASKED QUESTIONS

that port. Configuring the server to use a static IP address is recommended.

11.1n/ HOW MANY COMPUTERS CAN BE CONNECTED THROUGH MY FIOS ROUTER?

Your Fios Router is capable of 254 connections, but we recommend having no more than 45 connections. As the number of connections increase, the available speed for each computer decreases.

12/

SPECIFICATIONS

12.0 General Specifications

12.1 LED Indicators

12.2 Environmental
Parameters

GENERAL SPECIFICATIONS

**The specifications for your Fios-G2100
are as follows.**

**This includes standards, cabling types
and environmental parameters.**

Note: The specifications listed in this chapter are subject to change without notice.

12.0/ GENERAL SPECIFICATIONS

<i>Model Number:</i>	Model: Fios-G2100
<i>Standards:</i>	IEEE 802.3x, 802.3u IEEE 802.11b/g/n/ac
<i>IP:</i>	IP versions 4 and 6
<i>Fiber:</i>	Fiber WAN: 1350 – 1675 MHz and 975 - 1025 MHz
<i>Speed:</i>	Wired WAN Ethernet: 10/100/1000 Mbps auto-sensing Wired LAN Ethernet: 10/100/1000 Mbps auto-sensing
<i>Wireless LAN:</i>	802.11b – up to 11 Mbps 802.11g – up to 54 Mbps 802.11n – up to 450 Mbps 802.11ac – up to 1773 Mbps

GENERAL SPECIFICATIONS, LED INDICATORS AND ENVIRONMENTAL PARAMETERS

<i>Cabling Type:</i>	Ethernet 10BaseT: UTP/STP Category 3 or 5 Ethernet 100BaseT: UTP/STP Category 5 Ethernet 1000BaseT: UTP/STP Category 5e Telco SC Fiber Optic Telco UTP Category 3 (voice-grade with RJ11 connector)
<i>Firewall:</i>	ICSA certified

12.1/ LED INDICATORS

<i>Front Panel:</i>	Unified Button
<i>Rear Panel:</i>	GPON, Mgmt, Voice, Ntwk, WAN Ethernet and LAN Ethernet [4]

12.2/ ENVIRONMENTAL PARAMETERS

DIMENSIONS AND WEIGHT

<i>Fios-G2100: (unit only)</i>	Size: 3.34" wide x 9.8" high x 9.25" deep Weight: 1.56 lbs / 0.71 kg
<i>Complete System: (inc. packaging)</i>	Size: 10.16" wide x 3.78" high x 10.35" deep Weight: 2.63 lbs / 1.19 kg

<i>Power:</i>	External, 19V DC, 3.0A
<i>Certifications:</i>	FCC, UL 60950-1
<i>Operating Temperature:</i>	-5° C to 40° C (23° F to 104° F)
<i>Storage Temperature:</i>	-20° C to 85° C (-4° F to 185° F)
<i>Operating Humidity:</i>	10% to 85% (non-condensing)
<i>Storage Humidity:</i>	10% to 90% (non-condensing)

13/

NOTICES

13.0 Regulatory Compliance
Notices

This chapter lists various compliance and modification notices, as well as the NEBS requirements and GPL.

REGULATORY COMPLIANCE NOTICES

13.0/ REGULATORY COMPLIANCE NOTICES

13.0a/ CLASS B EQUIPMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by implementing one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment to an outlet on a circuit different from the one to which the receiver is connected
- Consult the dealer or an experienced radio or television technician for help

13.0b/ MODIFICATIONS

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Verizon may void the user's authority to operate the equipment.

Declaration of conformity for products marked with the FCC logo – United States only.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference
- This device must accept any interference received, including interference that may cause unwanted operation

Note: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 24 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

For operation within the 5.15 ~ 5.25 GHz frequency range, this device is restricted to indoor environments. This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

For questions regarding your product or the FCC declaration, contact:

Verizon

One Verizon Way
Basking Ridge, NJ 07920

Attn: FCC declaration
1-800-VERIZON (1-800-837-4966)
www.verizon.com/support

REGULATORY COMPLIANCE NOTICES

Caution: The Broadband Home Router must be installed inside the home. The Router is not designed for exterior installation.

13.0c/ GENERAL PUBLIC LICENSE

This product contains certain software that is covered by open source licensing requirements. Copies of the licenses and a downloadable copy of the source code for the open source software that is used in this product are available on the following website:

<http://verizon.com/opensource/>

All open source software contained in this product is distributed WITHOUT ANY WARRANTY. All such software is subject to the copyrights of the authors and to the terms of the applicable licenses included in the download.

You may also obtain a copy of the source code for the open source software used in this product for a period of three years after your receipt of the product by sending a check for \$10, payable to VERIZON, to the address below:

Verizon
One Verizon Way
Basking Ridge, NJ 07920
Attn: Legal, Open Source Requests

Note: This information is provided for those who wish to edit or otherwise change such programs. You do not need a copy of any of such open source software source code to install or operate the device.

13.0d/ CLASS 1 LASER PRODUCT

This Product Complies with 21CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.



Verizon
One Verizon Way
Basking Ridge, NJ 07920
1-800-VERIZON (1-800-837-4966)

Caution: *Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.*

01/

CHOICE. COUNTLESS
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Version: 1.3.2

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