

## Grace Digital SXBR2 and SXBR3 - Network Set Up Guide

This document outlines steps for (1) connecting your grace digital player to you network, and (2) allowing it to communicate with the SiriusXM servers in order to stream music.



SXBR2



SXBR3

### Step 1: Connect Player to Your Network

#### Wired Connection

1. Using a wired connection (Ethernet cable) and a DHCP or static IP, connect the player to your network.
  - a. Make sure your DHCP server does not have MAC address filtering enabled. If MAC filtering is enabled, then add player's Ethernet MAC address to your DHCP MAC filter to allow the player to connect to your network.
    - i. To locate the player's **Ethernet MAC** address
      1. Connect player using an Ethernet cable to a network that does not have MAC address filtering enabled. In some cases, taking the player home and connecting it there could help you quickly locate the player's Ethernet MAC address.
      2. Once connected, select: Home > Settings > Network Info > scroll to MAC Address at the bottom of the list.

#### Wireless Connection

**Note:** The player will not function on Wi-Fi networks that ask users to accept terms of service before granting internet access. If your Wi-Fi network requires this, you will need to use a different Wi-Fi network.

1. Using a wireless connection and a DHCP or static IP, connect the player to your network.
  - a. Make sure your DHCP server/Router/Access Point does not have MAC address filtering enabled.
  - b. If MAC filtering is enabled, add player's **Wi-Fi MAC** address to your MAC filter on the DHCP server/Router/Access Point to allow the player to connect to your network.
    - i. To locate the player's Wi-Fi MAC address
      1. Connect player using a wireless connection to a Wi-Fi network that does not have MAC address filtering enabled and does not require users to accept terms of service. In some cases, taking the player home and connecting it there could help you quickly locate the player's Wi-Fi MAC address.
      2. Once connected, select: Home > Settings > Network Info > scroll to MAC Address at the bottom of the list.

**NOTE:** When connected over a Wi-Fi network, depending on number of Wi-Fi users/devices connected to the wireless access-point/router in that network and its usage, the music may fade in and out. Therefore, Wi-Fi connectivity is not recommended. Please use a wired connection where available. If Wi-Fi must be used, we recommend that a dedicated access-point/router or one with limited number of users/devices and sufficient bandwidth (minimum 1.5 Mbps download speed) be used to connect the player.

### Step 2: Open External Ports and Whitelist SiriusXM Domain Names

**Note:** This allows the player to communicate with SiriusXM servers (to verify credentials and stream music)

#### 1. Whitelist SiriusXM Streaming Servers

SiriusXM streaming services use the Akamai Content Delivery Network for delivering content to the player/receiver. The player/receiver uses the following URLs for content.

- [mountain.siriusxm.com](http://mountain.siriusxm.com)
- [akamaized.net](http://akamaized.net)
- [\\*ntp.org](http://*ntp.org)
- [.production.streaming.siriusxm.com](http://.production.streaming.siriusxm.com)
- [.gapi.gracedigital.com](http://.gapi.gracedigital.com) (scheduling portal)
- [.streaming.siriusxm.com](http://.streaming.siriusxm.com)
- [sxb3api.gracedigital.com](http://sxb3api.gracedigital.com)
- [sxb3api.siriusxm4biz.com](http://sxb3api.siriusxm4biz.com)
- or [\\*.siriusxm4biz.com](http://*.siriusxm4biz.com)

Because these URLs are appended with dynamic information, whitelisting of the URL must be limited to the base URL.

## 2. Open the following ports:

If you have a firewall or web filter, open the following ports to accommodate traffic.

| Protocol | Port | Purpose  | Details   |
|----------|------|----------|---|
| TCP      | 80   | HTTP     | Connect to data portal, stream audio                        |
| TCP      | 443  | HTTPS    | Secure authentication and diagnostics                       |
| UDP      | 53   | DNS      | Domain name resolution                                      |
| UDP      | 123  | NTP      | Network time synchronization                                |
| TCP      | 5000 | FIRMWARE | Firmware upgrade binaries are transported through port 5000 |

Because these URLs are appended with dynamic information, whitelisting of the URL must be limited to the base URL.

Whitelisting of URLs can also be done using pattern matching. For example, \*.streaming.siriusxm.com, or \*.mountian.siriusxm.com are valid patterns where "\*" can match any valid permutation of sub-domain (DNS) names, including multiple names separated by periods.

## Step 3: Check DNS Communication

If after successful completion of the first two steps, the player is still not working, the issue may be with your Domain Name Server (DNS). Follow the steps below to troubleshoot this common issue:

1. Confirm player communication with your internal DNS Server
  - a. Make sure the player is able to communicate with your internal DNS server that can resolve domain names listed in the whitelist domain table in section 2.1.
    - i. As a quick test, from the same subnet to which the player is connected, open a command window on a computer and type the following command: **ping siriusxm.com**
      1. If the name resolution works correctly, the command window will display an IP address of siriusxm.com domain name.
      2. If the name resolution does not happen, the following issues may be present:
        - a. Your internal DNS server that the player is communicating with is dropping the DNS requests from the player.
          - i. If so, consider assigning a different DNS server to the player.
        - b. Or the upstream DNS server (that your internal DNS server communicates with in order to resolves public domain names) is unable to resolve siriusxm.com domain names.
        - c. If unable to resolve this problem at the upstream DNS server level, consider using a different upstream DNS server (like Google DNS servers: 8.8.8.8 or 8.8.4.4) as the primary upstream DNS server in your internal DNS server

## Is the Player Still Not Working?

It is possible that additional adjustments need to be made by your network administrator in order for the player to function properly. You can test this by connecting the player to your smartphone Personal Hotspot by following the steps below.

1. From your smartphone, turn on your Personal Hotspot
2. From the player, press Home then use the dial to select Settings > Network Wizard > Wireless > Scan
3. Select your Personal Hotspot from the list of wireless networks and enter your password to connect.
  - If the player functions properly when connected to Personal Hotspot, this confirms that the player is functioning properly, but the network is not properly configured.
  - Provide the results of this test to your network administrator along with this document.
  - A successful test will cause your network administrator to reconfirm the network settings.

## Having difficulty getting the service to work on your network?

Here are some additional items to try:

1. If MAC address filtering is enabled in the network, then the device's MAC address should be added at the appropriate level in the network (DHCP Server, Switch, or Router).
2. If the device is connected to the Wi-Fi network, it must be verified that there are no end-user agreements or form submission pages (such as providing a customer email/phone number or completing a survey) that need to be completed to begin using the Wi-Fi network.
3. **It should be noted that a player with a network defect has never been encountered.**

Still, if whoever handles updates for the network will not make updates until it is confirmed that the player is functioning properly, this can be accomplished by performing one of the following tests:

- Connect to a personal hotspot using a mobile device (fastest/easiest)
- Connect to an alternate network that does not use a firewall, such as at home
- Send the player to Dynamic Media to be connected to our test network
  - The Customer covers the shipping costs to send the player to Dynamic Media; Dynamic Media pays the shipping costs to send a working player back to the customer following the test.

*Note that Dynamic Media cannot perform a warranty replacement on a player due to network issues prior to confirming the defect by connecting the player to our test network.*

4. You can test an ethernet switch port (to which the device will be connected) for internet connectivity by connecting a computer to that port and attempting to use a browser.
  - This will be a valid test in a network that does not use MAC filtering.

If you have questions, please contact Dynamic Media customer support at 586-978-4214. Monday-Friday 9AM-6PM EST