



**SBA<sup>TM</sup>**

**The Symbiont Boot Appliance<sup>TM</sup>**

**Setup Guide | © 2008**

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SBA Models: SBA140, SBA641

# SBA Setup Guide | The Symbiont Boot Appliance™

## Step 1. Unpack

Before installing The Symbiont Boot Appliance™, verify that you have everything you need in order to proceed with the installation.

- ✓ The Symbiont Boot Appliance™ (SBA) (Provided)
- ✓ Symbiont Certified Network Terminals™ (aka: Diskless Thin Clients™) – (Not provided)
- ✓ A 10/100Mbps network switch minimum (Not provided)
- ✓ A terminal server that supports at least one of the following protocols: RDP, ICA, X, NX, or Telnet
- ✓ Network cables for your Diskless Thin Clients, SBA, and server (One CAT5e network cable is provided with the SBA)

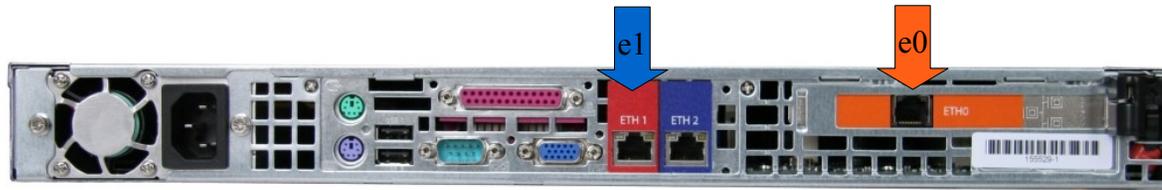
## Step 2. Prepare

Below are a few best practices that should be observed before you proceed with setting up your Diskless Thin Client network. You can ensure that your network will perform at its best and with the highest degree of reliability and security if you use the following as guidelines for your deployment.

- In order to separate the data traveling to and from your Diskless Thin Clients and your terminal server, your server should have **2** network interfaces. One of the network interfaces will provide a desktop environment to the Diskless Thin Clients while the other will connect to your existing network and the Internet. It is suggested for performance and reliability that you deploy your Diskless Thin Clients so that the terminal server and Diskless Thin Clients communicate over a dedicated network segment (subnet).
- Symbiont Boot Appliances will boot up Symbiont Certified Network Terminals (Diskless Thin Clients) using the DHCP protocol using the **ETH0** port on the Boot Appliance. The ETH0 port is identified by an orange ETH0 label on the back of the Boot Appliance.
- Every Symbiont Boot Appliance is shipped by default with ETH0's IP address set to: **192.168.0.254**. ETH1 is configured by default to receive an IP address via DHCP. If you have a DHCP server on your network, plug ETH1 of the Boot Appliance into your network so that it will receive an IP address from your DHCP server. You can at any time, configure your Boot Appliance with a Static IP address on ETH1.

**Note:** All Symbiont Boot Appliances use DHCP (among other technologies) to boot up Symbiont Certified Diskless Thin Clients.

The back of each Symbiont Boot Appliance is pictured below. The **orange (e0)** arrow points to the ETH0 port and the **blue (e1)** arrow points to ETH1. Both versions of SBAs also have an ETH2 interface. The ETH2 interface is reserved for future expansion. Do not connect anything to the SBA's ETH2 interface.



*Tabletop SBA: Picture shown for reference. Product sales of Tabletop SBAs ended in 2007*



Rackmount SBA



Tabletop SBA

## Step 3. Initial setup

1. Connect The SBA's ETH0 port, application server, and Diskless Thin Clients to a switch. Make sure that all of the devices are also on the same subnet if you are using a VLAN capable switch.  
**Important:** Make sure your switch does not block DHCP or NFS traffic.
2. Power-on the application server and configure the network interface that is connected to the switch used in the previous step to be on the same subnet as the SBA.  
**Tip:** Configure your application server with the IP address 192.168.0.253  
**Note:** 192.168.0.254 is the default IP address of the SBA
3. Power-on the SBA. **The unit is ready after you hear 3 beeps.** (Typical SBA boot up time is between 20 and 40 seconds)
4. Access the SBA via a web browser from your application server by browsing to <https://192.168.0.254:10001>  
**Note:** You will need to accept the security certificate in order to access the web-based interface. SSL encryption is used for communication by the SBA's web-based management interface.
5. Login using the username '**admin**' and the password '**admin**'  
**Tip:** You can change the password for the SBA after you log in by browsing to: **Boot Appliance > Change Password**

## Step 4. Initial Configuration (Sessions and Screens)

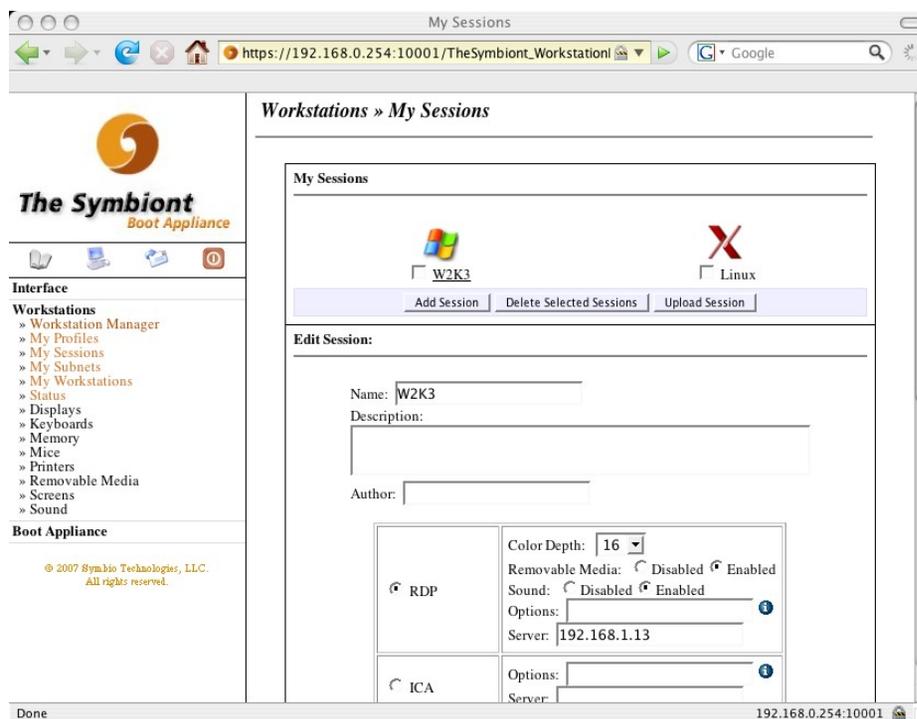
Before an SBA can connect Diskless Thin Clients to a terminal server, you must ensure that the network interface on your terminal server is configured to respond to requests on a Class-C IP address and on the 192.168.0 subnet.

**Important:** The IP address you choose for your server must be outside the “workstation IP range” and must not conflict with the SBA’s IP address. You can review the IP range by browsing to: **Workstations > My Subnets**

Now that the application server is ready, a connection from the SBA to your server can be made. A connection to an application server is called a **Session**. Sessions are defined, then are assigned to **Screens**. Sessions and screens provide your users with a login screen to your terminal server or mainframe. If you have multiple servers, multiple sessions and screens can be configured to enable users to log into the servers simultaneously.

### Configure a Session

1. In the SBA’s menu, browse to: **Workstations > My Sessions**
2. Click “**Add Session**” to create a new session, or select an existing session to modify.
3. Give the session a name, select the server/protocol you will use, and enter the IP address of the server. You can also specify protocol-specific options.
4. Click “**Save Session**”



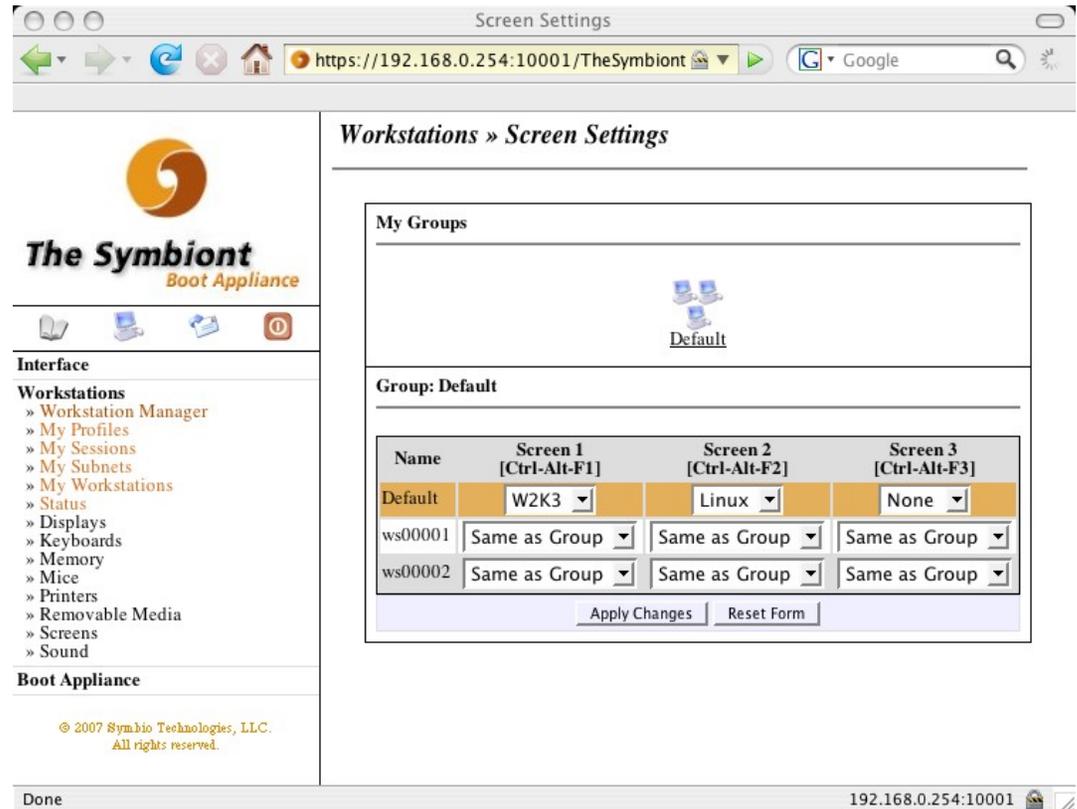
## Configure Screens

After you define a session, you can assign that session to a screen. If you have a single terminal server that everyone will be connecting to, you should assign that session to “Screen 1”.

1. In the SBA's menu, go to **Workstations > Screens**
2. Use the pulldown menus to associate a Session with a Screen.

**Tip:** If you have 2 terminal servers, you can associate different sessions with different screens. This will provide your users with the ability to toggle between terminal servers.

3. Click **“Apply Changes”**
4. **Log out** of the SBA



The screenshot shows a web browser window titled "Screen Settings" with the URL "https://192.168.0.254:10001/TheSymbiont". The page header includes the Symbiont logo and "The Symbiont Boot Appliance". A navigation menu on the left lists "Interface" (Workstations, My Profiles, My Sessions, My Subnets, My Workstations, Status, Displays, Keyboards, Memory, Mice, Printers, Removable Media, Screens, Sound) and "Boot Appliance". The main content area is titled "Workstations » Screen Settings" and shows "My Groups" with a "Default" group. Below this is a table for screen configuration:

Name	Screen 1 [Ctrl-Alt-F1]	Screen 2 [Ctrl-Alt-F2]	Screen 3 [Ctrl-Alt-F3]
Default	W2K3	Linux	None
ws00001	Same as Group	Same as Group	Same as Group
ws00002	Same as Group	Same as Group	Same as Group

Buttons for "Apply Changes" and "Reset Form" are located below the table. The footer of the page shows "Done" and the IP address "192.168.0.254:10001".

## Step 5. Final Steps

1. Verify that your Diskless Thin Clients, the SBA, and your application server are connected to your switch and powered on.
2. Turn on your Diskless Thin Clients. At this point, the SBA will recognize the Diskless Thin Clients. You should see a typical boot-up procedure take place. After a short while, you should be presented with the log-in screen for your application/terminal server.

**Tip:** Use a second network interface on your application server to provide Internet access (or access to an existing computer network) to all of your Diskless Thin Clients. Once your application server is connected via the second network interface, every Diskless Thin Client user is connected.

## Step 6. Licensing & Updates

SBA Licenses determine the maximum number of Diskless Thin Clients that an SBA can boot up. The SBA Updates page enables you to download updates to different portions (modules) with the SBA's firmware.

### Licensing

If you purchased additional licenses, you will need to install them to enable the SBA to boot additional Diskless Thin Clients.

**Note:** Enterprise SBAs come with 25 licenses  
Professional SBAs come with 5 licenses

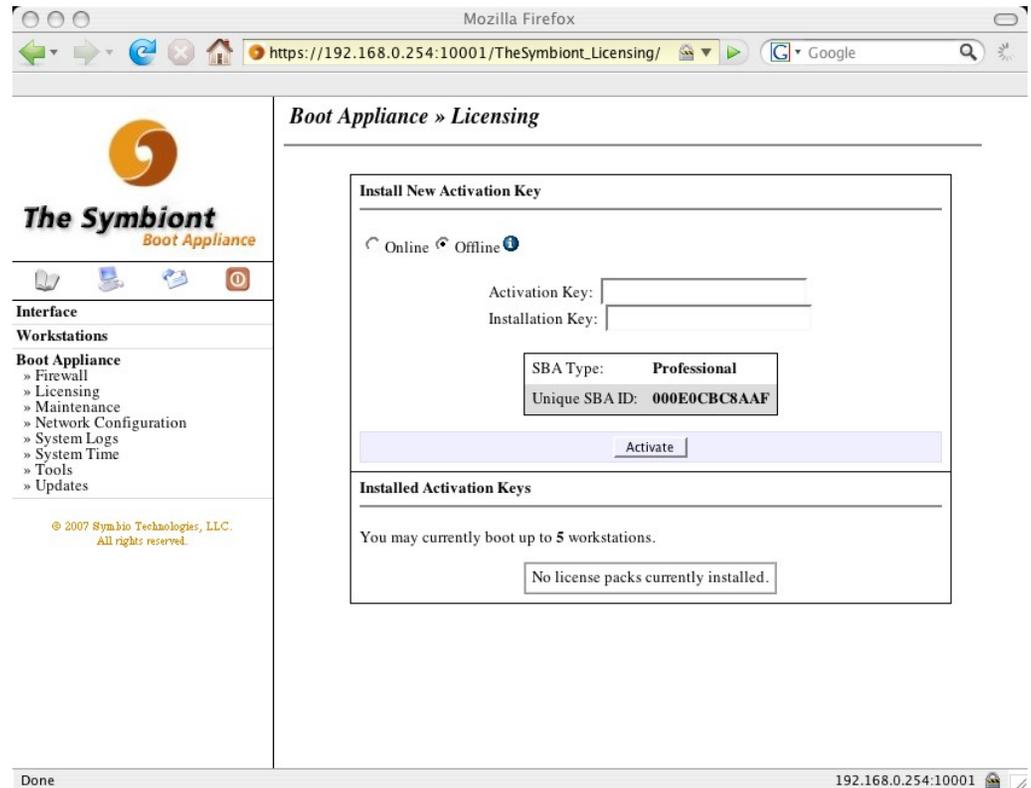
#### Online Activation:

1. In the left column menu, go to **Boot Appliance > Licensing**  
**Tip:** You should have received an Activation Key for each license or license pack you purchased.
2. Choose "**Online**" installation, enter the Activation Key, then click the "**Activate**" button.
3. Proceed to **Workstations > My Subnets** and adjust the Workstation Range to include the total number of Diskless Thin Clients you wish to boot

**Important:** If your activation fails for any reason, please email [support@symbio-technologies.com](mailto:support@symbio-technologies.com) with your "Activation Key," "Unique SBA ID" (printed on the Licensing page), and SBA model number, and request an "Installation Key." When you receive an Installation Key from Symbio Technologies, proceed to "Offline Activation."

#### Offline Activation:

1. In the left column menu, go to **Boot Appliance > Licensing**
2. Choose the "**Offline**" radio button
3. Enter your "**Activation Key**" and "**Installation Key**"
4. Click the "**Activate**" button
5. Proceed to **Workstations > My Subnets** and adjust the Workstation Range to include the total number of Diskless Thin Clients you wish to boot



## Updates

If the subscription to your SBA is current, you have the ability to register your SBA to receive firmware updates and new features for your specific SBA model. The registration process involves filing a "Public Key" with Symbio Technologies' update servers.

**Important:** Before you update an SBA, send an email to [support@symbio-technologies.com](mailto:support@symbio-technologies.com) to inquire if updating your SBA's firmware will resolve any issues you are having. If an SBA is functioning properly, there is no reason to update the firmware. If a new feature is made available for your model SBA, you can install it as a new module.

### Registering your Public Key

1. In the left column menu, go to **Boot Appliance** -> **Updates**
2. Click the **"Download Key"** button. This will initiate the download of a file to your local computer.
3. Download the file, then email it to: [support@symbio-technologies.com](mailto:support@symbio-technologies.com). You will be notified when your key is registered.

### Updating your SBA

1. Make sure that your SBA is online. A good way to check is to go to: **Boot Appliance** -> **Tools** and attempt to ping "www.symbio-technologies.com". If this fails, you must get your SBA online before proceeding.  
**Important:** Always click the **"Check for Updates"** before doing anything. This will refresh the SBA's record of both the packages currently installed and those available
2. To upgrade the SBA's firmware to the latest version, click the **"Upgrade All"** button.  
**Tip:** This may take several minutes. It is best to let this process run to completion. The page will refresh every few minutes, and when the update procedure finishes, the page will return to the initial Updates screen
3. If the upgrade was successful, the version of the Symbiont packages installed will match those available.

SBA Type	Professional
Current Version	4.1.4-57
Updates Available	No
Last Checked for Updates	Mon Jun 25 21:42:48 2007

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Done 192.168.0.254:10001

# Advanced Configuration

## 1.) Connecting to an Application (Terminal) Server on a Different Subnet

1. Plug the ETH1 interface of the Boot Appliance into the same network (subnet) as your application server  
**Important:** Make sure that the ETH1 and ETH0 interfaces are not plugged into the same switch or subnet
2. Make sure that NAT is “**enabled**” under **Boot Appliance -> Firewall**  
**Note:** If you are connecting to a server that will utilize the 'X-protocol', you will need to follow the steps below.
3. If you use hostnames to identify your application server(s), specify your DNS server under **Workstations -> My Subnets**
4. Go to Step 4 (page 3) to setup Sessions and Screens

## 2.) Assigning a Static IP to ETH1 of the SBA

1. Go to **Boot Appliance -> Network Configuration -> Network Interfaces -> Click “ETH1”**
2. Change the IP Address field to “**Static**” (the default is 'From DHCP')
3. Enter the desired IP address and appropriate **Netmask** and **Broadcast** address
4. Click “**Save and Apply**”  
**Important:** This will restart the network interface. If you are connected to the Boot Appliance through the ETH1 interface, you will be disconnected. Reconnect to the Boot Appliance by entering the new IP address in your web browser. Example: https://new IPaddress:10001

## 3.) Connecting to a Server on a Different Subnet using the “X” Protocol

If you are connecting to a Linux server, you will most likely be using the “X” protocol to deliver the desktop environment. The X protocol works differently than other protocols. The steps below will help you connect to your application server:

1. Plug the ETH1 interface of the Boot Appliance into the same network (subnet) as your application server  
**Important:** Make sure that the ETH1 and ETH0 interfaces are not plugged into the same switch or subnet
2. Make sure the NAT is “Disabled” under **Boot Appliance -> Firewall**  
**Note:** Never enable NAT when connecting to an application server using X.
3. Add a Static Route to your application server that uses the X protocol that points to your thin client subnet. Use the IP address of ETH1 on the Boot Appliance as the gateway.  
**Tip:** Alternatively, you can add a static route into the router that serves as the default gateway for the application server(s). This is very useful if you have multiple application servers.

## Unspecified vs. Specified Workstations (Insecure vs. Secure)

The SBA is shipped by default with the “**Allow unspecified workstations to connect**” option turned on. You may have noticed that you did not need to enter or configure your network terminal(s) before they could be booted up by the SBA. Disabling “**Allow unspecified workstations to connect**” will provide a much higher security environment and enable some of the fine-tuning options available inside the SBA's interface. To disable “**Allow unspecified workstations to connect,**” do the following:

1. Go to **Workstations > My Subnets**
2. Look for the “**Allow unspecified workstations to connect**” option and remove the check mark next to it to disable it
3. Click “**Apply Changes**”

**Important:** If you restart any of your network terminals, they will not boot up.

Now we need to specify all of the network terminals that are booted up by the SBA. To add workstations to the SBA, do the following:

1. Go to **Workstations > My Workstations**
2. Click “**Add Workstations**”. You should see a list of MAC addresses for all of the workstations that have attempted to boot up. For example, if you have 50 network terminals, you should see 50 MAC addresses. Place a check mark next to the terminals that you are adding to the SBA. By doing so, you will enable them to boot up.
3. Click “**Apply Changes**”
4. Go to **Workstations > My Workstations** and verify that your network terminals are listed on this page.

**Tip:** It is strongly recommended that you add comments for your workstations. Comments should refer only to the workstations, not to the users who use the workstations. For example, use a comment such as “shipping and receiving” or “2<sup>nd</sup> floor reception.”

**Important:** If you reboot your application server while the SBA is running, the SBA will try to network boot your server as if it were a Diskless Thin Client. By Disabling “**Allow unspecified workstations to connect,**” you can omit your server's MAC address from your workstation list and avoid this problem. Alternatively, you could disable network booting on your application server's BIOS.

# Terminal Server Setup Tips

The information below is provided to assist with the setup of your terminal server. There may be multiple ways of setting up terminal services to work best for your environment. The steps below are just examples of one particular method. Symbio Technologies is not responsible for any downtime or loss of data that may occur by following these instructions. If you are unsure of how to properly configure your terminal server, you should consult with an authorized Symbio Technologies Value Added Reseller™ (VAR), your server vendor, or contact Symbio Technologies directly for fee-based consulting services.

Symbio Technologies does not assist or provide guidance with the setup and/or configuration of terminal servers under the terms of The Symbiont Boot Appliance Subscription™.

## Windows 2000/2003 Server Standard™ and Enterprise Editions™ (RDP)

Microsoft Windows Server™ includes a trial period for Windows Terminal Services™. When the trial period is over, you must purchase licenses in order to utilize the built in terminal server technology.

Before you can connect to a Windows Server using Windows Terminal Services (RDP), you should ensure the following steps have been taken:

- Terminal Services is enabled on your Microsoft Windows 2000/2003 Server
- You are within the terminal server evaluation period or you have Windows Terminal Server licenses installed
- There is no device or software that will block traffic on port 3389 anywhere on your Diskless Thin Client subnet
- Verify that your NAT configuration is correct inside your SBA under **Boot Appliance > Firewall**

## Citrix™ (ICA)

A popular method for setting up a Citrix server is to have an ICA master server provide a “published desktop” from one of several servers in the server farm. The ICA master server is contacted, by default, via http on port 80. In order to get a login screen from a Citrix™ server, you must:

- “Publish a desktop” on your Windows/Citrix Server
- In the SBA, create an ICA session under **Workstations > My Sessions** with the following parameters:
  - Options: -A <IP-of-ICA-master-server>
  - Server: <Published-desktop-name>
- If the terminal server is located on a different subnet and you are routing the session through the SBA, remember to enable NAT under **Boot Appliance > Firewall**
- Verify that your NAT configuration is correct inside your SBA under **Boot Appliance > Firewall**

## Linux™ (X)

When you connect to a Linux server, you are using the X-protocol to deliver a login screen and the desktop environment to your Diskless Thin Clients. It is important that you understand that when you are using the X-protocol, the X-server is running on the local hardware (i.e., the Diskless Thin Client) and the application server is the X-client. The following is a checklist of items you should review in order to connect to a server utilizing the X-protocol:

- Verify that remote logins/connections are allowed in your X server configuration
- To get a login screen from the server directly, enable the “Greeter” option within your X session in the SBA. If you prefer to present the user with a list of X terminal servers that are available, enable the “Chooser” option.
- Verify that your NAT configuration is correct inside your SBA under **Boot Appliance > Firewall**

## No Machine™ (NX)

NX is a Linux and Solaris desktop delivery protocol that compresses the normal X session. NX works like Windows Terminal Services and Citrix in that the local desktop hardware is the client and the application server is the “server.”

- Verify that you have NX Server properly installed and licensed on your terminal server
- The NX protocol will communicate over port 22 by default. Verify that no traffic on port 22 is blocked by any device or software
- Verify that your NAT configuration is correct inside your SBA under **Boot Appliance > Firewall**



## Contact & Support Information

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