SonicOSX 7

Getting Started Guide

for NSsp 15700

SONICWALL®

Contents

1

Product Overview

This section introduces key features of the NSsp 15700.

Topics:

Enterprise Class High-performance Firewall

Firewalls must evolve and adapt to support dynamic IT environments. Firewall limitations can present major IT operations bottlenecks.

The SonicWall Network Security services platform NSsp 15700 is a next-generation firewall with high port density and Multi-Gigabit interfaces, that can process several million connections while checking for zero-day and advanced threats. Designed for large enterprise, higher education, government agencies and MSSPs, the NSsp eliminates attacks in real time without slowing performance. It is designed to be highly reliable and deliver uninterrupted services.

Feature Summary

Topics:

Simplified Management and Reporting

Ongoing management, monitoring and reporting of network activity are handled through the SonicWall on-premises Network Security Manager (NSM) or cloud-based Capture Security Center (CSC).

Advanced Threat Protection

Every business day, SonicWall encounters and catalogs over 140,000 new and updated forms of malware. These variants are updated frequently to bypass static filters in a variety of devices and services. Furthermore, many attackers build or outsource components, such as evasion tactics or runners in order to make their malware more powerful and difficult to detect.

SonicWall Capture Advanced Threat Protection™ (Capture ATP) is used by over 150,000 customers across the world through a variety of solutions and it helps to discover and stop over 1,200 new forms of malware each business day. Furthermore, for compliance and performance-sensitive customers, the NSsp 15700 integrates with Capture Security Appliance (CSa), a local device based on the memory-based file analysis technology, and Real-Time Deep Memory Inspection™ (RTDMI).

Capture Cloud Platform

SonicWall's Capture Cloud Platform delivers cloud-based threat prevention and network management plus reporting and analytics for organizations of any size. The platform consolidates threat intelligence gathered from multiple sources including our award-winning multi-engine network sandboxing service, Capture Advanced Threat Protection, as well as more than 1.1 million SonicWall sensors located around the globe.

Deep Packet Inspection of SSL/TLS (DPI-SSL)

- The NSsp 15700 provides inspection for over millions of simultaneous TLS/SSL and SSH encrypted connections regardless of port or protocol.
- Support for TLS 1.3

Content Filtering Service

Allows security administrators to create and apply policies that allow or deny access to sites based on individual or group identity, or by time of day, for over 50 pre-defined categories.

Intrusion Prevention Service

The extensible signature language provides proactive defense against newly discovered application and protocol vulnerabilities.

Application Control

The NSsp 15700 catalogs thousands of applications through App Control and monitors their traffic for anomalous behavior through the on-board Application Firewall.

Unified Policy Configuration and Management

The NSsp 15700 enables organizations to intuitively configure and enforce policies by combining network, application and web filtering security in one place.

Multiple Instances / High Availability

NSsp 15700 architecture allows multiple independent firewalls to share hardware resources to support MSSPs, or provide flexible resources for evolving organizations. These independent firewalls may also be configured as high-availability (HA) pairs, either within one NSsp, or across multiple NSsp. Unlike other high performance firewall systems, the NSsp operates through containers rather than shared hardware resources. Software containers along with NUMA architecture assure identical operation for all instances on the NSsp 15700.

The NSsp 15700 supports three kinds of High Availability:

- Standalone HA — Instances on one NSsp from high availability pairs. See *Instance HA Pair on a Standalone NSsp Node*.

- Multi-appliance instance-level HA — Instances on different NSsp 15700 appliances form HA pairs. See *Configuring Multi-Appliance Instance-Level HA*.
- Appliance-level HA — Two NSsp appliances ,are paired as Primary Active and Secondary Standby. See *Setting Up Unit-to-Unit HA*.

System Architecture

The NSsp 15700 centers on four Intel Xeon processors on two cards, or physical blades, linked by a 3.2 Terabits per second switch fabric. This enables the support of multiple independent firewalls with direct access to the NSsp's high-performance hardware. Non-Unified Memory Access architecture combined with software containers maximizes security and performance.

There are two logical blades, or CPUs, per physical blade. These logical blades are allocated to a Root Instance firewall, or to tenant instances. Each logical blade offers the nine cores available on each Xeon minus one devoted to system software. At the time of this writing, the Root Instance requires a minimum two logical blades, and a maximum of two logical blades are available to support virtual firewalls.

Virtual firewall instances are confined to software containers, consequently providing the highest security and predictable performance.

Virtual firewalls require an allocation of at least two CPU cores: one Control Plane (CP) and one Data Plane (DP). Up to two CP cores and seven DP cores can support a virtual firewall. Cores supporting a virtual firewall must reside on one logical blade.

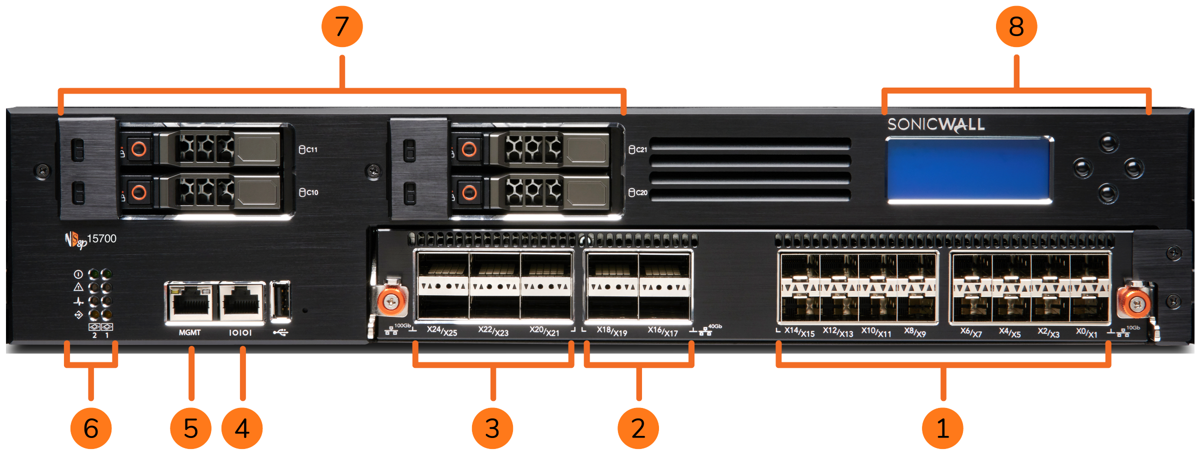
Hardware Overview

The NSsp is a rack-mounted 2U enterprise firewall capable of supporting multiple virtual firewalls on a single high-performance, high-reliability platform. It can support multiple firewall instances for MSSPs or redundant virtual firewalls for high-availability applications.

Topics:

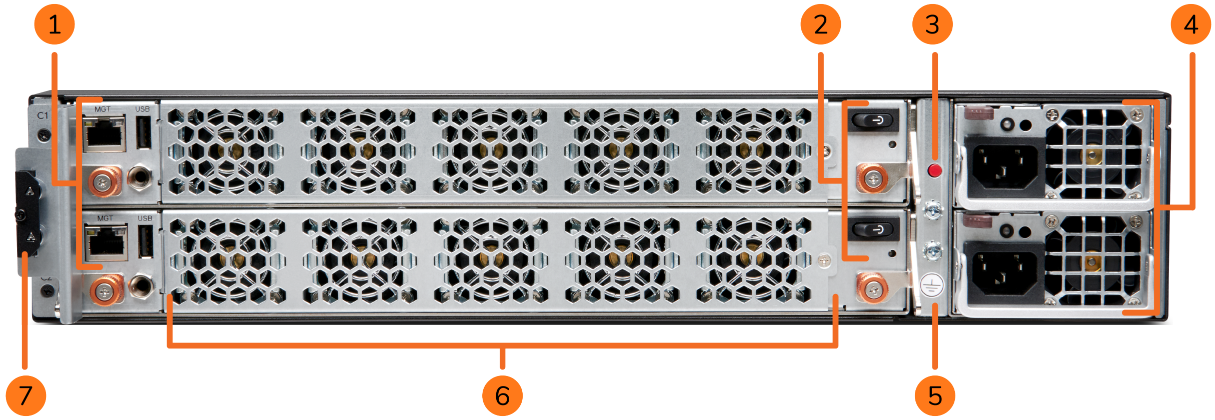
- Front Panel
- Rear Panel
- LEDs
- Specifications

Front Panel



1	**X0 - X15** 10Gb SFP+ Ports (16) These ports support small form-factor pluggable (SFP) modules and 10Gb Base-T copper modules.
2	**X16 - X19** 40Gb QSFP+ Ports (4) These 40Gb ports also support 10Gb interface connectivity.
3	**X20 - X25** 100Gb QSFP28 Ports (6)
4	**Serial Console Port**
5	**MGMT Port** – 1GbE
6	**LED Indicators** LEDs from top: Power, Alarm, System Status, MGMT Port
7	**SSD Drives** – 480GB (4)
8	**LCD Screen**

Rear Panel



1 **AUX MGMT Ports (2)** – 1GbE

Provides management access for SonicWall Technical Support

2 **Power Switches and Status LEDs (2)**

Press and release to power on

LED status:

- **Off** – Power is off for the compute blade
- **Blinking Blue** – Compute blade is in powering-up stage
- **Solid Blue** – Power is on and compute blade is up and ready

3 **Power Alarm Cutoff Button**

Press to stop alarm after power supply failure

4 **Power Supplies (2) - 1200W each**

Fully redundant, field replaceable

5 **Ground**

6 **Fans (10)**

7 **Key Compartment**

Contains keys to unlock SSD handles for removal/replacement

LEDs

LED Name	LED Color	Description
10Gb SFP+ Link LEDs, X0-X15	Off	No link
	Solid Green	Link is up
40Gb QSFP+ Link LEDs, X16-X19	Off	No link
	Solid Green	Link is up
100Gb QSFP28 Link LEDs, X20-X25	Off	No link
	Solid Green	Link is up
MGMT Port Link LED	Off	No link
	Solid Green	100Mbps
	Solid Amber	1Gbps
All Activity LEDs, X0-X25, MGMT	Off	No traffic
	Blinking Green	Traffic present
Power	Off	Power is off for the compute blade
	Green	Power is on for the compute blade
Alarm	Off	No alarm activity
	Green	Minor system alarm
	Red	Major/critical system alarm (thermal, fan, etc.)
System Status	Off	No compute blade or no power
	Amber	Compute blade is not ready
	Green	Compute blade is ready
MGMT Port	Off	No activity
	Blinking Amber	Traffic present

Specifications

ⓘ | **NOTE:** For a list of qualified SFP+/QSFP transceivers, contact SonicWall Technical Support.

NSSP 15700 SPECIFICATIONS

Feature	Detail
Number of Compute Blades	2
Number of CPUs	4

Feature	Detail
100G QSFP28	6
40G QSFP+	4
10G SFP+	16
SSD in Compute Blade (1 per Blade)	240GB
Front SSDs for Blade #1 (Top)	480GB
RAID Configuration	RAID 1
Front SSDs for Blade #2 (Bottom)	480GB
RAID Configuration	RAID 1
Compact Flash 32GB	2
USB	USB 2.0 Type A
Console	RS232 RJ45
Management Port	1GbE RJ45
4056 Fan	10
Redundant Power Supplies	2
Power	1200 Watts

2

System Setup

Topics:

- Default Settings
- System Startup
- SonicOSX Basic Configuration
- Connecting LAN and WAN Interfaces
- Network Configuration
- Registration and Licensing

Default Settings

Port	IP Address / Login / Password
Serial number	on nameplate; in initial firmware
Authentication code	Available in GUI on Dashboard with system information
Registration code	from MySonicWall.com
Maintenance key	from MySonicWall.com
Console	Serial port: baud rate: 115200; data: 8; parity none; stop 1; flow control; none Login = techsupport / sonicwall-<buildnum>
X0	`10.10.10.10`
X1	Not set by default
Management (Blade 1)	`192.168.168.168`
Management (Blade 2)	`192.168.168.167`
SafeMode	`https://192,168,168.168:65443` (admin / password)[1]

Port	IP Address / Login / Password
MySonicWall.com	register on MySonicWall.com to establish login and password

[1] SafeMode is accessed through the Management (Blade 1) port which is by default 192.168.168.168. This value may be changed in ChassisOS. For details, see ***Access the Console Port*** and ***Configure IP Addresses from the CLI***

NOTE: If SonicOSX is unavailable, the default login credential is admin / password, otherwise, the administrator's credentials work. See Using the SafeMode GUI.

NOTE: Ensure to use the new password if you have updated the default password.

System Startup

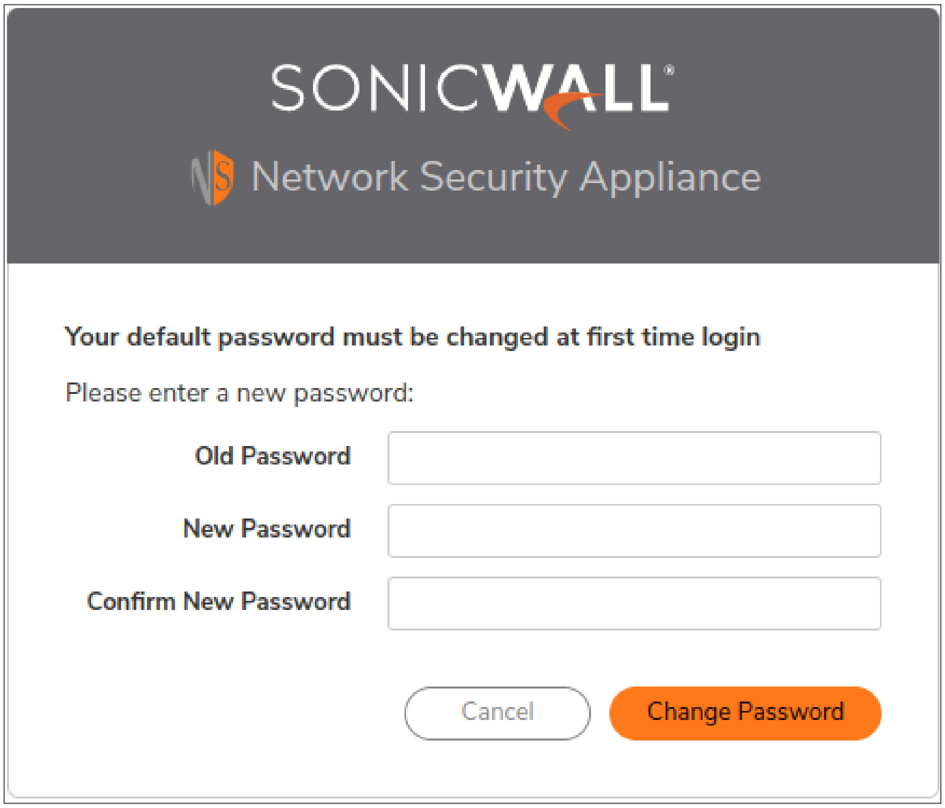
SonicOSX comes up a few minutes after connecting the SonicOSX to a power source. You can configure your SonicOSX from either the X0 or MGMT interface:

- HTTPS Management via X0
- HTTPS Management via MGMT Port

HTTPS Management via X0

The X0 interface can be configured as a static, transparent, or Layer 2 Bridged Mode interface.

1. Connect your management computer to the SonicOSX X0 interface and configure your computer with a static IP address on the LAN subnet (default subnet: `10.10.10.0/24`)
2. In your browser, enter the default IP address `https://10.10.10.10` and log in using the default credentials:
3. Username: *admin*
   Password: *password*
4. Your default password must be changed at first time while logging in after upgrade. Create a password that meets the security requirements. A password should have at least one uppercase letter, one lowercase letter, one number, and one special character. For example, S0nicW@ll.



Network Security Appliance

Your default password must be changed at first time login

Please enter a new password:

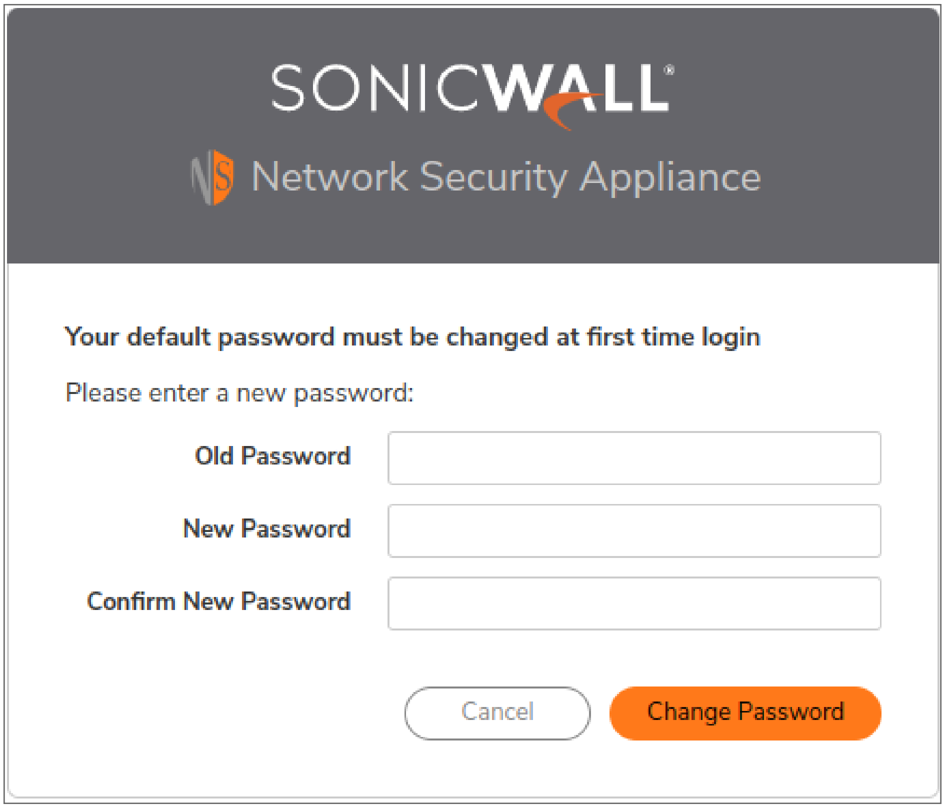
5. Perform the following steps to change password:
   a. In **Old Password** text box, enter your default password.
   b. In **New Password** text box, enter your new password.
   c. In **Confirm Password** text box, re-enter your new password.
6. Click **Change Password**.
7. Continue with *SonicOSX Basic Configuration*.

HTTPS Management via MGMT Port

The MGMT port is a dedicated 1 Gigabit Ethernet interface for appliance management and SafeMode access.

1. Connect your management computer to the SonicOSX MGMT interface and configure your computer with a static IP address on the MGMT subnet (default subnet: `192.168.168.0/24`).
2. In your browser, enter the default IP address `https://192.168.168.166` and log in using the default credentials:
3. Username: *admin*
   Password: *password*

4. Your default password must be changed at first time while logging in after upgrade. Create a password that meets the security requirements. A password should have at least one uppercase letter, one lowercase letter, one number, and one special character. For example, S0nicW@ll.



Your default password must be changed at first time login

Please enter a new password:

Old Password	
New Password	
Confirm New Password	

5. Perform the following steps to change password:
   a. In **Old Password** text box, enter your default password.
   b. In **New Password** text box, enter your new password.
   c. In **Confirm Password** text box, re-enter your new password.
6. Click **Change Password**.
7. Continue with *SonicOSX Basic Configuration.*

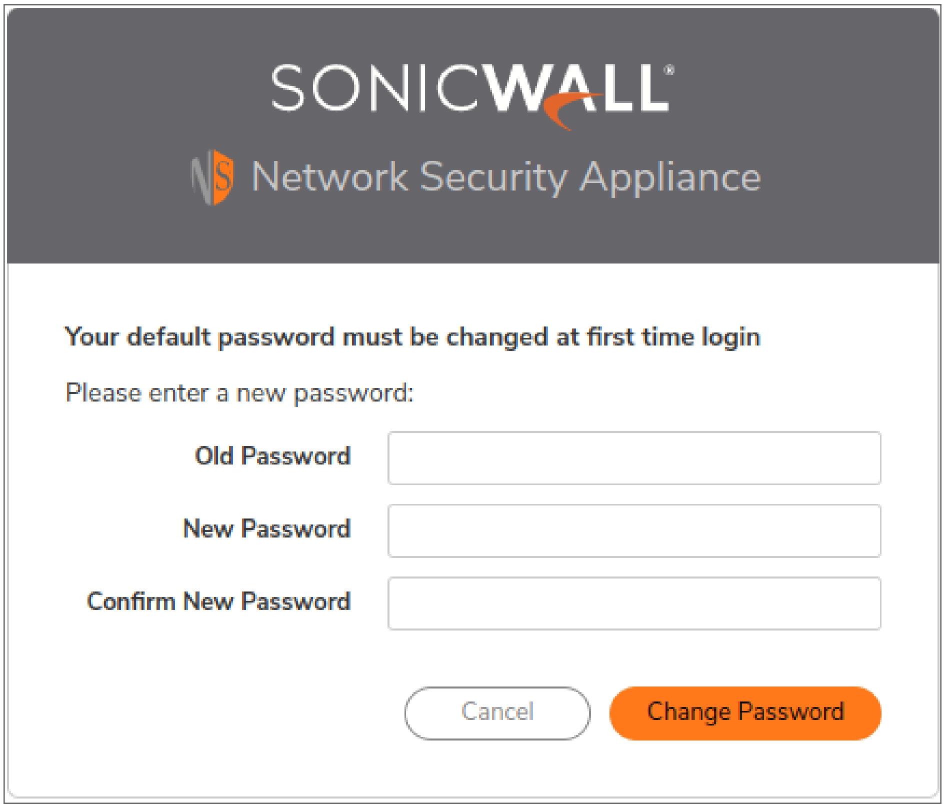
If the services are enabled, you can access SafeMode, SSH, or ping via the MGMT port. From SafeMode, you can upgrade firmware, boot backup images and more.

Using SafeMode

SafeMode is accessed on HTTPS port 65443. This is accessed via MGMT (Blade 1) configured in user interface settings. The default is `192.168.168.168`. Log in using the default MGMT SafeMode credentials:

- Username: *admin*
- Default Password: *password*

- Your default password must be changed at first time while logging in after upgrade. Create a password that meets the security requirements. A password should have at least one uppercase letter, one lowercase letter, one number, and one special character. For example, S0nicW@ll.



Your default password must be changed at first time login

Please enter a new password:

Old Password	
New Password	
Confirm New Password	

- Perform the following steps to change password:
  1. In **Old Password** text box, enter your default password.
  2. In **New Password** text box, enter your new password.
  3. In **Confirm Password** text box, re-enter your new password.
- Click **Change Password**.

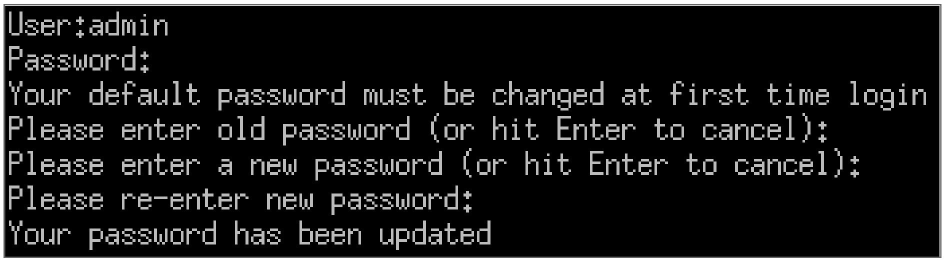
SafeMode is also accessed through the aux MGMT port. For more information on SafeMode, see section *Using the SafeMode GUI*.

Using CLI

From SSH, you can access the SonicOSX command line interface (CLI) for configuration and to view logs and settings. Log in with default SonicOSX credentials:

- Username: *admin*
- Default Password: *password*

- Your default password must be changed at first time while logging in after upgrade. Create a password that meets the security requirements. A password should have at least one uppercase letter, one lowercase letter, one number, and one special character. For example, S0nicW@ll.



```
User:admin
Password:
Your default password must be changed at first time login
Please enter old password (or hit Enter to cancel):
Please enter a new password (or hit Enter to cancel):
Please re-enter new password:
Your password has been updated
```

- Perform the following steps to change password:
  1. In **Please enter old password (or hit Enter to cancel):**, enter your default password.
  2. In **Please enter a new password (or hit Enter to cancel):**, enter your new password.
  3. In **Please re-enter new password**, re-enter your new password.

For more on using the CLI, see section CLI Bring-up.

SonicOSXBasic Configuration

Use the following steps to complete a basic system configuration.

1. Navigate to **POLICY | Rules and Policies** to create security rules for handling traffic. There are no default rules, so no traffic can be passed until rules are created.

   IMPORTANT: Without policy rules, the SonicOSXonly allows management traffic on X0 or the MGMT port. No other traffic is allowed until policy rules are created by the administrator.

2. Navigate to **NETWORK | System > Interfaces** to configure the X1 WAN interface.
   - **Static** – Configures the appliance for a network that uses static IP addresses.
   - **DHCP** – Configures the appliance to request IP settings from a DHCP server in the network.

   WAN connectivity is needed for product registration and licensing. Be sure to configure DNS for the WAN interface.

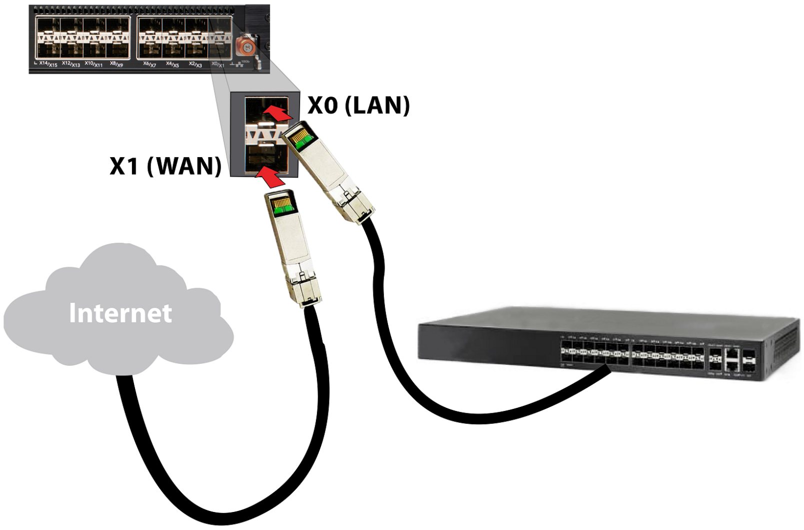
3. Configure the administrator username and password.

   NOTE: Ensure to use the new password if you have updated the default password.

4. Connect the X0 interface to your LAN network and connect X1 to the Internet, as described in *Connecting LAN and WAN Interfaces*.
5. Register SonicOSX as described in *Registration and Licensing*.
6. For network configuration considerations, refer to *Network Configuration*.

Connecting LAN and WAN Interfaces

After the initial setup is complete, physically connect the LAN and WAN interfaces to the network devices in your environment for access to your networks or the Internet.



To connect the interfaces:

1. Using a Twinax cable or a fiber SFP+ module with a fiber cable, connect the appliance LAN interface (X0) to your local network 10G switch or device.
2. Using a Twinax cable or a fiber SFP+ module with a fiber cable, connect the appliance WAN interface (X1) to your Internet connection.

Network Configuration

Although the X0, X1 ...X15 front panel interfaces support up to 10Gb SFP+ operation, they may be setup for 1Gb operation.

The Root Instance for multibladed operation has reserved use of X0 through X3. Interface ports X4 and up can be reserved for multiinstances. Note that to reach the license manager and receive a DHCP address, the instances must have their own path to the Internet.

Each instance can support up to 8 virtual ports: X0...X7. X1 on each instance needs to connect to a front panel port with access to a DHCP server or assign static IP address. While adding a new instance, on the interface configuration tab, configure the instance X1 so that it is mapped to a front panel port and VLAN ID that is setup with WAN access. This is necessary for both cases (Static and Dynamic IP address assignment).

For static IP configuration, choose an IP in the LAN network that is not in use. For example, if the DHCP server uses a start range from `10.206.52.10` to `10.206.52.200`, then use an IP below the range or above the range, but not the Broadcast (`10.206.52.255`) or Gateway IP (for example, `10.206.52.100`) address.

For details on configuring management IP addresses, see *Configure IP Addresses from the CLI*. The X0 and X1 ports can be configured through SonicOSX GUI at **NETWORK | System > Interface > Interface Settings**.

ⓘ | **NOTE:** SafeMode access is through the top AUX MGMT port to the Management (Blade 1) port. Refer to the illustration in Rear Panel.

Registration and Licensing

To register SonicOSX, you can click **Register** in the SonicOSX web management interface, then enter your MySonicWall credentials. Or you can log in to MySonicWall at https://www.mysonicwall.com from a browser and register SonicOSX there, then synchronize from within SonicOSX.

Registration in MySonicWall requires your SonicOSX serial number and authentication code, which you can find on the appliance label or on the **DEVICE | Settings > Status** page of the SonicOSX web interface.

You can purchase additional Security Service licenses by clicking **Licenses** in the row for your SonicOSX on the **My Products** page in MySonicWall.

Instance Licenses

When you register the SonicOSX and license security services on it, additional license keys are automatically created for a Multi-Instance deployment. These Instance licenses have unique serial numbers and authentication codes. All security services licensed on the SonicOSX are inherited by each Instance. Each Instance license is separate and independent, allowing each Instance to have a unique configuration.

Latest Firmware

After product registration, be sure to download the latest firmware and upgrade your SonicOSX. You can run different SonicOSX firmware versions on each Instance, if desired. The Instance firmware images are available for download along with the main firmware in MySonicWall.

ⓘ | **NOTE:** Enabling Multi-Instance requires a chassis reboot, which can take up to 15 minutes.

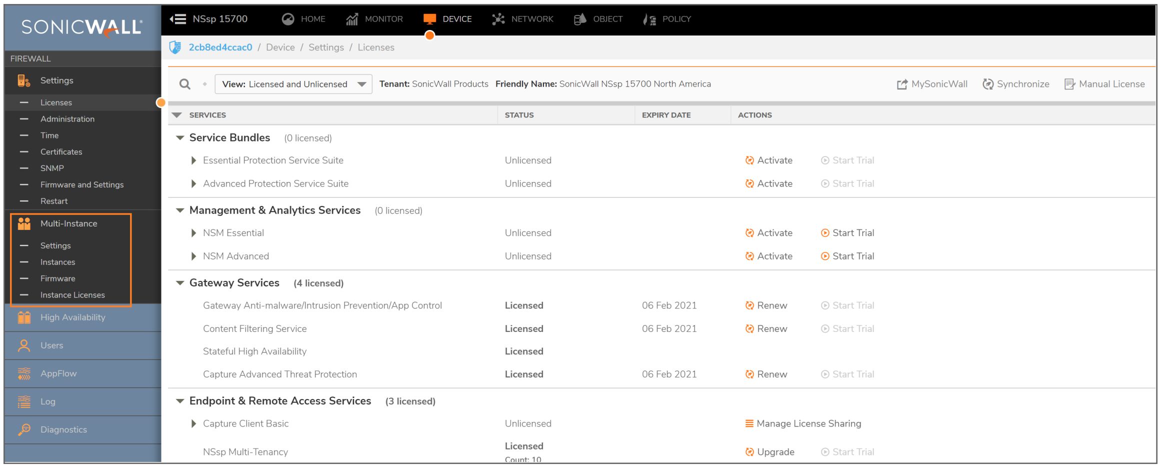
Configuring Multiple Instances

Topics:

This feature allows the NSsp security appliance to launch multiple firewall instances, each serving as an independent firewall. The Root Instance (RI) configures and launches each instance. After the instances are up and running, their X0...X7 interfaces allow access for detailed network configuration.

Navigate to **DEVICE | Multi-Instance** to find configuration and monitoring screens.

NAVIGATING TO MULTI-INSTANCE OPTIONS



2cb8ed4ccac0 / Device / Settings / Licenses

View: Licensed and Unlicensed **Tenant:** SonicWall Products **Friendly Name:** SonicWall NSsp 15700 North America

SERVICES	STATUS	EXPIRY DATE	ACTIONS	
Service Bundles (0 licensed)				
Essential Protection Service Suite	Unlicensed		Activate	Start Trial
Advanced Protection Service Suite	Unlicensed		Activate	Start Trial
Management & Analytics Services (0 licensed)				
NSM Essential	Unlicensed		Activate	Start Trial
NSM Advanced	Unlicensed		Activate	Start Trial
Gateway Services (4 licensed)				
Gateway Anti-malware/Intrusion Prevention/App Control	Licensed	06 Feb 2021	Renew	Start Trial
Content Filtering Service	Licensed	06 Feb 2021	Renew	Start Trial
Stateful High Availability	Licensed			
Capture Advanced Threat Protection	Licensed	06 Feb 2021	Renew	Start Trial
Endpoint & Remote Access Services (3 licensed)				
Capture Client Basic	Unlicensed		Manage License Sharing	
NSsp Multi-Tenancy	Licensed Count: 10		Upgrade	Start Trial

Each instances's X0, X1, X2... X7 interfaces are mapped to a VLAN on the front panel port (X0 to X25) by the RI. Each instance can be configured with up to eight ports. Each instance port is mapped to a front panel port and tagged with a VLAN ID.

Enabling Multi-Instances

This feature is enabled from the **Settings** screen. To enable Multi-instances, we first reserve logical blades and front panel ports that are used for supporting spawned instances.

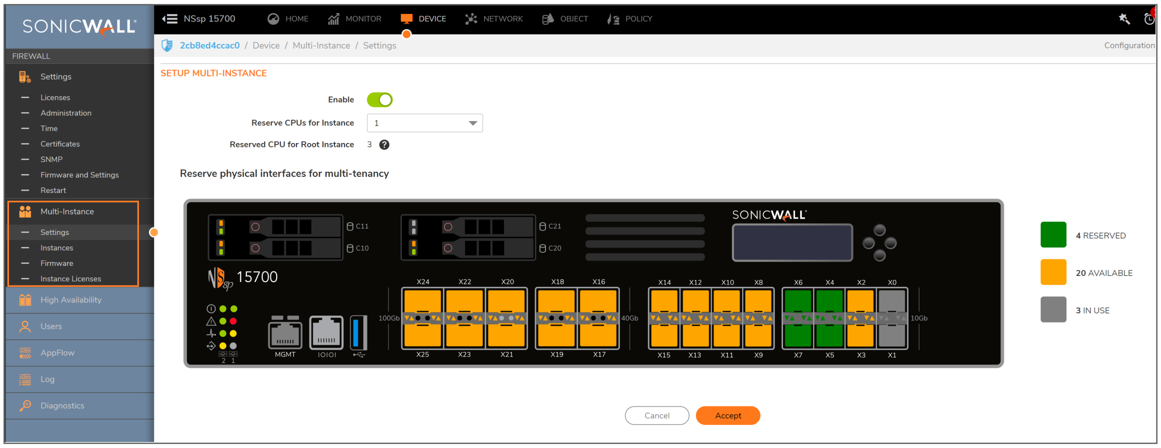
To Enable Multiple Instances:

1. To select the number of logical blades, click and select up to two. Click **Accept** to save changes. This step requires the chassis to reboot for changes to take effect.
2. The next step is to reserve front panel ports for instances. These ports are the ones available for instance configuration.
3. To select ports, click on ports that are orange. Selected ports turn green. The legend on the right of the display provides details on the colors and the status of ports.
4. Click **Accept** to save changes. This step does not require a reboot. Front panel port reservations can be modified anytime after multiple instances are enabled.
5. Ports reserved for the instances are green, and ports available to instances, but not yet reserved, are orange. To reserve an orange port for instances, simply click on it to turn it green.

After Multi-Instances are enabled and logical blades are selected and ports are reserved, the reserved ports for Multi-Instances are exclusive, that is, not available for the rest of the sub-system.

Any time Multi-Instances is disabled and the chassis is rebooted, all the Multi-Instance port(s) are unreserved and are available to the rest of the system while all instances configured in the system are lost.

SELECTING PORTS FOR INSTANCES



2cb8ed4ccac0 / Device / Multi-Instance / Settings

SETUP MULTI-INSTANCE

Enable: ●

Reserve CPUs for Instance: 1

Reserved CPU for Root Instance: 3

Reserve physical interfaces for multi-tenancy

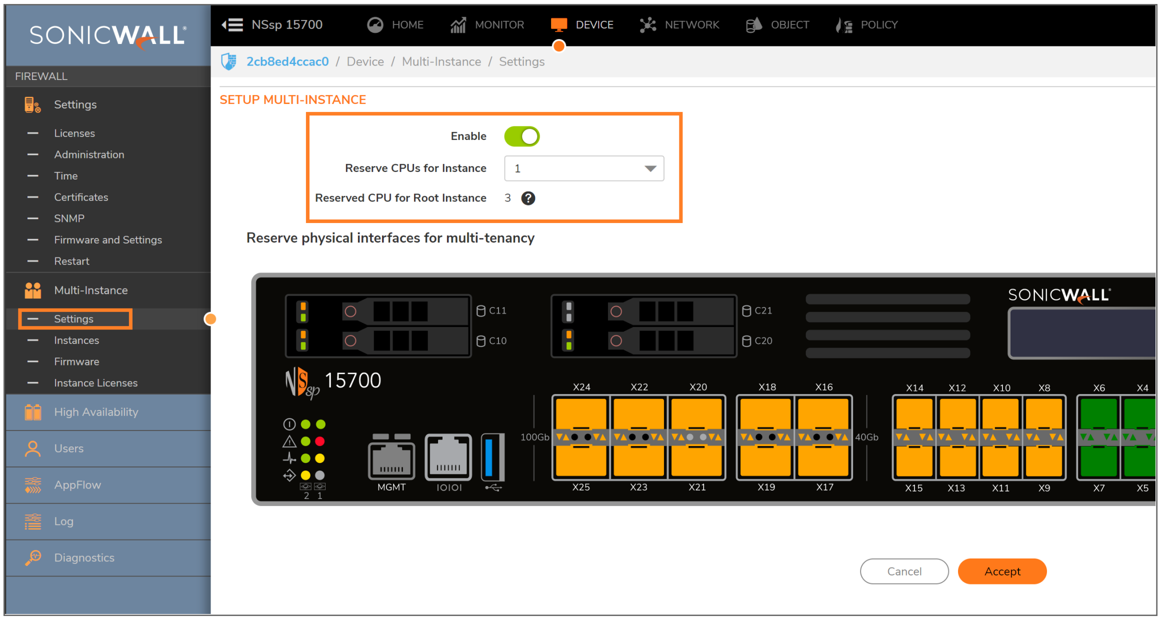
🟩 4 RESERVED

🟧 20 AVAILABLE

⬜ 3 IN USE

Currently, a maximum of two logical blades might be configured to support instances. With four logical blades in the system, two logical blades are used by the multi-bladed firewall while the other two can be used for instances. However, the configuration is flexible, we could have three logical blades running in multi-bladed firewall mode with one logical blade configured to launch instances.

ALLOCATING CPUS



SETUP MULTI-INSTANCE

Enable: on

Reserve CPUs for Instance: 1

Reserved CPU for Root Instance: 3

Reserve physical interfaces for multi-tenancy

The previous screen shows the Multi-Instance-enabled settings in the **DEVICE | Multi-Instances > Settings** screen. In this case, four logical blades are available and one is allocated to instances, while three support multi-bladed firewall operation.

After Multi-Instance (MI) operation is enabled on the GUI and the configuration is saved, the firewall prompts for reboot before the settings can be applied.

ⓘ | **NOTE:** Enabling Multi-Instance requires a chassis reboot, which can take up to 15 minutes.

After the reboot firewall confirmation button is clicked, the firewall comes up with one or two logical blades enabled for launching instances. In the left navigation column of the display, the **Instances** screen is enabled only when MI is enabled. In order to change the number of logical blades selected to launch MI instances, the firewall has to go through the reboot processes. This means the currently running instance-support blades is also rebooted.

In order to revert back, with all the logical blades to work as one big multi-bladed firewall, the MI-enabled settings are disabled and the firewall goes through the reboot process again.

To reserve front panel ports for virtual firewall instances:

1. Identify available ports by looking for orange colored ports on the GUI.
2. Click on the port to turn it green.
3. Click **Accept**.

To allocate CPUs to instances:

1. Navigate to **DEVICE | Multi-Instance > Settings** and locate the controls under **Setup Multi-Instance**.
2. Move the **Enable** switch to the right to turn on Multi-Instance capability.

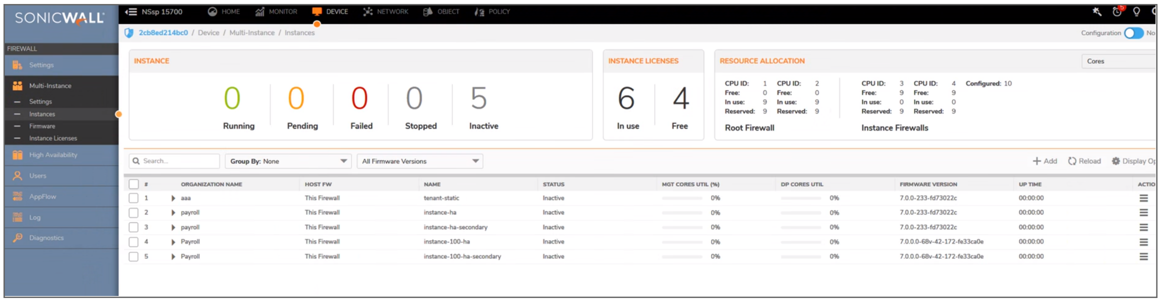
3. Determine the number of CPUs available to support instances.
4. Click **Accept** and then reboot the system.

Configuring Multi-Instances

After you have MI (Multi-Instances) enabled in the RI (Root Instance), then we can configure and launch the multiple instances. Each instance is an independent virtual firewall with its own routing table, policy configuration, licenses and security services. Licenses of Multi-instances are inherited from the Root Instance. Say you are using Deep Packet Inspection (DPI) and the root instance had acquired a DPI license before adding the Multi-Instance, then the Multi-Instance does not need further operations, it already has this license. When adding the Multi-Instance first, the root instance acquires the DPI license, and then the Multi-Instance must be manually synchronized with the DPI license to the Root Instance by clicking **Sync** on the **License** screen. Each instance can be configured with the required number of cores based on the use case. Currently, we support up to eight Data Path (DP) cores maximum for each virtual firewall and two (Control Path) CP cores per virtual firewall. Each instance virtual firewall is accessed through its DHCP-enabled X1 WAN interface. The instance user interface is accessed by way of X0 as well, when an instance's X0 mapping is setup with an accessible static IP, gateway, subnet, is accessible to the RI front panel port, and VLAN mapping is properly set.

Each instance virtual firewall can be accessed through its DHCP-enabled X1 WAN interface or Static X1 WAN interface.

The following figure shows the multi-instance screen with five instances added.



INSTANCE: 0 Running, 0 Pending, 0 Failed, 0 Stopped, 5 Inactive

INSTANCE LICENSES: 6 In use, 4 Free

RESOURCE ALLOCATION

Root Firewall: CPU ID: 1 Free: 0 In use: 9 Reserved: 9; CPU ID: 2 Free: 0 In use: 9 Reserved: 9

Instance Firewalls: CPU ID: 3 Free: 9 In use: 0 Reserved: 9; CPU ID: 4 Free: 9 In use: 0 Reserved: 9; Configured: 10

Group By: None

All Firmware Versions

#	ORGANIZATION NAME	HOST FW	NAME	STATUS	MGT CORES UTIL (%)	DP CORES UTIL	FIRMWARE VERSION	UP TIME	ACTIO
1	aaa	This Firewall	tenant-static	Inactive	0%	0%	7.0.0-233-fd73022c	00:00:00	☰
2	payroll	This Firewall	instance-ha	Inactive	0%	0%	7.0.0-233-fd73022c	00:00:00	☰
3	payroll	This Firewall	instance-ha-secondary	Inactive	0%	0%	7.0.0-233-fd73022c	00:00:00	☰
4	Payroll	This Firewall	instance-100-ha	Inactive	0%	0%	7.0.0.0-68v-42-172-fe33ca0e	00:00:00	☰
5	Payroll	This Firewall	instance-100-ha-secondary	Inactive	0%	0%	7.0.0.0-68v-42-172-fe33ca0e	00:00:00	☰

The Root Instance (RI) serves as the console through which all the instances are deployed. RI allows the user to add instances, start the service, stop the service and delete the instance. Each instance added through the **Add Instance** dialog is stored in the RI. This allows the user to add as many instances as possible, however, there is a limit on the number of instances that are launched because of CPU core and license availability.

Adding an Instance

In order to add an instance, click **Multi-Instance | Instances**, and then click **+Add**. A dialog box pops-up.

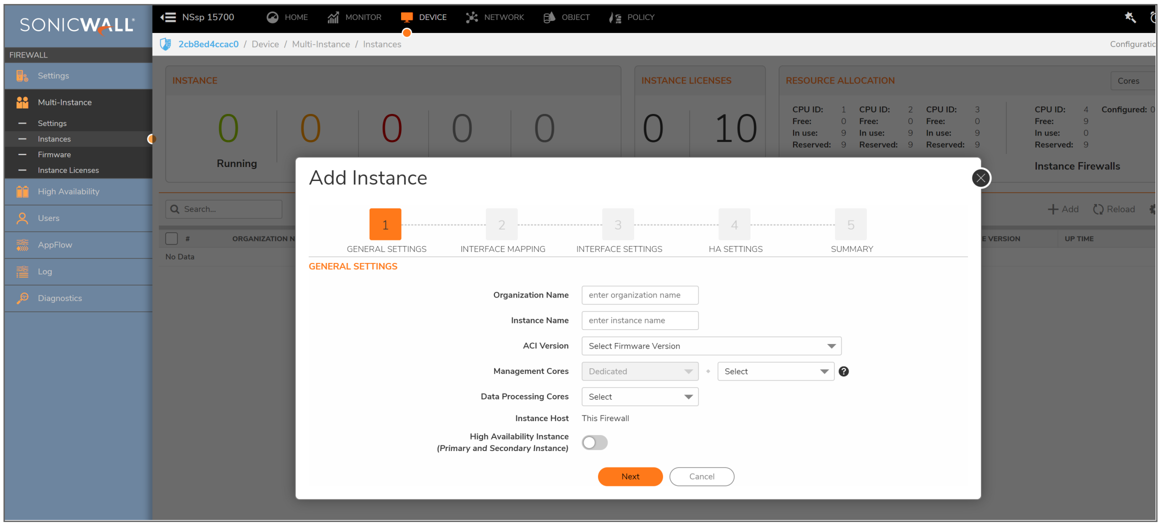
There is a limit on the number of instances that can be launched because of CPU core availability and total Instance Licenses available in the system.

Before completing this step, upload the Instance Firmware from the **Multi-Instance > Firmware** page. A typical Multi-Instance setup work flow is:

Enable Multi-Instances:

1. Reserve Logical Blades.
2. Reserve port(s) and reboot chassis.
3. Register the box, if not registered, to obtain instance instances.
4. Verify that instance licenses are available on the **Multi-Instance > Instance Licenses** page.
5. Upload the Instance Firmware from the **Multi-Instance > Firmware** page.
6. Add instance, or start/stop/reboot/edit/deactivate/delete instances(s).

ADD INSTANCE DIALOG BOX



CPU ID:	1	CPU ID:	2	CPU ID:	3	CPU ID:	4	Configured: 0
Free:	0	Free:	0	Free:	0	Free:	9	
In use:	9	In use:	9	In use:	9	In use:	0	
Reserved:	9	Reserved:	9	Reserved:	9	Reserved:	9	

Add Instance

GENERAL SETTINGS

Organization Name: enter organization name
Instance Name: enter instance name
ACI Version: Select Firmware Version
Management Cores: Dedicated + Select
Data Processing Cores: Select
Instance Host: This Firewall
High Availability Instance (Primary and Secondary Instance): ○

In the **+Add** dialog, all the fields must be populated:

- **Organization Name** — identifies operating enterprise, a name that is a string.
- **Instance Name** — field requires a name that is a string. The Instance Name length can be equal to or greater than eight characters and less than or equal to 63 characters.
- **ACI Version** — a drop-down menu and you must pick one of the ACI versions that need to be running on the instance. In order to upload an ACI, follow the instructions mentioned under *Uploading Instance Firmware*.
- **Management Cores** — only two Control Plane cores can be dedicated to a particular instance. Select the number from the right drop-down menu.
- **Data Processing Cores** — allows the user to select the number of DP Cores. Limit this allocation to eight for this release. Ideal maximum would be four.
- **High Availability Instance** — Sets up redundant instance: Primary (active) and Secondary (standby).

When completed, click **Next**, the dialog moves to the interface mapping stage:

Setup interfaces for the instance by mapping each X0, X1, X2...X7 to a physical interface from the drop-down menu. The drop-down menu shows only those front panel ports that were reserved for instances. For each interface, provide a unique VLAN. In setting VLAN IDs:

- VLAN should be in the range of 65 .. 4094
- For a given instance, the VLAN configured on X0 .. X7 should be unique, two or more instances of Xn cannot have the same VLAN.

Each instance can be configured with a default X0 IP address and default X1 IP (static/DHCP).

After configuration is complete, click **Next**.

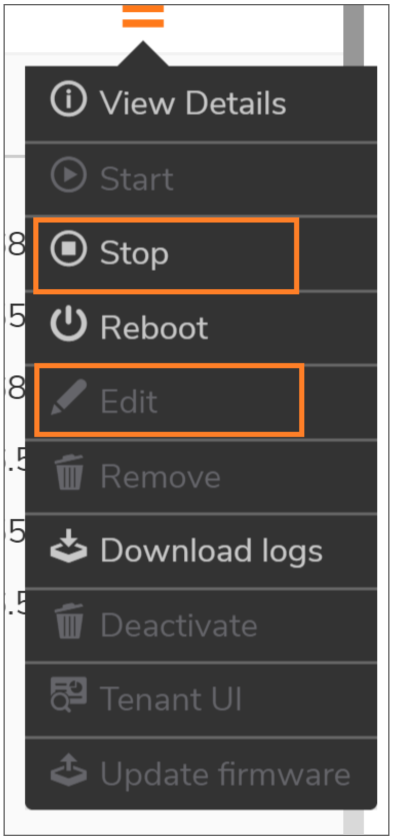
In order to launch the instance, click **Start** on the **Actions** drop-down menu. The instance can be stopped using **Stop** and restarted using **Reboot**.

Editing an Instance

To change the configuration of an instance:

1. Click the **Action** icon at the far right of the instance row on the **Instances** page.
2. When the menu appears, choose **Stop**.
3. Wait until the status of the instance changes to "Stopped." This could take up to five minutes.
4. Click **Action** again and then click **Edit**.

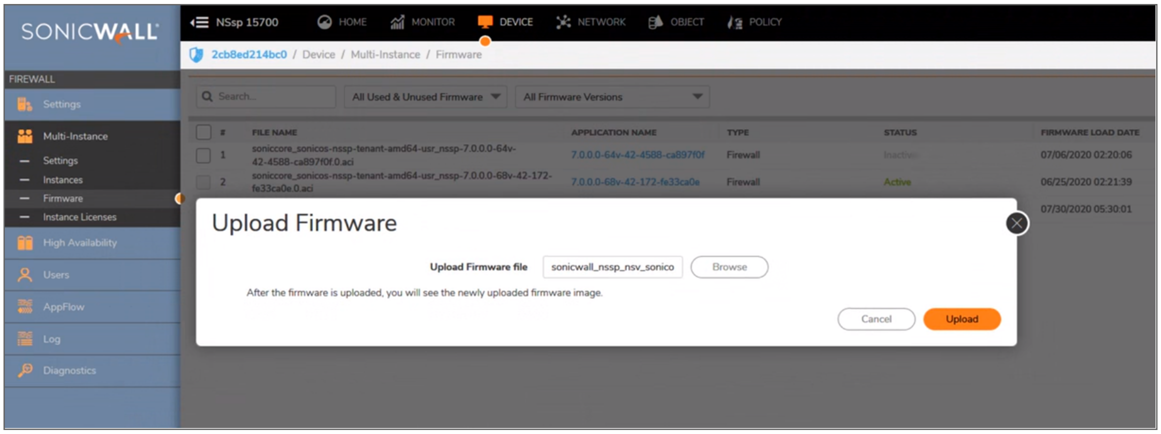
STOP AND EDIT BUTTONS UNDER ACTION ON INSTANCE DISPLAY



Uploading Instance Firmware

The firmware for launching the instances has to be pre-loaded using the RI. On the **DEVICE | Multi-Instance > Firmware** page upload the ACI file as shown.

UPLOADING INSTANCE FIRMWARE



#	FILE NAME	APPLICATION NAME	TYPE	STATUS	FIRMWARE LOAD DATE
1	soniccore_sonicos-nssp-tenant-amd64-usr_nssp-7.0.0.0-64v-42-4588-ca897f0f.0.aci	7.0.0.0-64v-42-4588-ca897f0f	Firewall	Inactive	07/06/2020 02:20:06
2	soniccore_sonicos-nssp-tenant-amd64-usr_nssp-7.0.0.0-68v-42-172-fe33ca0e.0.aci	7.0.0.0-68v-42-172-fe33ca0e	Firewall	Active	06/25/2020 02:21:39
					07/30/2020 05:30:01

Upload Firmware

Upload Firmware file: sonicwall_nssp_nsv_sonico

After the firmware is uploaded, you will see the newly uploaded firmware image.

After the file is uploaded, the firmware appears as a choice in the **Add/Edit Instance** dialog.

ⓘ | **NOTE:** The instance firmware is not the same as the root firewall firmware. This instance firmware is exclusive to instances only.

After the upload is successful, the installation takes about two ~ five minutes. You should wait until the **Status** column appears **Inactive** in the Instance firmware page.

The steps for upgrading firmware for an instance are:

To Upgrade Instance Firmware:

1. Upload the firmware as described previously.
2. Stop the instance.
3. Use the edit process to select new firmware.
4. Restart the instant.

3

Licenses for Multiple Instances

Topics:

Surveying Multiple Instances

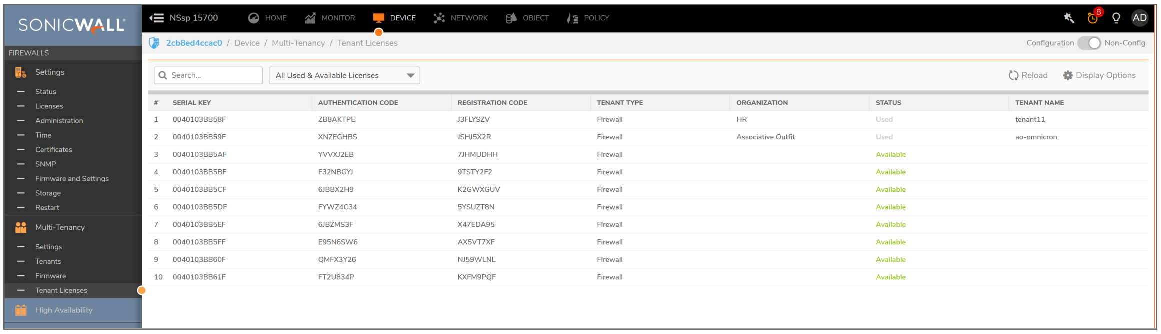
Instance licenses are required for spawning instances. The Multi-Instance licenses are fetched onto the system after the device is registered with the license manager. The licenses are then managed by the Root Instance for spawning instances. The root instance takes care of assigning an available instance license to an instance after it has started.

The licenses are assigned to an instance and marked as in use only when the instance is started. The license assigned to an instance remains in use until an instance is deleted. Stopping an instance does not release its license.

After all instances are consumed, a request to start a new instance would fail owing to insufficient licenses.

The Instances page displays the list of instance licenses and their status (used/available) and also the name of the instance (for licenses in use).

INSTANCE LISTING



2cb8ed4ccac0 / Device / Multi-Tenancy / Tenant Licenses

All Used & Available Licenses

#	SERIAL KEY	AUTHENTICATION CODE	REGISTRATION CODE	TENANT TYPE	ORGANIZATION	STATUS	TENANT NAME
1	0040103BB58F	ZB8AKTPE	J3FLYSZV	Firewall	HR	Used	tenant11
2	0040103BB59F	XNZEGHBS	JSHJ5X2R	Firewall	Associative Outfit	Used	ao-omnicron
3	0040103BB5AF	YVVXJ2EB	7JHMUDHH	Firewall		Available	
4	0040103BB5BF	F32NBGYJ	9TSTY2F2	Firewall		Available	
5	0040103BB5CF	6JBBX2H9	K2GWXGUV	Firewall		Available	
6	0040103BB5DF	FYWZ4C34	5YSUZT8N	Firewall		Available	
7	0040103BB5EF	6JBZMS3F	X47EDA95	Firewall		Available	
8	0040103BB5FF	E95N6SW6	AX5VT7XF	Firewall		Available	
9	0040103BB60F	QMFX3Y26	NJ59WLNL	Firewall		Available	
10	0040103BB61F	FT2U834P	KXFM9PQF	Firewall		Available	

Instance Registration

The instance, after spawned, automatically registers itself with the license manager upon boot-up. In order for this to work correctly, the VLAN for the instance’s X1 (WAN interface) should be configured properly so that it has access to the WAN/Internet to reach the license manager over the network. That is, the X1 interface of the instance must be linked to a front panel port that has access to the WAN/Internet.

For more information on setting up a WAN Internet connection for instances, see section Network Configuration.

Instance License Update

When a customer has purchased additional instances, the licenses can be updated or upgraded by re-registering the device with the license manager. The Multi-Instance licenses are always designed to be a bundle of previous + new licenses. After licenses are updated, the Root Instance identifies the newer set of licenses and updates the licenses shown as available on the **Instance** page.

Deactivating an Instance

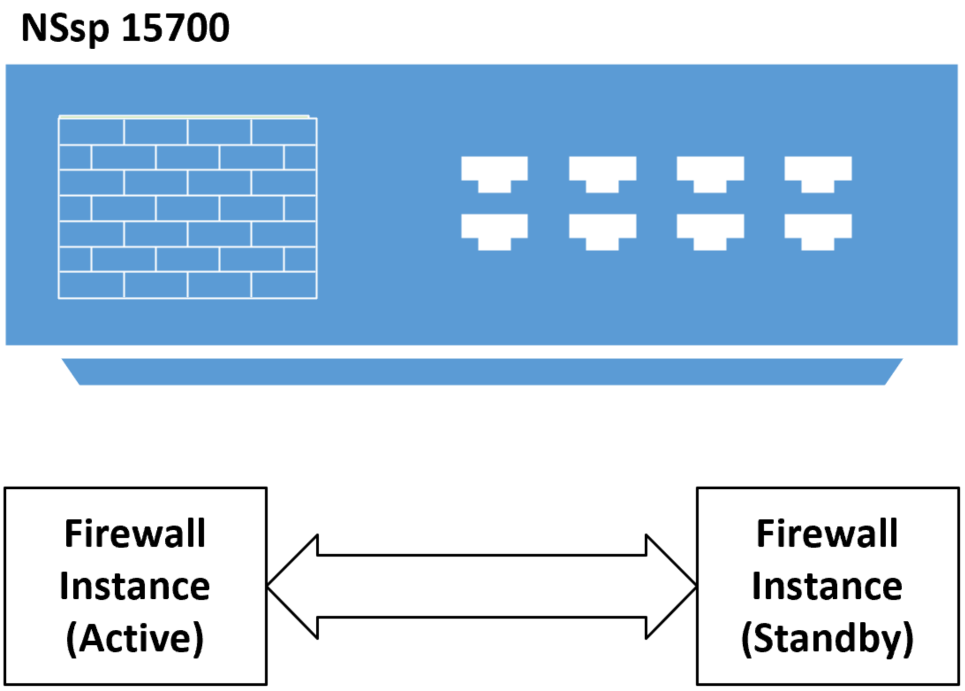
Deactivating an instance strips off the instance with all its resources (instance license, physical and logical resources) and renders it into **Inactive** status.

Instance HA Pair on a Standalone NSsp Node

Multiple instances within an NSsp can support stateful HA. This multi-instance HA model exactly mimics the NSv HA model in terms of the behavior and capabilities. Two instances can be paired to form a stateful HA. One of them resumes the role as a Primary active instance and the other as Secondary standby instance. The active and standby roles can change during an instance's lifetime.

This section explains how to form instance HA pairing within one NSsp.

HA INSTANCES WITHIN AN NSSP 15700



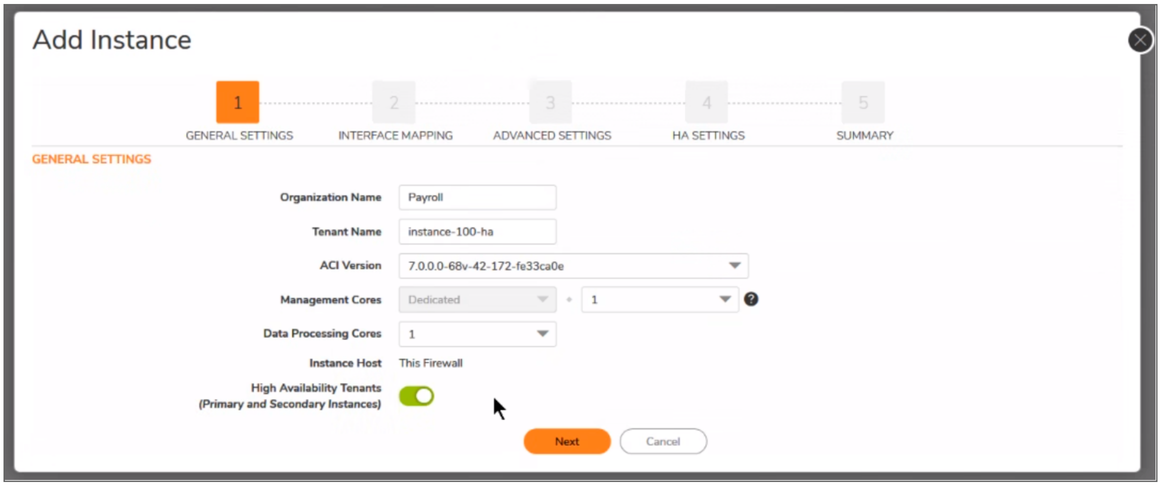
Prerequisites for HA Pairing of Instances within a Standalone NSsp 15700:

- Upload instance firmware.
- At least two Instance Licenses should be Available. Verify this from the Instance Licenses page.

To create a basic HA pair of instances on a standalone NSsp 15700:

1. Add two instances.
    a. First navigate to **DEVICE | Multi-Instance > Instances** and check under RESOURCE ALLOCATION that at least four CPUs are available to support Control and Data planes on two instances.
    b. Navigate to **DEVICE | Multi-Instance > Licenses** and check that at least two licenses are available.
    c. Navigate to **DEVICE | Multi-Instance > Firmware** and check that up-to-date firmware is available. If not, upload new firmware. See *Uploading Instance Firmware*.
    d. Navigate to **DEVICE | Multi-Instance > Instances** and click **+Add**. The **Add Instance** dialog appears.

ADD INSTANCE DIALOG



GENERAL SETTINGS

Organization Name: Payroll

Tenant Name: instance-100-ha

ACI Version: 7.0.0.0-68v-42-172-fe33ca0e

Management Cores: Dedicated • 1

Data Processing Cores: 1

Instance Host: This Firewall

High Availability Tenants (Primary and Secondary Instances): On

e. Fill in **Organization Name** and **Instance Name**. Use designations that help link the pairs.

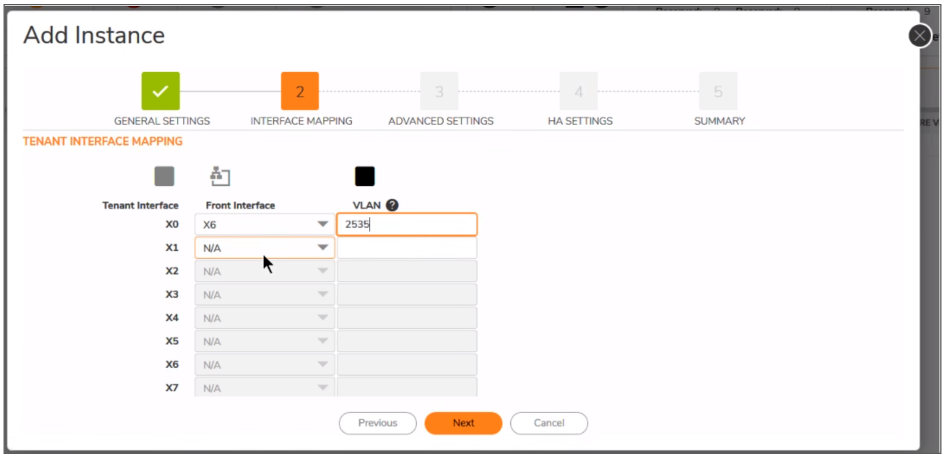
f. Choose the **ACI Version** from the drop-down menu. This firmware must be the same for both instances.

g. Select the number of **Management** (control plane) and **Processing** (data plane) cores. Unless the appliance itself is part of a high-availability pair, the **Instance Host** is grayed out as **This Firewall**.

h. Enable **High Availability Instances**.

i. Click **Next**. The **Interface Mapping** step now appears.

INTERFACE MAPPING



TENANT INTERFACE MAPPING

Tenant Interface	Front Interface	VLAN
X0	X6	2535
X1	N/A	
X2	N/A	
X3	N/A	
X4	N/A	
X5	N/A	
X6	N/A	
X7	N/A	

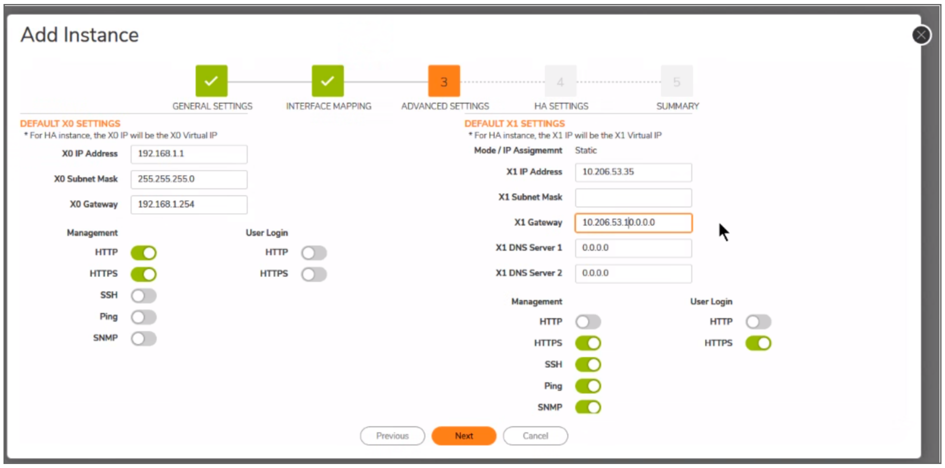
j. Add two ports for HA control and HA data link.

k. Add additional ports to connect the instances to front panel ports.

ⓘ | **NOTE:** The VLAN should be in the range of 65 .. 4094.

l. Click **Next** and the **Advanced Settings** dialog box appears.

ADVANCED SETTINGS



DEFAULT X0 SETTINGS

* For HA instance, the X0 IP will be the X0 Virtual IP

X0 IP Address	192.168.1.1
X0 Subnet Mask	255.255.255.0
X0 Gateway	192.168.1.254

Management		User Login	
HTTP	●	HTTP	○
HTTPS	●	HTTPS	○
SSH	○		
Ping	○		
SNMP	○		

DEFAULT X1 SETTINGS

* For HA instance, the X1 IP will be the X1 Virtual IP

Mode / IP Assigmemnt	Static
X1 IP Address	10.206.53.35
X1 Subnet Mask	
X1 Gateway	10.206.53.10.0.0.0
X1 DNS Server 1	0.0.0.0
X1 DNS Server 2	0.0.0.0

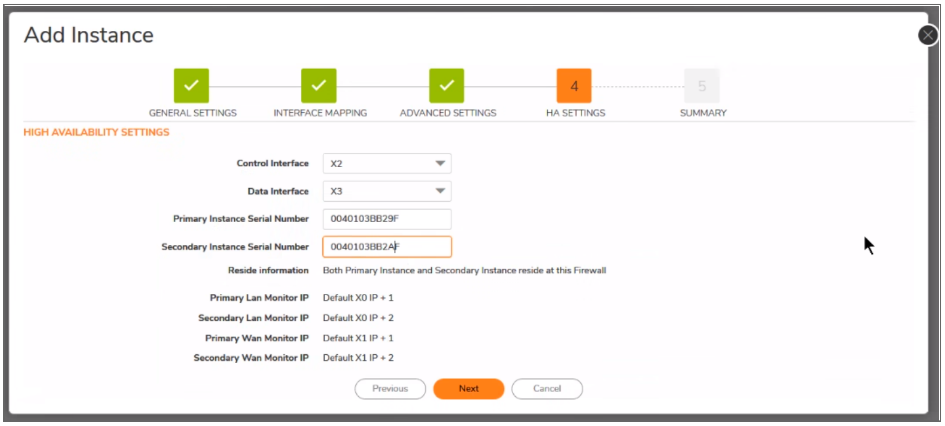
Management		User Login	
HTTP	○	HTTP	○
HTTPS	●	HTTPS	●
SSH	●		
Ping	●		
SNMP	●		

m. Configure the settings. Those shown above are typical for instances supporting HA.

> **NOTE:** Configure default X0 and X1 static IP for the HA instances. X0 and X1 are virtual IP addresses for the HA instances.

n. Click **Next** and the **HA Settings** dialog box appears.

HA SETTINGS



HIGH AVAILABILITY SETTINGS

Control Interface	X2
Data Interface	X3
Primary Instance Serial Number	0040103BB29F
Secondary Instance Serial Number	0040103BB2AF
Reside information	Both Primary Instance and Secondary Instance reside at this Firewall
Primary Lan Monitor IP	Default X0 IP + 1
Secondary Lan Monitor IP	Default X0 IP + 2
Primary Wan Monitor IP	Default X1 IP + 1
Secondary Wan Monitor IP	Default X1 IP + 2

o. Copy available instance serial numbers from the **Instance Licenses** page, one for the Primary and one for the secondary Instance.

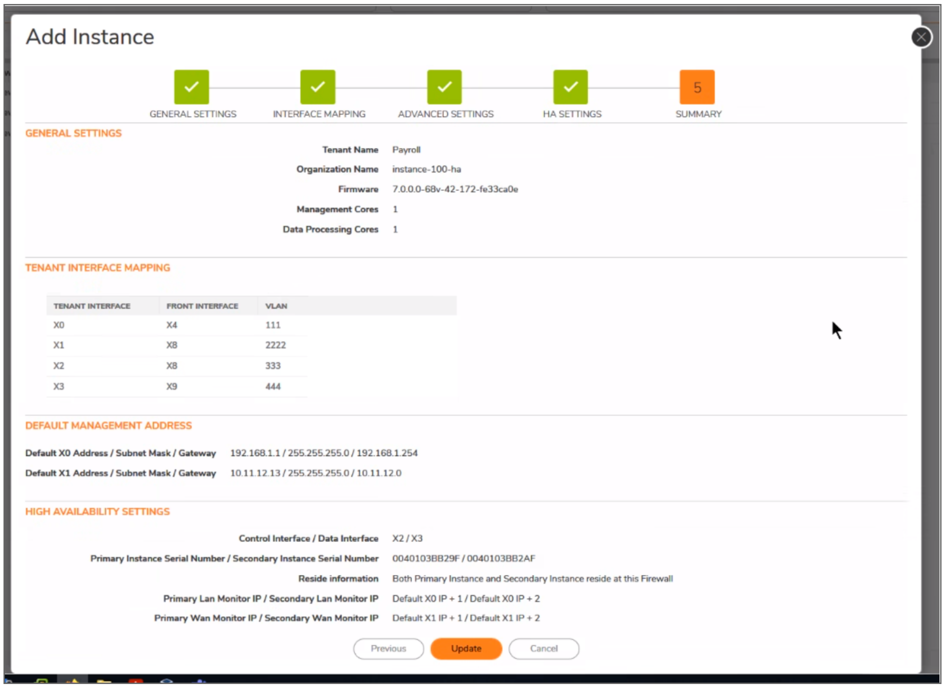
p. Assign **Control** and **Data** interfaces between the two instances.

q. Make a note of the LAN and WAN monitor IP addresses for the HA instances, derived from the default X0 and X1 IP.

r. Note Reside Information and LAN / WAN monitor IP addresses.

s. Click **Next** and the **Summary** appears.

SUMMARY



GENERAL SETTINGS

Tenant Name	Payroll
Organization Name	instance-100-ha
Firmware	7.0.0.0-68v-42-172-fe33ca0e
Management Cores	1
Data Processing Cores	1

TENANT INTERFACE MAPPING

TENANT INTERFACE	FRONT INTERFACE	VLAN
X0	X4	111
X1	X8	2222
X2	X8	333
X3	X9	444

DEFAULT MANAGEMENT ADDRESS

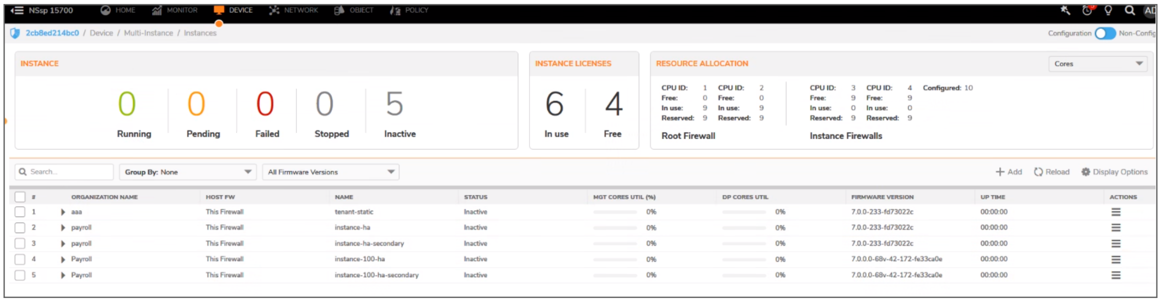
Default X0 Address / Subnet Mask / Gateway	192.168.1.1 / 255.255.255.0 / 192.168.1.254
Default X1 Address / Subnet Mask / Gateway	10.11.12.13 / 255.255.255.0 / 10.11.12.0

HIGH AVAILABILITY SETTINGS

Control Interface / Data Interface	X2 / X3
Primary Instance Serial Number / Secondary Instance Serial Number	0040103BB29F / 0040103BB2AF
Reside information	Both Primary Instance and Secondary Instance reside at this Firewall
Primary Lan Monitor IP / Secondary Lan Monitor IP	Default X0 IP + 1 / Default X0 IP + 2
Primary Wan Monitor IP / Secondary Wan Monitor IP	Default X1 IP + 1 / Default X1 IP + 2

2. Navigate to **DEVICES | Multi-Instance > Instances**.

START INSTANCES



INSTANCE

Running	Pending	Failed	Stopped	Inactive
0	0	0	0	5

INSTANCE LICENSES

In use	Free
6	4

RESOURCE ALLOCATION

Root Firewall

CPU ID:	1	CPU ID:	2
Free:	0	Free:	0
In use:	9	In use:	9
Reserved:	9	Reserved:	9

Instance Firewalls

CPU ID:	3	CPU ID:	4
Free:	9	Free:	9
In use:	0	In use:	0
Reserved:	9	Reserved:	9

Configured: 10

#	ORGANIZATION NAME	HOST FW	NAME	STATUS	MGT CORES UTIL (%)	DP CORES UTIL	FIRMWARE VERSION	UP TIME	ACTIONS
1	aaa	This Firewall	tenant-static	Inactive	0%	0%	7.0.0-233-fd73022c	00:00:00	≡
2	payroll	This Firewall	instance-ha	Inactive	0%	0%	7.0.0-233-fd73022c	00:00:00	≡
3	payroll	This Firewall	instance-ha-secondary	Inactive	0%	0%	7.0.0-233-fd73022c	00:00:00	≡
4	Payroll	This Firewall	instance-100-ha	Inactive	0%	0%	7.0.0.0-68v-42-172-fe33ca0e	00:00:00	≡
5	Payroll	This Firewall	instance-100-ha-secondary	Inactive	0%	0%	7.0.0.0-68v-42-172-fe33ca0e	00:00:00	≡

3. After the instances are RUNNING, log in to the instance's user interface.

4. After the HA instances have started, one instance is elected as Primary Active, and the other reboots and come up as Secondary Standby.

5. After the HA pairing is successful, the Root Instance displays the HA status and HA peer information along with other instance information.

6. The instance HA status can also be verified by logging into the instance user interface and navigating to the **DEVICE | High Availability > Monitoring**.

4

Configuring High Availability

Topics:

High Availability Overview

There are three forms of HA supported by the NSsp 15700:

The NSsp 15700 supports three kinds of High Availability:

- HA Instances with an NSsp 15700— Instances on one NSsp form high availability pairs. See section Instance HA Pair on a Standalone NSsp Node.
- Multi-appliance instance-level HA — Instances on different NSsp 15700 appliances form HA pairs. But not all instances are duplicated on both appliances. See section *Configuring Multi-Appliance Instance-Level HA*.
- Appliance-level HA — One appliance fully duplicates another instance. This configuration is described in the sections that follow.

ⓘ | **NOTE:** Licenses must be in place at both instance and appliance level to support HA.

Setting Up Unit-to-Unit HA

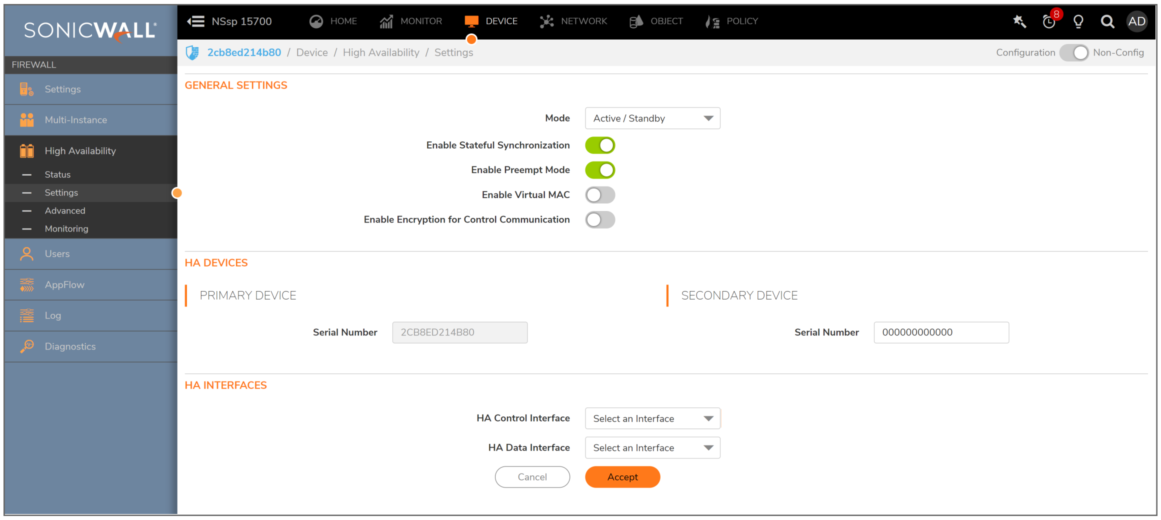
This section provides instructions for setting Active/Standby HA between two NSsp appliances.

Prerequisites

- Both Primary and Secondary units must be Internet addressable and inter-accessible.
- The Root Instance versions on each unit must be identical.
- The composition of the Root Instances on each unit must be the same in terms of the numbers of control and data plane cores.

To configure Active Standby HA:

1. Log into the Primary appliance and navigate as shown to **DEVICE | High Availability > Settings**. The following display appears.



GENERAL SETTINGS

Mode: Active / Standby

Enable Stateful Synchronization: on

Enable Preempt Mode: on

Enable Virtual MAC: off

Enable Encryption for Control Communication: off

HA DEVICES

PRIMARY DEVICE

Serial Number: 2CB8ED214B80

SECONDARY DEVICE

Serial Number: 000000000000

HA INTERFACES

HA Control Interface: Select an Interface

HA Data Interface: Select an Interface

2. For **Mode**, select **Active/Standby**.

   With **Enable Preempt Mode** off, select **Enable Stateful Synchronization**. This option is not selected by default.

   When Stateful High Availability is not enabled, session state is not synchronized between the Primary and Secondary firewalls. If a failover occurs, any session that had been active at the time of failover needs to be renegotiated.

3. Select **Enable Preempt Mode**. This feature controls the behavior in which the Primary unit seizes the Active role from the Backup after it recovers from an error condition, reboots or firmware upgrades, after it successfully communicates to the backup unit that it is in a verified operational state.

4. Select **Enable Virtual MAC** to allow the Primary and Secondary firewalls to share a single MAC address. This greatly simplifies the process of updating network ARP tables and caches when a failover occurs. This option is not selected by default.

5. Selecting **Enable Encryption for Control Communication** is recommended when the HA units are not co-located.

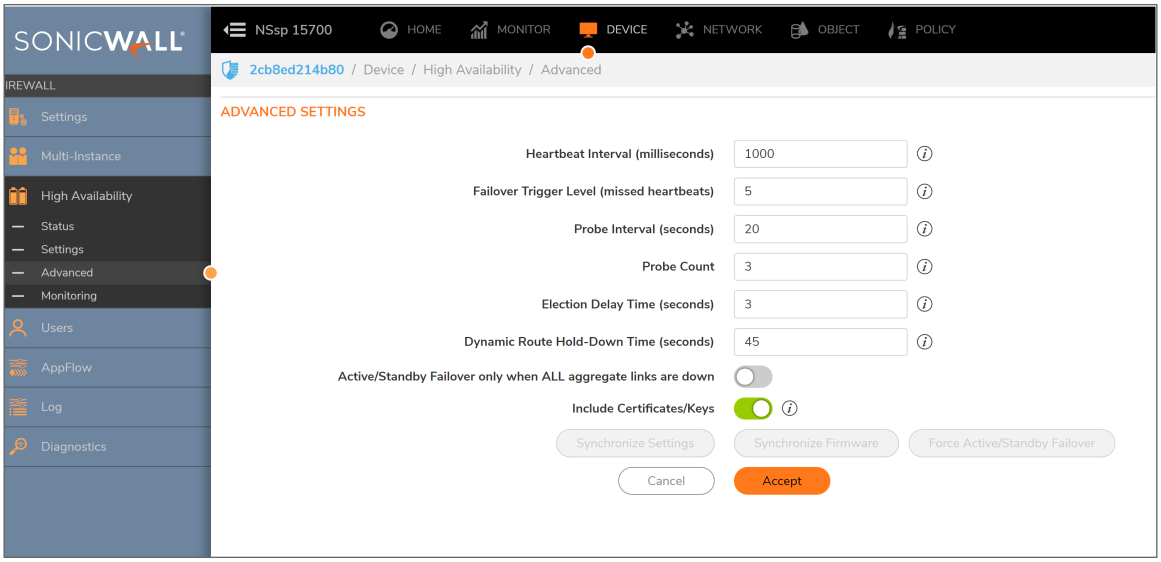
6. Under **HA Devices**, enter the Secondary firewall serial number. The serial number for the Primary is dimmed out and cannot be changed.

7. Under **HA Interfaces**, select the interface for the HA Control Interface. This option is dimmed and the interface displayed if the firewall detects that the interface is already configured.
8. Select the interface for the **HA Data Interface**. This option is dimmed and the interface displayed out if the firewall detects that the interface is already configured.
9. When finished with all High Availability configuration, click **ACCEPT**. All settings are synchronized to the Secondary firewall, and the Secondary firewall reboots.

Configuring Advanced Settings

To configure advanced settings:

1. Navigate to **DEVICE | High Availability > Advanced**.



2cb8ed214b80 / Device / High Availability / Advanced

ADVANCED SETTINGS

Heartbeat Interval (milliseconds): 1000
Failover Trigger Level (missed heartbeats): 5
Probe Interval (seconds): 20
Probe Count: 3
Election Delay Time (seconds): 3
Dynamic Route Hold-Down Time (seconds): 45
Active/Standby Failover only when ALL aggregate links are down: ○
Include Certificates/Keys: ●

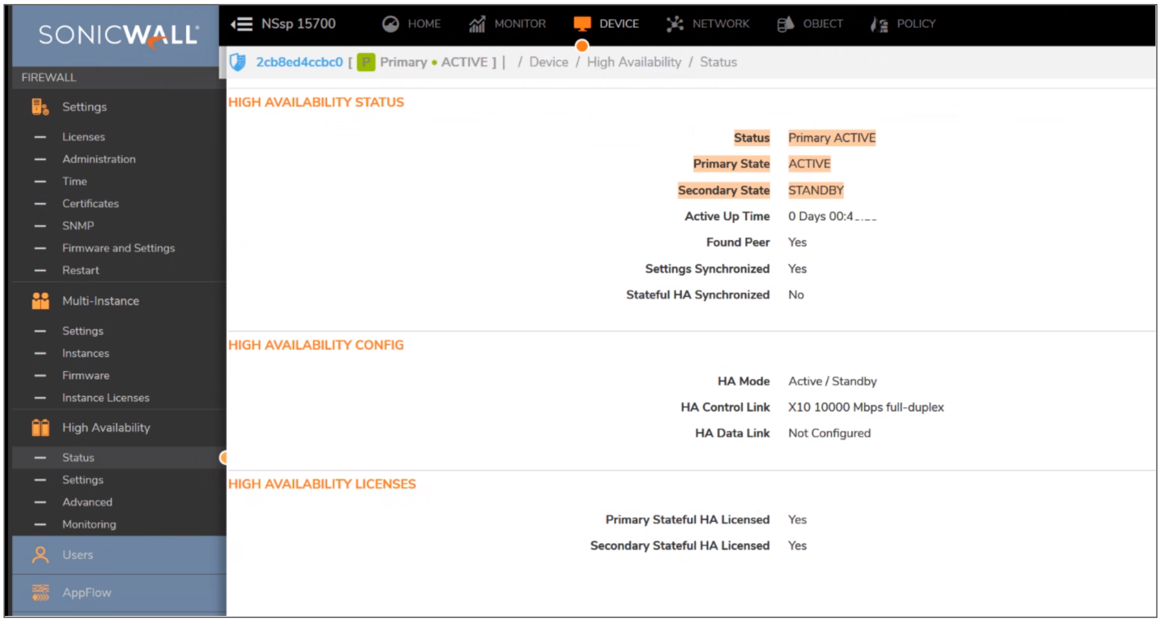
2. Adjust the **Heartbeat Interval** to control how often the security appliances in the Active/Standby pair communicate. The default is 1,000 milliseconds (one second), the minimum value is 1,000 milliseconds, and the maximum is 300,000. A heartbeat interval of at least 1000 is recommended.
3. Set the **Failover Trigger Level** to the number of heartbeats that can be missed before failing over. The default is five, the minimum is four, and the maximum is 99.
   This timer is linked to the Heartbeat Interval timer. If the **Failover Trigger Level** is set to five and the Heartbeat Interval is set to 10000 milliseconds (10 seconds), it takes 50 seconds without a heartbeat before a failover is triggered.
4. Set the **Probe Interval** to the interval, in seconds, between probes sent to specified IP addresses to monitor that the network critical path is still reachable. This interval is used in logical monitoring for the local HA pair. The default is 20 seconds, and the allowed range is five to 255 seconds.
   A probe interval of at least five seconds is recommended.

5. Set the **Probe Count** to the number of consecutive probes before SonicOSX concludes that the network critical path is unavailable or the probe target is unreachable. This count is used in logical monitoring for the local HA pair. The default is three, and the allowed range is three to 10.
6. Set the **Election Delay Time** to the number of seconds the Primary security appliance waits to consider an interface up and stable. The default is three seconds, the minimum is three seconds, and the maximum is 255 seconds.
7. Set the **Dynamic Route Hold-Down Time** to the number of seconds the newly-active security appliance keeps the dynamic routes it had previously learned in its route table. The default value is 45 seconds, the minimum is 1 second, and the maximum is 1200 seconds (20 minutes).
   In large or complex networks, a larger value might improve network stability during a failover.
8. If you want Failover to occur only when ALL aggregate links are down, select **Active/Standby Failover only when ALL aggregate links are down**. This option is not selected by default.
9. To have the appliances synchronize all certificates and keys within the HA pair. select **Include Certificates/Keys**. This option is selected by default.
10. (Optional) To synchronize the SonicOSX preference settings between your primary and secondary HA firewalls, click **SYNCHRONIZE SETTINGS**.
11. (Optional) To synchronize the firmware version between your primary and secondary HA firewalls, click **SYNCHRONIZE FIRMWARE**.
12. (Optional) To test the HA failover functionality is working properly by attempting an Active/Standby HA failover to the secondary security appliance, click **FORCE ACTIVE/STANDBY FAILOVER**.
13. When finished with all High Availability configuration, click **ACCEPT**. All settings are synchronized to the secondary NSsp.

Checking High Availability Status

This screen summarizes the status of the high availability pair.

HIGH AVAILABILITY STATUS



HIGH AVAILABILITY STATUS

Status	Primary ACTIVE
Primary State	ACTIVE
Secondary State	STANDBY
Active Up Time	0 Days 00:4_._ _
Found Peer	Yes
Settings Synchronized	Yes
Stateful HA Synchronized	No

HIGH AVAILABILITY CONFIG

HA Mode	Active / Standby
HA Control Link	X10 10000 Mbps full-duplex
HA Data Link	Not Configured

HIGH AVAILABILITY LICENSES

Primary Stateful HA Licensed	Yes
Secondary Stateful HA Licensed	Yes

High Availability Status

- **Status** — Indicates Primary or Secondary and ACTIVE or STANDBY.
- **Primary State** — Initial configuration.
- **Secondary State** — Secondary configuration.
- **Active Up Time** — Indicates how long the current Active firewall has been Active, since it last became Active. This line only displays when High Availability is enabled. If failure of the Primary SonicWall occurs, the Secondary SonicWall assumes the Primary SonicWall LAN and WAN IP addresses.
- **Found Peer** — Indicates if the Primary unit has discovered the Secondary unit. Possible values are Yes and No.
- **Settings Synchronized** — Indicates if HA settings are synchronized between the Primary and Secondary units. Possible values are **Yes** and **No**.
- **Stateful HA Synchronized** — Indicates if stateful synchronization settings are synchronized between the Primary and Secondary units. Possible values are **Yes** and **No**.

High Availability Configuration

- **HA Mode** — One method to determine which SonicWall instance is Active is to check the HA Settings Status indicator on the **DEVICE | High Availability > Settings** page. If the Primary SonicWall is Active, the first line in the page indicates that the Primary SonicWall is currently Active. It is also possible to check the status of the Secondary SonicWall by logging into the independent LAN management IP addresses of the Secondary SonicWall. If the Primary SonicWall is operating normally, the status indicates that the Secondary SonicWall is currently Standby. If the Secondary has taken over for the Primary, the status indicates that the Secondary is currently Active. In the event of a failure in the Primary SonicWall, you can access the management interface of the Secondary SonicWall at the Primary SonicWall LAN IP address or at the Secondary SonicWall LAN IP address. When the Primary SonicWall restarts after a failure, it is accessible using the third IP address created during configuration. If preempt mode is enabled, the Primary SonicWall becomes the Active firewall and the Secondary firewall returns to **Standby** status.

- **Control Link** — Indicates the port, speed, and duplex settings of the HA link, such as **HA 1000 Mbps full-duplex**, when two firewalls are connected over their specified HA interfaces. When High Availability is not enabled, the field displays **Not Configured**.
- **Data Link** — Indicates the port, speed, and duplex settings of the HA link, such as **HA 1000 Mbps full-duplex**, when two firewalls are connected over their specified HA interfaces. When High Availability is not enabled, the field displays **Not Configured**.

High Availability Licenses

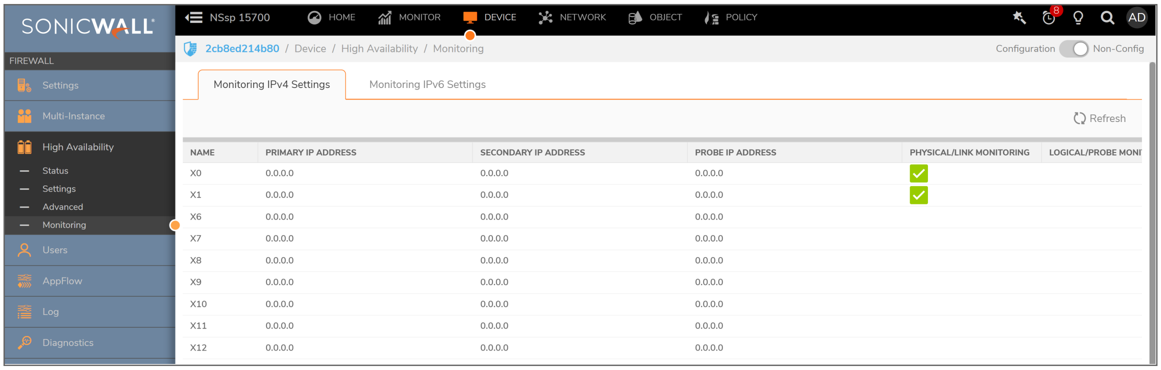
- **Primary Stateful HA Licensed** — Indicates if the Primary appliance has a stateful HA license. Possible values are Yes or No.
- **Secondary Stateful HA Licensed** — Indicates if the Secondary appliance has a stateful HA license. Possible values are Yes or No. The Stateful HA license needs to be activated on both the primary and secondary firewalls separately, they are not shared. You must access MySonicWall.com while logged into the LAN management IP address of the Secondary unit in order to synchronize with the SonicWall licensing server.

Monitoring High Availability

The monitoring display enables the ports on both firewall instances to be continuously checked for performance. To do this, a probe port is defined for each port.

HA Mode - One method to determine which SonicWall is Active is to check the HA Settings Status indicator on the **DEVICE | High Availability > Settings** page. If the Primary SonicWall is Active, the first line in the page indicates that the Primary SonicWall is currently **Active**. It is also possible to check the status of the Secondary SonicWall by logging into the LAN IP address of the Secondary SonicWall.

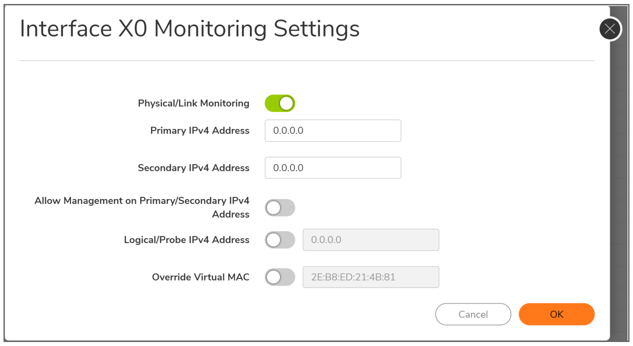
MONITORING DISPLAY



NAME	PRIMARY IP ADDRESS	SECONDARY IP ADDRESS	PROBE IP ADDRESS	PHYSICAL/LINK MONITORING	LOGICAL/PROBE MONI
X0	0.0.0.0	0.0.0.0	0.0.0.0	✓	
X1	0.0.0.0	0.0.0.0	0.0.0.0	✓	
X6	0.0.0.0	0.0.0.0	0.0.0.0		
X7	0.0.0.0	0.0.0.0	0.0.0.0		
X8	0.0.0.0	0.0.0.0	0.0.0.0		
X9	0.0.0.0	0.0.0.0	0.0.0.0		
X10	0.0.0.0	0.0.0.0	0.0.0.0		
X11	0.0.0.0	0.0.0.0	0.0.0.0		
X12	0.0.0.0	0.0.0.0	0.0.0.0		

To set the independent LAN management IP addresses and configure physical and/or logical interface monitoring:

1. Login as an administrator to the Primary SonicWall appliance.
2. Navigate to **DEVICE | High Availability > Monitoring**.
3. Click the **Configure** icon for an interface on the LAN, such as X0. The **Edit HA Monitoring** dialog box displays.



Interface X0 Monitoring Settings

Physical/Link Monitoring	● (on)
Primary IPv4 Address	0.0.0.0
Secondary IPv4 Address	0.0.0.0
Allow Management on Primary/Secondary IPv4 Address	○ (off)
Logical/Probe IPv4 Address	○ (off) 0.0.0.0
Override Virtual MAC	○ (off) 2E:B8:ED:21:4B:81

4. To enable link detection between the designated HA interfaces on the Primary and Secondary units, leave **Physical Interface Monitoring** enabled. This option is selected by default on only X0 (default LAN) and X1 (default WAN).
5. In the **Primary IPv4/v6 Address** field, enter the unique LAN management IP address of the Primary unit. The default is 0.0.0.0.
6. In the **Secondary IPv4/v6 Address** field, enter the unique LAN management IP address of the Secondary unit. The default is 0.0.0.0.
7. Select **Allow Management on Primary/Secondary IP Address**. When this option is enabled for an interface, a green icon appears in the interface's Management column in the Monitoring Settings table. Management is only allowed on an interface when this option is enabled. This option is not selected by default.
8. In the **Logical Probe IPv4/v6 Address** field, enter the IP address of a downstream device on the LAN network that should be monitored for connectivity. Typically, this should be a downstream router or server.

(If probing is desired on the WAN side, an upstream device should be used.) This option is not selected by default.

The Primary and Secondary security appliances regularly ping this probe IP address. If both successfully ping the target, no failover occurs. If neither successfully ping the target, no failover occurs, because it is assumed that the problem is with the target, and not the security appliances. But, if one security appliance can ping the target but the other cannot, failover occurs to the security appliance that can ping the target.

The **Primary IPv4/v6 Address** and **Secondary IPv4/v6 Address** fields must be configured with independent IP addresses on a LAN interface, such as X0, (or a WAN interface, such as X1, for probing on the WAN) to allow logical probing to function correctly.

9. Optionally, to manually specify the virtual MAC address for the interface, select **Override Virtual MAC** and enter the MAC address in the field. The format for the MAC address is six pairs of hexadecimal numbers separated by colons, such as `A1:B2:C3:d4:e5:f6`. This option is not selected by default.

   ⓘ **IMPORTANT:** Care must be taken when choosing the Virtual MAC address to prevent configuration errors.

   When Enable Virtual MAC is selected on **DEVICE | High Availability > Advanced Settings**, the SonicOSX firmware automatically generates a Virtual MAC address for all interfaces. Allowing the SonicOSX firmware to generate the Virtual MAC address eliminates the possibility of configuration errors and ensures the uniqueness of the Virtual MAC address, which prevents possible conflicts.
10. Click **OK**.
11. To configure monitoring on any of the other interfaces, repeat Step 3 through Step 10 for each interface.
12. When finished with all High Availability configuration, click **ACCEPT**. All settings are synchronized to the Secondary unit automatically.

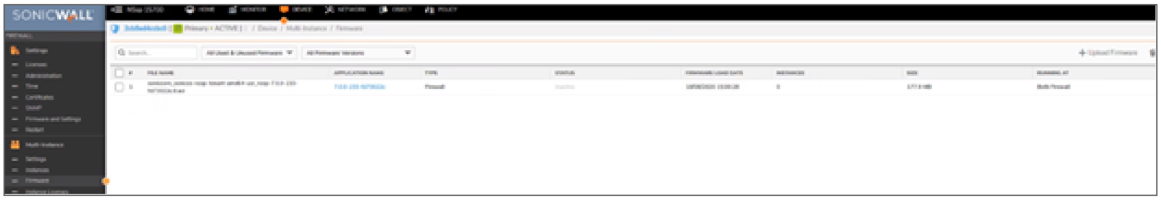
Configuring Multi-Appliance Instance-Level HA

This configuration assumes an established appliance-to-appliance HA pairing as described in Setting Up Unit-to-Unit HA.

To establish an HA pair of instances residing on different NSsp appliances:

1. First establish unit-to-unit pairing as described in Setting Up Unit-to-Unit HA.
2. Have at least one dedicated unused physical port connected on both the NSsp HA unit, to be used for the Multi-instances HA control interface and HA Data interface. Although we recommend two dedicated unused ports, one for the HA control interface and one for the HA data interface.
3. Upload instance firmware on both primary and secondary appliances. After the firmware is uploaded successfully on both the primary and secondary units verify that the Running column on the **DEVICE | Instance > Firmware** page on the Active unit shows as BOTH.

INSTANCE > FIRMWARE PAGE

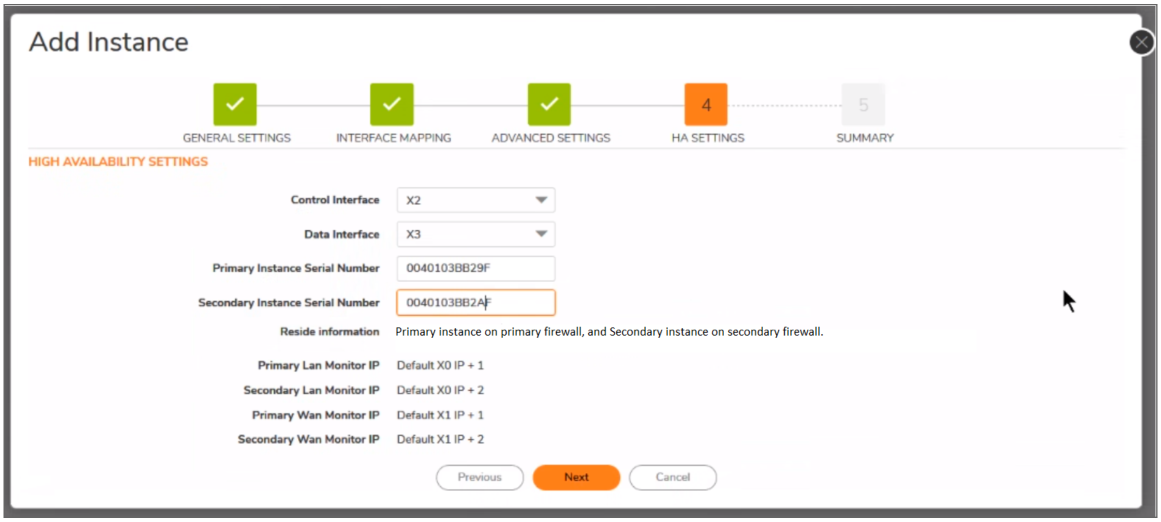


4. Ensure that both Primary and Secondary Instances are Registered with MySonicWall.com and both units have Instance Licenses from their respective **Instance License** page.

5. Repeat Step a to Step s for adding virtual instance HA pair on ACTIVE NSsp appliance as mentioned the Instance HA pair on a standalone NSsp. Refer to Instance HA Pair on a Standalone NSsp Node. Ensure that Primary Instance License is selected from the Primary NSsp Instance License page, and Secondary Instance License is selected from the Secondary NSsp Instance License page.

6. Note that the residence of the instance is announced in the following figure, Residence Announcement.

RESIDENCE ANNOUNCEMENT



HIGH AVAILABILITY SETTINGS

Control Interface: X2

Data Interface: X3

Primary Instance Serial Number: 0040103BB29F

Secondary Instance Serial Number: 0040103BB2AF

Reside information: Primary instance on primary firewall, and Secondary instance on secondary firewall.

Primary Lan Monitor IP: Default X0 IP + 1

Secondary Lan Monitor IP: Default X0 IP + 2

Primary Wan Monitor IP: Default X1 IP + 1

Secondary Wan Monitor IP: Default X1 IP + 2

7. Verify the addition of a Primary and a Secondary Instance from the Multi-Instance on the **Instances** page.

CLI Bring-up

Topics:

Access the Console Port

For location of the physical port, refer to the Front Panel.

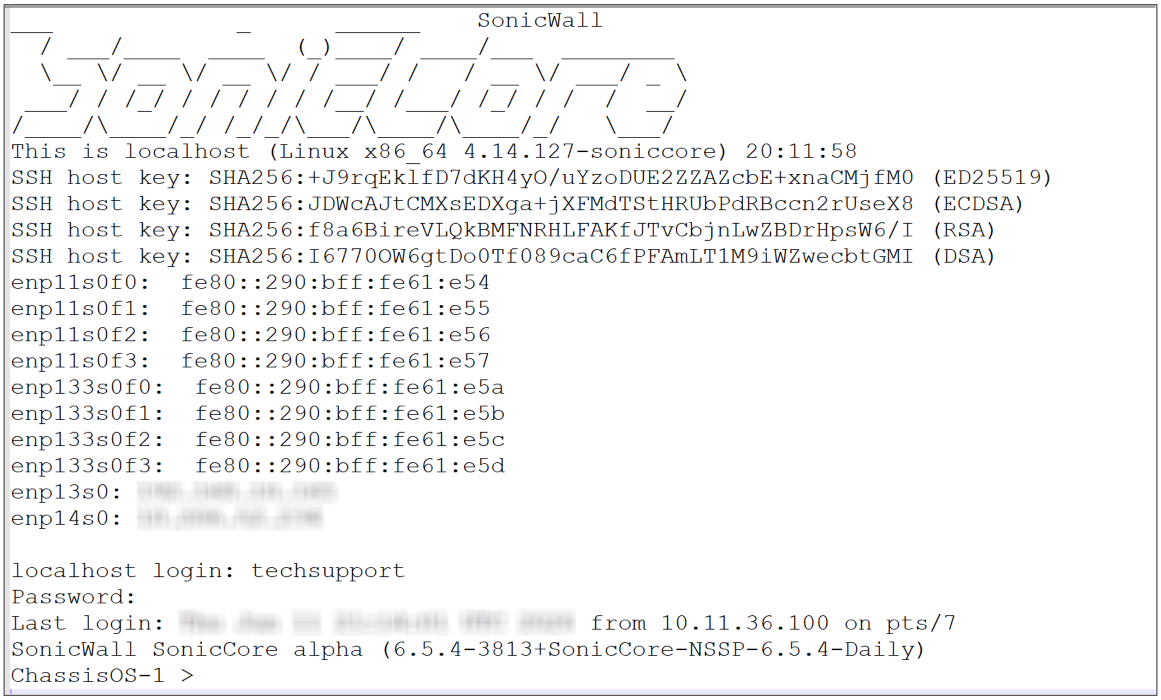
Serial port: baud rate: 115200; data: 8; parity none; stop 1; flow control; none

Login = techsupport; password = sonicwall-<buildnumber>

The SonicCore banner appears and the login takes you to the ChassisOS prompt. See figure *Logging into ChassisOS through the Console Port*.

If the SonicCore banner does not come up and offer a login, check to ensure the NSsp has completed its boot up process.

LOGGING INTO CHASSISOS THROUGH THE CONSOLE PORT



```
___             _      ______    SonicWall
  / ___/____  ____  (_)____/ ____/___  ________
  \__ \/ __ \/ __ \/ / ___/ /   / __ \/ ___/ _ \
 ___/ / /_/ / / / / / /__/ /___/ /_/ / /  /  __/
/____/\____/_/ /_/_/\___/\____/\____/_/   \___/
This is localhost (Linux x86_64 4.14.127-soniccore) 20:11:58
SSH host key: SHA256:+J9rqEklfD7dKH4yO/uYzoDUE2ZZAZcbE+xnaCMjfM0 (ED25519)
SSH host key: SHA256:JDWcAJtCMXsEDXga+jXFMdTStHRUbPdRBccn2rUseX8 (ECDSA)
SSH host key: SHA256:f8a6BireVLQkBMFNRHLFAKfJTvCbjnLwZBDrHpsW6/I (RSA)
SSH host key: SHA256:I6770OW6gtDo0Tf089caC6fPFAmLT1M9iWZwecbtGMI (DSA)
enp11s0f0:  fe80::290:bff:fe61:e54
enp11s0f1:  fe80::290:bff:fe61:e55
enp11s0f2:  fe80::290:bff:fe61:e56
enp11s0f3:  fe80::290:bff:fe61:e57
enp133s0f0:  fe80::290:bff:fe61:e5a
enp133s0f1:  fe80::290:bff:fe61:e5b
enp133s0f2:  fe80::290:bff:fe61:e5c
enp133s0f3:  fe80::290:bff:fe61:e5d
enp13s0: [redacted]
enp14s0: [redacted]

localhost login: techsupport
Password:
Last login: [redacted] from 10.11.36.100 on pts/7
SonicWall SonicCore alpha (6.5.4-3813+SonicCore-NSSP-6.5.4-Daily)
ChassisOS-1 >
```

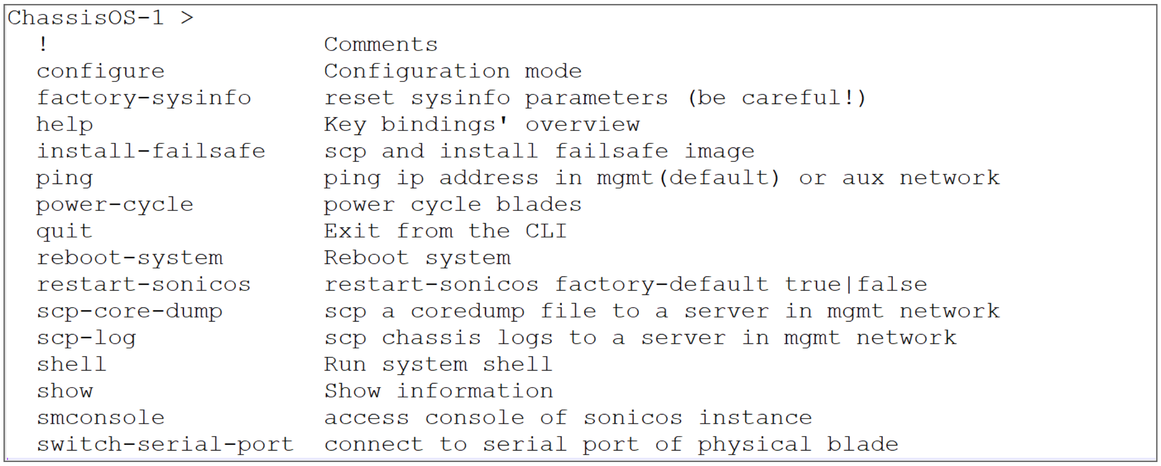
To logout of ChassisOS, simply enter `quit`.

At the ChassisOS Prompt

The `ChassisOS-1` prompt indicates you are logged into physical blade 1 in the system. From here you can move to the second physical blade, ChassisOS-2.

To get a brief help summary, enter `?`.

CHASSIS OS HELP



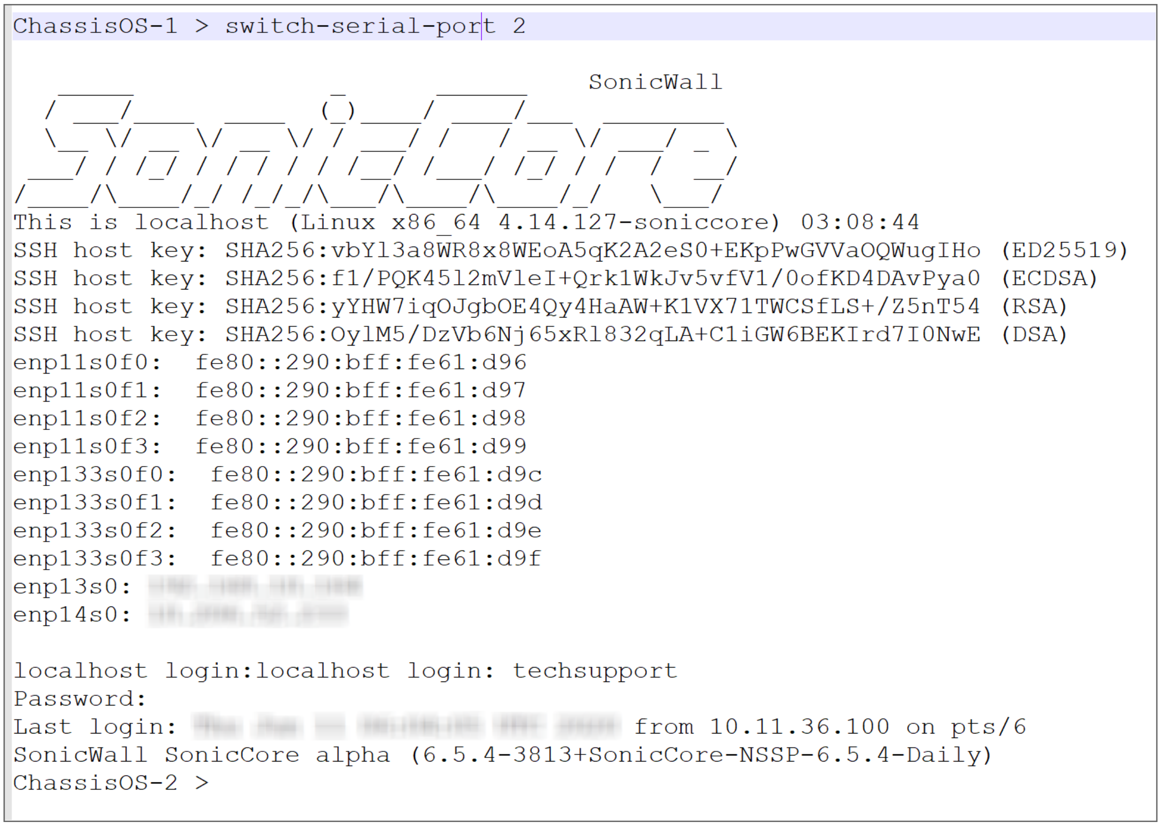
```
ChassisOS-1 >
  !                    Comments
  configure            Configuration mode
  factory-sysinfo      reset sysinfo parameters (be careful!)
  help                 Key bindings' overview
  install-failsafe     scp and install failsafe image
  ping                 ping ip address in mgmt(default) or aux network
  power-cycle          power cycle blades
  quit                 Exit from the CLI
  reboot-system        Reboot system
  restart-sonicos      restart-sonicos factory-default true|false
  scp-core-dump        scp a coredump file to a server in mgmt network
  scp-log              scp chassis logs to a server in mgmt network
  shell                Run system shell
  show                 Show information
  smconsole            access console of sonicos instance
  switch-serial-port   connect to serial port of physical blade
```

To Change to the Console Port of Another Physical Blade

Use `switch-serial-port` and indicate the port to which you are moving.

Use the same login and password information after the SonicCore banner.

CHANGING PHYSICAL BLADES

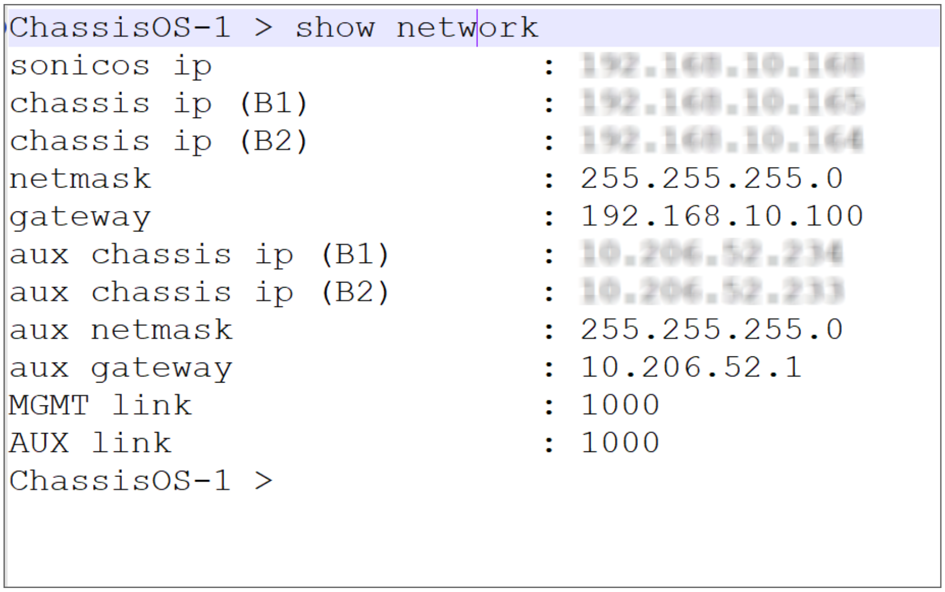


```
ChassisOS-1 > switch-serial-port 2

   _____             _      ______    SonicWall
  / ___/____  ____  (_)____/ ____/___  ________
  \__ \/ __ \/ __ \/ / ___/ /   / __ \/ ___/ _ \
 ___/ / /_/ / / / / / /__/ /___/ /_/ / /  /  __/
/____/\____/_/ /_/_/\___/\____/\____/_/   \___/
This is localhost (Linux x86_64 4.14.127-soniccore) 03:08:44
SSH host key: SHA256:vbYl3a8WR8x8WEoA5qK2A2eS0+EKpPwGVVaOQWugIHo (ED25519)
SSH host key: SHA256:f1/PQK45l2mVleI+Qrk1WkJv5vfV1/0ofKD4DAvPya0 (ECDSA)
SSH host key: SHA256:yYHW7iqOJgbOE4Qy4HaAW+K1VX71TWCSfLS+/Z5nT54 (RSA)
SSH host key: SHA256:OylM5/DzVb6Nj65xRl832qLA+C1iGW6BEKIrd7I0NwE (DSA)
enp11s0f0:  fe80::290:bff:fe61:d96
enp11s0f1:  fe80::290:bff:fe61:d97
enp11s0f2:  fe80::290:bff:fe61:d98
enp11s0f3:  fe80::290:bff:fe61:d99
enp133s0f0:  fe80::290:bff:fe61:d9c
enp133s0f1:  fe80::290:bff:fe61:d9d
enp133s0f2:  fe80::290:bff:fe61:d9e
enp133s0f3:  fe80::290:bff:fe61:d9f
enp13s0: [redacted]
enp14s0: [redacted]

localhost login:localhost login: techsupport
Password:
Last login: [redacted] from 10.11.36.100 on pts/6
SonicWall SonicCore alpha (6.5.4-3813+SonicCore-NSSP-6.5.4-Daily)
ChassisOS-2 >
```

Check Network Address Settings

At the ChassisOS prompt, enter: `show network`.

CHECKING IP ADDRESS



```
ChassisOS-1 > show network
sonicos ip                  : [redacted]
chassis ip (B1)             : [redacted]
chassis ip (B2)             : [redacted]
netmask                     : 255.255.255.0
gateway                     : 192.168.10.100
aux chassis ip (B1)         : [redacted]
aux chassis ip (B2)         : [redacted]
aux netmask                 : 255.255.255.0
aux gateway                 : 10.206.52.1
MGMT link                   : 1000
AUX link                    : 1000
ChassisOS-1 >
```

The first three IP addresses in the above listing are for the NSsp Management port.

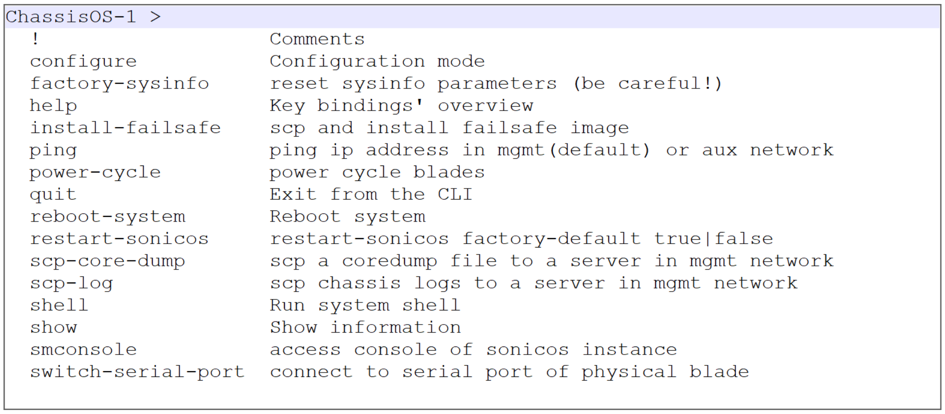
So from the Management port, you can connect to Blade 1, Blade 2, and SonicOSX.

The two `aux chassis IP` ports support access to the two blade platforms from rear panel RJ45 interface connectors.

Commands at ChassisOS Prompt

A list of common commands appears in response to `?`.

CHASSISOS COMMANDS



```
ChassisOS-1 >
  !                    Comments
  configure            Configuration mode
  factory-sysinfo      reset sysinfo parameters (be careful!)
  help                 Key bindings' overview
  install-failsafe     scp and install failsafe image
  ping                 ping ip address in mgmt(default) or aux network
  power-cycle          power cycle blades
  quit                 Exit from the CLI
  reboot-system        Reboot system
  restart-sonicos      restart-sonicos factory-default true|false
  scp-core-dump        scp a coredump file to a server in mgmt network
  scp-log              scp chassis logs to a server in mgmt network
  shell                Run system shell
  show                 Show information
  smconsole            access console of sonicos instance
  switch-serial-port   connect to serial port of physical blade
```

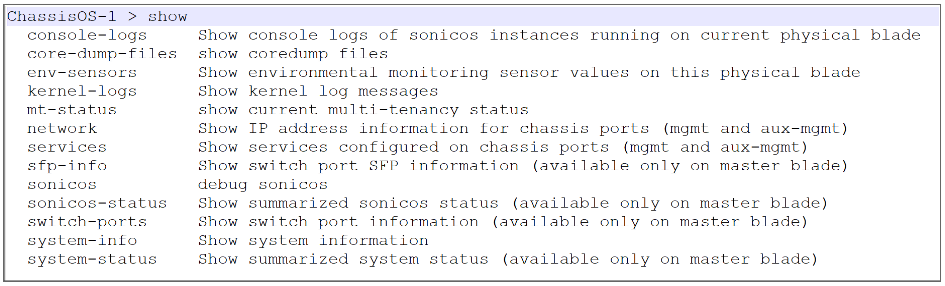
The commands include:

- `ping` allows pinging of addresses in the Management network
- `shell` initiates the system shell
- `install-failsafe` securely installs a failsafe image between a local host and a remote host or between two remote hosts.
- `power-cycle` turns power to the physical blades on and off and effects a reset of SonicOSX and all instances
- `reboot-system` restarts all software (relatively graceful)
- `restart sonicOS` restarts only SonicOSX instances
- `scp-core-dump` in the event of a system crash, this allows a secure copy of a core dump to a Management network address

Show Commands at ChassisOS Prompt

Enter show `?` to get a list:

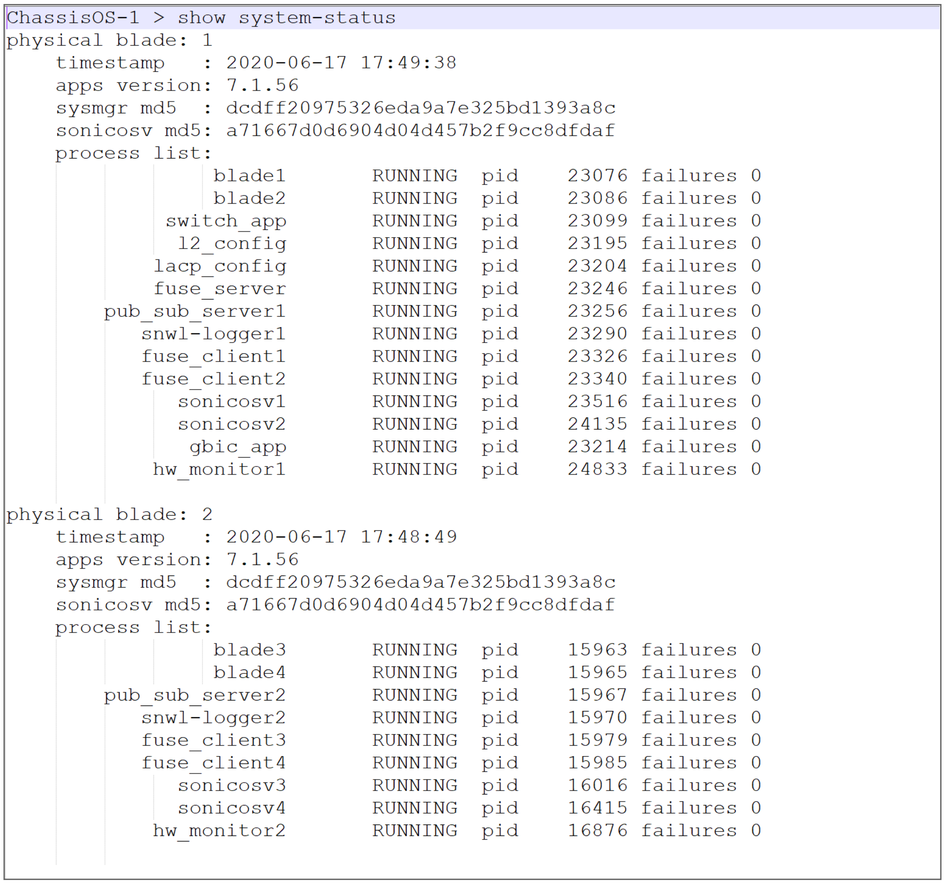
SHOW OS COMMANDS



```
ChassisOS-1 > show
  console-logs      Show console logs of sonicos instances running on current physical blade
  core-dump-files   show coredump files
  env-sensors       Show environmental monitoring sensor values on this physical blade
  kernel-logs       Show kernel log messages
  mt-status         show current multi-tenancy status
  network           Show IP address information for chassis ports (mgmt and aux-mgmt)
  services          Show services configured on chassis ports (mgmt and aux-mgmt)
  sfp-info          Show switch port SFP information (available only on master blade)
  sonicos           debug sonicos
  sonicos-status    Show summarized sonicos status (available only on master blade)
  switch-ports      Show switch port information (available only on master blade)
  system-info       Show system information
  system-status     Show summarized system status (available only on master blade)
```

- `show console-logs`: Shows logs of individual logical blades, allows stepping through logs of all four logical blades. These are SonicOSX console logs.
- `show core-dump-files`: Show all of the core dump files that have been generated so far.
- `show env-sensors`: Lists BMC parameters tracking temperature, fan speed, and so on.
- `show mt-status`: Shows allocation of CPU cores on specified CPU (1 to 4) among the two Logical Blades. This command only works on the master blade (Physical Blade 1).
- `show system-status`: This command is particularly useful in showing processes in progress on the two Physical Blades:

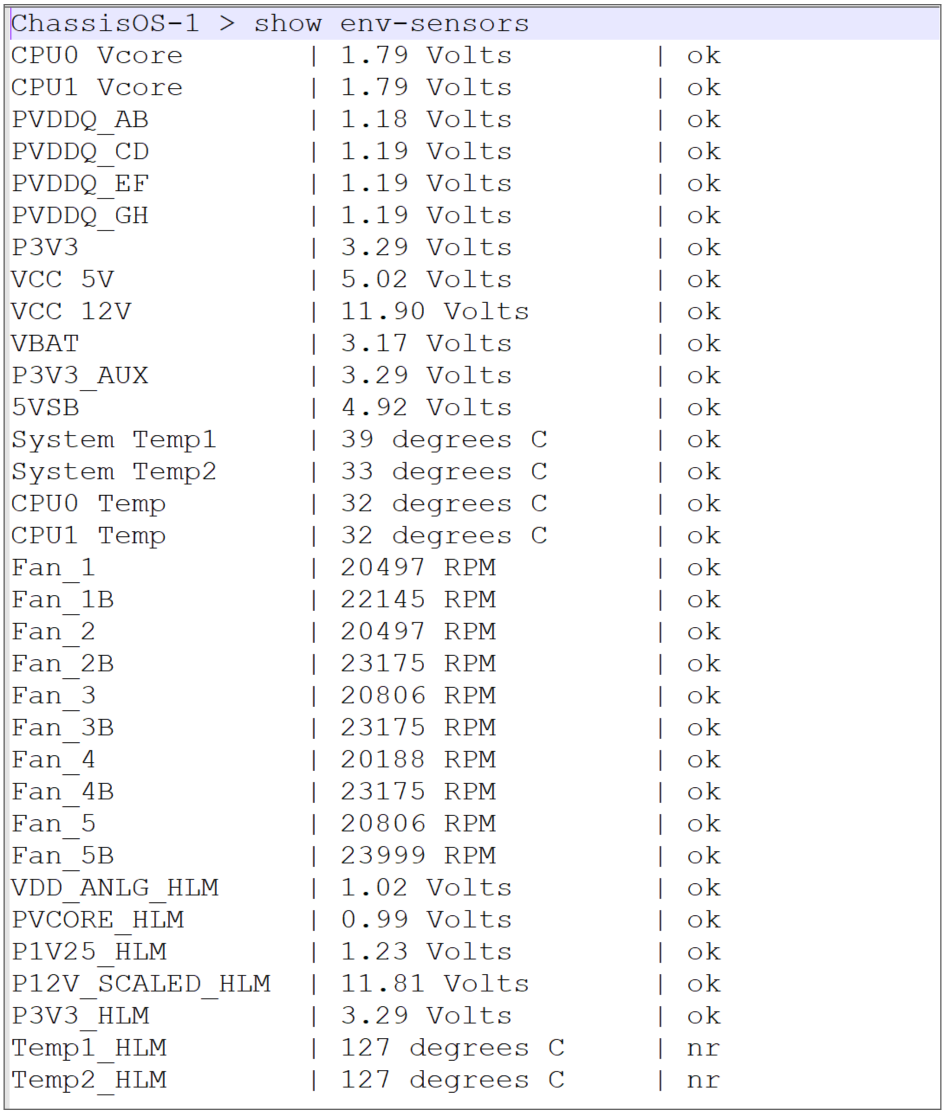
  SHOW SYSTEM STATUS COMMAND



```
ChassisOS-1 > show system-status
physical blade: 1
    timestamp    : 2020-06-17 17:49:38
    apps version: 7.1.56
    sysmgr md5   : dcdff20975326eda9a7e325bd1393a8c
    sonicosv md5: a71667d0d6904d04d457b2f9cc8dfdaf
    process list:
                 blade1       RUNNING  pid    23076 failures 0
                 blade2       RUNNING  pid    23086 failures 0
             switch_app       RUNNING  pid    23099 failures 0
              l2_config       RUNNING  pid    23195 failures 0
            lacp_config       RUNNING  pid    23204 failures 0
            fuse_server       RUNNING  pid    23246 failures 0
        pub_sub_server1       RUNNING  pid    23256 failures 0
           snwl-logger1       RUNNING  pid    23290 failures 0
           fuse_client1       RUNNING  pid    23326 failures 0
           fuse_client2       RUNNING  pid    23340 failures 0
              sonicosv1       RUNNING  pid    23516 failures 0
              sonicosv2       RUNNING  pid    24135 failures 0
               gbic_app       RUNNING  pid    23214 failures 0
            hw_monitor1       RUNNING  pid    24833 failures 0

physical blade: 2
    timestamp    : 2020-06-17 17:48:49
    apps version: 7.1.56
    sysmgr md5   : dcdff20975326eda9a7e325bd1393a8c
    sonicosv md5: a71667d0d6904d04d457b2f9cc8dfdaf
    process list:
                 blade3       RUNNING  pid    15963 failures 0
                 blade4       RUNNING  pid    15965 failures 0
        pub_sub_server2       RUNNING  pid    15967 failures 0
           snwl-logger2       RUNNING  pid    15970 failures 0
           fuse_client3       RUNNING  pid    15979 failures 0
           fuse_client4       RUNNING  pid    15985 failures 0
              sonicosv3       RUNNING  pid    16016 failures 0
              sonicosv4       RUNNING  pid    16415 failures 0
            hw_monitor2       RUNNING  pid    16876 failures 0
```

A useful installation routine for administrators would be to first check system hardware indications with `show env-sensors`:

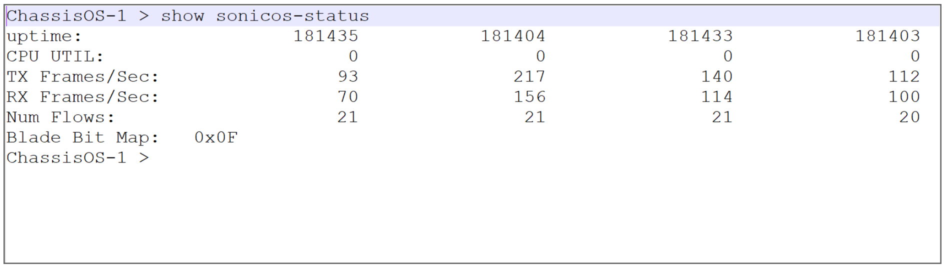
SHOW ENV-SENSORS



```
ChassisOS-1 > show env-sensors
CPU0 Vcore         | 1.79 Volts        | ok
CPU1 Vcore         | 1.79 Volts        | ok
PVDDQ_AB           | 1.18 Volts        | ok
PVDDQ_CD           | 1.19 Volts        | ok
PVDDQ_EF           | 1.19 Volts        | ok
PVDDQ_GH           | 1.19 Volts        | ok
P3V3               | 3.29 Volts        | ok
VCC 5V             | 5.02 Volts        | ok
VCC 12V            | 11.90 Volts       | ok
VBAT               | 3.17 Volts        | ok
P3V3_AUX           | 3.29 Volts        | ok
5VSB               | 4.92 Volts        | ok
System Temp1       | 39 degrees C      | ok
System Temp2       | 33 degrees C      | ok
CPU0 Temp          | 32 degrees C      | ok
CPU1 Temp          | 32 degrees C      | ok
Fan_1              | 20497 RPM         | ok
Fan_1B             | 22145 RPM         | ok
Fan_2              | 20497 RPM         | ok
Fan_2B             | 23175 RPM         | ok
Fan_3              | 20806 RPM         | ok
Fan_3B             | 23175 RPM         | ok
Fan_4              | 20188 RPM         | ok
Fan_4B             | 23175 RPM         | ok
Fan_5              | 20806 RPM         | ok
Fan_5B             | 23999 RPM         | ok
VDD_ANLG_HLM       | 1.02 Volts        | ok
PVCORE_HLM         | 0.99 Volts        | ok
P1V25_HLM          | 1.23 Volts        | ok
P12V_SCALED_HLM    | 11.81 Volts       | ok
P3V3_HLM           | 3.29 Volts        | ok
Temp1_HLM          | 127 degrees C     | nr
Temp2_HLM          | 127 degrees C     | nr
```

Then check SonicOSX with show `sonicos-status`:

SHOW SONIOCS- STATUS

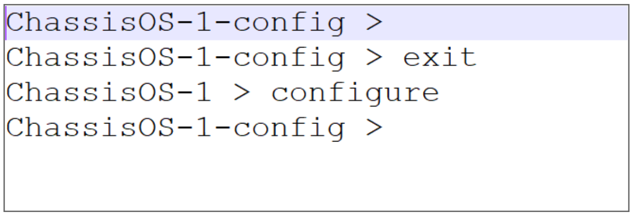


```
ChassisOS-1 > show sonicos-status
uptime:                  181435        181404        181433        181403
CPU UTIL:                     0             0             0             0
TX Frames/Sec:               93           217           140           112
RX Frames/Sec:               70           156           114           100
Num Flows:                   21            21            21            20
Blade Bit Map:    0x0F
ChassisOS-1 >
```

Configure IP Addresses from the CLI

Move back and forth to Configure Mode using `configure` and `exit`.

CONFIGURE IP ADDRESSES



```
ChassisOS-1-config >
ChassisOS-1-config > exit
ChassisOS-1 > configure
ChassisOS-1-config >
```

For a list of Configuration Mode commands, enter `?`.

Of these, the most useful is `network-mgmt`. This allows changing the SonicOSX management, blade management and gateway IP addresses to conform to your network. Example syntax:

```
network mgmt IPv4 sonicos-IP 192.168.169.33 netmask 255.255.255.0 chassis-IP 192.168.169.3.
```

In the previous line, the TAB key can be used to generate the works identifying the IP addresses, while the addresses must be provided. All of the address are changed at once in this manner.

Immediately after reconfiguring management IP addresses, the `services-mgmt` command allows setting up safemode, ping, or ssh services, or all three.

Restart SonicOSX from the CLI

SonicOSX can be rebooted from current settings:

```
restart-sonicos
```

Or from factory defaults:

```
restart-sonicos factory-settings true
```

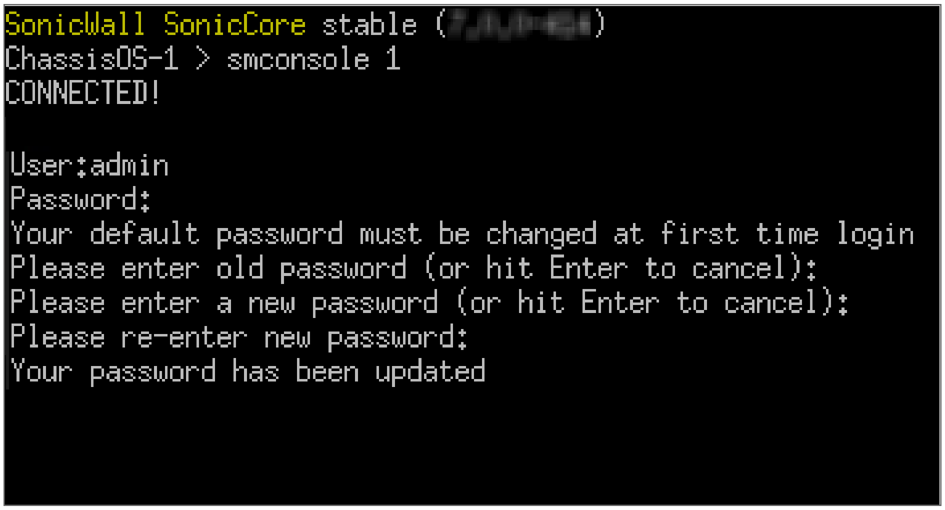
△ **CAUTION: Returning to factory defaults could disrupt your testing efforts as current settings are lost.**

To Access SonicOSX Console

Entering `smconsole 1` allows access to the SonicOSX Console CLI on the Root Instance.

To gain access to the console use admin and password.

Your default password must be changed at first time while logging in after upgrade. Create a password that meets the security requirements. A password should have at least one uppercase letter, one lowercase letter, one number, and one special character. For example, S0nicW@ll.



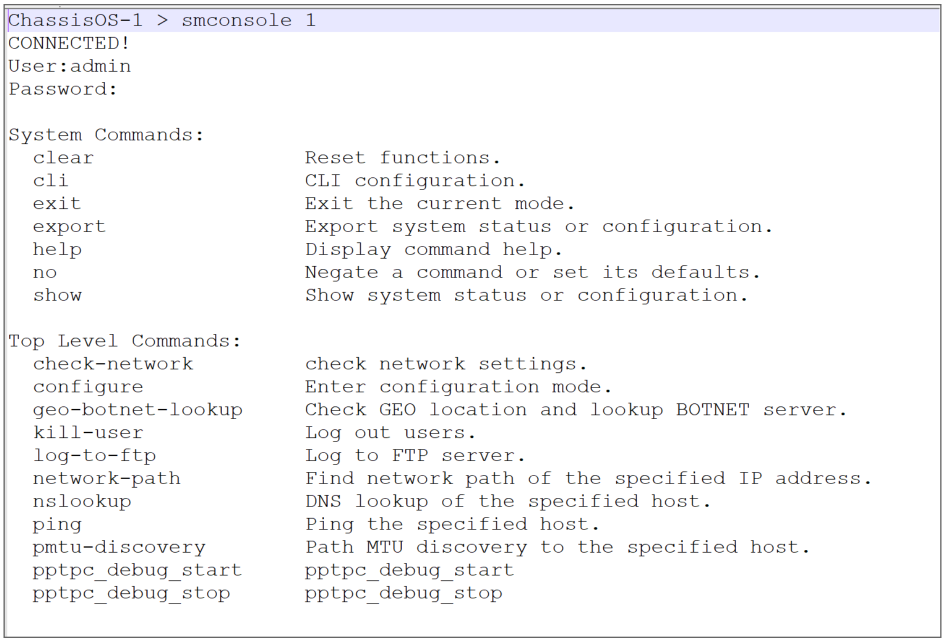
```
SonicWall SonicCore stable ([redacted])
ChassisOS-1 > smconsole 1
CONNECTED!

User:admin
Password:
Your default password must be changed at first time login
Please enter old password (or hit Enter to cancel):
Please enter a new password (or hit Enter to cancel):
Please re-enter new password:
Your password has been updated
```

Perform the following steps to change password:

1. In **Please enter old password (or hit Enter to cancel):**, enter your default password.
2. In **Please enter a new password (or hit Enter to cancel):**, enter your new password.
3. In **Please re-enter new password**, re-enter your new password.

Enter `?` for help.

ACCESSING THE SONICOSX CONSOLE



```
ChassisOS-1 > smconsole 1
CONNECTED!
User:admin
Password:

System Commands:
  clear                  Reset functions.
  cli                    CLI configuration.
  exit                   Exit the current mode.
  export                 Export system status or configuration.
  help                   Display command help.
  no                     Negate a command or set its defaults.
  show                   Show system status or configuration.

Top Level Commands:
  check-network          check network settings.
  configure              Enter configuration mode.
  geo-botnet-lookup      Check GEO location and lookup BOTNET server.
  kill-user              Log out users.
  log-to-ftp             Log to FTP server.
  network-path           Find network path of the specified IP address.
  nslookup               DNS lookup of the specified host.
  ping                   Ping the specified host.
  pmtu-discovery         Path MTU discovery to the specified host.
  pptpc_debug_start      pptpc_debug_start
  pptpc_debug_stop       pptpc_debug_stop
```

A useful operation at the SonicOSX Console is `show interfaces`. This gives an overview of the firewall's status. Type `Ctrl-C` or `quit` to end.

6

Using the SafeMode GUI

From the SafeMode GUI, you can upgrade firmware, boot backup images and check the status of the hardware.

ⓘ **NOTE:** Unlike SafeMode on other SonicWall appliances, SafeMode is not a state in the NSsp; instead it is a GUI available at all times. The appliance does not need to go into the SafeMode state in order to access the SafeMode utilities.

Topics:

- Accessing SafeMode
- Rebooting the System
- Upgrading Firmware
- Diagnostics

Accessing SafeMode

AUX MGMT 1 Port

Access SafeMode at the management port for Blade 1 on the rear panel of the NSsp chassis. This requires a cable to the top Aux MGMT port shown in the rear panel photograph see Rear Panel.

IP Address

Access SafeMode at the management port for Blade 1 on the rear panel of the NSsp chassis. This requires a cable to the top Aux MGMT port shown in the rear panel photograph; see Rear Panel. To find the IP Address, see Check Network Address Settings. Use this IP address with `https://aux chasis ip (B1):65443`.

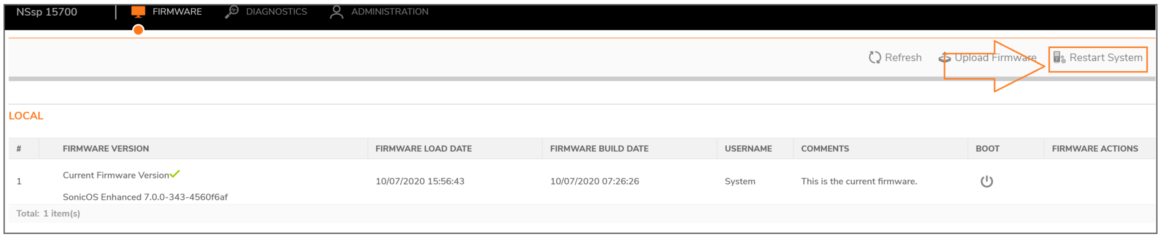
Login Credentials

When SonicOSX is running, only credentials with full configuration privileges allows access. If SonicOSX is down, the Maintenance Key available for the product from www.MySonicWall.com, must be used.

Rebooting the System

Upon login, the SafeMode GUI opens to Firmware Management. The **Restart System** item is to the upper right.

REBOOTING THE SYSTEM



#	FIRMWARE VERSION	FIRMWARE LOAD DATE	FIRMWARE BUILD DATE	USERNAME	COMMENTS	BOOT	FIRMWARE ACTIONS
1	Current Firmware Version✓ SonicOS Enhanced 7.0.0-343-4560f6af	10/07/2020 15:56:43	10/07/2020 07:26:26	System	This is the current firmware.	⏻	

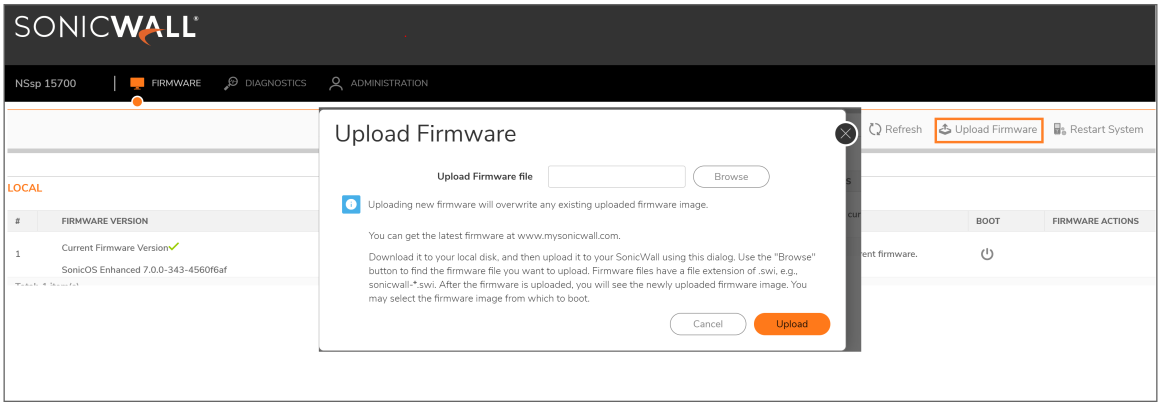
Total: 1 item(s)

Upgrading Firmware

To upload new firmware:

1. Click **Upload Firmware** and locate new firmware. Firmware upgrades are available through www.MySonicWall.com.

UPLOADING FIRMWARE



Upload Firmware

Upload Firmware file

Uploading new firmware will overwrite any existing uploaded firmware image.

You can get the latest firmware at www.mysonicwall.com.

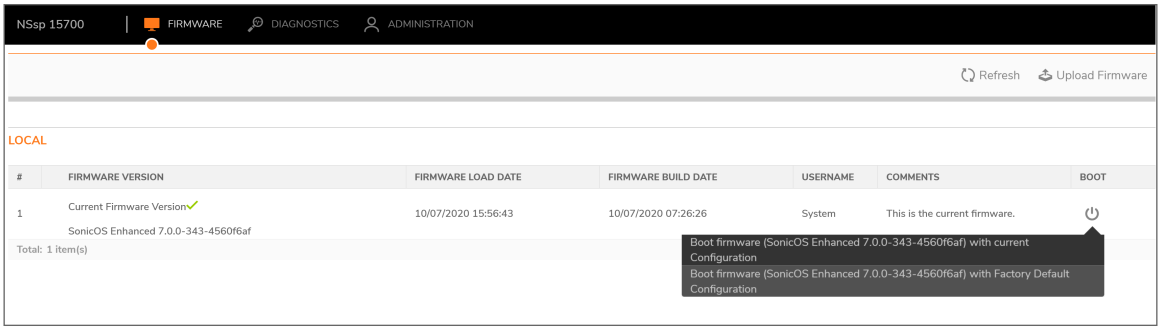
Download it to your local disk, and then upload it to your SonicWall using this dialog. Use the "Browse" button to find the firmware file you want to upload. Firmware files have a file extension of .swi, e.g., sonicwall-*.swi. After the firmware is uploaded, you will see the newly uploaded firmware image. You may select the firmware image from which to boot.

2. Having downloaded an image from MySonicWall to your PC, upload using the dialog. The image then appears in the table of Firmware Images. From there, you can choose to install it using the current configuration or opt to use the default settings.

To boot new firmware:

1. Select the option as shown below and boot.
   The upload and boot process takes only about two minutes.

BOOT FIRMWARE



LOCAL

#	FIRMWARE VERSION	FIRMWARE LOAD DATE	FIRMWARE BUILD DATE	USERNAME	COMMENTS	BOOT
1	Current Firmware Version ✓ SonicOS Enhanced 7.0.0-343-4560f6af	10/07/2020 15:56:43	10/07/2020 07:26:26	System	This is the current firmware.	⏻

Total: 1 item(s)

Boot firmware (SonicOS Enhanced 7.0.0-343-4560f6af) with current Configuration

Boot firmware (SonicOS Enhanced 7.0.0-343-4560f6af) with Factory Default Configuration

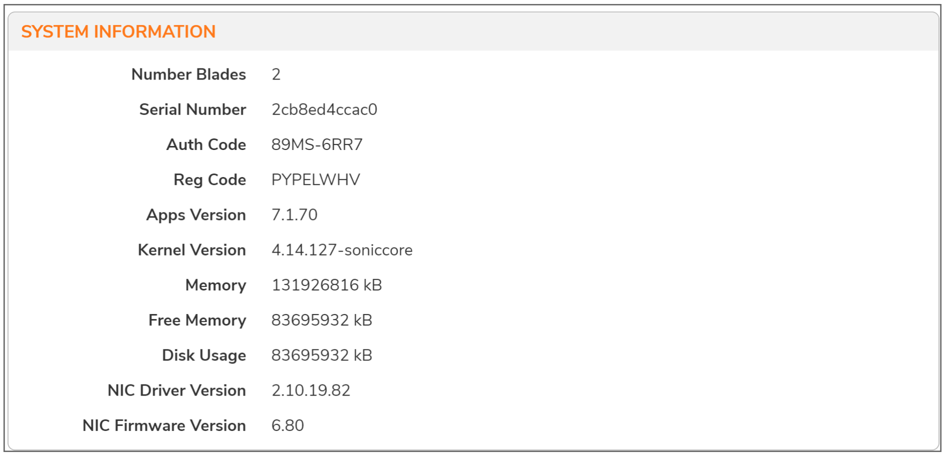
Diagnostics

Four tabs within the **Diagnostics** section provide information on the system and its current state.

System Information

This tab presents basic information on the NSsp 15700.

SYSTEM INFORMATION



SYSTEM INFORMATION

Number Blades	2
Serial Number	2cb8ed4ccac0
Auth Code	89MS-6RR7
Reg Code	PYPELWHV
Apps Version	7.1.70
Kernel Version	4.14.127-soniccore
Memory	131926816 kB
Free Memory	83695932 kB
Disk Usage	83695932 kB
NIC Driver Version	2.10.19.82
NIC Firmware Version	6.80

Hardware Sensors

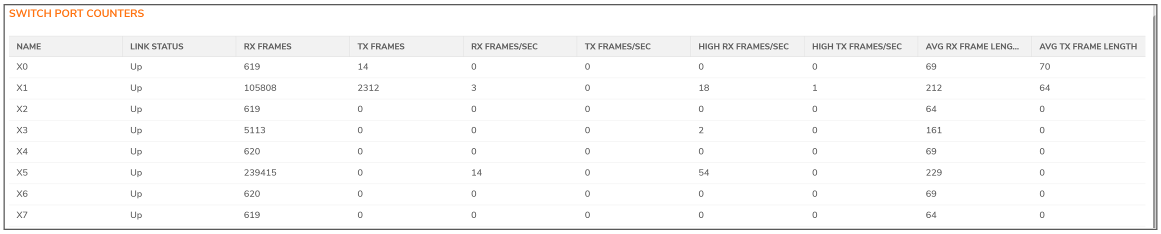
This tab lists hardware sensors in the NSsp 15700.

This is also accessible through the CLI. See section Show Commands at ChassisOS Prompt.

Switch Port Counters

This tab presents details on the switching performance of the 26 ports on the NSsp 15700 front panel.

SWITCH PORT COUNTER TAB



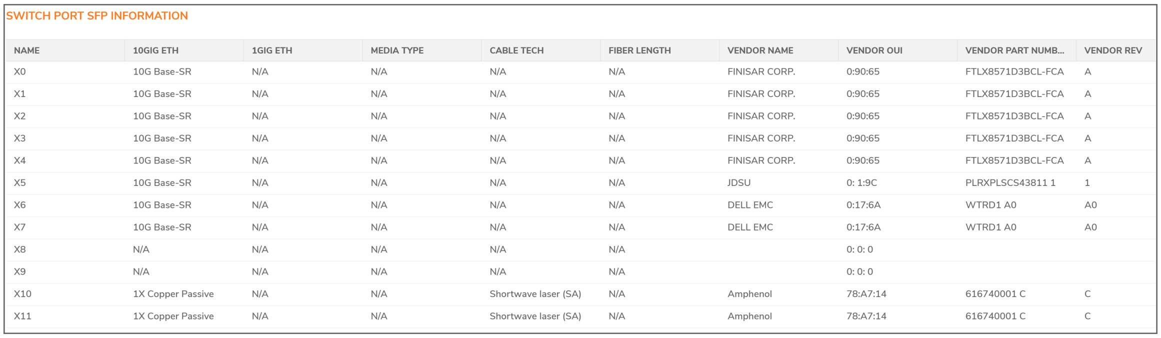
SWITCH PORT COUNTERS

NAME	LINK STATUS	RX FRAMES	TX FRAMES	RX FRAMES/SEC	TX FRAMES/SEC	HIGH RX FRAMES/SEC	HIGH TX FRAMES/SEC	AVG RX FRAME LENG...	AVG TX FRAME LENGTH
X0	Up	619	14	0	0	0	0	69	70
X1	Up	105808	2312	3	0	18	1	212	64
X2	Up	619	0	0	0	0	0	64	0
X3	Up	5113	0	0	0	2	0	161	0
X4	Up	620	0	0	0	0	0	69	0
X5	Up	239415	0	14	0	54	0	229	0
X6	Up	620	0	0	0	0	0	69	0
X7	Up	619	0	0	0	0	0	64	0

Switch Port SFP Information

This tab provides details on the SFP links used on the NSsp 15700.

SWITCH PORT SFP INFORMATION



SWITCH PORT SFP INFORMATION

NAME	10GIG ETH	1GIG ETH	MEDIA TYPE	CABLE TECH	FIBER LENGTH	VENDOR NAME	VENDOR OUI	VENDOR PART NUMB...	VENDOR REV
X0	10G Base-SR	N/A	N/A	N/A	N/A	FINISAR CORP.	0:90:65	FTLX8571D3BCL-FCA	A
X1	10G Base-SR	N/A	N/A	N/A	N/A	FINISAR CORP.	0:90:65	FTLX8571D3BCL-FCA	A
X2	10G Base-SR	N/A	N/A	N/A	N/A	FINISAR CORP.	0:90:65	FTLX8571D3BCL-FCA	A
X3	10G Base-SR	N/A	N/A	N/A	N/A	FINISAR CORP.	0:90:65	FTLX8571D3BCL-FCA	A
X4	10G Base-SR	N/A	N/A	N/A	N/A	FINISAR CORP.	0:90:65	FTLX8571D3BCL-FCA	A
X5	10G Base-SR	N/A	N/A	N/A	N/A	JDSU	0: 1:9C	PLRXPLSCS43811 1	1
X6	10G Base-SR	N/A	N/A	N/A	N/A	DELL EMC	0:17:6A	WTRD1 A0	A0
X7	10G Base-SR	N/A	N/A	N/A	N/A	DELL EMC	0:17:6A	WTRD1 A0	A0
X8	N/A	N/A	N/A	N/A	N/A		0: 0: 0		
X9	N/A	N/A	N/A	N/A	N/A		0: 0: 0		
X10	1X Copper Passive	N/A	N/A	Shortwave laser (SA)	N/A	Amphenol	78:A7:14	616740001 C	C
X11	1X Copper Passive	N/A	N/A	Shortwave laser (SA)	N/A	Amphenol	78:A7:14	616740001 C	C

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SonicWall Support

Technical support is available to customers who have purchased SonicWall products with a valid maintenance contract.

The Support Portal provides self-help tools you can use to solve problems quickly and independently, 24 hours a day, 365 days a year. To access the Support Portal, go to https://www.sonicwall.com/support.

The Support Portal enables you to:

- View knowledge base articles and technical documentation
- View and participate in the Community forum discussions at https://community.sonicwall.com/technology-and-support.
- View video tutorials
- Access https://mysonicwall.com
- Learn about SonicWall Professional Services
- Review SonicWall Support services and warranty information
- Register for training and certification
- Request technical support or customer service

To contact SonicWall Support, visit https://www.sonicwall.com/support/contact-support.

About This Document

SonicOSX Getting Started Guide for the NSsp 15700 Series
Updated - March 2023
Software Version - 7
232-005469-00 Rev C

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To view the SonicWall End User Product Agreement, go to: https://www.sonicwall.com/legal/end-user-product-agreements/.

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Attn: Jennifer Anderson
1033 McCarthy Blvd
Milpitas, CA 95035