SonicWall® Global Management System MANAGE SSL VPN

Administration

Contents

1

About SSL VPN

This section provides information on how to configure the SSL VPN features on the SonicWall network security appliance. SonicWall's SSL VPN features provide secure remote access to the network using the NetExtender client.

NetExtender is an SSL VPN client for Windows, Mac, or Linux users that is downloaded transparently and that allows you to run any application securely on the company's network. It uses Point-to-Point Protocol (PPP). NetExtender allows remote clients seamless access to resources on your local network. Users can access NetExtender two ways:

- Logging in to the Virtual Office web portal provided by the SonicWall network security appliance and clicking **NetExtender**.
- Launching the standalone NetExtender client.

The NetExtender standalone client is installed the first time you launch NetExtender. Thereafter, it can be accessed directly from the Start menu on Windows systems, from the Application folder or dock on MacOS systems, or by the path name or from the shortcut bar on Linux systems.

Topics:

- About SSL VPN NetExtender
- Configuring Users for SSL VPN Access

About SSL VPN NetExtender

This section provides an introduction to the SSL VPN NetExtender feature as managed within SonicWall® Global Management System (GMS).

Topics:

- What is SSL VPN NetExtender?
- Benefits of SSL VPN NetExtender
- NetExtender Concepts

What is SSL VPN NetExtender?

SonicWall's SSL VPN NetExtender feature is a transparent software application for Windows, Mac, and Linux users that enables remote users to securely connect to the remote network. With NetExtender, remote users can securely run any application on the remote network. Users can upload and download files, mount network drives, and access resources as if they were on the local network. The NetExtender connection uses a Point-to-Point Protocol (PPP) connection.

Benefits of SSL VPN NetExtender

NetExtender provides remote users with full access to your protected internal network. The experience is virtually identical to that of using a traditional IPSec VPN client, but NetExtender does not require any manual client installation. Instead, the NetExtender Windows client is automatically installed on a remote user's PC by an ActiveX control when using the Internet Explorer browser, or with the XPCOM plug-in when using Firefox. On MacOS systems, supported browsers use Java controls to automatically install NetExtender from the Virtual Office portal. Linux systems can also install and use the NetExtender client.

After installation, NetExtender automatically launches and connects a virtual adapter for secure SSL VPN point-to-point access to permitted hosts and subnets on the internal network.

NetExtender Concepts

The following sections describe advanced NetExtender concepts:

- Stand-Alone Client
- Client Routes
- Tunnel All Mode
- Connection Scripts
- Proxy Configuration

Stand-Alone Client

NetExtender is a browser-installed lightweight application that provides comprehensive remote access without requiring users to manually download and install the application. The first time a user launches NetExtender, the NetExtender stand-alone client is automatically installed on the user's PC or Mac. The installer creates a profile based on the user's login information. The installer window then closes and automatically launches NetExtender. If the user has a legacy version of NetExtender installed, the installer first uninstalls the old NetExtender and installs the new version.

After the NetExtender stand-alone client has been installed, Windows users can launch NetExtender from their PC's **Start > Programs** menu and configure NetExtender to launch when Windows boots. Mac users can launch NetExtender from their system Applications folder, or drag the icon to the dock for quick access. On Linux systems, the installer creates a desktop shortcut in **/usr/share/NetExtender**. This can be dragged to the shortcut bar in environments like Gnome and KDE.

Client Routes

NetExtender client routes are used to allow and deny access for SSL VPN users to various network resources. Address objects are used to easily and dynamically configure access to network resources.

Tunnel All Mode

Tunnel All mode routes all traffic to and from the remote user over the SSL VPN NetExtender tunnel—including traffic destined for the remote user's local network. This is accomplished by adding the following routes to the remote client's route table:

Tunnel All Mode Routes

IP Address	Subnet Mask
0.0.0.0	0.0.0.0
0.0.0.0	128.0.0.0
128.0.0.0	128.0.0.0

NetExtender also adds routes for the local networks of all connected Network Connections. These routes are configured with higher metrics than any existing routes to force traffic destined for the local network over the SSL VPN tunnel instead. For example, if a remote user is has the IP address 10.0.67.64 on the 10.0.*.* network, the route 10.0.0.0/255.255.0.0 is added to route traffic through the SSL VPN tunnel.

Tunnel All mode is configured on the **SSL VPN > Client Routes** page.

Connection Scripts

SonicWall SSL VPN provides users with the ability to run batch file scripts when NetExtender connects and disconnects. The scripts can be used to map or disconnect network drives and printers, launch applications, or open files or Web sites. NetExtender Connection Scripts can support any valid batch file commands.

Proxy Configuration

SonicWall SSL VPN supports NetExtender sessions using proxy configurations. Currently, only HTTPS proxy is supported. When launching NetExtender from the Web portal, if your browser is already configured for proxy access, NetExtender automatically inherits the proxy settings. The proxy settings can also be manually configured in the NetExtender client preferences. NetExtender can automatically detect proxy settings for proxy servers that support the Web Proxy Auto Discovery (WPAD) Protocol.

NetExtender provides three options for configuring proxy settings:

- **Automatically detect settings** - To use this setting, the proxy server must support Web Proxy Auto Discovery Protocol (WPAD)) that can push the proxy settings script to the client automatically.
- **Use automatic configuration script** - If you know the location of the proxy settings script, you can select this option and provide the URL of the script.
- **Use proxy server** - You can use this option to specify the IP address and port of the proxy server. Optionally, you can enter an IP address or domain in the **BypassProxy** field to allow direct connections to those addresses and bypass the proxy server. If required, you can enter a user name and password for the proxy server. If the proxy server requires a username and password, but you do not specify them, a NetExtender pop-up window prompts you to enter them when you first connect.

When NetExtender connects using proxy settings, it establishes an HTTPS connection to the proxy server instead of connecting to the SonicWall security appliance. server directly. The proxy server then forwards traffic to the SSL VPN server. All traffic is encrypted by SSL with the certificate negotiated by NetExtender, of which the proxy server has no knowledge. The connecting process is identical for proxy and non-proxy users.

Configuring Users for SSL VPN Access

For users to be able to access SSL VPN services, they must be assigned to the SSLVPN Services group. Users who attempt to login through the Virtual Office who do not belong to the SSLVPN Services group are denied access.

NOTE: Complete instructions for installing NetExtender on a SonicWall appliance can be found in How to setup SSL-VPN feature (NetExtender Access) on SonicOS 5.9 & above (SW10657) in the Knowledge Base.

ⓘ **VIDEO:** The video, How to configure SSL VPN, also explains the procedure for configuring NetExtender.

The maximum number of SSL VPN concurrent users for each SonicWall network security appliance model supported is shown in Maximum number of concurrent SSL VPN users.

Maximum Number of Concurrent SSL VPN Users

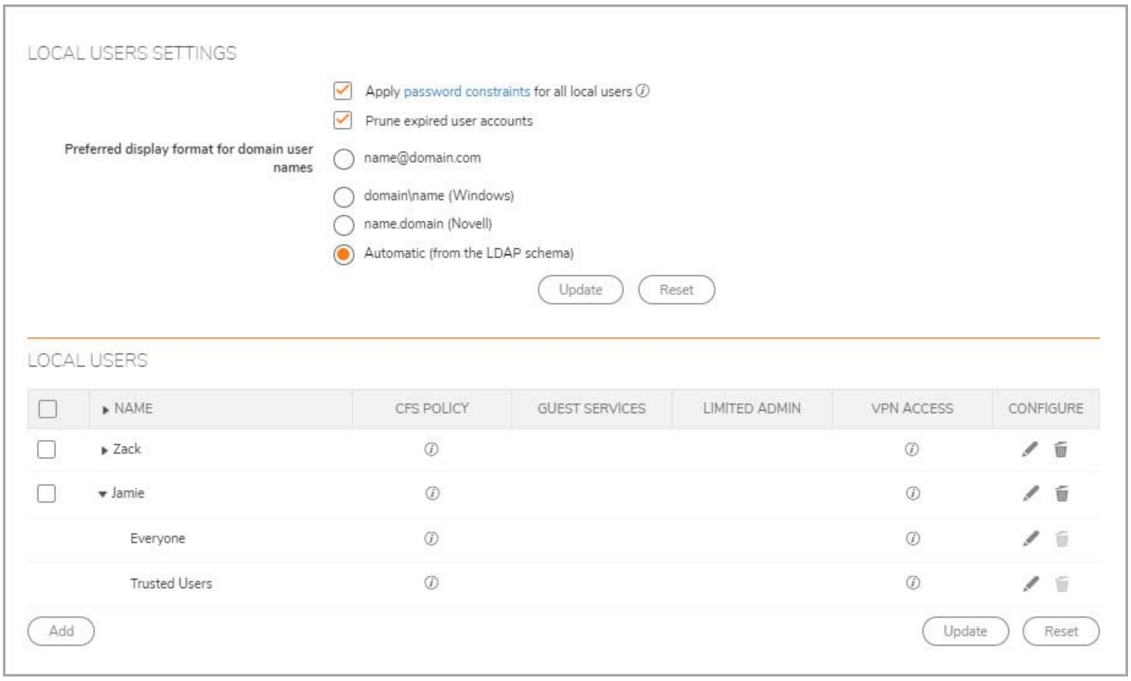
SonicWall appliance model	Maximum concurrent SSL VPN connections	SonicWall appliance model	Maximum concurrent SSL VPN connections	SonicWall appliance model	Maximum concurrent SSL VPN connections
SM 9800	3000	NSA 6600	1500	TZ600	200
SM 9600	3000	NSA 5600	1000	TZ500/TZ500 W	150
SM 9400	3000	NSA 4600	500	TZ400/TZ400 W	100
SM 9200	3000	NSA 3600	350	TZ300/TZ300 W	50
		NSA 2600	250		
				SOHO W	50

Configuring SSL VPN Access for Local Users

To configure users in the local user database for SSL VPN access, you must add the users to the SSLVPN Services user group.

To configure SSL VPN access for local users:

1 Navigate to the **Users > Local Users** page.



LOCAL USERS SETTINGS

☑ Apply password constraints for all local users ⓘ

☑ Prune expired user accounts

Preferred display format for domain user names

○ name@domain.com

○ domain\name (Windows)

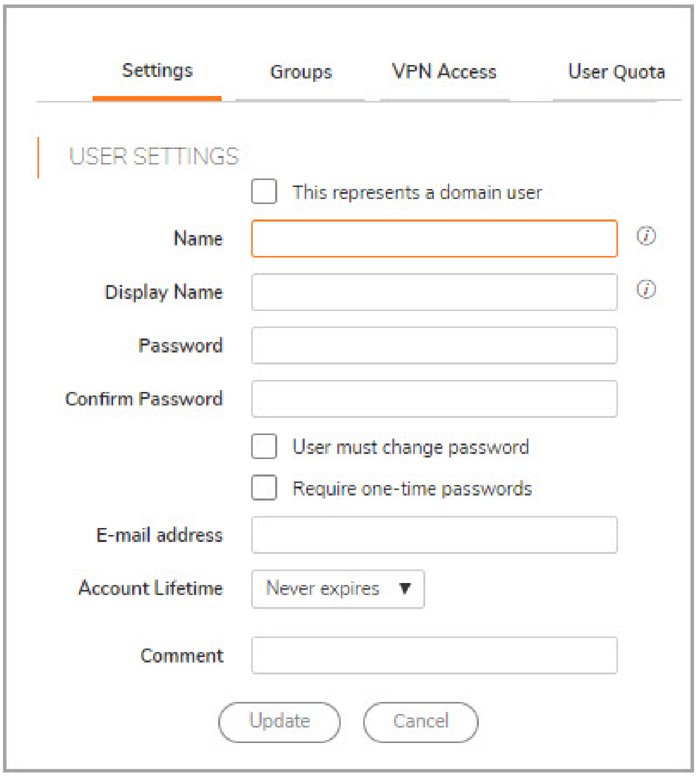
○ name.domain (Novell)

● Automatic (from the LDAP schema)

LOCAL USERS

☐	▸ NAME	CFS POLICY	GUEST SERVICES	LIMITED ADMIN	VPN ACCESS	CONFIGURE
☐	▸ Zack	ⓘ			ⓘ	✎ 🗑
☐	▾ Jamie	ⓘ			ⓘ	✎ 🗑
	Everyone	ⓘ			ⓘ	✎ 🗑
	Trusted Users	ⓘ			ⓘ	✎ 🗑

2 Click the **Configure** icon for the user you want to edit, or click **Add** to create a new user. The **Edit User** or **Add User** dialog displays in the **Settings** view.



USER SETTINGS

☐ This represents a domain user

Name ⓘ

Display Name ⓘ

Password

Confirm Password

☐ User must change password

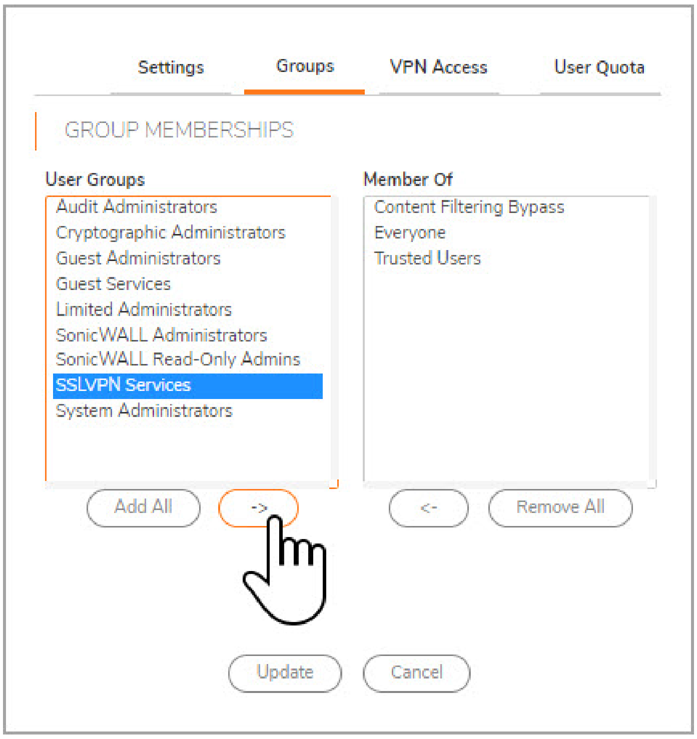
☐ Require one-time passwords

E-mail address

Account Lifetime: Never expires ▼

Comment

3 Click the **Groups** view.

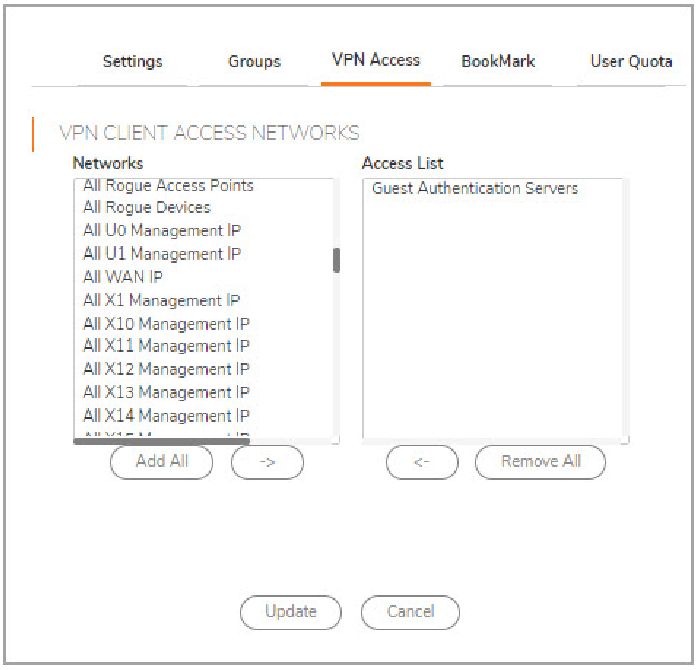


4 In the **User Groups** column, select **SSLVPN Services**.

5 Click the **Right Arrow** to move it to the **Member Of** column.

6 Click the **VPN Access** view. The **VPN Access** view configures which network resources VPN users (GVC, NetExtender, or Virtual Office bookmarks) can access.

> ⓘ **NOTE:** The VPN Access view affects the ability of remote clients using GVC, NetExtender, and SSL VPN Virtual Office bookmarks to access network resources. To allow GVC, NetExtender, or Virtual Office users to access a network resource, the network address objects or groups must be added to the **Access List** in the **VPN Access** view.



VPN CLIENT ACCESS NETWORKS

Networks

All Rogue Access Points
All Rogue Devices
All U0 Management IP
All U1 Management IP
All WAN IP
All X1 Management IP
All X10 Management IP
All X11 Management IP
All X12 Management IP
All X13 Management IP
All X14 Management IP

Access List

Guest Authentication Servers

7 Select one or more network address objects or groups from the **Networks** list and click the **Right Arrow** to move them to the **Access List** column.

To remove the user’s access to a network address objects or groups, select the network from the **Access List**, and click the **Left Arrow**.

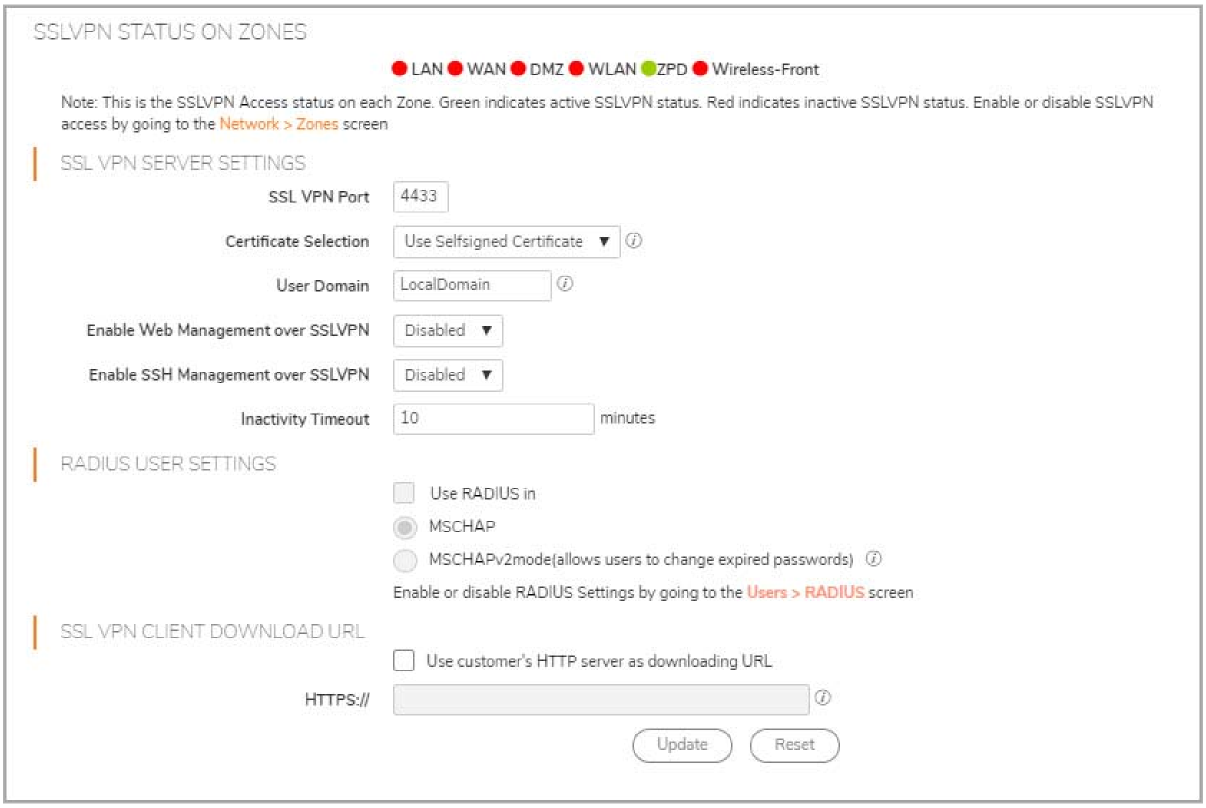
8 Click **Update**.

2

Configuring SSL VPN Server Behavior

The **SSL VPN > Server Settings** page is used to configure details of the SonicWall security appliance's behavior as an SSL VPN server.

The server settings are configurable with IPv4 and IPv6 addresses. The configurations for both are nearly identical.



SSLVPN STATUS ON ZONES

🔴 LAN 🔴 WAN 🔴 DMZ 🔴 WLAN 🟢 ZPD 🔴 Wireless-Front

Note: This is the SSLVPN Access status on each Zone. Green indicates active SSLVPN status. Red indicates inactive SSLVPN status. Enable or disable SSLVPN access by going to the Network > Zones screen

SSL VPN SERVER SETTINGS

SSL VPN Port	4433
Certificate Selection	Use Selfsigned Certificate ▼ ⓘ
User Domain	LocalDomain ⓘ
Enable Web Management over SSLVPN	Disabled ▼
Enable SSH Management over SSLVPN	Disabled ▼
Inactivity Timeout	10 minutes

RADIUS USER SETTINGS

□ Use RADIUS in

● MSCHAP

○ MSCHAPv2mode(allows users to change expired passwords) ⓘ

Enable or disable RADIUS Settings by going to the Users > RADIUS screen

SSL VPN CLIENT DOWNLOAD URL

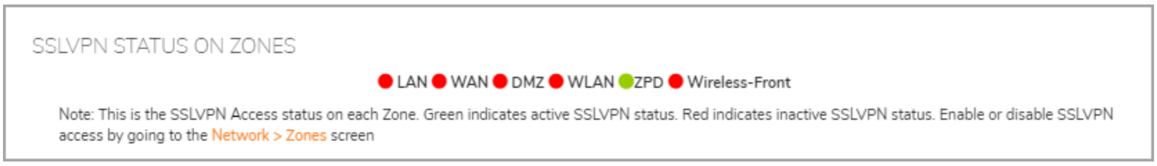
□ Use customer's HTTP server as downloading URL

HTTPS:// ⓘ

Topics:

- SSL VPN Status on Zones
- SSL VPN Server Settings
- RADIUS User Settings
- SSL VPN Client Download URL

SSL VPN Status on Zones



SSLVPN STATUS ON ZONES

🔴 LAN 🔴 WAN 🔴 DMZ 🔴 WLAN 🟢 ZPD 🔴 Wireless-Front

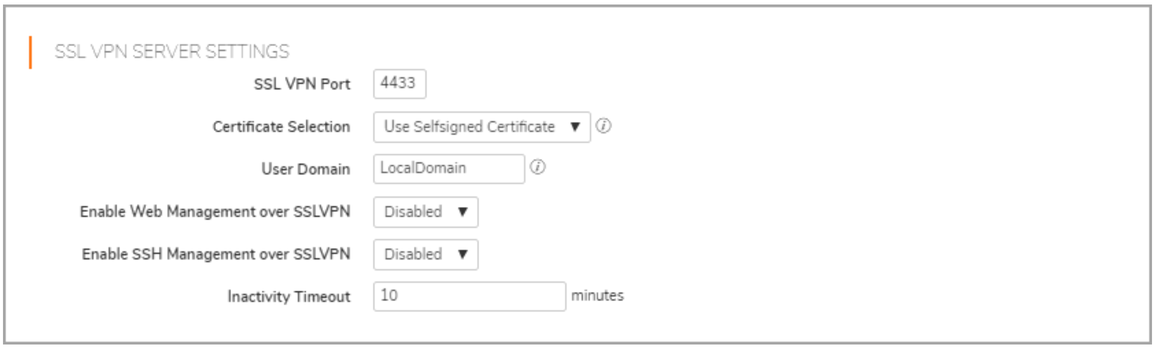
Note: This is the SSLVPN Access status on each Zone. Green indicates active SSLVPN status. Red indicates inactive SSLVPN status. Enable or disable SSLVPN access by going to the Network > Zones screen

This section displays the SSL VPN Access status on each zone:

- Green indicates active SSL VPN status.
- Red indicates inactive SSL VPN status.

To enable or disable SSL VPN access on a zone, click the **Network > Zones** link to jump to the **Edit Zone** window.

SSL VPN Server Settings



SSL VPN SERVER SETTINGS

SSL VPN Port	4433
Certificate Selection	Use Selfsigned Certificate ▼
User Domain	LocalDomain
Enable Web Management over SSLVPN	Disabled ▼
Enable SSH Management over SSLVPN	Disabled ▼
Inactivity Timeout	10 minutes

Topics:

- About Suite B Cryptography
- Configuring the SSL VPN Server

About Suite B Cryptography

The GMS supports Suite B cryptography, which is a set of cryptographic algorithms promulgated by the National Security Agency as part of its Cryptographic Modernization Program. It serves as an interoperable cryptographic base for both classified and unclassified information. Suite B cryptography is approved by National Institute of Standards and Technology (NIST) for use by the U.S. Government.

ⓘ **NOTE:** There is also a Suite A that is defined by the NSA, but is used primarily in applications where Suite B is not appropriate.

Most of the Suite B components are adopted from the FIPS standard:

- Advanced Encryption Standard (AES) with key sizes of 128 and 256 bits (provides adequate protection for classified information up to the SECRET level).
- Elliptic Curve Digital Signature Algorithm (ECDSA) - digital signatures (provides adequate protection for classified information up to the SECRET level).

- Elliptic Curve Diffie-Hellman (ECDH) - key agreement (provides adequate protection for classified information up to the SECRET level).
- Secure Hash Algorithm 2 (SHA-256 and SHA-384) - message digest (provides adequate protection for classified information up to the TOP SECRET level).

Configuring the SSL VPN Server

The following settings configure the SSL VPN server:

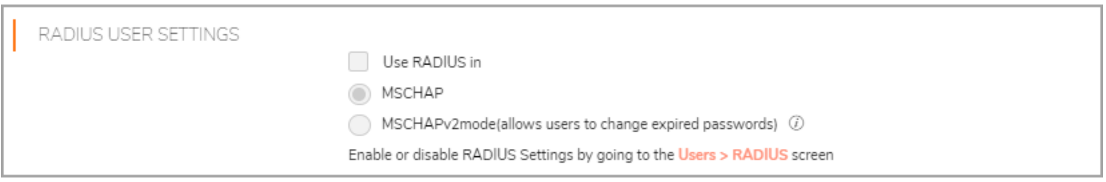
- **SSL VPN Port** - Enter the SSL VPN port number in the field. The default is **4433**.
- **Certificate Selection** – From this drop-down menu, select the certificate that is used to authenticate SSL VPN users. The default method is **Use Self signed Certificate**.

  To manage certificates, go to the **System > Certificates** page.

  NOTE: On NSA 2600 and above appliances, you can configure the Suite B mode and specify cipher preferences in the following two settings.

- **User Domain** – Enter the user's domain, which must match the domain field in the NetExtender client. The default is **LocalDomain**.
- **Enable Web Management over SSLVPN** – To enable web management over SSL VPN, select **Enabled** from this drop-down menu. The default is **Disabled**.
- **Enable SSH Management over SSLVPN** – To enable SSH management over SSL VPN, select **Enabled** from this drop-down menu. The default is **Disabled**.
- **Inactivity Timeout (minutes)** – Enter the number of minutes of inactivity before logging out the user. The default is **10** minutes.

RADIUS User Settings



RADIUS USER SETTINGS

□ Use RADIUS in

● MSCHAP

○ MSCHAPv2mode(allows users to change expired passwords)

Enable or disable RADIUS Settings by going to the Users > RADIUS screen

NOTE: This option is only available when either RADIUS or LDAP is configured to authenticate SSL VPN users.

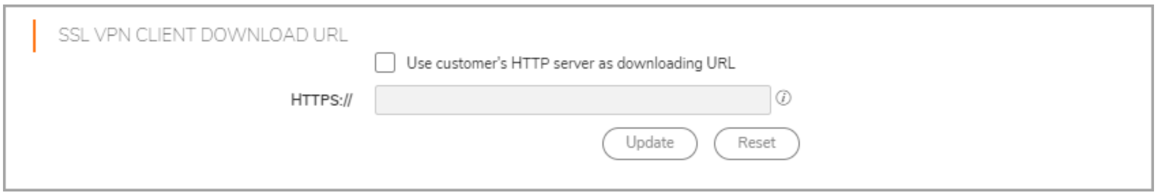
Select **Use RADIUS in** to have RADIUS use MSCHAP (or MSCHAPv2) mode. Enabling MSCHAP-mode RADIUS allows users to change expired passwords at login time. Choose between these two modes:

- **MSCHAP**
- **MSCHAPv2**

NOTE: In LDAP, password updates can only be done when using either Active Directory with TLS and binding to it using an administrative account or Novell eDirectory.

If this option is set when is selected as the authentication method of log in on the **Users > Settings** page, but LDAP is not configured in a way that allows password updates, then password updates for SSL VPN users are performed using MSCHAP-mode RADIUS after using LDAP to authenticate the user.

SSL VPN Client Download URL



SSL VPN CLIENT DOWNLOAD URL

□ Use customer's HTTP server as downloading URL

HTTPS://

This section allows you to download client SSL VPN files to your HTTP server.

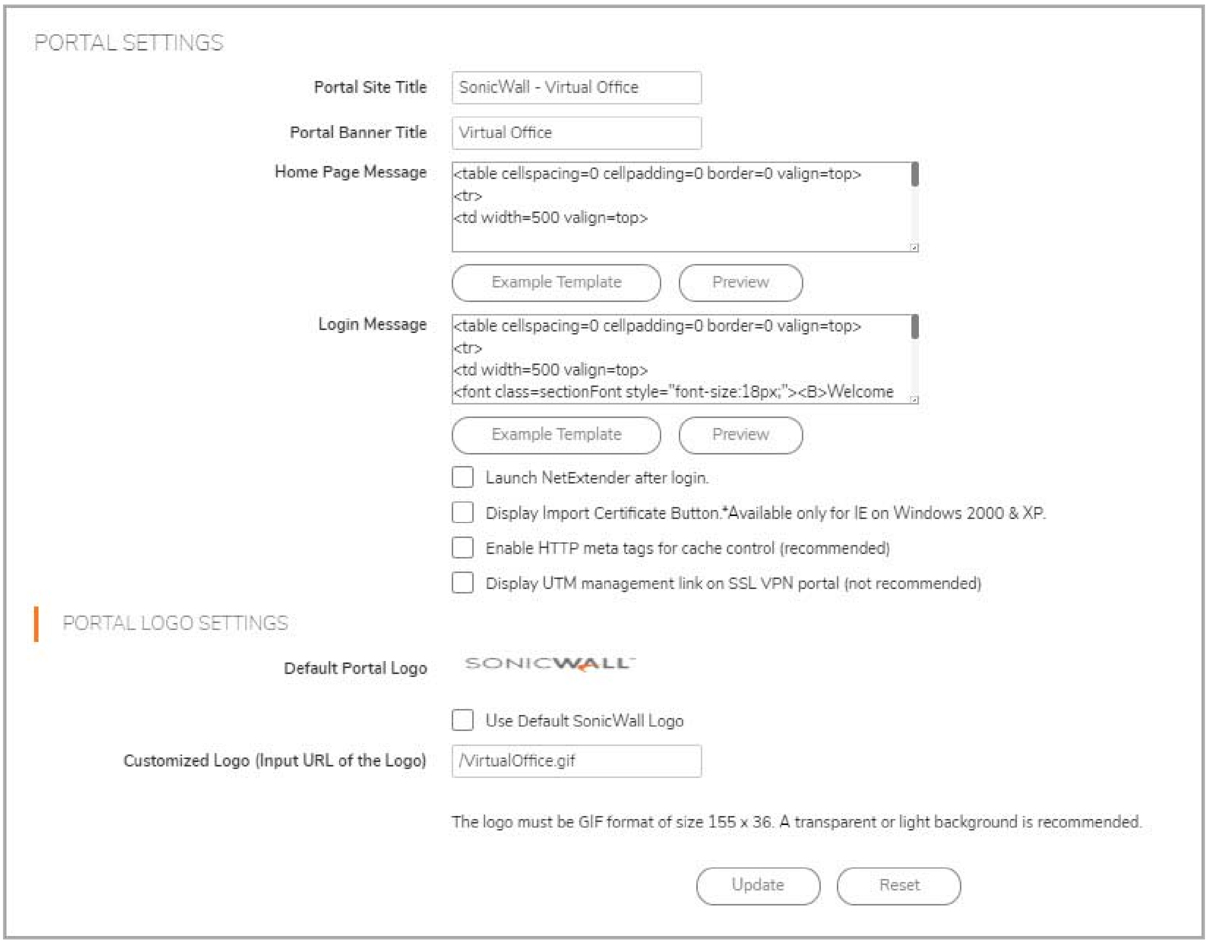
Select **Use customer's HTTP server as downloading URL: (http://)** to enter your SSL VPN client download URL in the provided field.

3

Configuring the Virtual Office Web Portal

The **SSL VPN > Portal Settings** page is used to configure the appearance and functionality of the SSL VPN Virtual Office web portal. The Virtual Office portal is the website that uses log in to launch NetExtender. It can be customized to match any existing company website or design style.

IPv4 and IPv6 IP addresses are accepted/displayed in the Portal Settings screen.



PORTAL SETTINGS

Portal Site Title: SonicWall - Virtual Office

Portal Banner Title: Virtual Office

Home Page Message:

```
<table cellspacing=0 cellpadding=0 border=0 valign=top>
<tr>
<td width=500 valign=top>
```

Login Message:

```
<table cellspacing=0 cellpadding=0 border=0 valign=top>
<tr>
<td width=500 valign=top>
<font class=sectionFont style="font-size:18px;"><B>Welcome
```

□ Launch NetExtender after login.

□ Display Import Certificate Button.*Available only for IE on Windows 2000 & XP.

□ Enable HTTP meta tags for cache control (recommended)

□ Display UTM management link on SSL VPN portal (not recommended)

PORTAL LOGO SETTINGS

Default Portal Logo: SONICWALL

□ Use Default SonicWall Logo

Customized Logo (Input URL of the Logo): /VirtualOffice.gif

The logo must be GIF format of size 155 x 36. A transparent or light background is recommended.

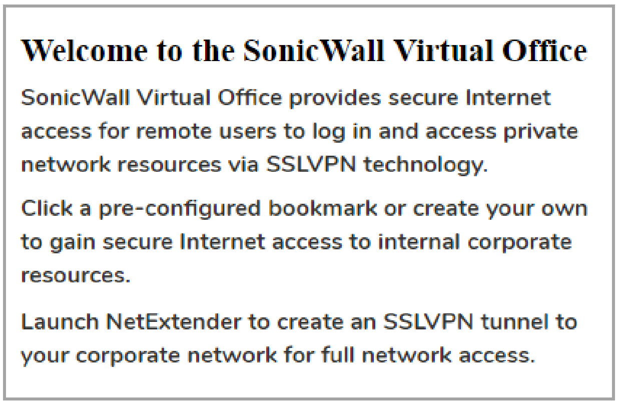
Topics:

- Portal Settings
- Portal Logo Settings

Portal Settings

These options customize what the user sees when attempting to log in:

- **Portal Site Title** - Enter the text displayed in the top title of the web browser in this field. The default is **SonicWall - Virtual Office**.
- **Portal Banner Title** - Enter the text displayed next to the logo at the top of the page in this field. The default is **Virtual Office**.
- **Home Page Message** - Enter the HTML code that is displayed above the NetExtender icon. To:
    - See how the message displays, click **Preview** to launch a pop-up window that displays the HTML code.
    - Revert to the default message, click **Example Template** to launch a pop-up window that displays the HTML code.



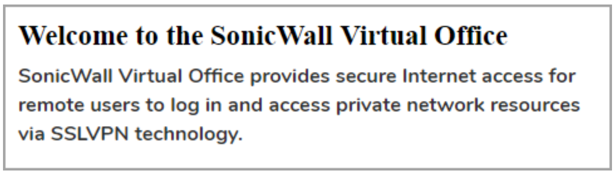
Welcome to the SonicWall Virtual Office

SonicWall Virtual Office provides secure Internet access for remote users to log in and access private network resources via SSLVPN technology.

Click a pre-configured bookmark or create your own to gain secure Internet access to internal corporate resources.

Launch NetExtender to create an SSLVPN tunnel to your corporate network for full network access.

- **Login Message** - The HTML code that is displayed when users are prompted to log in to the Virtual Office. To:
    - See how the message displays, click **Preview** to launch a pop-up window that displays the HTML code.
    - Revert to the default message, click **Example Template** to launch a pop-up window that displays the HTML code.



Welcome to the SonicWall Virtual Office

SonicWall Virtual Office provides secure Internet access for remote users to log in and access private network resources via SSLVPN technology.

The following options customize the functionality of the Virtual Office portal:

- **Launch NetExtender after login** - Select to launch NetExtender automatically after a user logs in. This option is not selected by default.
- **Display Import Certificate Button** - Select to display an **Import Certificate** button on the Virtual Office page. This initiates the process of importing the firewall's self-signed certificate onto the web browser. This option is not selected by default.

> ⓘ **NOTE:** This option only applies to the Internet Explorer browser on PCs running Windows when **Use Self-signed Certificate** is selected from the **Certificate Selection** drop-down menu on the **SSL VPN > Server Settings** page.

- **Enable HTTP meta tags for cache control recommended)** - Select to inserts into the browser HTTP tags that instruct the web browser not to cache the Virtual Office page. This option is not selected by default.

  ⓘ **NOTE:** SonicWall recommends enabling this option.

- **Display UTM management link on SSL VPN portal (not recommended)** – Select to display the SonicWall appliance's management link on the SSL VPN portal. This option is not selected by default.

  ⓘ **NOTE:** SonicWall does not recommend enabling this option.

- **Example Template** - Resets the Home Page Message and Login Message fields to the default example template.
- **Preview** - Launch a pop-up window that displays the HTML code.

Portal Logo Settings

This section allows you to customize the logo displayed at the top of the Virtual Office portal:

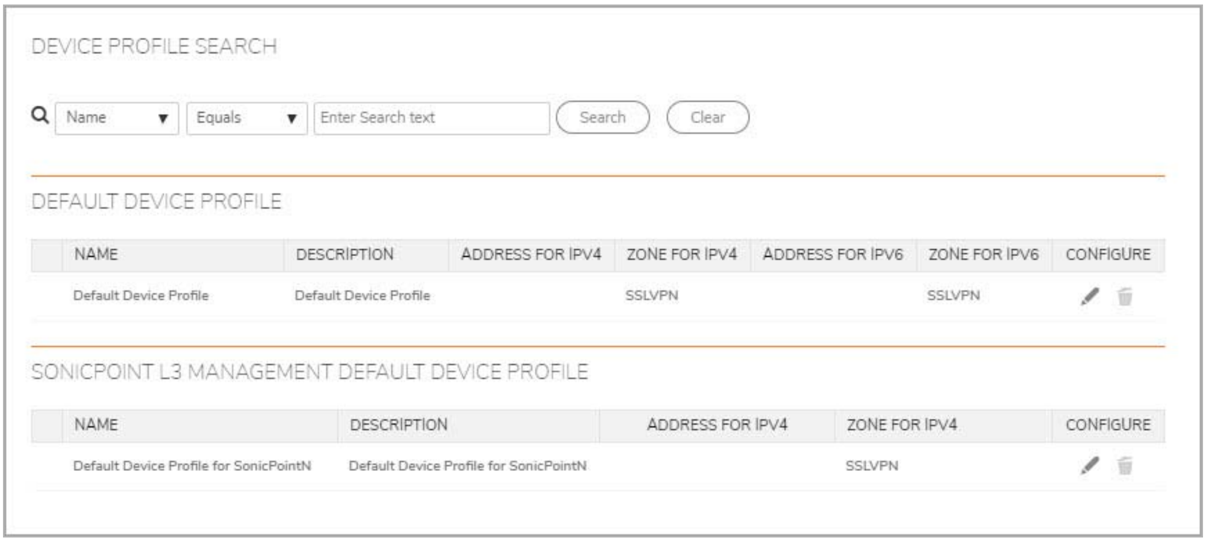
- **Default Portal Logo** – Displays the default portal logo.
- **Use Default SonicWall Logo** – Select to use the SonicWall logo supplied with the appliance. This option is not selected by default.
- **Customized Logo (Input URL of the Logo)** — The **Customized Logo** field is used to display a logo other than the SonicWall logo at the top of the Virtual Office portal. Enter the URL of the logo in the **Customized Logo** field. The logo must be in GIF format of size 155 x 36, and a transparent or light background is recommended.

  ⓘ **TIP:** The logo must be in GIF format of size 155 x 36; a transparent or light background is recommended.

Configuring SSL VPN Client Settings

The **SSL VPN > Client Settings** page allows you to edit the Default Device Profile to enable SSL VPN access on zones, configure client routes, and configure the client DNS and NetExtender settings. The **SSL VPN > Client Settings** page displays the configured IPv4 and IPv6 network addresses and zones that have SSL VPN access enabled.

You can also edit the **SonicPoint Layer 3 Management Default Device Profile** on this page.



DEVICE PROFILE SEARCH

DEFAULT DEVICE PROFILE

NAME	DESCRIPTION	ADDRESS FOR IPV4	ZONE FOR IPV4	ADDRESS FOR IPV6	ZONE FOR IPV6	CONFIGURE
Default Device Profile	Default Device Profile		SSLVPN		SSLVPN	

SONICPOINT L3 MANAGEMENT DEFAULT DEVICE PROFILE

NAME	DESCRIPTION	ADDRESS FOR IPV4	ZONE FOR IPV4	CONFIGURE
Default Device Profile for SonicPointN	Default Device Profile for SonicPointN		SSLVPN	

NetExtender IP address ranges are configured by first creating an address object for the NetExtender IP address range, and then using this address object when configuring one of the Device Profiles. See Creating an Address Object for the NetExtender Range.

Topics:

- Biometric Authentication
- Configuring Client Settings

Biometric Authentication

IMPORTANT: To use this feature, ensure that Mobile Connect 4.0 or higher is installed on the mobile device, and configure it to connect with the firewall.

The GMS introduces support for biometric authentication in conjunction with SonicWall Mobile Connect. Mobile Connect is an app that allows users to securely access private networks from a mobile device. Mobile Connect 4.0 supports using finger touch for authentication as a substitute for username and password.

The GMS provides configuration settings on the **SSL VPN > Client Settings** page to allow this method of authentication when using Mobile Connect to connect to the firewall.

After configuring biometric authentication on the **SSL VPN > Client Settings** page, on the client smart phone or other mobile device, enable **Touch ID** (iOS) or **Fingerprint Authentication** (Android).

Configuring Client Settings

The following tasks are configured on the **SSL VPN > Client Settings** page:

- Creating an Address Object for the NetExtender Range
- Configuring the Default Device Profile

ⓘ **NOTE:** For how to configure SSL VPN settings for SonicPoint management over SSL VPN, see Creating an Address Object for the NetExtender Range.

Creating an Address Object for the NetExtender Range

You can create address objects for both an IPv4 address range and an IPv6 address range to be used in the **SSL VPN > Client Settings** configuration.

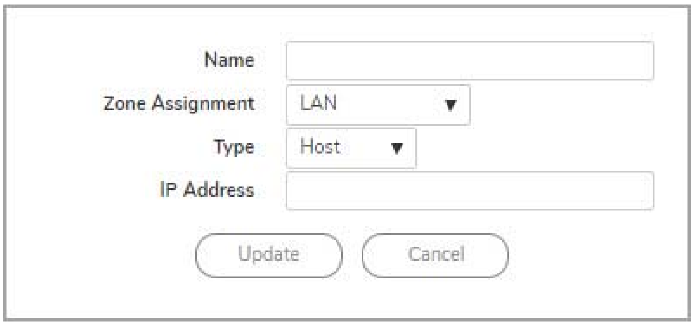
The address range configured in the address object defines the IP address pool from which addresses are assigned to remote users during NetExtender sessions. The range needs to be large enough to accommodate the maximum number of concurrent NetExtender users you wish to support plus one (for example, the range for 15 users requires 16 addresses, such as `192.168.168.100` to `192.168.168.115`).

ⓘ **NOTE:** In cases where there are other hosts on the same segment as the SSL VPN appliance, the address range must not overlap or collide with any assigned addresses.

To create an address object for the NetExtender IP address range:

1 Navigate to the **Firewall > Address Objects** page.

2 Click **Add New Address Object**. The Add Address Object dialog displays.



Name

Zone Assignment: LAN ▾

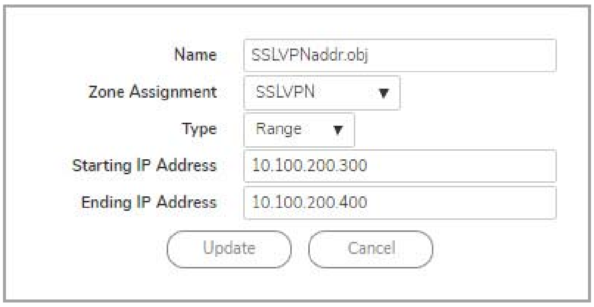
Type: Host ▾

IP Address

3 For **Name**, type in a descriptive name for the address object.

4 For **Zone Assignment**, select **SSLVPN** from the drop-down menu.

5 For **Type**, select **Range**. The dialog changes adding starting and ending IP addresses.



Name	SSLVPNaddr.obj
Zone Assignment	SSLVPN ▼
Type	Range ▼
Starting IP Address	10.100.200.300
Ending IP Address	10.100.200.400

6 In the **Starting IP Address** field, type in the lowest IP address in the range you want to use.

> **NOTE:** The IP address range must be on the same subnet as the interface used for SSL VPN services.

7 In the **Ending IP Address** field, type in the highest IP address in the range you want to use.

8 Click **Update**. When the address object has been added, a message displays.

9 Optionally, repeat Step 3 through Step 8 to create an address object for an IPv6 address range.

10 Click **Close**.

Configuring the Default Device Profile

Edit the Default Device Profile to select the zones and NetExtender address objects, configure client routes, and configure the client DNS and NetExtender settings.

SSL VPN access must be enabled on a zone before users can access the Virtual Office web portal. SSL VPN Access can be configured on the **Network > Zones** page by clicking the **Configure** icon for the zone.

> **NOTE:** For the GMS to terminate SSL VPN sessions, **HTTPS for Management** or **User Login** must be enabled on the **Network > Interfaces** page, in the **Edit Interface** dialog for the WAN interface.

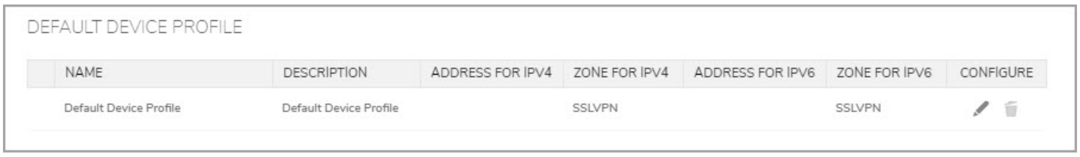
Topics:

- Configuring the Settings view
- Configuring the Client Routes view
- Configuring the Client Settings view

Configuring the Settings view

To configure the Settings view of the Default Device Profile:

1 Navigate to **Default Device Profile** section of the **SSL VPN > Client Settings** page.



DEFAULT DEVICE PROFILE

NAME	DESCRIPTION	ADDRESS FOR IPV4	ZONE FOR IPV4	ADDRESS FOR IPV6	ZONE FOR IPV6	CONFIGURE
Default Device Profile	Default Device Profile		SSLVPN		SSLVPN	✎ 🗑

2 Click **Configure** for the **Default Device Profile**. The **Edit Device Profile** dialog displays.

> **NOTE:** The **Name** and **Description** of the **Default Device Profile** cannot be changed.

3 For the zone binding for this profile, on the **Settings** view, select SSLVPN or a custom zone from the **Zone IP V4** drop-down menu.

4 From the **Network Address IP V4** drop-down menu, select the IPv4 NetExtender address object that you created. See Creating an Address Object for the NetExtender Range for instructions. This setting selects the IP Pool and zone binding for this profile. The NetExtender client gets the IP address from this address object if it matches this profile.

5 Select **SSLVPN** or a custom zone from the **Zone IP V6** drop-down menu. This is the zone binding for this profile.

6 From the **Network Address IP V6** drop-down menu, select the IPv6 NetExtender address object that you created.

7 Click the **Client Routes** view to proceed with the client settings configuration. See Configuring the Client Routes view.

8 To save settings and close the dialog, click **Update**.

Configuring the Client Routes view

The **Client Routes** view allows you to control the network access allowed for SSL VPN users. The NetExtender client routes are passed to all NetExtender clients and are used to govern which private networks and resources remote users can access through the SSL VPN connection.

The following tasks are configured on the **Client Routes** view:

- Configuring Tunnel All Mode
- Adding Client Routes

Configuring Tunnel All Mode

Select **Enabled** from the **Tunnel All Mode** drop-down menu to force all traffic for NetExtender users over the SSL VPN NetExtender tunnel—including traffic destined for the remote user’s local network. This is accomplished by adding the following routes to the remote client’s route table:

Routes to be Added to Client’s Route Table

IP Address	Subnet Mask
0.0.0.0	0.0.0.0
0.0.0.0	128.0.0.0
128.0.0.0	128.0.0.0

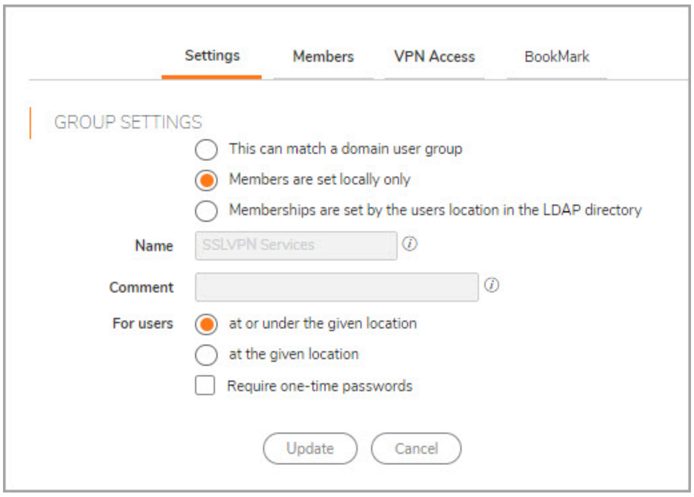
NetExtender also adds routes for the local networks of all connected Network Connections. These routes are configured with higher metrics than any existing routes to force traffic destined for the local network over the SSL VPN tunnel instead. For example, if a remote user is has the IP address `10.0.67.64` on the `10.0.*.*` network, the route `10.0.0.0/255.255.0.0` is added to route traffic through the SSL VPN tunnel.

ⓘ **NOTE:** To configure Tunnel All Mode, you must also configure an address object for `0.0.0.0`, and assign SSL VPN NetExtender users and groups to have access to this address object.

To configure SSL VPN NetExtender users and groups for Tunnel All Mode:

1 Navigate to the **Users > Local Users** or **Users > Local Groups** page.

2 Click **Configure** for an SSL VPN NetExtender user or group. The **Edit Group** dialog displays.



GROUP SETTINGS

○ This can match a domain user group

● Members are set locally only

○ Memberships are set by the users location in the LDAP directory

Name: SSLVPN Services

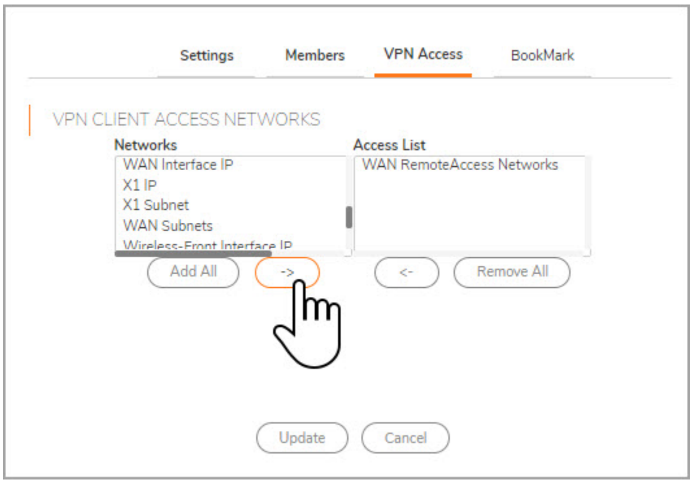
Comment:

For users: ● at or under the given location

○ at the given location

□ Require one-time passwords

3 Click the **VPN Access** view.



VPN CLIENT ACCESS NETWORKS

Networks: WAN Interface IP, X1 IP, X1 Subnet, WAN Subnets, Wireless-Front Interface IP

Access List: WAN RemoteAccess Networks

4 Select the **WAN RemoteAccess Networks** address object.

5 Click the **Right Arrow**.

6 Click **Update**.

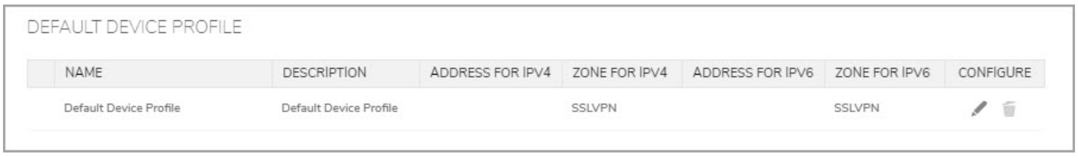
7 Repeat Step 1 through Step 6 for all local users and groups that use SSL VPN NetExtender.

Adding Client Routes

Client Routes are used to configure access to network resources for SSL VPN users.

To configure Client Routes for SSL VPN:

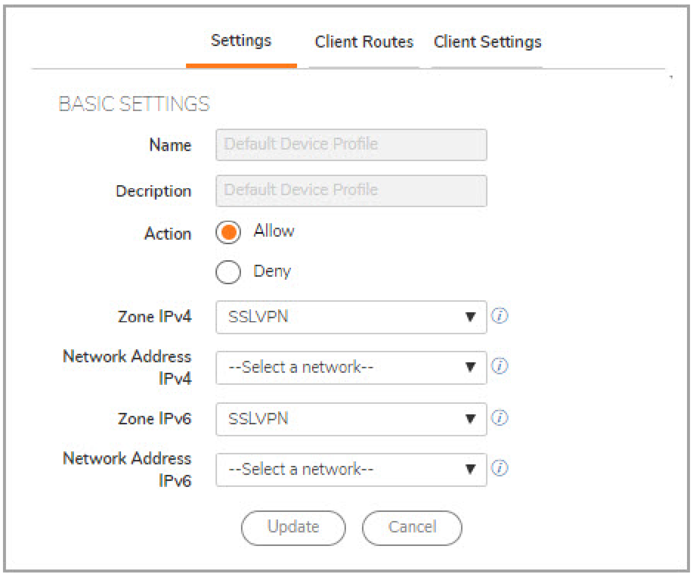
1 Navigate to **Default Device Profile** section of the **SSL VPN > Client Settings** page.



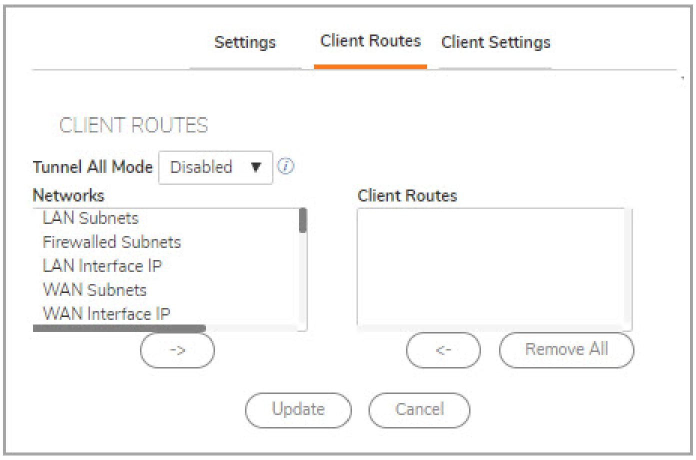
DEFAULT DEVICE PROFILE

NAME	DESCRIPTION	ADDRESS FOR IPV4	ZONE FOR IPV4	ADDRESS FOR IPV6	ZONE FOR IPV6	CONFIGURE
Default Device Profile	Default Device Profile		SSLVPN		SSLVPN	✎ 🗑

2 Click **Configure** for the **Default Device Profile.** The **Edit Device Profile** dialog displays.



3 Click the **Client Routes** view.



4 From the **Networks** list, select the address object to which you want to allow SSL VPN access.

5 Click the **Right Arrow** to move the address object to the **Client Routes** list.

6 Repeat Step 4 and Step 5 until you have moved all the address objects you want to use for Client Routes.

Creating client routes causes access rules allowing this access to be created automatically. Alternatively, you can manually configure access rules for the SSL VPN zone on the **Firewall > Access Rules** page.

ⓘ **NOTE:** After configuring Client Routes for SSL VPN, you must also configure all SSL VPN NetExtender users and user groups to be able to access the Client Routes on the **Users > Local Users** or **Users > Local Groups** pages.

ⓘ **IMPORTANT:** Add the NetExtender SSL VPN gateway to the DPI SSL excluded IP addresses.

To configure SSL VPN NetExtender users and groups to access Client Routes:

1 Navigate to the **Users > Local Users** or **Users > Local Groups** page.

2 Click **Configure** for an SSL VPN NetExtender user or group.

3 Click the **VPN Access** view.

4 Select the address object for the **Client Route**.

5 Click the **Right Arrow**.

6 Click **Update**.

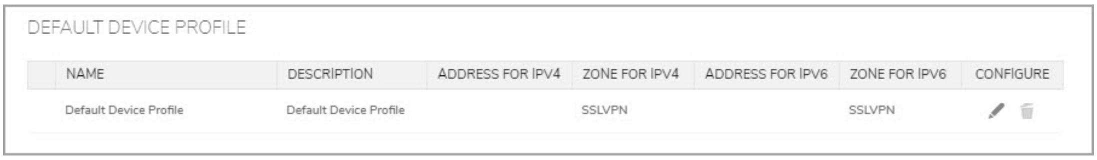
7 Repeat Step 1 through Step 6 for all local users and groups that use SSL VPN NetExtender.

Configuring the Client Settings view

NetExtender client settings are configured in the **Edit Device Profile** dialog.

To configure Client Settings:

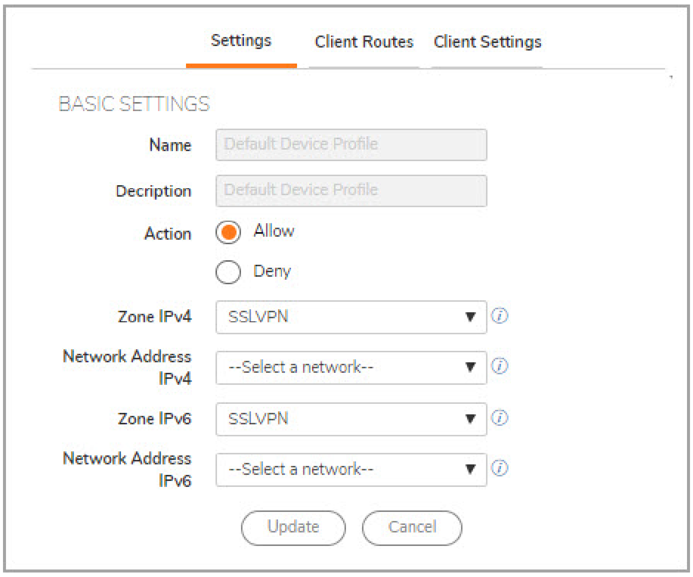
1 Navigate to the **Default Device Profile** section of the **SSL VPN > Client Settings** page.



DEFAULT DEVICE PROFILE

NAME	DESCRIPTION	ADDRESS FOR IPV4	ZONE FOR IPV4	ADDRESS FOR IPV6	ZONE FOR IPV6	CONFIGURE
Default Device Profile	Default Device Profile		SSLVPN		SSLVPN	✎ 🗑

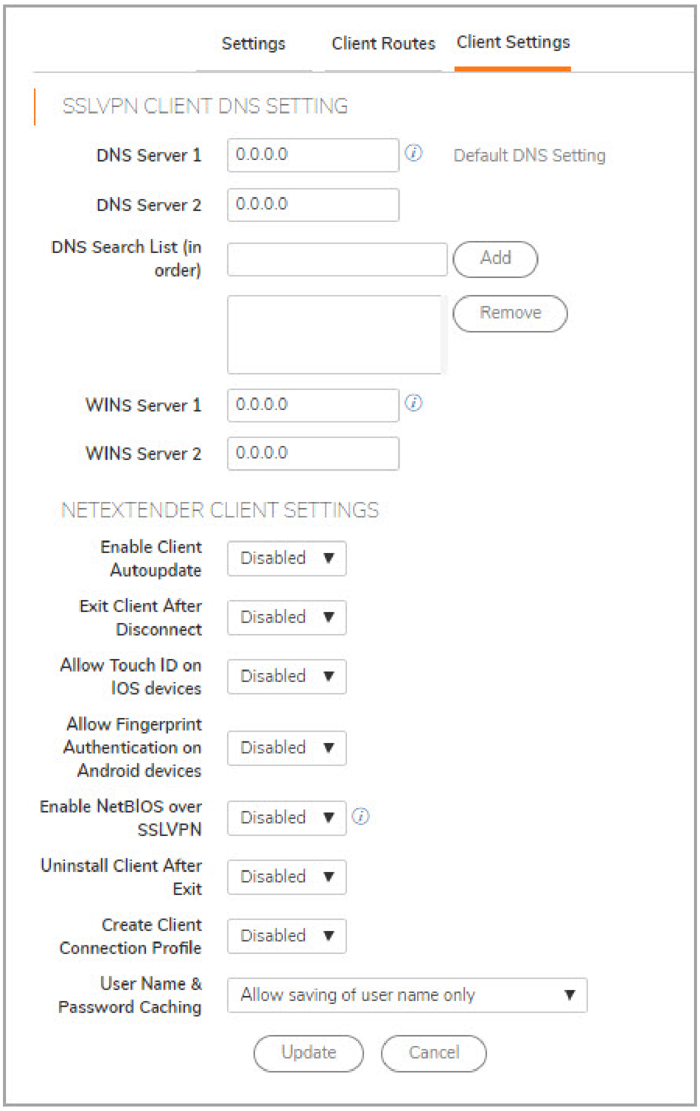
2 Click **Configure** for the **Default Device Profile**. The **Edit Device Profile** dialog displays.



BASIC SETTINGS

Name	Default Device Profile
Decription	Default Device Profile
Action	● Allow ○ Deny
Zone IPv4	SSLVPN
Network Address IPv4	--Select a network--
Zone IPv6	SSLVPN
Network Address IPv6	--Select a network--

3 Click the **Client Settings** view.



SSLVPN CLIENT DNS SETTING

DNS Server 1	0.0.0.0 ⓘ Default DNS Setting
DNS Server 2	0.0.0.0
DNS Search List (in order)	Add Remove
WINS Server 1	0.0.0.0 ⓘ
WINS Server 2	0.0.0.0

NETEXTENDER CLIENT SETTINGS

Enable Client Autoupdate	Disabled ▼
Exit Client After Disconnect	Disabled ▼
Allow Touch ID on IOS devices	Disabled ▼
Allow Fingerprint Authentication on Android devices	Disabled ▼
Enable NetBIOS over SSLVPN	Disabled ▼ ⓘ
Uninstall Client After Exit	Disabled ▼
Create Client Connection Profile	Disabled ▼
User Name & Password Caching	Allow saving of user name only ▼

4 In the **DNS Server 1** field, either:

- Enter the IP address of the primary DNS server.
- Click the **Default DNS Settings** to use the default settings for both the **DNS Server 1** and **DNS Server 2** fields. The fields are populated automatically.

  ⓘ | **NOTE:** Both IP v4 and IP v6 are supported.

5 (Optional) In the **DNS Server 2** field, if you did not click **Default DNS Settings**, enter the IP address of the backup DNS server.

6 (Optional) In the **DNS Search List** field:

a Enter the IP address for a DNS server.

b Click **Add** to add it to the list below.

c Repeat Step a and Step b as many times as necessary.

Use the up and down arrow buttons to scroll through the list, as needed.

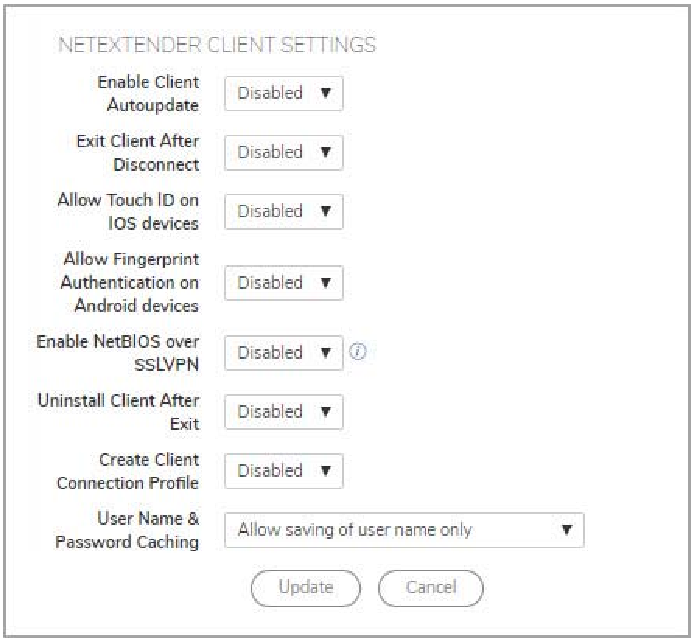
To remove an address from the list, select it, and then click **Remove**.

7 (Optional) In the **WINS Server 1** field, enter the IP address of the primary WINS server.

> **NOTE:** Only IPv4 is supported.

8 (Optional) In the **WINS Server 2** field, enter the IP address of the backup WINS server.

9 To customize the behavior of NetExtender when users connect and disconnect, select **Enabled** or **Disabled** for each of the following settings under **NetExtender Client Settings**. By default, all have been set to **Disabled**.



NETEXTENDER CLIENT SETTINGS

Enable Client Autoupdate	Disabled ▼
Exit Client After Disconnect	Disabled ▼
Allow Touch ID on IOS devices	Disabled ▼
Allow Fingerprint Authentication on Android devices	Disabled ▼
Enable NetBIOS over SSLVPN	Disabled ▼ ⓘ
Uninstall Client After Exit	Disabled ▼
Create Client Connection Profile	Disabled ▼
User Name & Password Caching	Allow saving of user name only ▼

- **Enable Client Autoupdate** - The NetExtender client checks for updates every time it is launched.
- **Exit Client After Disconnect** - The NetExtender client exits when it becomes disconnected from the SSL VPN server. To reconnect, users have to either return to the SSL VPN portal or launch NetExtender from their Programs menu.
- **Allow Touch ID on IOS devices** – The NetExtender client allows Touch ID authentication on IOS smart phones.
- **Allow Fingerprint Authentication on Android devices** – The NetExtender client allows fingerprint authentication on Android devices.
- **Enable NetBIOS over SSL VPN** – The NetExtender client allows NetBIOS protocol.
- **Uninstall Client After Exit** - The NetExtender client uninstalls when it becomes disconnected from the SSL VPN server. To reconnect, users have to return to the SSL VPN portal.
- **Create Client Connection Profile** - The NetExtender client creates a connection profile recording the SSL VPN Server name, the Domain name, and optionally the username and password.

10 To provide flexibility in allowing users to cache their usernames and passwords in the NetExtender client, select one of these actions from the **User Name & Password Caching** field. These options enable you to balance security needs against ease of use for users.

- **Allow saving of user name only**
- **Allow saving of user name & password**
- **Prohibit saving of user name & password**

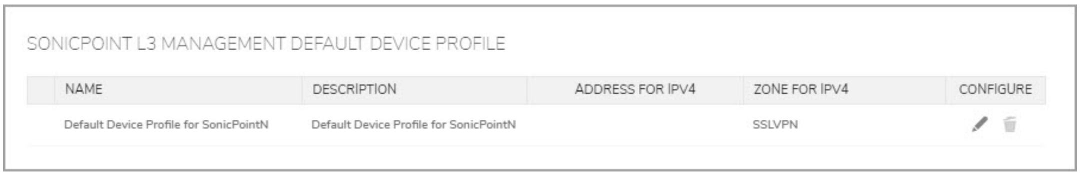
11 When finished on all views, click **Update**.

Configuring the SonicPoint L3 Management Default Device Profile

The Default Device Profile for SonicPointN L3 settings are configured in the **Edit Device Profile** dialog.

To configure Client Settings:

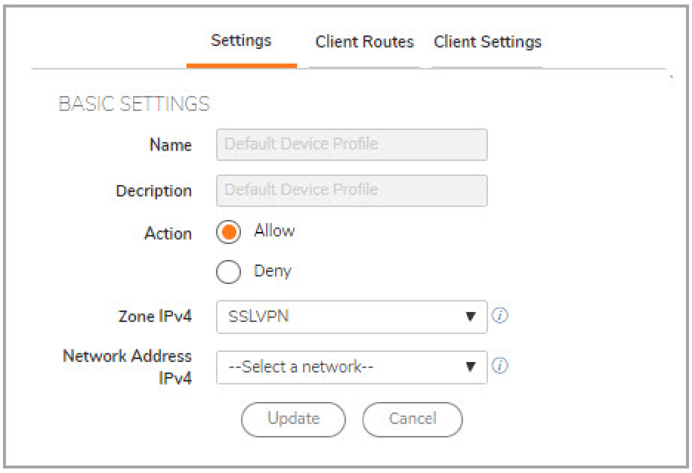
1 Navigate to the **SonicPoint L3 Management Default Device Profile** section of the **SSL VPN > Client Settings** page.



SONICPOINT L3 MANAGEMENT DEFAULT DEVICE PROFILE

NAME	DESCRIPTION	ADDRESS FOR IPV4	ZONE FOR IPV4	CONFIGURE
Default Device Profile for SonicPointN	Default Device Profile for SonicPointN		SSLVPN	✎ 🗑

2 Click **Configure** for the **Default Device Profile**. The **Edit Device Profile** dialog displays.



BASIC SETTINGS

Name: Default Device Profile

Decription: Default Device Profile

Action: ● Allow ○ Deny

Zone IPv4: SSLVPN

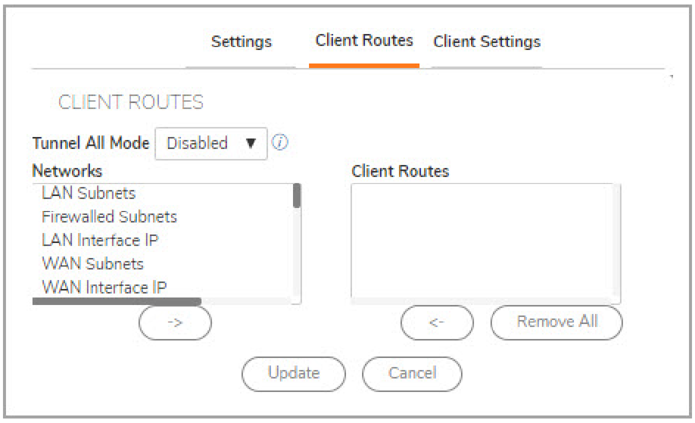
Network Address IPv4: --Select a network--

> **NOTE:** The **Name** and **Description** of the Default Devices Profile for SonicPointN cannot be changed.

3 For the zone binding for this profile, on the **Settings** view, select **SSLVPN** or a custom zone from the **Zone IP V4** drop-down menu.

4 From the **Network Address IP V4** drop-down menu, select the IPv4 NetExtender address object that you created. See Creating an Address Object for the NetExtender Range for instructions. This setting selects the IP Pool and zone binding for this profile. The NetExtender client gets the IP address from this address object if it matches this profile.

5. Click the **Client Routes** view.



CLIENT ROUTES

Tunnel All Mode: Disabled

Networks
- LAN Subnets
- Firewalled Subnets
- LAN Interface IP
- WAN Subnets
- WAN Interface IP

Client Routes

6. From the **Networks** list, select the address object to which you want to allow SSL VPN access.
7. Click the **Right Arrow** to move the address object to the **Client Routes** list.
8. Repeat Step 6 and Step 7 until you have moved all the address objects you want to use for Client Routes.

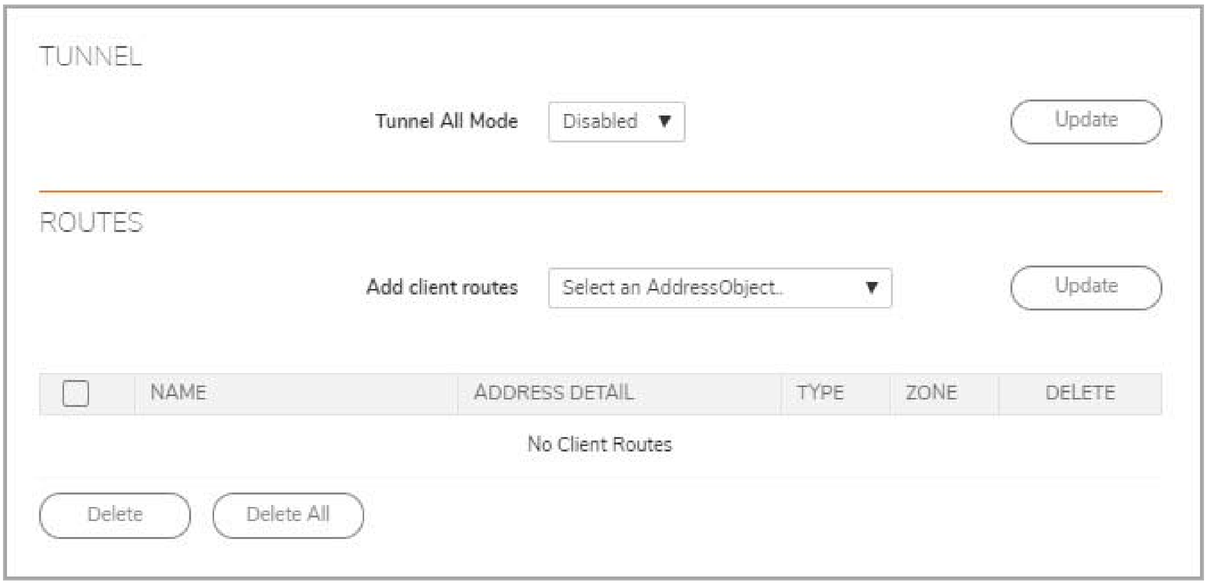
   Creating client routes causes access rules allowing this access to be created automatically. Alternatively, you can manually configure access rules for the SSL VPN zone on the **Firewall > Access Rules** page. For more information, see **Firewall > Access Rules** on page.

   ⓘ **NOTE:** After configuring Client Routes for SSL VPN, you must also configure all SSL VPN NetExtender users and user groups to be able to access the Client Routes on the **Users > Local Users** or **Users > Local Groups** pages.

9. Click the **SP L3 Settings** view.
10. Select an interface from the **WLAN Tunnel Interface** drop-down menu.
11. Click **Update**.

Configuring SSL VPN Client Routes

The **SSL VPN > Client Routes** page allows the administrator to control the network access allowed for SSL VPN users. The NetExtender client routes are passed to all NetExtender clients and are used to govern which private networks and resources remote users can access through the SSL VPN connection.



TUNNEL

Tunnel All Mode: Disabled

ROUTES

Add client routes: Select an AddressObject..

□	NAME	ADDRESS DETAIL	TYPE	ZONE	DELETE

No Client Routes

The following tasks are configured on **SSL VPN > Client Routes** page:

- Configuring Tunnel All Mode
- Adding Client Routes

Configuring Tunnel All Mode

Select **Enabled** from the **Tunnel All Mode** drop-down menu to force all traffic for NetExtender users over the SSL VPN NetExtender tunnel—including traffic destined for the remote user's local network. This is accomplished by adding the following routes to the remote client's route table:

Additional Routes

IP Address	Subnet Mask
0.0.0.0	0.0.0.0
0.0.0.0	128.0.0.0
128.0.0.0	128.0.0.0

NetExtender also adds routes for the local networks of all connected Network Connections. These routes are configured with higher metrics than any existing routes to force traffic destined for the local network over the

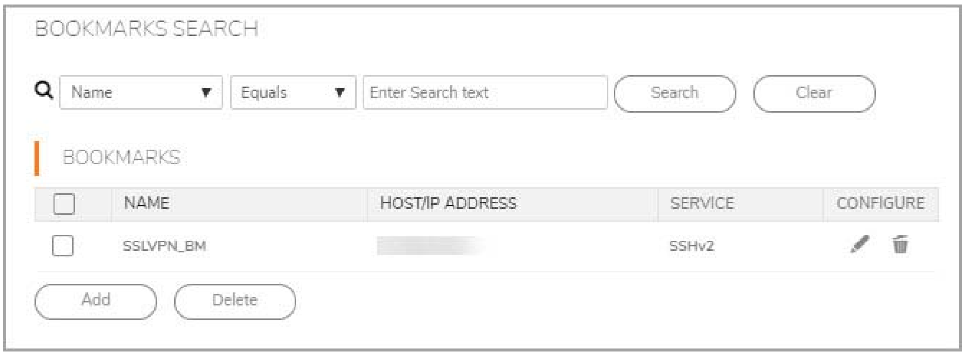
SSL VPN tunnel instead. For example, if a remote user is has the IP address 10.0.67.64 on the 10.0.*.* network, the route 10.0.0.0/255.255.0.0 is added to route traffic through the SSL VPN tunnel.

Adding Client Routes

The **Add client routes** drop-down menu is used to configure access to network resources for SSL VPN users. Select the address object to which you want to allow SSL VPN access. Alternatively, you can manually configure access rules for the SSL VPN zone on the **Firewall > Access Rules** page. For more information, see Configuring Access Rules.

Configuring Virtual Office

The **SSL VPN > Virtual Office** page displays the Virtual Office web portal inside of the GMS management interface.



BOOKMARKS SEARCH

Name ▼ | Equals ▼ | Enter Search text | Search | Clear

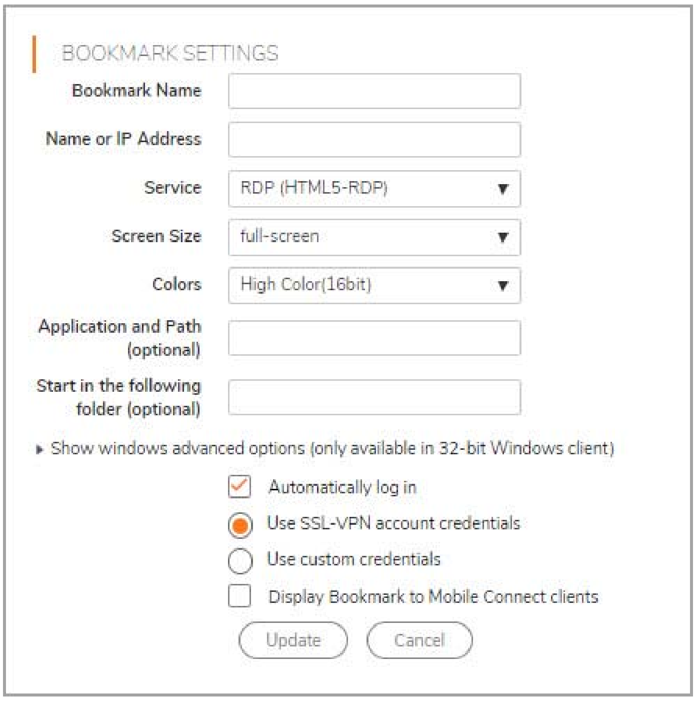
BOOKMARKS

□	NAME	HOST/IP ADDRESS	SERVICE	CONFIGURE
□	SSLVPN_BM	[redacted]	SSHv2	

To configure the SSL VPN > Virtual Office page:

1 Navigate to the **SSL VPN > Virtual Office** page.

2 Click **Add**. The **Add Portal Bookmark** window displays.



BOOKMARK SETTINGS

Bookmark Name	
Name or IP Address	
Service	RDP (HTML5-RDP) ▼
Screen Size	full-screen ▼
Colors	High Color(16bit) ▼
Application and Path (optional)	
Start in the following folder (optional)	

▸ Show windows advanced options (only available in 32-bit Windows client)

☑ Automatically log in

● Use SSL-VPN account credentials

○ Use custom credentials

□ Display Bookmark to Mobile Connect clients

When user bookmarks are defined, you see the defined bookmarks from the SonicWall SSL VPN Virtual Office home page. Individual members are not able to delete or modify bookmarks created by the administrator.

3 Type a descriptive name for the bookmark in the **Bookmark Name** field.

4 Enter the fully qualified domain name (FQDN) or the IPv4 address of a host machine on the LAN in the **Name or IP Address** field. In some environments you can enter the host name only, such as when creating a VNC bookmark in a Windows local network.

Some services can run on non-standard ports, and some expect a path when connecting. Depending on the choice in the Service field, format the **Name or IP Address** field similar to one of the examples shown in the following table:

Name or IP Address Field Examples

Service Type	Format	Example for Name or IP Address Field
RDP - (HTML5-RDP)	IP Address	10.20.30.4
	IP:Port (non-standard)	10.20.30.4:6818
	FQDN	JBJONES-PC.sv.us.SonicWall.com
	Host name	JBJONES-PC
VNC	IP Address	10.20.30.4
	IP:Port (mapped to session)	10.20.30.4:5901 (mapped to session 1)
	FQDN	JBJONES-PC.sv.us.SonicWall.com
	Host name	JBJONES-PC
	Note: Do not use session or display number instead of port.	**Note**: Do not use 10.20.30.4:1 **Tip**: For a bookmark to a Linux server, see the Tip below this table.
Telnet	IP Address	10.20.30.4
	IP:Port (non-standard)	10.20.30.4:6818
	FQDN	JBJONES-PC.sv.us.SonicWall.com
	Host name	JBJONES-PC
SSHv2	IP Address	10.20.30.4
	IP:Port (non-standard)	10.20.30.4:6818
	FQDN	JBJONES-PC.sv.us.SonicWall.com
	Host name	JBJONES-PC

ⓘ **TIP:** When creating a Virtual Network Computing (VNC) bookmark to a Linux server, you must specify the port number and server number in addition to the Linux server IP the Name or IP Address field in the form of `ipaddress:port:server`. For example, if the Linux server IP address is `192.168.2.2`, the port number is `5901`, and the server number is `1`, the value for the Name or IP Address field would be `192.168.2.2:5901:1`.

5 For the specific service you select from the **Service** drop-down menu, additional fields could appear. Fill in the information for the service you selected. Select one of the following service types from the **Service** drop-down menu:

- **Terminal Services (RDP)**
  - In the **Screen Size** drop-down menu, select the default terminal services screen size to be used when users execute this bookmark. Because different computers support different screen sizes, when you use a remote desktop application, you should select the size of the screen on the computer from which you are running a remote desktop session. Additionally, you might want to provide a path to where your application resides on your remote computer by typing the path in the **Application and Path** field.
  - In the **Colors** drop-down menu, select the default color depth for the terminal service screen when users execute this bookmark.

    - Optionally enter the local path for this application in the **Application and Path (optional)** field.
    - In the **Start in the following folder** field, optionally enter the local folder in which to execute application commands.
    - Select **Login as console/admin session** to allow login as console or admin. Login as admin replaces login as console in RDC 6.1 and newer.
    - For **RDP** on Windows clients, or on Mac clients running Mac OS X 10.5 or above with RDC installed, expand **Show Windows advanced options** and select the checkboxes for any of the following redirect options: **Redirect Printers**, **Redirect Drives**, **Redirect Ports**, **Redirect SmartCards**, **Redirect clipboard**, or **Redirect plug and play devices** to redirect those devices or features on the local network for use in this bookmark session. You can hover your mouse pointer over the Help icon next to certain options to display tooltips that indicate requirements.

      To see local printers show up on your remote machine (**Start > Settings > Control Panel > Printers and Faxes**), select **Redirect Ports** as well as **Redirect Printers**.

      Select the checkboxes for any of the following additional features for use in this bookmark session: **Display connection bar**, **Auto reconnection**, **Desktop background**, **Window drag**, **Menu/window animation**, **Themes**, or **Bitmap caching**.

      If the client application is RDP 6 (Java), you can select any of the following options as well: **Dual monitors**, **Font smoothing**, **Desktop composition**, or **Remote Application**.

      Remote Application monitors server and client connection activity; to use it, you need to register remote applications in the Windows 2008 RemoteApp list. If **Remote Application** is selected, the Java Console displays messages regarding connectivity with the Terminal Server.
    - For **RDP** on Windows clients, optionally select **Enable plugin DLLs** and enter the name(s) of client DLLs that need to be accessed by the remote desktop or terminal service. Multiple entries are separated by a comma with no spaces. The **Enable plugin DLLs** option is not available for RDP - Java. See Enabling Plugin DLLs.
  - Optionally select **Automatically log in** and select **Use SSL VPN account credentials** to forward credentials from the current SSL VPN session for login to the RDP server. Select **Use custom credentials** to enter a custom username, password, and domain for this bookmark. For more information about custom credentials, see Creating Bookmarks with Custom SSO Credentials.
  - **Virtual Network Computing (VNC)**
  - No additional fields
  - **Telnet**
  - No additional fields
  - **Secure Shell version 2 (SSHv2)**
    - Optionally select **Automatically accept host key**.
    - If using an SSHv2 server without authentication, such as a SonicWall firewall, you can select **Bypass username**.

6 Click **Update** to save your configuration.

Enabling Plugin DLLs

The plugin DLLs feature is available for RDP, and allows for the use of certain third-party programs such as print drivers, on a remote machine. This feature requires RDP Client Control version 5 or higher.

ⓘ **NOTE:** The RDP Java client on Windows is a native RDP client that supports Plugin DLLs by default. No action (or checkbox) is necessary.

To enable plugin DLLs for the RDP client:

1. Navigate to the **SSL VPN > Virtual Office** page.
2. Click the configure icon corresponding to the user bookmark you wish to edit, or if adding a new bookmark, click **Add**.
3. Select **RDP** as the **Service** and configure as described in the section Configuring Virtual Office.
4. Enter the name(s) of client DLLs that need to be accessed by the remote desktop or terminal service. Multiple entries are separated by a comma with no spaces.
5. Ensure that any necessary DLLs are located on the individual client systems in %SYSTEMROOT% (for example: C:\Windows\system32).

ⓘ **NOTE:** Ensure that your Windows system and RDP client are up-to-date prior to using the Plugin DLLs feature. This feature requires RDP 5 Client Control or higher.

Creating Bookmarks with Custom SSO Credentials

The administrator can configure custom Single Sign On (SSO) credentials for each user, group, or globally in RDP bookmarks. This feature is used to access resources that need a domain prefix for SSO authentication. Users can log in to SonicWall SSL VPN as *username*, and click a customized bookmark to access a server with *domain\username*. Either straight textual parameters or variables can be used for login credentials.

To configure custom SSO credentials:

1. Create or edit an RDP bookmark as described in Configuring Virtual Office.
2. On the **Edit Portal Bookmark** page, select **Use custom credentials**.
3. Enter the appropriate **Username**, **Password**, and **Domain**, or use dynamic variables as follows:

Examples

Text Usage	Variable	Example Usage
Login Name	%USERNAME%	US\%USERNAME%
Domain Name	%USERDOMAIN%	%USERDOMAIN\%USERNAME%
Group Name	%USERGROUP%	%USERGROUP%\%USERNAME%

4. Click **Update**.

Using Remote Desktop Bookmarks

Remote Desktop Protocol (RDP) bookmarks enable you to establish remote connections with a specified desktop. SonicWall SSL VPN supports the RDP5 standard clients. The basic functionality of the client supports the following features:

- Redirect clipboard
- Redirect plug and play devices
- Display connection bar
- Auto reconnection
- Desktop background
- Window drag
- Menu/window animation
- Themes
- Bitmap caching

If the Java client application is RDP 6, it also supports:

- Dual monitors
- Font smoothing
- Desktop composition

> **NOTE:** RDP bookmarks can use a port designation if the service is not running on the default port.

> **TIP:** To terminate your remote desktop session, be sure to log off from the RDP session. If you wish to suspend the RDP session (so that it can be resumed later) you can simply close the remote desktop window.

1. Click the **RDP** bookmark. Continue through any warning screens that display by clicking **Yes** or **OK.**
2. Enter your **Username**, and **Password** at the login screen and enter the **Domain** in the Domain field.
3. A window displays indicating that the Remote Desktop Client is loading. The remote desktop then loads in its own windows. You can now access all of the applications and files on the remote computer.

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SonicWall Support

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

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 video tutorials
- Access MySonicWall
- 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

Legend

⚠ **WARNING: A WARNING icon indicates a potential for property damage, personal injury, or death.**

⚠ **CAUTION: A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.**

ⓘ **IMPORTANT, NOTE, TIP, MOBILE, or VIDEO:** An information icon indicates supporting information.

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