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CISCO VALIDATED DESIGN

Web Security Using Cisco WSA

TECHNOLOGY DESIGN GUIDE

August 2013

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Preface

Cisco Validated Designs (CVDs) provide the framework for systems design based on common use cases or current engineering system priorities. They incorporate a broad set of technologies, features, and applications to address customer needs. Cisco engineers have comprehensively tested and documented each CVD in order to ensure faster, more reliable, and fully predictable deployment.

CVDs include two guide types that provide tested and validated design and deployment details:

- Technology design guides provide deployment details, information about validated products and software, and best practices for specific types of technology.
- Solution design guides integrate or reference existing CVDs, but also include product features and functionality across Cisco products and may include information about third-party integration.

Both CVD types provide a tested starting point for Cisco partners or customers to begin designing and deploying systems using their own setup and configuration.

How to Read Commands

Many CVD guides tell you how to use a command-line interface (CLI) to configure network devices. This section describes the conventions used to specify commands that you must enter.

Commands to enter at a CLI appear as follows:

```
configure terminal
```

Commands that specify a value for a variable appear as follows:

```
ntp server 10.10.48.17
```

Commands with variables that you must define appear as follows:

```
class-map [highest class name]
```

Commands at a CLI or script prompt appear as follows:

```
Router# enable
```

Long commands that line wrap are underlined. Enter them as one command:

```
police rate 10000 pps burst 10000 packets conform-action set-discard-class-
transmit 48 exceed-action transmit
```

Noteworthy parts of system output or device configuration files appear highlighted, as follows:

```
interface Vlan64
  ip address 10.5.204.5 255.255.255.0
```

Comments and Questions

If you would like to comment on a guide or ask questions, please use the feedback form.

For the most recent CVD guides, see the following site:

http://www.cisco.com/go/cvd

CVD Navigator

The CVD Navigator helps you determine the applicability of this guide by summarizing its key elements: the use cases, the scope or breadth of the technology covered, the proficiency or experience recommended, and CVDs related to this guide. This section is a quick reference only. For more details, see the Introduction.

Use Cases

This guide addresses the following technology use cases:

- Manage the Safe Use of Web-based and Social Networking Applications with an On-premise Security Appliance—All web traffic from the primary-site and remote-site networks accesses the Internet through a centralized Cisco Adaptive Security Appliance (ASA) firewall. Cisco Web Security Appliance (WSA) complements the deep packet inspection and stateful filtering capabilities of the firewall by providing additional web security using a dedicated on-premises appliance.

For more information, see the “Use Cases” section in this guide.

Scope

This guide covers the following areas of technology and products:

- Cisco ASA 5500-X Series Adaptive Security Appliances for Internet edge firewall security
- Cisco Web Security Appliance for granular control over all web content that is accessed
- Integration of the above with the LAN switching infrastructure

For more information, see the “Design Overview” section in this guide.

Proficiency

This guide is for people with the following technical proficiencies—or equivalent experience:

- CCNA Routing and Switching—1 to 3 years installing, configuring, and maintaining routed and switched networks
- CCNA Security—1 to 3 years installing, monitoring, and troubleshooting network devices to maintain integrity, confidentiality, and availability of data and devices

Related CVD Guides

Firewall and IPS Technology Design Guide

Cloud Web Security Using Cisco ASA Technology Design Guide

Remote Mobile Access Technology Design Guide

To view the related CVD guides,
click the titles or visit the following site:
http://www.cisco.com/go/cvd

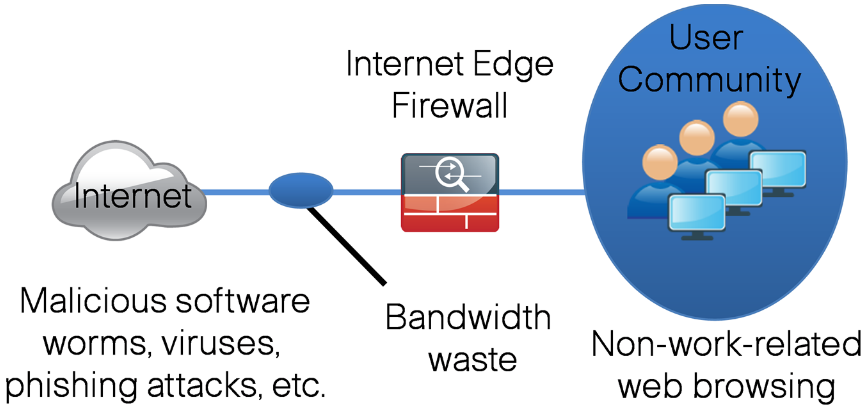
Introduction

Technology Use Case

Web access is a requirement for the day-to-day functions of most organizations, but a challenge exists to maintain appropriate web access for everyone in the organization, while minimizing unacceptable or risky use. A solution is needed to control policy-based web access to ensure employees work effectively and ensure that personal web activity does not waste bandwidth, affect productivity, or expose the organization to undue risk.

Another risk associated with Internet access for the organization is the pervasive threat that exists from accessing sites and content. As the monetary gain for malicious activities on the Internet has grown and developed, the methods used to affect these malicious and or illegal activities has grown and become more sophisticated. Botnets, one of the greatest threats that exists in the Internet today, is that of malicious Internet servers (mostly web) being used to host content that then attacks innocent user's browsers as they view the content. These types of attacks have been used very successfully by "bot herders" to gather in millions of infected members that are subject to the whims of the people who now control their machines. Other threats include the still popular and very broad threats of viruses and trojans, in which a user receives a file in some manner and is tricked into running it, and the file then executes malicious code. The third variant uses directed attacks over the network. Examples of these attacks are the Internet worms that gathered so much attention in the early to mid-2000s. These types of risks are depicted in the figure below.

Figure 1 - Potential risks associated with Internet access



Use Case: Manage the Safe Use of Web-based and Social Networking Applications with an On-premise Security Appliance

All web traffic from the primary site and remote-site networks accesses the Internet through a centralized Cisco ASA firewall. Cisco Web Security Appliance (WSA) complements the deep packet inspection and stateful filtering capabilities of the firewall by providing additional web security using a dedicated on-premises appliance.

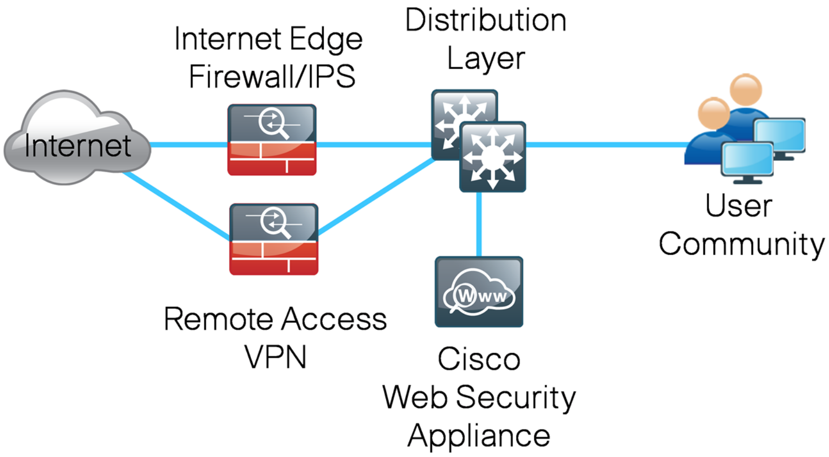
This design guide enables the following security capabilities:

- **Transparent redirection of user web traffic**—Through seamless integration with the Cisco ASA firewall, web traffic is transparently redirected to Cisco WSA service. No configuration changes are required on user devices.
- **Web filtering**—Cisco WSA supports filters based on predefined content categories, as well as custom categories. The filtering rules can be configured to block, monitor or warn based on the specific web usage policies of an organization.
- **Malware protection**—Cisco WSA analyzes every web request to determine if content is malicious. Cisco Cloud Web Security (CWS) updates its malware protection policies by using the Cisco Security Intelligence Operations (SIO), which is designed to help organizations secure business applications and processes through identification, prevention, and remediation of threats.
- **Differentiated policies**—Policies for Cisco WSA are applied on a per-group basis. Group membership is determined by identity, which can include authenticated user information or the source IP address of the web request.

Design Overview

Cisco Web Security Appliance (WSA) addresses the need for a corporate web security policy by offering a combination of web usage controls with category and reputation-based control, malware filtering, and data protection.

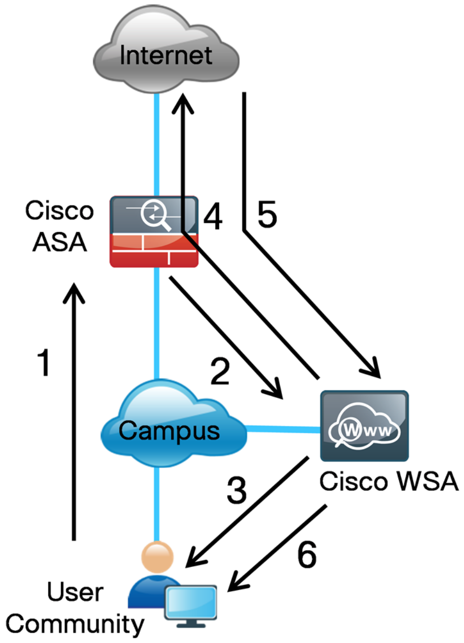
Figure 2 - Web security deployment



Browsing websites can be risky, and many websites inadvertently end up distributing compromised or malicious content as a result of inattention to update requirements or lax security configurations. The websites that serve the compromised and malicious content are constantly changing as human-operated and worm-infested computers scan the Internet in search of additional web servers that they can infect in order to continue propagating. This dynamic environment introduces significant challenges to maintain up-to-date Internet threat profiles.

The Cisco WSA family is a web proxy that works with other Cisco network components such as firewalls, routers, or switches in order to monitor and control web content requests from within the organization. It also scrubs the return traffic for malicious content.

Figure 3 - Logical traffic flow using Cisco WSA



1. User initiates web request
2. ASA Firewall redirects request to Cisco WSA
3. WSA checks request, replies with denial if request violates policy
4. WSA initiates new connection to the Web if request is acceptable
5. Web Server replies with content which is sent to WSA
6. WSA checks content for objectionable material and forwards content to originating user if no issues are encountered

Cisco WSA is connected by one interface to the inside network of the Cisco Adaptive Security Appliance (ASA). In the Internet edge design, Cisco WSA connects to the same LAN switch as the Cisco ASA appliance and on the same VLAN as the inside interface of the appliance. Cisco ASA redirects HTTP and HTTPS connections to Cisco WSA by using the Web Cache Communication Protocol (WCCP).

Cisco WSA uses several mechanisms to apply web security and content control. Cisco WSA begins with basic URL-filtering with predefined, category-based web usage controls. These controls are based on an active database that includes analysis of sites in 190 countries and over 50 languages. Content is filtered by the reputation database. The Cisco Security Intelligence Operations updates the reputation database every five minutes. These updates contain threat information gleaned from multiple Internet-based resources, as well as content reputation information obtained from customers with Cisco security appliances that choose to participate in the Cisco SenderBase network. If no details of the website or its content are known, Cisco WSA applies dynamic content analysis to determine the nature of the content in real time, and findings are fed back to the SenderBase repository if the customer has elected to participate.

Cisco WSA uses an on-premise appliance for web security that is similar in function to Cisco Cloud Web Security (CWS), which is a cloud-based method of implementing web security. This guide is focused on the deployment of Cisco WSA.

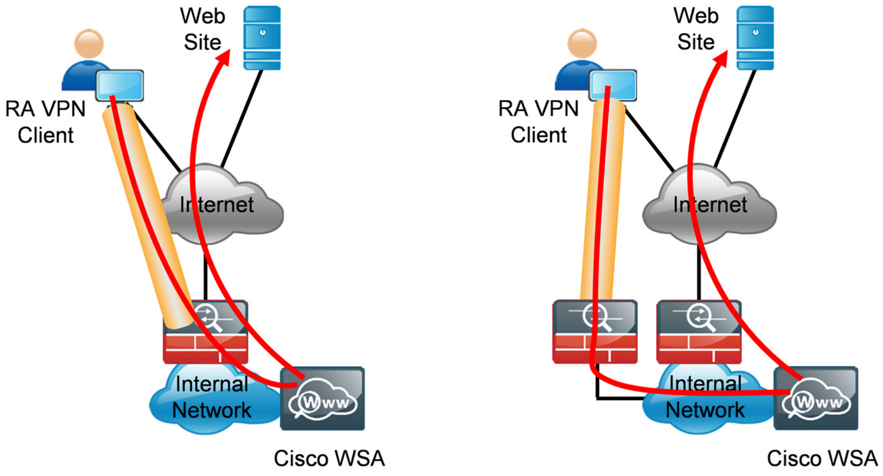
Some key differences between Cisco CWS and Cisco WSA include the items listed in the following table.

Table 1 - Cisco Web Security solution comparison

	Cisco WSA	Cisco CWS
Web/URL filtering	Yes	Yes
Supported protocols	HTTP/HTTPS, FTP	HTTP/HTTPS
Outbreak Intelligence (Zero Day Malware)	Yes (URL/IP reputation filtering, Multiple scanners for malware)	Yes (Multiple scanners for malware)
Remote user security	VPN backhaul	Direct to cloud using Cisco AnyConnect
Remote user security (mobile devices)	VPN backhaul	VPN backhaul
Deployment	On Premise Redirect	Redirect to cloud service
Policy and reporting	On Premise	Web portal (cloud)

Cisco WSA inspects the content for remote-access VPN connected users in both the integrated and standalone deployment models as described in the Remote Access VPN Design Guide.

Figure 4 - Web security for remote-access VPN



Deployment Details

The first step to planning the Cisco WSA deployment is to determine how to redirect web traffic to the appliance. There are two possible methods to accomplish the redirection of traffic to Cisco WSA: transparent proxy mode and explicit proxy mode.

In a transparent proxy deployment, a WCCP v2-capable network device redirects all TCP traffic with a destination of port 80 or 443 to Cisco WSA, without any configuration on the client. The transparent proxy deployment is used in this design, and the Cisco ASA firewall is used to redirect traffic to the appliance because all of the outbound web traffic passes through the device and is generally managed by the same operations staff who manage Cisco WSA.

In an explicit proxy deployment, a client application, such as a web browser, is configured to use an HTTP proxy, such as Cisco WSA. From an application support standpoint, this method introduces the least amount of complications, as the proxy-aware applications know about and work with Cisco WSA directly to provide the requested content. However, from a deployment standpoint, the explicit proxy method presents challenges as to how the administrator configures every client in the organization with the Cisco WSA proxy settings and how they configure devices not under the organization's control. Web Proxy Auto-Discovery and proxy automatic configuration scripts, along with other tools, such as Microsoft Group and System policy controls within Microsoft Active Directory, make deploying this method simpler, but a discussion of those tools is beyond the scope of this guide.

It is possible to use both options—explicit proxy and transparent proxy—at the same time on a single Cisco WSA appliance. Explicit proxy is also a good way to test the Cisco WSA configuration, as explicit proxy mode does not depend on anything else in the network to function.

The next step in planning a Cisco WSA deployment is to determine what type of physical topology you are going to use. Cisco WSA has multiple interfaces and can be configured in different ways. In the Internet edge designs, Cisco WSA is deployed using a single interface for both proxy and management traffic.

A single Cisco WSA appliance was deployed in the Internet edge design to support up to 5,000 users. For those who need either additional performance or resilience, a simple upgrade solution is possible by adding an additional appliance. When deployed in high availability mode, the two appliances load-share the outgoing connections. If one device fails, the load is moved to the other appliance. It is possible that network performance could be degraded if one device is handling the load that was designed for two, but Internet web access remains available and protected.

PROCESS

Configuring Cisco WSA

1. Configure the distribution switch
2. Configure management access
3. Complete the System Setup Wizard
4. Install system updates
5. Install the feature keys
6. Update web usage controls and test
7. Enable logging
8. Create custom URL categories
9. Configure access policies
10. Configure WCCP on Cisco WSA
11. Configure WCCP on the firewall
12. Configure default tunnel gateway
13. Set up HTTPS proxy
14. Configure authentication

Procedure 1 Configure the distribution switch

The LAN distribution switch is the path to the organization's internal network. As configured in the Firewall and IPS Design Guide, a unique VLAN supports the Internet edge devices and the routing protocol peers with the appliances across this network.

Reader Tip

Before you continue, ensure that the distribution switch has been configured following the guidance in the Campus Wired LAN Design Guide.

Step 1: Configure the interfaces that are connected to the distribution switch.

```
interface GigabitEthernet1/0/22
 description WSAs370 M1 Management interface
 switchport access vlan 300
 switchport host
 macro apply EgressQoS
 logging event link-status
 no shutdown
```

Procedure 2 Configure management access

Step 1: Connect a standard null modem cable, with the terminal emulator settings of 8-1-none-9600 baud, to the appliance’s serial console port.

Tech Tip

The default username is **admin**, and the default password is **ironport**.

```
ironport.example.com> interfaceconfig

Currently configured interfaces:
1. Management (192.168.42.42/24 on Management: ironport.example.com)

Choose the operation you want to perform:
- NEW - Create a new interface.
- EDIT - Modify an interface.
- DELETE - Remove an interface.
[]>EDIT

Enter the number of the interface you wish to edit.
[]> 1

IP Address (Ex: 192.168.1.2):
[192.168.42.42]> 10.4.24.15

Netmask (Ex: “255.255.255.0” or “0xffffff00”):
[255.255.255.0]> 255.255.255.224

Hostname:
[ironport.example.com]> WSAs370.cisco.local
Do you want to enable FTP on this interface? [Y]> y
Which port do you want to use for FTP?
[21]> 21

Do you want to enable SSH on this interface? [Y]> y
Which port do you want to use for SSH?
[22]> 22

Do you want to enable HTTP on this interface? [Y]> y
Which port do you want to use for HTTP?
[8080]> 8080
```

```
Do you want to enable HTTPS on this interface? [Y]> y
Which port do you want to use for HTTPS?
[8443]> 8443

You have not entered an HTTPS certificate. To assure privacy, run "certconfig"
first. You may use the demo, but this will not be secure.
Do you really wish to use a demo certificate? [Y]> y

Both HTTP and HTTPS are enabled for this interface, should HTTP requests redirect
to the secure service? [Y]> y

The interface you edited might be the one you are currently logged into. Are you
sure you want to change it? [Y]> y

Currently configured interfaces:
1. Management (10.4.24.15/27 on Management: WSAs370.cisco.local)

Choose the operation you want to perform:
- NEW - Create a new interface.
- EDIT - Modify an interface.
- DELETE - Remove an interface.
[]> <Return>
```

Tech Tip

The appliance console displays the following message, which corresponds to the default IP address of the Cisco WSA appliance:

```
Please run System Setup Wizard at http://192.168.42.42:8080
```

Do not connect to the GUI at this address.

```
ironport.example.com> setgateway

Warning: setting an incorrect default gateway may cause the current
connection to be interrupted when the changes are committed.
1. Management Default Gateway
2. Data Default Gateway
[]> 1

Enter new default gateway:
[ ]> 10.4.24.1

ironport.example.com> commit

Please enter some comments describing your changes:
[]> initial setup
Changes committed: Thu Dec 06 23:31:13 2012 GMT
```

After you configure Cisco WSA, it should be able to ping devices on the network, assuming appropriate network access has been created (on the firewall, if needed). The following output is a capture of Cisco WSA pinging its default gateway:

```
WSA.cisco.local> ping 10.4.24.1
Press Ctrl-C to stop.
PING 10.4.24.1 (10.4.24.1): 56 data bytes
64 bytes from 10.4.24.1: icmp_seq=0 ttl=255 time=0.497 ms
64 bytes from 10.4.24.1: icmp_seq=1 ttl=255 time=9.387 ms
64 bytes from 10.4.24.1: icmp_seq=2 ttl=255 time=0.491 ms
^C
```

Procedure 3 Complete the System Setup Wizard

It is recommended that you configure only the basic network settings, DNS information, time settings, and username/password information through the System Setup Wizard, and you configure the more advanced settings in the respective sections in the UI.

The System Setup Wizard screens and options vary by code version. Depending on the starting code version of the appliance that you are configuring, the screens may differ from those shown below.

Step 1: From a client on the internal network, navigate and log in to the appliance. The GUI uses HTTPS on port 8443. (Example: https://10.4.24.15:8443).

> **Tech Tip**
>
> The default username is **admin**, and the default password is **ironport**.

Step 2: Log in, and then navigate to **System Administration > System Setup Wizard**.

Step 3: On the Start page, read the license, click **I accept**, and then click **Begin Setup**.

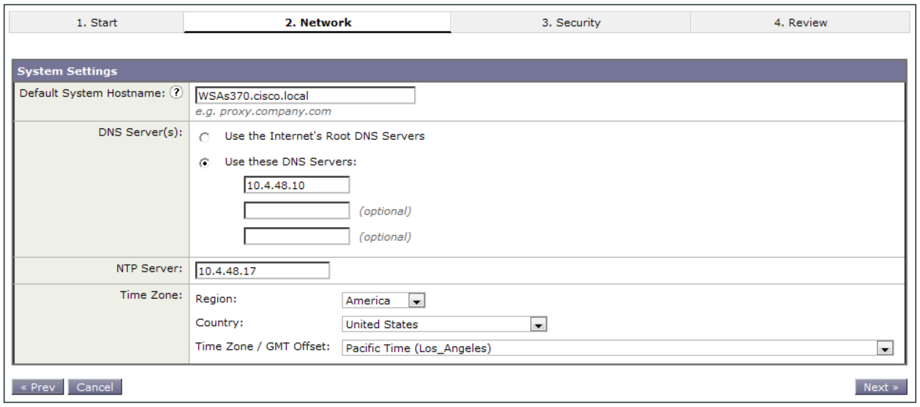
Step 4: On the System Settings page, in the **Default System Hostname** box, enter the appliance hostname. (Example: WSAs370.cisco.local)

Step 5: Select **Use these DNS Servers**, and then enter the internal DNS server. (Example: 10.4.48.10).

Step 6: In the **NTP Server** box, enter the internal NTP server. (Example: 10.4.48.17)

Step 7: For the time zone, enter the following information, and then click **Next**:

- Region—**America**
- Country—**United States**
- Time Zone / GMT Offset—**Pacific Time (Los_Angeles)**



System Settings

Default System Hostname: WSAs370.cisco.local (e.g. proxy.company.com)

DNS Server(s): ○ Use the Internet's Root DNS Servers
● Use these DNS Servers: 10.4.48.10; (optional); (optional)

NTP Server: 10.4.48.17

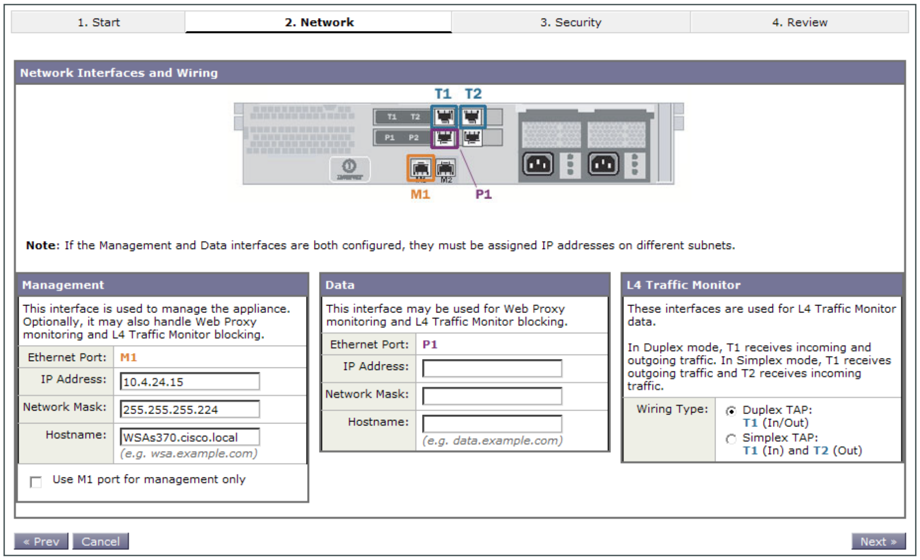
Time Zone: Region: America; Country: United States; Time Zone / GMT Offset: Pacific Time (Los_Angeles)

Step 8: On the Network Context page, click **Next**.

Step 9: On the Network Interfaces and Wiring page, click **Next**. When you completed Procedure 2, "Configure management access," you completed the necessary configuration for this page.

Tech Tip

In this deployment, for simplicity, M1 is used for both management and proxy services and is the only interface used. Do not select **Use M1 port for Management only**. Do not use interface P1.



Network Interfaces and Wiring

Note: If the Management and Data interfaces are both configured, they must be assigned IP addresses on different subnets.

Management

This interface is used to manage the appliance. Optionally, it may also handle Web Proxy monitoring and L4 Traffic Monitor blocking.

Ethernet Port: M1

IP Address: 10.4.24.15

Network Mask: 255.255.255.224

Hostname: WSAs370.cisco.local (e.g. wsa.example.com)

□ Use M1 port for management only

Data

This interface may be used for Web Proxy monitoring and L4 Traffic Monitor blocking.

Ethernet Port: P1

IP Address:

Network Mask:

Hostname: (e.g. data.example.com)

L4 Traffic Monitor

These interfaces are used for L4 Traffic Monitor data.

In Duplex mode, T1 receives incoming and outgoing traffic. In Simplex mode, T1 receives outgoing traffic and T2 receives incoming traffic.

Wiring Type: ● Duplex TAP: T1 (In/Out)
○ Simplex TAP: T1 (In) and T2 (Out)

Step 10: On the Routes for Management and Data Traffic page, click **Next**. When you completed Procedure 2, “Configure management access,” you completed the necessary configuration for this page.

Step 11: On the Transparent Connections Settings page, click **Next**.

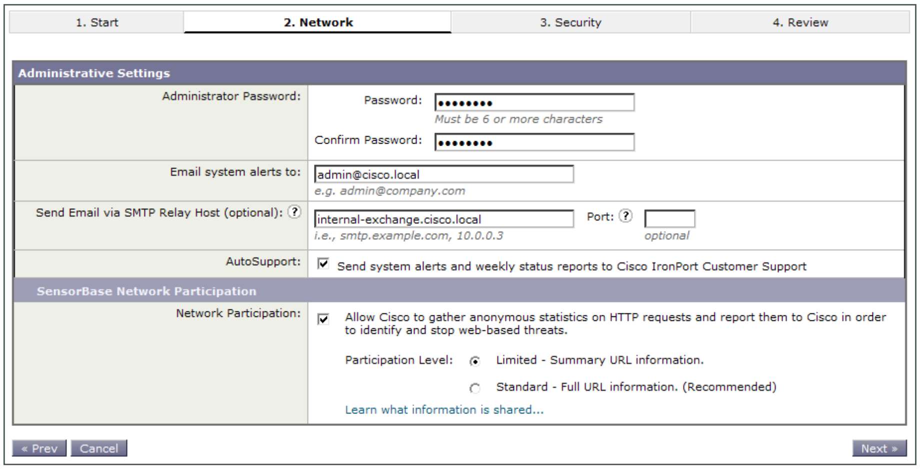
Step 12: On the Administrative Settings page, in the **Administrator Password** box, enter and confirm the administrator password.

Step 13: In the **Email system alerts to** box, enter the administrator’s email address (Example: admin@cisco.local).

Step 14: In the **Send Email via SMTP Relay Host** box, enter the internal mail server (Example: internal-exchange.cisco.local), and then click **Next**.

Tech Tip

On this page, you can also elect to participate in the Cisco SenderBase network and select a participation level.



Administrative Settings

Administrator Password: Password: •••••••• *Must be 6 or more characters* Confirm Password: ••••••••

Email system alerts to: admin@cisco.local *e.g. admin@company.com*

Send Email via SMTP Relay Host (optional): ? internal-exchange.cisco.local *i.e., smtp.example.com, 10.0.0.3* Port: ? *optional*

AutoSupport: ☑ Send system alerts and weekly status reports to Cisco IronPort Customer Support

SensorBase Network Participation

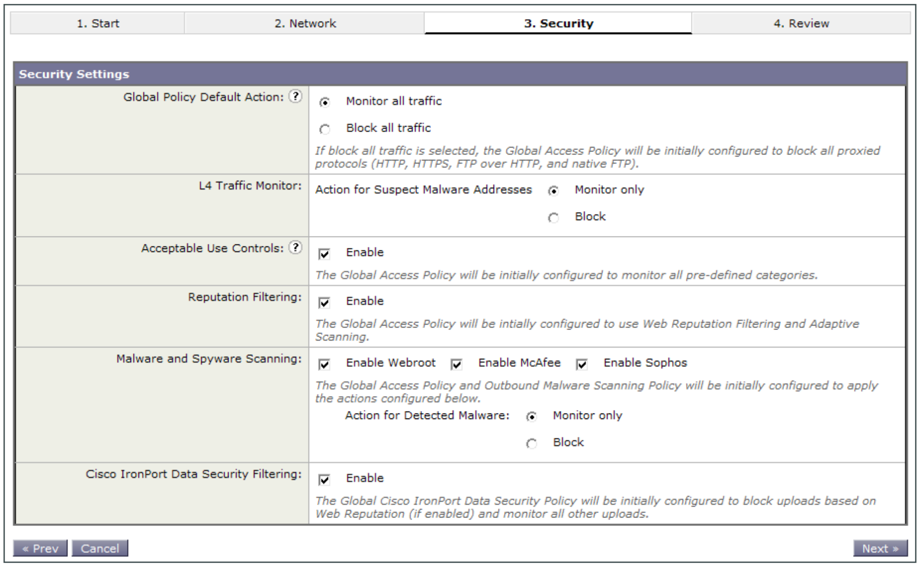
Network Participation: ☑ Allow Cisco to gather anonymous statistics on HTTP requests and report them to Cisco in order to identify and stop web-based threats.

Participation Level: ● Limited - Summary URL information.

○ Standard - Full URL information. (Recommended)

Learn what information is shared...

Step 15: On the Security Settings page, use the default settings, and then click **Next**.



Security Settings

Global Policy Default Action: ?	● Monitor all traffic ○ Block all traffic *If block all traffic is selected, the Global Access Policy will be initially configured to block all proxied protocols (HTTP, HTTPS, FTP over HTTP, and native FTP).*
L4 Traffic Monitor:	Action for Suspect Malware Addresses ● Monitor only ○ Block
Acceptable Use Controls: ?	☑ Enable *The Global Access Policy will be initially configured to monitor all pre-defined categories.*
Reputation Filtering:	☑ Enable *The Global Access Policy will be intially configured to use Web Reputation Filtering and Adaptive Scanning.*
Malware and Spyware Scanning:	☑ Enable Webroot ☑ Enable McAfee ☑ Enable Sophos *The Global Access Policy and Outbound Malware Scanning Policy will be initially configured to apply the actions configured below.* Action for Detected Malware: ● Monitor only ○ Block
Cisco IronPort Data Security Filtering:	☑ Enable *The Global Cisco IronPort Data Security Policy will be initially configured to block uploads based on Web Reputation (if enabled) and monitor all other uploads.*

Step 16: On the Review page, review the configuration, and then click **Install This Configuration**.

Procedure 4 Install system updates

It is important to look at system upgrades for Cisco WSA before going any further. HTTP or HTTPS Internet access for the appliance is required in order to proceed.

Tech Tip

It is not possible to downgrade software versions, so be certain that an upgrade is desired before proceeding. It is possible that an appliance can receive different upgrade options if it is on an early release list.

Step 1: Navigate to **System Administration > System Upgrade**. The display shows the current software version.

Step 2: Click **Available Upgrades**.

If newer versions are available, they should be selected and installed. In general, all upgrades should be installed. Each upgrade usually requires a reboot of the appliance. The entire process can take some time.

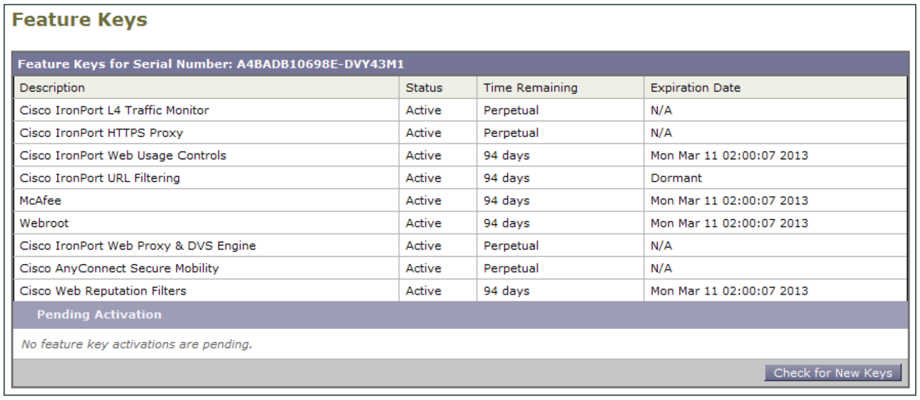
Procedure 5 Install the feature keys

It is important to install the feature keys for Cisco WSA before going any further. HTTP or HTTPS Internet access for the appliance is required in order to proceed. When installing feature keys, Cisco WSA makes a connection to the license service and submits a query to see if it has all the features it is allowed to run. It is very likely that after upgrading code, especially if many upgrades were applied, there will be missing feature keys.

Step 1: Navigate to **System Administration > Feature Keys**.

Step 2: Click **Check for New Keys**.

The figure below shows what an appliance feature key display may look like after being upgraded to the latest version of code and then checking for updated feature keys.



Feature Keys

Feature Keys for Serial Number: A4BADB10698E-DVY43M1

Description	Status	Time Remaining	Expiration Date
Cisco IronPort L4 Traffic Monitor	Active	Perpetual	N/A
Cisco IronPort HTTPS Proxy	Active	Perpetual	N/A
Cisco IronPort Web Usage Controls	Active	94 days	Mon Mar 11 02:00:07 2013
Cisco IronPort URL Filtering	Active	94 days	Dormant
McAfee	Active	94 days	Mon Mar 11 02:00:07 2013
Webroot	Active	94 days	Mon Mar 11 02:00:07 2013
Cisco IronPort Web Proxy & DVS Engine	Active	Perpetual	N/A
Cisco AnyConnect Secure Mobility	Active	Perpetual	N/A
Cisco Web Reputation Filters	Active	94 days	Mon Mar 11 02:00:07 2013

Pending Activation

No feature key activations are pending.

Tech Tip

If the appliance is missing keys or the duration of the keys is not correct, contact a trusted partner or Cisco reseller to resolve the issue. Have the appliance serial number available. You can find the serial number at the top of the Feature Key page.

Procedure 6 Update web usage controls and test

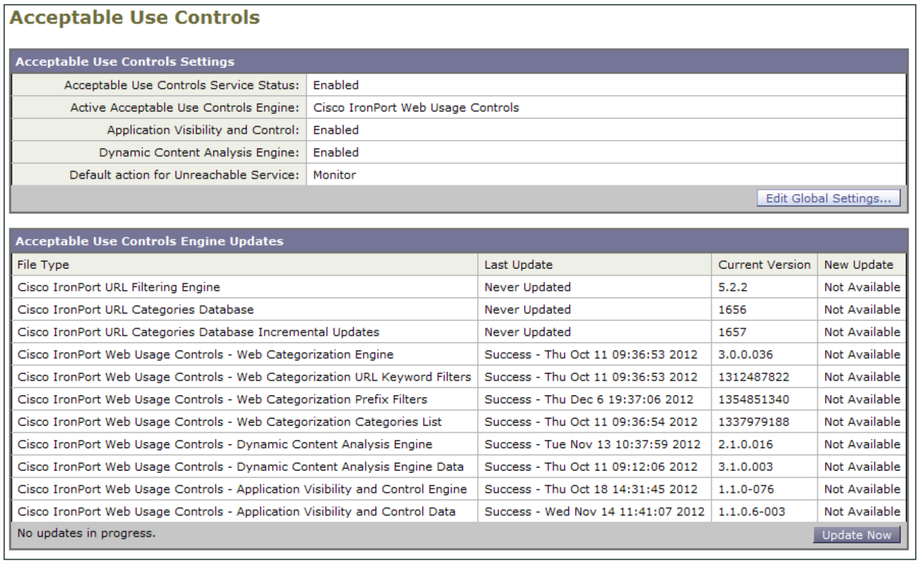
Step 1: Navigate to **Security Services > Acceptable Use Controls**.

Step 2: Click **Update Now**, and then wait until the page reports back success.

Step 3: Ensure that at least some of the controls have an update that is current or very nearly so.

Tech Tip

Due to randomness of update schedules, it is impossible to know when updates will come out for each component. The Web Categories Prefix Filters and the Web Categories List are updated fairly often and show recent update histories.



Acceptable Use Controls

Acceptable Use Controls Settings

Acceptable Use Controls Service Status:	Enabled
Active Acceptable Use Controls Engine:	Cisco IronPort Web Usage Controls
Application Visibility and Control:	Enabled
Dynamic Content Analysis Engine:	Enabled
Default action for Unreachable Service:	Monitor

Acceptable Use Controls Engine Updates

File Type	Last Update	Current Version	New Update
Cisco IronPort URL Filtering Engine	Never Updated	5.2.2	Not Available
Cisco IronPort URL Categories Database	Never Updated	1656	Not Available
Cisco IronPort URL Categories Database Incremental Updates	Never Updated	1657	Not Available
Cisco IronPort Web Usage Controls - Web Categorization Engine	Success - Thu Oct 11 09:36:53 2012	3.0.0.036	Not Available
Cisco IronPort Web Usage Controls - Web Categorization URL Keyword Filters	Success - Thu Oct 11 09:36:53 2012	1312487822	Not Available
Cisco IronPort Web Usage Controls - Web Categorization Prefix Filters	Success - Thu Dec 6 19:37:06 2012	1354851340	Not Available
Cisco IronPort Web Usage Controls - Web Categorization Categories List	Success - Thu Oct 11 09:36:54 2012	1337979188	Not Available
Cisco IronPort Web Usage Controls - Dynamic Content Analysis Engine	Success - Tue Nov 13 10:37:59 2012	2.1.0.016	Not Available
Cisco IronPort Web Usage Controls - Dynamic Content Analysis Engine Data	Success - Thu Oct 11 09:12:06 2012	3.1.0.003	Not Available
Cisco IronPort Web Usage Controls - Application Visibility and Control Engine	Success - Thu Oct 18 14:31:45 2012	1.1.0-076	Not Available
Cisco IronPort Web Usage Controls - Application Visibility and Control Data	Success - Wed Nov 14 11:41:07 2012	1.1.0.6-003	Not Available

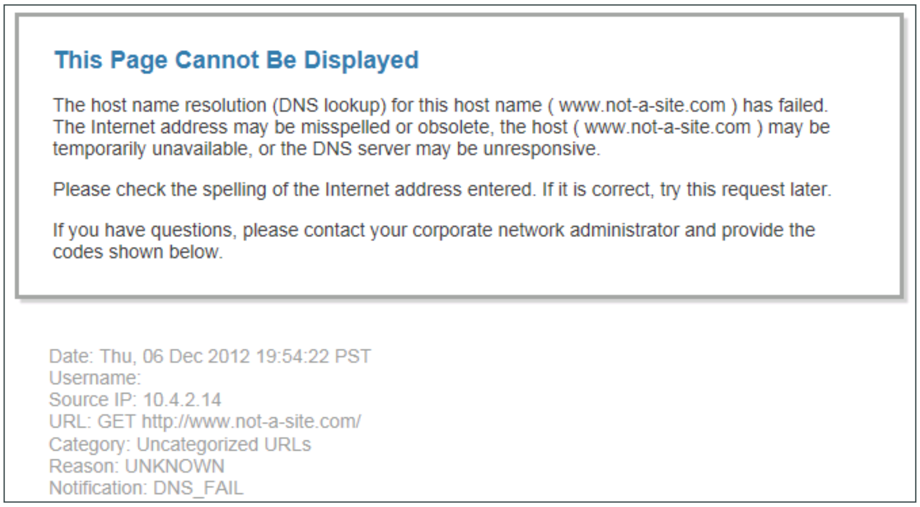
No updates in progress.

Step 4: Set up a client on the inside of the network with Cisco WSA as the explicit proxy in the web browser of their choice. Use the IP address of the appliance as the proxy, and then set the port to 3128.

Step 5: Test two different addresses, as follows:

- One address should be resolvable externally, for instance www.cisco.com, which should return without issue. This proves the client has Internet access but does not prove the connection is going through Cisco WSA.
- The other address should be something not resolvable externally. This request should return an error from Cisco WSA, not the browser; proving that Cisco WSA is serving the content.

Cisco WSA returns an error like that shown below:



This Page Cannot Be Displayed

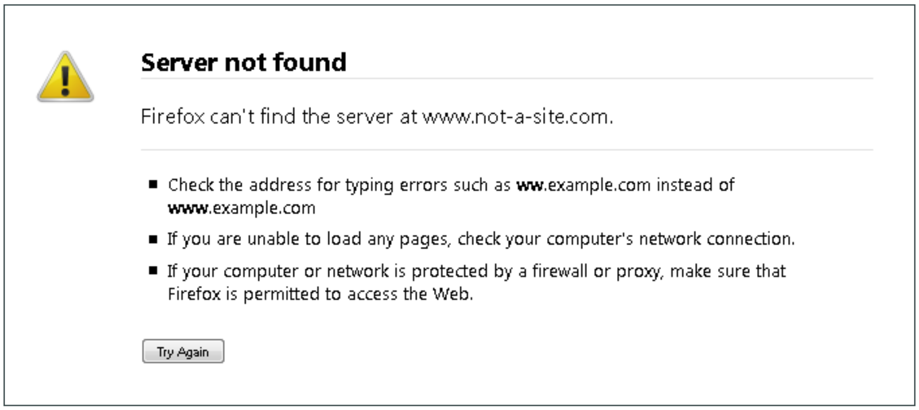
The host name resolution (DNS lookup) for this host name (www.not-a-site.com) has failed. The Internet address may be misspelled or obsolete, the host (www.not-a-site.com) may be temporarily unavailable, or the DNS server may be unresponsive.

Please check the spelling of the Internet address entered. If it is correct, try this request later.

If you have questions, please contact your corporate network administrator and provide the codes shown below.

Date: Thu, 06 Dec 2012 19:54:22 PST
Username:
Source IP: 10.4.2.14
URL: GET http://www.not-a-site.com/
Category: Uncategorized URLs
Reason: UNKNOWN
Notification: DNS_FAIL

If the web request is not directed to Cisco WSA, your web browser returns an error. An example with the Firefox browser returns an error like that shown below:



Server not found

Firefox can't find the server at www.not-a-site.com.

- Check the address for typing errors such as **ww**.example.com instead of **www**.example.com
- If you are unable to load any pages, check your computer's network connection.
- If your computer or network is protected by a firewall or proxy, make sure that Firefox is permitted to access the Web.

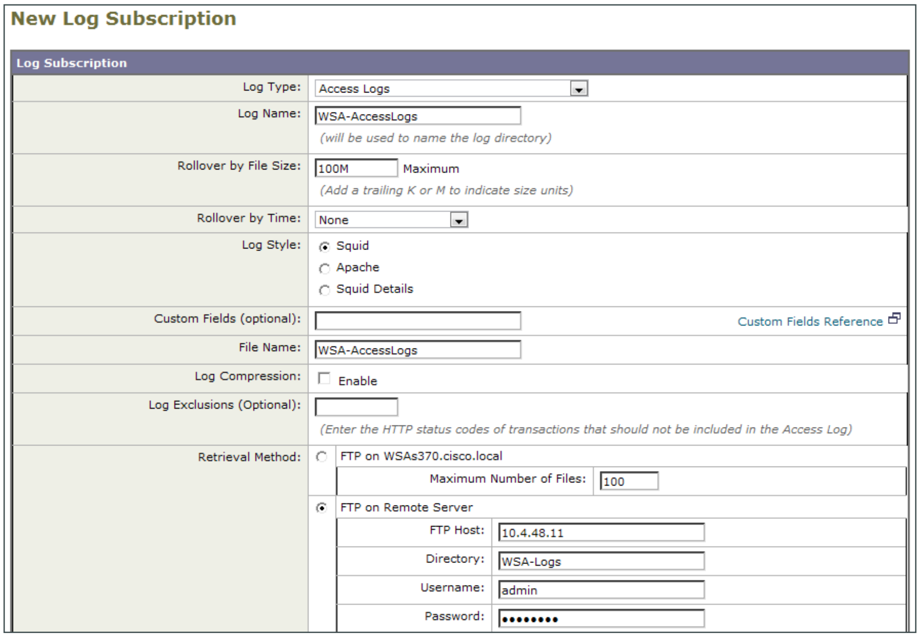
Procedure 7 Enable logging

To monitor web usage, the appliance stores client access data for a relatively short duration and it rotates logs for space reasons. For users looking for long-term compliance reporting, they should look into the Cisco solution that comes as part of the Cisco Content Security Management Appliance. This guide does not cover the installation or use of the Cisco Content Security Management Appliance.

For the reporting product to work, Cisco WSA needs to send its logs to an FTP server where the reporting device can access them. For this deployment, it is assumed that an FTP server is already deployed and configured. The following configuration moves the access logs off of Cisco WSA and onto an FTP server.

Step 1: Navigate to **System Administration > Log Subscriptions**, and then click **Add Log Subscription**.

Step 2: On the New Log Subscription page, add the new logging information, click **Submit**, and then click **Commit Changes**.

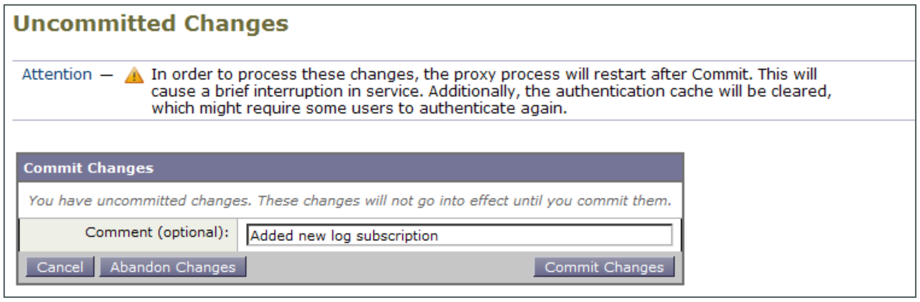


New Log Subscription

Log Subscription

Log Type:	Access Logs
Log Name:	WSA-AccessLogs *(will be used to name the log directory)*
Rollover by File Size:	100M Maximum *(Add a trailing K or M to indicate size units)*
Rollover by Time:	None
Log Style:	● Squid ○ Apache ○ Squid Details
Custom Fields (optional):	Custom Fields Reference
File Name:	WSA-AccessLogs
Log Compression:	□ Enable
Log Exclusions (Optional):	*(Enter the HTTP status codes of transactions that should not be included in the Access Log)*
Retrieval Method:	○ FTP on WSAs370.cisco.local Maximum Number of Files: 100 ● FTP on Remote Server FTP Host: 10.4.48.11 Directory: WSA-Logs Username: admin Password: ••••••••

Step 3: In the Uncommitted Changes pane, enter a comment to describe the change, and then click **Commit Changes**.



Uncommitted Changes

Attention — ⚠ In order to process these changes, the proxy process will restart after Commit. This will cause a brief interruption in service. Additionally, the authentication cache will be cleared, which might require some users to authenticate again.

Commit Changes

You have uncommitted changes. These changes will not go into effect until you commit them.

Comment (optional): Added new log subscription

Procedure 8 Create custom URL categories

Next, you set up standard custom URL categories that most administrators find they need to implement for their desired URL filtering.

Step 1: Navigate to **Web Security Manager > Custom URL Categories**, and then click **Add Custom Category**.

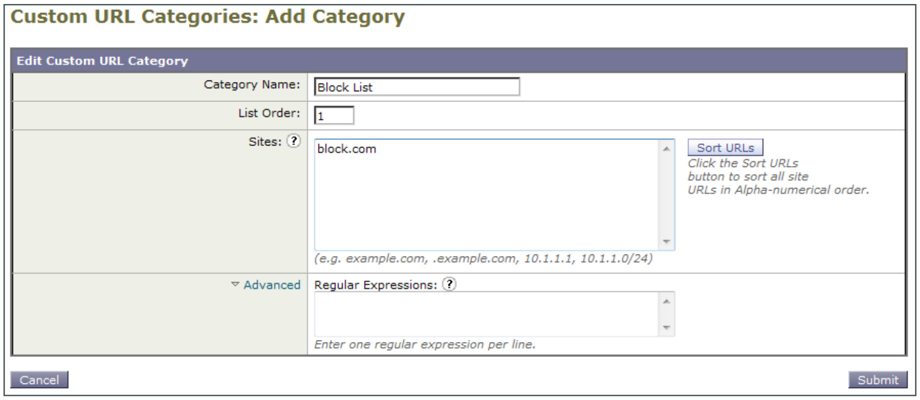
You create four placeholder categories for different action exceptions.

Step 2: In the Edit Custom URL Category pane, in the **Category Name** box, enter **Block List**.

Step 3: In the **Sites** box, enter a placeholder URL (Example: block.com), and then click **Submit**.

Tech Tip

A placeholder URL (block.com) has to be entered because it is not possible to create a category and have it be empty. In the future, when a URL is found that needs to be blocked, add it to the list, and then delete the placeholder.



Custom URL Categories: Add Category

Edit Custom URL Category

Category Name: Block List

List Order: 1

Sites: block.com

(e.g. example.com, .example.com, 10.1.1.1, 10.1.1.0/24)

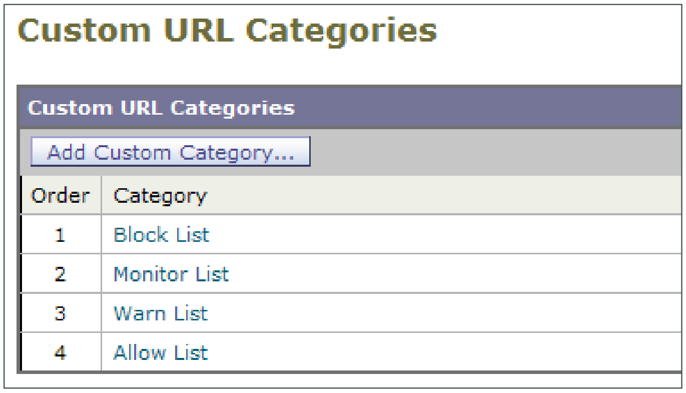
Advanced — Regular Expressions:

Enter one regular expression per line.

Sort URLs
Click the Sort URLs button to sort all site URLs in Alpha-numerical order.
Cancel
Submit

Step 4: Create three more lists by repeating Step 1 through Step 3. In the **Category Name** box, name the new lists **Monitor List**, **Warn List**, and **Allow List**. The List Order value increments with each new category; use the suggested value.

This creates an ordered list of custom categories.



Custom URL Categories

Custom URL Categories

Order	Category
1	Block List
2	Monitor List
3	Warn List
4	Allow List

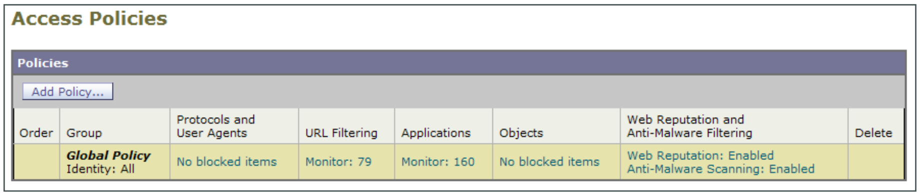
Step 5: Click **Commit Changes**.

Step 6: In the Uncommitted Changes pane, enter a comment to describe the change, and then click **Commit Changes**.

Procedure 9 Configure access policies

Now that you have created the custom URL categories, you need to enable them for use and define actions for each.

Step 1: Navigate to **Web Security Manager > Access Policies**, and then under URL Filtering, click the link.



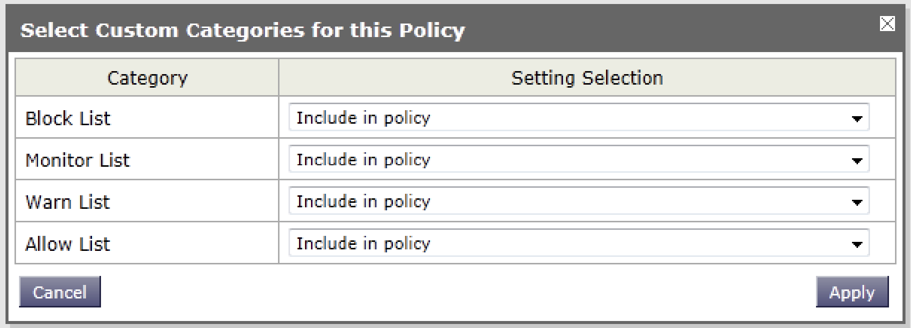
Access Policies

Policies

Order	Group	Protocols and User Agents	URL Filtering	Applications	Objects	Web Reputation and Anti-Malware Filtering	Delete
	Global Policy Identity: All	No blocked items	Monitor: 79	Monitor: 160	No blocked items	Web Reputation: Enabled Anti-Malware Scanning: Enabled	

Step 2: Click **Select Custom Categories**. The policies created in the previous procedure appear.

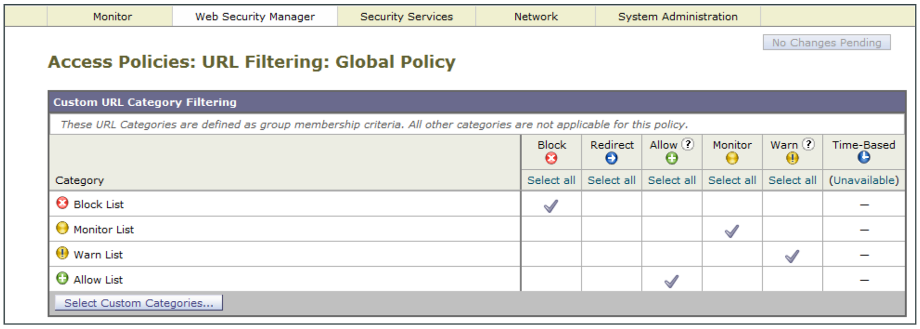
Step 3: For each custom URL category, in the **Setting Selection** list, choose **Include in Policy**, and then click **Apply**.



Select Custom Categories for this Policy

Category	Setting Selection
Block List	Include in policy
Monitor List	Include in policy
Warn List	Include in policy
Allow List	Include in policy

Step 4: On the Access Policies: URL Filtering: Global Policy page, click in the appropriate boxes in order to change the action of the category to correspond with its name. (Example: Block should be the action for the Block List category, and Monitor should be the action for the Monitor List category.)



Access Policies: URL Filtering: Global Policy

Custom URL Category Filtering

These URL Categories are defined as group membership criteria. All other categories are not applicable for this policy.

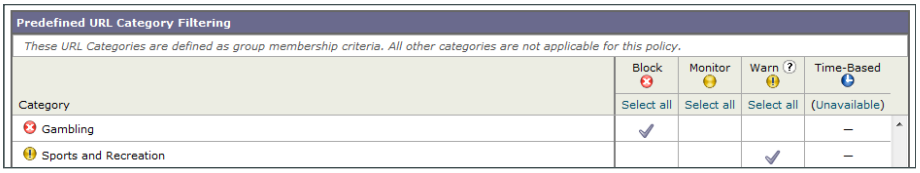
Category	Block Select all	Redirect Select all	Allow ? Select all	Monitor Select all	Warn ? Select all	Time-Based (Unavailable)
Block List	✓					–
Monitor List				✓		–
Warn List					✓	–
Allow List			✓			–

Step 5: Click **Submit**.

Additionally, on the Access Policies page, the organization's web-acceptable use policy can be implemented. This policy can include the category of the URL (adult, sports, or streaming media), the actions desired (monitor, warn, or block), as well as whether a time-based factor is involved.

Step 6: On the Access Policies page, under URL Filtering, click the link.

Step 7: For testing purposes, next to Gambling select **Block,** next to Sports and Recreation select **Warn**, and then click **Submit**. You may need to scroll to see all predefined URL categories.



Predefined URL Category Filtering

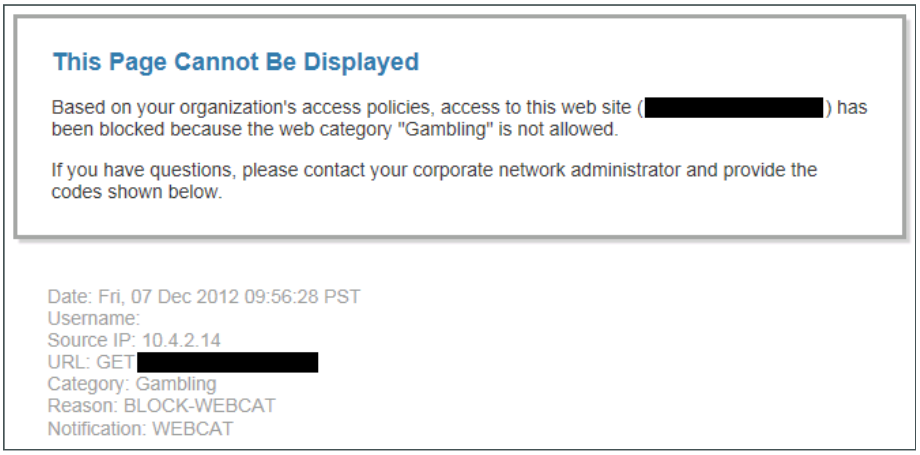
These URL Categories are defined as group membership criteria. All other categories are not applicable for this policy.

Category	Block	Monitor	Warn ?	Time-Based
	Select all	Select all	Select all	(Unavailable)
Gambling	✓			–
Sports and Recreation			✓	–

Step 8: Click **Commit Changes**.

Step 9: In the Uncommitted Changes pane, enter a comment to describe the change, and then click **Commit Changes**.

Step 10: Using a browser explicitly pointing to the appliance, browse to a well-known gambling site. Cisco WSA should return the following message:



This Page Cannot Be Displayed

Based on your organization's access policies, access to this web site ([redacted]) has been blocked because the web category "Gambling" is not allowed.

If you have questions, please contact your corporate network administrator and provide the codes shown below.

Date: Fri, 07 Dec 2012 09:56:28 PST
Username:
Source IP: 10.4.2.14
URL: GET [redacted]
Category: Gambling
Reason: BLOCK-WEBCAT
Notification: WEBCAT

Procedure 10 Configure WCCP on Cisco WSA

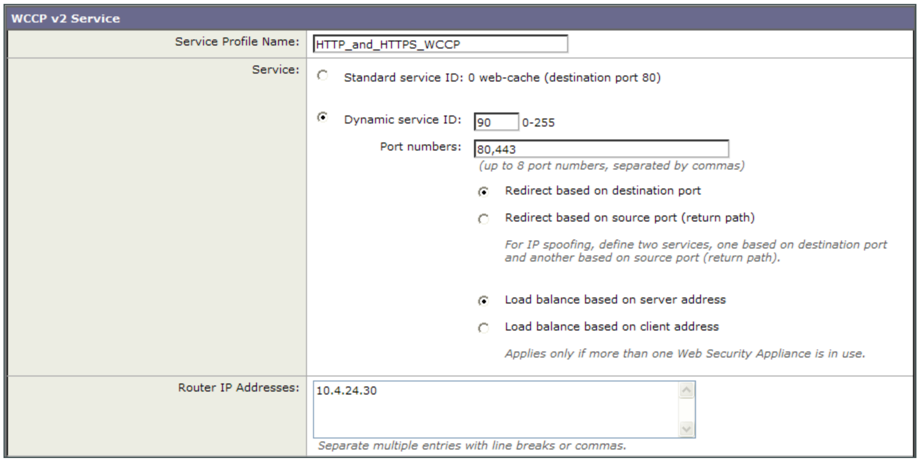
Now that Cisco WSA is working and applying an access policy for HTTP traffic, you can implement WCCP on the appliance and the appliance firewall. Implementing WCCP allows the Cisco WSA appliance to begin to receive traffic *transparently* (redirected from the firewall) instead of having browsers configured to use Cisco WSA as an explicit proxy.

Step 1: Navigate to **Network > Transparent Redirection**, and then click **Edit Device**.

Step 2: In the **Type** list, choose **WCCP v2 Router**, and then click **Submit**.

Step 3: In the Transparent Redirection pane, under WCCPv2 Services, click **Add Service**.

Step 4: In the WCCP v2 Service pane, ensure the Service Profile Name is **HTTP_and_HTTPS_WCCP**.



WCCP v2 Service

Service Profile Name: HTTP_and_HTTPS_WCCP

Service:
○ Standard service ID: 0 web-cache (destination port 80)
● Dynamic service ID: 90 0-255
Port numbers: 80,443
(up to 8 port numbers, separated by commas)
● Redirect based on destination port
○ Redirect based on source port (return path)
For IP spoofing, define two services, one based on destination port and another based on source port (return path).
● Load balance based on server address
○ Load balance based on client address
Applies only if more than one Web Security Appliance is in use.

Router IP Addresses: 10.4.24.30
Separate multiple entries with line breaks or commas.

Step 5: In the Service section, in the **Dynamic service ID** box, enter **90**. This is the number used to define this policy and is the ID used by Cisco ASA to request the policy.

Step 6: In the **Port numbers** box, enter **80, 443**. In this policy, redirect ports are HTTP and HTTPS.

Step 7: In the **Router IP Addresses** box, enter the IP address of the inside interface of your firewall (Example: 10.4.24.30) and then click **Submit**.

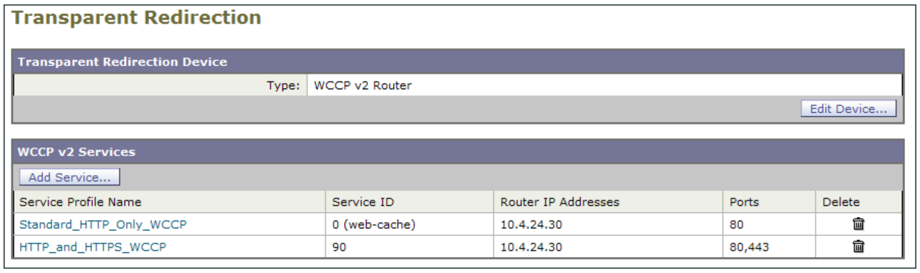
Tech Tip

HTTPS proxy has not yet been set up on Cisco WSA, so if WCCP redirect were to be initiated for HTTPS immediately, those connections would fail. If the Cisco WSA or Cisco ASA deployment is live and operational and cannot have downtime, create an additional policy for just HTTP temporarily. After configuring the HTTPS policy on the Cisco WSA, change the policy used on Cisco ASA to instead reference the HTTP and HTTPS policy.

Step 8: If you want to create an HTTP-only policy, repeat Step 3 through Step 7 using the following information:

- Service Profile Name—**Standard_HTTP_Only_WCCP**
- Service—**Standard Service ID**
- Router IP Addresses—**10.4.24.30**

After completion, the WCCP services panel should look like the following figure.



Type: WCCP v2 Router

Service Profile Name	Service ID	Router IP Addresses	Ports	Delete
Standard_HTTP_Only_WCCP	0 (web-cache)	10.4.24.30	80	🗑
HTTP_and_HTTPS_WCCP	90	10.4.24.30	80,443	🗑

Step 9: Click **Commit Changes**.

Step 10: In the Uncommitted Changes pane, enter a comment to describe the change, and then click **Commit Changes**.

Procedure 11 Configure WCCP on the firewall

The WCCP policy configured redirects all HTTP and HTTPS traffic to Cisco WSA. This includes any traffic from the inside network to the DMZ web servers and any device management traffic that uses HTTP or HTTPS. It is unnecessary to send any of this traffic to Cisco WSA. To avoid having any of this traffic redirected to Cisco WSA, you must create an access control list (ACL) on the firewall in order to filter out any HTTP or HTTPS traffic destined to RFC 1918 addresses.

Reader Tip

This procedure assumes that the Internet edge firewall has already been configured following the guidance in Firewall and IPS Design Guide.

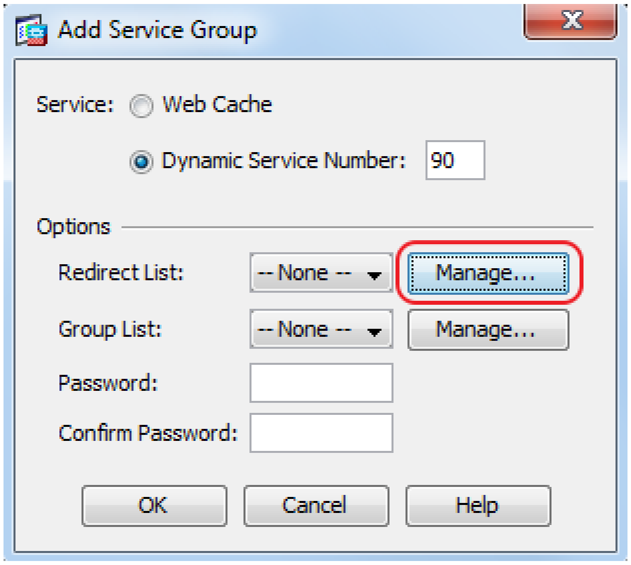
Step 1: From a client on the internal network, navigate to the firewall's inside IP address, and then launch the Cisco ASA Security Device Manager (ASDM). (Example: https://10.4.24.30)

Step 2: Navigate to **Configuration > Device Management > Advanced > WCCP > Service Groups**, and the click **Add**.

Step 3: If you are configuring an HTTP and HTTPS policy, on the Add Service Group dialog box, select **Dynamic Service Number**, and then enter the value of **90** that was configured as a service ID in Procedure 10, Step 5.

If you are configuring a temporary HTTP-only policy, then select **Web Cache**.

Step 4: On the Add Service Group dialog box, next to Redirect List, click **Manage**.



Add Service Group

Service: ○ Web Cache

● Dynamic Service Number: 90

Options

Redirect List: -- None --

Group List: -- None --

Password:

Confirm Password:

Step 5: In the ACL Manager window, click **Add**.

Step 6: Click **Add ACL**.

Step 7: On the Add ACL dialog box, in the **ACL Name** box, enter **WCCP_Redirect_List**, and then click **OK**.

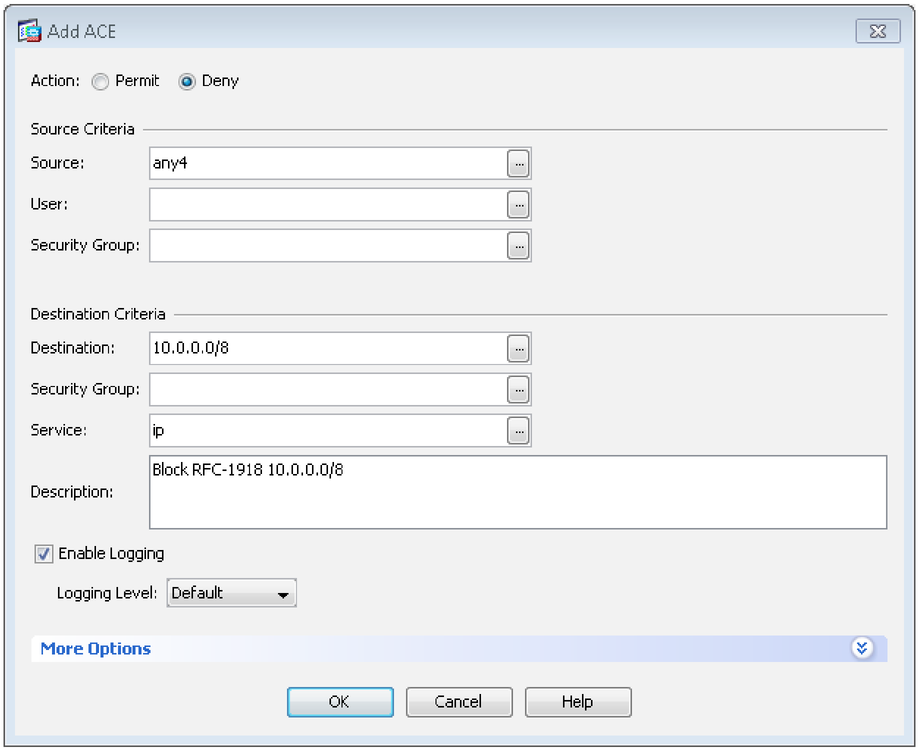
Step 8: Repeat Step 9 and Step 10 for all entries in Table 2.

Table 2 - Access control entries for WCCP redirect

Action	Source	Destination	Service	Description
deny	any4	10.0.0.0/8	ip	Block RFC-1918 10.0.0.0/8
deny	any4	172.16.0.0/12	ip	Block RFC-1918 172.16.0.0/12
deny	any4	192.168.0.0/16	ip	Block RFC-1918 192.168.0.0/16
permit	any4	any4	ip	Permit all others

Step 9: In ACL Manager window, select the **WCCP_Redirect_List** ACL, click **Add**, and then click **Add ACE**.

Step 10: In the Add ACE dialog box, using the fields from Table 2, select the Action and then enter the Source, Destination, Service and Description fields.



Add ACE

Action: ○ Permit ● Deny

Source Criteria

Source: any4

User:

Security Group:

Destination Criteria

Destination: 10.0.0.0/8

Security Group:

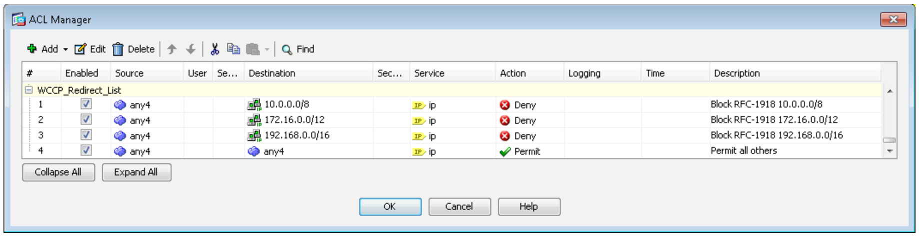
Service: ip

Description: Block RFC-1918 10.0.0.0/8

☑ Enable Logging

Logging Level: Default

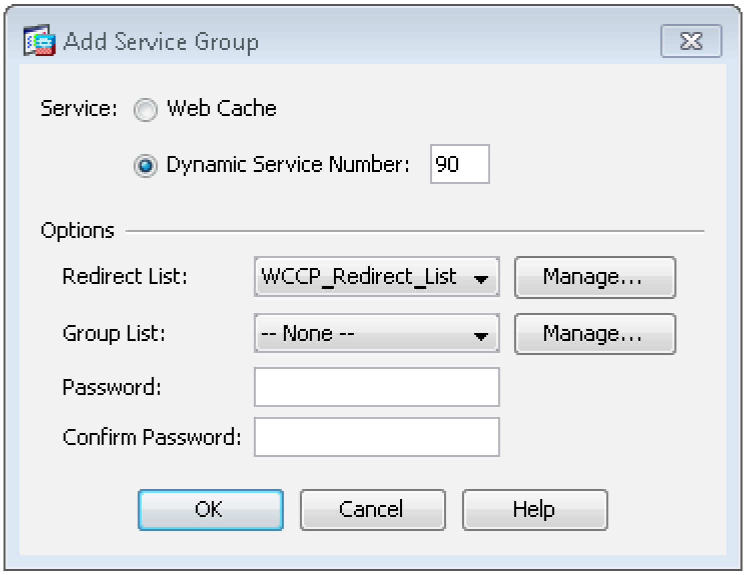
Step 11: After completing in the ACL Manager window all entries in Table 2, click **OK**.



ACL Manager

#	Enabled	Source	User	Se...	Destination	Sec...	Service	Action	Logging	Time	Description
⊟ WCCP_Redirect_List											
1	☑	any4			10.0.0.0/8		ip	Deny			Block RFC-1918 10.0.0.0/8
2	☑	any4			172.16.0.0/12		ip	Deny			Block RFC-1918 172.16.0.0/12
3	☑	any4			192.168.0.0/16		ip	Deny			Block RFC-1918 192.168.0.0/16
4	☑	any4			any4		ip	✓ Permit			Permit all others

Step 12: On the Add Service Group dialog box, in the **Redirect List** list, choose the ACL created above (Example: WCCP_Redirect_List), and then click **OK**.



Add Service Group

Service: ○ Web Cache

● Dynamic Service Number: 90

Options

Redirect List: WCCP_Redirect_List

Group List: -- None --

Password:

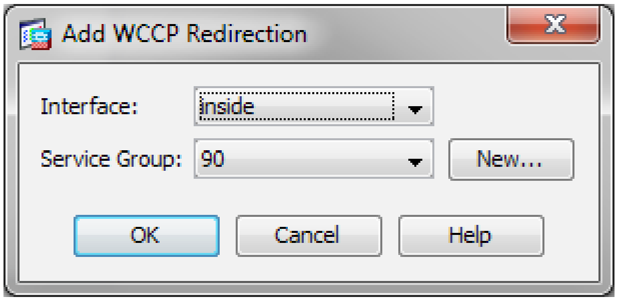
Confirm Password:

Step 13: On the Service Groups pane, click **Apply**.

Step 14: Navigate to **Configuration > Device Management > Advanced > WCCP > Redirection**, and then click **Add**.

Step 15: If you are configuring an HTTP and HTTPS policy, on the Add WCCP Redirection dialog box, in the **Interface** list, choose **inside**, in the **Service Group** list, choose **90**, and then click **OK**.

If you are configuring an HTTP-only policy, in the **Interface** list, choose **inside**, in the **Service Group** list, choose **web-cache**, and then click **OK**.



Add WCCP Redirection

Interface: inside

Service Group: 90

Step 16: On the Redirection pane, click **Apply**.

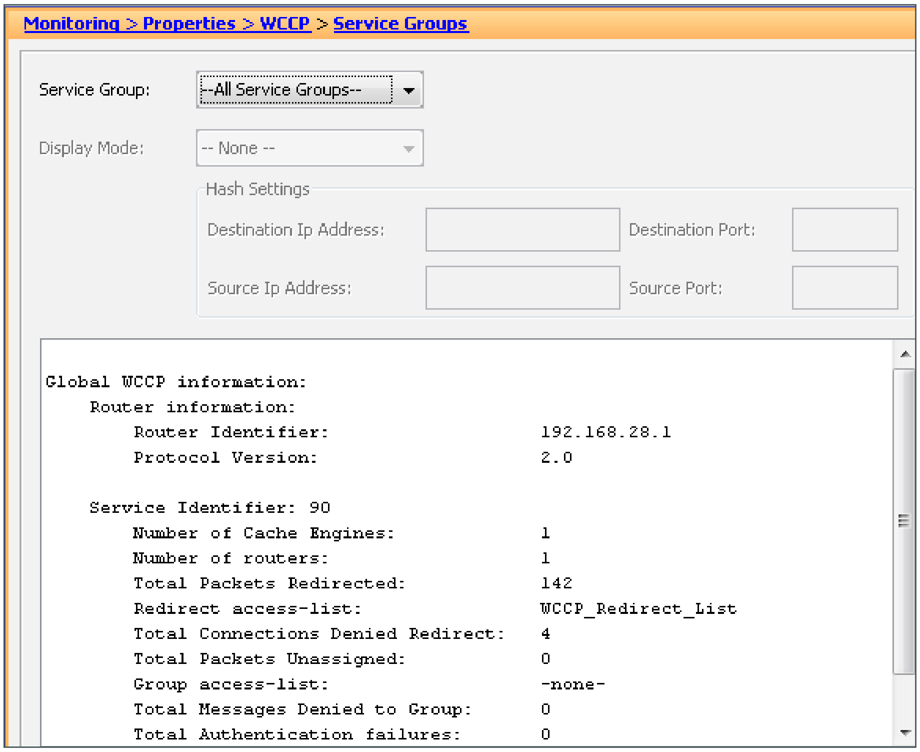
Step 17: If you want to test the configuration, use a browser that is not already configured to go to the appliance as an explicit proxy (or remove the explicit proxy settings), and test to the following sites:

- A resolvable allowed address, such as www.cisco.com
- A resolvable blocked address (from one of the previously configured Blocked categories)

Next, in Cisco ASDM, you check that WCCP redirection is working.

Step 18: Navigate to **Monitoring > Properties > WCCP > Service Groups**.

The status window should show a router ID that is the highest IP address of the appliance and the number of cache engines is 1, which is the Cisco WSA appliance. If things are working correctly and redirections are occurring, the Total Packets Redirected counter increases.



Service Group: --All Service Groups--

Display Mode: -- None --

Destination Ip Address:

Destination Port:

Source Ip Address:

Source Port:

```
Global WCCP information:
    Router information:
        Router Identifier:                    192.168.28.1
        Protocol Version:                     2.0

    Service Identifier: 90
        Number of Cache Engines:              1
        Number of routers:                    1
        Total Packets Redirected:             142
        Redirect access-list:                 WCCP_Redirect_List
        Total Connections Denied Redirect:    4
        Total Packets Unassigned:             0
        Group access-list:                    -none-
        Total Messages Denied to Group:       0
        Total Authentication failures:        0
```

High Availability and Resilience

For availability purposes, if Cisco WSA fails, the WCCP reports that fact to the appliance, and it stops redirecting traffic to Cisco WSA by default. If web security resilience is a requirement, two or more Cisco WSAs can be deployed. To deploy multiple devices, define multiple WCCP routers on the appliance, and the WCCP protocol load-balances between them. If one is down, the appliance takes that device out of the list until it comes back online and starts responding to WCCP requests again.

Procedure 12 Configure default tunnel gateway

This procedure is required when using the integrated deployment model for firewall and remote-access VPN. If you are using the standalone deployment model, the default tunnel gateway is already configured, skip to Procedure 13, "Set up HTTPS proxy."

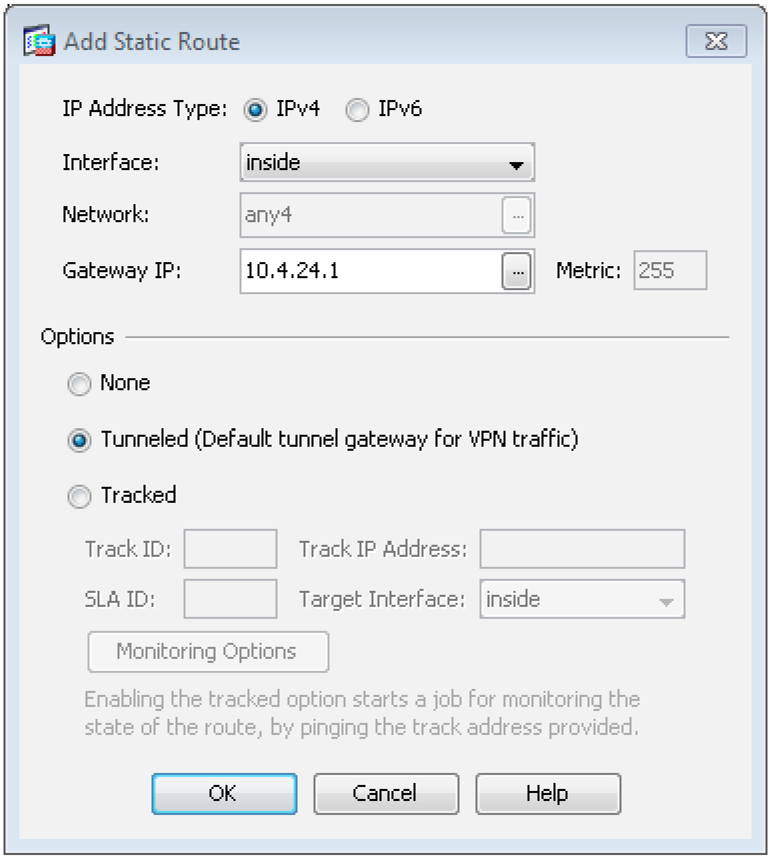
Cisco WSA must inspect traffic from remote-access VPN clients to and from the Internet. To accomplish this, all traffic to and from the VPN clients must be routed toward the LAN distribution switch, regardless of the traffic's destination, so that the Cisco ASA appliance can properly redirect the traffic to the Cisco WSA appliance.

Step 1: From a client on the internal network, navigate to the firewall's inside IP address, and then launch Cisco ASA Security Device Manager. (Example: https://10.4.24.30)

Step 2: In **Configuration > Device Setup > Routing > Static Routes**, click **Add**.

Step 3: On the Add Static Route dialog box, configure the following values, and then click **OK**.

- Interface—**inside**
- Network—**any4**
- Gateway IP—**10.4.24.1**
- Options—**Tunneled (Default tunnel gateway for VPN traffic)**



Add Static Route

IP Address Type: ● IPv4 ○ IPv6

Interface: inside

Network: any4

Gateway IP: 10.4.24.1

Metric: 255

Options

○ None

● Tunneled (Default tunnel gateway for VPN traffic)

○ Tracked

Track ID:

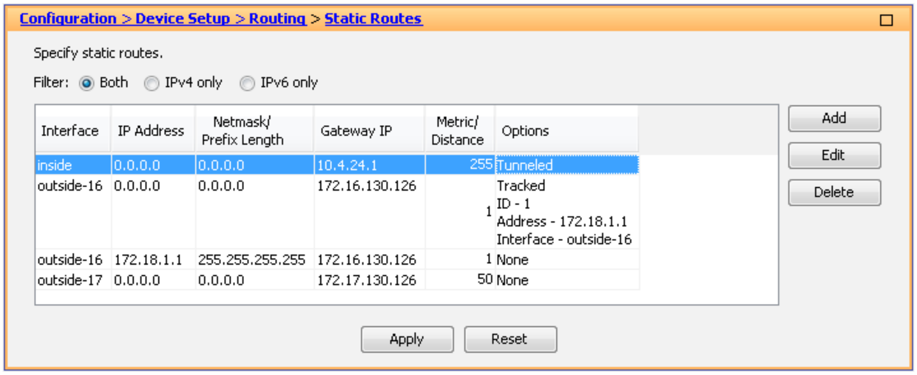
Track IP Address:

SLA ID:

Target Interface: inside

Enabling the tracked option starts a job for monitoring the state of the route, by pinging the track address provided.

Step 4: Verify the configuration, and then click **Apply**.



Configuration > Device Setup > Routing > Static Routes

Specify static routes.

Filter: ● Both ○ IPv4 only ○ IPv6 only

Interface	IP Address	Netmask/ Prefix Length	Gateway IP	Metric/ Distance	Options
inside	0.0.0.0	0.0.0.0	10.4.24.1	255	Tunneled
outside-16	0.0.0.0	0.0.0.0	172.16.130.126	1	Tracked ID - 1 Address - 172.18.1.1 Interface - outside-16
outside-16	172.18.1.1	255.255.255.255	172.16.130.126	1	None
outside-17	0.0.0.0	0.0.0.0	172.17.130.126	50	None

Procedure 13 Set up HTTPS proxy

To set up Cisco WSA to proxy HTTPS connections, start by enabling the feature.

Step 1: On the Cisco WSA appliance, navigate to **Security Services > HTTPS Proxy**, and then click **Enable and Edit Settings**.

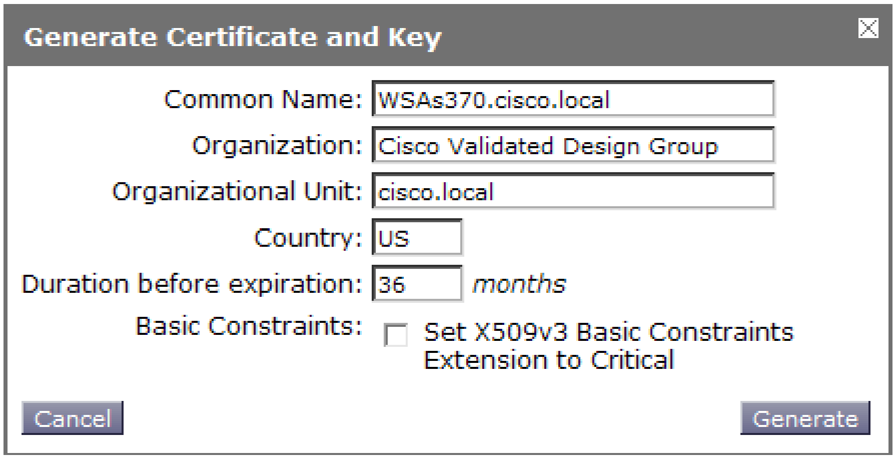
Step 2: On the HTTPS Proxy License Agreement page, click **Accept**.

Tech Tip

You need to generate a certificate for Cisco WSA to use on the client side of the proxy connection. Generating a self-signed certificate causes the client browser to warn about the certificate for each connection to an HTTPS website. To avoid this, upload a certificate that was issued from an organization's trusted certificate authority to the appliance. If the clients already have the trusted root certificate loaded on their machines, the HTTPS proxy does not generate errors related to unknown certificate authority.

Step 3: On the Edit HTTPS Proxy Settings page, in the Root Certificate for Signing section, select **Use Generated Certificate and Key**, and then click **Generate New Certificate and Key**.

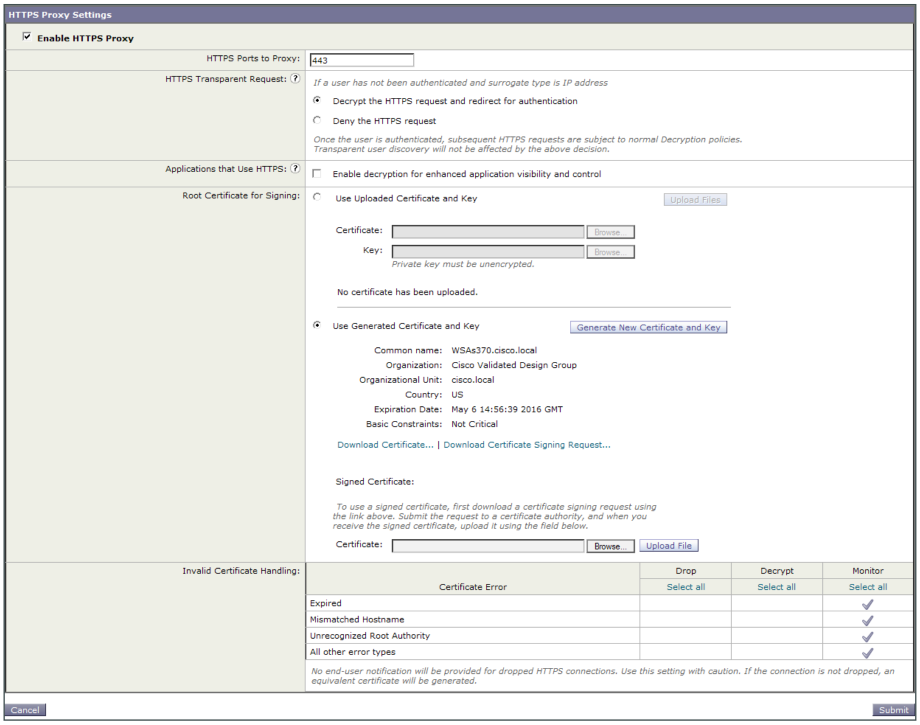
Step 4: In the Generate Certificate and Key dialog box, enter values relevant to your organization, and then click **Generate**.



Generate Certificate and Key

Common Name:	WSAs370.cisco.local
Organization:	Cisco Validated Design Group
Organizational Unit:	cisco.local
Country:	US
Duration before expiration:	36 *months*
Basic Constraints:	□ Set X509v3 Basic Constraints Extension to Critical

Step 5: In the Invalid Certificate Handling section, define the action that Cisco WSA should take when it encounters an invalid certificate on the HTTPS server. The choices, depending on the certificate error, can range from dropping the connection, decrypting it, or monitoring it. This example uses the default setting of **Monitor** for all errors.



HTTPS Proxy Settings

☑ **Enable HTTPS Proxy**

HTTPS Ports to Proxy: 443

HTTPS Transparent Request: ?

If a user has not been authenticated and surrogate type is IP address

● Decrypt the HTTPS request and redirect for authentication

○ Deny the HTTPS request

Once the user is authenticated, subsequent HTTPS requests are subject to normal Decryption policies.
Transparent user discovery will not be affected by the above decision.

Applications that Use HTTPS: ?

□ Enable decryption for enhanced application visibility and control

Root Certificate for Signing:

○ Use Uploaded Certificate and Key — Upload Files

Certificate: [ ] Browse...
Key: [ ] Browse...
Private key must be unencrypted.

No certificate has been uploaded.

● Use Generated Certificate and Key — Generate New Certificate and Key

Common name: WSAs370.cisco.local
Organization: Cisco Validated Design Group
Organizational Unit: cisco.local
Country: US
Expiration Date: May 6 14:56:39 2016 GMT
Basic Constraints: Not Critical

Download Certificate... | Download Certificate Signing Request...

Signed Certificate:

To use a signed certificate, first download a certificate signing request using the link above. Submit the request to a certificate authority, and when you receive the signed certificate, upload it using the field below.

Certificate: [ ] Browse... Upload File

Invalid Certificate Handling:

Certificate Error	Drop	Decrypt	Monitor
	Select all	Select all	Select all
Expired			✓
Mismatched Hostname			✓
Unrecognized Root Authority			✓
All other error types			✓

No end-user notification will be provided for dropped HTTPS connections. Use this setting with caution. If the connection is not dropped, an equivalent certificate will be generated.

Cancel — Submit

Step 6: When you are finished editing, click **Submit**, and then click **Commit Changes**.

Step 7: In the Uncommitted Changes pane, enter a comment to describe the change, and then click **Commit Changes**.

Reader Tip

For more information about using certificates as part of the Cisco WSA HTTPS proxy mechanism, see the *Cisco WSA End-User Guides* at http://www.cisco.com/en/US/products/ps10164/products_user_guide_list.html, or consult a trusted partner or Cisco sales representative.

Next you configure policies for the HTTPS proxy.

Step 8: Navigate to **Web Security Manager > Custom URL Categories**, and then click **Add Custom Category**.

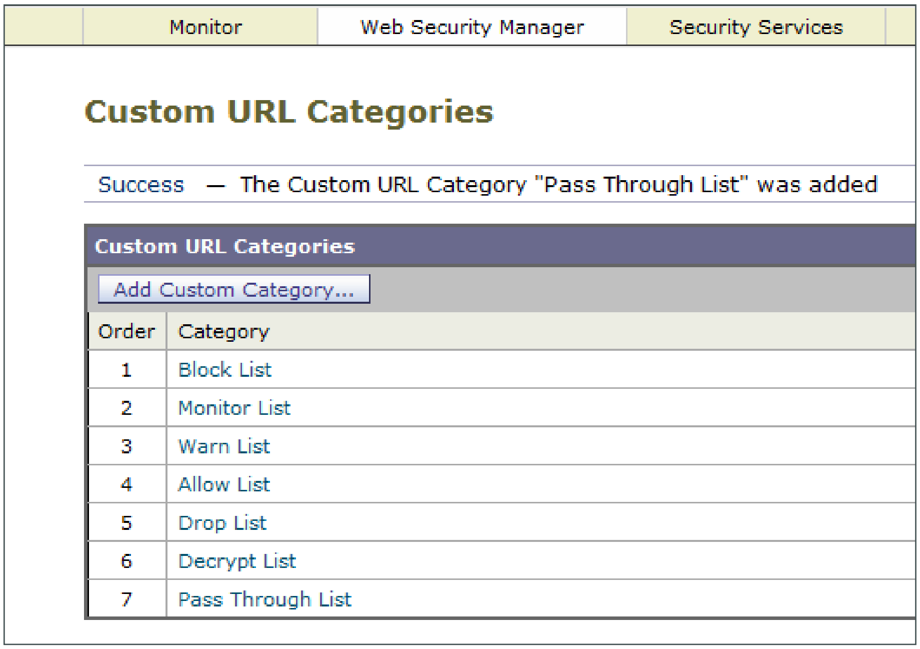
You create three placeholder categories for different action-exceptions.

Step 9: In the Edit Custom URL Category pane, in the **category name** box, enter **Drop List**.

Step 10: In the **Sites** box, enter a placeholder URL (Example: drop.com), and then click **Submit**.

Step 11: Repeat Step 9 and Step 10 to create two more custom categories. For the category names, enter **Decrypt List** and **Pass Through List**, and then click Commit Changes.

Step 12: In the Uncommitted Changes pane, enter a comment to describe the change, and then click Commit Changes.



Custom URL Categories

Success — The Custom URL Category "Pass Through List" was added

Custom URL Categories

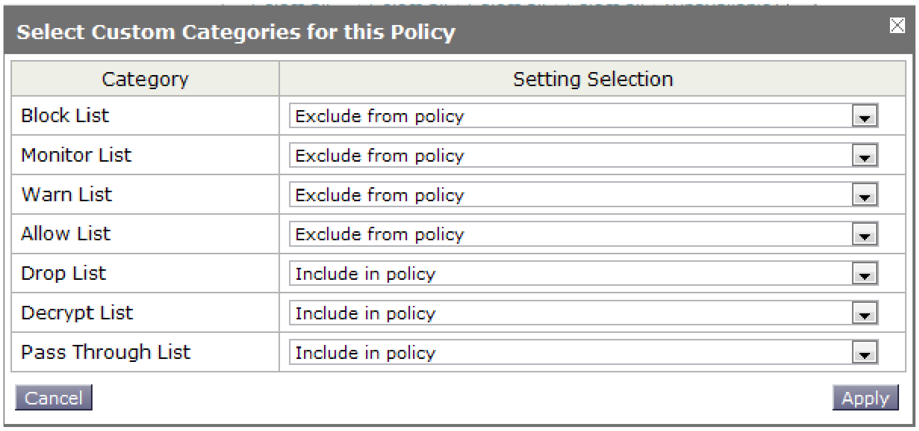
Order	Category
1	Block List
2	Monitor List
3	Warn List
4	Allow List
5	Drop List
6	Decrypt List
7	Pass Through List

Step 13: Navigate to Web Security Manager > Decryption Policies.

Step 14: Under the URL Filtering box, click the link.

Step 15: On the Decryption Policies: URL Categories: Global Policy page, click Select Custom Categories.

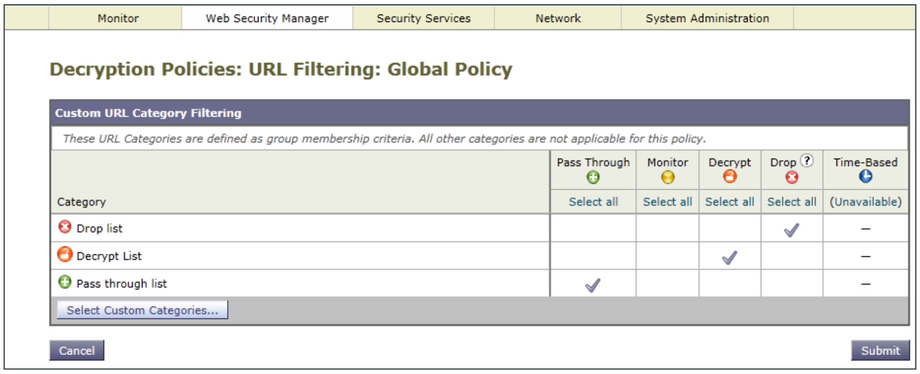
Step 16: In the Select Custom Categories for this Policy window, for each of the three new custom categories, in the Setting Selection list, choose Include in policy, and then click Apply.



Select Custom Categories for this Policy

Category	Setting Selection
Block List	Exclude from policy
Monitor List	Exclude from policy
Warn List	Exclude from policy
Allow List	Exclude from policy
Drop List	Include in policy
Decrypt List	Include in policy
Pass Through List	Include in policy

Step 17: On the Decryption Policies: URL Filtering: Global Policy page, change the action of the category to correspond with its name, (Example: Drop should be the action for the Drop List category) and then click **Submit**.



Decryption Policies: URL Filtering: Global Policy

Custom URL Category Filtering

These URL Categories are defined as group membership criteria. All other categories are not applicable for this policy.

Category	Pass Through	Monitor	Decrypt	Drop	Time-Based
	Select all	Select all	Select all	Select all	(Unavailable)
Drop list				✓	–
Decrypt List			✓		–
Pass through list	✓				–

Step 18: Click **Commit Changes**.

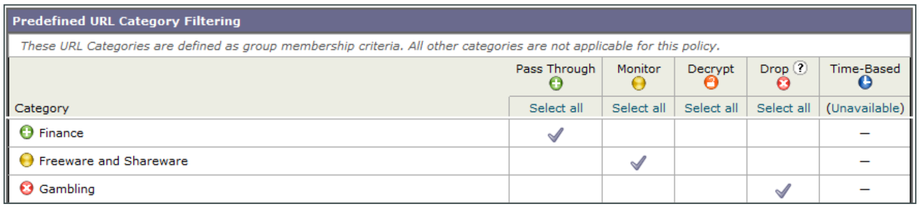
Step 19: In the Uncommitted Changes pane, enter a comment to describe the change, and then click **Commit Changes**.

Step 20: Navigate to **Web Security Manager > Decryption Policies**.

Step 21: Under the URL Filtering box, click the link.

The predefined URL categories at the bottom of the page allow an administrator to create and enforce a policy around how Cisco WSA handles specific types of websites with relation to decryption. Some organizations have strict policies about not decrypting certain sites, such as health care or financial websites. The categories on this page allow an administrator to enforce that policy on the appliance. For example, it is possible to configure Cisco WSA so that financial HTTPS websites are set to Pass Through so they are not proxied, while gambling sites are set to Drop.

Step 22: Change the action for Gambling to **Drop**, and change the action for Finance to **Pass Through**, and then click **Submit**.



Predefined URL Category Filtering

These URL Categories are defined as group membership criteria. All other categories are not applicable for this policy.

Category	Pass Through	Monitor	Decrypt	Drop	Time-Based
	Select all	Select all	Select all	Select all	(Unavailable)
Finance	✓				–
Freeware and Shareware		✓			–
Gambling				✓	–

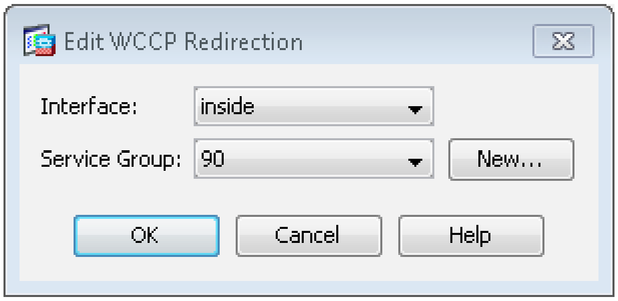
Step 23: Click **Commit Changes**.

Step 24: In the Uncommitted Changes pane, enter a comment to describe the change, and then click **Commit Changes**.

Step 25: If your Cisco ASA is configured to use an HTTP and HTTPS policy, skip to Step 28.

If your Cisco ASA was configured with an HTTP-only policy, you should now change to the HTTP and HTTPS policy. On the Cisco ASA appliance, navigate to **Configuration > Device Management > Advanced > WCCP > Redirection**, and then click **Edit**.

Step 26: In the Edit WCCP Redirection dialog box, in the **Service Group** list, choose **90**, and then click **OK**.



Interface: inside

Service Group: 90

Step 27: On the Redirection pane, click **Apply**.

Step 28: If you want to test the new configuration, set up categories for webpages that you know are encrypted (HTTPS) and then use those URLs in the testing process. Because the administrator has to know whether the site uses HTTPS, use a custom URL category and put the address in the Drop List. When that site is accessed, Cisco WSA should drop the connection.

Procedure 14 Configure authentication

Authentication is the act of confirming the identity of a user. When authentication is enabled, Cisco WSA authenticates clients on the network before allowing them to connect to a destination server. When using authentication, it is possible to set up different web access policies by user or group membership, using a central user directory. Another primary driver for using authentication is that of user tracking, so that when a user violates an acceptable-use policy, Cisco WSA can match the user with the violation instead of just using an IP address. The last reason for authentication of web sessions is for compliance reporting.

Cisco WSA supports two different authentication protocols: Lightweight Directory Access Protocol (LDAP) and NT LAN Manager (NTLM). Because most organizations have an Active Directory server, they use NTLM. Single Sign-On is also only available when using NTLM.

When Cisco WSA is deployed in transparent mode with authentication enabled and a transaction requires authentication, Cisco WSA asks for authentication credentials from the client application. However, not all client applications support authentication, so they have no way to prompt users to provide their user names and passwords. These applications might have issues when Cisco WSA is deployed in transparent mode because the application tries to run non-HTTP traffic over port 80 and cannot handle an attempt by Cisco WSA to authenticate the connection.

Here is a partial list of applications that do not support authentication (these are subject to change as newer code versions are released):

- Mozilla Thunderbird
- Adobe Acrobat Updates
- Microsoft Windows Update
- Outlook Exchange (when trying to retrieve Internet-based pictures for email messages)

If applications need to access a particular URL, then it is possible to create an identity based on a custom User Agent category that does not require authentication. When this happens, the client application is not asked for authentication.

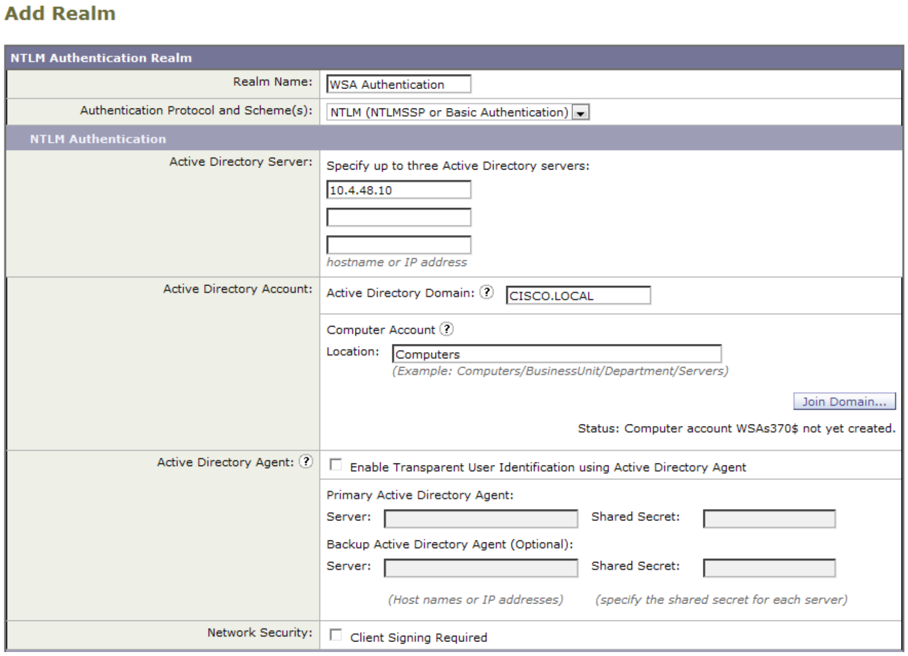
For organizations that require authentication, consult a trusted Cisco Partner or reseller or your Cisco account team. They can assist in setting up an authentication solution that meets the organization's requirements, while minimizing any possible complications.

The first step in setting up authentication is to build an authentication realm. A realm defines how authentication is supposed to occur.

In this deployment, a realm was built for NTLM authentication to the Active Directory server.

Step 1: Navigate to **Network > Authentication**, and then click on **Add Realm**.

Step 2: On the Add Realm page, specify the **Active Directory Server** and the **Active Directory Domain**, and then click **Join Domain**.



Add Realm

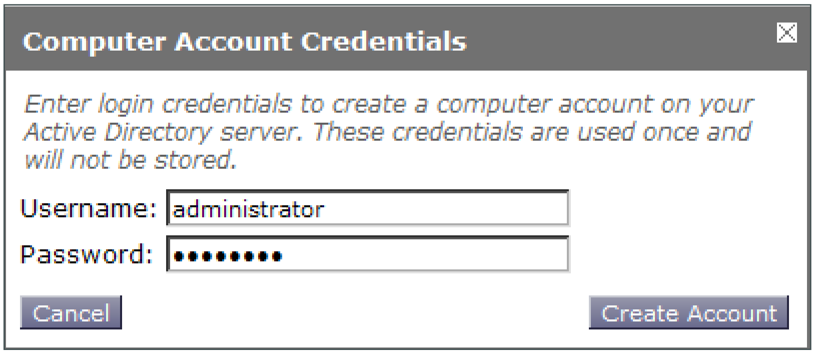
NTLM Authentication Realm

Realm Name:	WSA Authentication
Authentication Protocol and Scheme(s):	NTLM (NTLMSSP or Basic Authentication)

NTLM Authentication

Active Directory Server:	Specify up to three Active Directory servers: 10.4.48.10 hostname or IP address
Active Directory Account:	Active Directory Domain: ? CISCO.LOCAL Computer Account ? Location: Computers (Example: Computers/BusinessUnit/Department/Servers) Join Domain... Status: Computer account WSAs370$ not yet created.
Active Directory Agent: ?	□ Enable Transparent User Identification using Active Directory Agent Primary Active Directory Agent: Server: Shared Secret: Backup Active Directory Agent (Optional): Server: Shared Secret: (Host names or IP addresses) (specify the shared secret for each server)
Network Security:	□ Client Signing Required

Step 3: In the Computer Account Credentials dialog box, enter the Active Directory domain administrator credentials (or ask an administrator to enter them), and then click **Create Account**.



Computer Account Credentials

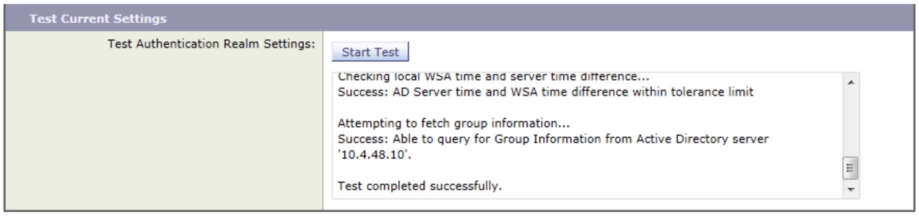
Enter login credentials to create a computer account on your Active Directory server. These credentials are used once and will not be stored.

Username: administrator

Password: ●●●●●●●●

Step 4: On the Add Realm page, click **Start Test**. This tests the NTLM connection to the Active Directory domain.

Step 5: In the Test Authentication Realm Settings box, monitor the results.



Test Current Settings

Test Authentication Realm Settings: Start Test

```
Checking local WSA time and server time difference...
Success: AD Server time and WSA time difference within tolerance limit

Attempting to fetch group information...
Success: Able to query for Group Information from Active Directory server
'10.4.48.10'.

Test completed successfully.
```

Step 6: When the test is completed successfully, click **Submit**, and then click **Commit Changes**.

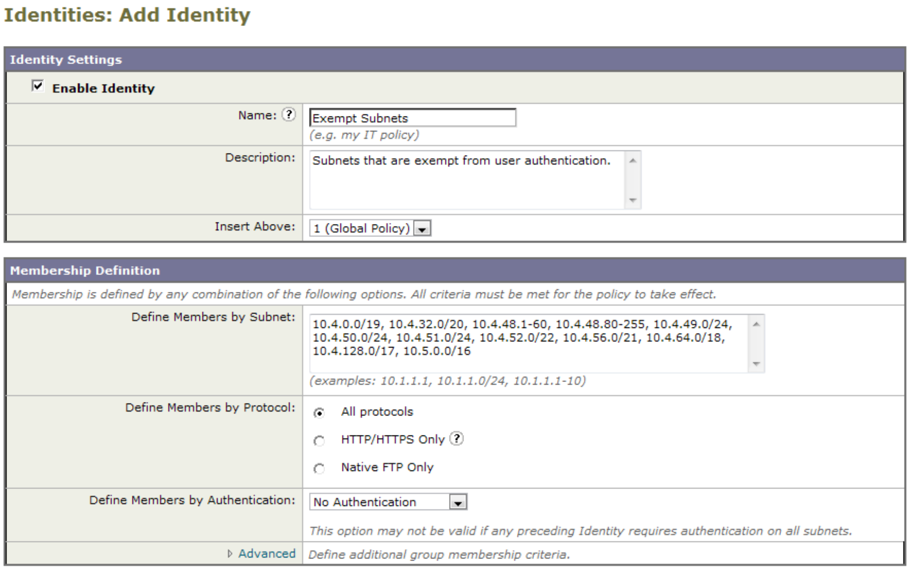
Step 7: In the Uncommitted Changes pane, enter a comment to describe the change, and then click **Commit Changes**.

Next you configure identity groups. Identities are based on the identity of the client or the transaction itself.

Step 8: Navigate to **Web Security Manager > Identities**, and then click **Add Identity**.

You create two different sample identities: Exempt Subnets and Exempt User Agents.

Step 9: On the Add Identity page, in the **Name** box, enter **Exempt Subnets**.



Identities: Add Identity

Identity Settings

☑ **Enable Identity**

Name: ?	Exempt Subnets *(e.g. my IT policy)*
Description:	Subnets that are exempt from user authentication.
Insert Above:	1 (Global Policy)

Membership Definition

Membership is defined by any combination of the following options. All criteria must be met for the policy to take effect.

Define Members by Subnet:	10.4.0.0/19, 10.4.32.0/20, 10.4.48.1-60, 10.4.48.80-255, 10.4.49.0/24, 10.4.50.0/24, 10.4.51.0/24, 10.4.52.0/22, 10.4.56.0/21, 10.4.64.0/18, 10.4.128.0/17, 10.5.0.0/16 *(examples: 10.1.1.1, 10.1.1.0/24, 10.1.1.1-10)*
Define Members by Protocol:	● All protocols ○ HTTP/HTTPS Only ? ○ Native FTP Only
Define Members by Authentication:	No Authentication *This option may not be valid if any preceding Identity requires authentication on all subnets.*
▹ Advanced	*Define additional group membership criteria.*

Step 10: In the **Define Members by Subnet** box, enter the subnet(s) that you want to allow to access the Internet without authentication.

Step 11: In the **Define Members by Authentication** list, choose **No Authentication**, and then click **Submit**.

Tech Tip

Performing this action defeats the purpose of running authentication for that IP address, and log information from Cisco WSA will never have authentication data from employees using that IP address. Even so, taking this action may be required in certain cases and is given here as an example of how to change the operational policy of Cisco WSA.

Step 12: On the Identities page, click **Add Identity**.

Step 13: On the Add Identity page, in the **Name** box, enter **Exempt User Agents**, and then click **Advanced**.

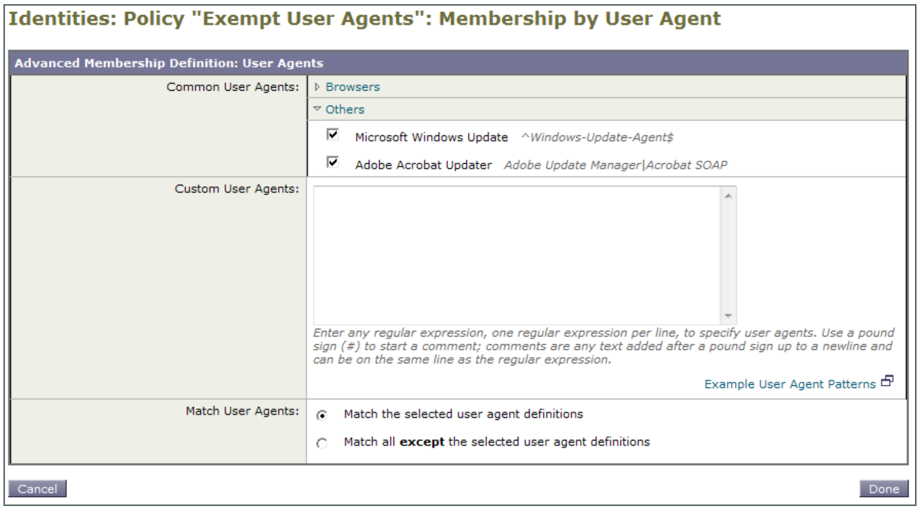
Step 14: In the Advanced section, next to **User Agents**, click **None Selected**.

Step 15: On the Membership by User Agent page, Under **Common User Agents** click **Others**.

Step 16: Under **Others**, select **Microsoft Windows Update** and **Adobe Acrobat Updater**.

Tech Tip

Selecting these agents means that when connections over HTTP with those User Agents in the HTTP Header are seen, no authentication is requested.



Identities: Policy "Exempt User Agents": Membership by User Agent

Advanced Membership Definition: User Agents

Common User Agents: ▷ Browsers / ▽ Others

☑ Microsoft Windows Update *^Windows-Update-Agent$*

☑ Adobe Acrobat Updater *Adobe Update Manager|Acrobat SOAP*

Custom User Agents:

Enter any regular expression, one regular expression per line, to specify user agents. Use a pound sign (#) to start a comment; comments are any text added after a pound sign up to a newline and can be on the same line as the regular expression.

Example User Agent Patterns

Match User Agents:

● Match the selected user agent definitions

○ Match all **except** the selected user agent definitions

Step 17: In the Custom User Agents box, enter any application that uses HTTP and is failing authentication, and then click **Done**.

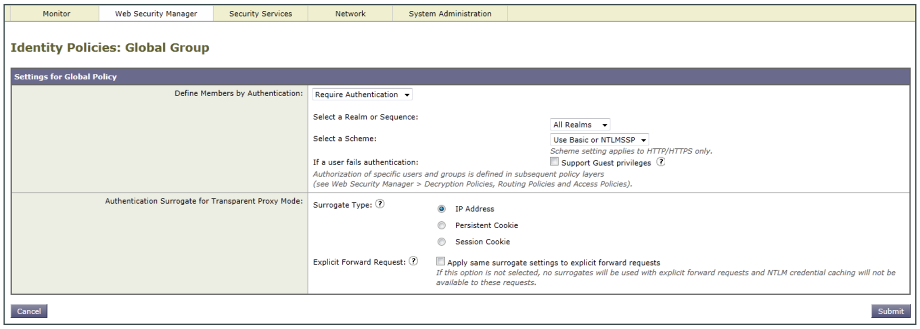
> **Tech Tip**
>
> If it is not possible to enter the application that is failing, then a specific custom URL category can be built and then used in the Advanced tab for URL categories.

Step 18: On the Identities: Add Identity page, click **Submit**.

Step 19: On the Identities page, at the bottom of the Client/Transaction Identity Definitions section, click **Global Identity Policy**.

This is the identity group for anybody who does not meet one of the preceding two groups you just built. Since those groups were built for the purpose of not authenticating, change the global identity to authenticate everybody else.

Step 20: On the Identity Policies: Global Group page, in the **Define Members by Authentication** list, choose **Require Authentication**.



Identity Policies: Global Group

Settings for Global Policy

Define Members by Authentication: Require Authentication

Select a Realm or Sequence: All Realms

Select a Scheme: Use Basic or NTLMSSP

Scheme setting applies to HTTP/HTTPS only.

If a user fails authentication: □ Support Guest privileges ?

Authorization of specific users and groups is defined in subsequent policy layers (see Web Security Manager > Decryption Policies, Routing Policies and Access Policies).

Authentication Surrogate for Transparent Proxy Mode:

Surrogate Type: ?

● IP Address
○ Persistent Cookie
○ Session Cookie

Explicit Forward Request: ? □ Apply same surrogate settings to explicit forward requests

If this option is not selected, no surrogates will be used with explicit forward requests and NTLM credential caching will not be available to these requests.

Step 21: In the **Select a Realm or Sequence** list, choose **All Realms**.

Step 22: In the **Select a Scheme** list, choose **Basic or NTLMSSP**, and then click **Submit**.

Step 23: Click **Commit Changes**.

Step 24: In the Uncommitted Changes pane, enter a comment to describe the change, and then click **Commit Changes**.

It is now possible to test the deployment to ensure that the system is enforcing policy as expected, that all applications and processes work as before, and that the data that the system is logging meets all of your needs or requirements.

Additional Information

Monitoring

To monitor the health of Cisco WSA and the actions being taken by the appliance on traffic it is examining, there are a variety of reports available on the Monitor tab. These reports allow an administrator to track statistics for client web activity, malware types, web reputation filters, system status, and more.

Because the appliance itself stores data for only a limited amount of time, you need to use the Cisco Content Security Management Appliance in order to allow for long-term storage and reporting of events from Cisco WSA.

Consult with your Cisco account team or your trusted partner for more information on the Cisco Content Security Management Appliance and long-term reporting.

Troubleshooting

To determine why Cisco WSA took the action it did on a web connection to a specific site from a specific user, an administrator can run the Trace tool by navigating to System Administration > Policy Trace.

By filling out the tool, you can test a specific URL to find out what the expected response from the appliance would be if it processed the URL. This information is especially useful if some of the more advanced features are used.

Summary

You have now installed Cisco WSA. A basic configuration has been applied, and the device can be inserted into the network and receive redirects from the appliance firewall. A default policy has been built that allows an organization to set up access controls for HTTP and HTTPS. A policy has been built to configure HTTPS decryption. And authentication has been set up to allow Cisco WSA to authenticate users and tie usernames with the access controls in the logs.

A more detailed discussion about specific implementation of policy should be initiated with a trusted partner or Cisco account representative.

Reader Tip

For additional Cisco WSA user documentation, see the documentation here:
http://www.cisco.com/web/ironport/index.html

Appendix A: Product List

Web Security

Functional Area	Product Description	Part Numbers	Software
Web Security Appliance	Cisco Web Security Appliance S370	S370-BUN-R-NA	AsyncOS 7.5.0-833

Internet Edge

Functional Area	Product Description	Part Numbers	Software
Firewall	Cisco ASA 5545-X IPS Edition - security appliance	ASA5545-IPS-K9	ASA 9.0(1) IPS 7.1(7) E4
	Cisco ASA 5525-X IPS Edition - security appliance	ASA5525-IPS-K9	
	Cisco ASA 5515-X IPS Edition - security appliance	ASA5515-IPS-K9	
	Cisco ASA 5512-X IPS Edition - security appliance	ASA5512-IPS-K9	
	Cisco ASA5512-X Security Plus license	ASA5512-SEC-PL	
	Firewall Management	ASDM	7.0(2)

LAN Distribution Layer

Functional Area	Product Description	Part Numbers	Software
Modular Distribution Layer Virtual Switch Pair	Cisco Catalyst 6500 E-Series 6-Slot Chassis	WS-C6506-E	15.1(1)SY IP Services license
	Cisco Catalyst 6500 VSS Supervisor 2T with 2 ports 10GbE and PFC4	VS-S2T-10G	
	Cisco Catalyst 6500 4-port 40GbE/16-port 10GbE Fiber Module w/DFC4	WS-X6904-40G-2T	
	Cisco Catalyst 6500 4-port 10GbE SFP+ adapter for WX-X6904-40G module	CVR-CFP-4SFP10G	
	Cisco Catalyst 6500 24-port GbE SFP Fiber Module w/DFC4	WS-X6824-SFP-2T	
Modular Distribution Layer Switch	Cisco Catalyst 4507R+E 7-slot Chassis with 48Gbps per slot	WS-C4507R+E	3.4.0.SG(15.1-2SG) Enterprise Services license
	Cisco Catalyst 4500 E-Series Supervisor Engine 7-E, 848Gbps	WS-X45-SUP7-E	
	Cisco Catalyst 4500 E-Series 24-port GbE SFP Fiber Module	WS-X4624-SFP-E	
	Cisco Catalyst 4500 E-Series 12-port 10GbE SFP+ Fiber Module	WS-X4712-SFP+E	
Stackable Distribution Layer Switch	Cisco Catalyst 3750-X Series Stackable 12 GbE SFP ports	WS-C3750X-12S-E	15.0(2)SE2 IP Services license
	Cisco Catalyst 3750-X Series Two 10GbE SFP+ and Two GbE SFP ports network module	C3KX-NM-10G	
	Cisco Catalyst 3750-X Series Four GbE SFP ports network module	C3KX-NM-1G	

Feedback

Please use the feedback form to send comments and suggestions about this guide.

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