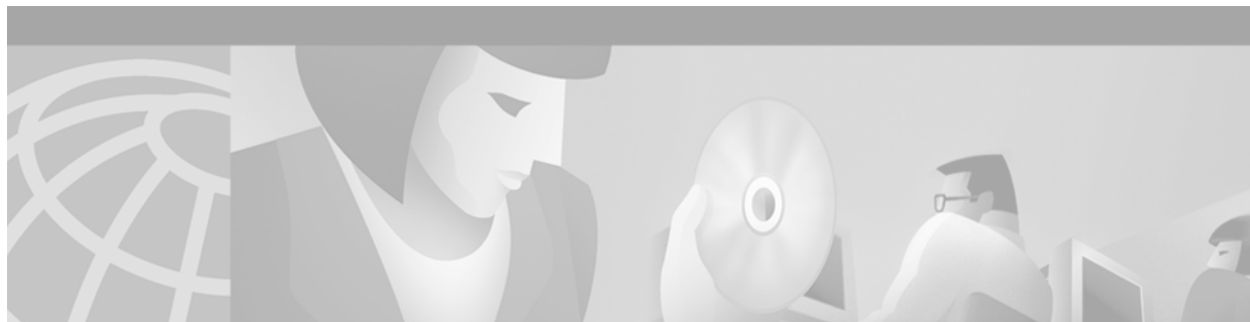




SSG Open Garden

Feature History

Release	Modification
12.1(5)DC	This feature was introduced on the Cisco 6400 node route processor.
12.2(4)B	This feature was integrated into Cisco IOS Release 12.2(4)B.

This document describes the SSG Open Garden feature in Cisco IOS Release 12.2(4)B. It includes the following sections:

- [Feature Overview, page 1](#)
- [Supported Platforms, page 4](#)
- [Supported Standards, MIBs, and RFCs, page 4](#)
- [Prerequisites, page 4](#)
- [Configuration Tasks, page 5](#)
- [Monitoring and Maintaining Open Garden, page 6](#)
- [Configuration Example, page 7](#)
- [Command Reference, page 7](#)
- [Glossary, page 12](#)

Feature Overview

The SSG Open Garden feature enables you to use Cisco Service Selection Gateway (SSG) to implement open gardens. An *open garden* is a collection of domains that a subscriber can access without providing authentication information.

SSG

SSG is a switching solution for service providers who offer intranet, extranet, and Internet connections to subscribers using broadband access technology such as digital subscriber lines, cable modems, or wireless to allow simultaneous access to network services.

SSG works in conjunction with the Cisco Service Selection Dashboard (SSD) or its successor product, the Cisco Subscriber Edge Services Manager (SESM). Together with the SESM or SSD, SSG provides subscriber authentication, service selection, and service connection capabilities to subscribers of Internet services. Subscribers interact with an SESM or SSD web application using a standard Internet browser.

SSG acts as a central control point for Layer 2 and Layer 3 services. These can include services available through ATM virtual circuits (VCs), virtual private dial-up networks (VPDNs), or normal routing methods.

SSG communicates with the authentication, authorization, and accounting (AAA) management network where RADIUS, Dynamic Host Configuration Protocol (DHCP), and Simple Network Management Protocol (SNMP) servers reside and with the Internet service provider (ISP) network, which may connect to the Internet, corporate networks, and value-added services.

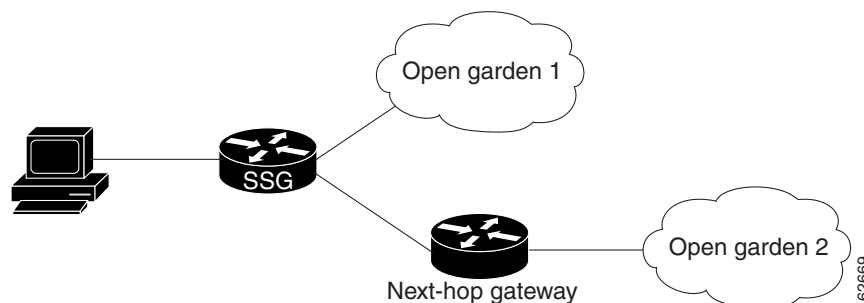
A licensed version of SSG works with the SESM or SSD to present to subscribers a menu of network services that can be selected from a single graphical user interface (GUI). This functionality improves flexibility and convenience for subscribers and enables service providers to bill subscribers for connect time and services used, rather than charging a flat rate.

For more information about SSG, refer to the *Service Selection Gateway* feature module in the “New SSG Features in Release 12.2(4)B” area of Cisco.com.

Open Gardens

An open garden is a collection of websites or networks that subscribers can access as long as they have physical access to the network. Subscribers do not have to provide authentication information before accessing the websites in an open garden. In contrast, *walled garden* refers to a collection of websites or networks that subscribers can access after providing minimal authentication information. [Figure 1](#) shows a network topology that includes open gardens.

Figure 1 Open Garden Network Topology



When SSG receives DNS requests, the DNS packets are first processed for the user connection. If the domain match is not found, the packets are processed for open gardens.

In the upstream direction, SSG handles DNS packets by first looking up the domain in the connected-service list. If a match is not found in the connected-service list, the open garden service list is checked. If the domain is not found in the open garden service list and the user has a connected Internet service (0.0.0.0/0), then the DNS request is forwarded to that domain. If the user is not connected to an Internet service and there is an open garden internet service, the DNS request is forwarded to the open garden Internet domain.

In the downstream direction, SSG handles DNS response packets in the same order as they are handled in the upstream direction.

**Note**

DNS packet processing in an open garden configuration was handled differently by SSG in Cisco IOS Release 12.2(2)B and earlier releases. In the prior releases, DNS domain lookup was performed first in the domains configured in the open garden services. If a match was not found, DNS domain lookup was performed in the connected services of the user.

If SSG receives a packet that is not destined for the open garden, SSG checks the source IP address of the packet to see if the subscriber is authenticated. If SSG recognizes the IP address, the subscriber is authenticated and SSG forwards the packet. If the subscriber is not authenticated and the packet is not a Domain Name Server (DNS) packet, SSG drops the packet.

SSG handles open gardens as services that have associated domain names and DNS addresses. As many as 100 domains can be associated with an open garden. When SSG receives a DNS request for one of the open garden domain names, SSG forwards the request to the open garden DNS server, where the domain name is resolved.

While most SSG services must be bound to an interface or next hop, it is not necessary to bind open garden services that are directly connected to the SSG router. Service binding is mandatory, however, for open garden services that are routed through a next hop.

Benefits

The SSG Open Garden feature gives service providers flexibility in the way they control access to networks and services by allowing them to specify domains that subscribers can access without service subscription.

Restrictions

- RADIUS accounting records are not created for open garden services.
- Open garden services can be created by using local profiles only; RADIUS profiles cannot be used.
- Overlapping open garden service networks are not supported.
- Overlapping users are not supported.

Related Documents

For more information about SSG, see the following document:

- *Service Selection Gateway*, Cisco IOS Release 12.2(4)B feature module

For information about other supported SSG features, see the following documents:

- *Hierarchical Policing for Service Selection Gateway*, Cisco IOS Release 12.2(4)B feature module
- *SSG Autodomain*, Cisco IOS Release 12.2(4)B feature module
- *SSG AutoLogin Using Proxy Radius*, Cisco IOS Release 12.2(4)B feature module
- *SSG Autologoff*, Cisco IOS Release 12.2(4)B feature module

- *Service Selection Gateway Accounting Update Interval per Service*, Cisco IOS Release 12.2(4)B feature module
- *SSG Port-Bundle Host Key*, Cisco IOS Release 12.2(4)B feature module
- *SSG Prepaid*, Cisco IOS Release 12.2(4)B feature module
- *SSG TCP Redirect for Services*, Cisco IOS Release 12.2(4)B feature module

For information on configuring SSD and SESM, see the following documents:

- *Cisco Subscriber Edge Services Manager and Subscriber Policy Engine Installation and Configuration Guide*
- *Cisco Service Selection Dashboard Installation and Configuration Guide*
- *Cisco Service Selection Dashboard Web Developer Guide*

Supported Platforms

- Cisco 6400 series
- Cisco 7200 series
- Cisco 7401 ASR

Availability of Cisco IOS Software Images

Platform support for particular Cisco IOS software releases is dependent on the availability of the software images for those platforms. Software images for some platforms may be deferred, delayed, or changed without prior notice. For updated information about platform support and availability of software images for each Cisco IOS software release, refer to the online release notes or Cisco Feature Navigator.

Supported Standards, MIBs, and RFCs

Standards

No new or modified standards are supported by this feature.

MIBs

No new or modified MIBs are supported by this feature.

To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL:

<http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>

RFCs

No new or modified RFCs are supported by this feature.

Prerequisites

The tasks in this document assume that you have configured SSG.

Configuration Tasks

See the following sections for configuration tasks for the SSG Open Garden feature. Each task in the list is identified as either required or optional.

- [Configuring an Open Garden](#) (required)
- [Verifying the Open Garden Configuration](#) (optional)

Configuring an Open Garden

To configure an open garden, use the following commands beginning in global configuration mode:

	Command	Purpose
Step 1	Router(config)# local-profile <i>profile-name</i>	Creates a local service profile and enters profile configuration mode.
Step 2	Router(config-prof)# attribute 26 9 251 <i>"Rip-address;subnet-mask"</i> (Repeat step as necessary.)	(Service Route attribute) Specifies the network available to the service. You can add multiple networks to an open garden service.
Step 3	Router(config-prof)# attribute 26 9 251 <i>"Dip-address"</i>	(DNS Server Address attribute) Specifies the DNS server for the service. Note Enter this command twice to specify two DNS servers for DNS fault tolerance. SSG will send DNS requests to the first DNS server in its list. If the first server does not respond to the requests, SSG will send the requests to the second DNS server.
Step 4	Router(config-prof)# attribute 26 9 251 <i>"Odomain-name"</i> (Repeat step as necessary.)	(Domain Name attribute) Specifies the domain name that gets DNS resolution from the DNS server specified in Step 3 . You can add multiple domain names to an open garden service.
Step 5	Router(config-prof)# exit	Returns to global configuration mode.
Step 6	Router(config)# ssg open-garden <i>profile-name</i>	Designates the service as an open garden service.
Step 7	Router(config)# ssg bind service <i>service</i> { <i>ip-address</i> ATM <i>atm-interface</i> Async <i>async-interface</i> BVI <i>bvi-interface</i> Dialer <i>dialer-interface</i> Ethernet <i>ethernet-interface</i> FastEthernet <i>fastethernet-interface</i> Group-Async <i>group-async-interface</i> Lex <i>lex-interface</i> Loopback <i>loopback-interface</i> Multilink <i>multilink-interface</i> Null <i>null-interface</i> Port-channel <i>port-channel-interface</i> Tunnel <i>tunnel-interface</i> Virtual-Access <i>virtual-access-interface</i> Virtual-Template <i>virtual-template-interface</i> Virtual-TokenRing <i>virtual-tokenring-interface</i> }	Specifies the interface for a service. Note This step is required only if the open garden is routed through a next-hop gateway.

**Note**

Routes to the open garden network must be added to the routing table.

Verifying the Open Garden Configuration

Step 1 Use the **show ssg open-garden** privileged EXEC command to list all configured open garden services:

```
Router# show ssg open-garden
```

```
nrp1-nrp2_og1
nrp1-nrp2_og2
nrp1-nrp2_og3
nrp1-nrp2_og4
```

Step 2 Use the **show ssg service** command to display detailed information for one of the open garden services:

```
Router# show ssg service nrp1-nrp2_og110
```

```
----- ServiceInfo Content -----
Uplink IDB: gw:0.0.0.0
Name:nrp1-nrp2_og110
Type:PASS-THROUGH
Mode:CONCURRENT
Service Session Timeout:0 seconds
Service Idle Timeout:0 seconds
Authentication Type:CHAP

DNS Server(s):Primary:10.13.1.5

Included Network Segments:
      10.1.1.0/255.255.255.0
Excluded Network Segments:
ConnectionCount 0
Full User Name not used

Domain List:opengarden110.com;

----- End of ServiceInfo Content -----
```

Monitoring and Maintaining Open Garden

To monitor and maintain open garden services, use the following commands in privileged EXEC mode:

Command	Purpose
Router# clear ssg open-garden	Removes all instances of the ssg open-garden command from the configuration and removes the service object of all the open garden services.
Router# clear ssg service profile-name	Removes the service object of the specified open garden service from the SSG service object table.

Command	Purpose
Router# show ssg open-garden	Lists all open garden services.
Router# show ssg service [service-name]	Displays detailed information about a service. If no service name is entered, this command displays a list of all services.

Configuration Example

This section provides the following configuration example:

- [SSG Open Garden Example](#)

SSG Open Garden Example

In the following example, two services, called “og1” and “og2”, are defined and added to the open garden.

```
!  
ssg open-garden og1  
ssg open-garden og2  
!  
local-profile og1  
  attribute 26 9 251 "Oopengarden1.com"  
  attribute 26 9 251 "D10.13.1.5"  
  attribute 26 9 251 "R10.1.1.0;255.255.255.0"  
local-profile og2  
  attribute 26 9 251 "Oopengarden2.com"  
  attribute 26 9 251 "D10.14.1.5"  
  attribute 26 9 251 "R10.2.1.0;255.255.255.0"  
  attribute 26 9 251 "R10.3.1.0;255.255.255.0"  
!  
ssg bind service og2 10.5.5.1
```

Command Reference

This section documents modified commands. All other commands used with this feature are documented in the *Service Selection Gateway* feature module for Cisco IOS Release 12.2(4)B or the Cisco IOS Release 12.2 command reference publications.

- [clear ssg open-garden](#)
- [local-profile](#)
- [show ssg open-garden](#)
- [ssg open-garden](#)

clear ssg open-garden

To remove open garden configurations and all open garden service objects, use the **clear ssg open-garden** command in privileged EXEC mode.

clear ssg open-garden

Syntax Description This command has no keywords or arguments.

Defaults No default behavior or values.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.1(5)DC	This command was introduced on the Cisco 6400 series node route processor.
	12.2(4)B	This command was integrated into Cisco IOS Release 12.2(4)B.

Usage Guidelines This command removes the open garden configuration by deleting all instances of the **ssg open-garden** global configuration command. This command also removes the service object of all the open garden services. The local service profiles of the open garden services are not deleted from the configuration.

Examples In the following example, all open garden services are displayed and then removed:

```
Router# show ssg open-garden
nrp1-nrp2_og1
nrp1-nrp2_og2
nrp1-nrp2_og3
nrp1-nrp2_og4
```

```
Router# clear ssg open-garden
Router# show ssg open-garden
Router#
```

Related Commands	Command	Description
	local-profile	Configures a local service profile.
	show ssg open-garden	Displays a list of all configured open garden services.
	ssg open-garden	Designates a service, defined in a local service profile, as an open garden service.

local-profile

To configure a local service profile and enter profile configuration mode, use the **local-profile** command in global configuration mode. To delete the local service profile, use the **no** form of this command.

local-profile *profile-name*

no local-profile *profile-name*

Syntax Description

<i>profile-name</i>	Name of profile to be configured.
---------------------	-----------------------------------

Defaults

No default behavior or values.

Command Modes

Global configuration

Command History

Release	Modification
12.0(3)DC	This command was introduced on the Cisco 6400 series node route processor.
12.2(4)B	This command was integrated into Cisco IOS Release 12.2(4)B.

Usage Guidelines

Use this command to configure local service profiles.

Examples

The following example shows how to configure a RADIUS profile called fictitiousname.com and enter profile configuration mode:

```
Router(config)# local-profile fictitiousname.com
Router(config-prof)#
```

Related Commands

Command	Description
attribute	Configures attributes in local RADIUS profiles.
show ssg open-garden	Displays a list of all configured open garden services.
ssg open-garden	Designates a service, defined in a local service profile, as an open garden service.
ssg service-search-order	Specifies the order in which NRP-SSG searches for a service profile.

show ssg open-garden

To display a list of all configured open garden services, use the **show ssg open-garden** command in privileged EXEC mode.

show ssg open-garden

Syntax Description This command has no keywords or arguments.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.1(5)DC	This command was introduced on the Cisco 6400 series node route processor.
	12.2(4)B	This command was integrated into Cisco IOS Release 12.2(4)B.

Examples In the following example, all configured open garden services are displayed:

Router# **show ssg open-garden**

```
nrp1-nrp2_og1
nrp1-nrp2_og2
nrp1-nrp2_og3
nrp1-nrp2_og4
```

Related Commands	Command	Description
	local-profile	Configures a local service profile.
	ssg open-garden	Designates a service, defined in a local service profile, as an open garden service.
	ssg service-search-order	Specifies the order in which NRP-SSG searches for a service profile.

ssg open-garden

To designate a service as an open garden service, use the **ssg open-garden** command in global configuration mode. To remove a service from the open garden, use the **no** form of this command.

ssg open-garden *profile-name*

no ssg open-garden *profile-name*

Syntax Description	<i>profile-name</i>	Local service profile name.
Defaults	No default behavior or values.	
Command Modes	Global configuration	
Command History	Release	Modification
	12.1(5)DC	This command was introduced on the Cisco 6400 series node route processor.
	12.2(4)B	This command was integrated into Cisco IOS Release 12.2(4)B.
Usage Guidelines	Use this command to designate a service, defined in a local service profile, as an open garden service.	
Examples	In the following example, the service called “fictitiousname.com” is defined in a local service profile and added to the open garden: <pre>Router(config)# local-profile cisco.com Router(config-prof)# attribute 26 9 251 "Oopengarden1.com" Router(config-prof)# attribute 26 9 251 "D10.13.1.5" Router(config-prof)# attribute 26 9 251 "R10.1.1.0;255.255.255.0" Router(config-prof)# exit Router(config)# ssg open-garden fictitiousname.com</pre>	
Related Commands	Command	Description
	clear ssg open-garden	Removes open garden configurations and all open garden service objects.
	clear ssg service	Removes an SSG service.
	local-profile	Configures a local service profile.
	show ssg open-garden	Displays all open garden services.
	ssg service-search-order	Specifies the order in which NRP-SSG searches for a service profile.

Glossary

DHCP—Dynamic Host Configuration Protocol. Protocol that provides a mechanism for allocating IP addresses dynamically so that addresses can be reused when hosts no longer need them.

DNS—Domain Name Server. The part of the distributed database system used for resolving a fully qualified domain name into the four-part IP number used to route communications across the Internet.

open garden—Collection of websites or networks that users can access without having to provide authentication information.

RADIUS—Remote Authentication Dial-In User Service. A client/server security protocol. Security information is stored in a central location, known as the RADIUS server.

SESM—Subscriber Edge Services Manager. Successor product to the Cisco SSD. The SESM is part of a Cisco solution that allows subscribers of digital subscriber line (DSL), cable, wireless, and dial-up to simultaneously access multiple services provided by different Internet service providers, application service providers, and Corporate Access Servers.

SNMP—Simple Network Management Protocol. Network management protocol used almost exclusively in TCP/IP networks. SNMP provides a means to monitor and control network devices and to manage configurations, statistics collection, performance, and security.

SSD—Service Selection Dashboard. The SSD server is a customizable web-based application that works with the Cisco SSG to allow end customers to log in to and disconnect from proxy and pass-through services through a standard web browser. After the customer logs in to the service provider's network, an HTML dashboard is populated with the services authorized for that user.

SSG—Service Selection Gateway.

VPDN—virtual private dial-up network. A VPDN is a network that extends remote access to a private network using a shared infrastructure. VPDNs use Layer 2 tunnel technologies to extend the Layer 2 and higher parts of the network connection from a remote user across an Internet service provider (ISP) network to a private network.

walled garden—Collection of websites or networks that users can access after providing minimal authentication information.