



Cisco BBSM Products Q&A

Introduction

This document addresses the frequently asked questions about BBSM and BBSM Hotspot. To find information quickly in this Q&A, click the desired question or use the Find feature in the Adobe Acrobat PDF version of the guide. Click the binoculars on the menu bar, and the Find dialog box appears.

The following website directs you to the technical documentation for both products:

http://www.cisco.com/en/US/products/sw/netmgtsw/ps533/prod_technical_documentation.html

To read an overview of BBSM, refer to the *Cisco BBSM v5.3 Data Sheet*:

http://www.cisco.com/en/US/products/sw/netmgtsw/ps533/products_data_sheet09186a00801df72b.html

The following links take you to PDF versions of recent documents and to the BBSM and BBSM Hotspot software download site:

- *Cisco BBSM 5.3 Configuration Guide*
<http://www.cisco.com/univercd/cc/td/doc/product/aggr/bbsm/bbsm53/config/53config.pdf>
- *Cisco BBSM 5.3 SP1 Configuration Guide*
<http://www.cisco.com/univercd/cc/td/doc/product/aggr/bbsm/bbsm53/configsp/53config.pdf>
- *Cisco BBSM 5.3 Operations Guide*
http://www.cisco.com/univercd/cc/td/doc/product/aggr/bbsm/bbsm53/ops/53ops_gd.pdf
- *Cisco BBSM 5.3 Web Page SDK Developer Guide*
<http://www.cisco.com/univercd/cc/td/doc/product/aggr/bbsm/bbsm53/sdkwp/sdkwp53.pdf>
- *Cisco BBSM 5.3 Interface SDK Developer Guide*
<http://www.cisco.com/univercd/cc/td/doc/product/aggr/bbsm/bbsm53/sdkif/sdkif53.pdf>
- *Cisco BBSM Hotspot 1.0 User Guide*:
<http://www.cisco.com/univercd/cc/td/doc/product/aggr/bbsm/bbsmhs10/hs10user/hs10user.pdf>
- *Cisco BBSM 5.3 Upgrade Utility Guide*
<http://www.cisco.com/univercd/cc/td/doc/product/aggr/bbsm/bbsm53/bbsm5253.pdf>
- *Cisco BBSD 5.3 User Guide*
<http://www.cisco.com/univercd/cc/td/doc/product/aggr/bbsm/bbsm53/dir53/dir53ug.pdf>
- Cisco BBSM and BBSM Hotspot 1.0 software download website:
<http://www.cisco.com/cgi-bin/tablebuild.pl?topic=268439484>

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Q. What is BBSM?

- A.** Cisco Building Broadband Service Manager (BBSM) is an access gateway for public access networks that enables simple plug-and-play access, end-user self-provisioning of services, multiple authentication and billing options, and web-based management, reporting, and configuration.

It works with Cisco access-layer LAN and wireless LAN (WLAN) products to provide a complete solution that enables businesses, venues, and service providers to create, market, and operate broadband access services in markets such as public hotspots, enterprise, health care, retail, and hospitality. The enterprise can securely offer its guest's Internet access over existing networks. Public hotspots and other venues with high visitor turnover can offer Internet services to customers or visitors for a fee or as a free amenity.

For information about the key features for BBSM 5.3 and previous releases, refer to the BBSM documentation. Features and procedures are provided throughout these guides.

Q. Do I need BBSM to offer free Internet services to end users?

- A.** You can provide free Internet access to end users without using BBSM through an in-building network that aggregates all traffic onto a single circuit. However, this network does not generate revenue for you and cannot manage bandwidth, promote your business through Start pages or walled gardens, provide Internet access for any PC user's client configuration, and monitor performance.

With BBSM, end users can access the Internet for free in several ways:

- Walled gardens—You can create walled garden subnetworks that enable unauthenticated users to view Internet content. Users access these walled garden websites before they agree to pay for Internet access. Other Internet sites can be viewed only by authenticating. To configure a walled garden, refer to the BBSM 5.3 SP1 configuration guide.
- Free Internet access—If you want a BBSM end user to access the Internet without charge, you can accomplish this through these means on a per-port basis:
 - If you are not using a hotel PMS, you can use the DailyHotel page set as is for free access because no charges are generated. Even if you are using other page sets, such as MinuteICS or CruiseLine, you can still use the DailyHotel page set to offer free access.
 - You can use the Subscription page set for the port and specify a long period of time, such as until year 2010. For example, a user connects and receives a page stating, *Your subscription ends 2/21/2010 12:00.*
 - If you are using a hotel PMS, the easiest way to allow free access is to modify the DailyHotel page set slightly to create a new page set that does not charge the end user. After you create the new file, open the *xxxPost.asp* file (where *xxx* is the name of your custom page set) and search for a function called *SendActivateSession*. The fifth parameter to this function is the amount that the end user is charged. Change this value to *0.0* so no charge is sent.

For information on modifying or creating page sets, first refer to Chapter 16, “Creating Custom Page Sets,” in the *Cisco BBSM 5.3 SP1 Configuration Guide*. If you need to make more extensive changes, refer to Chapter 3, “Creating Custom Page Sets,” in the *Cisco BBSM 5.3 Web Page SDK Developer Guide*.

Q. Can I use the BBSM server to generate revenue for my business?

- A.** Yes. By creating walled gardens in BBSM, you can increase revenue by marketing various services to your end users. The following are typical walled garden links:
- Local weather and attractions
 - Online concierge and room services
 - Hotel chain corporate or loyalty program portals
 - Vendor services, such as car rental agencies

You can also create additional web pages for e-commerce. You access them by using walled gardens. With these e-commerce web pages, the end user can purchase or request additional services. For example, a golf resort could use these pages to sell branded resort golf balls or tee shirts.

Q. Does BBSM support handheld devices?

- A.** BBSM does support handheld devices. For information on creating page sets that adjust the screen size for handheld devices, refer to Chapter 4, “Creating Custom PDA Page Sets,” in the *Cisco BBSM 5.3 Web Page SDK Developer Guide*.

Q. On what platform is BBSM sold?

- A.** BBSM is available in three formats: a rack-mounted server appliance that can be placed in a standard 19-inch rack, a desktop server appliance, and a software-only bundle. All formats have identical software functionality but offer different licensing structures that define the number of concurrent users and the use of the hotel property management system feature set. Refer to the *Cisco BBSM v5.3 Data Sheet*.

Q. What does the phrase “plug and play” mean?

- A.** The plug-and-play feature enables an end user to connect a client with almost any network configuration to the BBSM network and transparently gain network access. BBSM adapts the network to the computer’s settings, which provides the seamless access. Technically, plug and play provides transparent support for the following:
- A static client IP address through adaptive network address translation (NAT), home gateway emulation, and home DNS server emulation
 - A client with nearly any web proxy configuration
 - Client e-mail transmission through Simple Mail Transfer Protocol (SMTP) redirection

Q. Where does BBSM reside in the network architecture?

- A.** BBSM 5.3 and BBSM Hotspot 5.3 hardware have two 10/100/1000 Ethernet interfaces and is installed between the external connection to the Internet, which is typically the Cisco router, and the internal site network devices, such as such as access points, Ethernet switches, long-reach Ethernet (LRE) switches, or (for BBSM only) cable modem termination systems (CMTSs).

The server functions as a routing engine that must reside in the data path to perform server functions, such as plug and play, authentication, and billing. BBSM competitors must also reside in the data path to perform these same functions.

Q. Can I use both bridged and routed network connections between BBSM or BBSM Hotspot and the end-user client?

A. Yes you can; however, if you want to use the full plug-and-play features (static IP support), a bridged network is required. If you only want to require users to configure DHCP, a routed network can be used. In either a bridged or routed environment, BBSM supports static proxy and DNS settings.

Q. Can BBSM be configured to support more than one site?

A. BBSM can be installed in a central location and configured to support multiple sites, each of which can be a different building.

Q. How many ports or users can one BBSM or BBSM Hotspot support and what is the maximum throughput?

A. BBSM performance is primarily constrained by the number of concurrent users and the type of traffic and usage at any time. Representative performance levels, based on varied frame sizes and traffic conditions, include 85 Mbps with 250 concurrent users or 45 Mbps with 1,000 concurrent users.

In very large network environments, SNMP lookups can constrain BBSM during authentication. Note the following guidelines that are based on sample customer deployments. These performance limits have not been tested.

- In an layer 2 (L2) design in which BBSM queries each network device with SNMP, it supports approximately 40 switches or 25 access points.
- In a layer 3 (L3) design in which BBSM queries only the site routers, it can support up to 30 sites.

Larger deployments may need to be partitioned across multiple BBSMs. These are the key items that can affect performance:

- Access points with slower response to SNMP queries
- SNMP causing extra network traffic overhead that can cause latency
- WAN connection speeds and network device link speeds
- Amount of network traffic
- Number of hops between the site and the BBSM server

These are some steps to mitigate performance issues:

- Use the *NULL:Clients connect to router* DLL in L3 environments to limit the SNMP queries to site routers instead of querying all of the sites devices (one query times the number of sites versus multiple queries times the number of sites). This reduces the amount of SNMP traffic that the network, network devices, and BBSM must manage.
- Segment network between multiple BBSMs when design starts exceeding scale guidelines.

Q. If BBSM crashes and the database becomes corrupted, can it be restored or do we have to reimage the server?

A. You can use third-party imaging software to take a snapshot of BBSM periodically. If a problem occurs, you can reimage the BBSM server with the last known good configuration.

Q. Do BBSM and BBSM Hotspot support load balancing or automated failover? Does BBSM function with load-balancing access points?

A. The redundant story is more of a manual Active/Standby one. You can have an active BBSM serving the network and a standby BBSM with an identical configuration as the active BBSM both plugged into a switch. The active BBSM's connection on the switch is enabled, whereas the standby BBSM's port is disabled. If the active BBSM ever goes down, an administrator can telnet into the switch and activate the port to which the standby BBSM is connected, which allows the standby BBSM to become the active BBSM. The original active BBSM is then taken offline by deactivating its switch port.

Q. Are there end-user applications that do not work with BBSM?

A. For clients that use DHCP, all applications on the client's laptop should work properly. If the end-user client uses a static IP address, any TCP or UDP traffic that carries source and/or destination IP addresses in the application data stream has problems. The following traffic types or applications are supported: HTTP, TFTP, Telnet, archie, finger, NTP, NFS, rlogin, rsh, rcp, FTP PORT, and PASV.

Q. Can we direct some users to a filtered portal, such as Websense, and others to a nonfiltered portal?

A. No. All users or no users must go through the filter. Although BBSM has a Microsoft ISA server in it, we do not recommend using the ISA server for providing filtered portals. Filters should be run from a separate server to preserve BBSM and BBSM Hotspot integrity.

Although BBSM and BBSM Hotspot do not officially support third-party filtering products, they may work. Test them in your lab before using them in production.

Q. Can BBSM be configured to use a Network Time Protocol (NTP) server?

A. BBSM does not support this addition, so test this application before production use and be aware that the customer must resolve any problems.

Q. Can BBSM send all data to a web proxy server on the end user's home network before the data is sent to the Internet?

A. BBSM does not provide for directing client traffic through a remote web proxy server. It only supports use of the proxy server that resides on the BBSM. Refer to the "Using Web Proxies" section in the *Cisco BBSM 5.3 SPI Configuration Guide*. (This text also applies to BBSM Hotspot.)

Q. Does BBSM require an external RADIUS server?

A. If you are using a RADIUS page set or web page for RADIUS billing or authentication, you must use a RADIUS server (which is not part of BBSM). We recommend the Cisco Secure Access Control Server (ACS). Refer to the configuration guide for a detailed discussion about RADIUS. You can use other policies that do not require a back-end server, such as credit card, access code, or PMS.

Q. Does BBSM support LDAP?

A. No. BBSM does not support Lightweight Directory Access Protocol (LDAP), but back-end servers such as the Cisco Secure ACS can be configured to operate with LDAP, Windows NT domains, and Windows Active Directory.

Q. How can I ensure that my BBSM or BBSM Hotspot server and the end user's information are secure?

A. Although BBSM and BBSM Hotspot are not technically security products, they do provide or allow secure data transmission in a number of ways, such as by using the Windows 2000 server security features with enhanced configuration and by supporting the Secure Sockets Layer (SSL) protocol. For detailed information on security information that applies to both products, refer to Chapter 14, "Configuring Security and SSL," in the *Cisco BBSM 5.3 SP1 Configuration Guide*. (This text also applies in general to BBSM Hotspot.)

Q. Can you direct me to information on VLANs and VPN?

A. For discussions on VLANs and VPN, refer to the *Cisco BBSM 5.3 SP1 Configuration Guide*. This information also applies in general to BBSM Hotspot.

Q. What is the significance of a "Clear" BBSM page set or BBSM Hotspot web page?

A. Page sets or web pages whose names end in "Clear" do not use SSL security to transmit information to the BBSM or BBSM Hotspot server. We do not recommend using them in production because the end user's browser transmits RADIUS or credit card information to BBSM in clear text. They are intended to be used only in demonstrations or tests for which installing a certificate on BBSM is not feasible.

Q. How can I segment wireless meeting room users from public space users?

A. Here are some options:

- No wireless cell overlay—dedicate meeting access points with meeting room page sets and public space access points with the RADIUS, credit card, or other page sets.
- Wireless cell overlay—account for overlap. Use the Mega page set. Meeting room clients use access codes while public space clients use RADIUS and credit card, for example. This allows for overlapping wireless cells to be used by both meeting room and public space clients, while at the same time controlling the bandwidth that the BBSM or RADIUS servers assign.

Depending on the firmware version of the Cisco access point, the association of service set identifiers (SSIDs) and VLANs is supported. As an example, different types of users can be assigned to different VLANs:

- The visitor VLAN can go to BBSM.
- The enterprise user VLAN can bypass BBSM.

For additional information about Cisco wireless LAN products, refer to this website:

<http://www.cisco.com/en/US/products/hw/wireless/index.html>

Q. Are the Solaris NIS+ and Cisco Secure ACS 3.0 software supported?

A. Yes. Cisco Secure ACS 3.0 can be used as a front end to a Solaris NIS+ database to talk to BBSM or BBSM Hotspot. User authentication against NIS+ is supported in ACS 3.0. NIS+ is based on the Remote Procedure Call (RPC) mechanism that supports several types of authentication. NIS+ uses only two of all the RPC authorization types:

- auth_sys - authentication by user ID
- auth_sys and auth_des (also called Secure RPC)

The `auth_des` - secure authentication and authorization are based on Public Key Infrastructure (PKI) and Data Encryption Standard (DES) encryption.

We currently support only the `auth_sys` type, and this method is also supported in Cisco's NIS+ service. Although the `auth_des` is much more secure, it also entails much more administrative work, such as setting up the key server, creating the credentials, and updating the keys.

Q. How does the RADIUS prepaid feature work?

- A.** BBSM supports prepaid RADIUS user accounts, which are configured on the RADIUS server. After the end user is authenticated by RADIUS, a web page appears that shows how many minutes are left on the account. The user then clicks *continue* and is taken to the configured web portal. A disconnect window shows the number of minutes that remain until the session ends. At the end of the session, the window displays that the user is out of time, and the session terminates.

For an in-depth discussion of prepaid RADIUS accounts, refer to Chapter 12, “Configuring RADIUS Billing,” in the *Cisco BBSM 5.3 SP1 Configuration Guide*.

Q. What credit card billing does BBSM use?

- A.** When BBSM is configured for credit card access, it uses ICS CyberSource. If you need an interface to other billing systems, your developer can create one by using the BBSM 5.3 interface SDK. To contact ICS Cybersource, call its U.S. sales office at (888) 330-2300 or visit its website at this URL: <http://www.cybersource.com>

Q. Can end users access the Internet while their credit cards or RADIUS accounts are being authorized?

- A.** Credit cards—Yes. BBSM and BBSM Hotspot grant end users access while credit card information is being verified:
 - If the end user is denied access, BBSM closes the session, which prevents the user from having to wait for authorization.
 - If the credit card server does not respond, charges accumulate in an encrypted temporary file. Attempts are made periodically to contact the credit card server. When the server is contacted, the charges are sent to it. If the server is never contacted, service is free.

RADIUS—No. You have to wait until the RADIUS server responds to your authentication request.

Q. How do I use access codes, set up meetings, and reserve bandwidth in BBSM?

- A.** Depending on how you want to manage the access codes, you can use the `AccessCode` or `MeetingRoom` page set. These pages work as follows:
 - `AccessCode` page set—Enables multiple users to access the Internet at the same time through one access code.
 - `MeetingRoom` page set—Enables only one user to access the Internet at a time through one access code.

A bandwidth reservation generates a set of access codes that end users must use to access the reserved bandwidth. Both the AccessCode page set and the MeetingRoom page set are compatible with bandwidth reservation. Refer to Chapter 15, “Configuring Bandwidth Management,” in the *Cisco BBSM 5.3 SPI Configuration Guide*.

Q. How does the server determine when a customer session has ended?

A. When the user clicks the Disconnect button, BBSM is notified that the session has ended. However, when users do not click this button, the server must monitor client connectivity to determine the session end. With network devices such as a long-reach Ethernet (LRE) switch, BBSM queries the switch’s MIB to detect that the CPE Ethernet port link light is off. The server can also monitor client connectivity in the following possible ways, depending on the network device:

- MAC address absence in the MAC address table (aging time)
- Packet inactivity
- Pinging the client to see if the user session is still active.

Note The ping method may not always be reliable because some client-initiated VPN sessions may not respond to a ping when the tunnel is active. Therefore, the BBSM server may not be able to detect a session accurately. When VPN support is required, monitor client connectivity by using MAC address detection, link status, or packet inactivity.

Q. Can I change the DailyHotel page set to allow more than one port in a hotel guest room or use a different time period, such as 12 hours?

Yes. A hotel can wire multiple switch ports to the same room, and each port can have the same room number as the other ports. By using the DailyHotel access policy, BBSM bills per port if the hotel configures the DailyHotelPackage.asp file code to set bWelcomeBackMAC to *false*. If the port has authorized access, setting the value to *false* welcomes back any MAC address on that port only. Refer to Chapter 16, “Creating Custom Page Sets,” in the *Cisco BBSM 5.3 SPI Configuration Guide*.

The DailyHotel page set uses the Daily access policy that provides access by the day so you cannot change the DailyHotel page set to a different time period. However, you can use the BBSM 5.3 interface SDK to create a new access policy that allows access by the hour.

Q. Can I retrieve billing and transaction information and create my own reporting pages?

A. BBSM servers store billing and transaction information in an MSDE database. This information can be retrieved from the server by using SQL queries. Using the Transaction History report data, you can query transaction types, such as *Sale*, and export the data. You can then create your own reporting pages. For the database schema, refer to the *Cisco BBSM 5.3 Web Page SDK Developer Guide*.

Q. Which PMS systems are supported?

A. BBSM supports the following major PMS protocols: Bell Hobic, Fidelio, Xiox, and Hilton. For a more complete list, refer to the “Supported PMS Protocols” section in the *Cisco BBSM 5.3 SPI Configuration Guide*. Your developer can also use the BBSM 5.3 interface SDK to create a DLL that supports a new PMS protocol. BBSM is also compatible with and has been deployed by billing through the FCS call accounting package that is widely used in China and the Asia Pacific.

Q. Can charges that were generated on another system be posted to the PMS through BBSM?

A. Yes. BBSM includes an API, called *WebAPI*, that includes a method for posting room charges to a hotel PMS. Refer to Chapter 6, “Posting Charges to Your PMS Remotely through the WebAPI,” in the *Cisco BBSM 5.3 Web Page SDK Developer Guide*.

Q. Can BBSM work in a central location and serve multiple venues?

A. Yes. For example, in a routed network with a BBSM central office environment for enterprises, you would set up each property as a BBSM site defined with a separate router and separate subnet. All user clients would need to be configured for DHCP because static IP address configurations are not supported in a routed environment. For more details on configuring routers, refer to Chapter 9, “Configuring Routers,” in the *Cisco BBSM 5.3 SP1 Configuration Guide*.

Q. Where can I find the Cisco network devices that have been tested for BBSM?

A. The BBSM-supported network devices can be found in the *Cisco BBSM Products Network Device Compatibility Guide*. This guide also explains the monitoring types that the network devices support for BBSM.

Q. Can the content engine operate in the same network as BBSM?

A. Yes. BBSM allows external access to internal devices, such as switches, on its network. These devices must be configured with IP addresses from the BBSM Management address range. If a content engine (CE) on the internal BBSM network has a management address, it can be accessed from the external network for updating its content.

Another solution is to route the CE update traffic around the BBSM server. Take care when updating so you do not cause excessive traffic during periods of heavy server use.

Q. Can I still use the legacy Cisco 1548 series Micro Switch with BBSM and BBSM Hotspot?

A. Yes. Select the Generic switch type from the Switches web page. Use port 8 on the switch as the uplink to BBSM or BBSM Hotspot and configure the rest of the ports as client ports.

Q. How do BBSM and BBSM Hotspot differ from SSG?

A. BBSM and BBSM Hotspot are software-based service platforms that enable customers to create, market, and operate Internet access services.

The Cisco Service Selection Gateway (SSG) is an IOS-based service selection gateway that is intended to support service selection from multiple service providers for large networks. It is intended for large and small sites that are service provider operated and designed to be installed in a distributed architecture configuration with centralized control. SSG is supported on platforms from the 800 to the 10K router.

BBSM is intended for smaller sites that are IT or owner operated and focused applications for markets such as hotels, public hotspots, enterprise, health care, and retail. They provide end-user experiences that can be customized easily.

Q. Are cable modems supported?

A. Yes. BBSM supports both Cisco and non-Cisco cable modems used with Cisco cable modem termination systems (CMTSs). The non-Cisco modems must be DOCSIS 1.0 compliant.

- Use the uBR7100 CMTS if you require plug and play. Configure it for the bridged or IRB mode. Note that the uBR7100 needs a version of IOS that supports bridging.

- You can use the uBR7100 or uBR7200 for the routed mode if you do not require plug and play (clients must be configured for DHCP).

You can use room billing with cable modems because the room mapping process associates the cable modem MAC address with a particular room number. Be aware that cable modems cannot be moved from room to room without being remapped. Moving the cable modem to another room causes charges to be posted to the wrong room number.

Q. Are DHCP leases provided for both cable modems and clients?

- A.** Yes. BBSM enables you to enter separate DHCP lease address ranges for cable modems and clients.

Q. What happens to a user's session when the user roams from access point to access point?

- A.** The port-hopping feature in BBSM and BBSM Hotspot enables a user to move from access point to access point if the user moves within the configurable period of the hop timer. Or, instead, you can configure a longer packet inactivity period. Port hopping and packet inactivity cannot be used simultaneously. Refer to the BBSM and BBSM Hotspot guides.

Q. How are disconnects in a wireless environment handled when multiple users are connected to a single access point and the user ends the session without disconnecting?

- A.** BBSM uses packet inactivity times to determine if users are still active.

Q. How do I configure BBSM to work with access points?

- A.** To make the access point work with BBSM, the access point must be online and pingable from the BBSM server. Configure the access point through the Access Points web page. (For BBSM 5.0, select *Generic without Link Status* for the access point. The access point appears as two ports—the uplink port and a client port. If the access point appears as 30 ports, you have the newer access point firmware.)

Q. Does BBSM function with load-balancing access points?

- A.** Yes. If access points are configured for load balancing and Cisco NICs are used, load balancing is supported. Load balancing is configured on the access points, not on BBSM. Access point load balancing supports number of users, signal strength, and error rate. BBSM does not monitor access point load balancing.

Q. Which smart clients or roaming clients are supported?

- A.** BBSM supports the iPASS Smart Client.

Q. Can I change the BBSM host name?

- A.** Do **not** change the computer name on working BBSM installations. Utilities do exist to facilitate name changes on Microsoft servers, but they do not work with BBSM.

Q. Does the BBSM image that is shipped with the appliance have the same name and security identifier (SID)?

- A.** Yes. Here are the main reasons:
- These cloned images allow a server to be created quickly in a production environment.
 - These servers are located on different networks, each behind a router doing network address translation (NAT) or port address translation (PAT).

If you need to have different names and SIDs, you need to manually install the software.

Q. What products can I use for remote management?

A. MS Terminal Services can be used to manage a BBSM server remotely. VNC can also be used, but it is not supported. If VNC is used, it must be installed on BBSM as a service and on the remote management station that accesses BBSM.

Q. How do I enable a trace?

A. Refer to the BBSM 5.3 operations guide for information on using the Trace debugging utility.

Q. Can I delete users remotely?

A. Yes. The Client Deactivation feature in BBSM and BBSM Hotspot enables an operator or administrator to remotely terminate an end user's session through a web-based interface.

Q. How can I monitor BBSM?

A. First, use SNMP traps. You can also use the BBSM System Summary page. Refer to Chapter 3, "Monitoring Performance (System Summary)," in the *Cisco BBSM 5.3 Operations Guide*.

Q. Can we set up a Syslog server with BBSM or BBSM Hotspot? If not, how can I do this without violating TAC support guidelines?

A. Although BBSM and BBSM Hotspot do not officially support the following products, you can purchase them to use with BBSM or BBSM Hotspot:

- Kiwi Syslog Daemon for Windows 2000—Takes event logs and posts them to syslog servers. Refer to this website: <http://www.kiwisyslog.com/>
- Tri Actio Syslog Daemon/Service—This is another product that Microsoft recommends. It catches all errors from DNS, DHCP, IIS, Windows 2000, SQL, and many of the key subsystems that BBSM or BBSM Hotspot depends on. Refer to this website: <http://www.triaction.nl/>

We recommend that you thoroughly test these applications before using them in production.

Q. What type of DNS service is used?

A. The DNS service that is on the BBSM and BBSM Hotspot server is a caching-only server. Refer to the applicable user guide for the section on configuring the DNS server.

Q. Are FTP, Telnet, multicasting, SMTP, and POP3 supported?

- A.** Yes. Both BBSM and BBSM Hotspot support these functions. Telnet is not supported for clients configured with static IP addresses and no DNS. Multicast is supported in both the transmit and receive directions.

For SMTP and POP3, your administrator must provide SMTP and POP3 servers. The administrator defines an SMTP (that is, e-mail) relay IP address or fully qualified domain name (FQDN) on BBSM or BBSM Hotspot for SMTP forwarding. The end user configures the e-mail client for SMTP and POP3. The user opens the browser, authenticates, starts the e-mail client, and can send and receive e-mail. Often, the administrator's SMTP server default setting does not allow e-mail to be sent (forwarded) to prevent spamming. For this reason, you must make the necessary SMTP configuration changes to enable end users to send e-mail.

Q. How is DNS handled for statically configured laptops?

- A.** BBSM rewrites the destination address for all DNS requests to that of the internal NIC, which the DNS service on BBSM listens to. The DNS server on BBSM forwards the request to the DNS server entry or entries configured in the DNS forwarding area of BBSM. When a reply comes back, BBSM translates the source address so the reply appears to be from the DNS server configured on the client's laptop.

Q. If the ISP requires a specific address range for relaying e-mails, is SMTP redirect supported?

- A.** BBSM can redirect SMTP traffic to a specific address range. To allow the BBSM server to transmit e-mail, contact your ISP to register the internal BBSM network. Then, on the BBSM server, enter the SMTP server relay IP address or fully qualified domain name (FQDN), which allows the server to forward e-mail to that SMTP server and then to the appropriate mail server. This address can be placed behind a firewall for added security.

Q. Are unmanaged and third-party switches supported?

- A.** Unmanaged switches: Yes. They are supported as of BBSM 5.1 and in BBSM Hotspot as long as you select *NULL:Clients connect to router* on the Switches web page. Although any network device can be used, do not use this option if you need to locate the end user's port for authentication or billing.

Third-party switches: Some third-party network devices may be compatible with BBSM. However, they have not been tested with BBSM and are not officially supported. To use these third-party devices, choose *Generic*, *Generic without Link Status*, or *NULL:Clients connect to router* from the drop-down menu on the Switches web page. For additional switch information, refer to the *Cisco BBSM Products Network Device Compatibility Guide*.

Q. Is switch clustering supported?

- A.** Yes. Switch clustering is supported as of BBSM 5.2 for up to 16 switches. Both products support home run and daisy-chain stacking schemes, which both use one IP address per switch. BBSM recognizes the entire cluster through one manageable IP address, which simplifies and centralizes management of BBSM network solutions.

Q. Is IEEE 802.1Q trunking supported?

- A.** Yes. BBSM supports the Institute of Electrical and Electronics Engineers (IEEE) 802.1Q trunking on its internal NICs for up to two VLANs. This dual-VLAN feature enables users and managed devices to reside on different VLANs for ease of management and increased security.

Q. How do “Generic,” “Generic without Link Status,” and “Null: connect to router” work?

A. For information on using BBSM compatibility with network devices, refer to the *Cisco BBSM Products Network Device Compatibility Guide*.

Q. Can routers and switches be multiple hops away from the server?

A. Yes. The biggest problem that may exist between multiple hops is latency. As long as the appropriate routing between the hops is in place, you should not have problems. The concern is the gateway to the ultimate destination, which would be the site router that the BBSM external interface is connected to. All the hops in between are the responsibility of the routers along the path.

Q. Can you explain how NAT is used in BBSM?

A. The network address translation (NAT) used in BBSM is called *adaptive NAT*. It provides a statically configured end-user client with an IP address within the BBSM internal subnet so the client can access the Internet. BBSM uses its Foreign (Static) IP address range to allow the server to perform adaptive NAT for these static clients in bridged networks. You can also offer end users the option of using public/private IP addressing for a fee. Refer to the “Public and Private IP Addresses” section in Chapter 7 of the *Cisco BBSM 5.3 SPI Configuration Guide*.

The external router handles all other NAT and PAT functions. If BBSM is using private IP addresses for its clients, the external router performs NAT or PAT so clients can access the external network. Although the NAT feature is available within the Windows Routing and Remote Access (RRAS) software, using NAT within RRAS on BBSM breaks the RRAS functionality on BBSM.

Q. How does private IP addressing minimize the number of public IP addresses that my network uses?

A. If you have a limited number of public IP addresses available, one of the available options is to use private IP addresses for the client ranges on BBSM. In other words, the BBSM Management, Foreign, and DHCP IP address ranges consist of all private IP addresses. Then configure the external router to do NAT or PAT so the private range can route to the Internet. BBSM does not handle this type of NAT internally. Refer also to the BBSM 5.3 configuration guide for information about our multinet feature that can enable administrators to offer end users the choice between a public and private IP address.

Q. How can I access the server remotely if I use private addressing?

A. If a remote management application requires access to the BBSM or BBSM Hotspot server and the server uses private IP addresses, the site router must have one-to-one static mapping for the BBSM or BBSM Hotspot external NIC private IP address to a public IP address.

Q. Can you explain the address ranges that we need to configure?

A. Refer to the IP Addresses web page in the BBSM and BBSM Hotspot user guides for information about configuring address ranges.

Q. Is the number of client IP addresses (whether DHCP or static) limited?

- A.** BBSM Hotspot: Because BBSM Hotspot supports up to 150 concurrent users, consider this number when configuring your address space.

BBSM: No limitation exists. BBSM has been tested to 45 Mbps and 1,000 concurrent users with normal traffic loads. However, we recommend that you set the number of IP addresses (rooms or clients) only to the needed size and no larger. Because BBSM initializes each address at startup, configuring a larger range of IP addresses than necessary can greatly increase the initialization time and degrade performance. The following list shows the number of IP addresses available for the subnet sizes that you would be likely to use:

- 255.255.255.0 subnet mask = /24 subnet code = 254 users
- 255.255.254.0 subnet mask = /23 subnet code = 510 users
- 255.255.252.0 subnet mask = /22 subnet code = 1022 users

Q. How are DHCP requests for clients handled?

- A.** The IP address comes from the BBSM internal DHCP server. If an external DHCP server is required, configure BBSM or a site router for DHCP relay. For cable modem installations, the cable modem can get its DHCP address from the cable modem termination system (CMTS) or a separate DHCP server such as Cisco CNS Network Registrar (CNR).

Q. How are identical IP addresses on clients handled?

- A.** BBSM's duplicate IP feature challenges both users for credentials. Refer to the BBSM 5.3 SP1 configuration guide.

Q. Is internal support for local proxy ARP provided?

- A.** BBSM does not support the local proxy Address Resolution Protocol (ARP). However, a new feature called *Local Proxy ARP* was introduced in the 12.1(2)E release for the Catalyst 6x00 Multilayer Switch Feature Card (MSFC) to resolve this problem. Currently, only the MSFC supports this feature. With the feature enabled, the MSFC responds to all ARP requests for IP addresses within the subnet and forwards all traffic between hosts in the subnet.

Q. Can BBSM be configured to allow unrestricted inbound access to a specific address to allow web hosting?

- A.** A web server can be hosted on a client machine inside the BBSM network. Although this situation is not common, you can accomplish it by using the following information. Hosting a web server on an internal BBSM network client allows unrestricted access from the external side. Check the Transparent Proxy check box in WEBconfig and do the following:
- To keep the billing intact, reserve a DHCP address for the client and then set up one-to-one static mapping to that address (if you are using private addresses). (The client is still required to connect to BBSM.) After the client session is enabled, the client can host a web server. The client should not run services such as DHCP and DNS to avoid conflicts with these services running on BBSM.
 - You can configure the web server with a BBSM management range IP address if these addresses are not needed for billing. Perform one-to-one NAT of the address in the router (if you are using private addresses). Internet access to the web server is then available.

Q. Is supernetting of two class C address spaces supported?

A. Yes. You can supernet two contiguous class C networks on BBSM and BBSM Hotspot. You must start the supernet with an even number.

Q. Can you give me information about using the BBSM SDK?

A. Software developer's kits are available for each version of BBSM on the Internet at no charge. You must use the same version of BBSM and the BBSM SDK. To download an SDK, refer to the software download site; the link is provided at the beginning of this document. Remember that you cannot load the SDK itself on the BBSM Hotspot server.

BBSM 5.3 offers web page and interface SDKs. The SDK guides listed at the beginning of this document were written to support these SDKs.

Support for BBSM SDKs is available only to customers who have purchased a Cisco Developer Support Contract. Refer to the Developer Support Central website:

<http://www.cisco.com/warp/public/570/options.html>

For minor questions on SDK development, refer to this website:

http://www.cisco.com/en/US/products/svcs/ps3034/ps5408/ps5418/serv_home.html

If you have major problems and you have a Cisco Developer Support Contract, you can open a case online by using the TAC Case Open tool at this website:

<http://tools.cisco.com/ServiceRequestTool/create/launch.do>

If you developed code and plan to upgrade to the next release of BBSM, check the SDK documentation for the next release to make sure your code will work.

Q. Where can I find service packs and patches?

A. BBSM service packs and patches are available at the software download website; the link is provided at the beginning of this document.

Q. Where can I find the BBSM 5.2 to 5.3 and BBSM Hotspot 1.0 to 5.3 upgrades?

A. The following are the part numbers:

- BBSM 5.2 to 5.3—BB-SM-5.3-UPG
- BBSM 5.1 to 5.2—BB-SM-5.2-UPG=
- BBSM HS 1.0 to 5.3—BB-SM-53HSSVR-UPG=

For information about upgrading to BBSM 5.3, refer to the *Cisco BBSM 5.3 Upgrade Utility Guide*. (Contact your Cisco sales representative for pricing.)

Q. Can you give me an overview of the BBSD product?

A. The Building Broadband Service Director (BBSD) is an optional, standalone module available on CCO as a download utility. It allows a central system in the data center to manage remote BBSM servers. These are its primary functions:

- Performing centralized reporting across a group of BBSM servers
- Pushing BBSM web content page (ASP files called *page sets*) and updates (does not execute them) across a group of BBSM servers in the field

For more information about BBSD, refer to the *Cisco BBSD 5.3 User Guide*.

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