

Provisioning Network DHCP Servers to Support BSAPs

The BSAP needs the IP address of the home BSC to which it will connect and from which it will obtain its software image and configuration. You can provide the home BSC IP address to a BSAP by manually configuring the DHCP server on your network to send BSC IP addresses to BSAPs using DHCP vendor-specific option 43.

This appendix provides an overview of provisioning network DHCP servers to support BSAPs and includes:

- Overview
- Provisioning a Microsoft DHCP Server
- Provisioning an Internet Systems Consortium (ISC) DHCP Server

Overview

You can deploy BSAPs on a routed network with Layer-3 connectivity to the BSC as shown in the following figure.

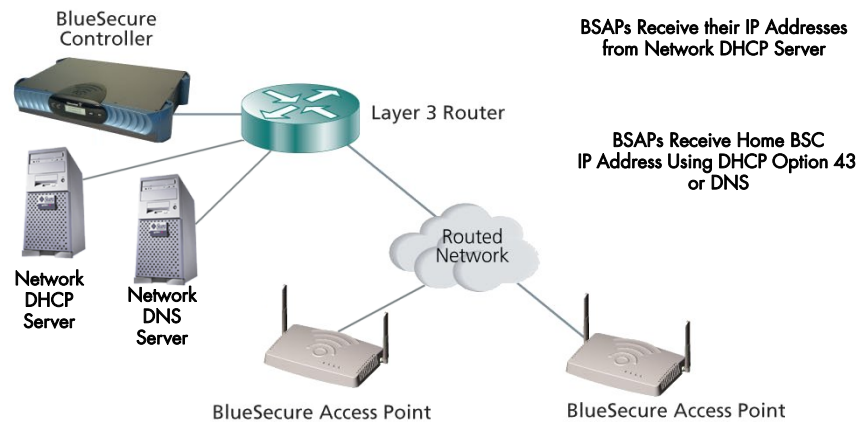


Figure B-1: Deploying BSAPs Across a Routed Network

In this deployment scenario, you must ensure that each BSAP is able to communicate with the BSC across the routed network by verifying that:

- there are no NAT devices between the BSAPs and the BSC
 - Protocol 97 and TCP/UDP Port 3333 traffic is allowed between BSAPs and the BSC
- Each BSAP will receive its IP address from your existing network DHCP server.

The BSAP also needs the IP address of the home BSC to which it will connect and from which it will obtain its software image and configuration. You can provide the home BSC IP address to a BSAP by manually configuring the DHCP server on your network to send BSC IP addresses to BSAPs using DHCP vendor-specific option 43.

In DHCP requests sent from the BSAP, the BSAP uses option 60 Vendor class identifier with a value of **BlueSecure.AP1500** to identify itself to the DHCP server.

The following sections provide examples of how you may configure vendor-specific option 43 on the following DHCP servers:

- Provisioning a Microsoft DHCP Server
- Provisioning an Internet Systems Consortium (ISC) DHCP Server

Provisioning a Microsoft DHCP Server

To provision a Microsoft DHCP Server to pass the IP address of one or more BSCs to a BSAP using DHCP Option 43 (Vendor Specific Information), you must complete these three steps:

1. Define the Vendor Class.
2. Set a value for predefined option 43.
3. Configure the Option for the BSAP DHCP address scope.

Define the Vendor Class

Define the vendor class by making the DHCP server aware of the vendor class **BlueSecure.AP1500**.

1. Access the Microsoft DHCP server management window, right click on the DHCP server in the navigation tree, and select **Define Vendor Classes...** For example:

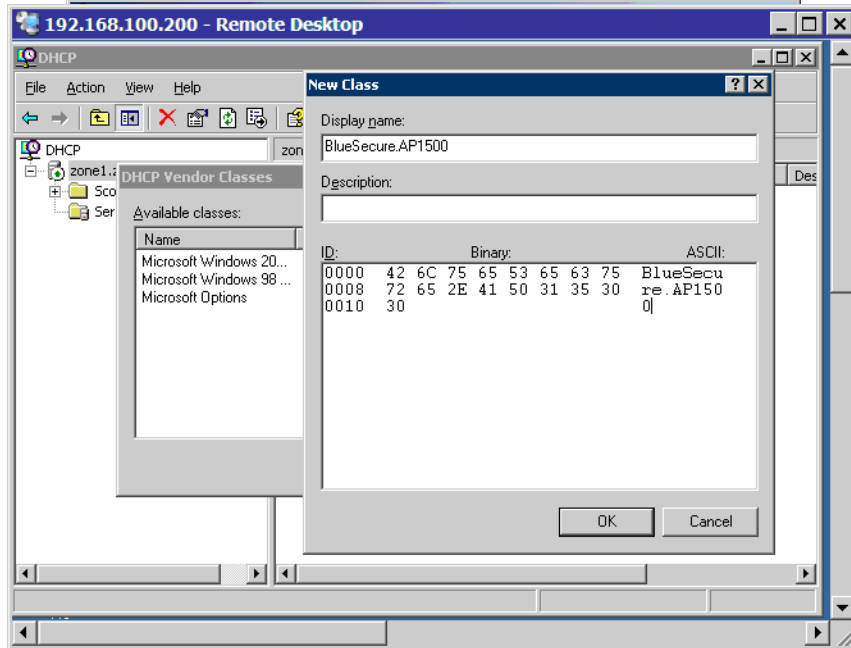


Figure B-2: Defining the BSAP Vendor Class

The DHCP Vendor Classes dialog appears.

2. Click **Add...** and the New Class dialog appears, for example.

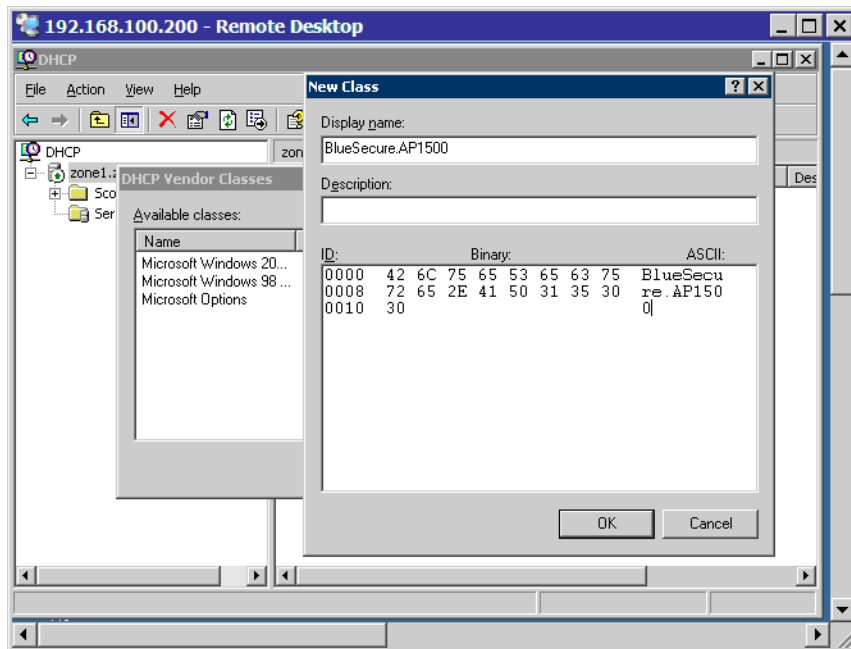


Figure B-3: Entering DHCP Vendor Class Information

3. Enter a meaningful **Display name** and **Description**, and then enter the string (BlueSecure.AP1500) that the DHCP client on the BSAP will send to the DHCP server. Click below in the ASCII section, and type the string **BlueSecure.AP1500**. The Hexadecimal string will be created automatically.

4. Click **OK** to close the New Class dialog.
You will see that the BSAP vendor class is listed in the DHCP Vendor Classes dialog, for example:

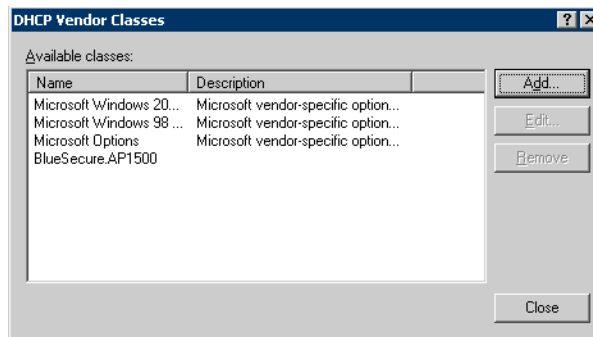


Figure B-4: The BSAP Vendor Class is Now Listed

Set a value for predefined option 43

1. Right click on the DHCP server in the navigation tree, and then select **Set Predefined Options....**
The Predefined Options and Values dialog appears as shown in Figure B-5.

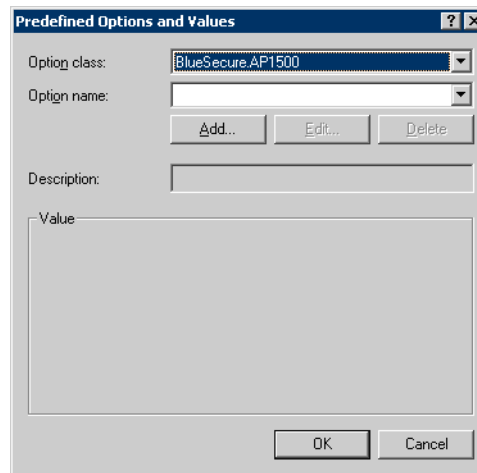
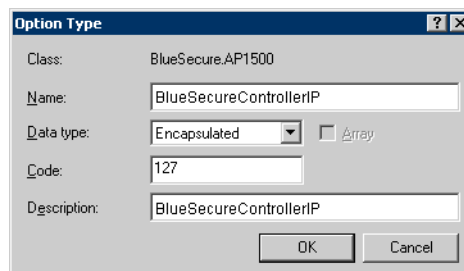


Figure B-5: The Predefined Options and Values Dialog

2. Select **BlueSecure.AP1500** from the Option Class drop-down menu.
3. Click **Add....**
The Option Type dialog appears as shown in Figure B-6.



Configure the Option for the BSAP DHCP address scope

4. In the Option Type dialog:
 - a) Enter a descriptive name in the **Name** field.
 - b) Select Encapsulated for the **Data type**.
 - c) Enter 127 for the Code Value.
 - d) Enter a meaningful description in the **Description** field.
 - e) Click **OK** to return to the Predefined Options and Values dialog.
5. Click **OK** to finish the definition of Options and Values.
 1. Right click on the DHCP server in the navigation tree, and then select **New Scope...** to define the BSAP IP address scope.
 2. After you have created the scope, right-click on **Scope Options** in the navigation tree to configure the Options.

Figure B-6: The Option Type Dialog

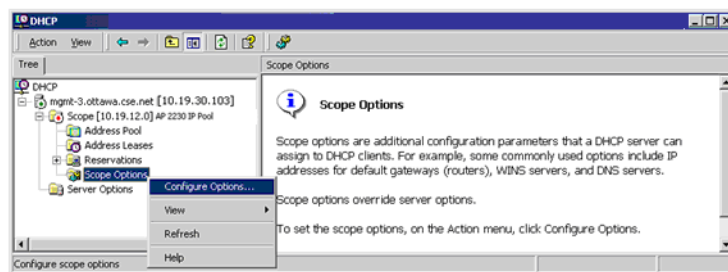


Figure B-7: Configuring Scope Options

The Scope Options dialog appears, for example:

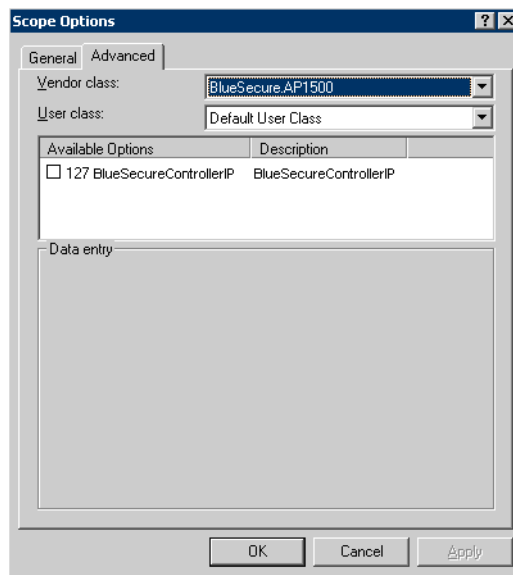


Figure B-8: The Scope Options Dialog

3. Click the **Advanced** tab, and then select **BlueSecure.AP1500** from the Vendor class drop-down menu.

The predefined option is listed as an available option.

4. In the **ASCII** text field, enter the IP addresses of the BSCs (separated by a comma or semicolon) to which the BSAPs defined in the address scope are to connect. Be sure to delete the leading period that is pre-inserted in the field.
5. Click **Apply** to complete the scope option configuration.
The defined scope option now appears, for example:

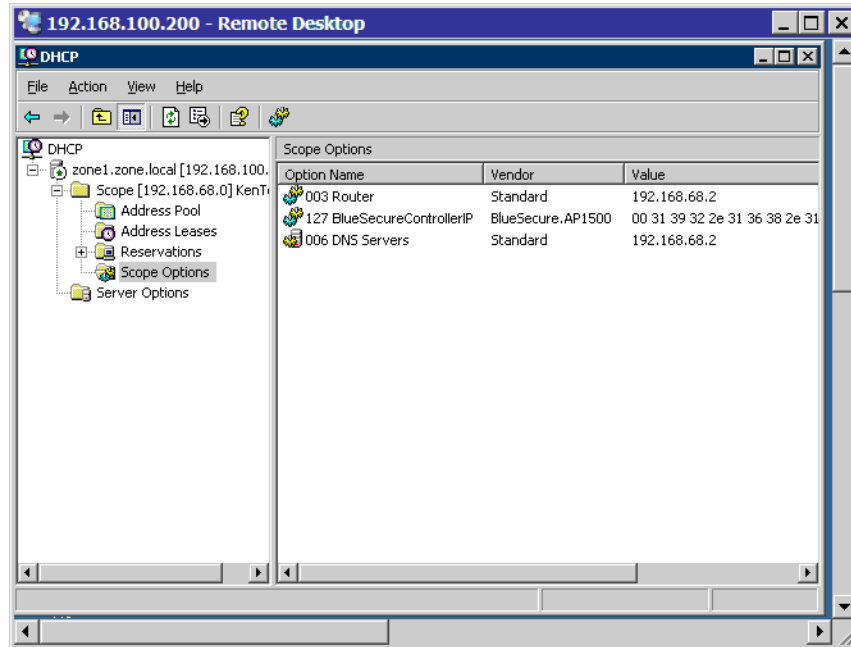


Figure B-9: The Defined Scope Option

The BSAPs will connect to one of the BSCs defined in the vendor option.

Provisioning an Internet Systems Consortium (ISC) DHCP Server

To setup an ISC server on your network to send the DHCP Vendor option, you must first match the identifier, then add the option:

```
if option vendor-class-identifier = "BlueSecure.AP1500" {
    option vendor-encapsulated-options
    7F:0D:31:39:32:2E:31:36:38:2E:31:36:30:2E
    :31;
}
```

The IP is a datastring of the Hex MAC Address. 31 is hex for 1, 39 for 9, so the above string reads: 127 (vendor), 13 (length), then 192.168.160.1.

More than one BSC IP address can be specified, separated by commas or semi-colons. The length (up to 255) can contain up to 15 IP addresses. The following example shows two BSC IP addresses (192.168.160.1 and 40.4.4.1) - 2C is a comma:

```
if option vendor-class-identifier = "BlueSecure.AP1500" {
    option vendor-encapsulated-options
    7F:16:31:39:32:2E:31:36:38:2E:31:36:30:2E
    :31:2C:34:30:2E:34:2E:34:2E:31;
}
```