Using the Avaya Console for WLAN 9100 Series

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Contents

Overview

Avaya Virtual Console is a software application tool specialized for connections to Avaya 9100 Series Wireless Access Points (WAPs). It primary purpose is for low level control or troubleshooting of WAPs that do not have a physical console connection port, or whose console port is not accessible. It offers many customized features for this purpose.

Avaya Virtual Console discovers WAPs on the local network subnet (and VLAN) by sending IP/UDP broadcast "beacon" packets. Once a WAP is discovered, Avaya Virtual Console can establish an encrypted console session to the WAP over Ethernet/UDP using broadcast and multicast. The WAP mirrors the console port using link local multicast destination address 224.0.0.120, while Avaya Virtual Console responds using a broadcast address with UDP. The default port used is 22612. This approach allows communication regardless of the IP configuration on the WAP and the Windows client.

Recommended Usage of Avaya Virtual Console

In normal circumstances, WAPs should initially be configured and managed using one of the following interfaces:

- The Wireless LAN Orchestration System (WOS) offers central management of your entire Avaya wireless network.
- The Windows Management Interface (WMI) provides a browser-based interface.
- The Command Line Interface (CLI) is used through secure Telnet (SSH).

On networks using DHCP use either the DHCP assigned IP address, or (if DNS is also in use on the network) the WAP's host name. The factory default hostname is the WAP's serial number. If not using DHCP, use the WAP's 192.168.1.3 factory default IP address.

Avaya Virtual Console may be needed in special circumstances as a last resort, for troubleshooting WAP startup problems or IP connectivity issues where you cannot communicate with the WAP via WOS, SSH, or the WMI using its host name or IP address, and there is either no console port, or the console port is inaccessible, for example if the WAP is installed on a high ceiling.

How to Use this Guide

The following sections describe how to get started with Avaya Virtual Console, including the steps for recovering a WAP with an unknown login or with a bad IP configuration.

- **"Requirements" on page 3**
- **"Installation and Initial Setup" on page 4**
- **"Communicating with the WAP" on page 5**
- **"WAP Recovery" on page 9**

To modify WAP settings for enhanced security at the low levels accessed by Avaya Virtual Console, see:

- **"Recommended Avaya Virtual Console and Boot Loader Settings" on page 10**

For details on the other options and features of Avaya Virtual Console, see:

- **"Additional Avaya Virtual Console Features" on page 15**
- **"Main Menu Commands" on page 18**

To contact Avaya, see:

- **"Customer Support" on page 19**

Requirements

Installation and operation of Avaya Virtual Console requires a computer with the following:

1. Windows 7. Earlier versions of Windows are not supported. Other operating systems are not supported in this release.
2. A network adapter connected to the same VLAN or broadcast domain as the WAP's Gigabit Ethernet primary port.

WAP requirements:

1. The WAP's Boot Loader version must be Build 3069 or later. The Avaya OS version must be 7.0 or later.

Installation and Initial Setup

1. Access to Avaya Virtual Console executable is controlled by **"Customer Support" on page 19**. Download the executable as instructed by Customer Support.

2. Double-click on the Avaya Virtual Console executable file to install it. Follow the prompts to complete the installation.

3. The application will install an icon on your desktop. Start Avaya Virtual Console by double clicking the application icon on the desktop.

The Avaya Virtual Console main window appears. (**Figure 1**)

4. Your computer's **Network Adapters** are listed on the lower left. Select the adapter that is connected on the same VLAN or broadcast domain as the desired WAP. By default all network adapters are selected. You may change this option by enabling or disabling the File menu option named **Check All Adapters On Start**.

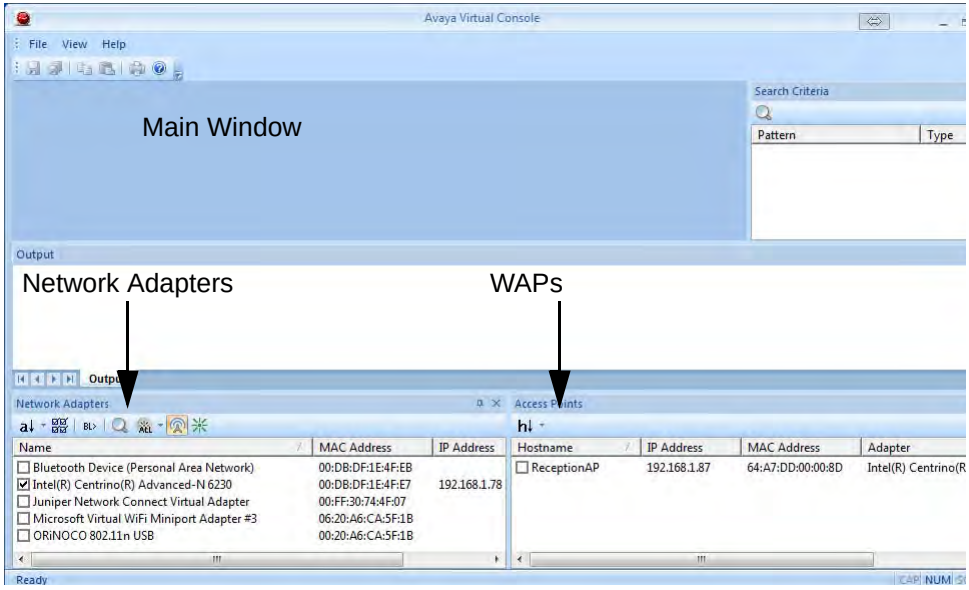

Figure 1. Initial Avaya Virtual Console Window

5. WAPs are detected on the subnets of all enabled adapters and added to the WAP**s** list. Some WAPs may need to be rebooted in order to be discovered, based on how each WAP has been configured to allow Avaya Virtual Console access. The WAP has options to allow Avaya Virtual Console access only to Avaya OS (i.e., CLI access) or only to Boot Loader, to both, or to neither (no access by Avaya Virtual Console at all). See **"About Avaya Virtual Console Access to the WAP" on page 10**.

   - If Avaya Virtual Console access at the Avaya OS (CLI) level is enabled on a WAP, the WAP will be detected without requiring a reboot.
   - If Avaya Virtual Console access is enabled for only the Boot Loader level on a WAP, the WAP will be detected when it reboots. The easiest way to accomplish this is to power the WAP off and then on again. See **"About Changing Settings" on page 10**.

6. Select the WAP that you wish to connect to from the WAP**s** list on the lower right of the Avaya Virtual Console window by clicking its checkbox (**Figure 2**). The communication session with the WAP (via Boot Loader or CLI) will be shown in the main window.

   Note that once a WAP has booted, it will use its default address of 192.168.1.3 with a 255.255.255.0 mask, unless it receives a DHCP assigned address. Note that the correct WAP IP address is shown only for WAPs that have Avaya OS-level Avaya Virtual Console access enabled.

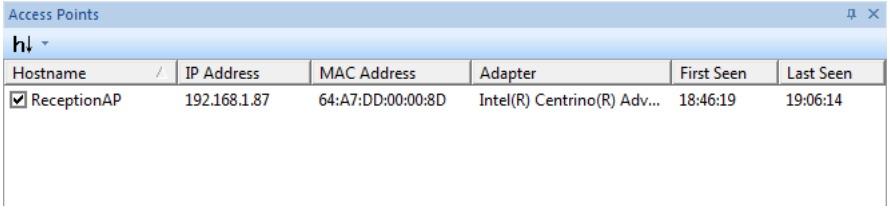

Figure 2. Discovered WAPs

Communicating with the WAP

As discussed in **"Recommended Usage of Avaya Virtual Console" on page 2**, the preferred way to connect to the WAP is via WOS, SSH (CLI), or WMI. If your network uses DHCP and DNS, you may use the WAP's factory default hostname

to access it. The default hostname is the WAP's serial number. You may also connect using its IP address, as shown in the WAP list.

About entering Boot Loader mode

If you cannot connect to the WAP using its IP address or hostname, Avaya Virtual Console allows you to communicate with the WAP via CLI or the Avaya Boot Loader (Boot Loader—see **"About Boot Loader" on page 10** for more information). There are two ways to enter Boot Loader mode:

- **Recommended method**: set Avaya Virtual Console to automatically enter Boot Loader mode on the WAP by selecting the Boot Loader> button in the tool bar above the **Network Adapters** list. This is easier than the traditional method below, which requires you to hit space bar during a short window of time.

Figure 3. Boot Loader> button automatically enters Boot Loader mode

- **Traditional method**: when you reboot the WAP, it loads the current software image. During the load process, the WAP will prompt you with an opportunity to switch to Boot Loader mode: (**Figure 4**)

  Press space bar to exit to boot loader: 3

  You have three seconds to hit the space bar to enter Boot Loader. The prompt will count down to zero, at which point it will continue the normal load process, and you will no longer have the option of entering Boot Loader mode.

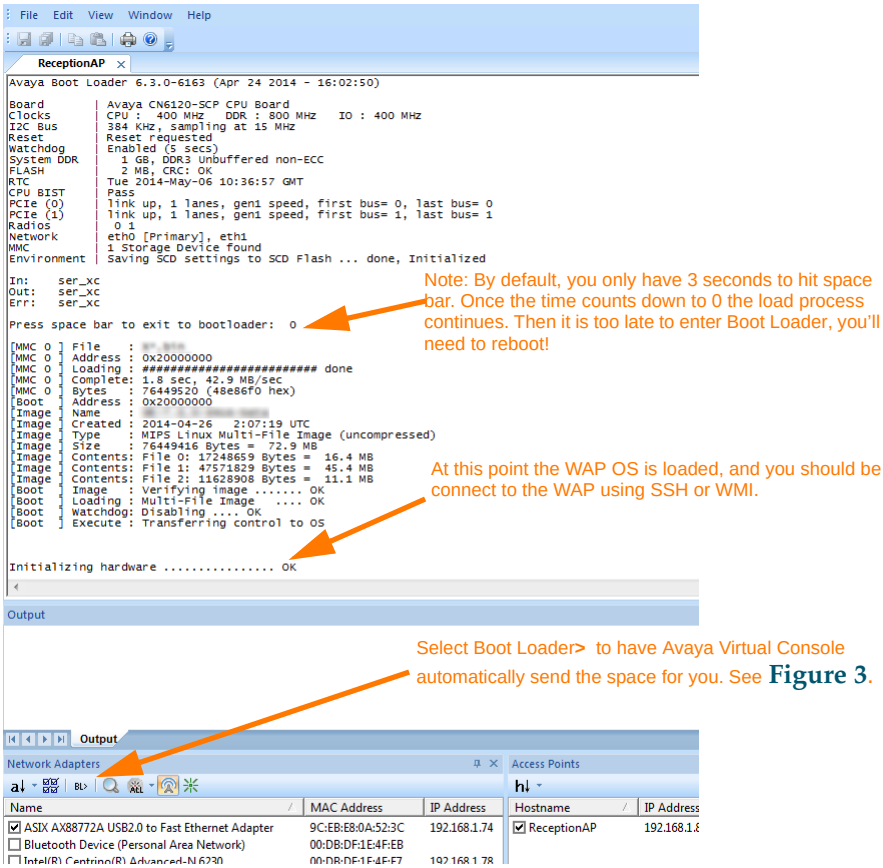

Figure 4. Starting Boot Loader

Procedure to enter Boot Loader mode

1. Make sure that the desired WAP has been detected by Avaya Virtual Console and is shown in the WAP**s** list on the lower right. (See **Installation and Initial Setup, Step 5**).

2. Check the checkbox in front of the desired WAP's entry in the list. The Avaya Virtual Console main window will display the communication session with this WAP.

3. Set Avaya Virtual Console to automatically enter Boot Loader mode on the WAP by selecting the **Boot Loader>** button in the tool bar above the **Network Adapters** list. Avaya Virtual Console will automatically send a space character at the proper time.

4. Reboot the WAP, and you will see the boot load process in the Avaya Virtual Console main window.

   Avaya Virtual Console establishes a console connection to the WAP during the reboot.

If you have trouble establishing communication with the selected WAP (nothing appears in the main window), do the following. Connect the IN port on the power injector that the WAP is using directly to an Ethernet port on your computer instead of the LAN switch.

Since Avaya Virtual Console communicates at Layer 2, you do not need to be concerned with setting the IP address of your computer to be in the same subnet as the WAP.

5. In the **Output** window, enter the Boot Loader **Username** and **Password** when prompted. The default login for Boot Loader is **admin** for both Username and Password. Note that Boot Loader has its own login Username and Password, which are separate from the Avaya OS login used for the WMI and CLI.

   You should then be at the Boot Loader> prompt as shown in **Figure 5**.

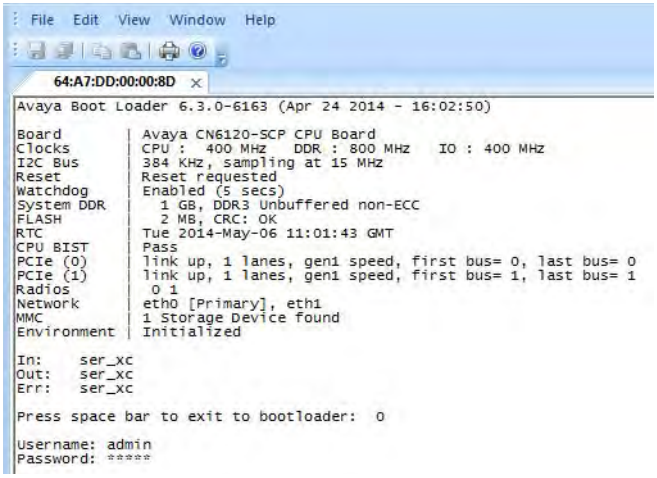

Figure 5. Connected in Boot Loader Mode

WAP Recovery

Avaya Virtual Console is very useful when you need to recover from not knowing the password for a WAP or in case of a bad IP configuration, especially when the console port is not accessible. Once at the Boot Loader> prompt you may reset the WAP to factory defaults, including resetting the username, password, and IP settings to their factory values.

1. In the **Output** window, enter:

```
env reset
```

Boot Loader commands are case sensitive and must be entered as shown, in lower case letters.

This clears the WAP configuration back to factory defaults shown below, and reloads the WAP. Once the WAP has reloaded you may gain access using the default username and password, and either the DHCP assigned address, or the default static address. DHCP is enabled on the WAP by default, so the WAP will use the assigned address if DHCP is in use on your network. If DHCP is not in use, then the default addresses below are used.

Default Username: **admin**

Default Password: **admin**

Default Static IP address: **192.168.1.3**

Default IP Subnet Mask: **255.255.255.0**

Recommended Avaya Virtual Console and Boot Loader Settings

About Boot Loader

Most management of the WAP is done via WOS, the Windows Management Interface (WMI), or CLI. The WAP also has a lower level interface: Boot Loader, which allows access to more primitive commands. You won't normally use Boot Loader unless instructed to do so by Avaya Customer Support. For proper security, you should replace the default Boot Loader login username and password with your own, as instructed below. Boot Loader has its own username and password, separate from the Avaya OS Admin User and Password (used for logging in to the WMI and CLI).

About Avaya Virtual Console Access to the WAP

Avaya Virtual Console access to the WAP may be controlled.

- You may enable or disable all Avaya Virtual Console access to the WAP as instructed in the procedure below. There are also options to allow access only to CLI (i.e., Avaya OS access) or only to Boot Loader.

- On all other WAP models (those with a console port), Avaya Virtual Console access to both Boot Loader and CLI is disabled by default. If Avaya Virtual Console is not going to be used to access a WAP, we recommend leaving Avaya Virtual Console access disabled.

About Changing Settings

Settings for Avaya Virtual Console access and for the Boot Loader passwords may be changed by a number of methods on the WAP:

- **Procedure to change Avaya Virtual Console access and Boot Loader login via CLI** changes Avaya Virtual Console access and the Boot Loader login via the CLI.

- **Procedure to change Avaya Virtual Console access only via WMI** changes Avaya Virtual Console access (but not the Boot Loader login) via the WMI.
- **Procedure to change Boot Loader login via Boot Loader** changes the Boot Loader login via Boot Loader.
- **Procedure to change Avaya Virtual Console access only via the Wireless LAN Orchestration System** changes the Avaya Virtual Console access (but not the Boot Loader login) via the WOS.

Procedure to change Avaya Virtual Console access and Boot Loader login via CLI

1. To access CLI via Avaya Virtual Console, deselect the Boot Loader> button below Avaya Virtual Console's **Network Adapters** header on the left. You may also access CLI via SSH, using terminal emulation software. Remember that Avaya Virtual Console access to Avaya OS must be enabled on the WAP, or Avaya Virtual Console will be denied access to CLI.

2. When you see the **login as** prompt, log in to CLI in the **Output** window using the username and password for Avaya OS (*not* the Boot Loader username and password).

```
login as: jsmith
jsmith@receptionap's password:

ReceptionAP#
```

3. Type **configure** to enter the CLI config mode.

```
hostname#configure
```

4. If Avaya Virtual Console access at the Boot Loader level is to be allowed, use the following three commands to change the Boot Loader username and password from the default values of **admin**/**admin**. In the example below, replace **newusername** and **newpassword** with your desired entries. Note that these entries are case-sensitive.

```
(config)#boot-env set username newusername
(config)#boot-env set password newpassword
(config)#save
```

5. Enter the following commands if you wish to change Avaya Virtual Console access permission:

```
(config)# management
(config-mgmt)# avcon <management-status> <port> <timeout>
(config-mgmt)# save
(config-mgmt)# exit
(config)#
```

<*management-status*> may be one of:

- **on** enables both CLI and Boot Loader access
- **off** disables both CLI and Boot Loader access
- **aos-only** enables only CLI (i.e. Avaya OS) access
- **boot-only** enables only Boot Loader access

<*port*> — specify the UDP port used by Avaya Virtual Console. The default is 22612. This requires the same port be used on the Avaya Virtual Console application.

<*timeout*> — specify the Avaya OS login timeout for Avaya Virtual Console access. The default is 300 seconds.

Note that there is a WMI setting for changing Avaya Virtual Console access, timeout period, and the UDP port used. This may be used instead of CLI if you wish. See **Procedure to change Avaya Virtual Console access only via WMI**.

Procedure to change Avaya Virtual Console access only via WMI

1. In the WMI, select **Security** on the left, then select **Management Control**.

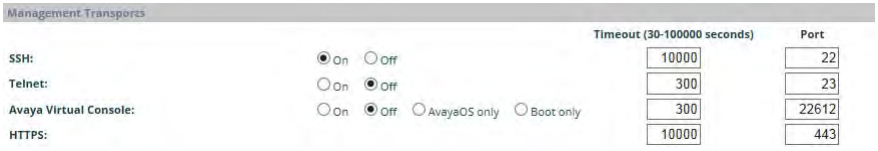

Figure 6. WMI Settings for Avaya Virtual Console

2. Locate the Avaya Virtual Console settings row in the **Management Transports** section.

    a. **On/Off**: Choose **On** to enable Avaya Virtual Console access to the WAP at the Avaya OS (CLI) and Boot Loader levels, or **Off** to disable access at both levels. Avaya Virtual Console access is **Off** by default.

    b. **Avaya OS only**: Choose this radio button to enable Avaya Virtual Console access at the Avaya OS level only (i.e., Avaya Virtual Console can access CLI only). Access to the WAP at the Boot Loader level is disabled.

    c. **Boot only**: Choose this radio button to enable Avaya Virtual Console access at the Boot Loader level only. Avaya OS level (CLI) access to the WAP is disabled.

    d. **Connection Timeout 30-100000 (Seconds)**: Enter a value in this field to define the timeout (in seconds) before your Avaya Virtual Console connection is disconnected. The value you enter here must be between 30 seconds and 100,000 seconds.

    e. **Port**: The default port is 22612. We recommend that you do not change this port.

3. Click **Save changes to flash** if you wish to make your changes permanent.

Procedure to change Boot Loader login via Boot Loader

1. At the Boot Loader> prompt, enter the following in the Avaya Virtual Console **Output** window to change the Boot Loader login username and password.

```
env set username newusername
env set password newpassword
```

Procedure to change Avaya Virtual Console access only via the Wireless LAN Orchestration System

1. In the WOS, select **Configure**, then Access Point.
2. A list of Access Points is displayed. Click on the name of the Access Point to modify.
3. Click on **Configuration**.
4. Select **Security** and then **Management Control**

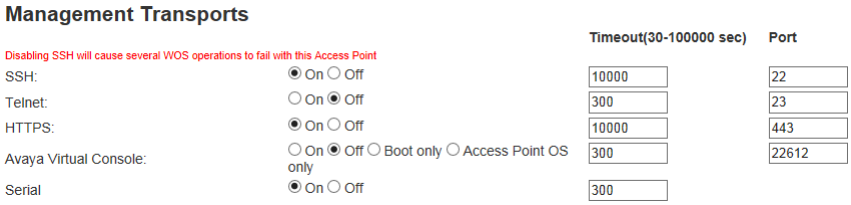

Figure 7. WMI Settings for Avaya Virtual Console

5. Locate the Avaya Virtual Console settings row in the **Management Transports** section.
   a. **On/Off**: Choose **On** to enable Avaya Virtual Console access to the WAP at the Avaya OS (CLI) and Boot Loader levels, or **Off** to disable access at both levels.
   b. **Access Point OS only**: Choose this radio button to enable Avaya Virtual Console access at the **Access Point OS only** level only (i.e., Avaya Virtual Console can access CLI only). Access to the WAP at the Boot Loader level is disabled.
   c. **Boot only**: Choose this radio button to enable Avaya Virtual Console access at the Boot Loader level only. Avaya OS level (CLI) access to the WAP is disabled.

Additional Avaya Virtual Console Features

Avaya Virtual Console provides options that control operation, allow searching and sorting, and more.

Network Adapter Features

These features are controlled by the icons in the Network Adapters toolbar.

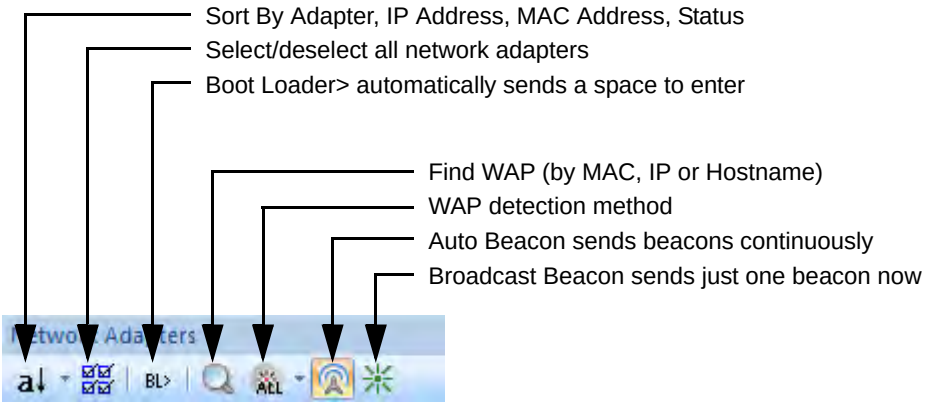

Figure 8. Network Adapters Toolbar

- **Sort By Adapter, IP Address, Mac Address, Status**—sort the list of adapters based on the selected column. Repeat the same selection to toggle the sort order between ascending and descending. You may also sort based on a column by clicking that column's header above the list.
- **Select/deselect all**—selects all network adapters. Click again to deselect all. Avaya Virtual Console will ask you to verify before deselecting an adapter for a subnetwork that currently has WAPs on it that are shown in the WAP**s** list.
- **Boot Loader>**—select this button to automatically send a space character to enter Boot Loader at the right time. This eliminates the need to hit the space bar within a three second countdown in order to enter Boot Loader. If you deselect this button and do not enter a space in time the WAP loads Avaya OS, and if Avaya Virtual Console is enabled at the Avaya OS level you will have CLI/Console access.

- **Find WAP**—performs a search to attempt to discover the specified WAP. (**Figure 9**) You may specify the WAP using its **MAC address** (the first three octets for a WAP are always **64:a7:DD:**, so this is entered for you), its **IP Address**, or its **Hostname**. No wild cards are allowed in the match string. Regardless of how you specify the WAP, Layer 2 techniques are used to search for it.

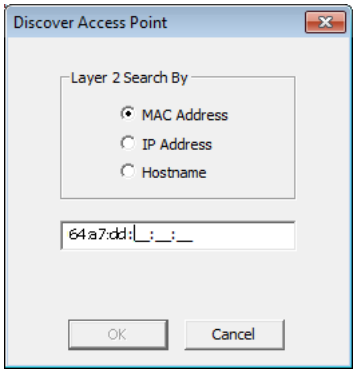

Figure 9. Discover a Specified WAP

- **WAP detection method**—selects how WAPs are detected. This button is labeled with the current detection mode: **NEXT**, **ALL**, etc. You may **Detect All WAPs** (i.e., all WAPs that boot up), **Detect Next Booting WAP** only, or **Stop WAP Detection**. Generally, changing the detection method clears the list of other currently discovered WAPs.

  Another option is **Detect WAPs based on Criteria**. This search finds *all* WAPs that match *any* of the criteria shown in the **Search Criteria** list. (**Figure 10**)

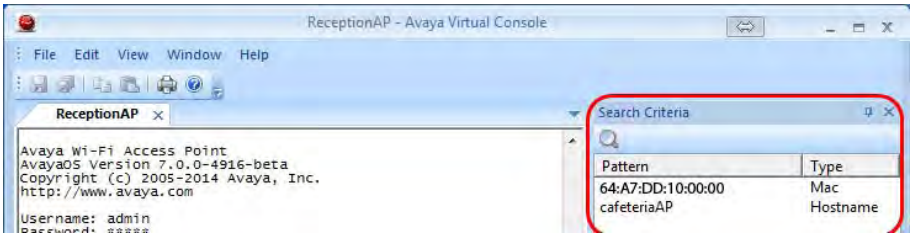

Figure 10. Search Criteria List

The criteria in this list are only used when you have selected the **Detect WAPs Based on Criteria** option.

To add a criterion to the list, click the find button above the list. The Discover WAP dialog appears. This is identical to the **Find WAP** dialog. (**Figure 9**) You may specify a WAP using its MAC address (the first three octets for a WAP are always **64:a7:DD:**), its IP Address, or its Hostname. No wild cards are allowed in the match string. Click the find button again to specify additional match criteria.

Regardless of how you specify WAPs, Layer 2 techniques are used to search for them. Avaya Virtual Console will send beacons selectively to only the WAPs that match the criteria once all MAC addresses for the specified WAPs are known.

- **Auto Beacon**—this option sends beacons to look for WAPs continuously. To send just one beacon right now, turn Auto Beacon off and use the Broadcast Beacon button (below).
- **Broadcast Beacon—**this option sends just one beacon immediately. The **Auto Beacon** option must be off for this button to work.

WAP List Features

The WAPs list toolbar has just one option, which determines the WAP**s** list sorting order based on the selected column. Repeat the same selection to toggle the sort order between ascending and descending. You may also sort based on a column by clicking that column's header above the list.

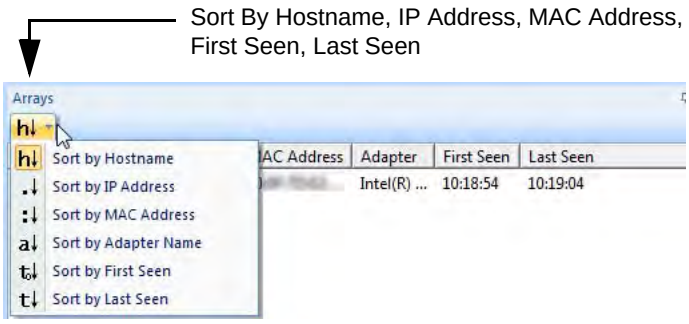

Figure 11. Network Adapters Toolbar

Main Menu Commands

- **File**—By default, **Check All Adapters on Start** is enabled. When Avaya Virtual Console starts up, this will find the network adapters on your computer and enable all of the adapters that are connected. Avaya Virtual Console will send out beacons on these adapters to discover any WAPs on their subnets.

  The **File** menu also has the usual options for saving and printing. Use the More Options button to see all options. **Close** ends the session with the currently selected WAP in the main window. Click the checkbox in front of the WAP to reopen it. **Exit** will close the Avaya Virtual Console window.

- **Edit**—This menu contains the usual **Copy**, **Paste**, and **Select All** options for the main window.

- **View**—This menu allows the selection of which **Toolbars and Docking Windows to display**. For example, the **Search Criteria** window is shown by default, but may be removed from the layout. **Network Adapters**, WAP**s**, and **Output** windows may be removed as well. You may also

enable or disable the display of the **Standard** (quick access) toolbar below the menu and the **Status Bar** at the bottom of the Avaya Virtual Console window. Use the **Application Look** options if you wish to select the look (the skin) of Avaya Virtual Console.

- **Window**—If you have sessions open with more than one WAP, use these options to switch between windows or arrange display of multiple windows.
- **Help—About Avaya Virtual Console** shows the version number and other information.

Customer Support

See the Avaya Support website: http://support.avaya.com for Product or Hosted Service notices and articles, or to report a problem with your Avaya Product or Hosted Service. For a list of support telephone numbers and contact addresses, go to the Avaya Support website: http://support.avaya.com (or such successor site as designated by Avaya), scroll to the bottom of the page, and select Contact Avaya Support.