Avalanche

Wavelink Avalanche Mobility Center
Java Console User Guide

Version 5.2

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Chapter 1: Introduction

Avalanche is an infrastructure and mobile device management system. From a central console, you can locate and manage devices, including monitoring and distributing software and firmware. Network security features allow you to manage wireless settings (including encryption and authentication), and apply those settings on demand throughout the network. Avalanche also provides tools for managing maps, alerts, and reports.

This guide is an introduction to the functions and components of Wavelink Avalanche. It presents:

- An introduction to the Avalanche Java Console and conceptual information about Avalanche.
- Detailed information on the components of Avalanche.
- Tasks for creating and managing an effective and secure wireless network.

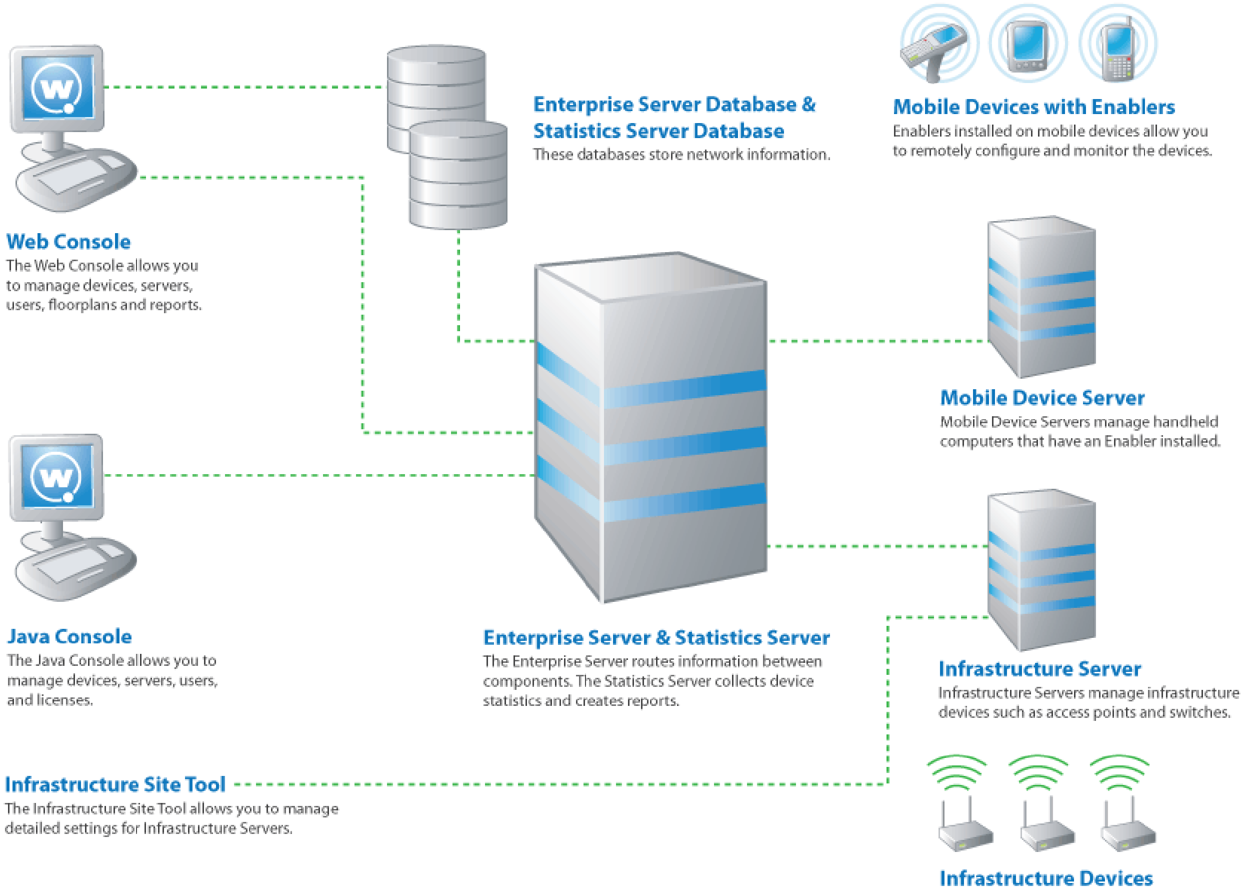
NOTE: The instructions contained in this guide pertain to the Avalanche Java Console. For details about performing tasks from the Web Console, see the Web Console User Guide.

This section provides the following introductory information:

- Components of Avalanche
- Location Management
- Getting Started
- About This Guide

Components of Avalanche

Avalanche is an integrated system of several components, which together allow you to manage your wireless network quickly and efficiently. The following diagram provides a general overview of components and how they interact:


Enterprise Server Database &
Statistics Server Database
These databases store network information.
Mobile Devices with Enablers
Enablers installed on mobile devices allow you to remotely configure and monitor the devices.
Web Console
The Web Console allows you to manage devices, servers, users, floorplans and reports.
Mobile Device Server
Mobile Device Servers manage handheld computers that have an Enabler installed.
Java Console
The Java Console allows you to manage devices, servers, users, and licenses.
Enterprise Server & Statistics Server
The Enterprise Server routes information between components. The Statistics Server collects device statistics and creates reports.
Infrastructure Server
Infrastructure Servers manage infrastructure devices such as access points and switches.
Infrastructure Site Tool
The Infrastructure Site Tool allows you to manage detailed settings for Infrastructure Servers.
Infrastructure Devices

The primary components of Avalanche include:

- **Avalanche Java Console**. The Avalanche Java Console gives you control over your wireless network components. With the Avalanche Console, you can manage and maintain everything from infrastructure device settings to mobile device software. The Java Console must be accessed from a computer where it has been installed.
- **Avalanche Web Console**. The Avalanche Web Console allows you to manage network components from any computer using an Internet connection. It does not need to be installed.

NOTE: To manage reports or use the floorplan setup, you must use the Web Console. These options are not available through the Java Console.

- **Enterprise Server**. The Enterprise Server facilitates all communication between the Console, the device servers, and the Enterprise Server database.

- **Statistics Server**. The Statistics Server collects statistical information from your devices and device servers for reporting purposes and stores information in the Statistics Server database.
- **Databases**. Avalanche databases store information about your network and devices. There are two databases for Avalanche. The Enterprise Server database handles information such as managing device configuration. The Statistics Server database manages statistical information regarding the state of devices on your network.

NOTE: Avalanche-supported databases use Windows-1252 character encoding. If you try to use double-byte characters or other characters that are not listed on this code page (for example, as the name of a location or profile), errors will occur and Avalanche will not save the information.

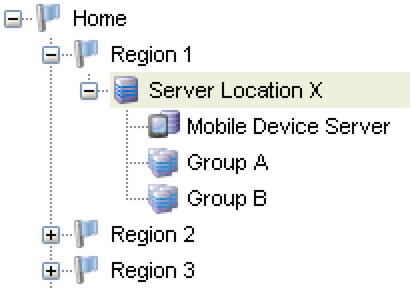
- **Device Servers**. Device servers are responsible for communication between the Avalanche Console and wireless devices. Avalanche has two types of device servers: Infrastructure Servers and Mobile Device Servers. Although there is only one Enterprise Server, you can have multiple device servers of either type.
- **Enablers**. Mobile devices must have an Avalanche Enabler installed in order to be managed by Avalanche. An Enabler relays information between the mobile device and the Mobile Device Server. With the Enabler installed, the mobile device can receive configuration instructions that you create in the Avalanche Console.

In Avalanche MC, the Enterprise and Statistics Server, both databases, and the components for the Java and Web Consoles are all installed at one location. Once the Enterprise Server has been installed, you can use the Console to create device server packages. These server packages are deployed to the systems where you want the device servers installed. For information on where to install device servers, see Determining Server Placement.

NOTE: Avalanche offers many options so that you can install components on different computers. For more information on installation options, see the *Installing Avalanche* paper on the Wavelink Web site.

Location Management

One of the key aspects of Avalanche is location management. Avalanche organizes servers and devices in locations to make them easier to manage. Avalanche divides locations into three main categories: region locations, server locations and group locations. Locations are organized in the Navigation Window:



Navigation Window with sample locations

A server location is the basic component of the Avalanche system. Each server location contains at least one device server that communicates with specific wireless components.

A collection of one or more server locations is called a region. Typically, each server location within a region contains a set of similar characteristics such as geographic location or role within your organization's structure. When you apply configurations to a region, the Avalanche Console applies the configurations to every server location within that region.

For each server location with a Mobile Device Server, you also have the option of creating a group location. This is defined as a group of devices that connect to the same server. Devices are added to a group location when they meet selection criteria for that group. A device can belong to more than one group location concurrently. Group locations allow increased flexibility for assigning different profiles at the same server location.

The number of wireless components managed at a server location depends on the communication range of the servers installed at that location. Traditionally, this range has been defined as a single subnet on your network; however, depending on your network architecture, you can configure an infrastructure server to communicate past a given subnet. This type of configuration takes place at the server location level, using the Infrastructure Site Tool. For information on using the Infrastructure Site Tool, see Using the Infrastructure Site Tool.

Getting Started

To better manage your Avalanche installation and configuration and to ensure optimal performance, Wavelink recommends you perform the following steps in order:

1 **Install Avalanche.** For more information, see the *Installing Avalanche* paper on the Wavelink Web site.

2 **Activate Mobile Device and Infrastructure licenses for Avalanche.** You should activate the number of licenses based on the number of devices you want to manage. For more information, see Licensing.

3. **Create region locations.** A region allows you to group server locations that share a set of similar characteristics such as geographic location or role within your organization's structure. For more information, see Managing Regions.

4. **Create server locations.** Server locations are the locations on your network where the device servers are installed. For more information, see Managing Server Locations.

5. **Create group locations.** Group locations are user-defined groups of devices that connect to the same device server. For more information, see Managing Group Locations.

6. **Configure profiles.** A profile allows you to manage configurations and settings centrally and then deploy those configurations to as many locations as necessary. In this way, you can update or modify multiple servers or devices instead of manually changing settings for each one. Profiles must be enabled before being applied.

   The following list provides information about each type of profile:

Infrastructure profile An infrastructure profile allows you to manage settings for infrastructure devices and schedule device events.

Mobile Device profile A mobile device profile manages settings on your mobile devices, as well as adding, changing, and removing custom properties and registry keys.

Server profiles You can assign one Mobile Device Server profile and one Infrastructure Server profile to each server location. These profiles configure how the device servers interact with devices and the Enterprise Server.

Alert profile An alert profile allows you to track events on your network and send notifications by e-mail or proxy server.

Network profile A network profile provides gateway addresses, subnet masks, WWAN settings, and encryption and authentication information to devices on your network.

Software profile A software profile allows you control over where and when software and files are distributed to mobile devices.

Scan to Config profile Scan to Config profiles allow you to print network settings as barcodes, and then the settings are applied on the device when they are scanned.

7. **Assign profiles to locations.** You can assign configured profiles to locations from the Console. When you assign a profile to a location and install the Servers, or perform a universal deployment, the settings from the profiles are applied to the location and any associated devices. For more information, see Applying Profiles to Locations.

8. **Install servers.** Create a server package to deploy to the locations. This will install the servers and apply profile configurations to the servers and devices. For more information, see Building Server Deployment Packages.

9. **Configure Enablers.** Ensure that your mobile devices have Enablers installed, and configure the Enablers to connect to a mobile device server.

10. **Perform Updates**. To deploy settings to the selected locations, perform an update through the Task Scheduler. For more information see Performing a Server Synchronization.

Once you assign and deploy a profile, the server and/or devices retain their configuration values until you change the profile or assign a new profile with a higher priority. Even if you alter device configuration values without using Avalanche, when the server queries the device, it restores the configuration values from the assigned profile.

About This Guide

This guide provides assistance to anyone managing an enterprise-wide wireless network with Avalanche.

This help makes the following assumptions:

- You have a general understanding of the basic operational characteristics of your network operating systems.
- You have a general understanding of basic hardware configuration, such as how to install a network adapter.
- You have a working knowledge of your wireless networking hardware, such as infrastructure devices and mobile devices.
- You have administrative access to your network.

This help uses the following typographical conventions:

`Courier New` Any time you are instructed to type information, that information appears in the `Courier New` text style. This text style is also used for file names, file paths, or keyboard commands.

Examples:

The default location is `C:\Program Files\Wavelink\Avalanche.`

Press `CTRL+ALT+DELETE`.

Bold Any time this guide refers to an option, such as descriptions of different options in a dialog box, that option appears in the **Bold** text style. This is also used for tab names and menu items.

Example:

Click **File > Open**.

Italics Any time this guide refers to the titles of dialog boxes, that section appears in the *Italics* text style.

Example:

The *Infrastructure Profiles* dialog box appears.

Chapter 2: Licensing

Avalanche requires licenses for full functionality. You can access and use the Avalanche Console without licenses, but you will be limited to the demo or unlicensed mode and will have limited functionality. You will not be able to manage mobile or network infrastructure devices.

This section provides information about the licensing options for Avalanche, and includes the following topics:

- Overview of Wavelink Licensing
- Activating Licenses
- Releasing Licenses
- Running the License Server
- Importing the Enterprise License

Overview of Wavelink Licensing

Avalanche requires one license for each infrastructure or mobile device it manages. When a server detects a new device, a license request is sent to the License Server. The License Server then sends a license to the server to be distributed. The license file is unique to the server and cannot be transferred to another server. Once the device receives the license, Avalanche can manage that device. If a license expires or is released, the license returns to the pool of licenses at the License Server until it is requested by another server.

For users' convenience, some licenses may come with a license start date. You can activate these licenses and they will appear in the *Licensing* dialog box, but the License Server will not be able to distribute them until the date specified.

NOTE: To obtain any Avalanche license, please contact Wavelink customer service or a sales representative.

There are two sets of licenses available with Avalanche: base and maintenance. Base licenses are required to manage devices when using any variety of Avalanche version 5 (5.x). You will also need maintenance licenses if you have upgraded beyond version 5.1. For example, if you upgraded to 5.5, you would need a 5.x base license and a maintenance license for each device you want to manage.

There are two types of licenses available for Avalanche: licenses for infrastructure devices and licenses for mobile devices. In order to manage your devices through Avalanche, you must have a license of the correct type for each device you want to manage. When you run Avalanche without licenses, it will behave as follows:

- **For mobile devices**: The unlicensed mobile device appears in the Mobile Device Inventory list, but you will not be able to manage the mobile device. You cannot deploy software packages or network profiles to the mobile device.
- **For infrastructure devices**: The unlicensed infrastructure device appears in the Infrastructure Inventory list, but you will not be able to manage the infrastructure device. You cannot deploy or apply profiles to the device.

Activating Licenses

When you activate Avalanche licenses, your licenses are verified and the License Server can then distribute them to the wireless devices on your network.

This section provides information on the following processes:

- Activating Automatically
- Activating Manually
- Importing a License
- Activating Demo Mode

For other Wavelink products used in conjunction with Avalanche 5.2, use the same activation method (from the Avalanche Console) that you use for Avalanche 5.2. You can activate these product licenses automatically, or if you already have a `.lic` file associated with the license, import the `.lic` file.

NOTE: If you have a `wavelink.lic` file from an older installation, you must contact Wavelink Support to reissue the license before you can import it into Avalanche 5.x.

Activating Automatically

If Avalanche resides on a system that has Internet access, you can use automatic license activation. Avalanche connects with a secure Wavelink Web Server to verify your license.

NOTE: If your Internet access is restricted through a proxy server, you will need to configure HTTP Proxy settings before you can activate licenses automatically. For information on configuring proxy settings, see Configuring HTTP Proxy Settings.

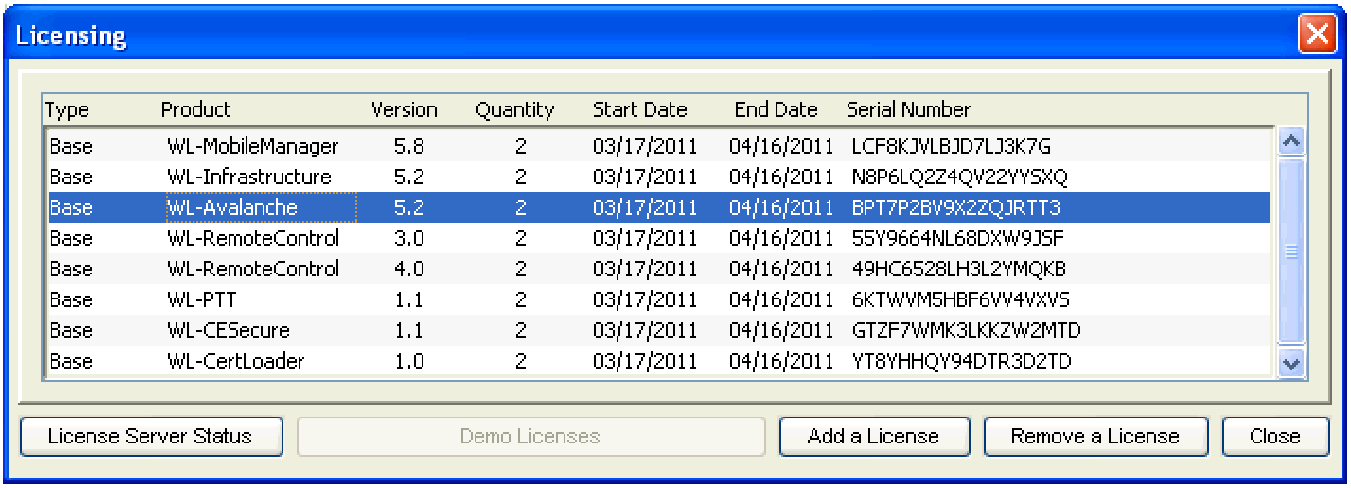
To activate Avalanche:

1 Obtain the Avalanche product licensing code from Wavelink.

NOTE: You receive this information in an e-mail from Wavelink upon purchasing Avalanche.

2 From the Avalanche Console, click **Tools > Manage Licensing**.

The *Licensing* dialog box appears.



Type	Product	Version	Quantity	Start Date	End Date	Serial Number
Base	WL-MobileManager	5.8	2	03/17/2011	04/16/2011	LCF8KJVLBJD7LJ3K7G
Base	WL-Infrastructure	5.2	2	03/17/2011	04/16/2011	N8P6LQ2Z4QV22YYSXQ
Base	WL-Avalanche	5.2	2	03/17/2011	04/16/2011	BPT7P2BV9X2ZQJRTT3
Base	WL-RemoteControl	3.0	2	03/17/2011	04/16/2011	55Y9664NL68DXW9JSF
Base	WL-RemoteControl	4.0	2	03/17/2011	04/16/2011	49HC6528LH3L2YMQKB
Base	WL-PTT	1.1	2	03/17/2011	04/16/2011	6KTWVM5HBF6VV4VXVS
Base	WL-CESecure	1.1	2	03/17/2011	04/16/2011	GTZF7WMK3LKKZW2MTD
Base	WL-CertLoader	1.0	2	03/17/2011	04/16/2011	YT8YHHQY94DTR3D2TD

Licensing dialog box

3 Click **Add a License**.

The *Add a License* dialog box appears.

4 Click **Activate a License**.

The *Activate a License* dialog box appears.

5 Type the Product License in the text box and click **Activate**.

Avalanche connects with a secure Wavelink Web site and your license is verified. The details of the new license appear in the *Add a License* dialog box.

6 Verify that the license information is correct and click **Use License**.

The licenses appear in the *Licensing* dialog box.

Activating Manually

If the server is not connected to the Internet or if you have problems with the automatic activation, activate your license manually.

To activate your license manually you will need the following information:

- Node lock for the system. To find the node lock, launch the Java Console and click **Help > About Avalanche**. The nodelock is listed in the dialog box as **Wavelink Enterprise Service NodeLock**.
- Product license code. This information comes from the e-mail you receive from Wavelink when you purchase Avalanche.

To manually activate a license:

1 Open a Web browser and navigate to `http://www.wavelink.com/activation`.

2 Enter the **Hardware Node Lock** and the **License Key** in the text boxes.

3 Click **Activate** button to activate license.

The Wavelink activation server verifies the information that you entered and provides you a link to download a `wavelink.lic` file if your node lock and license key are valid.

4 Click on the link and change **Save As** type to **All Files**.

5 Download the file to desired location.

6 Move the `wavelink.lic` file to the system with Avalanche installed.

7 Follow the steps under Importing a License to import the license.

Activating Demo Mode

If you are installing Avalanche for demonstration purposes, you can run Avalanche in demo mode. Demo mode authorizes 2 base licenses for 30 days for the following products:

- Avalanche 5.2 (2 mobile device licenses and 2 infrastructure device licenses)
- Remote Control 4.0
- Remote Control 3.0
- Communicator 1.1
- CE Secure 1.1
- Certificate Manager 1.0

To activate demo mode:

1 Click **Tools > Manage Licensing**.

The *Licensing* dialog box appears.

2 Click **Demo Licenses**.

Avalanche will run in demo mode. Once demo mode has been activated on one Console, no other Console connecting to the Enterprise Server will be able to activate demo mode.

Importing a License

If you have received a `wavelink.lic` file using the manual activation method, you can activate the file by importing it.

NOTE: If you have a `wavelink.lic` file from an older installation, you must contact Wavelink Support to reissue the license before you can import it into Avalanche 5.x.

To import a license:

1 From the Avalanche Console, click **Tools > Manage Licensing**.

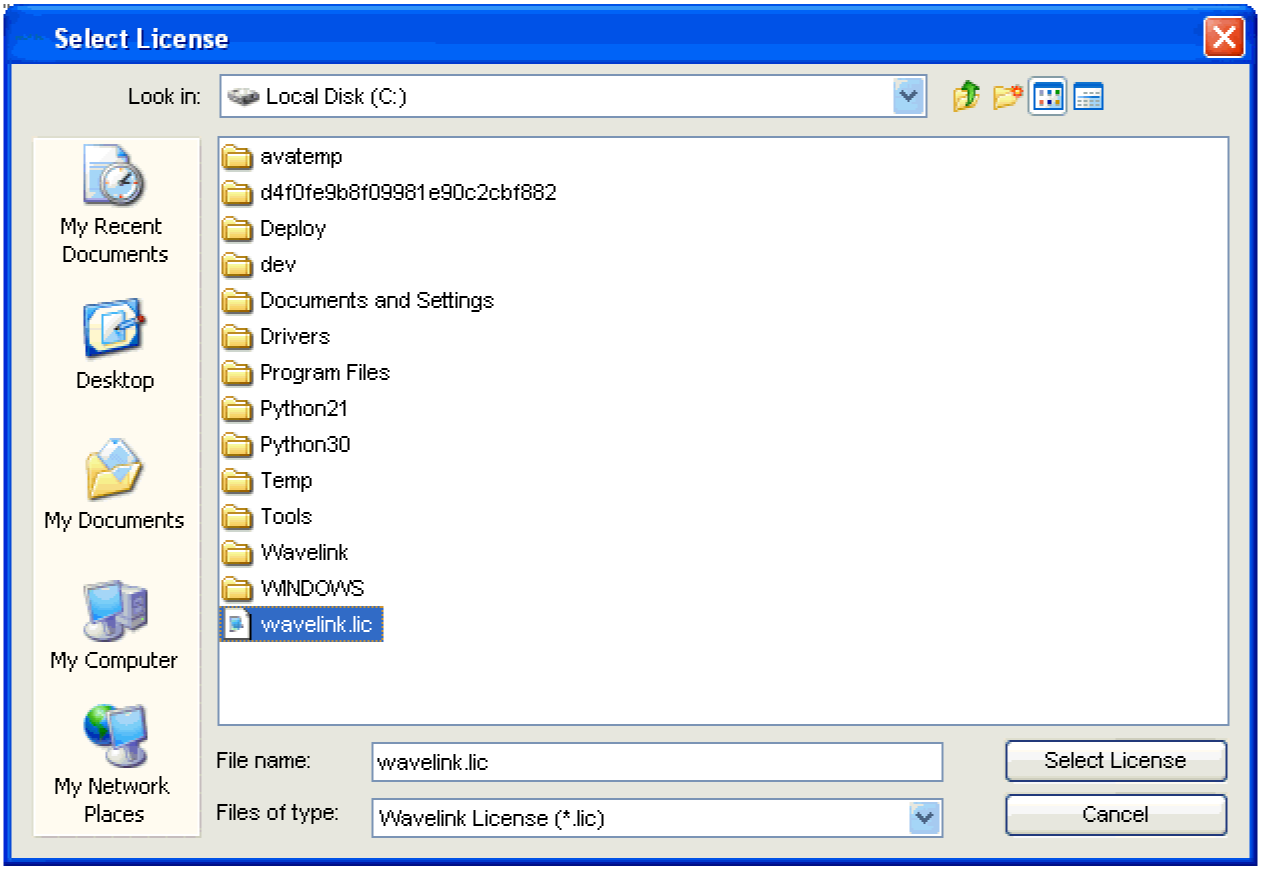
The *Licensing* dialog box appears.

2 Click **Add a License**.

The *Add a License* dialog box appears.

3 Click **Import a License**.

The *Select License* dialog box appears.



Select License

Look in: Local Disk (C:)

File name: wavelink.lic

Files of type: Wavelink License (*.lic)

Select License dialog box

4 Navigate to the location of the `wavelink.lic` file, select it and click **Select License**.

The details of the new license appear in the *Add a License* dialog box.

5 Verify that the license information is correct and click **Use License**.

The licenses are imported and will appear in the list in the *Licensing* dialog box.

Releasing Licenses

Frequent license redistribution provides flexibility in managing devices. To encourage redistribution, you can configure the Mobile Device Server to release licenses from mobile devices that have not connected to the network within a specific number of days. You can also release licenses by deleting devices from the Mobile Device Inventory.

For information about configuring the Mobile Device Server to release licenses, see Mobile Device Server Profile General Configuration. For information about deleting devices from the Mobile Device Inventory, see Mobile Device Inventory Tab.

Running the License Server

The License Server is a Wavelink service that runs on a host system as part of Avalanche. The License Server is responsible for supplying licenses to Avalanche mobile devices and infrastructure devices. It listens on TCP port 7221. For the License Server to function properly, this port must be open and not blocked by a firewall.

The License Server is a service that starts automatically. If for some reason the License Server is not running, the Mobile Device and Infrastructure Servers will not be able to receive licenses. For the name and default installation location of the License Server, see Avalanche Services.

Importing the Enterprise License

Enterprise Licenses grant unlimited licenses for your devices.

Importing an Enterprise License will apply the license to the Enterprise Server and brand the Console with an image of your choosing. Once you import the license, any time the Console connects to the branded Enterprise Server, the image will appear in the bottom left corner of the Java Console.

For information about creating an image and obtaining an Enterprise License, contact Wavelink Customer Service.

To import the Enterprise License:

1. From the **File** menu, select **Import > Enterprise License**.

   A search dialog box appears.

2. Navigate to and select the Wavelink License File (`.wlf` extension).

3. Click **Open**.

   The Enterprise license will be applied to the Enterprise Server and the Console will retrieve the enterprise image. There is no way to remove the enterprise image once it has been imported.

Chapter 3: Avalanche Java Console

You interact with your wireless network primarily using the Avalanche Console. The Avalanche Console allows you to control global characteristics of your wireless network. These characteristics include creating profiles, assigning IP addresses, and monitoring network performance.

To streamline wireless network management, the Avalanche Console also allows you to organize device servers into locations. Creating logical and organized server locations and regions can greatly improve flexibility and allow you to manage your network with ease. For more information about locations, see Location Management.

The Avalanche Console is traditionally accessed from a computer where the Console has been installed. This installed Console is the Java Console. However, you also can access a version of the console from a computer where it has not been installed by using a web browser. This version of the console is called the Web Console. The Web Console allows you to create and view reports and floorplans, view inventory, and manage profiles and alerts for your enterprise.

NOTE: This version of Avalanche help is specific to the Java Console. For more information on using the Avalanche Web Console, please see the *Avalanche MC Web Console User Guide* or launch the Web Console and click the **Help** button.

This section contains the following topics for the Java Console:

- Launching the Avalanche Console
- Understanding the Avalanche Console
- Changing Console Preferences
- Managing the Enterprise Server
- Checking for Available Updates
- Viewing the Inforail Status
- Using the Support Generator
- Using the Enabler Installation Tool

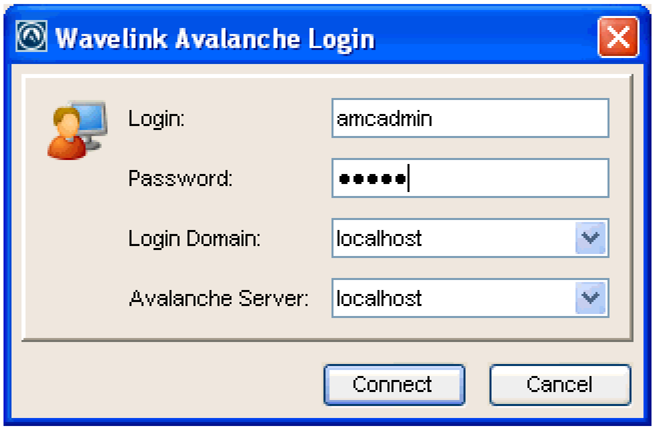
Launching the Avalanche Console

Configure and manage your wireless network on an enterprise-wide basis from the Avalanche Console. You can open the Avalanche Console from the **Programs** menu or from a shortcut.

To launch the Avalanche Console:

1 From the **Start** menu, select **Programs > Wavelink Avalanche MC > Avalanche MC Console**.

The *Wavelink Avalanche Login* dialog box appears.



Wavelink Avalanche Login

Login: amcadmin

Password: •••••

Login Domain: localhost

Avalanche Server: localhost

Wavelink Avalanche Login

2 Enter your **Login** and **Password**.

Avalanche is installed with a default user login of *amcadmin* and password of *admin*. Wavelink recommends you create a new password for this account once you log in. For information about changing passwords, see Managing User Accounts.

3 From the **Login Domain** drop-down list, select the login domain if you have configured Avalanche to use LDAP or Active Directory.

4 From the **Avalanche Server** drop-down list, select your host (the IP address or DNS name of the enterprise server).

5 Click **Connect**.

The *Avalanche Server Login* dialog box appears. This dialog box indicates the progress of the Console as it attempts to contact the Enterprise Server.

If your Console can contact the Enterprise Server and your credentials are valid, the Avalanche Console appears.

If there are updates available, a dialog box will appear asking if you want to download automatically. You can download the updates or save the updates for the next time you launch the Console.

NOTE: To launch the Web Console after you have launched the Java Console, click **View > Launch Web Console**. For more information about the Web Console, click the Web Console **Help** button.

Understanding the Avalanche Console

The Avalanche Console consists of a Tool Bar, Navigation Window, and Management Tabs that allow you to manage your wireless network and provide information about wireless network configuration and activity.

- The buttons on the Tool Bar provide quick access to common tools.
- The Navigation Window provides a tree view of the locations within your wireless network.
- The Management Tabs provide access to inventories, alerts, and other properties of your enterprise. The tabs available depend on what is selected in the Navigation Window.

Many of the options on the Management Tabs require you to enter Edit Mode before you can change them. Edit Mode helps prevent accidental changes and permits only one user to edit an item at a time.

This section gives details about the following areas:

- Tool Bar
- Navigation Window
- Quick Start Tab
- Profiles Tab
- Managing Device Inventory Displays
- Understanding Edit Mode

For information on the Alerts tab, Device Server Status tab, or Device Groups tab, go to the following sections:

- Managing Alert Profiles
- Managing a Mobile Device Server
- Managing Infrastructure Device Servers
- Managing Mobile Device Groups

Tool Bar

The following table provides information about the Tool Bar buttons.

Click this button to log out of the Avalanche Console and log in as a different user.

Click this button to log out of the Avalanche Console. You will not be prompted to log in as another user.

Click this icon to deploy any profile and/or configuration changes to Servers immediately. This button allows you to immediately deploy changes without creating a deployment task in the Task Scheduler. You can still create and schedule deployments through the Task Scheduler.

Click this icon to open the Task Scheduler and schedule deployment tasks.

Click this icon to open the *User Management* dialog box. You can edit your list of users and permissions in this dialog box.

Click this icon to access Console preferences such as audit logging and backup location settings.

Click this icon to access the Very Large Access Control List.

Click this icon to open the Deployment Package wizard and build new deployment packages.

Click this icon to access the Avalanche Help.

The other three buttons on the Tool Bar are for using Edit Mode. For more information about Edit Mode, see Understanding Edit Mode.

Navigation Window

The Navigation Window, located on the left side of the Java Console, displays your enterprise in a tree view. Move through the locations by either expanding nodes or using the Search function. The **Search** function finds locations regardless of whether the tree is expanded or collapsed.

To use the Search function:

1 Type the name of the location in the text box just above the tree view.

2 Click **Search**.

The highlight will move to the first location whose name begins with the text that you entered. The search is not case sensitive.

If there are multiple matches, click **Search** until you reach the correct location.

Quick Start Tab

When you first launch the Console, the **Quick Start** tab displays. This tab provides links for quickly getting your enterprise configured and includes required and optional tasks. Each task has a brief description which you can view by clicking the plus [+] button. The sections in the **Quick Start** tab vary depending on the location selected in the Navigation Tree.

If you do not want to display the **Quick Start** you can disable the tab by selecting **View > Quick Start**. You can also disable the **Show Quick Start on Startup** check box located on the **Quick Start** tab.

The **Quick Start** tab is divided into the following sections:

Server Configuration

The tasks in this section are required and must be done in the order presented. These tasks include:

- Create a Region. For details, see Managing Regions.
- Create a Server Location. For details, see Managing Server Locations.
- Create a Device Server Package. For details, see Building Server Deployment Packages.
- Deploy a Device Server Package to a Location. For details, see Deploying Servers.

Profiles Configuration

The tasks in this section are optional and can be done in any order. These tasks include:

- Creating a Network Profile. For details, see Managing Network Profiles.
- Add Device Software. For details, see Managing Software Profiles.
- Creating an Infrastructure Profile. For details, see Managing Infrastructure Profiles.
- Create a Scan to Config Profile. For details, see Managing Scan to Configure Profiles.
- Apply Profiles to Regions or Locations. For details, see Applying Profiles to Locations.

Tools

This section allows you to install an Avalanche Enabler onto a mobile device or check for Avalanche updates.

Help and Support

This section provides links to the Avalanche Help, Wavelink Support, and launches the Support Generator. For details about using the Support Generator, see Using the Support Generator.

Profiles Tab

From the **Profiles** tab you can manage your profiles. A profile allows you to apply the same set of configurations to multiple servers or devices. There are eight types of profiles in Avalanche MC:

- **Alert profile**. An alert profile allows you to configure what events generate an alert and who is notified when an alert is generated. For information on alert profiles, see Managing Alert Profiles.
- **Infrastructure Server profile**. An Infrastructure Server profile allows you to define device access privileges for your Infrastructure Servers. For information on Infrastructure Server profiles, see Managing Infrastructure Device Servers.
- **Infrastructure profile**. An infrastructure profile allows you to manage your infrastructure devices. For information on infrastructure profiles, see Managing Infrastructure Profiles.
- **Mobile Device Server profile**. A Mobile Device Server profile allows you to configure administrative, security, and connection settings for your Mobile Device Servers. For information on Mobile Device Server profiles, see Managing a Mobile Device Server.
- **Mobile device profile**. A mobile device profile allows you to change settings on your mobile devices, as well as add, change, and remove custom properties and registry keys. For information on mobile device profiles, see Managing Mobile Device Profiles.
- **Network profile**. A network profile allows you to configure network information (such as IP addresses, encryption, and authentication) for infrastructure and mobile devices. For information on network profiles, see Managing Network Profiles.
- **Scan to Config profile**. A Scan to Config profile allows you to print network configuration information in a barcode. When the barcode is scanned with a device running an Enabler, the Enabler applies the settings on the device. For information on Scan to Config profiles, see Managing Scan to Configure Profiles.

- **Software profile**. A software profile allows you to organize and configure software packages for deployment to multiple devices. For information on software profiles, see Managing Software Profiles.

On the **Profiles** tab, the Profile List displays all existing profiles, along with their type, name, status, details, and any associated selection criteria. The columns in this list can be sorted in alphabetical order or reverse alphabetical order by clicking the column header.

You also have the option of filtering the profiles displayed. When you activate a filter, only the profiles matching the filter will be displayed in the Profile List. You can apply filters on multiple columns at the same time.

To filter the Profile List:

1 In the Profile List, right-click the header for the column you want to filter by.

2 Click **Set Filter** in the context menu.

The *Set Column Filter* dialog box appears.

3 If you are sorting by **Profile Type**, **Default?**, or **Status**, you see a list of available categories. Enable the checkboxes next to the categories you want to include in the filter and click **OK**.

-Or-

If you are sorting by **Name** or **Selection Criteria**, you are prompted to type a term you want to sort by. The filter includes all profiles with the term in the field you are sorting by. Click **OK**.

The filter is applied to the Profile List. To remove a filter after it has been applied, right-click the column header and select **Clear Filter**.

Managing Device Inventory Displays

Device lists are available on the **Mobile Device Inventory**, **Infrastructure Inventory**, and **Mobile Device Group** tabs. These lists display the devices associated with the currently selected location or mobile device group.

Device lists can be customized to display specific information. You can sort the lists, filter the lists using custom filters, or modify the columns displayed. You can sort each column by right-clicking the column header and selecting **Sort Ascending** or **Sort Descending**. This section contains the following information on customizing inventory displays:

- Inventory Paging
- Managing Device Filters
- Filter View By Type for the Infrastructure Inventory List
- Modifying Columns for the Mobile Device Inventory

- Adding Custom Columns for Mobile Device Lists
- Reorganizing Columns for Mobile Device Lists
- Displaying Custom Mobile Device Icons

Inventory Paging

Device lists allows you to select how many devices appear in the inventory list at a time. The list displays the devices in the order Avalanche pulls the information from the database. You may need to page through the list to view more devices.

To configure inventory paging:

1. From the **Number of Devices Per Page** drop-down list, select the number of devices you want to display.
2. Use the arrow keys to move forward and backward through the pages.
3. Use the refresh button to refresh the list of mobile devices.

Managing Device Filters

You can filter which devices are displayed in a device list by creating and applying device filters. When a filter is applied, only the devices meeting the criteria associated with that filter are displayed. Filters are available for the lists in the Mobile Device Inventory, Infrastructure Inventory, and mobile device groups.

To create a filter for a device inventory:

1. Click **Edit Filters**.

   The *Modify Device Filters* dialog box appears.

2. Enter a name for the new filter in the **Filter Name** text box.
3. Click the **Selection Criteria** button (in the upper right of the box).

   The *Selection Criteria Builder* dialog box appears, allowing you to create a filter based on device characteristics. See Building Selection Criteria for more information on creating selection criteria.

4. After you choose selection criteria for the filter, click **OK** to return to the *Modify Device Filters* dialog box.

   The selection criteria appear in the **Filter Expression** text box.

5. Click **Add Filter**.

   The filter is added to the **Existing Filters** list and is available to use.

6. Click **OK**.

To apply a filter to a device inventory:

1. Select the filter from the **Current Infra Device Filter** or **Current Mobile Device Filter** drop-down list.
2. Click **Apply Filter**.

To delete a filter from a device inventory:

1. Click **Edit Filters**.

   The *Modifying Device Filters* dialog box appears.

2. In the **Existing Filters** list, select the filter you want to delete.
3. Click **Delete**.

Filter View By Type for the Infrastructure Inventory List

In the **Infrastructure Inventory** tab, use the options next to **Filter View by Type** to display your access points, switches, and access ports according to your preferences. The **Filter View by Type** options filter by the following categories:

- APs
- Wireless Switches
- Wired Switches
- Foreign APs
- Rogue APs
- Access Ports

Enabling any one or more of these options will cause the Device View to display only the devices that fit the selected category or categories.

Modifying Columns for the Mobile Device Inventory

The Avalanche Console allows you to control which columns appear in the Mobile Device Inventory and the manner in which they display.

To modify a column:

1. Right-click on the column header and select **Modify Columns**.

   The *Modify Mobile Device Columns* dialog box appears. Column headers listed in the **Available Columns** list are headers that do not currently display in the tab. Column headers listed in the **Selected Columns** list are those that currently display in the tab.

2 From the **Available Columns** list, select which column you want to display and click **Add Column(s)**.

The column name moves to the **Selected Columns** list.

3 To remove a column from the **Selected Columns** list, select the column you want to remove and click **Remove Column(s)**.

The column name returns to the **Available Columns** list.

4 Use the **Move Up** and **Move Down** to modify the order in which the columns appear in the **Mobile Device Inventory** tab.

5 When you are finished, click **OK**.

The columns are rearranged to reflect your modifications.

Adding Custom Columns for Mobile Device Lists

If you have created custom properties for your mobile devices, you can display them in a column in a mobile device list. For details about creating custom properties, see Creating Custom Properties.

To display columns for custom properties:

1 Right-click the column header and select **Modify Columns**.

The *Modify Mobile Device Columns* dialog box appears.

2 Click **Add Custom**.

The *Custom Property Column* dialog box appears.

3 From the **Property Key** drop-down list, select the custom property you want to add as a column.

4 In the **Column Title** text box, type the name of the column as you want it to display in the **Mobile Device Inventory** tab.

5 From the **Data Type** drop-down list, select what type of data this column displays.

6 Configure the remaining options according to preference.

7 Click **OK** to return to the *Modify Mobile Device Columns* dialog box.

The column name for the property appears in the **Available Columns** list.

8 Select the column name and click **Add Column** to move the property to the **Selected Columns** list.

9 Click **OK** to return to the **Console**.

The column now displays in the tab and can be sorted just as any other column.

Reorganizing Columns for Mobile Device Lists

You can remove, reset, and align columns for a mobile device list, as well as sorting the devices by column.

To reorganize columns:

- To remove columns, right-click the column and select **Remove Column**. The column is removed from the list view. You can restore this column using the *Modify Mobile Device Columns* dialog box.
- To reset the columns, right-click the column header and select **Reset Columns**.
- To sort by column, right-click the column and select **Sort Ascending** or **Sort Descending**.
- To align columns, right-click the column and select **Align Column - Left**, **Align Column - Right**, or **Align Column - Center** according to the way you want the information to appear.

Displaying Custom Mobile Device Icons

The Console supports custom mobile device icons that can be uploaded from the mobile device. Two device images are displayed on the Console: a small icon appears in the Mobile Device Inventory tab next to the name of the mobile device and a larger icon appears in the *Mobile Device Details* window.

For more information about custom device icons, see the *Using Custom Device Icons in Avalanche* paper, located on the Wavelink web site.

Understanding Edit Mode

In order to edit a profile, device group, or location properties, you must enter Edit Mode. While you are using Edit Mode, the item you are editing is locked. While an item is locked, no other user will be able to attempt to edit the configuration. Edit Lock has an automatic timeout, at which point you will be prompted in order to continue editing. If you do not respond to the prompt within the time configured, then your edit will be canceled and you will not be able to save your changes.

From the Java Console, you can configure the timeout and the length of time after the prompt appears before the user's lock is terminated. The timeout for Edit Lock has a default setting of 15 minutes, and the prompt timeout has a default setting of 1 minute. For instructions on configuring these timeouts, see Edit Lock Control.

To use Edit Mode, you employ the following icons located in the toolbar:

Click **Edit** to enter Edit Mode so you can make configuration changes. This button is active when you are on the **Device Groups**, **Profiles**, **Region Properties**, or **Server Location Properties** tabs.

Click **Cancel** to erase any changes you made in edit mode. When you click **Cancel**, you will exit edit mode.

Click **Save** to save configuration changes.

Consider the following when using Edit Mode:

- When you enter Edit Mode, you will not be able to navigate away from the current tab (for example, **Device Groups**, **Profiles**, **Region Properties**, or **Server Location Properties**) until you exit Edit Mode. The Navigation Window will not be available while you are in Edit Mode.
- If you create a new profile, you will need to click **Edit** before you can continue configuration.
- You cannot remove a profile while you are in Edit Mode. You must either save or cancel. You can then select the profile and click **Remove Profile**.
- When working in software profiles, you do not need to be in Edit Mode to install or configure software packages. However, you must enter Edit Mode to configure any other software package options.
- You cannot edit unassigned or deleted server locations.
- You do not need to enter Edit Mode to view where profiles are applied.

Changing Console Preferences

You can customize features of the Avalanche Console from the *Preferences* dialog box. This section provides information about the following Console preferences tasks:

- Customizing General Console Settings
- Configuring Deployment Settings
- Edit Lock Control
- Specifying the Backup Location
- Configuring Audit Logging
- Viewing the Audit Log

- Configuring E-mail Settings
- Configuring HTTP Proxy Settings
- Customizing Map Options

Customizing General Console Settings

Avalanche gives you the option to automatically check online for software updates each time you launch the Java Console. You also can configure Avalanche to send usage data to Wavelink to improve service and usability. The Avalanche Console appearance can be modified, including display size, position and default page view from the *Preferences* dialog box. You can also configure how the Alert Browser manages alerts.

To customize the general Console settings:

1. Click **Tools > Settings**.

   The *Settings* dialog box appears.

2. Select the **General** tab.

3. In the Auto Update Settings area, configure whether Avalanche should check for updates or upload usage information to Wavelink.

4. In the Console Display Settings area, configure the width, height, and the frame positions for the Avalanche Console.

5. In the Alert Browser Settings area, use the text boxes to configure how many days an alert remains in the Alert Browser, the maximum number of alerts that can appear in the Alert Browser, and the maximum number of alerts to store.

NOTE: Avalanche stores alerts in the enterprise database.

6. Click **Apply** to save your changes.

7. Click **OK** to close the *Settings* dialog box.

   The Avalanche Console updates to reflect your changes.

Configuring Deployment Settings

From the *Settings* dialog box you can configure Enterprise Server auto-deployments, profile auto-assignment, and the refresh delay for server synchronization.

When you configure the Enterprise Server to **Auto Deploy Settings**, each change made at the Console is immediately deployed to the assigned locations. You can **Disable all Auto Deploy Notifications** if you don't want a notification each time an auto-deployment occurs.

NOTE: Wavelink recommends that before enabling auto-deployment, you have most of your settings configured and deployed. If auto-deploy is enabled as you first configure and set up Avalanche, the Enterprise Server may become overloaded, potentially causing delays and other errors.

The **Universal Deployment Refresh Delay** refers to the number of seconds the Avalanche Console waits before trying to refresh the display after any type of deployment (through the Task Scheduler, **Deploy Now** button, or an auto-deployment). The default is set to five seconds. This default works well for most systems.

When changing **Universal Deployment Refresh Delay**, consider the link speed between the Console and the Enterprise Server, the number of mobile devices you are managing, and the amount of data you are transferring (profiles and configurations). If the Console display has enough time to refresh completely, you will return to the same Console location (location, profile, and tab) you were viewing before the deployment.

To configure deployment settings:

1 Click **Tools > Settings**.

The *Settings* dialog box appears.

2 Select the **Enterprise Server** tab.

3 Enable the **Auto Assign Profiles** option to automatically assign all profiles and profile changes to the **My Enterprise** location.

4 Enable the **Auto Deploy Settings** option to automatically deploy all changes and configurations each time you save a configuration.

5 Enable the **Disable all Auto Deploy Notifications** option if you do not want a notification to appear at each Console during every deployment.

6 Enter the number of seconds the Console will wait to refresh after settings are deployed in the **Universal Deployment Refresh Delay** text box.

7 Click **Apply** to save the changes.

8 Click **OK** to close the *Settings* dialog box.

NOTE: If you enabled the **Auto Deploy Settings** option, profiles and configurations will not immediately deploy. Settings will deploy the next time you perform a save.

Edit Lock Control

You can configure two options for Edit Lock: how long before the Edit Lock times out and prompts the user, and how quickly after the prompt appears the Edit Lock will terminate.

If a use is editing an item such as a profile, he has a limited amount of time to make and save his changes before the Edit Lock times out. When the Edit Lock times out, a prompt will appear asking if he wants to extend the Edit Lock. If he does not respond to the prompt, the Edit Lock will be canceled, changes will not be saved, and other users will be able to edit the item.

To configure Edit Lock control:

1 Click **Tools > Settings**.

  The *Settings* dialog box appears.

2 Select the **Enterprise Server** tab.

3 In the Edit Lock Control area, select **Enable Edit Lock Control** and set the **Edit Lock Timeout** and **Timeout Warning Tolerance**.

4 Click **Apply** to save the changes.

5 Click **OK** to close the *Settings* dialog box.

Specifying the Backup Location

You can specify where you want to store any backups of Avalanche. The location must be a qualified path for the Enterprise Server. If you do not want to specify a path, the backups will be stored in the default location, `C:\Program Files\Wavelink\AvalancheMC\backup`.

For information about backing up Avalanche, see Backing Up the System.

To specify a location:

1 Click **Tools > Settings**.

  The *Settings* dialog box appears.

2 Select the **Enterprise Server** tab.

3 In the **Backup File Location** text box, type the path where you want to save system backups.

4 Click **Apply**.

5 Click **OK** to close the *Settings* dialog box.

Configuring Audit Logging

The audit log in Avalanche collects information about actions performed from the Avalanche Console. As part of the data collection, the audit log includes the IP address of each Console that generated a logged event. Audit logging stores information in the enterprise database and can be enabled by any user. However, configuring audit logging preferences, viewing, and clearing the log can only be performed by an Administrator.

NOTE: For information on viewing and clearing the audit log, see Viewing the Audit Log.

The audit log will store up to 200,000 actions in the database. When 200,000 actions have been stored, Avalanche will move the oldest records to a `.csv` file in the backup directory and delete them from the database.

You can also archive the audit log at a specific time every day. When the information is archived, it is copied to a `.csv` file. The `.csv` file is stored in the same directory where backup files are stored. For information on configuring the backup file location, see Specifying the Backup Location.

The following events can be configured for logging:

Deployment Package modifications	When a deployment package is modified.
Device Commands	When one of the tools in the Device Details Tools panel is used.
Device Group modifications	When a device group is modified.
Group Location modifications	When a group location is modified.
Region Location modifications	When a region is modified.
Server Location modifications	When a server location is modified.
Profile Application modifications	When a profile is applied, excluded, or removed from a location.
Profile modifications	When a profile is modified.
Scheduled Event, Apply/Deploy Profiles	When an Apply/Deploy Profiles event has occurred.
Scheduled Event, Deploy/Update Servers	When a Deploy/Update Servers event has occurred.
Scheduled Event, System Backup	When a System Backup event has occurred.
Scheduled Event, System Restore	When a System Restore event has occurred.
Scheduled Event, Uninstall Server	When an Uninstall Server event has occurred.

Scheduled Event, Universal Deployment	When a scheduled Universal Deployment event has occurred.
Scheduled Event, Update Firmware	When an Update Firmware event has occurred.
User Logon/Logoff	When a user logs on or logs off the Avalanche Console.
User modifications	When a user account is modified.
VLACL modifications	When the VLACL is modified.

To enable audit logging:

1 Click **Tools > Settings**.

The *Settings* dialog box appears.

2 Select the **Audit Logging** tab.

3 Enable the **Enable Audit Logging** check box.

4 If you want the audit log archived, enable **Enable Audit Log Archiving** and select the time of day (using a 24-hour clock) you want the log to be archived.

5 From the list, enable the events you want to record.

6 Click **Apply**.

7 Click **OK** to close the *Settings* dialog box.

Viewing the Audit Log

The audit log collects information about actions performed from the Avalanche Console. As part of the data collection, the audit log includes the username and IP address for each logged event, the date and time of the Console activity, and a description of the changes that occurred. Audit logging generates entries in the enterprise database.

A user can select criteria he wishes the server to filter log-retrieval with, allowing the user to retrieve the entire log or just the entries that pertain to the specified criteria.

For information on configuring the events displayed in the audit log, see Configuring Audit Logging.

To view the audit log:

1 Click **View > Audit Log**.

The *Audit Log* dialog box appears.

2 Select the filter or filters you want to use:

- To show the most recent events, enabled **Most Recent** and select the number of entries to show.
- To filter events by date, enable **Date Range** and use the calendar buttons to select the beginning and end dates.
- To filter events by IP address, enable **IP Range** and enter the range of addresses you want to view.
- To filter events by type, enable **Activity Type** and select the check boxes for the activities you want to view.
- To filter events by username, enable **User Name** and type the name of the user in the text box. You may only filter by one username at a time.

3 Click **Refresh Screen** to update the list according to your filter.

All events matching the filters appear in the list.

4 If you wish to delete all entries in the audit log, click **Clear Log**. This will remove all entries from the database and archive the information in a `.csv` file in the backup directory.

Configuring E-mail Settings

If you plan to use an SMTP server to forward alerts to an e-mail address, you must configure the name or IP address of the server, a username and password, and a reply-to e-mail address.

To configure e-mail settings:

1 Click **Tools > Settings**.

The *Settings* dialog box appears.

2 Select the **E-Mail & HTTP** tab.

3 Type the location of the e-mail server you want Avalanche to use in the **E-Mail Server** text box.

4 Select the port Avalanche should use when contacting the e-mail server.

5 Type the **Username** and **Password** in the text boxes.

6 Type the address the e-mails will appear from in the **From Email** text box.

7 Type the address a reply should be sent to if an alert e-mail is replied to in the **Reply-to Email** text box.

8 Click **Apply**.

9 Click **OK** to return to the Avalanche Console.

Configuring HTTP Proxy Settings

If you are using an HTTP proxy for external Web site connections, you can configure HTTP proxy settings to ensure Avalanche can connect.

To configure HTTP proxy settings:

1 Click **Tools > Settings**.

The *Settings* dialog box appears.

2 Select the **E-Mail & HTTP** tab.

3 Enable the **Use HTTP Proxy Server** checkbox.

4 In the **Host** text box, type either the IP address or name of the proxy.

5 Type a port number in the **Port** text box. If no port is entered, the port will default to port 80.

6 If you are using Basic Authentication for the HTTP proxy, type the **User Name and Password** in the appropriate text boxes. Otherwise, leave these options blank.

7 Click **OK** to save your changes.

The next time you create a server deployment package, the proxy server settings configured in this dialog box will be used.

8 To disable the use of a proxy, disable the **Use a Proxy Server** checkbox in the *Settings* dialog box.

When you disable the proxy server and save the change, all proxy settings are removed from the database.

Customizing Map Options

You can modify the appearance of the map in the **Alerts** tab.

To modify colors:

1 Click **Tools > Settings**.

The *Settings* dialog box appears.

2 Select the **Map Options** tab.

3 Click the color blocks in the Background Color, Foreground Color and Line Color regions to customize the map colors.

4 Click **Apply** to save your changes.

5 Click **OK** to close the *Settings* dialog box.

The map in the **Alerts** tab reflects your changes.

Managing the Enterprise Server

The Enterprise Server and Enterprise Server database handle scheduling, deployments, profiles, users, and locations. You may review and optimize Enterprise Server performance using the following tasks:

- Configuring Server Blackout Periods
- Viewing the Enterprise Server Status
- Controlling the Enterprise Server Message Backlogs
- Limiting Device Server Connections
- Purging Server Statistics
- Performing a Dump Heap

Configuring Server Blackout Periods

Blackout periods are times when communication between the enterprise server and distributed servers is prohibited. The device servers cannot contact the enterprise server until the blackout is released. Use the options in the *eServer Status* dialog box to configure blackout periods between the enterprise server and the device servers.

You can also throttle the device servers, which reduces the number of messages sent to the enterprise server. When the device servers are throttled, they do not send device status updates to the enterprise server. Throttling device servers may be useful in situations where you plan on temporary high bandwidth usage, such as a big server synchronization.

The following tasks configure server blackout periods:

- Using an Enterprise Server Blackout
- Performing a Batch Release
- Throttling Device Servers

Using an Enterprise Server Blackout

You can stop communication between the enterprise server and device servers by using a blackout period.

To configure enterprise server blackout periods:

1 Click **View > Enterprise Server Status**.

The *eServer Status* dialog box appears.

2 From the list of Server options in the **Device Server Blackout** area, select **All Servers**, **Mobile Device Servers**, or **Infrastructure Servers**, based on the type of blackout you want.

3 Click **Blackout**.

4 Check that the **Blackout** parameter in the eServer Status list displays the appropriate type of blackout you configured.

There will be no communication between the servers that you selected and the enterprise server until you release the blackout period.

5 To release the device servers from blackout, click **Release** or perform a batch release. Check that the **Blackout** parameter in the eServer Status region displays **OFF**. For information on performing a batch release, see Performing a Batch Release.

Performing a Batch Release

Batch releases restore communication from the device servers to the enterprise server in a controlled manner. Instead of releasing all the servers from the blackout at once, the servers are released in batches and at specified intervals. This prevents the servers from flooding the enterprise server with messages upon release.

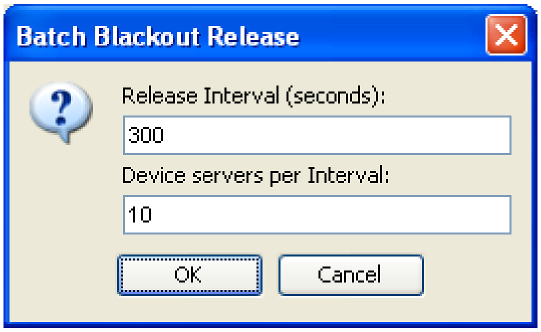
To perform a batch release:

1 Click **View > Enterprise Server Status**.

The *eServer Status* dialog box appears.

2 Click **Batch Release**.

The *Batch Blackout Release* dialog box appears.



Batch Blackout Release

Release Interval (seconds): 300

Device servers per Interval: 10

Batch Blackout Release

3 In the **Release Interval** text box, specify the number of seconds you want to elapse between batch releases.

4 In the **Device servers per Interval** text box, specify the number of servers you want released at each interval.

5 Click **OK**.

The servers will be released according to the specifications you configured.

Throttling Device Servers

When the device servers are throttled, they do not send device status updates to the enterprise server. Throttling device servers may be useful in situations where you plan on temporary high bandwidth usage, such as a big server synchronization.

To throttle the device servers:

1 Click **View > Enterprise Server Status**.

The *eServer Status* dialog box appears.

2 In the Device Server Blackout area, click **Throttle Servers**.

The device servers discard volatile device status information and hold all non-volatile data that would have been sent to the enterprise server. Pending updates are sent to the enterprise server once the servers are unthrottled.

3 To unthrottle the device servers, click **Unthrottle Servers**.

Viewing the Enterprise Server Status

You can view the status of the eServer in the *eServer Console* dialog box. The eServer Status region lists the status (parameters and values) of the eServer. Click **Refresh Status** to receive the latest information from the eServer.

The following list describes some of the parameters and values displayed in the eServer Status region:

Parameter	Value
Version	The version of the enterprise server.
Build Number	The build number of the enterprise server.
Uptime	The length of time the enterprise server has been running.
Start Time	The last time the enterprise server was started.
Current Time	The current time.
Messages Received	The total number of messages the server has received.
Messages Sent	The total number of messages the server has sent.

Parameter	Value
Spillover Enabled	Whether the memory spillover function is enabled (YES or NO).
Spillover Threshold	The memory level before spillover takes effect.
Spillover Release	The number of seconds before the spillover is released.
Blackout Mode	If blackout mode is enabled and which servers are included in the blackout. **Off** indicates that blackout mode is not currently in use. **All Servers** indicates that all servers are in blackout mode. **Mobile Device Servers** indicates that only the Mobile Device Servers are in blackout mode. **Infrastructure Servers** indicates that only the Infrastructure Servers are in blackout mode.
Priority C0 - C2 Backlog	The number of messages coming from Consoles, with C0 being the highest priority and C2 being the lowest priority.
Priority A0 - A2 Backlog	The number of messages coming from the device servers, with A0 being the highest priority and A2 being the lowest priority.

Controlling the Enterprise Server Message Backlogs

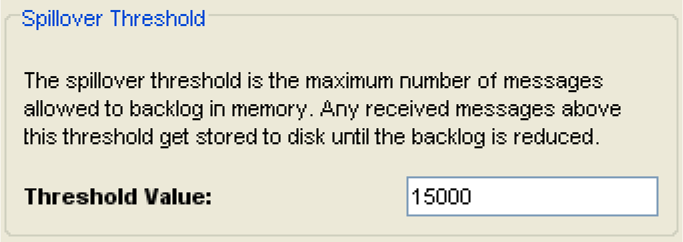
You can control the enterprise server message backlog by setting the spillover threshold. The spillover threshold is the maximum number of messages from the device servers allowed in the backlog.

Once the threshold is reached, the device servers are throttled and further messages are stored in a file to disk until the backlog is reduced. When device servers are throttled, they will no longer send device statistics updates to the enterprise server. After the backlog has been reduced, messages are pulled from the store file back into the log and the device servers are no longer throttled.

To configure the spillover threshold:

1 Click **View > Enterprise Server Status**.

The *eServer Status* dialog box appears.



Spillover Threshold

The spillover threshold is the maximum number of messages allowed to backlog in memory. Any received messages above this threshold get stored to disk until the backlog is reduced.

Threshold Value: 15000

Spillover Threshold in the eServer Status dialog box

2 In the Spillover Threshold area, type the new **Threshold Value** in the box and click **OK**.

Limiting Device Server Connections

If you have a very large number of device servers, you may at times want to govern how many of them can simultaneously contact the enterprise server to prevent overloading the enterprise server. The dServer Governor allows you to set a maximum limit of how many device servers can contact the enterprise server at once.

If a device server tries to contact the enterprise server while the Governor is engaged and the limit has already been reached, the device server is queued. Servers in the queue are not permitted to send messages to the enterprise server. The Governor will rotate through the servers in the queue on a timed basis to allow each device server to communicate with the enterprise server.

You can manually engage the dServer Governor, or you can enable the Governor and set it to automatically engage when the enterprise server has hit the spillover threshold a certain number of times. Configure an alert profile to generate an alert when the Governor engages, if desired.

NOTE: For more information on configuring the spillover threshold, see Controlling the Enterprise Server Message Backlogs.

The Governor must be manually disengaged. When you disengage the Governor, it is also disabled. You can view if the Governor is enabled or engaged in the *eServer Status* dialog box.

To limit the number of device servers in contact with the enterprise server:

1 Click **View > Enterprise Server Status**.

The *eServer Status* dialog box appears.

2 In the Device Server Governor area, type the **Maximum active device servers** in the provided text box.

3 If you want to engage the Governor immediately, ensure that the **Trigger Threshold** box says **0** and click **Start Governor**.

-Or-

If you want the Governor to engage when the spillover threshold has been reached, enter the number of times the threshold must be reached before the Governor engages in the **Trigger threshold** box. Click **Start Governor**.

When the Governor is engaged, only the allowed number of device servers will be allowed to contact the enterprise server at a time. Once the limit is reached, the servers will be queued and take turns communicating with the enterprise server.

4 Click **Stop Governor** to resume regular network traffic and allow all device servers to contact the enterprise server.

Purging Server Statistics

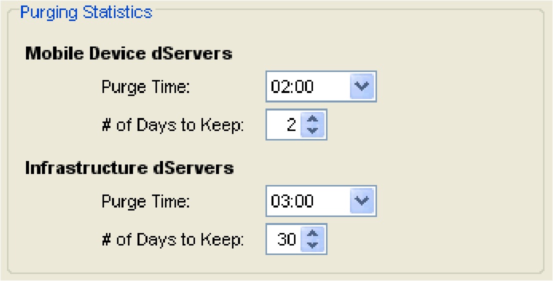
To prevent database inflation, you can configure Avalanche to purge logged statistics. You can configure the following for both Mobile Device Servers and Infrastructure Server alerts and statistics:

- **Purge Time**. Set the time of day you when you want to remove the statistics.
- **Number of Days to Keep**. Set the number of days you want to keep the statistics before removing them. Wavelink recommends setting this number low, because the purging process could take a long time if there are too many statistics. The maximum number of days you can set is 30.

To configure purge settings:

1 Click **View > Enterprise Server Status**.

The *eServer Status* dialog box appears.



Purging Statistics

Mobile Device dServers

Purge Time: 02:00

# of Days to Keep: 2

Infrastructure dServers

Purge Time: 03:00

# of Days to Keep: 30

Purging Statistics in the eServer Status dialog box

2 In the **Purging Statistics** section, configure the days you want to keep the statistics and the time you want the statistics to be removed for each type of server.

3 Click **OK** to save your settings.

Performing a Dump Heap

If the memory level starts to affect the performance of your enterprise server, you can perform a dump heap for the enterprise server database. This will dump all the live objects and classes into a file located in the default installation location.

Before you perform the dump, you can also check the thread information, which can help you decide if the dump is necessary.

To perform a dump heap:

1 Click **View > Enterprise Server Status**.

The *eServer Status* dialog box appears.

2 In the eServer Diagnostics region, click **Thread Info**.

A dialog box appears containing the thread information. You can print this information or close the dialog box.

3 Once you have determined you want to perform the dump heap, click **Dump Heap**.

A message appears indicating the name and the size of the dump file.

Checking for Available Updates

Avalanche tracks the Wavelink software you have installed on your devices and displays when there are updates for the software available. For example, it tracks the versions of the Enablers you have installed and provides a link when Wavelink releases a newer Enabler.

In order for Avalanche to check for new updates, it sends basic system and device information to Wavelink.

To check for available software updates:

1 Click **Help > Check For Updates**.

The *Avalanche Update* dialog box appears if you have not already agreed to submit update information to Avalanche.

2 Enable the **Accept** option and click **OK** to allow Avalanche to send system and device information to Wavelink.

3 If there are new updates available, the message **Updates Available** will appear in the lower right corner of the Console. Click on the message to view the available updates.

4 The *Available Updates* dialog box appears. Click on a link to download an update.

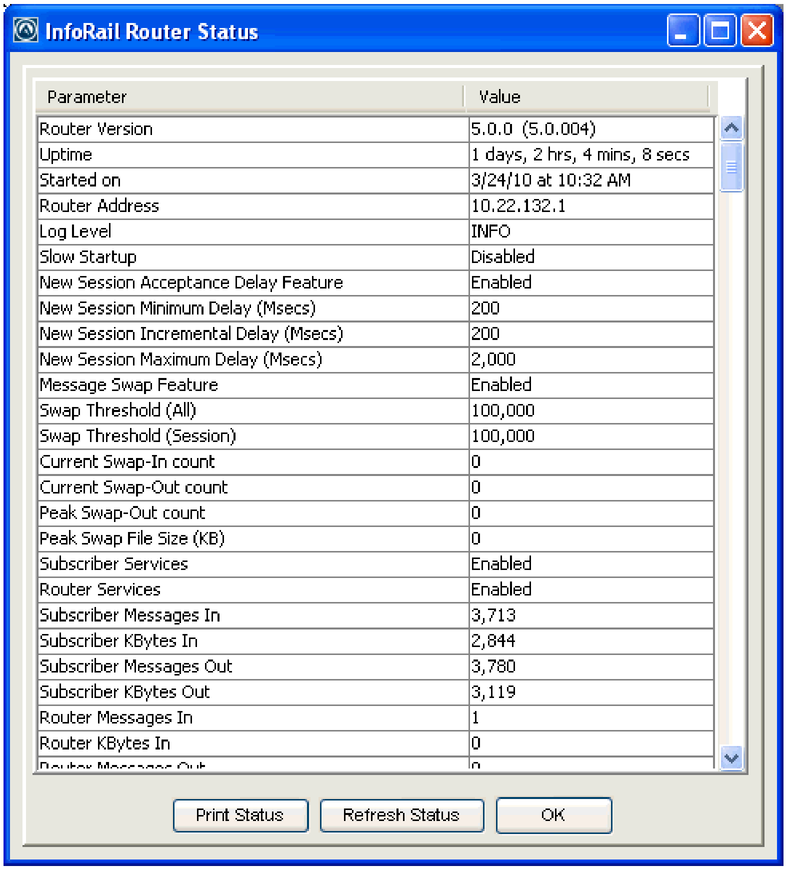
Viewing the Inforail Status

The InfoRail Router coordinates communication between Avalanche processes. The InfoRail Router Status dialog box provides information such as the version of the router, how long it has been running, and the IP address. From this dialog box you can print or refresh the status. You cannot change any of the parameters listed.

To view the InfoRail status:

1 Click **View > InfoRail Router Status**.

The dialog box appears.



InfoRail Router Status

Parameter	Value
Router Version	5.0.0 (5.0.004)
Uptime	1 days, 2 hrs, 4 mins, 8 secs
Started on	3/24/10 at 10:32 AM
Router Address	10.22.132.1
Log Level	INFO
Slow Startup	Disabled
New Session Acceptance Delay Feature	Enabled
New Session Minimum Delay (Msecs)	200
New Session Incremental Delay (Msecs)	200
New Session Maximum Delay (Msecs)	2,000
Message Swap Feature	Enabled
Swap Threshold (All)	100,000
Swap Threshold (Session)	100,000
Current Swap-In count	0
Current Swap-Out count	0
Peak Swap-Out count	0
Peak Swap File Size (KB)	0
Subscriber Services	Enabled
Router Services	Enabled
Subscriber Messages In	3,713
Subscriber KBytes In	2,844
Subscriber Messages Out	3,780
Subscriber KBytes Out	3,119
Router Messages In	1
Router KBytes In	0
Router Messages Out	0

InfoRail Router Status

2 To print the status page, click **Print Status**.

3 To refresh the statistics, click **Refresh Status**.

4 Click **OK** to close the dialog box.

Using the Support Generator

The Support Generator creates a `.zip` file that contains Avalanche log files and additional information that you provide when you run the Support Generator. The log files compiled in the `.zip` file include:

`AvalancheServer.log`

`EConsole.log`

`Inforail.log`

`eConsoleNetstat.log`

Once you create a `.zip` file, you can send the file to Wavelink Customer Service. Customer Service uses the file to quickly diagnose the problem and provide a solution.

To use the Support Generator:

1. From the **Quick Start** tab, click **Support Generator**.

   The *Avalanche Support Generator* dialog box appears.

2. From the drop-down list, select the area of Avalanche where the problem is occurring.

3. In the **Processor** text box, enter your processor type.

4. In the **Installed RAM** text box, enter the amount of RAM you have installed.

NOTE: You cannot change the **Operating System** or **Free HDD Space** text boxes. These are populated automatically by the Support Generator.

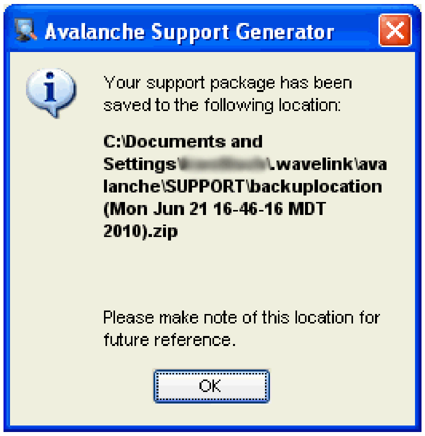
5. In the text box provided, enter detailed information about the problem. The more detailed your description, the more thoroughly Customer Service will be able to understand the problem.

6. In the **Save as filename** text box, enter a name for this file.

NOTE: This is the name of the `.zip` file that you will e-mail to Wavelink Customer Service. It is not the path where the file will be saved.

7. Click **Save**.

   The log files are compiled into a `.zip` file and a dialog box appears displaying the location where the file is saved.



Your support package has been saved to the following location:

C:\Documents and Settings\[redacted]\.wavelink\avalanche\SUPPORT\backuplocation (Mon Jun 21 16-46-16 MDT 2010).zip

Please make note of this location for future reference.

Avalanche Support Generator Location

8 Make a note of the location and click **OK**.

9 Attach the `.zip` file to an e-mail and send the e-mail to `customerservice@wavelink.com`.

Using the Enabler Installation Tool

The Enabler Installation Tool allows you to configure and deploy Enablers to mobile devices directly from the Avalanche Console using Microsoft ActiveSync.

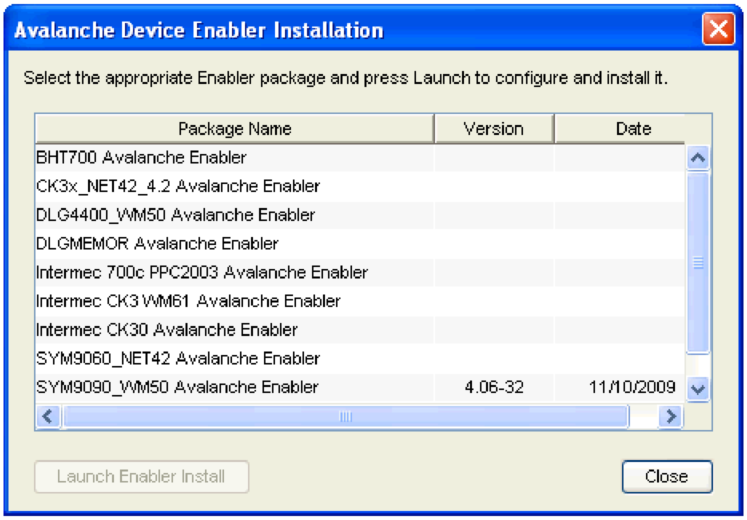
To use the Enabler Installation Tool, you must have the following:

- Enabler installation files on the machine where you are running the Console.
- Mobile devices connected to the machine through Active Sync.

To install an Enabler:

1 From the **Quick Start** tab, select **Install Avalanche Enabler.**

The *Avalanche Device Enabler Installation* dialog box appears.



Select the appropriate Enabler package and press Launch to configure and install it.

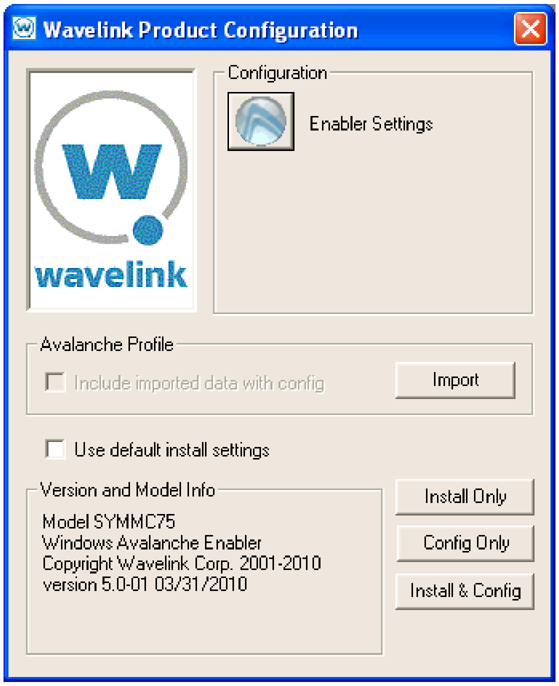
Package Name	Version	Date
BHT700 Avalanche Enabler		
CK3x_NET42_4.2 Avalanche Enabler		
DLG4400_WM50 Avalanche Enabler		
DLGMEMOR Avalanche Enabler		
Intermec 700c PPC2003 Avalanche Enabler		
Intermec CK3 WM61 Avalanche Enabler		
Intermec CK30 Avalanche Enabler		
SYM9060_NET42 Avalanche Enabler		
SYM9090_WM50 Avalanche Enabler	4.06-32	11/10/2009

Avalanche Device Enabler Installation

2 From the dialog box, select which Enabler package you want to install on the mobile device and click **Launch Enabler Install**.

NOTE: You must have at least one Enabler installation package on your machine or this dialog box will be blank.

The Enabler Configuration Tool appears.



□ Include imported data with config

□ Use default install settings

Model SYMMC75
Windows Avalanche Enabler
Copyright Wavelink Corp. 2001-2010
version 5.0-01 03/31/2010

Wavelink Product Configuration Utility

3 Configure the Enabler as desired.

4 Once you configure the Enabler settings, use ActiveSync to send the Enabler to your connected mobile device.

For details about all the configuration options of the Enabler and information about using ActiveSync, see the *Avalanche Enabler User Guide*.

Chapter 4: Managing User Accounts

A user account is required to log in to the Avalanche Console. User accounts allow you to define who can access components and perform tasks. Each user is assigned to a home location, which defines the locations the user has authority to manage.

There are two types of accounts: Administrator and Normal. An Administrator account can access and modify all the configurations in Avalanche associated with its home location or any sub-locations. A Normal account is assigned to specific locations or profiles and can only view or make changes in its assigned areas.

NOTE: Avalanche is installed with a default Administrator account named `amcadmin` with the password `admin`. Wavelink recommends you create a new password for this account once you log in.

When a Normal account is created, you can assign permissions to that account. These permissions can apply to all profiles of a type (for example, all alert profiles), to specific tools (for example, Remote Control), or location management and synchronization. If you want to assign permissions on a profile-by-profile basis, you also have the option to authorize the user for individual profiles.

As an alternative to assigning permissions to each Normal account, you can assign permissions to a user group. Each Normal account that is part of the user group will have the permissions which are assigned to the group. If a user is removed from the group, he will no longer have the associated permissions. A Normal account can belong to more than one user group at a time.

If your network uses Active Directory or LDAP for user access, you can set up integrated logon for Avalanche. Avalanche will accept the usernames and passwords accepted on your network. Guest accounts must be disabled on the computer where Avalanche is installed.

This section provides the following information about user accounts:

- Creating User Accounts
- Creating User Groups
- Assigning User Permissions
- Assigning Authorized Users
- Configuring Integrated Logon
- Changing Passwords
- Removing User Accounts

Creating User Accounts

Administrator accounts allow you to create new user accounts. When creating a new account, you assign a user name and password to the account allowing the user to log on to the Avalanche Console. You also assign permission levels to grant the user access to specific functionality.

When a user account is created, it must be assigned a "home." The user (either Normal or Administrator) will only be allowed to access information for their home location and any associated sub-locations.

NOTE: A user who has read/write permissions for profiles can exclude an inherited profile for a location but will not be able to modify it.

You can configure the following options when creating a user account:

User Type Select if the user is a Normal user or an Administrator. If the user is a Normal user, you will need to assign Regional or Profile permissions. If the user is an Administrator, he will have access to the entire company.

User Home This is the portion of your network that the user will be assigned to. The user will only be able to access profiles and information pertinent to his assigned location.

Description You can enter a description of the user or group.

Login This is the name the user will use to log in to the Avalanche Console. The login is case sensitive. The following special characters are not allowed:
`~ ! ^ * ( ) + = | ? / < > , [ ] : ; { } \ " &` space

Password This is the password that will grant access to the Avalanche Console. Passwords are case sensitive. The password has a 32-character limit.

Confirm Password You must confirm the password you assign to the user.

First Name This is the first name of the user.

Last Name This is the last name of the user.

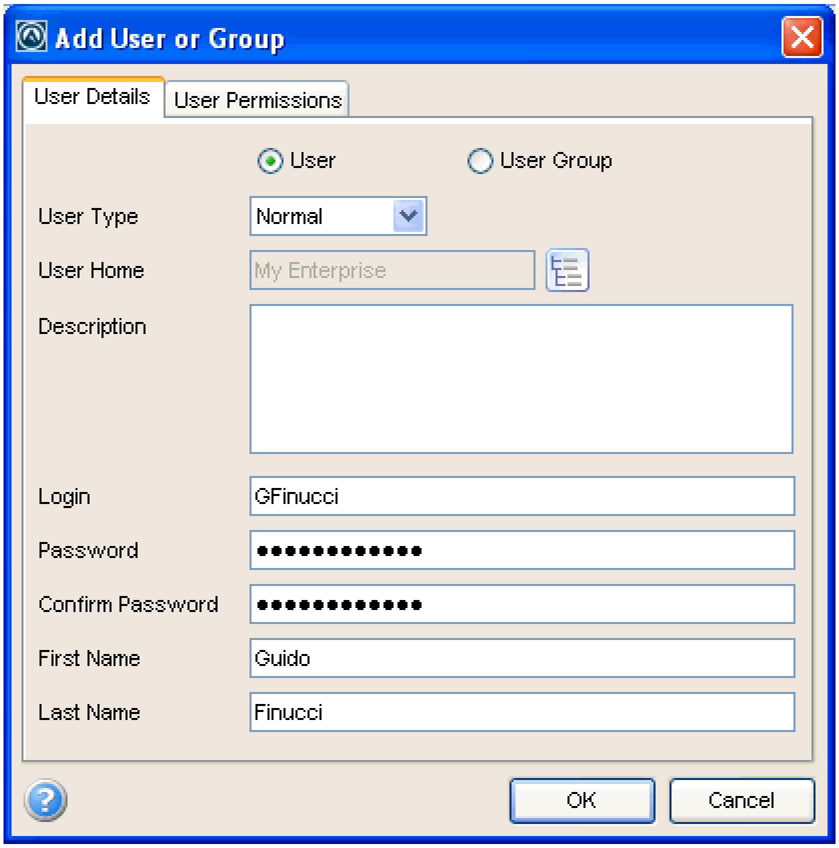
To create a new account:

1 Click **Tools > User Management**.

The *User Management* dialog box appears.

2 Click **Add**.

The *Add User or Group* dialog box appears.



● User ○ User Group

User Type: Normal

User Home: My Enterprise

Description:

Login: GFinucci

Password: ●●●●●●●●●●●●●

Confirm Password: ●●●●●●●●●●●●●

First Name: Guido

Last Name: Finucci

3 Enter the information in the available text boxes. **User Type**, **User Home**, **Login**, **Password**, and **Confirm Password** are required fields.

4 To assign a user home, click the tree button to the left of the text box.

5 Assign permissions by clicking on the tabs now or an Administrator can modify permissions later.

6 When you are finished, click **OK**.

The new user is added to the list in the *User Management* dialog box.

The new account is available. However, if a new user is set as a Normal user, that user will not have access to any areas of the Console until permissions are assigned to that user. For more information, see Assigning User Permissions.

Creating User Groups

In addition to individual user accounts, you can create user groups. Users assigned to a user group will have permissions for all areas associated with that user group in addition to the permissions granted for their individual accounts.

For convenience, there are default user groups created, including:

- Software Admin
- Help Desk
- Network Admin

These user groups are set with a series of default permissions. You can edit the permissions for the groups to suit your needs or create a new user group.

To create a new user group:

1 Click **Tools > User Management**.

The *User Management* dialog box appears.

2 Click **Add**.

The *Add User or Group* dialog box appears.

3 Select the **User Group** option.

4 In the **Group Name** text box, enter the name of the group.

5 In the **Users** list, check all users that you want to add to the group.

NOTE: If you have not added any Normal users, the list box will be empty. See Creating User Accounts for information about creating users.

6 From the **Type** drop-down list, select if the user group is Normal or Administrator.

7 You can assign regional and profile permissions by clicking on the tabs now, or an Administrator can modify permissions later.

8 When you are finished, click **OK**.

To view the users in a user group:

1 Click **Tools > User Management**.

The *User Management* dialog box appears.

2 Select the user group you want to view details for and click **Edit**.

3 The *Edit User Group* dialog box appears. The users assigned to the group are in the **Users** list. If desired, edit the information and click **OK**.

To view the user groups that a specific user is assigned to:

1 Click **Tools > User Management**.

The *User Management* dialog box appears.

2 Select the user you want to view details for and click **Edit**.

3 The *Edit User* dialog box appears. The groups the user is assigned to are in the **User Groups** list. If desired, edit the information and click **OK**.

Assigning User Permissions

If you have an Administrator account, you have unlimited permissions, and can assign and change permissions for Normal user accounts. When a Normal user account is assigned permissions to a functionality, that user has permissions for that specific functionality in his home location and any associated sub-locations. A user must have permissions for a location in order to view or edit the profiles, devices, or groups associated with the location.

Permissions can be assigned when a user is created, or from a specific location, profile, or mobile device group. This section describes the permissions available from the *User Management* dialog box. For information on giving permissions to a user for a specific location, profile, or mobile device group, see Assigning Authorized Users.

The following table describes permissions that are available for profiles:

Management			Applications	
View allows the user to view the settings for a profile.	**Edit** allows the user to edit the settings of a profile.	**Print** allows the user to print the barcodes for a Scan to Config profile.	**View** allows the user to view where profiles are applied.	**Edit** allows the user to edit where profiles are applied.

NOTE: A user assigned to a location who has read/write permissions for profiles can exclude an inherited profile but will not be able to modify it.

The following table describes permissions that are available for inventory:

Inventory				
Infrastructure	**View** allows the user to view the infrastructure inventory for assigned locations.	**Manage** allows the user to manage the infrastructure inventory for assigned locations.	**Reset** allows the user to reset infrastructure devices.	**Site** allows the user to launch and use the Infrastructure Site Tool.
Mobile Devices	**View** allows the	**Manage** allows the user to manage the mobile		

Inventory		
	user to view the mobile devices for assigned locations.	devices for assigned locations or mobile device groups.
Mobile Device Groups	**View** allows the user to view the mobile device groups and the devices they contain.	**Edit** allows the user to edit group properties for mobile device groups. A user must also have Mobile Devices permissions in order to view/edit the devices in a group.
Mobile Device Properties	**View** allows the user to view mobile device properties.	**Edit** allows the user to edit properties for mobile devices.
Remote Control	**View** allows the user to connect to a mobile device using Remote Control.	**Edit** allows the user to connect to a device using Remote Control or configure Remote Control connection profiles.

The following table describes the other permissions that are available:

Other		
Location Management	**View** allows the user to view location configurations and settings.	**Edit** allows the user to view, manage, and configure locations.
Synchronization	**View** allows the user to view recent and scheduled deployments.	**Edit** allows the user to create and deploy infrastructure or server packages, and initiate server synchronization. This includes universal deployments.

Assigning Authorized Users

Users that are Normal users but not configured to manage profiles can be assigned as authorized users for specific locations, profiles, or device groups.

This section contains the following information:

- Assigning Authorized Users to Locations
- Assigning Authorized Users to Profiles
- Assigning Authorized Users to Mobile Device Groups

Assigning Authorized Users to Locations

Each user is assigned a home location. When you assign a user to a location, that user can access all locations beneath the assigned location. You must be an Administrator in order to assign users to locations.

To assign a user to a location:

1. Select the location.
2. Select the **Location Properties** tab.
3. Click **Edit**.
4. Select the **Authorized Users** tab.
5. Click **Add User**.

   The *Add Authorized User* dialog box appears.
6. Select the user and click **OK**.

   The user is added to the list of authorized users for that location.

Assigning Authorized Users to Profiles

You can assign administrative privileges to a Normal user for a specific profile. If you want to give a Normal user permissions for all profiles of a specific type, see Assigning User Permissions.

To add or remove an authorized user:

1. From the **Profiles** tab, click on the name of the profile you want to configure.
2. Click **Edit**.
3. Click **Authorized Users**.

   The *Profile Authorized Users* dialog box appears.
4. Add or remove authorized users as desired.

   - To add an authorized user, click **Add**. Click on the name of the user from the list and the permission level from the drop-down list and click **OK**.
   - To remove an authorized user, select the name of the user and click **Remove**.

Assigning Authorized Users to Mobile Device Groups

You can assign administrative privileges for a specified mobile device group to a Normal user. Any user assigned as an authorized user to a group will have all administrative rights for that one group.

NOTE: A user must have mobile device permissions in order to view or edit devices in a mobile device group.

To add an authorized user:

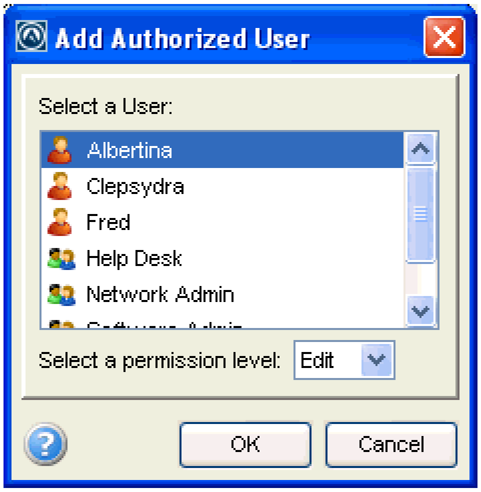
1 From the **Device Groups** tab, select the group you want to assign an authorized user.

2 Click **Edit**.

3 Click the **Authorized Users** button.

4 Click **Add User**.

The *Add Authorized User* dialog box appears.



Add Authorized User

Select a User:

- Albertina
- Clepsydra
- Fred
- Help Desk
- Network Admin
- Software Admin

Select a permission level: Edit

Add Authorized User dialog box

5 From the list, select the user.

6 From the drop-down list, select the level of permission.

7 Click **OK**.

The user is added to the list of authorized users.

Configuring Integrated Logon

Avalanche allows Console users to log in to the Avalanche Console using the same information they use to log in to the network.

Integrated logon is disabled by default; however, you can enable authentication through the CE Secure authentication service that is installed on the Enterprise Server or through Windows Active Directory LDAP authentication. When you select to use Windows Active Directory LDAP service, users are authenticated using standard Java LDAP APIs. You must specify the IP address of the server.

When you select either integrated logon option, users with network logins can log on to the Avalanche Console as Normal users. These accounts will not have any permissions assigned to them until an administrator configures permissions for each user.

If you have configured user accounts in the *User Management* dialog box and then enable the integrated logon feature, those users configured in the Console will not be allowed to access the Console. The only users allowed to access the Console will be those that can be authenticated through integrated logon.

NOTE: The default `amcadmin` account will able to login with or without integrated logon enabled.

To enable integrated logon:

1 Click **Tools > User Management**.

The *User Management* dialog box appears.

2 Select from the following options:

- Enable the **Windows Active Directory Authentication through Wavelink CES Server** option.
- Enable the **Authentication through LDAP Server** option and then enter the address of the LDAP Server.

3 Click **OK**.

4 Log out of the Console.

Avalanche is now configured to recognized authenticated system users.

Changing Passwords

If you have an Administrator account, you can change any user account password. Users with Normal accounts cannot change passwords for any account.

To change a password:

1 Click **Tools > User Management**.

The *User Management* dialog box appears.

2 Select the user account for which you want to change the password.

3 Click **Change Password**.

The *Change User Password* dialog box appears.

4 Type the new password in the **New Password** text box.

5 Retype the password to confirm it in the **Confirm New Password** text box.

6 Click **OK**.

7 Click **OK** again to return to the Avalanche Console.

The new password information is applied immediately.

NOTE: You can also change passwords by editing the user account.

Removing User Accounts

If you have an Administrator user account, you can delete user accounts. Once you remove an account, that user will no longer have access to the Avalanche Console using that login information.

To delete a user account:

1 Click **Tools > User Management**.

The *User Management* dialog box appears.

2 Select a user from the list.

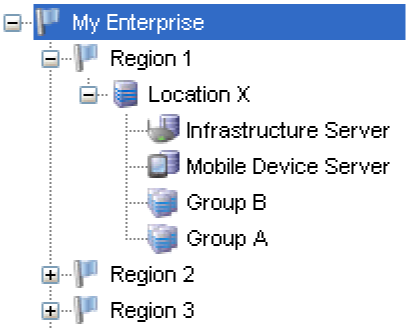
3 Click **Remove**.

4 Confirm you want to remove the user account.

The deleted account will no longer be able to access the Avalanche Console.

Chapter 5: Location Management

Avalanche uses locations in order to organize devices, users, and settings. Avalanche divides locations into three main categories: region locations, server locations, and group locations. Locations are organized in the Navigation Window:



My Enterprise
- Region 1
  - Location X
    - Infrastructure Server
    - Mobile Device Server
    - Group B
    - Group A
- Region 2
- Region 3

Locations in the Navigation Window

A server location is the basic component of the Avalanche system. Each server location contains at least one mobile device or infrastructure server. You can define a server location in a way that best suits your network administration processes—for example, you can create server locations by geographic location or by network role.

A collection of one or more server locations is called a region. When you apply configurations to a region, the configurations are applied to every server location within that region. Regions allow you to manage settings for multiple server locations simultaneously.

For each server location, you also have the option of creating group locations. A group location is a group of devices that connect to the same server. Devices can be added to a group location using selection criteria. Group locations allow increased flexibility for assigning different profiles at the same server location.

Avalanche uses selection criteria to determine which devices belong to each group location. For example, if Group A has the selection criterion: `ModelName = ITCCK30`, any Intermec CK30 devices automatically appear in the Group A inventory as well as the server location inventory. A device can belong to more than one group location concurrently.

Each user and profile has a home location. A user will be able to access items associated with his home location and any sub-locations. A profile will be available at its home location and inherited by any sub-locations. Profiles can be excluded from sub-locations so that they are not applied, however. When a profile is created, the home location is set by default to the location you currently have selected.

This section describes how to manage locations and provides information about the following topics:

- Managing Regions

- Managing Server Locations
- Managing Device Servers
- Managing Group Locations
- Applying Profiles to Locations
- Editing Exclusions
- Using the Infrastructure Site Tool

Managing Regions

A region is a collection of server locations. Typically, each server location within a region contains a set of similar characteristics such as geographic location or role within your organization. When you apply profiles to a region, the Avalanche Console applies the configurations to every server location within that region.

Avalanche allows you to create nested regions, enhancing your region and network control. You can add as many regions to the Avalanche Console as necessary to manage your wireless network effectively.

This section provides information about the following:

- Creating Regions
- Viewing Region Properties
- Deleting Regions

Creating Regions

Regions group together server locations that share similar characteristics. Regions can be nested inside of other regions.

When a profile is applied to a region, it is also applied to, or inherited by, all the associated sub-locations. A user with read/write permissions for a location has the option of excluding an inherited profile for his location so it is not used, but he cannot change the priority of an inherited profile.

To create a region:

1. From the **File** menu, select **New > Create Region**. This method creates a region in the currently selected item in the Navigation Window.

   -Or-

   Right-click **My Enterprise** and select **Create Region**.

-Or-

If you are created nested regions, right-click the region you want to place the new region below and select **Create Region**.

2 In the *New Region* dialog box, type the name of the new region and click **OK**.

The new region appears as a node in the Navigation Window.

Viewing Region Properties

Once you create a region, you can view the properties of that region. Region properties include the region name, the Avalanche Console path (where that region is located under My Enterprise), profiles, and authorized users.

To view region properties:

- In the Navigation Window, click the region.

  The **Region Properties** tab displays the properties for the selected region.

Deleting Regions

You can delete unused regions from the Avalanche Console at any time. Any server locations within a region are automatically moved to the **Deleted Server Locations** region when you delete that region.

NOTE: Deleting a region is permanent. There is no way to retrieve deleted regions.

To delete a region:

1 Right-click the region or server location from the Navigation Window and select **Delete**.

A dialog box appears, asking you to confirm that you want to delete the region.

2 Click **Yes** to delete the region.

3 The region is deleted and any server locations in that region are moved to the **Deleted Server Locations** folder.

NOTE: You can restore server locations that are in the deleted Server Locations region to the Unassigned Server Locations region. For more information about restoring deleted server locations, see Deleting Server Locations.

Managing Server Locations

A server location is any location with an Infrastructure Server, a Mobile Device Server, or both. A server location can manage wireless devices for a unique physical entity, such as a warehouse, or a subsection of an entity, such as the third floor of an office building.

NOTE: The number of wireless components managed at a server location depends on the communication range of the servers installed at that location. Traditionally, this range has been defined as a single subnet on your network; however, depending on your network architecture, you can configure a server to communicate past a given subnet. This type of configuration uses the Infrastructure Site Tool. See Using the Infrastructure Site Tool for more information on using the Infrastructure Site Tool.

This section provides information about the following tasks for managing server locations:

- Determining Server Placement
- Adding Server Locations
- Moving Server Locations to Regions
- Modifying Server Location Properties
- Deleting Server Locations

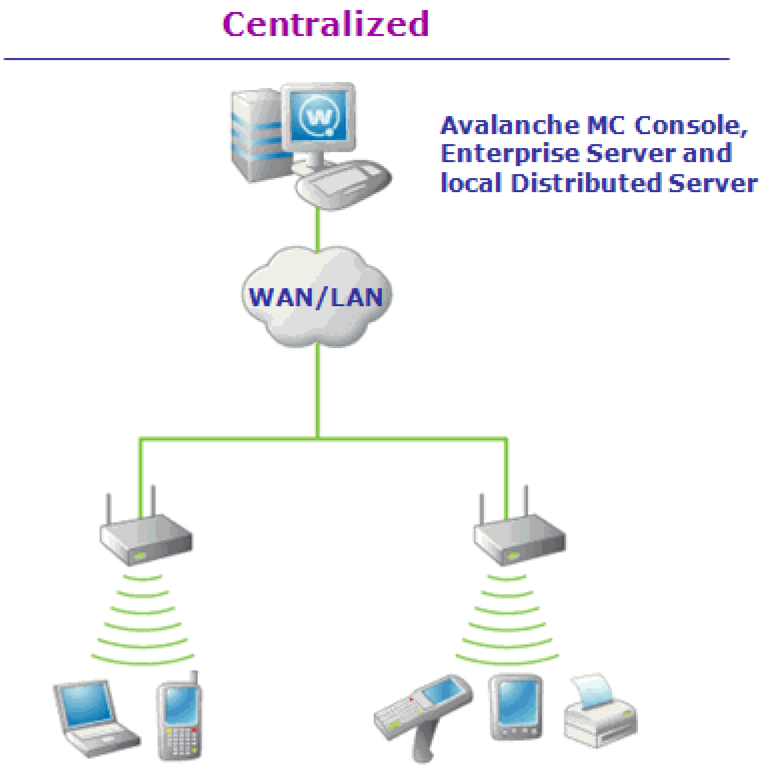
To view the properties of an existing server location, select the location from the Navigation Window and click the **Server Location Properties** tab.

Determining Server Placement

Spacing your device servers correctly is an important task. The ability to manage your wireless network depends on servers being able to locate and communicate with your devices. There are two primary methods of installing servers: centralized and distributed.

Centralized Server Method

In centralized server installations, a single server location is responsible for managing all of the devices on the network. Centralized server installations are typically found in environments where specific locations within a network might be unable to support their own servers. An example of this environment is a collection of retail stores. While the headquarters for these stores can support an infrastructure server, it might not be possible for each individual store to have its own server. In this case, installing the server centrally is an ideal solution.



A Centralized Installation of Avalanche (Simplified)

If you determine that a centralized server installation is the best choice for your wireless network, it is important to remember the following:

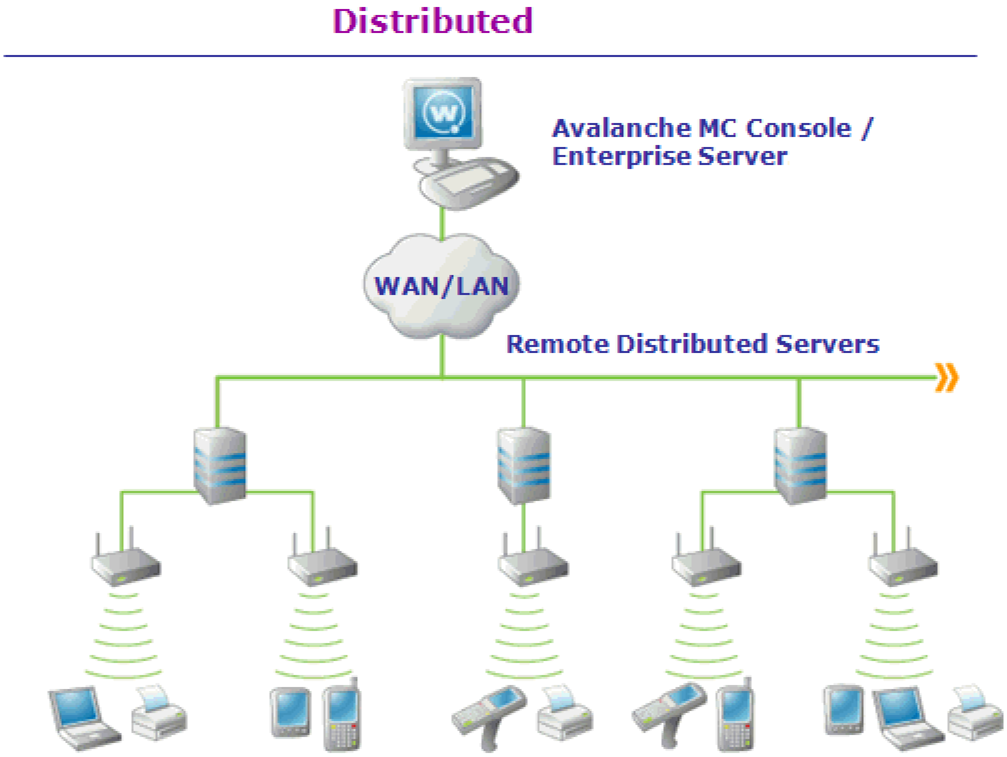
- You must know the network subnets to ensure the server knows where to listen for infrastructure broadcasts.
- You must know what switches and routers reside between the server and devices. This is particularly helpful if troubleshooting becomes necessary.
- You must have a general understanding of the overall performance of the wireless network, to ensure that specific time-based features (such as WEP key rotation) are configured correctly.
- Should organizational needs change, a centralized installation of Avalanche can be modified to a distributed model without needing to uninstall or reinstall Avalanche.

Distributed Server Method

In distributed server installations, a server resides on each network subnet. These servers are responsible for managing on a per-subnet basis. Often, distributed server installations of Avalanche are found in environments where wireless connectivity is critical to business operations. For example, if a company has multiple locations across the country, connectivity between each server location might depend on factors outside the company's control such as weather, the performance of third-party services, and so on. In these situations, installing a server on each subnet provides a more robust environment in which wireless network downtime is minimized.

If you determine that a distributed server installation is the best choice for your wireless network, it is important to remember the following:

- Because you are installing multiple servers on multiple systems, it might take more time to completely install and optimize Avalanche for your network.
- You must ensure that when you upgrade Avalanche, you upgrade all servers across the network.


Distributed
Avalanche MC Console / Enterprise Server
WAN/LAN
Remote Distributed Servers

A Distributed Installation of Avalanche (Simplified)

For information about how to deploy servers, see Deploying Servers.

Adding Server Locations

Before you deploy a server (mobile device or infrastructure) to a server location, you must add that server location to the Avalanche Console. When you create a new server location, you give the server location a name and identify the IP address and physical location.

Location Name Name of the new server location.

Location Site Address IP address of the server location.

OS Platform The operating system of the computer where the server will be installed.

Server Location City Name The city where the server will reside. This allows Avalanche to plot the server location on its map. When you provide a city name, Avalanche will attempt to connect to a database on the Wavelink web site to find cities with that name.

Bypass this search Allows you to create a location but bypass the attempt to connect to the city database. If you bypass the search, the server location will not appear on the map.

Time Zone The time zone for the area where the server resides. If servers are in different time zones, this can affect deployment schedules.

User Name The username for an account that has administrative access to the computer where the server will be installed. The user must have full control for the shared folder.

Password The password for the user account.

Domain The domain for the user account.

Share Name The name of a shared folder on the computer where the server will be installed. The user must have full control for this folder. This folder must be created and shared access allowed before you attempt to deploy a server to the server location or the deployment will fail.

Share Path The path for the shared folder. This path is NOT the network path (such as `\\system1\deploy\`), but is the local path to the shared folder (such as `c:\deploy\`).

To add a server location:

1 Select **File > New > Create Server Location**.

The *New Server Location Wizard* appears.

2 Provide the information as prompted by the wizard. When you provide the shared folder information, Avalanche attempts to contact the server location to verify that all the

information is correct. After a few moments, the *Connection Results* dialog box appears and displays if a connection was established to the servers.

3 Click **Next**.

The *Server Location Created* dialog box appears.

4 Click **Finish**.

The server location appears in the region where you created it. You can assign the server location to a different region, deploy servers to the server location or modify the server location. For information on deploying servers, see Deploying Servers.

Moving Server Locations to Regions

You may need to move an existing server location if you want to restructure your network hierarchy. A server location must belong to a region before you can manage its settings.

NOTE: If you want to move a server location from the Deleted Locations or the Unassigned Locations regions, you must use the Java Console.

To move a server location to a region:

1 Right-click a server location in the **Unassigned Server Locations** region, and select **Move Location To Region** from the context menu.

The *Select a Region* dialog box appears.

2 Select the destination region and click **Select**.

The server location moves to the selected region and you can begin managing your mobile devices.

Modifying Server Location Properties

Once you have created a server location, you can modify the server location properties. You can also view the server location statistics including server versions and the number of licensed devices for each server.

To modify server location properties:

1 From the Navigation Window, click the server location and then the **Server Location Properties** tab.

2 Click **Edit**.

3 Edit the information as needed.

4 Save your changes.

Deleting Server Locations

If a server location becomes unnecessary, you can delete it from the Avalanche Console. To retain historical data, Avalanche does not immediately remove server locations that you have decided to delete. Instead, these server locations move to the Deleted Server Locations region, and cease to receive any new configuration values from the Avalanche Console. You can then access historical data about the server location at a later date.

From the Deleted Server Locations region you can remove the server location completely or restore the server location so that you can manage it. When you remove server locations from the Deleted Server Locations region, the server location and historical data are completely deleted from the databases. When a server is restored, it is moved to the Unassigned Server Locations region until you move it to the desired region.

To move a server location to the Deleted Server Locations region:

- Select the server location from the Navigation Window and press the **Delete** key.

  -Or-

- Right-click the server location and select **Delete** from the context menu.

To restore a server location:

1 In the Navigation Window, select **Deleted Server Locations**.

2 Right-click the server location you want to restore and select **Restore** from the context menu.

  The server location is restored to the Unassigned Server Locations region. From this region, you can assign the restored server location back to the appropriate region.

To completely delete a server location:

- Select the server location from the Navigation Window and press the **Delete** key.

  -Or-

- Right-click the server location and select **Delete** from the context menu.

NOTE: To completely remove a server location, you should remove the Servers associated with that server location. For information about removing servers, see Uninstalling Servers.

You can stop the device server and then delete the server location. However, if you start the server again, Avalanche will automatically detect the deleted server location and place it in the Unassigned Server Locations region. Wavelink recommends uninstalling servers completely before deleting server locations.

Unassigned server locations will download the default profiles but do not get any other profile settings and do not receive updates such as server settings, software packages, or infrastructure profiles. Mobile devices will not connect to unassigned server locations. Server locations restored from the Deleted Server Locations region to the Unassigned Server Locations region retain their last configuration.

Managing Device Servers

This section provides general information about installing and managing distributed mobile device and infrastructure servers. A device server can be scheduled and deployed from the Console or installed directly on a computer. For more information specific to either type of server, see Managing a Mobile Device Server or Managing Infrastructure Device Servers.

- Building Server Deployment Packages
- Installing a Device Server
- Starting and Stopping a Server
- Viewing Server Properties
- Monitoring Server Status

Building Server Deployment Packages

After you create a server location in the Avalanche Console, you need to deploy the server. A deployment package is a collection of files that define Server behavior for both Infrastructure and Mobile Device Servers. You must create these packages and then deploy them in order to control your server locations.

You can build deployment packages for the following:

- **Combined Infrastructure and Mobile Device Servers**. When you create a combined deployment package, Avalanche deploys both an Infrastructure Server and a Mobile Device Server to a server location that may or may not have Servers already.
- **Infrastructure Server**. When you create a deployment package for an Infrastructure Server, Avalanche deploys an Infrastructure Server to a server location that may or may not yet have a server.

NOTE: When you create an Infrastructure Server package, you have the option to use **No Security**, **Security without encryption**, or **Security with encryption**. When security is enabled, the Infrastructure Server will use secure methods to communicate with the Infrastructure Site Console.

- **Lightweight Infrastructure Server Update**. This package updates an existing Infrastructure Server to the latest version without changing settings or deploying any firmware files. The resulting deployment package will be much smaller in size because this package only replaces the core executables.
- **Mobile Device Server**. When you create a deployment package for a Mobile Device Server, Avalanche deploys a Mobile Device Server to a server location that may or may not yet have a server.
- **Linux Agent RPMs**. This package allows you to select Linux RPMs to deploy to your locations.

To create a deployment package:

1 Click **Tools > Deployment Packages**.

The *Deployment Package Manager* appears.

2 Click **Add** to open the *New Package Wizard*.

3 Select **Create a Device Server Package** and click **Next**.

4 Follow the prompts to build the package you need.

5 When your package is built, click **Finish** to return to the *Deployment Package Manager*.

6 Continue building packages or click **Close**.

The packages you build will now appear in the Task Scheduler and are ready to be deployed to your locations. For information on deploying a server deployment package, see Deploying Servers. If the destination computer is using Windows 7 or Windows Server 2008 R2, use the local device server installer instead of a deployment. For more information on the local device server installer, see Installing a Device Server.

Installing a Device Server

If the computer where you want to install a device server is running Windows 7 or Windows Server 2008 R2, you should use the device server installer rather than deploying a package from the Java Console. Windows 7 and Windows Server 2008 R2 have strict user access control policies and a server deployment doesn't work on these operating systems.

The device server installer can install combined infrastructure and mobile device servers, an infrastructure server, a mobile device server, a lightweight infrastructure server update, or a firmware update package.

If the server was installed using the device server installer, you will not be able to deploy a lightweight infrastructure server update or firmware update package from the Console. To deploy either of these packages, create the package, copy it to the computer that already has an infrastructure server installed, and run the installer again. On the Welcome screen, select **Install Another Package**.

To uninstall a device server that was installed using the device server installer, run the installer again and select **Uninstall Servers**.

To install one or both device servers using the installer:

1 From the Java Console, create a deployment package. For information on creating these, see Building Server Deployment Packages or Creating Firmware Packages.

2 From the Deployment Package Manager (**Tools > Deployment Packages**), select the package and click **Download**.

3 The *Select Download Location* dialog box appears. Navigate to the location where you want to save the package and click **Save**.

The file will be saved as a zip file with the package name.

4 Copy the zip file to the computer where you want to install.

5 Download the device server installer from the Wavelink web site and save it to the computer where you want to install.

6 Double-click the installer file to begin the installation.

7 The Welcome screen appears. Click **Next**.

8 The License Agreement appears. Click **Yes** to agree to the terms of the license agreement.

9 The Select package file to install dialog box appears. Navigate to where the zip file is saved, select it, and click **Open**.

The Choose Destination Location screen appears.

10 Click **Browse** to choose a different installation directory, or click **Next** to accept the default location.

When the installation is complete, click **Finish** to close the installer. The device server will appear in the Unassigned Server Locations in the Navigation Window.

11 From the Java Console, create a region where you want the device server.

12 Right-click the server location and select **Move Server Location**.

The Select a Region dialog box appears.

13 Select the region and click **Select**.

The server location is moved in the Navigation Window.

14 Perform a deployment to activate the server.

Starting and Stopping a Server

You can start and stop a device server from the Navigation Window of the Avalanche Console.

To restart a server:

- From the Navigation Window, right-click the server you want to restart and select **Start Device Server**.

To stop a server:

- From the Navigation Window, right-click the server you want to stop and select **Stop Device Server**.

Viewing Server Properties

You can view server properties from the Navigation Window of the Avalanche Console. Server properties include the version of the server, the date the server was started and the status of the server (Running or Stopped) and licensing information.

To view Server properties:

- From the Navigation Window, right-click the server you want view properties for and select the **Mobile Device Server Properties** or **Infrastructure Server Properties** option.

Monitoring Server Status

When you select a server location in the Navigation Window, you can view server information on the **Device Server Status** tab. You cannot modify any information in this tab.

The following information displays in the columns:

- **Region**. Lists the region to which the server is assigned.
- **Location**. Lists the location (machine name) where the server resides.
- **Site Address**. Lists the IP address of the server location.
- **Version**. Specifies the version of server deployed to the location.
- **Status**. Indicates the current status of the Server.

🔴	Indicates the Server is currently offline.
🟢	Indicates the Server is currently online and running.

- **Deployed**. Displays the status of the Server deployment.

➡ Indicates changes have been made but are not yet deployed to the Server.

✓ Indicates changes have been deployed but are not yet applied to the Server.

✓ Indicates the Server is up-to-date with the latest changes.

- **Blackout**. Displays the Server blackout window status.

⬅ Indicates that the Server is not currently in a blackout window.

➡ Indicates the Server is currently in a blackout window and not available.

Managing Group Locations

Group locations are groups of mobile devices that connect to the same server. Group locations allow increased flexibility for assigning different profiles at the same server location. Avalanche uses selection criteria to determine which devices belong to each group location.

NOTE: An exception is a group location that has sub-locations. It does not use selection criteria. Instead, these "parent" groups display all of the devices that are included in the sub-locations.

A device can belong to more than one group location concurrently. If a device is included in more than one group location, it will use the profiles from the highest priority location. Locations are assigned priority as they are created, so the first location you create has the highest priority.

This section contains the following tasks for managing group locations:

- Creating a Group Location
- Viewing Mobile Devices in Group Locations
- Additional Group Location Functions

Creating a Group Location

Creating group locations allows flexibility in assigning profiles. A group location must be created in a server location where there is a Mobile Device Server.

To create a group location:

1 Right-click the server location where you want to place the group location and select **Create Group Location**.

The *New Group Location* dialog box appears.

2 Type a name for the group location.

3 If you do not want inherited profiles and device groups to be visible, enable the **Hide inherited profiles and device groups** option.

4 Use the Selection Criteria Builder to configure unique selection criteria for the group location.

5 When you are finished, click **OK**.

A group location appears under the server location. The mobile devices meeting the specified selection criteria will be assigned to the group location.

Viewing Mobile Devices in Group Locations

You can view the mobile devices that belong to an individual group location from the **Mobile Device Inventory** tab.

To view the mobile devices:

1 From the Navigation Window, select the group location you want to view.

2 Select the **Mobile Device Inventory** tab.

Only the mobile devices that belong to the group location will appear in the list.

Additional Group Location Functions

Group locations include several other functions, allowing you to more efficiently manage your mobile devices. These options are available by right-clicking the group location and selecting the appropriate option.

The additional options for group locations are as follows:

Copy Allows you to copy the group location.

Delete Allows you to delete the group location.

Applying Profiles to Locations

Once you have established your locations and created profiles, you can assign profiles to your network. A profile applies settings for your devices or servers. If you do not assign the profiles you create to locations, the settings in those profiles will not be deployed.

When you assign a profile to a location (region, server, or group), it is also applied to any sub-locations and their servers and devices. The profiles are applied to the devices based on the selection criteria for the profile and the priority in which the profiles are listed in the Avalanche Console. For information on excluding profiles that have been inherited, see Editing Exclusions.

Each profile can have selection criteria that define which devices can use the profile. A profile can be assigned additional selection criteria when it is applied to a location. This may be useful when a single location requires specialized or additional criteria. For information on selection criteria, see Using Selection Criteria.

For a general description of the types of profiles available, see Getting Started.

To apply a profile to a location:

1 Select the location where you want to apply the profile from the Navigation Window.

2 Select the **Properties** tab.

3 Click **Add** on the **Applied Profiles** tab.

4 From the list that appears, select the profile you want to apply and click **OK**.

5 The Application Selection Criteria dialog box appears.

6 Use the Selection Criteria Builder or type the selection criteria in the dialog box, if desired, and click **OK**.

The profile is added to the location.

7 Save your changes.

The assigned profile will be deployed with the server when you install the servers or when you perform a Universal Deployment after the server is installed. For information about installing servers, see Deploying Servers. For more information about Universal Deployment, see Performing a Server Synchronization.

To view where a profile has been applied:

1 From the **Profiles** tab, select the profile you want to view.

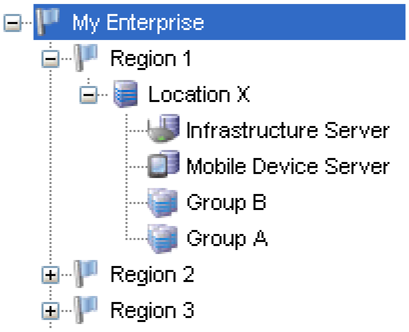
2 Click the **Applied Locations** tab. You cannot change the information from this tab. This tab displays the following information:

- **Parent Path**. Displays any parent locations.
- **Group**. The name of the location where the profile is applied.
- **Selection Criteria**. Any selection criteria that are applicable at the location where the profile is applied.

Editing Exclusions

When you apply profiles to a location, the Avalanche Console applies the configurations to all nested locations within that location. That profile is considered an inherited profile. However, you can exclude an inherited profile from a location. The profile will still appear in the **Applied Profiles** tab, but will not be applied to any servers or devices. The profile will also be excluded from any associated sub-locations.

For example:



Navigation Window

When a profile is applied at My Enterprise, it is also applied to all sub-locations. However, if it is excluded at Region 1, the profile will also be excluded from Location X and Groups A and B.

When a profile has been excluded from a parent location, you can allow a sub-location to apply it. Using the above example, you could reapply a profile to Group A that has been excluded at Region 1. (It would still be excluded at Group B.)

To exclude an inherited profile:

1 From the Navigation Window, select the location at which you want to exclude an inherited profile.

2 Select the **Properties** tab.

3 On the **Applied Profiles** tab, click **Edit Exclusions**.

4 Enable the **Excluded** check box for the inherited profile you want to exclude.

5 Click **Save**.

The profile will be excluded, but will still appear in the **Applied Profiles** tab for all sub-locations.

To reapply an inherited profile:

1 From the Navigation Window, select the location at which you want to re-apply an inherited profile.

2 Select the **Properties** tab.

3 On the **Applied Profiles** tab, click **Edit Exclusions**.

4 Disable the **Excluded** check box for the inherited profile you want to reapply.

5 Click **Save**.

The profile will be applied for the selected location. It will also be inherited as an applied profile, rather than as an excluded profile.

Using the Infrastructure Site Tool

Although you manage much of your wireless network with the Avalanche Console, certain server locations might require additional infrastructure management. To accommodate this need, you can access the Infrastructure Site Tool. This tool allows you to fine-tune your infrastructure server.

Since the Avalanche Console is designed to distribute wireless device settings across your entire network, it can conflict with settings applied to a specific server location. These conflicts can be easily avoided, however, by following these guidelines:

- Before you assign IP addresses, decide whether you want to manage them centrally or at the Infrastructure Server level. IP addresses can be assigned either by the Avalanche Console or by the Infrastructure Site Tool, but not both.
- WEP and WEP key rotation settings assigned at the enterprise level will override any corresponding settings at the Infrastructure Site level.
- To configure an individual server location from the Avalanche Console, create a region that contains only that server location.

To access the Infrastructure Site Console tool:

- Right-click a server location in the Navigation Window and select **Launch Infrastructure Site Console** from the menu that appears.

  - Or -

- Select a server location; then select **Launch Infrastructure Site Console** from the **Tools** menu.

Your specific Avalanche user login and password must have been deployed to the Infrastructure Server before you will be able to log in to the Infrastructure Site Tool.

The Infrastructure Site Tool appears in a separate window on your desktop. See the *Mobile Manager User's Guide* on the Wavelink Web site for more information on the features of the application.

Chapter 6: Managing Network Profiles

A network profile is used to configure devices for your network. The profile contains information such as gateway addresses, subnet masks, WWAN settings, and encryption and authentication information. You can also use a network profile to assign IP addresses to your devices. Once the wireless devices are configured with the values from the network profile, you can manage the devices through the Avalanche Console.

You can schedule a specific time for a network profile change to take effect. By default, network settings take effect when the profile is enabled. However, you can configure the date and time for the settings to take effect.

The **Authorized Users** button for a network profile allows you to assign administrative privileges for a profile to a user that has Normal user rights and is not assigned permissions to profiles. This allows you to give a user permission for one specific profile. Users that have permission for the profile will not appear in the list of available users. For information about creating users and assigning permissions, see Managing User Accounts.

This section contains the following topics:

- Creating Network Profiles
- Configuring General Settings for Network Profiles
- Configuring Scheduled Settings
- Exporting Profiles for Configuring Enablers

Creating Network Profiles

A network profile allows you to control network settings for mobile devices. The profile must be enabled and applied to a location and then it will be used by all devices meeting the profile's selection criteria. The home location for the profile is the location you have selected when you create the profile.

To create a network profile:

1 From the **Profiles** tab, click **Add Profile**.

The Add Profile Wizard appears.

2 Select the **Network Profile** option and click **Next**.

3 Type a **Name** for the profile and set the status to either **Enabled** or **Disabled**. Click **Next**.

4 Use the Selection Criteria Builder to create selection criteria for the profile. Click **Next**.

5 Confirm that the information is correct and click **Finish**.

The profile is created and can be configured.

Configuring General Settings for Network Profiles

Once you have created a network profile, you can configure the IP address pools, status, and whether the profile overrides the settings on the mobile device.

Network profiles allow you to assign IP addresses to your wireless devices from a list of IP addresses called an IP address pool. You can create IP address pools for mobile devices and/or infrastructure devices.

Selection criteria define which mobile devices are managed by the profile. Dynamic selection criteria are defined by Avalanche and apply to a device’s encryption and authentication support. For detailed information about using selection criteria, see Using Selection Criteria.

To add addresses to an IP address pool:

1. From the **Profiles** tab, select the profile from the Profile List.
2. Click **Edit**.
3. In the **Network Profile** tab, click **Manage IP Address Pools**.

   The *IP Address Pools* dialog box appears.

   - In the **Start** text box, type the lowest number you wish to include in your pool.

     For example:
     192.168.1.1 (for static addresses)
     0.0.0.1 (for addresses with a Server address mask)

   - In the **End** text box, type the highest number you wish to include in your pool.

     For example:
     192.168.1.50 (for static addresses)
     0.0.0.50 (for addresses with a Server address mask)

   - If you desire the addresses in the range to be masked with the Server address, enable the **Mask With Server Address** checkbox and enter the mask.

     For example:
     0.0.0.255

   - Click **Add** to add the IP addresses to the IP address pool.

     The available addresses and the mask will appear in the table to the right. This list will display all entered addresses, including those already assigned.

   - Click **OK** to return to the **Network Profiles** tab.

4 Save your changes.

To enable a network profile:

1 From the **Profiles** tab, select the profile from the Profile List.

2 Click **Edit**.

3 In the **Network Profile** tab, select **Enabled**.

4 If you want the settings on the network profile to override any manual IP settings on the device, enable the **Override Settings on Mobile Devices** option. If the profile is configured to override, it overrides each time the device connects. This option is only available when the **Manage WLAN IP** option is enabled.

5 Save your changes.

The network profile is now enabled.

Configuring Scheduled Settings

From a network profile, you can configure WLAN IP settings, WLAN security settings, and WWAN settings. These configurations can be scheduled to start at a specific time, so they are considered scheduled settings.

When you configure WLAN IP, WLAN, and WWAN settings, you may make the changes take effect immediately or select the start time for those settings to take effect. Once the settings take effect, if there is more than one network profile enabled and applied at a location, the network profile with the highest priority will be the profile that is applied on your devices.

NOTE: Old Enablers don't store scheduled settings. They will receive the new network settings the first time they connect with the server after the scheduled start time.

This section contains information on the following configuration options:

- Configuring WLAN IP Settings
- Configuring WLAN Settings
- Configuring WWAN Settings

Configuring WLAN IP Settings

With a network profile, you can configure WLAN IP settings for your devices and schedule when those settings will be applied. The options include:

Manage IP Assignment Allows you to manage the IP addresses assigned to your mobile devices. You can choose to use either a DHCP server or IP pool assignment.

Server Address Provides mobile devices with the server address. You can provide the address, DNS name, or use the server location value. If you choose to use the server location value, the mobile devices use the mask/address of the server to which the device connects.

If using a DNS name, click **Validate** to ensure the address can be resolved. If the mobile device profile has provided a server address, that address will override whatever is provided by the network profile.

Gateway Address Provides mobile devices with the address for the node that handles traffic with devices outside the subnet. You can provide the address, DNS name, or use the server location value.

Subnet Mask Provides mobile devices with the subnet mask. You can provide the address, DNS name, or use the server location value.

Domain Name System (DNS) Provides the domain name to the devices.

Primary DNS Provides mobile devices with the IP address for a primary DNS.

Secondary Provides mobile devices with the IP address for a secondary DNS (used if the primary DNS is unavailable).

Tertiary Provides mobile devices with the IP address for a tertiary DNS (used if the primary and secondary DNS are unavailable).

(Infrastructure Device IP Settings) Manage IP Assignment Allows you to manage the IP addresses assigned to your infrastructure devices with a DHCP server.

To configure WLAN IP settings for a network profile:

1 From the **Profiles** tab, select the profile from the Profile List.

2 Click **Edit**.

3 In the **Network Profile** tab, enable the **Manage WLAN IP** option.

4 In the Scheduled Settings area, select the date and time you want the settings to take effect from the drop-down list.

- If you would like to add another start time for different settings to the list, click **Add** and select the date and time you want it to begin.
- If you want to add another start time using the settings currently configured, click **Clone**.
- If you want to change the currently selected start time, click **Edit**.

5 Select the **WLAN IP Settings** tab.

6 Configure the WLAN IP settings as desired.

7 Save your changes.

Configuring WLAN Settings

From a network profile, you can configure WLAN settings for your devices. These settings will be deployed with the profile and applied on the device. The options include:

SSID This option provides wireless devices with the SSID. The SSID is a service set identifier that only allows communication between devices sharing the same SSID.

Encryption This option allows you to enable encryption between your devices and the server. You have the following options for encryption:

Use Profile/None. Devices do not encrypt information.

WEP. Wired Equivalent Privacy is an encryption protocol using either a 40- or 128-bit key which is distributed to your devices. When WEP is enabled, a device can only communicate with other devices that share the same WEP key.

Avalanche only tracks the WEP keys that were assigned to devices through the Avalanche Console. Consequently, WEP keys displayed in the Console might not match the keys for a wireless device if you modified them from outside of Avalanche.

WEP Key Rotation. WEP key rotation employs four keys which are automatically rotated at specified intervals. Each time the keys are rotated, one key is replaced by a new, randomly generated key. The keys are also staggered, meaning that the key sent by an infrastructure device is different than the one sent by a mobile device. Because both infrastructure and mobile devices know which keys are authorized, they can communicate securely without using a shared key.

WEP key rotation settings are not recoverable. If the system hosting the Server becomes unavailable (for example, due to a hardware crash), you must re-connect serially to each mobile device to ensure that WEP key settings are correctly synchronized.

WPA (TKIP). WPA, or Wi-Fi Protected Access, uses Temporal Key Integrity Protocol (TKIP) to encrypt information and change the encryption keys as the system is used. WPA uses a larger key and a message integrity check to make the encryption more secure than WEP. In addition, WPA is designed to shut down the network for 60 seconds when an attempt to break the encryption is detected. WPA availability is dependent on some hardware types.

WPA2 (AES). WPA2 is similar to WPA but meets even higher standards for encryption security. In WPA2, encryption, key management, and message integrity are handled by CCMP (Counter Mode with Cipher Block Chaining Message Authentication Code Protocol) instead of TKIP. WPA2 availability is dependent on some hardware types.

WPA2 Mixed Mode. WPA Mixed Mode allows you to use either AES or TKIP encryption, depending on what the device supports.

Custom Properties

This option allows you to add custom properties to the devices that receive this network profile. By clicking **Edit/View**, you can add, edit, and delete properties and their values.

Authentication Settings

The authentication type available depends on the encryption you select and what is supported by your Enabler and hardware. Authentication options include:

EAP. Extensible Authentication Protocol. Avalanche supports five different EAP methods:

PEAP/MS-CHAPv2. (Protected Extensible Authentication Protocol combined with Microsoft Challenge Handshake Authentication Protocol) PEAP/MS-CHAPv2 is available when you are using encryption. It uses a public key certificate to establish a Transport Layer Security tunnel between the client and the authentication server.

PEAP/GTC. (Protected Extensible Authentication Protocol with Generic Token Card) PEAP/GTC is available when you are using encryption. It is similar to PEAP/MS-CHAPv2, but uses an inner authentication protocol instead of MS-CHAP.

EAP_FAST/MS-CHAPv2.(Extensible Authentication Protocol - Flexible Authentication via Secure Tunneling combined with MS-CHAPv2) EAP-FAST uses protected access credentials and optional certificates to establish a Transport Layer Security tunnel.

EAP_FAST/GTC. (Extensible Authentication Protocol - Flexible Authentication via Secure Tunneling with Generic Token Card) EAP-FAST uses protected access credentials and optional certificates to establish a Transport Layer Security tunnel.

TTLS/MS-CHAPv2. (Tunneled Transport Layer Security with MS-CHAPv2) TTLS uses public key infrastructure certificates (only on the server) to establish a Transport Layer Security tunnel.

Pre-Shared Key (PSK). PSK does not require an authentication server. A preset authentication key (either a 8-63 character pass phrase or a 64 character hex key) is shared to the devices on your network and allows them to communicate with each other.

LEAP. (Lightweight Extensible Authentication Protocol) LEAP requires both client and server to authenticate and then creates a dynamic WEP key.

To configure WLAN settings:

1. From the **Profiles** tab, select the profile from the Profile List.
2. Click **Edit**.
3. In the **Network Profile** tab, enable the **Manage WLAN** option.
4. In the Scheduled Settings region, select the date and time you want the settings to take effect from the drop-down list.
   - If you would like to add another start time for different settings to the list, click **Add** and select the date and time you want it to begin.

- If you want to add another start time using the settings currently configured, click **Clone**.
- If you want to change the currently selected start time, click **Edit**.

5 Select the **WLAN Settings** tab.

6 Configure the WLAN settings as desired.

- If you select WEP keys, select either **40 Bit** or **128 Bit** key size and create the keys. The keys you enter must be in hex format. A 40-bit key should have 10 characters and a 128-bit key should have 26 characters. To change the value for one of the hex digits in a key, type a new value (using 0-9 and A-F) in the appropriate text box. An example of a 40-bit key would be: 5D43AB290F.
- If you select WEP key rotation, click the **Settings** button to configure the encryption algorithm, starting date and time, rotation interval, and a pass code.
- If you select PEAP or TTLS authentication, enable **Validate Server Certificate** to provide a path to the server certificate.
- If you select EAP_FAST, provide a path and a password to a PAC (Protected Access Credential). This will provision devices with the PAC file.
- If you select an EAP method or LEAP, configure whether the **User Credentials** are **Prompt** (user is prompted when credentials are required) or **Fixed** (credentials are automatically sent when required).

NOTE: The availability of authentication settings is dependent on what encryption method you have selected.

7 Save your changes.

Configuring WWAN Settings

From a network profile, you can configure WWAN settings for your devices with WWAN capabilities. These settings will be deployed with the profile and applied on the device. The options include:

Connection Name	A name for the connection.

Connection Type

There are two connection types available for your WWAN-enabled devices:

APN (GPRS / EDGE / 3G). Provide a domain (Access Point Name) if you are using this type of connection. An example of an APN would be: wap.cingular

Dial-Up. The number to be dialed by the modem. This does not correspond to the number of the device.

Credentials

Sets the **Username**, **Password**, and **Domain** credentials for the connection when they are necessary.

Custom Properties

This option allows you to add custom properties to the devices that receive this network profile. By clicking **Edit/View**, you can add, edit, and delete properties and their values.

Enable TCP/IP header compression

Improves the performance of low-speed connections.

Enable software compression

Improves the performance of low-speed connections.

Activate phone as needed

Allows the Enabler to activate the device's phone if a WWAN connection is necessary.

Dial broadband connection as needed

Allows the Enabler to attempt a WWAN connection if a LAN connection cannot be established.

Public IP address for Avalanche Server

Provides the IP address of the enterprise server that is accessible from a WWAN. This is necessary if the device tries to contact the server when connecting from outside of the server's local network.

To configure WWAN settings:

1 From the **Profiles** tab, select the network profile from the Profile List.

2 Click **Edit**.

3 In the **Network Profile** tab, enable the **Manage WWAN** option.

4 In the Scheduled Settings region, select the date and time you want the settings to take effect from the drop-down list.

- If you would like to add another start time for different settings to the list, click **Add** and select the date and time you want it to begin.
- If you want to add another start time using the settings currently configured, click **Clone**.
- If you want to change the currently selected start time, click **Edit**.

5. Select the **WWAN Settings** tab.
6. Configure the WWAN settings as desired.
7. Save your changes.

Exporting Profiles for Configuring Enablers

You can export profiles from the Avalanche Console to use when you are installing Enablers on mobile devices. Avalanche allows you to export a network profile, a mobile device profile, or both. After you have configured the profile, export it and save it to the computer from which you are installing the Enablers. Using an exported profile to configure the Enabler allows you to quickly and easily connect the device to the Mobile Device Server.

To export profiles for Enabler configuration:

1. From the Console, click **File > Export > Profiles for Mobile Device Configuration**.

   The *Export Profiles For Mobile Devices* dialog box appears.
2. From the lists, select the network profile and/or mobile device profile you want to export.
3. In the **Encryption Password** text box at the top of the dialog box, type a password that will be required in order to import the profiles.
4. Click **OK**.
5. The *Save Export File* dialog box appears. Select the location where you want to save the file and click **Save**.
6. If you are using a different computer to install Enablers, move the export file to the computer you are using for Enabler installation.
7. Follow the instructions in the *Enabler User Guide* to import the profile settings and apply them to the Enabler.

Chapter 7: Managing Scan to Configure Profiles

Avalanche allows you to create Scan to Configure profiles (barcode profiles) that are configured with network settings. You can then print the profiles as barcodes and a mobile device with an Enabler 3.5 (or later versions) can scan these barcodes. The information from the scanned barcodes is used to configure the network settings on the device, such as the IP address, subnet mask, and gateway. The length of the barcode is configurable.

NOTE: To verify that the scan to configure functionality is available on your Enabler, check the **File** menu of the Enabler. If the **Scan Config** option appears in the **File** menu, the Scan to Config feature is available. If this option is not there, the Enabler does not support the scan to configure feature.

This section contains instructions for the following tasks:

- Creating a Scan to Config Profile
- Configuring a Scan to Config Profile
- Printing Barcodes
- Scanning Barcodes

Once you have configured your Scan to Config profile, you can apply that profile to any location in the Console. When you apply a profile to a location, the users who have permissions for that location can make changes as necessary. For more information about assigning Scan to Config profiles to a location, see Applying Profiles to Locations.

Creating a Scan to Config Profile

A Scan to Config profile is used to configure network settings, device properties, and registry keys on a mobile device. Once you have configured the profile from the Avalanche Console, you can print the barcodes and then use a device to scan the barcodes. The home location for the profile is the location you have selected when you create the profile.

NOTE: WEP key rotation is not supported for Scan to Config profiles.

To create a Scan to Config profile:

1 From the **Profiles** tab, click **Add Profile**.

The Add Profile Wizard appears.

2 Select the **Scan To Config Profile** option and click **Next**.

3 Type a **Name** for the profile and set the status to either **Enabled** or **Disabled**. Click **Next**.

4 Confirm that the information is correct and click **Finish**.

The profile is created and can be configured.

For more information on configuring device properties and registry keys, see Configuring a Scan to Config Profile.

Configuring a Scan to Config Profile

Configuring Scan to Configure profiles allows you to select the network information you want the mobile devices to use. Use information from a network profile or add separate details such as custom properties or registry keys.

The **Authorized Users** button allows you to assign administrative privileges for a profile to a user that has Normal user rights and is not assigned permissions to profiles. This allows you to give a user permission for one specific profile. Users that have permission for the profile will not appear in the list of available users. For information about creating users and assigning permissions, see Managing User Accounts.

- Configuring Scan to Config Settings
- Adding Custom Properties for Scan to Config Profiles
- Adding a Registry Key to a Scan to Config Profile

Configuring Scan to Config Settings

When you create a Scan to Config profile, you can configure the maximum barcode length and network settings such as the IP address, subnet mask, and gateway. You also have the option of using the network settings contained in a network profile.

You can also configure a passcode for the profile. The passcode is used to encrypt the barcode data. The mobile device user must enter the same passcode when they are using scan to configure so that the Enabler can decrypt the barcode data when it is scanned. If the user does not input the correct passcode at the device, then the barcode data is not decrypted and the scan registers as invalid.

When a mobile device scans the barcodes created from a Scan to Config profile, the mobile device receives the network settings configured within that barcode.

To configure the settings:

1 From the **Profiles** tab, select the Scan to Config profile you want to configure.

Click **Edit**.

2 To encrypt the barcodes, type a passcode in the **Encryption Passcode** text box and confirm it in the **Confirm Passcode** text box.

3 Set the maximum length of the barcode. This defines how many characters are encoded in each barcode.

4 If you have already configured a network profile and want to use the settings from that profile, enable **Use settings from network profile**. Choose which epoch to use by enabling either **Use currently active Epoch** or **Use selected Epoch** and selecting an epoch from the drop-down list.

5 If you want to set a static IP address for the device, enable **Assign static IP address** and type the **IP Address**, **Subnet Mask** and **Gateway** in the appropriate boxes.

NOTE: You cannot set a static IP address and use a network profile concurrently.

6 Click **Save** to save your changes.

The profile is updated with the configured network settings.

Adding Custom Properties for Scan to Config Profiles

Custom properties allow you to define specific properties that you want applied to the mobile device. An example of a custom property is `location = Chicago`. Once a custom property has been applied to a device, you can use it as a selection criterion. You can apply custom properties to mobile devices through a Scan to Config profile.

To add a custom property:

1 From the **Profiles** tab, select the profile you want to configure.

2 Click **Edit**.

3 In the Properties area, click **Add**.

The *Edit Property* dialog box appears.

4 Type the **Name** and **Value** in the text boxes.

5 Select whether the property is a Device or Network property.

NOTE: Most properties will be device properties.

6 Click **OK**.

The task is added to the list in the Properties area. The property will be added when the profile is applied on the mobile device.

7 Save your changes.

Adding a Registry Key to a Scan to Config Profile

You can add registry keys and values to a profile. These keys will be added to the device registry when the profile is applied.

To add a registry key:

1 From the **Profiles** tab, select the profile you want to configure.

2 Click **Edit**.

3 In the Registry Settings area, select where you want to add the key and click **Add**.

The *Add Registry Key* dialog box appears.

4 Select the **Parent Key** from the drop-down list.

5 Type the **Name** of the new key in the text box.

6 Click **OK**.

The key is added to the profile and you can configure its value.

To add a value to a registry key:

1 From the **Profiles** tab, select the profile you want to configure.

2 Click **Edit**.

3 In the Registry Settings area, select the key to which you want to add a value and click **Add a new registry value**.

The *Add Registry Value* dialog box appears.

4 Type the **Name** of the new value in the text box.

5 Select the **Type** from the drop-down list.

6 Type the **Data** in the text box.

7 Click **OK**.

The task is added to the list in the Registry Settings area. The value will be added when the profile is applied on the mobile device.

Printing Barcodes

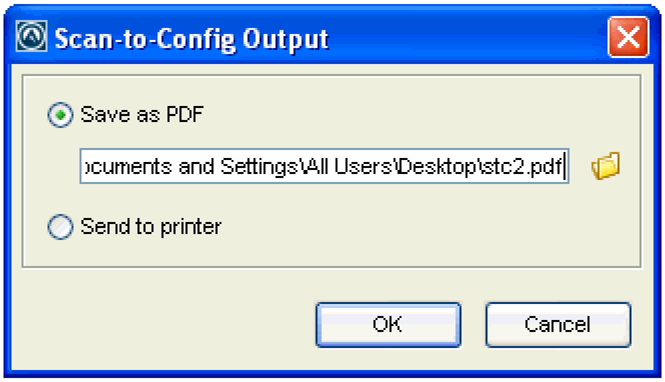
Once you have created and configured a Scan to Config profile, you can print that profile. The profile prints as a set of barcodes in random order. You can then scan the barcodes with a mobile device to change the network settings on that device. You have the option to print the barcodes to a printer or to a `.pdf` file.

To print a Scan to Config profile as a barcode:

1 From the **Profiles** tab, select the Scan to Config profile you want to print.

2 From the **Scan-to-Config Profile** tab, click **Print**.

The *Scan-to-Config Output* dialog box appears.



Scan-to-Config Output

● Save as PDF

ocuments and Settings\All Users\Desktop\stc2.pdf

○ Send to printer

Scan-to-Config Output dialog box

3 If you want to print the barcodes to a `.pdf` file, select **Save as PDF**, type the name and location for the file in the text box and click **OK**. Or, use the file icon to browse to the location where you want to store the file.

- Or -

If you want to print the barcodes on a printer, select **Send to printer** and click **OK**.

4 If you selected **Save as PDF**, the barcodes are saved in the specified location. If you selected **Send to printer**, the *Print* dialog box appears. Configure the printing options as desired and click **OK** to print the barcodes.

Scanning Barcodes

To scan and apply a Scan to Config profile, you must open the *Scan Configuration* dialog box from the Enabler on the mobile device. Use the mobile device to scan the barcodes in any order. When all the barcodes are scanned, the Enabler applies the configurations on the device.

Network settings do not get processed on the mobile device until all of the barcodes are scanned. The barcodes contain data that tell the device how many barcodes are in the set and the sequence number of each one. This allows you to scan the barcodes out of sequence and the mobile device will reconstruct it properly.

To scan the configuration:

1 From the Enabler on the mobile device, select **File > Scan Config**.

The *Scan Configuration* dialog box appears.

2 Enter the passcode (if configured) and begin scanning.

As you scan the barcodes you will be able to view the status, the number of remaining barcodes, and the number of scanned barcodes.

Once you have scanned all available barcodes, the network settings are applied and the *Scan Configuration* dialog box closes.

Chapter 8: Managing Infrastructure Device Servers

The Infrastructure Server is server software that allows you to remotely manage and configure infrastructure devices such as access points and routers. Although you can use multiple servers at different server locations or on different network segments, you can manage all of your servers from one Avalanche Console, regardless of where the Console resides on the network.

Infrastructure Server profiles allow you to define device access privileges for your Infrastructure Servers. Once you have configured an Infrastructure Server profile, you can apply that profile to any region and deploy those settings to all Infrastructure Servers in that region.

This section provides information about the following tasks:

- Creating Infrastructure Server Profiles
- Configuring Infrastructure Server Settings
- Configuring Infrastructure Server Blackouts
- Viewing Infrastructure Server Licensing Messages

NOTE: Before you can manage an infrastructure server, you must create a server deployment package and deploy the server to the desired location. For information on deploying an infrastructure server, see Managing Device Servers.

Creating Infrastructure Server Profiles

Infrastructure Server profiles are used to manage your Infrastructure Servers. Profiles allow you to configure data collection, access privileges, and other settings for the Server. The home location for the profile is the location you have selected when you create the profile.

To create an Infrastructure Server profile:

1 From the **Profiles** tab, click **Add Profile**.

The Add Profile Wizard appears.

2 Select the **Infrastructure Server Profile** option and click **Next**.

3 Type a **Name** for the profile and set the status to either **Enabled** or **Disabled**. Click **Next**.

4 Confirm that the information is correct and click **Finish**.

The profile is added to the **Profile List**.

Configuring Infrastructure Server Settings

You can set the status of an Infrastructure Server profile to enabled or disabled. The profile can only be applied when it is enabled. If the profile is disabled after it has been applied, Avalanche will replace the settings with a default profile. To enable the profile, select it from the Profile List, click **Edit**, enable the **Enabled** option, and save your changes.

The **Authorized Users** button allows you to assign administrative privileges for a profile to a user that has Normal user rights and is not assigned permissions to profiles. This allows you to give a user permission for one specific profile. Users that have permission for the profile will not appear in the list of available users. For information about creating users and assigning permissions, see Managing User Accounts.

Once you have created an infrastructure server profile, configure the following options from the **Infrastructure Server Profile** tab:

- Configuring Data Collection
- Configuring Infrastructure Server Properties
- Defining Device Access Privileges

Configuring Data Collection

You can configure the types of data collected by the Infrastructure Server with the Infrastructure Server profile. By suppressing data collection, you may increase the efficiency of the Server. When the data is not collected by the Infrastructure Server, no statistics are sent to the Stats Server either.

The options available for Infrastructure Server data collection include:

Suppress All Infra Statistics Data Collection
When this option is enabled, no infrastructure statistics are collected by the Infrastructure Server. This option overrides all the other data collection options.

Suppress Performance Statistics Data Collection
When this option is enabled, no statistics such as utilization, capacity, bytes received/sent, or packets received/sent are collected by the server.

Suppress Current Statistics Data Collection
When this option is enabled, no statistics representing the current state of infrastructure devices are collected by the server.

If you plan on generating any infrastructure device reports, current statistics should not be suppressed.

Suppress Running Statistics Data Collection
When this option is enabled, no statistics regarding device status changes are collected by the server.

Suppress Associated MD Data Collection
When this option is enabled, no statistics regarding associated mobile devices (such as RSSI measurements) are collected by the server.

Limit Running Statistics Data Quantity
When this option is enabled, certain running statistics (such as device state changes) are not collected by the server.

To configure data collection for an Infrastructure Server profile:

1 From the **Profiles** tab, select the profile from the Profile List.

2 Click **Edit**.

3 In the **Infrastructure Server Profile** tab, enable the desired options in the Data Collection region.

NOTE: If you enable **Suppress All Infra Statistics Data Collection**, all data collection for infrastructure devices will be suppressed.

4 Save your changes.

Configuring Infrastructure Server Properties

The **Server Properties** button on the **Infrastructure Server Profile** tab allows you to use properties to configure specific operating parameters of infrastructure servers.

If you migrated with existing undocumented settings in the Infrastructure Server's `agentsvc.cfg` file, those settings can be managed through an Infrastructure Server profile. The existing settings will maintain the current configuration until they are modified in the profile, however.

To configure Infrastructure Server properties:

1 From the **Profiles** tab, select the profile from the Profile List.

2 Click **Edit**.

3 In the **Infrastructure Server Profile** tab, click **Server Properties**.

The *Server Properties* dialog box appears.

4 Click **Add**.

The *Add Property* dialog box appears.

5 From the **Name** drop-down list, select the property you want to add to the profile. If you know the name of the property, you can start typing and the auto-complete feature will suggest valid names.

The associated fields are populated, providing you with a description of and information about the property. This includes whether the property will require a restart before it is effective, if the property was available before Avalanche 5.0.1, and default, minimum, and maximum values for the property.

6 Type a value for the property in the **Value** text box. The **Invalid Value?** text box will display an error message if the value you have entered is not valid. It will remain empty if the value is valid.

7 Click **OK**.

8 To edit or remove a property from the profile and the associated servers, select the property from the list and click **Edit** or **Remove**. When a property is removed, the server adopts a default value for that property.

NOTE: If you modify a migrated setting using the Infrastructure Server profile, then delete it from the profile, the server will assume a default value for that property — the original migrated value is not used.

9 Click **OK** to return to the Avalanche Console.

10 Save your changes.

A new property will be sent to the servers where the profile is applied during the next server synchronization. If no restart is necessary, the property will be applied as soon as the server receives it. If a restart is necessary, the property will be applied after the server is restarted. You can restart the server by right-clicking it in the Navigation Pane.

If a property is removed, the server will adopt a default value either immediately or when it is restarted.

NOTE: Some properties that can be managed through the Infrastructure Server profile can also be managed from the Infrastructure Site Console. If the property is set in both places, the value set from the Infrastructure Server profile will be used.

Defining Device Access Privileges

To manage wireless network components—including access points, switches, and routers—a Server must have the correct authorization. These authorizations are called device access privileges. The type of authorization required varies, depending on which protocol the Server uses to configure the component. The types of authorizations are as follows:

- SNMP Read-Only community name
- SNMP Read/Write community name
- Telnet password
- HTTP user name and password
- SNMPv3 user name

The authorization required varies depending on the type of hardware being queried by the infrastructure device. Frequently, a component requires more than one authorization type—for example, a Server might need both an HTTP user name and an SNMP Read/Write name to correctly configure an infrastructure device. The following table lists the authorization required for each hardware type:

Hardware	Authorization
Switches	SNMP Read-Only community name
Cisco-Aironet 350/1200 Series Access Point	SNMP Read/Write community name HTTP user name and password
Cisco-Aironet (IOS)	SNMP Read/Write community name HTTP user name and password Telnet community name and password Telnet Enable password **NOTE:** Do not disable the Web interface to Cisco-Aironet access points. Doing so prevents the server from managing the access points.
Symbol Access Point	SNMP Read/Write community name SNMP Read-Only community name HTTP user name and password

Hardware	Authorization
Symbol Wireless Switch	SNMP Read/Write community name SNMP Read-Only community name Telnet password
Proxim Access Point	SNMP Read-Only community name SNMP Read/Write community name
Dell Access Point	SNMP Read-Only community name SNMP Read/Write community name

NOTE: If you find that a Server is unable to query a component, it is recommended that you first look at whether the Server has the proper authorization information for that component.

The Server supports multiple authorizations for each protocol type. For example, networks frequently have multiple SNMP Read/Write community names. In this situation, when you define device access privileges for the Server, you can create a list of SNMP Read/Write community names. When the Server attempts to query an infrastructure device, it moves through the list of SNMP Read/Write community names until it finds one the device will accept. If all attempts to communicate with an device fail, the Server will generate an alert.

NOTE: After configuring this information, you must deploy it to the Servers. For more information on deploying, see Performing a Server Synchronization.

This section contains the following information:

- Defining Access Privileges
- Configuring SNMP V3 Settings
- Cisco IOS Access Privileges
- Replacing Insecure Protocols and Default Passwords

Defining Access Privileges

For Avalanche to manage your infrastructure devices, the Infrastructure Servers must have device access privileges.

To define device access privileges:

1 From the **Profiles** tab, select the profile for which you are defining privileges.

2 Click **Edit**.

3 In the **Infrastructure Server Profile** tab, find the Device Access Privileges region. If you want to display the names and passwords, click **Show Password**. Once you navigate away from the profile, save or cancel changes, the passwords will be hidden. Configure the privileges for the profile.

- To add an SNMP Read-Only user name, select the **SNMP R/O** tab, enter the community name in the text box at the bottom of the region and click **Add**.
- To add an SNMP Read/Write user name, select the **SNMP R/W** tab, enter the community name and click **Add**.
- To add a Telnet password, select the **TELNET** tab, enter the password and click **Add**.
- To add an HTTP user name, select the **HTTP** tab and click **Add**. A dialog box appears, allowing you to enter a user name and password for the account. Each account must be assigned to a specific hardware manufacturer, such as Cisco or Symbol.

NOTE: To manage Cisco-Aironet Access Points with the Avalanche Console, you must have both an HTTP account that has administrative privileges and an authorized SNMP Read/Write user name. HTTP access must be enabled on the infrastructure device.

- To add an SNMP V3 user, select the **SNMP V3** tab and click **Add**. A dialog box appears, allowing you to enter a user name, passwords, and protocols for the account. For more information on SNMP V3 options, see Configuring SNMP V3 Settings.

4 Save your changes.

After the settings are deployed, the servers will use the information to manage the infrastructure devices.

Configuring SNMP V3 Settings

The SNMP V3 settings you configure in Avalanche are based on the type of access point you are configuring and the configurations of that device. Ensure you have the proper information about the device before you configure Avalanche.

There are three levels of permissions that you can configure using SNMP V3:

- User Name only (there is no authentication or privacy)
- User Name and Authentication (SHA or MD5)
- User Name, Authentication (SHA or MD5) and Privacy Protocol (DES or AES)

The level of permissions must be based on the settings your device supports and is configured with.

To add SNMP V3:

1 From the **Profiles** tab, select the profile for which you are defining privileges.

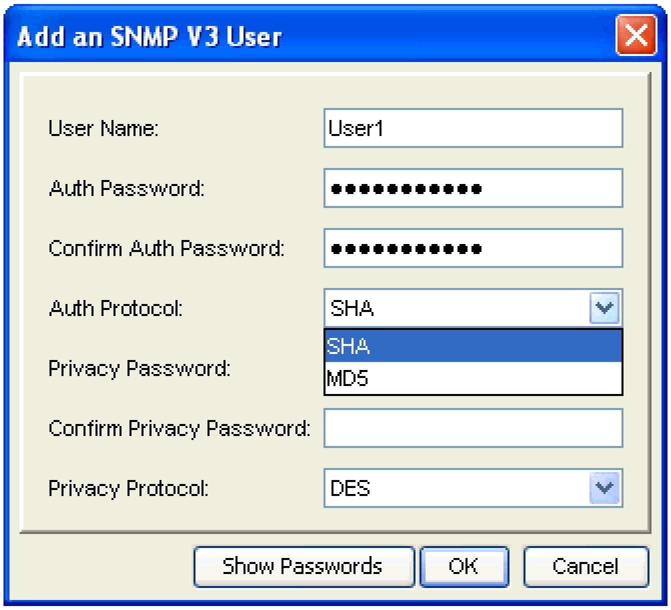
2 Click **Edit**.

3 In the **Infrastructure Server Profile** tab, find the Device Access Privileges region.

4 Click the **SNMP V3** tab.

5 Click **Add**.

The *Add an SNMP V3 User* dialog box appears.



Add an SNMP V3 User

User Name: User1

Auth Password: ●●●●●●●●●●●●

Confirm Auth Password: ●●●●●●●●●●●●

Auth Protocol: SHA

Privacy Password:

Confirm Privacy Password:

Privacy Protocol: DES

Add User

6 Enter a **User Name**.

7 Enter an **Auth Password**. Passwords must be at least eight characters long.

8 Continue configuring the user authentication and privacy based on your device settings.

9 Click **OK** when you are finished.

The user name will appear in the **SNMP V3** tab.

Cisco IOS Access Privileges

To manage Cisco IOS access points with the Avalanche Console, you must have both an HTTP account that has administrative privileges and an authorized SNMP Read/Write user name. You might also need to add a Telnet user if the Enable password is not the default. Telnet access must be enabled on the infrastructure device.

By default, the Telnet user name, password, and Enable password for Cisco IOS access points is “Cisco”. If you enabled security for managing infrastructure devices when you installed the infrastructure server package, this default Telnet information is removed to prevent unauthorized access.

Avalanche will enable SNMP on the access point provided it can enter Enable mode. By default, SNMP is disabled and no SNMP Read/Write user exists.

If you installed the Infrastructure Server package with security disabled, Avalanche will add a public SNMP Read/Write user. If you installed the Infrastructure Server package with security enabled, Avalanche will add a SNMP Read/Write user with the same value as the Telnet user name. Avalanche will remove the public SNMP Read/Write user any time you enable its security features.

When you create Cisco IOS access privileges, it is helpful to remember the following:

- Avalanche will automatically add a Cisco/Cisco HTTP user. This user exists to manage any infrastructure that is in its factory default state. It is recommended that you do not delete these entries—doing so can result in Avalanche being unable to manage access points. If you decide to remove this user, you can add it back if you have problems accessing access points.
- If the SNMP Read/Write name is left at its default value (public), then Avalanche replaces it with the HTTP user name you defined.
- If you connect to access points using a Web browser, the **User Name** text box in the Web browser authentication dialog box corresponds to the infrastructure's Telnet user name. Similarly, the **Password** text box corresponds to the Telnet Enable password.

To define Cisco IOS access privileges:

1. In the **Profiles** tab, select the profile for which you are defining privileges.
2. Click **Edit**.
3. In the Device Access Privileges region, configure the privileges for the profile.

   If you modified the Cisco IOS infrastructure device so that its Telnet Enable password is not "Cisco," select the **TELNET** tab. Enter the Telnet Enable password that Avalanche requires and click **Add**.
4. Select the **HTTP** tab and click **Add**.
5. In the dialog box that appears, enter an HTTP user name and password. For Cisco IOS access points, this information is used as follows:
   - HTTP user name is used as the Telnet user name.
   - HTTP password is used as the Telnet and Telnet Enable passwords.

6 Enable the **Make This User a Cisco AP Administrator** checkbox to make the new account a Cisco AP administrator.

NOTE: If you have a mixed environment of VxWorks and IOS access points, this account will be used for both types of access points.

7 Save your changes.

Replacing Insecure Protocols and Default Passwords

From the Device Access Privileges region on the Infrastructure Server profile, you can configure the devices currently using Telnet to switch to SSH, and devices using SNMPv2 to use SNMPv3.

You can also specify replacement passwords for devices that are currently using the manufacturer default passwords for SNMPv2, Telnet, and SNMPv3.

The following table lists which devices support the options in the **Security** tab:

Devices	Replace Telnet with SSH	Replace SNMPv2 with SNMPv3	Replace Defaults for SNMPv2	Replace Defaults for Telnet	Replace Defaults for SNMPv3
Symbol WS 5100 V3.0+, RFS 6000, RFS 7000	yes	yes	yes	yes	yes
Symbol WS 2000	yes	no	yes	no	no
Symbol AP 7131, 51x1	yes	no	yes	no	no
Symbol AP 4131	yes (firmware 3.95-04 and later)	no	yes	password only	no
Symbol AP 4121	no	no	yes	password only (firmware 02.70-12 and later)	no
Cisco IOS	yes	no	yes	yes	no
Cisco VxWorks	no	no	yes	no	no
Proxim	yes	no	yes	password only	no
Avaya/SYSTIMAX	no	no	no	no	no

To change Telnet or SNMP settings:

1 In the **Profiles** tab, select the profile for which you are defining privileges.

2 Click **Edit**.

3 In the Device Access Privileges region, select the **Security** tab.

- If you want to change all Telnet communication to SSH, enable the **Enable secure protocols and disable insecure protocols** option. This will also change SNMPv2 to SNMP v3 on devices that support this feature.

NOTE: Disabling this check box after the settings have been applied will not enable Telnet or SNMPv2. If you want to revert to using Telnet or SNMPv2, you will need to change the device properties using the Infrastructure Site Console.

- If you want to change manufacturer default SNMP or Telnet credentials, enable the **Replace default SNMP and Telnet credentials** option, then type the new names/passwords in the appropriate text boxes.

NOTE: If you change the credentials on the **Security** tab, ensure you also change the credentials on the corresponding **Device Access Privileges** tab.

4 Save your changes.

The settings are applied the next time a device is queried after the settings have been deployed to the server.

Configuring Infrastructure Server Blackouts

To eliminate heavy bandwidth usage and control the flow of connections to the Enterprise Server, you can configure blackout windows. Blackout windows prevent the Infrastructure Servers from contacting the Enterprise Server. Configure blackout windows based on when and how often you want the Servers connecting to the Enterprise Server.

The Server Synchronization Blackout Windows region allows you to create blackout windows and displays all the blackout windows scheduled to occur.

To configure Infrastructure Server blackout windows:

1 In the **Profiles** tab, select the profile from the Profile List.

2 Click **Edit**.

3 In the **Infrastructure Server Profile** tab, find the Server Synchronization Blackout Windows region and click **Add**.

The *Add Blackout Window* dialog box appears.

4 Using the **Start Time** and **End Time** boxes, select the time of day when you want the blackout to occur.

5 Enable the days of the week on which you want the blackout to occur.

6 Click **OK**.

The blackout window appears in the list.

7 Save your changes.

Viewing Infrastructure Server Licensing Messages

The Avalanche Console receives licensing messages from the deployed Infrastructure Servers. You can view these messages from the *Device Server Licensing Messages* dialog box.

To view licensing messages:

1 From the **View** menu, select **Device Server License Messages**.

The *Device Server Licensing Messages* dialog box appears.

2 Click the **Group Location** column to list the messages by group location.

3 Click the **Device Server** column to list the messages by server.

NOTE: You can also view messages specific to a server by right-clicking the name of the server in the Navigation Window and selecting **Infrastructure Server Properties**.

Chapter 9: Managing Infrastructure Profiles

An infrastructure profile is a collection of settings that you can simultaneously apply to multiple infrastructure devices in order to manage your network setup. Each infrastructure profile is created for a specific hardware type. When the Infrastructure Server receives an infrastructure profile, each infrastructure device that reports to that server compares the hardware type configured for the profile. If the hardware and firmware listed in the profile match the device, the device uses the profile.

Use an infrastructure profile to schedule events such as a device reboot or turning the radio on or off.

NOTE: For information on the infrastructure devices and firmware supported by Avalanche, see Supported Firmware.

Consider the following information when managing infrastructure devices:

- From the **Infrastructure Inventory** tab, you can view which profile a particular infrastructure device is using. You can right-click any device to view advanced properties for the device, including details about the applied profile.
- Avalanche not only applies profile settings to devices—it also enforces these settings, preventing unauthorized modifications.
- Not all hardware types will support all the options in an infrastructure profile. Understand the options and limitations of your hardware.

This section provides information about the following topics:

- Creating Infrastructure Profiles
- Configuring Infrastructure Profiles
- Configuring Infrastructure Scheduled Events
- Configuring WLANs
- Configuring WLANs and EAP Settings for Aruba Devices
- Importing an Infrastructure Device Support File
- Adding Custom Properties for an Infrastructure Device
- Applying Infrastructure Profiles

Creating Infrastructure Profiles

Each infrastructure profile manages a specific hardware type. The profiles are distributed by the infrastructure server to the devices matching the profile's hardware type. The home location for the profile is the location that is selected in the Navigation Window when you create the profile.

To create an infrastructure profile:

1 From the **Profiles** tab, click **Add Profile**.

The Add Profile Wizard appears.

2 Select the **Infrastructure Profile** option and click **Next**.

3 Type a **Name** for the profile and set the status to either **Enabled** or **Disabled**. Click **Next**.

4 Select **Hardware Type** and **Firmware Version** from the drop-down lists and click **Next**.

5 Confirm that the information is correct and click **Finish**.

The profile is created and can be configured.

Configuring Infrastructure Profiles

You can configure infrastructure profiles as your network demands. Each infrastructure profile is created for a specific type of hardware and firmware. You can use selection criteria to further define which devices use the profile. For detailed information about using selection criteria, see Building Selection Criteria.

The **Authorized Users** button allows you to assign administrative privileges for a profile to a user that has Normal user rights and is not assigned permissions to profiles. This allows you to give a user permission for one specific profile. Users that have permission for the profile will not appear in the list of available users. For information about creating users and assigning permissions, see Managing User Accounts.

This section provides information about the following:

- Infrastructure General Settings
- Editing Advanced Properties

Infrastructure General Settings

In the **Infrastructure Profile** tab, you can edit the infrastructure profile name, status, and default WLAN ID based on the needs of your infrastructure.

The following table provides information about the infrastructure profile settings in the **General Settings** tab.

Field	Description
Name	Sets the name of the profile.
Status	Sets the status of the profile as either enabled or disabled.
Hardware Model	Displays the hardware type of the infrastructure device.
Firmware Version	Displays the firmware version for the infrastructure device.
Default WLAN ID	Sets the number of the default WLAN ID.
Authorized Users	Sets the users authorized to view, apply and edit the profile.
Use Legacy Management	Determines whether infrastructure settings are defined using the **Infrastructure Profiles** tab or the *Advanced Properties* dialog box. This option is not user-configurable.
Use 802.1Q Tagging	Determines whether to use 802.1Q tagging, the specification that establishes a standard method for tagging Ethernet frames with WLAN membership information.
Manage Infrastructure Using Secure Method	Determines whether the infrastructure device is managed using a secure method (such as SSH).
Edit Advanced Properties	This button allows you to configure advanced options for your infrastructure devices.

The **Manage Infrastructure Using Secure Method** option is only supported by the following infrastructure devices: Cisco IOS, Symbol 5131, and Symbol WS 2000.

To configure general settings for an infrastructure profile:

1 From the **Profiles** tab, select the profile from the Profile List.

2 Click **Edit**.

3 Ensure you are on the **Infrastructure Profile** tab.

4 To enable the profile, select **Enabled**.

5 Click **Authorized Users** to assign a Normal user permissions for the profile.

6 If you have created multiple WLANs, you can select the default WLAN ID for this profile.

7 Save your changes.

The infrastructure profile is enabled and can be assigned to a location.

Editing Advanced Properties

The types of advanced properties available for your infrastructure profiles depends on the infrastructure device manufacturer. While different devices share similar functionality, the properties that control the functionality vary from one manufacturer to another.

If you are creating composite profiles for devices other than Aruba devices, network settings will not appear in the advanced properties. Network settings for composite profiles are configured in the network profile. For information about creating network profiles see Creating Network Profiles. For more information about composite profiles, see Configuring WLANs.

To edit advanced properties:

1. From the **Profiles** tab, select the profile you want to configure from the list.
2. Click **Edit**.
3. In the **Advanced Settings** tab, click **Edit Advanced Properties**.

   The *Advanced Properties* dialog box appears.
4. Configure the available options as desired. Some options may only be available with certain types of hardware or firmware.
5. When you are finished making changes, click **OK** to return to the Avalanche Console.
6. Save your changes.

Configuring Infrastructure Scheduled Events

You can schedule the following events for your infrastructure devices through an infrastructure profile:

- Reboot
- Disable All Radios
- Enable All Radios
- Disable 802.11a Radio
- Disable 802.11b Radio
- Disable 802.11g Radio
- Enable 802.11a Radio
- Enable 802.11b Radio

- Enable 802.11g Radio

NOTE: Cisco (non-IOS) devices only support the reboot event.

To schedule an event through an infrastructure profile:

1 From the **Profiles** tab, select the profile you want to configure.

2 Click **Edit**.

3 In the **Scheduled Events** tab, click **New Event**.

The *Scheduled Event* dialog box appears.

4 From the **Event Type** drop-down list, select the event you want to schedule.

5 Depending on how often you want the event to happen, select:

- **One-Time Event** if you want the event to happen once.
- **Recurring Event** if you want the event to happen on a daily or weekly basis. If you select **Recurring Event**, configure how often and the day of the week when you want the event to occur.

6 Click the calendar icon to select the date and time you want the event to occur.

7 Click **OK** to close the *Scheduled Event* dialog box.

The event displays in the Scheduled Events list.

8 Save your changes.

If you need to edit an event, enter Edit Mode, select the event from the list, and click **Edit**.

Configuring WLANs

When an infrastructure profile and a network profile are combined for an infrastructure device, the result is a composite profile. This ties together the hardware/firmware settings and the network/wireless settings. The following steps are an overview of creating a composite infrastructure profile:

1 Create an infrastructure profile. (See Creating Infrastructure Profiles.)

2 Create a network profile containing all the network and wireless settings that you want to apply to the infrastructure devices. (See Creating Network Profiles.)

3 Create a WLAN that binds the network profile and infrastructure profile. (See below.)

4 Assign the network and infrastructure profiles to a location. (See Applying Profiles to Locations.)

5 Deploy the configurations by performing a server synchronization. (See Performing a Server Synchronization.)

You can configure the following WLAN settings:

- **Network Profile**. Select a specific network profile that binds to the infrastructure profile.
- **WLAN ID/Tag**. Enter the VLAN tag used for the 802.1Q standard.
- **Radio Type**. Select from A, B, or G type radios. If your device does not specify which type of radio it uses, select G.
- **Broadcast SSID**. Select whether to broadcast the SSID associated with the network profile. This allows the SSID to be visible to devices that are scanning the network.
- **Disallow Device to Device Communication**. Enable this option to prevent mobile devices from communicating directly with each other.

NOTE: If you are configuring a WLAN for Aruba devices, see Configuring WLANs and EAP Settings for Aruba Devices for information on additional configuration.

To configure a WLAN that binds an infrastructure profile and a network profile:

1 From the **Profiles** tab, select the infrastructure profile you want to configure.

2 Click **Edit**.

3 In the **Infrastructure Profile** tab, click **Add WLAN**.

The *Add WLAN* dialog box appears.

4 Configure the WLAN settings as desired.

5 Click **OK**.

The new WLAN appears in the WLAN Configuration list.

6 Save your changes.

Configuring WLANs and EAP Settings for Aruba Devices

Aruba devices require specific configuration for applying EAP settings and using composite profiles. This section provides information on the additional steps for managing Aruba devices. If you are configuring a composite profile for infrastructure devices other than Aruba devices, see Configuring WLANs.

EAP settings for Aruba devices must be configured through the Advanced Properties of an infrastructure profile. You should configure the WLAN before configuring EAP settings.

When you create a composite profile (or WLAN) for Aruba devices, you must use the Advanced Properties of an infrastructure profile to ensure the settings are deployed to the device.

NOTE: The Aruba controller uses multiple profiles that get tied together to form dependent relationships. These relationships complicate the process of deleting the profile properties, as profiles that are tied to other profiles cannot be deleted. Because of this, the Aruba controller may require multiple queries before the device fully conforms to Avalanche's infrastructure profile, as it removes the link after the initial query, and then removes the profile property following the subsequent query. Also note that before a Virtual AP profile can be removed, it must first be disassociated from the AP Group that employed it.

To configure a WLAN that binds an infrastructure profile and a network profile:

1 From the **Profiles** tab, select the infrastructure profile you want to configure.

2 Click **Edit**.

3 In the **Infrastructure Profile** tab, click **Add WLAN**.

The *Add WLAN* dialog box appears.

4 Configure the WLAN settings as desired.

5 Click **OK**.

The new WLAN appears in the WLAN Configuration list.

6 Click **Edit Advanced Properties**.

The *Advanced Properties* dialog box appears.

7 In the Properties list, expand **AP Configuration** and then select **AP Group**.

8 Enable the **Include this property in the profile** check box, type a name for the group in the **AP Group** text box, and click **Add**.

9 From the items that appear in the Properties list, select a Virtual AP.

10 Enable the **Include this property in the profile** check box and select a virtual AP from the drop-down list.

11 Save your changes.

To configure an Aruba infrastructure profile for EAP authentication:

1 From the **Profiles** tab, select the Aruba infrastructure profile.

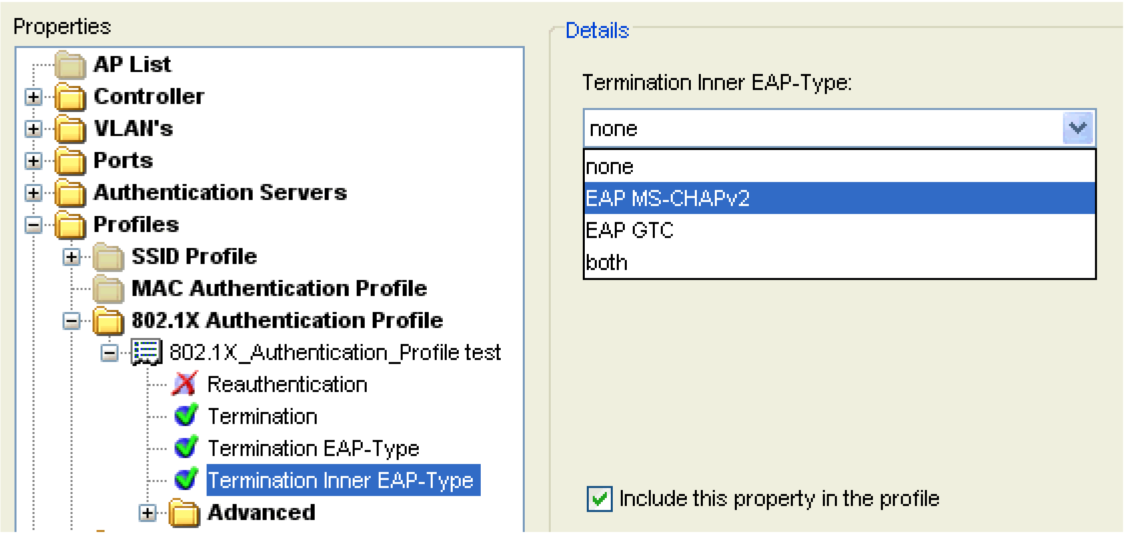
2 Click **Edit**.

3 In the **Infrastructure Profile** tab, click **Edit Advanced Properties**.

4 In the Properties list, expand **Profiles** and select **802.1X Authentication Profile**.

5 Enable the **Include this property in the profile** check box, type a name for the profile in the **802.1X Authentication Profile** text box, and click **Add**.

6 The new item appears in the Properties list. Configure the options as desired by selecting them in the Properties list, including them, and using the drop-down list. For example, if you want to use EAP with PEAP/MS-CHAPv2, set Termination to **enabled**, set the Termination EAP-Type to **EAP PEAP**, and set Termination Inner EAP-Type to **EAP MS-CHAPv2**.



Termination Inner EAP-Type: none

☑ Include this property in the profile

Advanced Properties for an Aruba Device (Authentication Profile)

7 In the Properties list, select **AAA Profiles**. (It is in the Profiles folder, below **802.1X Authentication Profile**.)

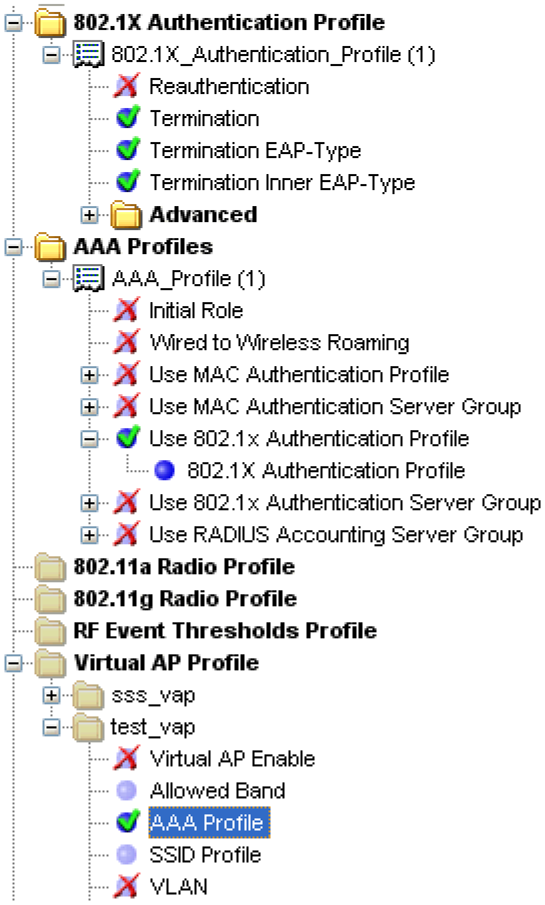
8 Enable the **Include this property in the profile** check box, type a name for the profile in the **AAA Profiles** text box, and click **Add**.

9 The new item appears in the Properties list. Select the **Use 802.1x Authentication Profile** option, include it, and select **Yes** from the drop-down list.

10 Expand the **Use 802.1x Authentication Profile** option and select **802.1X Authentication Profile**. From the drop-down list, select the profile you created in step 5.

11 In the Properties list, expand the **Virtual AP Profile** option.

12 Locate the Virtual AP that was created for the network profile and expand the folder. Select the AAA Profile option, include it, and select the name of the AAA Profile from the drop-down list.



```
⊟ 802.1X Authentication Profile
   ⊟ 802.1X_Authentication_Profile (1)
        ✗ Reauthentication
        ✓ Termination
        ✓ Termination EAP-Type
        ✓ Termination Inner EAP-Type
      ⊞ Advanced
⊟ AAA Profiles
   ⊟ AAA_Profile (1)
        ✗ Initial Role
        ✗ Wired to Wireless Roaming
      ⊞ ✗ Use MAC Authentication Profile
      ⊞ ✗ Use MAC Authentication Server Group
      ⊟ ✓ Use 802.1x Authentication Profile
             ● 802.1X Authentication Profile
      ⊞ ✗ Use 802.1x Authentication Server Group
      ⊞ ✗ Use RADIUS Accounting Server Group
  802.11a Radio Profile
  802.11g Radio Profile
  RF Event Thresholds Profile
⊟ Virtual AP Profile
   ⊞ sss_vap
   ⊟ test_vap
        ✗ Virtual AP Enable
        ○ Allowed Band
        ✓ AAA Profile
        ○ SSID Profile
        ✗ VLAN
```

Advanced Properties for an Aruba Device (Virtual AP Profile)

13 Click **OK** to close the dialog box.

14 Save your changes.

Importing an Infrastructure Device Support File

Extended Device Support files allow you to enable Avalanche to support a new infrastructure device. You must create a device support file for the new hardware/firmware, then import the file into Avalanche. Avalanche will use the support file to update the infrastructure device information.

> **NOTE:** For information about creating Extended Device Support files, see the *Extended Device Support Reference Guide* located on the Wavelink web site.

To import an infrastructure device support file:

1 Ensure you have created a device support file and saved it in a zip file with the device icons. Save this file on the same machine as the Avalanche Console.

2 From the Avalanche Console, click **File > Import > Extended Device Support**.

The *Extended Device Support* dialog box appears.

3 Click the **Import New Device** button.

The *Select Support File* dialog box appears.

4 Navigate to and select the `.zip` support file, then click **Select File**.

If the file import was successful, the device information appears in the Supported Extended Devices list. If the import was unsuccessful, a dialog box will indicate the reason the import failed. You can use this information to revise the support file as necessary.

NOTE: The support file does not include any device firmware. The firmware file must be imported separately. You can click on the **Remember to install the appropriate firmware** link to import it, or click **File > Import > Firmware Files**. For more information on importing firmware, see Importing Firmware.

5 If you want to remove a support file, select the file from the Supported Extended Devices list, and click **Remove**.

6 Click **Close** to exit the *Extended Device Support* dialog box and return to the Avalanche Console.

Once the support file and firmware have been imported and deployed to the infrastructure server, Avalanche will be able to support your device.

Adding Custom Properties for an Infrastructure Device

To add custom infrastructure device properties to new or existing devices, you must create a custom settings `.xml` file. For information about creating these files, see the *Extended Device Support Reference Guide* located on the Wavelink web site. After you create a custom settings file, import the file into Avalanche. Avalanche will use the file to update the infrastructure device information.

To add properties:

1 Ensure you have created a custom settings support file and know its location on your system.

2 From the Avalanche Console, select **File > Import > Custom Advanced Settings**.

The *Custom Advanced Settings* dialog box appears.

3 Click **Import New Setting**.

The *Select Custom Advanced Settings File* dialog box appears.

4 Navigate to and select the custom settings file and click **Select File**.

The file name appears in the Installed Custom Advanced Settings list.

5 If you want to remove a custom settings file, select the appropriate file from the Installed Custom Advanced Settings list and click **Remove.**

6 Click **Close** to exit the *Custom Advanced Settings* dialog box and return to the Avalanche Console.

Once you have finished importing your support and firmware files, you need to build a firmware package with the new files. The firmware package should then be deployed to your Servers. For information on building a firmware package, see Deploying Infrastructure Firmware.

Applying Infrastructure Profiles

Each infrastructure profile is created for a specific make, model, and firmware. Each infrastructure device can only receive one infrastructure profile. An infrastructure profile can be applied in three ways:

- At a location like other profiles. When a profile is applied at a location, it is applied to all infrastructure devices in the location that match the profile's make, model, and firmware. If there are multiple profiles for the device are applied to the location, the highest priority profile will be used.
- Directly to a specific device. When a profile is applied directly to a device, it will override the application of any other infrastructure profiles. If you want to apply an infrastructure profile on a device-by-device basis, you must apply the profile to the correct location first.
- As a default profile for all devices of the same hardware model for a location. A default infrastructure profile can be used to change the firmware version on all devices matching the make and model of the profile. A default profile will override other profiles applied to the location, but will not override a profile applied directly to the device.

This section contains the following information:

- Applying an Infrastructure Profile to a Location
- Applying an Infrastructure Profile to a Device
- Setting a Default Profile for Specific Hardware

Applying an Infrastructure Profile to a Location

When you apply an infrastructure profile to a location, the profile is normally applied to all devices that match the hardware and firmware types specified in the profile.

When you apply an infrastructure profile to a region or server location, you have the following options:

Default profile for matching hardware Applies the profile to all devices matching the hardware model for the profile. If you set a profile as the default profile, all devices matching the hardware type will use the firmware specified in the default profile. For more information, see Setting a Default Profile for Specific Hardware.

Don't auto-apply profile Enables the profile for application on a device-by-device basis. The profile will only be applied to devices that you manually assign it to. For more information, see Applying an Infrastructure Profile to a Device.

To apply a profile to a location:

1. Select the location where you want to apply the profile from the Navigation Window.
2. Select the **Properties** tab.
3. Click **Add** on the **Applied Profiles** tab.
4. From the list that appears, select the profile you want to apply and click **OK**.
5. The *Infrastructure Profile Application* dialog box appears.
6. Enable the desired options and click **OK**.
7. Save your changes.

   The assigned profile will be deployed when you perform a deployment.

Applying an Infrastructure Profile to a Device

Apply an infrastructure profile to devices on a device-by device basis. The profile will be applied only to the devices that you manually apply it to.

If you want to apply an infrastructure profile on a device-by-device basis, you must first apply the profile to a location and select the **Don't auto-apply profile** option.

To apply a profile to a device:

1. From the Infrastructure Inventory tab, right-click the device you want to apply the profile to.
2. Click **Apply Profile**.
3. From the list that appears, select the profile you want to apply and click **OK**. The list will display all infrastructure profiles available on the infrastructure server.
4. The *Infrastructure Profile Application* dialog box appears.

5 Enable the desired options and click **OK**.

6 Save your changes.

The assigned profile will be deployed when you perform a deployment.

Setting a Default Profile for Specific Hardware

When you have multiple infrastructure devices that are the same model but are using different firmware, Avalanche allows you to standardize the firmware type. You can set a profile as the default for that hardware, and all devices matching the hardware type will use the firmware specified in the default profile.

NOTE: The firmware must be made available at the Infrastructure Server in order to apply a default profile for specific hardware.

This option is not supported by all access points.

To set a default profile for specific hardware:

1 Create an infrastructure profile for the hardware, specifying the type of firmware you want all the devices of that hardware type to use. For information on creating an infrastructure profile, see Creating Infrastructure Profiles.

2 Select the location where you want to apply the default profile from the Navigation Window.

3 From the **Region Properties** tab, click **Add** on the **Applied Profiles** tab.

The *Applied Profiles* dialog box appears.

4 Select the infrastructure profile from the list and click **OK**.

The *Infrastructure Profile Application* dialog box appears.

5 Enable **Default profile for matching hardware** and click **OK**.

The profile becomes the default infrastructure profile for that type of hardware.

Chapter 10: Managing Infrastructure Devices

Infrastructure devices can be managed through the Infrastructure Inventory. This tab displays a list of infrastructure devices and details about them. You can page through or filter the devices displayed in the list. For information on paging through or filtering the list, see Managing Device Inventory Displays.

The device list in the Infrastructure Inventory shows a set or subset of infrastructure devices based on the currently selected location. When you select a particular location, the devices that are associated with that location appear in the list. The following information is provided for each device:

Name The official name of the device.

Manufacturer The manufacturer of the device. If a device is on your network but not being managed by Avalanche, this column will display **Rogue**. If a device is detected but is not on your network, this column will display **Foreign**.

Model Name The model of the device. If the device is rogue or foreign, this column will display **AP**.

Firmware The version of firmware currently running on the device.

IP Address The IP address of the device.

Mac Address The MAC address of the device.

Last Contact The last time the device was in contact with the infrastructure Server.

Status Indicates the current status of the device.

Sync State A green circle with a check indicates that the device is up and running. A red X indicates there is an issue with the device.

Profile Indicates whether the profile assigned to the device is composite.

Extra Information Lists information such as profiles applied, associated mobile devices, or other details of the device.

NOTE: Infrastructure devices are added using the Infrastructure Site Tool. In addition to devices using Supported Firmware, Avalanche can manage devices that conform to the MIB-II standard as generic devices. Generic devices will have limited support or information available.

You can perform the following tasks to manage infrastructure devices:

- Querying an Infrastructure Device
- Pinging an Infrastructure Device
- Resetting Access Points
- Connecting by Web Browser or Telnet
- Assigning an Infrastructure Device to a Location
- Deleting Infrastructure Devices
- Viewing Composite Profiles
- Viewing Advanced Properties
- Viewing Related Devices
- Updating Infrastructure Device Firmware

NOTE: All tasks except viewing related devices are available for both switches and access points.

You cannot perform any of these tasks for an access port except Viewing Related Devices and Deleting Devices.

Querying an Infrastructure Device

When a query occurs, an infrastructure server updates the statistical data and configuration settings of an infrastructure device. These queries occur at specific intervals—either an interval that you established for the server, or the default interval of once every 10 minutes.

Occasionally you might want to force a server to query a device—for example, if you want a specific configuration change to become effective immediately.

To query a device:

1 Right-click the desired device from the **Infrastructure Inventory** tab.

2 Select **Query** from the context menu.

The Server updates the device statistical data and configuration settings with the latest information. You can view this information in the Device Information section located at the bottom of the screen.

Pinging an Infrastructure Device

You can ping infrastructure devices from the Avalanche Console. This feature indicates whether the device is active or not.

NOTE: Since the ping is sent from the Infrastructure Server, there does not need to be a valid network path from the Console to the device.

To ping a device:

1 Right-click the device from the **Infrastructure Inventory** tab.

2 Select **Ping** from the context menu.

The **Status** column in the display window will indicate whether the device could be reached.

Resetting Access Points

There are two options for resetting access points: a normal reset that reboots the device and a reset to factory settings.

If the **Retain IP Address** factory reset mode is available, Avalanche will attempt to use it so that communication is not disrupted after the factory reset. However, some devices reset their IP addresses. This is mainly an issue for devices assigned a static IP address. Factory reset should only be used if you are certain the device will return with a valid IP address or if you have physical access to the device and can reconfigure it using factory-specific methods.

If you are using a DHCP server during a factory reset, some devices may adopt a different DHCP IP address and a network search may be required to find them.

NOTE: You cannot reset Symbol access points to factory defaults if a router, or any network equipment that blocks layer 2 protocols, exists between the Server and the access points.

To reset an access point:

1 Right-click the name of the access point from the **Infrastructure Inventory** tab.

2 Select **Reset** from the context menu.

A dialog box appears, asking you to confirm that you want to reset the device.

3 Click **Yes**.

The Server resets the access point. While the device resets, its status appears as **Resetting.**

To reset an access point to its factory defaults:

1 Right-click the device point from the **Infrastructure Inventory** tab and select **Reset Factory** from the context menu.

   A dialog box appears, asking you to confirm that you want to reset the device.

2 Click **Yes**.

The Server resets the device to the factory default settings of its current firmware. While the device resets, its status appears as **Reset Factory.**

Connecting by Web Browser or Telnet

Most device manufacturers provide the ability to configure their access points through a Web browser. You can access the Web interface for any access point that appears in the **Infrastructure Inventory** tab.

You can select to connect through HTTP or HTTPS based on what you have enabled on your device.

To connect to an access point through a Web browser:

1 Right-click the device from the **Infrastructure Inventory** tab and select **Connect to device using**.

2 From the menu that appears select **HTTP**, **HTTPS**, or **Telnet** based on the method you want to use to connect.

   - If you are using HTTP or HTTPS, Avalanche automatically launches the default Web browser for your host system to display the Web interface for the device.
   - If you are using Telnet, a Telnet connection opens to that device.

Deleting Infrastructure Devices

You can delete devices from the Infrastructure Inventory. This removes the device from the **Infrastructure Inventory** tab and releases the license that device was using. After a device is deleted and the infrastructure server updated, the device will disappear from the inventory. However, if the device is still connected to the network, then it may be immediately rediscovered.

From the Java Console, you also have the option to exclude an infrastructure device. When a device is excluded, it will be permanently removed from the Infrastructure Inventory. An excluded device will not be rediscovered. If you decide you want to view devices that have been excluded, you can reset the excluded device list to allow discovery of those devices again.

To delete a device:

1. In the **Infrastructure Inventory** tab, right-click the device you want to delete and select **Delete**.

   A dialog box appears asking if you are sure you want to remove the device.

2. Select **Yes**.

   The device will disappear from the inventory the next time the infrastructure server is updated.

To exclude a device:

- In the **Infrastructure Inventory** tab, right-click the device you want to exclude and select **Exclude device**.

  The infrastructure server or servers in the currently selected location will disregard the IP address of the specified device.

To clear the excluded device list:

- In the Navigation Window, right-click the server location or infrastructure server and select **Clear excluded device list**.

  The exclusion list will be cleared for the server or servers and the discovered devices will appear in the Infrastructure Inventory.

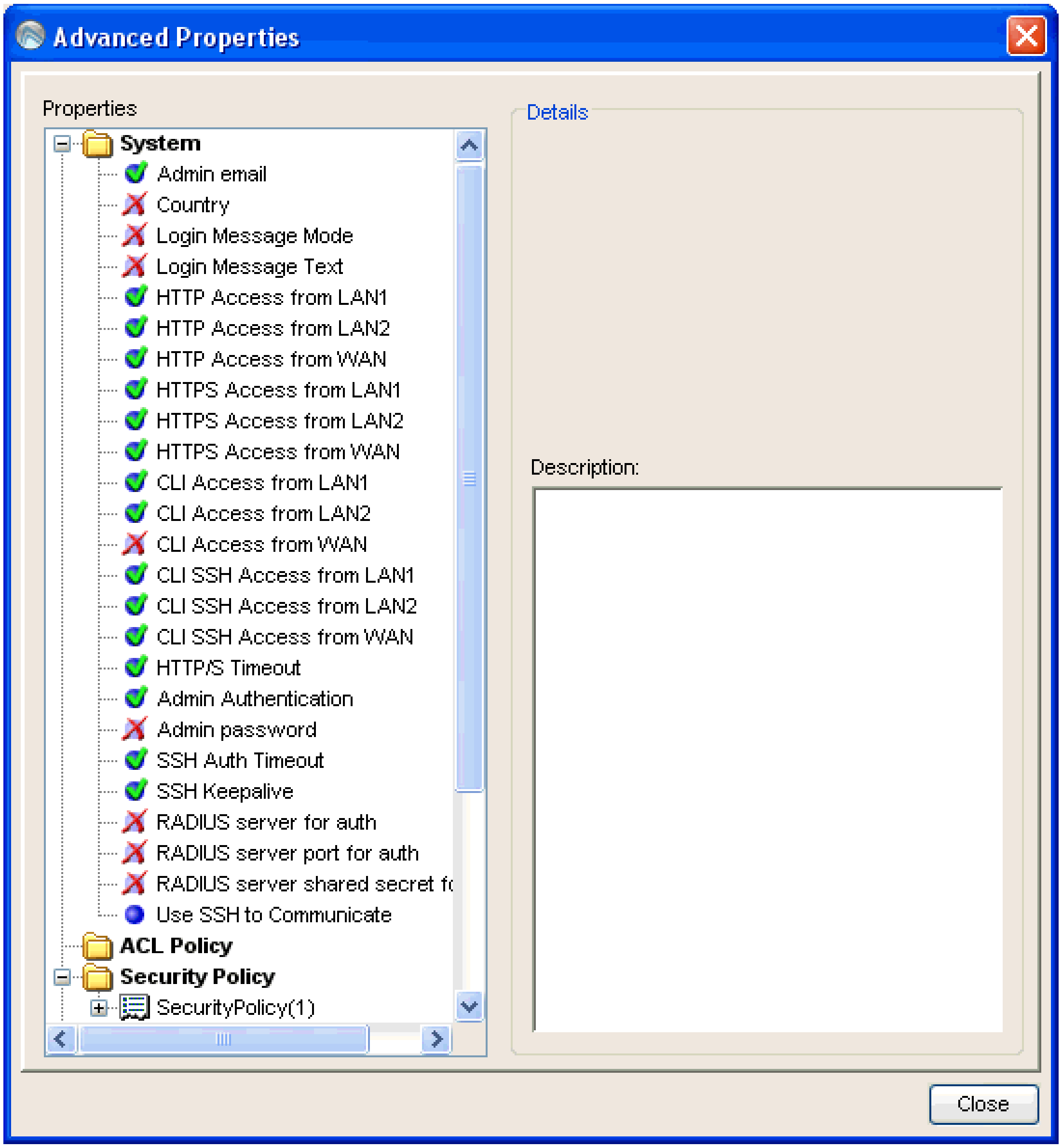
Viewing Composite Profiles

The composite profile view displays the combination of applied infrastructure and network profiles on a device. View the composite profile for devices from the Infrastructure Inventory, but any changes must be made from the profiles.

To view composite profile information:

- In the **Infrastructure Inventory** tab, right-click the device you want to view and select **View Composite Profile**.

  An *Advanced Properties* dialog box will appear, allowing you to view the information about the composite profile and advanced settings on the device.



Composite Profile Information

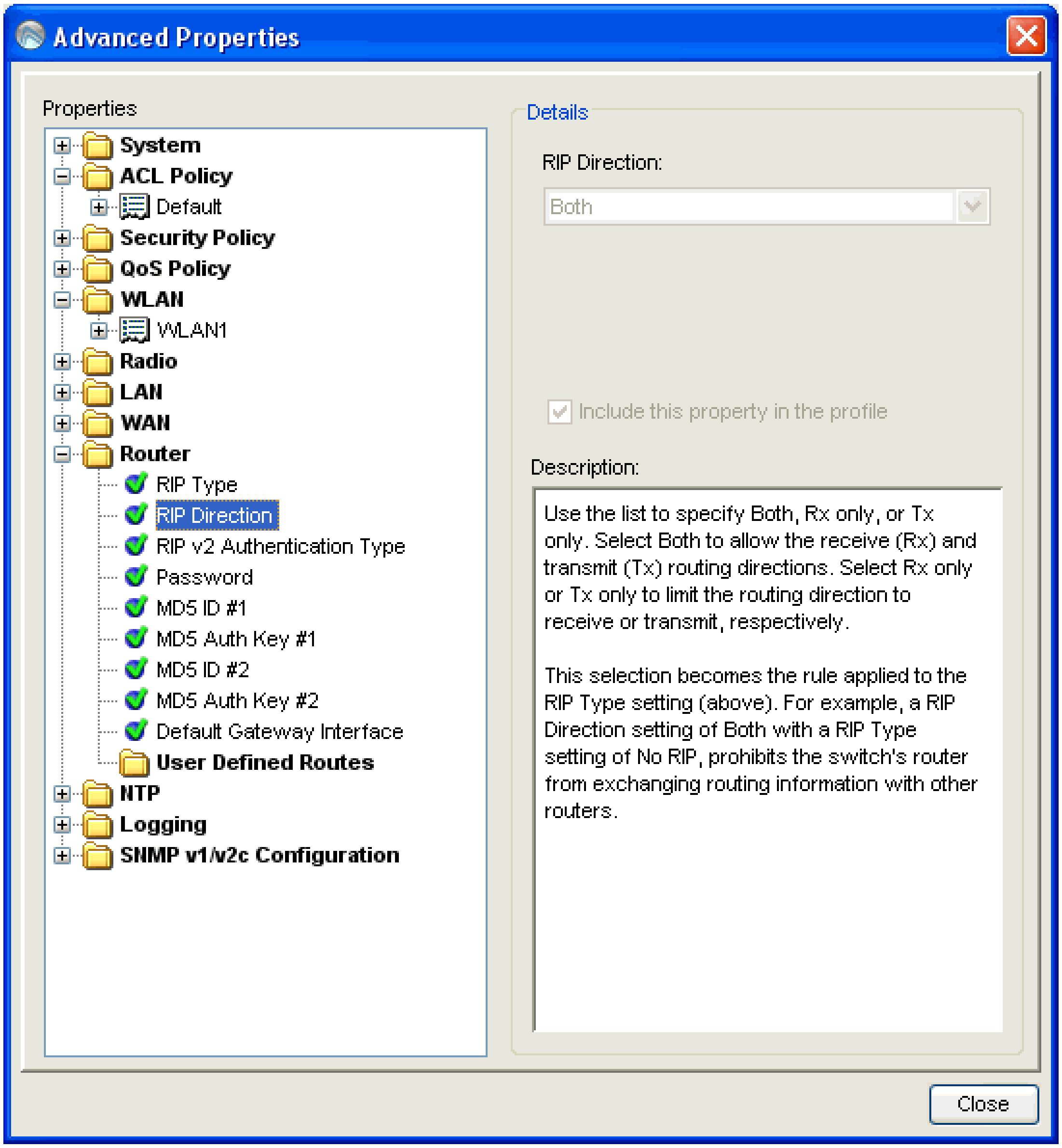
Viewing Advanced Properties

The advanced properties view shows the properties currently on the selected device. You can view the advanced properties for infrastructure devices from the Infrastructure Inventory, but any changes you want to make must be made in the infrastructure profile.

To view advanced properties:

- In the **Infrastructure Inventory** tab, right-click the device you want to view and select **View Advanced Properties**.

  An *Advanced Properties* dialog box appears.



RIP Direction: Both

☑ Include this property in the profile

Description:

Use the list to specify Both, Rx only, or Tx only. Select Both to allow the receive (Rx) and transmit (Tx) routing directions. Select Rx only or Tx only to limit the routing direction to receive or transmit, respectively.

This selection becomes the rule applied to the RIP Type setting (above). For example, a RIP Direction setting of Both with a RIP Type setting of No RIP, prohibits the switch's router from exchanging routing information with other routers.

Advanced Properties

Viewing Related Devices

When working with a switch or access port, you can view the infrastructure devices associated with it.

To find the related devices:

- In the **Infrastructure Inventory** tab, right-click an access port or switch and select **Find related**.

  The Infrastructure Inventory displays the related devices.

Assigning an Infrastructure Device to a Location

Infrastructure devices can be assigned to a group location using the Avalanche Console.

To assign infrastructure devices to a location:

1 In the **Infrastructure Inventory** tab, right-click a device and select **Assign to Group Location**.

The *Select Group Location* dialog box appears.

2 From the list, select the group location you want the device assigned to and click **Select**.

NOTE: The server locations only show in the list to provide reference; you cannot assign a device to a server location.

The device appears in the inventory for the selected location.

Updating Infrastructure Device Firmware

Firmware is installed on infrastructure devices and determines what sort of properties and features that an infrastructure device supports. Avalanche supports a wide range of firmware for many different types of infrastructure devices.

When you first deploy an Infrastructure Server to a server location, you specify a selection of firmware that the server supports. If you want to expand this selection, you can do so at any time by deploying the firmware to the server. To update the firmware on a device, deploy the new firmware to the server and then use Avalanche to update the firmware on the device.

To support as many firmware versions as possible, Avalanche interacts with infrastructure devices in either full support mode or compatibility mode. In full support mode, when the server has the same firmware that is on the device, the server is able to retrieve and set most of properties for that infrastructure device. In compatibility mode, when the server is able to use a close match to the firmware that is on the device, the server retrieves and sets as many of the device’s properties as possible. If neither mode is available for the firmware, the Avalanche does not manage the infrastructure device until the firmware version is changed.

NOTE: For a list of firmware supported by Avalanche, see Supported Firmware.

This section contains the following information:

- Importing Firmware
- Manually Adding Firmware
- Creating Firmware Packages

- Updating Firmware on the Infrastructure Device

Importing Firmware

Avalanche does not include firmware files; however, you can import the firmware through the **Manage Firmware** utility. You must have downloaded the firmware files from either the manufacturer or from Wavelink.

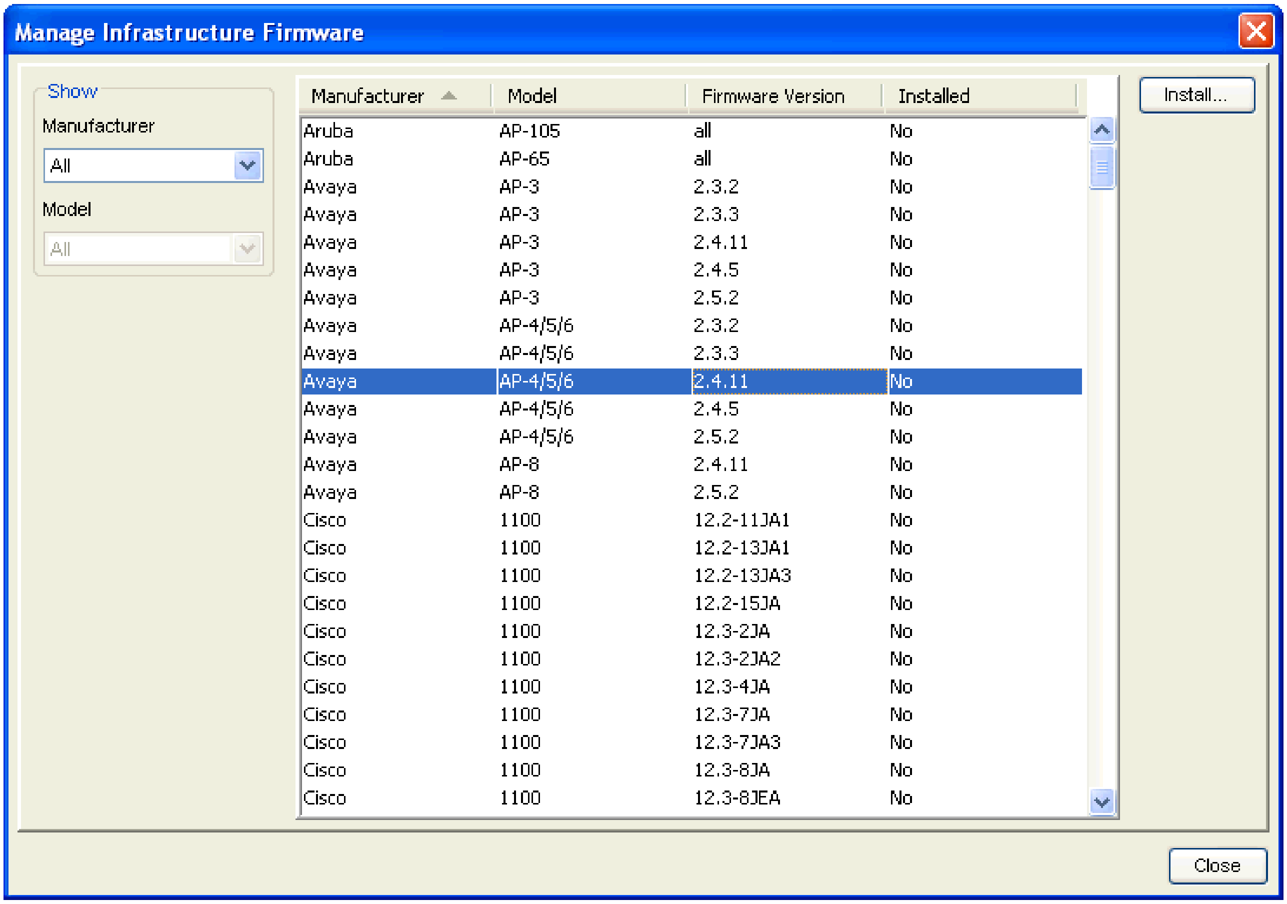
You can also re-install firmware that has already been installed. When you attempt to do this, the Console will remind that you that you are overwriting the existing installed firmware.

To import firmware:

1 Ensure you have downloaded the firmware files and know the location of the files.

2 From the **File** menu, select **Import > Firmware Files**.

The *Manage Infrastructure Firmware* dialog box appears. This dialog box displays the manufacturer, model, version and whether the firmware has been installed.



Manufacturer: All

Model: All

Manufacturer	Model	Firmware Version	Installed
Aruba	AP-105	all	No
Aruba	AP-65	all	No
Avaya	AP-3	2.3.2	No
Avaya	AP-3	2.3.3	No
Avaya	AP-3	2.4.11	No
Avaya	AP-3	2.4.5	No
Avaya	AP-3	2.5.2	No
Avaya	AP-4/5/6	2.3.2	No
Avaya	AP-4/5/6	2.3.3	No
Avaya	AP-4/5/6	2.4.11	No
Avaya	AP-4/5/6	2.4.5	No
Avaya	AP-4/5/6	2.5.2	No
Avaya	AP-8	2.4.11	No
Avaya	AP-8	2.5.2	No
Cisco	1100	12.2-11JA1	No
Cisco	1100	12.2-13JA1	No
Cisco	1100	12.2-13JA3	No
Cisco	1100	12.2-15JA	No
Cisco	1100	12.3-2JA	No
Cisco	1100	12.3-2JA2	No
Cisco	1100	12.3-4JA	No
Cisco	1100	12.3-7JA	No
Cisco	1100	12.3-7JA3	No
Cisco	1100	12.3-8JA	No
Cisco	1100	12.3-8JEA	No

Manage Infrastructure Firmware

3 In the **Show** area, sort the firmware list by **Manufacturer** and **Model** (if necessary).

4 Select the firmware you want to install and click **Install**.

A *Select Source Folder* dialog box appears and displays the firmware file name in the **File of type** text box.

5 Navigate to the folder that contains the firmware file and click **Select**.

If the folder contains all the necessary firmware files then the files will be moved to the Enterprise Server `deploy\firmware` folder. If the folder does not contain the firmware (or the support file, if one was specified by the Wavelink index), the Console displays an error message.

A success message appears when the import completes. The new firmware is also available to deploy to Infrastructure Servers. When you create a firmware package, you will be able to select and bundle the added firmware to the firmware package.

NOTE: There is currently no supported method of un-importing firmware.

Manually Adding Firmware

In addition to importing firmware files, you have the option of manually dropping firmware binary files into the “firmware” directory.

If the firmware files are pre-coded in the existing available firmware list, Avalanche will recognize the files within 10 minutes and update the firmware package wizard. An alert is generated when the system detects these firmware files. Avalanche will not recognize any firmware file names that do not already exist in the list of supported firmware.

To manually add firmware to Avalanche:

1 Obtain the firmware binary files from the device manufacturer.

2 Place these folders in the Avalanche firmware folder located in the installation directory. The default location is: `C:\Program Files\Wavelink\AvalancheMC\deploy\firmware`

3 Wait approximately 10 minutes for Avalanche to update with the new firmware information. An alert will appear and display information about the newly added firmware.

-Or-

Stop and restart the Enterprise Server to force Avalanche to update immediately.

The new firmware will be available to deploy to Infrastructure Servers. When you create a firmware package, you will be able to select and bundle the added firmware to the firmware package.

Creating Firmware Packages

An Avalanche firmware package is a collection of files that allow Servers to support the software installed on infrastructure devices. You can create a firmware package to contain as many firmware versions as you need; however, it is important to remember that the larger the firmware package, the longer it takes to send to a server location.

To create a firmware package:

1 Click **Tools > Deployment Packages**.

The *Deployment Package Manager* dialog box appears.

2 Click **Add**.

The *New Package Wizard* dialog box appears.

3 Enable **Create a Firmware Update Package** and click **Next**.

The Select Infrastructure Firmware Support screen appears. This screen contains a collection of folders, with each folder representing a specific type of infrastructure device.

Enable the **Only show available firmware binaries included on server** if you want only the available firmware files to be displayed in the list.

NOTE: If this option is not enabled, you will see a list of all supported firmware.

To select firmware, open the appropriate folder. A list of available firmware versions appears. Enable the checkbox next to the firmware name. You can select any number of firmware versions from each folder.

If you have not imported any firmware, click the **Import New Firmware** button. This directs you to the **Firmware Import** dialog box. For more information on importing firmware, see Importing Firmware.

4 Once you enable your selections in the *Select Infrastructure Firmware Support* dialog box, click **Next**.

The Enter Package Name screen appears.

5 Type the name of the package in the **Package Name** text box and click **Next**.

Avalanche begins to create the deployment package. When it is finished, a Package Complete screen appears.

6 Click **Finish**.

Avalanche returns you to the *Deployment Package Manager* dialog box. You can now create a new package, edit a package, or delete a package as needed. Once you create a firmware package, you must deploy it to your servers. For information about deploying firmware packages, see Deploying Infrastructure Firmware.

Updating Firmware on the Infrastructure Device

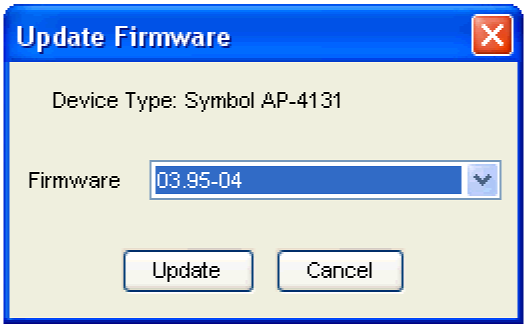
You can remotely update the firmware of an infrastructure device as long as the firmware is available at the Infrastructure Server.

NOTE: Firmware can also be upgraded across multiple access points simultaneously using the **Default Profile for Hardware** feature of infrastructure profiles (for access points that support this capability).

To update the firmware:

1 Right-click the device from the **Infrastructure Inventory** tab and select **Update Firmware**.

The *Update Firmware* dialog box appears.


Update Firmware

Device Type: Symbol AP-4131

Firmware 03.95-04

The Update Firmware Dialog Box

2 Select the firmware you want to install on your access points from the **Firmware** list.

NOTE: If there is no firmware available at the Server, the drop-down list will be empty.

3 Click **Update** to update the firmware of your device.

During firmware upgrade the status appears as **Updating Firmware**.

Chapter 11: Managing a Very Large Access Control List

Infrastructure devices support a feature called the Access Control List. This list contains the MAC addresses of devices that are allowed to access your wireless network. Only the mobile devices that are on an Access Control List can communicate with your network through an infrastructure device. However, Access Control Lists are limited in the number of MAC addresses they can contain.

Avalanche uses a Very Large Access Control List (VLACL), which can contain an unlimited number of MAC addresses. This list is similar to the Access Control List, but it is stored on the infrastructure server instead of an individual access point. With the Very Large Access Control List enabled, the infrastructure devices check with the infrastructure server to know which mobile devices are allowed to access to the network.

NOTE: Mobile devices connecting to a Cisco-Aironet infrastructure device can connect regardless of whether their MAC addresses are listed in the device's Access Control List. However, the infrastructure device does not forward any information to the network unless the mobile device is listed in the Access Control List.

By default, the Very Large Access Control List is disabled, allowing any mobile device to connect. After you create and enable a Very Large Access Control List, it must be deployed to the Infrastructure Server. For information about universal deployments, see Performing a Server Synchronization.

This section contains information about the following topics:

- Adding Very Large Access Control List Entries
- Modifying Very Large Access Control List Entries
- Exporting and Importing a Very Large Access Control List

Adding Very Large Access Control List Entries

The Avalanche Console allows you to add as many mobile device MAC addresses to the Very Large Access Control List as your network demands.

To add a MAC address:

1 From the **Tools** menu, select **Access Control**.

The *Very Large Access Control List* dialog box appears.

2 Enable the **Enable Very Large Access Control List** option.

3 Click **Add**.

The *VLACL Entry* dialog box appears.

4 Type the MAC address for the mobile device in the **MAC Address** text box.

5 Type a name for the mobile device in the **Name** text box.

6 Click **OK**.

The MAC address appears in the Very Large Access Control List.

7 Click **Add** to enter an additional MAC address, or click **OK** to return to the Avalanche Console.

Modifying Very Large Access Control List Entries

After you build a Very Large Access Control List, you can modify entries by changing the device names. You cannot change the MAC address. To make MAC address changes, you need to remove the entry from the list and then recreate an entry with the updated information.

To modify the name of a Very Large Access Control List entry:

1 From the **Tools** menu, select **Access Control**.

The *Very Large Access Control List* dialog box appears.

2 Select an entry from the **Very Large Access Control List**.

3 Right-click the entry and select **Rename** from the menu that appears.

A cursor appears within the name column for the entry.

4 Type the new name.

5 Press **Enter**.

The Very Large Access Control List updates to display your changes.

6 Click **OK**.

To delete a Very Large Access Control List entry:

1 From the **Tools** menu, select **Access Control**.

The *Very Large Access Control List* dialog box appears.

2 Select an entry from the **Very Large Access Control List**.

3 Click **Delete**.

The Avalanche Console deletes the entry from the Very Large Access Control List.

4 Click **OK** to return to the Avalanche Console.

Exporting and Importing a Very Large Access Control List

You can import and export entries for the Very Large Access Control List using comma-delimited text files (either .csv or .txt files). These import and export commands allow you to save records of entries for backup purposes.

When you export a Very Large Access Control List file, the file must be either a `.csv` or `.txt` file. If you want to import a Very Large Access Control List file, you must ensure that the comma-delimited text file is in the correct format. This format is as follows:

- `[MAC Address], [Device Name]`

NOTE: The preceding format is required for both .txt and .csv files. The MAC addresses must have a colon separating the octets. You can add as many MAC addresses as necessary to the comma-delimited file as long as each entry complies with this format.

To export a Very Large Access Control List file:

1 From the **Tools** menu, select **Access Control**.

The *Very Large Access Control List* dialog box appears.

2 Click **Export**.

A *Save* dialog box appears.

3 Navigate to where you want to save the Very Large Access Control List text file, type a name for the file, and select the file type from the **Files of type** drop-down list.

4 Click **Save**.

To import a Very Large Access Control List file:

1 From the **Tools** menu, select **Access Control**.

The *Very Large Access Control List* dialog box appears.

2 Click **Import**.

An *Open* dialog box appears.

3 Locate and select the file.

4 Click **Open**.

The *Very Large Access Control List* dialog box updates to display the added entries.

5 Click **OK** to return to the Avalanche Console.

Chapter 12: Managing a Mobile Device Server

A Mobile Device Server is server software that lets you remotely manage and configure mobile devices.

Through a Mobile Device Server profile, Avalanche allows you to manage the following settings for your mobile device servers and mobile devices:

- **Administrative Settings**. These settings include server resources, licensing, user files, data collection and terminal ID generation.
- **Connection Settings**. You can configure when the servers and devices are allowed connections and how connections should be established.
- **Security Settings**. Avalanche supports encryption and authentication methods to help keep your information secure and prevent unauthorized mobile devices from accessing your network.

This section provides information about managing mobile device servers. It contains the following tasks:

- Creating and Configuring a Mobile Device Server Profile
- Viewing Mobile Device Server Licensing Messages
- Reinitializing the Mobile Device Server
- Retrieving Mobile Device Log Files

Before you can manage a Mobile Device Server, you must create a server deployment package and deploy the server to the desired location. For information on building server deployment packages, installing a device server, starting or stopping a server, or viewing server properties and status, see Managing Device Servers.

Creating and Configuring a Mobile Device Server Profile

A Mobile Device Server profile allows you to configure logging, device connections, secondary server support, updates and other settings for the mobile device server. A mobile device server profile can have its status set to enabled or disabled. The profile should be enabled before you can apply it. The home location for the profile is the location you have selected when you create the profile.

To create a mobile device server profile:

1 From the **Profiles** tab, click **Add Profile**.

The Add Profile Wizard appears.

2 Select the **Mobile Server Profile** option and click **Next**.

3 Type a **Name** for the profile and set the status to either **Enabled** or **Disabled**. Click **Next**.

4 Confirm that the information is correct and click **Finish**.

The profile is created and can be configured.

Configure the following settings for a mobile device server:

- Mobile Device Server Profile General Configuration
- Configuring Blackouts
- Restricting Simultaneous Device Updates
- Scheduling Profile-Specific Device Updates

The **Authorized Users** button allows you to assign administrative privileges for a profile to a user that has Normal user rights and is not assigned permissions to profiles. This allows you to give a user permission for one specific profile. Users that have permission for the profile will not appear in the list of available users. For information about creating users and assigning permissions, see Managing User Accounts.

Mobile Device Server Profile General Configuration

The general settings for a mobile device Server profile include security, terminal IDs, logging, licenses, secondary servers, and settings for how the server handles mobile device information.

Server Security

Avalanche supports encryption and authentication methods to prevent unauthorized mobile devices from accessing your network.

Avalanche offers two options for encryption:

Transport Encryption Matches the level of encryption with the capacity of the mobile device. Communication between the Mobile Device Server and mobile devices will be encrypted to the degree possible.

Strict Transport Encryption Uses AES encryption for information. Only devices that support AES encryption (Enabler 5.0 or newer) will be able to connect to the server when strict transport encryption is enabled.

Avalanche offers two options for authentication:

Mobile Device Authentication Requires mobile devices to initially connect to the server through a serial connection (RS232) and receive an authentication key. When you enable this option, the Mobile Device Server will challenge any device attempting to connect to the server for a password. If the mobile device does not have the correct password, the Mobile Device Server will not allow a TCP/IP connection.

If an environment involves mobile devices roaming from one server to another, it is strongly recommended that you do **NOT** activate mobile device authentication.

Server Authentication Forces mobile devices to communicate with a single known server. Mobile devices must first connect to the network through a serial connection (RS232) to receive information about the server with which they are allowed to communicate. When you enable this option, the mobile device will challenge any Mobile Device Server attempting contact for a password. If the Mobile Device Server does not have the correct password, the mobile device will not allow a TCP/IP connection.

Both authentication options require mobile devices to connect to the network through a serial connection to receive authentication information before they will be allowed to connect wirelessly. Authentication passwords are set through a dialog box. This dialog box appears when the options are first enabled, or you can click **Set Password** next to the desired authentication option.

Server Resources

A Mobile Device Server profile allows you to configure the following aspects of server resources:

Reserved Serial Ports Configures a Mobile Device Server to automatically listen for mobile devices using the serial ports on a remote system. Only one application on a host system can maintain ownership of a serial port. If the Mobile Device Server controls the serial ports on the host system, then no other application will be able to use them. Likewise, if another application on the host system (for example, Microsoft ActiveSync) has control of the serial ports, then the Mobile Device Server will not be able to use them. If you list more than one port, separate them with semicolons. For example: `COM1;COM2`

Serial connections are required to implement Mobile Device and Server Authentication methods.

Terminal ID Range The Mobile Device Server assigns each device a terminal ID the first time that the device communicates with the Mobile Device Server. The number the Mobile Device Server selects is the lowest number available in a range of numbers you can configure.

You also have the option to use a C-style format to create a template for the terminal ID range. For example, `Seattle-%d` would generate IDs such as `Seattle-4`, and `Seattle-%05d` would generate IDs such as `Seattle-00004`.

To change a terminal ID that has already been assigned to a device, click **Edit Terminal ID** on the **Properties** tab of the *Mobile Device Details* dialog box.

Logging The current Avalanche log file is saved as `Avalanche.log` to the `<Avalanche Installation Directory>\Service` directory. Once the current log file reaches the maximum size, it is saved as `Avalanche.log.<num>` (where `<num>` is a number between 000 and 999), and a new `Avalanche.log` file is created.

The following logging options are available on a Mobile Device Server:

Critical. Writes the least information to the log file, reporting only critical errors that have caused the Mobile Device Server to crash.

Error. Writes errors that are caused by configuration and/or communication problems as well as and Critical messages to the log file.

Warning. Writes Critical messages, Error messages, and indicates possible operational problems in the log file.

Info. The recommended logging level. This logging level documents the flow of operation and writes enough information to the log file to diagnose most problems.

Debug. Writes large amounts of information to the log file that can be used to diagnose problems.

Max Log Size. Specifies the maximum size (in kB) of the log file before beginning a new file.

Avalanche Licensing

A Mobile Device Server profile has the following licensing options:

Release Device licenses after _ days of inactivity Sets how long the Mobile Device Server will wait before it returns a license for an inactive device to the pool of unused licenses.

Enable Fast-Expiration Allows the server to terminate the license lease after the specified time period without contacting the device. If this option is disabled, the server will attempt to contact any devices that have not communicated with the server in the configured time period. If the device does not respond, the license lease will be terminated.

Secondary Servers

You can configure the following connection settings:

Enable Secondary Server Support Authorizes the mobile device to attempt to connect a secondary Mobile Device Server if the primary server is not available. You can click on the **Secondary Servers** button to configure the list of secondary servers and their addresses/hostnames.

Override Connection Timeout Settings The Mobile Device Server profile settings will override any connection settings configured on the mobile device.

Server Connect Timeout Configures the number of seconds the mobile device will wait between attempts to connect to the current mobile device server.

Server Advance Delay Configures the number of seconds before the device advances to the next server. Ensure the **Server Advance Delay** setting is a multiple of the **Server Connect Timeout** setting. For example, if you have your **Server Connect Timeout** set to 10 seconds and the **Server Advance Delay** set to 60 seconds, the mobile device will attempt to contact the server six times (every 10 seconds for 60 seconds).

Device Settings

You can configure settings from the Mobile Device Server profile that affect how the mobile device interacts with the Mobile Device Server. These settings include:

Device Chat Timeout Sets the amount of time in minutes that both the device and the server will wait before dropping a chat session.

Device Comeback Delay Sets the amount of time in minutes that the mobile device will wait before trying to reconnect to the Mobile Device Server after a connect rejection (i.e., if the device tried to connect during an exclusion window).

Enable Device Caching Enables mobile devices to download software package files from other mobile devices on the same subnet instead of from the Mobile Device Server. Device caching reduces the demands on the Mobile Device Server during software package synchronization. For information about implementing device caching, call Wavelink Customer Support.

Enable Persistent Connection Causes each device to create a persistent TCP connection with the Mobile Device Server. This ensures communication in an environment where UDP packets cannot reliably be transmitted between the server and the device.

Enable SMS Notification Allows the Mobile Device Server to use SMS notification if a device cannot be reached by UDP packets. This option is only available for devices with a phone, and must also be configured on the device and at the enterprise server. For more information on enabling SMS notification, call Wavelink Customer Service.

Suppress GPS Data Collection Causes the Mobile Device Server to discard GPS data collected from the devices rather than transmitting it to the enterprise server.

Suppress Radio Statistics Data Collection Causes the Mobile Device Server to discard radio statistics data collected from the devices rather than transmitting it to the enterprise server.

Suppress Realtime Properties Data Collection Causes the Mobile Device Server to discard realtime properties data collected from the devices rather than transmitting it to the enterprise server.

Suppress Software Profile Data Collection Causes the Mobile Device Server to discard software profile data collected from the devices rather than transmitting it to the enterprise server.

User Files Upload Path When a package's .PPF file specifies that files are to be uploaded to Home, this option provides the path to Home on the machine local to the Mobile Device Server. If no path is specified, Home is defined as the Mobile Device Server installation directory.

User Files Download Path When a package’s .PPF file specifies files that are to be downloaded from Home, this option provides the path to Home on the machine local to the Mobile Device Server. If no path is specified, Home is defined as the Mobile Device Server installation directory.

Configuring Blackouts

To allow you more control over bandwidth usage, Avalanche uses blackout windows and update restrictions in the Mobile Device Server profile. During a server-to-server blackout, the Mobile Device Server is not allowed to communicate with the Enterprise Server. During a device-to-server restriction, the Mobile Device Server is not allowed to communicate with mobile devices.

To create a blackout window:

1 From the **Profiles** tab, select the Mobile Device Server profile from the Profile List.

2 Click **Edit**.

3 From the **Blackouts and Updates** tab:

- if you want to create a server-to-server blackout window, click the **Add** button in the Server-to-Server Communication Restrictions region.
- if you want to create a device-to-server restriction window, click the **Add** button in the Device-to-Server Communication Restrictions region.

The *Add Blackout Window* dialog box appears.

4 Select the start and end time of the blackout window, and enable the boxes for the days you want the blackout to apply.

NOTE: Blackout windows are scheduled using a 24-hour clock. If you create a window where the start time is later than the end time, the window will continue to the end time on the following day. For example, if you scheduled a window for 20:00 to 10:00 on Saturday, it would run from Saturday 20:00 until Sunday 10:00.

5 Click **OK**.

6 Save your changes.

Restricting Simultaneous Device Updates

You can restrict how many mobile devices can update simultaneously from each server using a Mobile Device Server profile.

To restrict simultaneous device updates:

1 From the **Profiles** tab, select the profile from the Profile List.

2. Click **Edit**.

3. In the **Blackouts and Updates** tab, find the Device Update Settings region.

4. Enable the **Restrict simultaneous device updates to** option and set the maximum number of devices that can update simultaneously.

5. Click **Save**.

Scheduling Profile-Specific Device Updates

From the Mobile Device Server profile, you can schedule profile-specific updates for your mobile devices.

When you configure a Mobile Device Server update, you have the following options:

Event type Select a one-time event, a recurring event, or a post-synchronization event. A post-synchronization event will take place after each synchronization between the Enterprise Server and the Mobile Device Server. This ensures that each time the Server is updated, the devices are as well.

Time Constraints Set the start time and, if desired, the end time for the event.

Allow the mobile device user to override the update Creates a prompt when the update is scheduled to occur that allows the mobile device user to override the update.

Delete orphaned packages during the update Causes packages that have been orphaned to be removed from the device. A package is considered orphaned if it has been deleted from the Avalanche Console, if the software profile it belongs to has been disabled, or if the package has been disabled.

Force package synchronization during the update Causes the Mobile Device Server to verify the existence and state of each file of each package individually rather than consulting the meta-file which would normally provide information on those files.

To schedule a profile-specific device update:

1. From the **Profiles** tab, select the profile from the Profile List.

2. Click **Edit**.

3. From the **Blackouts and Updates** tab, click **Add Event**.

   The *Add Scheduled Update* dialog box appears.

4 Select the event type. If you select **Recurring Event**, the **Recurring Period** lists become active. The first list allows you to determine whether the update occurs on either a daily or weekly basis. If you select **Weekly** from this list, the second list becomes active, allowing you to select the day on which the update occurs.

5 Set the start time by clicking the calendar icon to open the *Select a date and time* dialog box. Choose the start time and click **OK**.

NOTE: If you chose a post-synchronization event, the start and stop time options are disabled.

6 If desired, enable the **Stop if not completed by** option. Set the stop time by clicking the calendar icon to open the *Select a date and time* dialog box. Choose the stop time and click **OK**. Selecting an end time is not required. This allows you to create events that recur indefinitely.

7 Enable the other update options as desired.

8 Click **OK**.

When an event is scheduled, it appears in the Device Update Settings List. Once the event has occurred, it will not automatically be deleted from the list. If you want to remove an event from the list, you must select it and click **Remove Event**.

NOTE: Many mobile devices incorporate a sleep function to preserve battery life. If a device is asleep, you must “wake” it before it can receive a server-initiated update from Avalanche. Wake-up capability is dependent on the type of wireless infrastructure you are using and the mobile device type. Contact your hardware and/or wireless provider for details.

Viewing Mobile Device Server Licensing Messages

The Avalanche Console receives messages about license usage from the deployed mobile device servers. You can view these messages from the *Device Server Licensing Messages* dialog box. This dialog box provides information about the location where the server resides and the licensing message.

To view licensing messages:

1 Click **View > Distributed Server License Messages**.

The *Device Server Licensing Messages* dialog box appears.

2 Click the **Group Location** column to list the messages by server location.

3 Click the **Device Server** column to list the messages by server.

Reinitializing the Mobile Device Server

Reinitializing the mobile device server allows you to restart the server without stopping and starting the service. The server will sync with the Enterprise Server and load any changes it detects, but the service keeps running so you will not lose contact with any devices that are updating.

To reinitialize the Mobile Device Server:

- From the Navigation Window, right-click the mobile device server and select **Reinitialize Mobile Device Server**.

  The server contacts the Enterprise Server and downloads any updates.

Retrieving Mobile Device Log Files

You can retrieve mobile device log files stored on the mobile device server. When you retrieve the mobile device server log files, a zip file is created and saved in a location you specify. The logging level and size of the log are configured in the mobile device server profile.

To retrieve mobile device log files:

1. Right-click the mobile device server in the Navigation Window and select **Retrieve log files** from the context menu.
2. In the dialog box that appears, select the location where you want to save the zip file and click **Save**.

   The file is saved. Unzip the file to view the mobile device log files.

Chapter 13: Managing Software Profiles

Software profiles allow you to organize and configure software for deployment to mobile devices. Add software packages to the profile, configure them, and schedule how and when they are installed. When the profile is enabled and applied to a location, the software packages associated with the profile are installed on devices meeting the selection criteria for the profile and packages.

This section contains the following topics:

- Creating Software Profiles
- Managing Software Packages

Creating Software Profiles

Create software profiles to manage how and when software is distributed or updated on mobile devices. The home location for the profile is the location you have selected when you create the profile. Once a software profile has been created, you can edit the name, status, and selection criteria. You can also add software packages to the profile. For information on adding and configuring software packages, see Managing Software Packages.

The **Authorized Users** button allows you to assign administrative privileges for a profile to a user that has Normal user rights and is not assigned permissions to profiles. This allows you to give a user permission for one specific profile. Users that have permission for the profile will not appear in the list of available users. For information about creating users and assigning permissions, see Managing User Accounts.

Selection criteria determine which mobile devices receive the software profile. Only devices that meet the selection criteria for the software profile will receive the software associated with the profile. For information about creating selection criteria, see Building Selection Criteria.

You can create software profiles from the **Profiles** tab or from the **Quick Start** tab.

To create a software profile from the Profiles tab:

1 From the **Profiles** tab, click **Add Profile**.

The *Add Profile Wizard* appears.

2 Select the **Software Profile** option and click **Next**.

3 Type a **Name** for the profile and set the status to either **Enabled** or **Disabled**. Click **Next**.

4 Use the Selection Criteria Builder to create selection criteria for the profile. Click **Next**.

5 Confirm that the information is correct and click **Finish**.

The profile is created and can be configured.

To add a software profile from the Quick Start tab:

1 From the **Quick Start** tab, select **Add Device Software**.

The *Add Device Software Wizard* launches.

2 In the **Create a New Software Profile** text box, enter a name for the profile and then click **Next**.

3 If desired, enable the profile and choose selection criteria for it. Click **Next**.

4 In the Apply the Software Profile screen, you can choose to apply the profile and designate where you want it to be applied. Click **Next** to continue.

5 In the Select a Software Package to Add screen, you can add, create or copy a package to the profile. For information about all these options see Adding a Software Package.

6 Click **Next**.

The End User License Agreement appears.

7 Enable **Yes I agree** to agree to the license agreement and click **Next**.

8 The Installing the Software Package screen appears and the software is added to the profile. When the package has been installed successfully, click **Next**.

9 The Configure the Software Package screen appears. If desired, enable the software package and configure it using the available utilities.

10 Click **Finish**.

The software profile is created and can be enabled and configured.

Managing Software Packages

A software package is a collection of application files that reside on a mobile device. This includes any support utilities used to configure or manage the application from the Avalanche Console. Each software package usually has default selection criteria that cannot be changed.

The Software Packages area on the **Software Profile** tab allows you to add and configure the software packages associated with that software profile. You can enable the package, configure how the package is activated and distributed, and use the package utilities to configure it.

NOTE: When working in software profiles, you do not need to be in Edit Mode to install or configure software packages. Software package configuration changes are saved to the actual package. However, you must enter Edit Mode to configure any other software profile options.

You can also view the packages currently associated with your software profile. The following details are displayed in the Software Packages List:

Field	Description
Name	Displays the name of the software package.
Status	Displays the enabled/disabled status of the software package.
Size	Displays the file size of the software package.
Type	Displays the type of the software package. Software packages are divided into the following categories: • **Control**. An internally used package specific to the Avalanche Console. A network profile is an example of a control package. • **Application**. These packages install an application which can be run from the Application Menu screen on the mobile device. An example of an application package is the Telnet Client. • **Support**. These packages deliver files and do not add new items to the Application Menu screen on the mobile device. An example of a support package is a package that updates an existing file. • **Auto Run**. These packages automatically run after download but do not appear in the mobile device's application list. An Enabler Update Kit is an example of an auto run package.
Version	Displays the version of the software package.
Title	Displays the title of the software package.
Vendor	Displays the vendor associated with the software package.
Installed	Displays the date, time, and user for when the package was added to the software profile.
Configured	Displays the date, time, and user for the most recent package configuration.

This section includes the following information:

- Adding a Software Package
- Building New Software Packages
- Creating CAB or MSI Packages
- Copying Software Packages
- Enabling Software Packages
- Configuring Software Packages with a Utility
- Configuring Software Packages for Delayed Installation
- Peer-to-Peer Package Distribution

Adding a Software Package

Once you create a software profile, you must add the software packages to that profile. Through the software profile you can configure the software package settings and then deploy the packages to specific mobile devices.

When working in software profiles, you do not need to be in Edit Mode to add or configure software packages. Software package configuration changes are saved to the actual package. However, you must enter Edit Mode to configure any other software package options.

You can add packages, copy packages that have already been added to a different profile, or create custom software packages from the Avalanche Console using the Add Device Software Wizard. Before you create a custom package, ensure you know the location of all the files you want to include and ensure that the files are valid. Using the Add Device Software Wizard, you can also enable and configure the added, created, or copied software package.

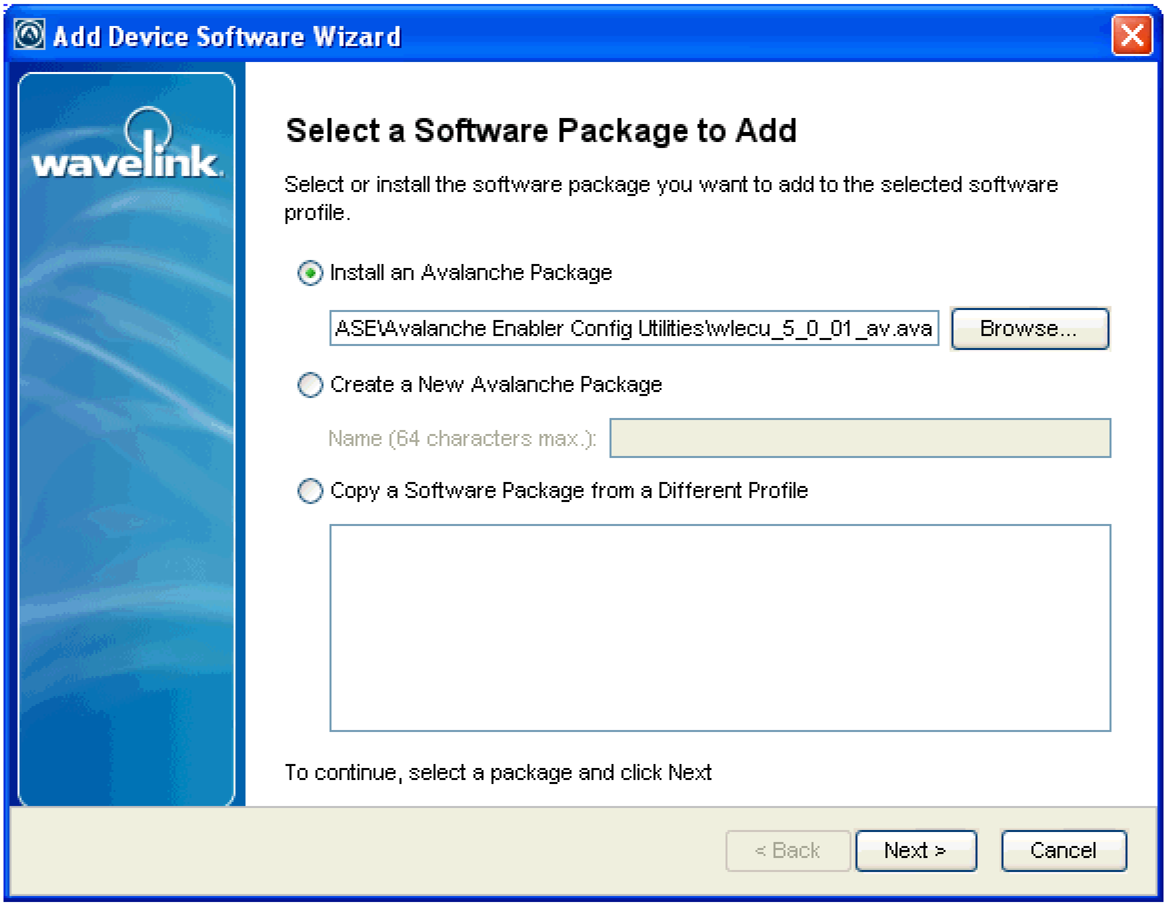
The following instructions provide information about adding an Avalanche package to a software profile. For information about building a new package, see Building New Software Packages.

To add a software package:

1 Select the profile to which the package will belong from the Profiles List.

2 From the **Software Profile** tab, click **Install Package.**

The *Add Device Software Wizard* appears.



Select a Software Package to Add

Select or install the software package you want to add to the selected software profile.

● Install an Avalanche Package

ASE\Avalanche Enabler Config Utilities\wlecu_5_0_01_av.ava

○ Create a New Avalanche Package

Name (64 characters max.):

○ Copy a Software Package from a Different Profile

To continue, select a package and click Next

Select Package

3 Select **Install an Avalanche Package** and browse to the location of the software package.

4 Select the file and click **Next.**

A *License Agreement* dialog box appears.

5 Accept the license agreement and click **Next**.

6 The package files will begin extracting locally. When the extraction is complete, click **Next**.

7 The Configure the Software Package screen appears. If desired, enable the software package and configure it using the available utilities.

8 When you are finished configuring, click **Finish** to complete the installation.

After software packages are configured and enabled, you can deploy the software profile and the packages will be distributed to all devices in the applied location(s) that meet the selection criteria.

Building New Software Packages

Avalanche allows you to compile files to create a new software package. Creating a package bundles files together so they can be installed together. Ensure you know the location of the files you want to include in the package.

In addition to the files, a new software package has the following options:

Title A title for the package.

Vendor The package vendor.

Version The version number of the package.

Install Drive The drive on the mobile device where the package will be installed.

Install Path The exact path where the package will be installed.

Post Install Options Options for if the device will perform a warm boot or a cold boot after installation has completed, or if a program runs once installation is completed. When you select to run a program, the drop-down list will become active and you can select a program from your package to run.

NOTE: Post-install actions are optional unless you select to run a program. Then you are required to select which program you want to run.

To build a new package:

1 Select the profile to which the package will belong from the Profiles List.

2 From the **Software Profile** tab, click **Install Package.**

The *Add Device Software Wizard* appears.

3 Select **Create a New Avalanche Package** and type a name for the package in the text box.

4 Click **Next**.

A *Specify the Files in the Ad Hoc Package* screen appears.

5 Click **Add** and browse to the location of the files you want to add to the package.

6 Select the file and click **Open**.

The file path location appears in the text box. Continue adding files as desired.

7 Click **Next**.

The *Ad Hoc Package Options* screen appears.

8 Configure the package options and click **Next**.

The *Add Selection Criteria* screen appears.

9 If you want to configure selection criteria for the package, enable **Add Selection Criteria** and enter the information in the text box. By creating selection criteria for your package, only the devices which meet the selection criteria will receive the package.

NOTE: When you enable **Add Selection Criteria**, the Selection Criteria Builder button to the left of the list is enabled. You can click it and use the Selection Criteria Builder to help you create the criteria, if desired.

10 Click **Next**.

11 The package files will begin extracting locally. When the extraction is complete, click **Next**.

The *Configure the Software Package* screen appears. This dialog box allows you to enable the package immediately and displays any configuration tools available for the package.

12 Click **Finish** to complete the package.

Creating CAB or MSI Packages

You can use Avalanche to push `.CAB` or `.MSI` files to your mobile devices. When you install a `.CAB` file, the file automatically installs. It can also be configured to uninstall once the program information is retrieved by the mobile device.

To create .CAB or .MSI packages:

1 Select the profile to which the package will belong from the Profiles List.

2 From the **Software Profile** tab, click **Install Package**.

The *Add Device Software Wizard* appears.

3 Create a new profile or enable the **Select to existing software profile** option and select the profile to which you want to install.

4 Click **Next**.

5 Select **Add an Avalanche software package** and browse to the location of the `.CAB` or `.MSI` file.

6 Click **Next**.

The *CAB or MSI File Options* screen appears.

7 Enter the name of the package.

8 If you want the package to be uninstalled once the program information is retrieved by the mobile device, enable **Remove After Install**.

9 Click **Next**.

10 The package files will begin extracting locally. When the extraction is complete, click **Next**.

The *Configure the Software Package* screen appears. This dialog box allows you to enable the package immediately and displays any configuration tools available for the package.

11 Click **Finish** to complete the package creation.

Copying Software Packages

You can copy a software package and its configuration from one software profile to another. Copying software packages allows you to configure a software package just once and then copy it into all the profiles that require that package.

To copy a software package:

1 From the **Profiles** list, select the profile from which you want to copy the package.

2 In the Software Packages area, right-click the package you want to copy.

3 Click **Copy** from the context menu.

The *Please select the target profile* dialog box appears.

4 Select the profile to which you want to copy the package from the drop-down list.

5 Click **OK**.

The package and its configuration are copied to the target software profile.

Enabling Software Packages

A software package can have its status set to enabled or disabled. The package must be enabled to be installed on mobile devices. You do not need to enable a package to configure it.

To enable a software package:

1 From the **Profiles** tab, select the software profile with the package you want to enable.

2 Select the package from the list in the Software Packages list.

3 Click **Enable**.

Configuring Software Packages with a Utility

Some software packages come with configuration utilities that allow you to configure options before the packages are installed on a mobile device. These utilities can be accessed from the

Avalanche Console. Configuration options will differ based on the software package. For details about configuring software packages, see the specific user guide for that product.

NOTE: While the provided instructions use the buttons, you can also right-click a software package to configure it.

To configure a software package:

1 From the **Profiles** tab, select the software profile with the software package you want to configure.

2 From the Software Packages region of the **Software Profile** tab, select the package.

3 Click **Configure**.

The *Configure Software Package* dialog box appears.

4 From the available list, double-click the utility you want to use to configure the package.

5 When the options are configured, click **OK**.

The software package is configured for deployment.

Configuring Software Packages for Delayed Installation

Software packages can be configured to install on a delayed basis. Delayed packages are downloaded to the mobile device just like any other package, but do not get installed on the device until the configured activation time. For applicable devices, the downloaded packages are stored in persistent storage and can survive a cold boot.

Delayed package installation provides flexible control over when the mobile device installs software packages.

NOTE: If package activation is not supported by the Enabler version on the device, the package is treated as disabled and will not be downloaded to the device until the activation time expires.

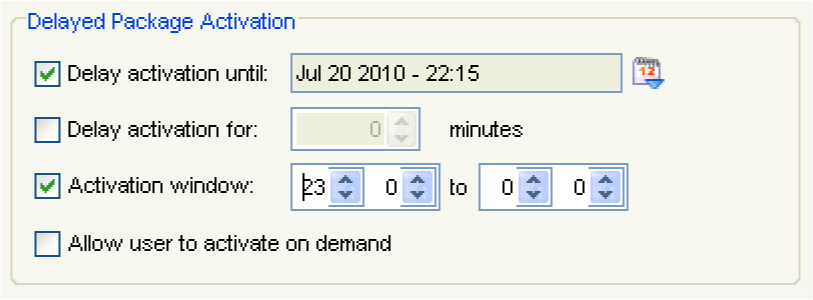
Package activation is supported by Enabler version 4.1 and later.

To configure a software package for delayed installation:

1 From the **Profiles** tab, select the software profile with the package you want to delay.

2 Click **Edit**.

3 Select the package from the Software Packages list.



Delayed Package Activation

☑ Delay activation until: Jul 20 2010 - 22:15

□ Delay activation for: 0 minutes

☑ Activation window: 23 0 to 0 0

□ Allow user to activate on demand

Delayed Package Activation

4 In the Delayed Package Activation area, enable the options as desired:

- If you want to delay package activation until a specific date and time, enable the **Delay activation until** option and click on the calendar button to select a date and time.
- To further delay the package installation after it has been activated, configure the **Delay activation for __ minutes** option.
- If you want the package to be activated during a certain time window, enable the **Activation window** option and configure the hours during which the package will activate.
- If you want the device user to have the option to override the software package installation at the activation time, enable the **Allow user to activate on demand** checkbox. When this option is selected, the user will be able to install the package as soon as it is downloaded.

5 Save your changes.

Peer-to-Peer Package Distribution

Peer-to-peer package distribution allows you to control bandwidth usage on your network by allowing a “package store” device to receive an update from the Mobile Device Server and then distribute the update to other mobile devices.

The following table provides descriptions of the configuration options in package distribution.

Field	Description
Enabled Cached Peer-to-Peer Package Distribution	Enable this option to allow a package to be shared across multiple devices via peer-to-peer connections. When deployed to a mobile device, the package will then be available for other mobile devices to receive the profile from that package store device.
Do not	Enable this option to configure the time at which a non-package store device can contact a package store device to receive an update. A non-package store

Field	Description
allow non-Package Store Devices to begin updating until	device refers to a mobile device that is not being used to update other mobile devices.
Do not allow server to update non-Package Store Devices until	Enable this option to configure the time at which a non-package store mobile device can contact the Server to update and receive this package. Once the configured time is reached, the mobile devices will first attempt to contact a package store device to receive the update. If a package store device cannot be contacted or the connection times out, the device will then attempt to contact the Server. A non-package store device refers to a mobile device that is not being used to update other mobile devices.

The following tables provides information about the results that will occur with the different configurations in package distribution.

If	Then Package Store Devices	And Non-Package Store Devices
Do Not Allow Non-Package Store Devices To Begin Updating Until is enabled and the configured time has not been reached (**Do Not Allow Server to Update Non-Package Store Devices Until** is not enabled)	*Can* contact the Server for updates at any time.	Cannot contact any package store devices. Will attempt to contact the Server to receive updates.
Do Not Allow Non-Package Store Devices To Begin Updating Until is enabled and the configured time has been reached (**Do Not Allow Server to Update Non-Package Store Devices Until** is not enabled)	*Can* contact the Server for updates at any time.	*Can* contact package store devices to update and receive the profile. If the device can't contact a package store device, it will attempt to contact the Server.
Do Not Allow Non-Package Store Devices To Begin Updating Until is enabled and **Do Not Allow Server to Update Non-Package Store Devices Until** is enabled and the configured time has not been reached	*Can* contact the Server for updates	Cannot contact the Server for updates. Cannot contact any package store devices.

If	Then Package Store Devices	And Non-Package Store Devices
	at any time.	
Do Not Allow Non-Package Store Devices To Begin Updating Until is enabled and **Do Not Allow Server to Update Non-Package Store Devices Until** is enabled and the configured time has been reached	*Can* contact the Server for updates at any time.	*Can* contact package store devices to receive updates. If the device can't contact a package store device or the connection times out, the device *can* contact the Server to receive updates.
No options are enabled	*Can* contact the Server for updates at any time.	*Can* contact package store devices or Server for updates at any time.

NOTE: For more information on how to configure devices for peer-to-peer package distribution, contact Wavelink Customer Service.

To configure peer-to-peer package distribution:

1 From the **Profiles** tab, select the software profile with the package you want to distribute.

2 Click **Edit**.

3 In the Peer-to-Peer Package Distribution area, configure the desired options.

4 Save your changes.

Chapter 14: Managing Mobile Devices

This section provides information about the following mobile device topics:

- Mobile Device Inventory Tab
- Viewing Mobile Device Details
- Configuring Mobile Device Properties
- Contacting the Mobile Device
- Software Inventory

Mobile Device Inventory Tab

The **Mobile Device Inventory** tab shows a set of mobile devices based on the currently selected item in the Navigation Window. For example, when you select a particular location, all mobile devices that are associated with that location appear in the list. The following default information is provided for each mobile device:

Model Name The model name of the mobile device.

Terminal ID The unique ID automatically generated by Avalanche or assigned by a Console user.

MAC Address The Media Access Control address of a mobile device. This address uniquely identifies this mobile device on a network from a physical standpoint.

IP Address The Internet Protocol address assigned to the mobile device.

Sync State The client update status of the mobile device. A check mark indicates that the mobile device is up-to-date, while an X indicates that an update is available but not yet loaded on the device.

Last Contact The date and time of the last contact the mobile device had with Avalanche.

Recent Activity The status of a mobile device with respect to Avalanche. For example, when the mobile device receives new software, the activity status is `Downloading`.

You can customize the columns in the **Mobile Device Inventory** tab to display according to your preference or filter the devices shown. For information on customizing the Mobile Device Inventory, see Managing Device Inventory Displays.

You can also delete mobile devices from the **Mobile Device Inventory**. This removes the device from the **Mobile Device Inventory** list and releases the license that mobile device was using.

To delete mobile devices:

- In the **Mobile Device Inventory** tab, right-click the device you want to delete and select **Delete**.

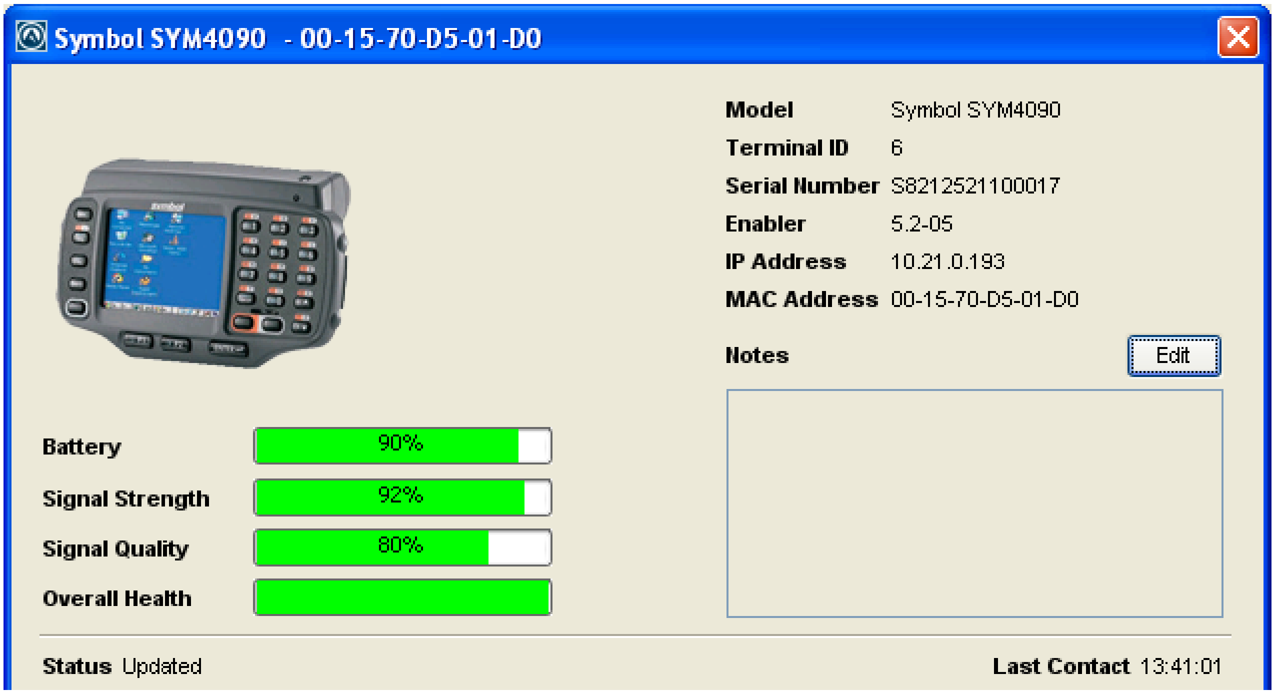
The device is removed. It retains the ability to connect and re-associate itself with the server, however.

Viewing Mobile Device Details

The *Mobile Device Details* dialog box appears when you right-click the mobile device you want to view and select **Mobile Device Details**. It provides information about a specific mobile device and consists of the following areas:

- Summary Information. Provides a quick summary of device, health, signal strength and battery life information. The bars will display red, yellow, or green depending on the status of the battery, signal strength, overall health, and signal quality of the device.

  The overall health of a device is determined by properties reported by the device. If any one of seven properties reports a warning level, the overall health is set to that warning level. The properties are: low flash memory, low RAM memory, low battery charge, critical battery charge, low signal strength, low signal quality, or a package install status as either "pending" or "error".



Symbol SYM4090 - 00-15-70-D5-01-D0

Model Symbol SYM4090
Terminal ID 6
Serial Number S8212521100017
Enabler 5.2-05
IP Address 10.21.0.193
MAC Address 00-15-70-D5-01-D0

Notes

Battery	90%
Signal Strength	92%
Signal Quality	80%
Overall Health	

Status Updated

Last Contact 13:41:01

Device Details summary information

- Device Tabs. Provides access to the following tabs:
  - **General**. Provides general network and wireless information about the device.
  - **Installed Software**. Provides information about the software applications installed on the device. For details, see Software Inventory.
  - **Packages**. Lists all the packages currently available for the device and the status of each package.
  - **Properties**. Lists the properties of the device and their values. This tab also allows you to add properties and values. For details about the tasks you can perform in the **Properties** tab, see Configuring Mobile Device Properties.
  - **Applied Profiles**. Lists the profiles that are applied.
  - **Device Control**. Provides options for updating the mobile device, sending text messages, pinging the device, using Remote Control, and connecting to the Session Monitor. For details, see the links below or Contacting the Mobile Device.
  - **Priority of Matching Profiles**. Lists the profiles on the device by priority.
  - **History**. Provides a history of Avalanche actions for the mobile device. This may include actions such as changes to packages, edited properties, applying a profile, rebooting the device, or changes to the Enabler configuration by a device user. This information is only available for devices with 5.2 Enablers that are configured to report

the events. (This can be configured on the Reporting tab of the Enabler Configuration Utility.)

The following sections provide information on viewing a device's location or location history:

- Locating a Mobile Device
- Locating a Device using Cell Tower Information
- Viewing Location History

Locating a Mobile Device

You can view the most recently reported location of a mobile device with GPS capabilities. The device is displayed as an icon on the map. In order to use this option, you must have a statistics server running, and statistics reporting must be enabled.

To view the location of a mobile device:

1 From the **Mobile Device Inventory** tab, right-click the device you want to view.

2 From the context menu, select **Locate**.

The Map View appears with the mobile device icon displaying the most recently reported location of the device.

Locating a Device using Cell Tower Information

When a device has GPRS capabilities, it can report the cell tower it is currently connected to. The Console can use this information to display an approximate location for the device on the map.

NOTE: Avalanche uses `geoservices.wavelink.com` to retrieve information about the location of the cell towers. You must be able to access this Web site in order to use the Locate Cell Tower function.

To locate a device using cell tower information:

1 Navigate to a location containing the device you want to locate.

2 Right-click the name of the device and select **Locate via Cell Tower** from the context menu.

An icon appears on the map displaying the location of the cell tower the device is currently connected to.

Viewing Location History

You can view the recently reported locations of a mobile device with GPS capabilities. In order to use this option, you must have a statistics server running, and statistics reporting must be enabled.

NOTE: You can only view the location history of one device at a time.

To view the location history of a mobile device:

1 From the Mobile Device Inventory, right-click the device you want to view.

2 From the context menu, select **Location History**.

The *Start and End Time* dialog box appears.

3 Use the calendar buttons and time text boxes to specify the window of time for which you want to view location information.

4 Click **OK**.

The device location history is displayed on the map as a series of icons representing the reported locations during the specified time.

Configuring Mobile Device Properties

Mobile device properties can be either pre-defined or custom properties. Pre-defined properties are based on the device information and the version of the Enabler running on the mobile device. Custom properties can be created and associated with individual mobile devices or with mobile device groups. Properties can be used as selection variables in selection criteria to control which devices receive particular updates.

NOTE: See Building Selection Criteria for more information on using properties as selection variables.

You can view the properties for a specific mobile device by right-clicking the device from the **Mobile Device Inventory** and selecting **Mobile Device Details** from the context menu.

The columns that appear in the **Properties** tab are as follows:

Name The name of the property.

Value The value of the property.

Pending Value Indicates whether the property needs to be updated on the mobile device. If it needs to be updated, column will display the pending value in italics.

Icon Indicates whether the value of the property is static, snapshot, or configurable data. Static means the information does not change, snapshot means that the property is updated by the device, and configurable means that a user may change the value.

From the **Properties** tab of the *Mobile Device Details* dialog box, you can also perform the following tasks:

- Creating Custom Properties
- Creating Device-Side Properties
- Editing Properties
- Deleting Properties

Creating Custom Properties

From the Avalanche Console, you can create custom properties on the mobile devices. These properties can then be used to build selection criteria for software profiles or as device filters.

NOTE: Like the pre-defined properties, custom properties appear as selection variables in the Selection Criteria Builder.

You can add custom properties to individual mobile devices or to mobile device groups. When you add a property to a group, it is added to all mobile devices that are members of the group. For instructions on adding a property to a group, see Editing Properties for Mobile Device Groups.

To create custom properties:

1. From the **Mobile Device Inventory** tab, right-click the device you want to view and click **Mobile Device Details**.
2. Click the **Properties** tab.
3. Click **Add Property.**
4. From the drop-down list, select what type of property you want to add.
5. Type the name and the value of the property in the **Property Name** and **Property Value** text boxes.
6. Click **OK**.

The property is added to the list in the **Properties** tab under the chosen heading and the device will receive it upon the next update.

Creating Device-Side Properties

Avalanche provides the ability to turn third-party information that is generated at the mobile device into properties that can then be transferred to and displayed in the Avalanche Console. These properties are called device-side properties. You can use the device-side properties feature to obtain either static or dynamic information. For example, a device-side property could report a device's serial number or state changes within a specific application.

NOTE: It is important to note that the Avalanche Enabler sends device-side properties to the Enterprise Server; it does not collect the information. Vendors must create their own applications and utilities to gather the required information and write it to a plain-text file on the device.

Device-side properties must be written in key-value pairs to a plain-text file with a `.prf` extension and one vendor entry. Avalanche uses the vendor name to organize and display user-defined properties in the **Properties** tab of the *Mobile Device Details* dialog box.

For more information about creating device-side properties, see the *Creating Device-Side Avalanche Properties* white paper on the Wavelink Web site.

Editing Properties

Some of the pre-defined properties (and all of the custom properties) on mobile devices support editing of values. When you change the value of a property, the new value is downloaded to the mobile device at the next update.

Custom properties can be edited either for a specific mobile device, for a mobile device group, or using a mobile device profile or a Scan to Config profile. For information on editing properties for a group of devices, see Editing Properties for Mobile Device Groups. For information on using a profile to edit properties, see the section for that profile type.

To edit a property for a mobile device:

1. From the **Mobile Device Inventory** tab, right-click the device you want to view and click **Mobile Device Details**.
2. Click the **Properties** tab.
3. Select the property that you want to edit.

   If the property is editable, the **Edit Property** button becomes active.
4. Click **Edit Property** and type the new value for the property.
5. Click **OK**.

The new value downloads to the mobile device at the next update. If the device has not yet received an updated property value, the pending value appears in italics in the Pending Value column for the property.

Deleting Properties

You can delete any configurable property on a device from the Avalanche Console.

To delete a property:

1. From the **Mobile Device Inventory** tab, right-click the device you want to view and click **Mobile Device Details**.
2. Click the **Properties** tab.
3. Select the property that you want to delete and click **Delete Property**.
4. Click **OK**.

Contacting the Mobile Device

This section provides information about connecting to a mobile device and viewing device location. The following tasks are available from the **Device Control** tab in the *Mobile Device Details* dialog box.

- Pinging Mobile Devices
- Sending a Message to a Device User
- Updating a Mobile Device
- Chatting with a Device User
- Using the Remote Control SMS Options
- Using Remote Control
- Launching the Session Monitor

NOTE: The Registry Explorer, File Explorer, and Process Manager icons available in this dialog box are only available when the mobile device has a licensed Remote Control client.

Pinging Mobile Devices

You can ping devices that are currently in range and running the Avalanche Enabler. This is not an ICMP-level ping, but rather an application-level status check. This feature indicates whether the mobile device is active or not.

You can also ping all the mobile devices in a group location simultaneously if the devices are in range and running the Avalanche Enabler.

To ping a mobile device:

1 From the **Mobile Device Inventory** tab, right-click the device you want to view and click **Mobile Device Details**.

2 Click the **Device Control** tab.

3 Double-click the **Ping Device** icon.

The **Status** field in the Activity region displays the status of the ping request.

NOTE: You can also ping the device from the **Mobile Device Inventory** tab by right-clicking the mobile device and selecting **Ping Device**.

To ping mobile devices in a group location:

1 Right-click the group location from the Navigation Window.

2 Select **Ping Mobile Devices** from the context menu.

The **Recent Activity** column in the Mobile Device Inventory reports the status of the ping for each device in the group.

Sending a Message to a Device User

Send a text-based message to a device currently in range and running the Avalanche Enabler. You can also send the same message to all devices in a group location simultaneously.

To send a message to a device:

1 From the **Mobile Device Inventory** tab, right-click the device you want to view and click **Mobile Device Details**.

2 Click the **Device Control** tab.

3 Double-click the **Send Text Message** icon.

The *Send Text Message* dialog box appears.

4 Type a message in the **Text Message** field.

5 Enable the **Provide Audible Notification** option if you want a sound to play when the mobile device receives the message.

6 Click **OK**.

The **Status** field in the Activity region displays the status of the text message request.

NOTE: You can also send a text message to the client from the **Mobile Device Inventory** tab by right-clicking the mobile device and selecting **Send Text Message**.

To send a message to the devices in a group location:

1 Right-click the group location from the Navigation Window.

2 Select **Send Text Message** from the context menu.

3 Type a message in the **Text Message Field**.

4 Enable the **Provide Audible Notification** text box if you want a sound to play when the mobile device receives the message.

5 Click **OK**.

The **Recent Activity** column reports the status of the message for each device in the group.

Updating a Mobile Device

You can perform individual updates for mobile devices that are currently in range and running the Avalanche Enabler or an Avalanche-enabled application.

When you update the device, you have the following options:

Allow User to Override the Update Gives the mobile device user the option to override the update.

Force Package Synchronization Forces the package to update on the device.

Delete Orphan Packages Removes orphan packages from the device. Edit the list of orphan packages to remove specific packages from the device.

NOTE: The rules that govern which mobile devices can receive a particular update are determined by the selection criteria. See Building Selection Criteria for more information on building selection criteria.

To update a mobile device:

1 From the **Mobile Device Inventory** tab, right-click the device you want to update and click **Mobile Device Details**.

2 Click the **Device Control** tab.

3 Double-click the **Update Now** icon.

The *Update Now* dialog box appears.

4 Enable the options as desired and select which orphan packages you want to remove.

5 Click **OK**.

The **Status** field in the Activity region allows you to monitor the status of the update.

NOTE: You can also update the mobile device from the **Mobile Device Inventory** tab by right-clicking the mobile device and selecting **Update Now**.

NOTE: Many mobile devices incorporate a sleep function to preserve battery life. If a device is asleep, you must “wake” it before it can receive a “pushed” update from Avalanche. Wake-up capability is dependent on the type of wireless infrastructure you are using and the mobile device type. Contact your hardware and/or wireless provider for details.

Chatting with a Device User

A user can initiate a two-way chat session that allows the device user and the Console user to communicate text back and forth. The device user can create an alert to request a chat session, but the session can only be initiated from the Console.

To initiate device chat:

1 In the **Mobile Device Inventory**, right-click the device you want to chat with and click **Device Chat**.

The *Two-way mobile device messaging* dialog box appears.

2 Type the message you want to send in the lower text box. When you press **Send** or **Enter**, the message is sent to the device and appears in the upper text box. The device user’s response will appear in the upper text box.

3 When you are finished you can save the message as a `.txt` file by clicking **Save**, or click **Close** to close the dialog box.

Wiping a Mobile Device

When you have applied a mobile device profile that has Device Wipe folders configured, you can perform a remote wipe of the device. A remote wipe will delete the contents of the folders and reboot the device. If files in the folders were unable to be deleted because they were in use, the Enabler will attempt to delete them after the reboot. If the server is unable to contact the device using a TCP/IP connection, it will attempt to send the wipe command using SMS.

If there is more than one mobile device profile applied on the device, all of the Device Wipe folders for all of the applied profiles will be deleted during a device wipe.

NOTE: Avalanche does not provide a method for restoring any of the information in the deleted folders.

To perform a remote device wipe:

1 From the **Mobile Device Inventory** tab, right-click the device you want to view.

2 From the context menu, select **Wipe Device**.

3 The *Confirm Device Wipe* dialog box appears. Click **Yes** if you are certain you want to wipe the folders specified in the mobile device profile.

The server will send the device a command to delete the folders specified in the mobile device profile.

Using the Remote Control SMS Options

The SMS options on the **Device Control** tab of the *Mobile Device Details* dialog box are specific to Avalanche Remote Control. If you have Remote Control installed and configured with the correct WWAN information, you can use these options to send SMS messages to the device. You can either send a text message to the device user, or you can send an SMS message that tells the Enabler to connect to the server to download any updates.

To use Remote Control SMS options:

1 From the **Mobile Device Inventory** tab, right-click the device you want to view and click **Mobile Device Details**.

2 Click the **Device Control** tab.

3 Double-click the **SMS Text Message** or **SMS Update Now** icon.

If you choose to send a text message, type the message and click **Send**.

Using Remote Control

Remote Control functionality is only available for devices that have a licensed Remote Control package installed.

Before you can use Remote Control, you must perform the following tasks:

1 Obtain the Remote Control software.

2 Install the Remote Control server.

3 Add the Remote Control software package to an Avalanche software profile.

4 License Remote Control.

5 Deploy the Remote Control software package to your mobile device.

NOTE: For detailed information about these tasks, see the *Wavelink Avalanche Remote Control User Guide*.

This section provides basic information about using Remote Control to connect to a mobile device. For more information, see the *Wavelink Avalanche Remote Control User Guide*.

To use Remote Control to connect to a mobile device:

1. Ensure you have installed the Remote Control package to the Avalanche Console and deployed it to the mobile device.
2. From the **Mobile Device Inventory** tab, double-click the mobile device to which you want to connect.

   The *Mobile Device Details* dialog box opens
3. Click the **Device Control** tab.
4. Double-click the **Remote Control** icon.

   Remote Control connects to the mobile device. Once you are connected to a mobile device, you can use access the Registry Explorer, File Explorer, and Process Manager using the available icons.

Launching the Session Monitor

The Session Monitor utility allows you to view the Terminal Emulation (TE) Client on a mobile device from the Avalanche Console. The Session Monitor includes an override feature that allows you to take control of the TE Client on the mobile device. The Session Monitor also includes a logging feature that allows you to create a trace for TE sessions.

To use the Session Monitor with Avalanche, you will need perform the following tasks:

1. Obtain a TE Client 5.x (or later version) software package.
2. Add the software package to a software profile. See Adding a Software Package for more information.
3. Configure the Client software package.
4. Deploy the Client to the mobile device. For more information about deployment, refer to Performing a Server Synchronization.
5. Launch the Client on the mobile device.
6. Launch the Session Monitor.

This section provides information about launching the Session Monitor from Avalanche. For detailed TE installation and configuration information, refer to the *Wavelink Terminal Emulation Client User Guide*.

You can launch the Session Monitor from the **Mobile Device Inventory** tab or from the *Mobile Device Details* dialog box.

To launch the Session Monitor from the Mobile Device Inventory tab:

1 Ensure you have installed a TE Client on the mobile device.

2 Select the location where the device is from the Navigation Window.

3 Click the **Mobile Device Inventory** tab.

4 Right-click the device for which you want to launch the Session Monitor and select **Session Monitor** from the menu.

The Telnet Session Monitor window opens. The yellow-lined box represents what the mobile device user can see on the mobile device screen.

To launch the Session Monitor from the *Mobile Device Details* dialog box:

1 Ensure you have installed a TE Client on the mobile device.

2 Select the location where the device is from the Navigation Window.

3 Click the **Mobile Device Inventory** tab.

4 To open the *Mobile Device Details* dialog box:

- Double-click the mobile device on which you want to launch session monitor.

-Or-

- Right-click the mobile device on which you want to launch session monitor and select **Mobile Device Details**.

5 In the *Mobile Device Details* dialog box, click the **Device Control** tab.

6 Double-click the **Session Monitor** icon.

The Telnet Session Monitor window opens. The yellow-lined box represents what the mobile device user can see on the mobile device screen.

Software Inventory

The Console gathers mobile device software inventory every 24 hours and displays the information in the **Installed Software** tab of the *Mobile Device Details* dialog box. The **Installed Software** tab consists of two parts:

- The **Registered Applications** tab displays the applications on the mobile device that have uninstallers registered with the system. These applications will also be displayed in the Windows settings *Installed Applications* dialog box on the mobile device.
- The **All Applications** tab lists the file name and file path of all executable that can be run on the mobile device.

This is informational data only and cannot be modified from this tab.

Chapter 15: Managing Mobile Device Profiles

You can use a mobile device profile to change settings on your mobile devices, as well as add, change, and remove custom properties and registry keys. This section contains the following topics for mobile device profiles:

- Creating a Mobile Device Profile
- Configuring Device Wipe Folders
- Editing Custom Properties for Mobile Device Profiles
- Editing Registry Keys for a Mobile Device Profile
- Configuring Mobile Device Profile Advanced Settings

NOTE: For information on exporting a profile to use for configuring an Enabler, see Exporting Profiles for Configuring Enablers.

Creating a Mobile Device Profile

Use a mobile device profile to change settings on your mobile devices, as well as add, change, and remove custom properties and registry keys. Mobile device profiles allow you to configure the server that the devices should connect to, SMS notification, package sync, orphan package removal, and selection criteria. A mobile device profile has the following general options:

Status Enables or disables the profile.

Home Sets the home location for the profile.

Notes Any notes for the profile.

Server Address Specifies the address of a specific mobile device server you want the devices to connect to.

Enable SMS Notification Allows SMS messages to be sent to the device from the Avalanche Console.

Force Package Synchronization Synchronizes each file of each package on the device without checking the meta-file, which provides information about the state of the files. When the option is not enabled, the server checks the meta-file, and then synchronizes only the files that have been altered or do not match.

Restrict simultaneous device updates Limits the number of devices using the profile that are allowed to update simultaneously. This may be useful if there is a particular update that will take significant bandwidth or time. Restrict how many devices receive that update at a time so that other functions aren't affected.

Orphan Package Removal Removes packages that have been orphaned from the device. A package is considered orphaned if it has been deleted from the Avalanche Console, if the software profile it belongs to has been disabled, or if the package has been disabled. Orphaned packages must be listed by name. Orphaned packages must be listed by name. Orphan package removal will only happen once, when the profile is first applied.

Selection Criteria Determines which devices the profile is applied to. For information on selection criteria, see Using Selection Criteria.

Authorized Users Allows you to assign administrative privileges for a profile to a user that has Normal user rights and is not assigned permissions to profiles. This allows you to give a user permission for one specific profile. Users that have permission for the profile will not appear in the list of available users. For information about creating users and assigning permissions, see Managing User Accounts.

Other options on a mobile device profile such as custom properties, registry keys, device wipe folders, and advanced configurations are described in other sections. The home location for the profile is the location you have selected when you create the profile.

To create and configure a mobile device profile:

1 From the **Profiles** tab, click **Add Profile**.

The Add Profile Wizard appears.

2 Select the **Mobile Device Profile** option and click **Next**.

3 Type a **Name** for the profile and set the status to either **Enabled** or **Disabled**. Click **Next**.

4 Use the Selection Criteria Builder to create selection criteria for the profile. Click **Next**.

5 Confirm that the information is correct and click **Finish**.

The profile is created. Use the **Edit** button to configure the options for the profile.

Configuring Device Wipe Folders

Device wipe folders in a mobile device profile allow you to specify folders or directories on the device that contain sensitive information. When a device is wiped, all the information in the folders is deleted.

To configure device wipe folders:

1 From the **Profiles** tab, select the mobile device profile from the Profile List.

2 Click **Edit**.

3 In the **Mobile Device Profile** tab, click **Add** in the Device Wipe Folders area.

The *Add Folder* dialog box appears.

4 Type the path to the folder on the device and click **OK**.

If the server is unable to contact the device using a TCP/IP connection, it will attempt to send the wipe command using SMS. When the device's Enabler receives the command, it will delete all files in the specified folders and force the device to reboot. If any of the selected files were in use, the Enabler will try again to delete them after the reboot.

For information on performing a device wipe after the mobile device profile has been deployed, see Wiping a Mobile Device.

Editing Custom Properties for Mobile Device Profiles

Custom properties allow you to define specific properties that you want applied to the mobile device. An example of a custom property would be `location = Chicago`. Once a custom property has been applied to a device, you can use it as a selection criterion. You can apply custom properties to mobile devices through a mobile device profile.

You also have the option to edit or remove custom properties currently existing on the device through a mobile device profile. You must know the name of the property in order to edit or remove it.

NOTE: Deleting a property from a profile will not remove the property from the device.

To add a custom property:

1 From the **Profiles** tab, select the profile you want to configure.

2 Click **Edit**.

3 In the Device Properties area, select the group (such as General or Custom) to which you want to add the property. Click **Add**.

The *Add Property* dialog box appears.

4 Type the **Property Name** and **Property Value** in the text boxes.

5 Select **add** from the **Action** drop-down list.

6 Click **OK**.

The task is added to the list in the Properties area. The property will be added when the profile is applied on the mobile device.

7 Save your changes.

To edit or remove a custom property from the device:

1 From the **Profiles** tab, select the profile you want to configure.

2 Click **Edit**.

3 In the Device Properties area, select the group (such as General or Custom) to which you want to add the property. Click **Add**.

The *Add Property* dialog box appears.

4 Select the **Category** to which the property belongs.

5 Type the **Property Name** of the existing property in the text box.

6 If you want to edit the value of the property, type the new value in the **Value** text box.

7 If you are editing the value of the property, select **Add** from the **Action** drop-down list. If you want to remove the property from the device, select **Remove** from the **Action** drop-down list.

8 Click **OK**.

The task is added to the list in the Properties area. The property will be edited when the profile is applied on the mobile device.

9 Save your changes.

Editing Registry Keys for a Mobile Device Profile

You can add registry keys to a mobile device profile which will be added to the device registry when the profile is applied. Once you add a registry key to the profile, you can add values for the key. You also have the option to edit or remove existing registry keys or values on the device. You must know the name and location of the key or value in order to edit or remove it.

This section contains information on the following tasks:

- Adding a Registry Key to a Mobile Device Profile
- Editing or Removing a Registry Key or Value

Adding a Registry Key to a Mobile Device Profile

You can add registry keys and values to a profile. These keys will be added to the device registry when the profile is applied.

NOTE: Removing a registry key from the profile does not remove it from the device. For information on removing it from the device, see Editing or Removing a Registry Key or Value.

To add a registry key:

1 From the **Profiles** tab, select the profile you want to configure.

2 Click **Edit**.

3 In the Registry Settings area, select where you want to add the key and click **Add**.

The *Add Registry Key* dialog box appears.

4 Select the **Parent Key** from the drop-down list.

5 Type the **Name** of the new key in the text box.

6 Select **Add** from the **Action** drop-down list.

7 Click **OK**.

The key is added to the profile and you can configure its value.

To add a value to a registry key:

1 From the **Profiles** tab, select the profile you want to configure.

2 Click **Edit**.

3 In the Registry Settings area, select the key to which you want to add a value and click **Add a new registry value**.

The *Add Registry Value* dialog box appears.

4 Type the **Name** of the new value in the text box.

5 Select the **Type** from the drop-down list.

6 Type the **Data** in the text box.

7 Select **Add** from the **Action** drop-down list.

8 Click **OK**.

The task is added to the list in the Registry Settings area. The value will be added when the profile is applied on the mobile device.

Editing or Removing a Registry Key or Value

You can remove an existing registry key on a mobile device through a mobile device profile. Make changes to the key from the profile and apply the profile. If it is a mobile device profile, deploy the profile; if it is a Scan to Config profile, print and scan the barcodes. You must know the name of the key/value in order to remove it.

NOTE: In order to edit or remove a registry key value, you must add the registry key to the profile even if the key already exists on the device. For more information on adding a registry key, see Adding a Registry Key to a Mobile Device Profile.

To remove a registry key:

1 From the **Profiles** tab, select the profile you want to configure.

2 Click **Edit**.

3 In the Registry Settings area, select the parent key of the key you want to delete and click **Add a new registry key**.

The *Add Registry Key* dialog box appears.

4 Ensure the **Parent Key** in the drop-down list is correct.

5 Type the **Name** of the key in the text box.

6 Select **Remove** from the **Action** drop-down list.

7 Click **OK**.

The task is added to the list in the Registry Settings area. The key will be removed when the profile is applied on the mobile device.

8 Click **Save** to save your changes.

To edit or remove a registry key value:

1 From the **Profiles** tab, select the profile you want to configure.

2 Click **Edit**.

3 In the Registry Settings area, select the key for which you want to edit or remove a value and click **Add a new registry value**.

The *Add Registry Value* dialog box appears.

4 Type the **Name** of the existing value in the text box.

5. If you want to edit the **Type** or **Data** of the value, enter the appropriate information in the provided boxes.

6. If you are editing the value, select **Add** from the **Action** drop-down list. If you want to remove the value from the device, select **Remove** from the **Action** drop-down list.

7. Click **OK**.

   The task is added to the list in the Registry Settings area. The value will be changed when the profile is applied on the mobile device.

8. Click **Save** to save your changes.

Configuring Mobile Device Profile Advanced Settings

You can configure GPS reporting, geofence areas, time zone settings and update restrictions for your mobile devices from a mobile device profile. This section includes the following topics:

- Location Based Services
- Geofence Areas
- Regional Settings
- Update Restrictions

Location Based Services

Location-based services allow you to manage GPS statistics collection when your mobile devices have GPS capabilities and a phone. Configure the following options:

Enable location-based services Enables GPS reporting for devices using the selected mobile device profile.

Reporting interval Determines how often the device reports its GPS statistics to the Mobile Device Server.

Report location using cell towers Uses information from nearby cell towers to establish the location of the device.

Report location using GPS Uses GPS coordinates to establish the location of the device.

GPS acquisition timeout Determines how often the device checks its GPS coordinates.

Prompt user to initiate timeout Prompts the mobile device user to ask if Avalanche should be allowed to collect and report location-based data. This prompt will appear when the Enabler is launched.

Notify user after _ consecutive GPS failures Provides a notification to the mobile device user after the device has failed to acquire GPS coordinates the specified number of times.

To configure location-based services:

1 From the **Profiles** tab, select the mobile device profile from the Profile List.

2 Click **Edit**.

3 In the **Advanced Settings** tab, enable the desired options in the Location Based Services area.

4 Save your changes.

Geofence Areas

A geofence is a virtual perimeter defined by GPS coordinates. You can configure a geofence area for your mobile devices. When you configure a geofence area and define it as the Home area, Avalanche can generate an alert when devices report a GPS position that is outside of the defined area.

To configure a geofence area:

1 From the **Profiles** tab, select the mobile device profile from the Profile List.

2 Click **Edit**.

3 In the **Advanced Settings** tab, ensure that **Enable location-based services** is enabled.

4 Click **Add** in the Geofence Areas region.

The *Add Geofence Area* dialog box appears.

5 Type a name for the area in the **Name** text box.

6 If you want the area to be a home area, enable the **Is a Home Area** check box.

7 Enter the start and end latitude and longitude for the geofence. The start point should be the southwest corner of your area, and the end point should be the northeast.

8 Click **Select**.

The area is added to the list.

Regional Settings

You can set the region and time zone for your mobile devices from a mobile device profile.

To change the regional settings of a mobile device profile:

1. From the **Profiles** tab, select the profile from the Profile List.
2. Click **Edit**.
3. From the **Advanced Settings** tab, use the drop-down lists in the Regional Settings area to select the region and time zone for your devices.
4. If you want to edit the time zone settings that load automatically when you select the time zone from the drop-down list, click **Edit Time Zone**.
5. If you want to revert to the time zone settings used on the local computer, click **Refresh Time Zone**.
6. Enable the **Automatically adjust clock for Daylight Savings Time** option if you want the devices to switch over automatically.
7. Save your changes.

Update Restrictions

For more control over bandwidth usage, restrict device-to-server updates by using blackout windows. During a device-to-server blackout, the mobile devices are not allowed to communicate with a Mobile Device Server.

To create a blackout window:

1. From the **Profiles** tab, select a mobile device profile from the Profile List.
2. Click **Edit**.
3. From the **Advanced Settings** tab, click **Add** in the Update Restrictions area.

   The *Add Exclusion Window* dialog box appears.
4. Select the start and end time of the blackout window, and enable the boxes for the days you want the blackout to apply.

NOTE: Blackout windows are scheduled using a 24-hour clock. If you create a window where the start time is later than the end time, the window will continue to the end time on the following day. For example, if you scheduled a window for 20:00 to 10:00 on Saturday, it would run from Saturday 20:00 until Sunday 10:00.

5. Click **OK**.

6 Save your changes.

Chapter 16: Managing Mobile Device Groups

To better organize your wireless network, you can use the Avalanche Console to create collections of mobile devices, called mobile device groups. These groups allow you to manage multiple devices simultaneously, using the tools available for managing individual mobile devices. A mobile device group can include devices assigned to the group's home location or associated sub-locations. Each mobile device can be a member of multiple mobile device groups.

A mobile device group will be available at its home location and inherited by any sub-locations. When a mobile device group is created, the home location is set by default to the location you currently have selected.

You can add authorized users for all mobile device groups or enable a user for a specific mobile device group. For information on adding an authorized user, see Assigning Authorized Users to Mobile Device Groups.

The topics in this section include:

- Creating Mobile Device Groups
- Viewing Devices in a Mobile Device Group
- Pinging Mobile Devices within Mobile Device Groups
- Sending Messages to Mobile Device Groups
- Editing Properties for Mobile Device Groups
- Additional Mobile Device Group Functions

Creating Mobile Device Groups

Mobile device groups allow you to group devices together based on selection criteria you configure. You can create dynamic or static groups. In both group types, new devices can be added to the group based on changes to the selection criteria. However, in a static group, devices cannot be deleted from the group unless they are deleted on an individual basis.

- **Dynamic Mobile Device Groups**. When you create a dynamic group, you configure selection criteria to define which devices you want to belong to the group. The devices currently in the Mobile Device Inventory that match the selection criteria are added to the group.

  If a new device that matches the selection criteria for a dynamic mobile device group connects to the Avalanche Console, it is automatically placed in the mobile device group.

Therefore, dynamic mobile device groups will continually add and remove mobile devices based on the selection criteria, without further management.

- **Static Mobile Device Groups**. When you create a static group, you configure selection criteria to define which devices you want to belong to the group. The devices currently in the Mobile Device Inventory that match the selection criteria are added to the group. If you add mobile devices to your network, you can add those devices to a static mobile device group as long as they meet the group's selection criteria.

  If a new device matching the selection criteria for a static mobile device group connects to the Avalanche Console, it will not automatically be placed in the mobile device group. You will need to manually add or delete devices if you want to modify the group. To modify a static mobile device group, you must first remove all current devices from the group. Next, modify the selection criteria as desired, and add the appropriate mobile devices back into the group. You cannot remove individual mobile devices from a static group.

  The home location for the group is the location you have selected when you create the group.

To create a mobile device group:

1 Select the **Device Groups** tab.

2 Click **Add Group**.

The *Create Device Group* dialog box appears.

3 Type a **Name** for the group.

4 Select whether you want the group to be **Static** or **Dynamic**.

5 Select whether you want the group to be **Enabled** or **Disabled**.

6 Use the Selection Criteria Builder to create criteria to define the device group.

7 Click **OK**.

The group appears in the Device Groups List.

To add mobile devices to a static mobile device group:

1 Select the **Device Groups** tab.

2 Select the static mobile device group from the Device Groups List.

3 Click **Edit**.

4 In the Device Group Properties area, click **Add Matching Devices**.

Any devices in the current Mobile Device Inventory that match the selection criteria are added to the group.

5 Save your changes.

Viewing Devices in a Mobile Device Group

The **Device Group** tab shows a set of mobile devices in the currently selected mobile device group. The following default information is provided for each mobile device:

Model Name The model name of the mobile device.

Terminal ID The unique ID automatically generated by Avalanche or assigned by a Console user.

MAC Address The Media Access Control address of a mobile device. This address uniquely identifies this mobile device on a network from a physical standpoint.

IP Address The Internet Protocol address assigned to the mobile device.

Status The client update status of the mobile device. A check mark indicates that the mobile device is up-to-date, while an X indicates that an update is available but not yet loaded on the device.

Last Contact The date and time of the last contact the mobile device had with Avalanche.

Recent Activity The status of a mobile device with respect to Avalanche. For example, when the mobile device receives new software, the activity status is `Downloading`.

You can also customize the columns in the device list or filter the devices displayed. For information on customizing the device list, see Managing Device Inventory Displays.

Pinging Mobile Devices within Mobile Device Groups

You can use mobile device groups to ping a collection of mobile devices simultaneously. You can ping mobile devices that are currently in range and running the Avalanche Enabler, an Avalanche-enabled application, or in some cases a configuration utility.

NOTE: This is not an ICMP-level ping, but rather an application-level status check. This feature indicates whether the mobile device is active or not.

To ping mobile devices within device groups:

1 Select the **Device Groups** tab.

2 Right-click the mobile device group you want to ping and select **Ping Devices** from the context menu.

The Recent Activity column in the Mobile Device List reports the status of the ping for each device in the group.

Sending Messages to Mobile Device Groups

You can send messages to the users of all mobile devices in a device group simultaneously.

To send messages to device groups:

1 Select the **Device Groups** tab.

2 Right-click the mobile device group you want to send a message to and select **Send Text Message** from the context menu.

The *Send Text Message: Group of Devices* dialog box appears.

3 Type a message in the **Text Message Field**.

4 Enable the **Provide Audible Notification** text box if you want a sound to play when the mobile device receives the message.

5 Click **OK**.

The Recent Activity column reports the status of the message for each device in the group.

Editing Properties for Mobile Device Groups

You can modify mobile device properties from a mobile device group. When you edit device properties for a group, the Console retrieves the common properties from all the devices in the group. You can then add, edit, and delete properties for the group. All property changes made at this level will be applied on the mobile devices in the group.

NOTE: See Building Selection Criteria for information on using properties in selection criteria.

To add a property to a mobile device group:

1 Select the **Device Groups** tab.

2 Right-click the mobile device group whose properties you want to edit and select **Edit Device Properties** from the context menu.

The *Edit Group Mobile Device Properties* dialog box appears.

3 Click **Add Property**.

The *Add Device Property* dialog box appears.

4 From the **Category** drop-down list, select the category where you want the property to be saved.

5 Enter the name of the property in the **Property Name** text box.

6 Enter the value of the property in the **Property Value** text box.

7 Click **OK**.

The new property is added to the properties list.

8 When you are finished adding properties, click **OK** to return to the Avalanche Console.

To edit a mobile device group property:

1 Select the **Device Groups** tab.

2 Right-click the mobile device group whose properties you want to edit and select **Edit Device Properties** from the context menu.

The *Edit Mobile Device Group Properties* dialog box appears.

3 Select the property that you want to edit and click **Edit Property**.

The *Edit Device Property* dialog box appears.

4 Type the **New Property Value**.

5 Click **OK**.

The edited property appears in the list.

6 Click **OK** to return to the Avalanche Console.

To delete a mobile device group property:

1 Right-click on a mobile device group and select **Edit Device Properties**.

The *Edit Mobile Device Group Properties* dialog box appears.

2 Select the property that you want to delete and click **Delete Property**.

3 Confirm that you want to delete the property.

The Pending Value column for the property displays the status of the property.

4 Click **OK** to remove the property and return to the Avalanche Console.

The property will be deleted after the next update.

Additional Mobile Device Group Functions

Mobile device groups include other functions, allowing you to more efficiently manage your mobile devices. These options are available by right-clicking the mobile device group and selecting the appropriate option.

The additional options for mobile device groups are as follows:

Enable/Disable Allows you to enable or disable the group. When the group is disabled, any selection criteria using the group as a selection variable will return a "false" value.

Update Now Allows you to update all mobile devices within that group immediately.

Clone Group Clones the group and its settings.

Remove Group Deletes the group from the Avalanche Console.

Chapter 17: Managing Alert Profiles

You can manage alerts in Avalanche using alert profiles. An alert profile gives you options for configuring what network events generate an alert and who is notified when an alert is generated. A server going offline or a new mobile device being discovered are examples of alert events.

This section provides information about the following topics:

- Creating and Configuring Alert Profiles
- Alerts Tab

Creating and Configuring Alert Profiles

Alert profiles are configured with a list of events that will generate an alert. These profiles are then deployed to the locations. When an event on the list occurs, an alert is generated and sent to the Avalanche Console. If the profile is configured for forwarding the alert to e-mail recipients or a proxy, the Console forwards the alert. The home location for the profile is the location you have selected when you create the profile.

The **Authorized Users** button allows you to assign administrative privileges for a profile to a user that has Normal user rights and is not assigned permissions to profiles. This allows you to give a user permission for one specific profile. Users that have permission for the profile will not appear in the list of available users. For information about creating users and assigning permissions, see Managing User Accounts.

The settings that can be configured for an alert profile include:

Profiled Contacts Each alert profile can notify one or more e-mail addresses when specified events occur. If you want the Avalanche Console to send notification by e-mail, you must add the e-mail address to the Email Recipients list for that profile. The entire contact list will receive e-mails for all alerts generated by that profile.

Profiled Proxies The Avalanche Console allows you to set one or more proxy hosts for an alert profile. When you add a proxy to a profile, the Console automatically forwards all alerts for that profile to the IP address of the proxy, enabling you to integrate Avalanche with your existing network management tools.

Profiled Alerts Avalanche provides a list of events that will generate alerts. You can choose events from this list when you create an alert profile.

See the following sections for additional information on configuring e-mail addresses and SNMP proxies for alert profiles:

- Adding E-Mail Contacts

- Adding SNMP Proxies

To create an alert profile:

1 From the **Profiles** tab, click **Add Profile**.

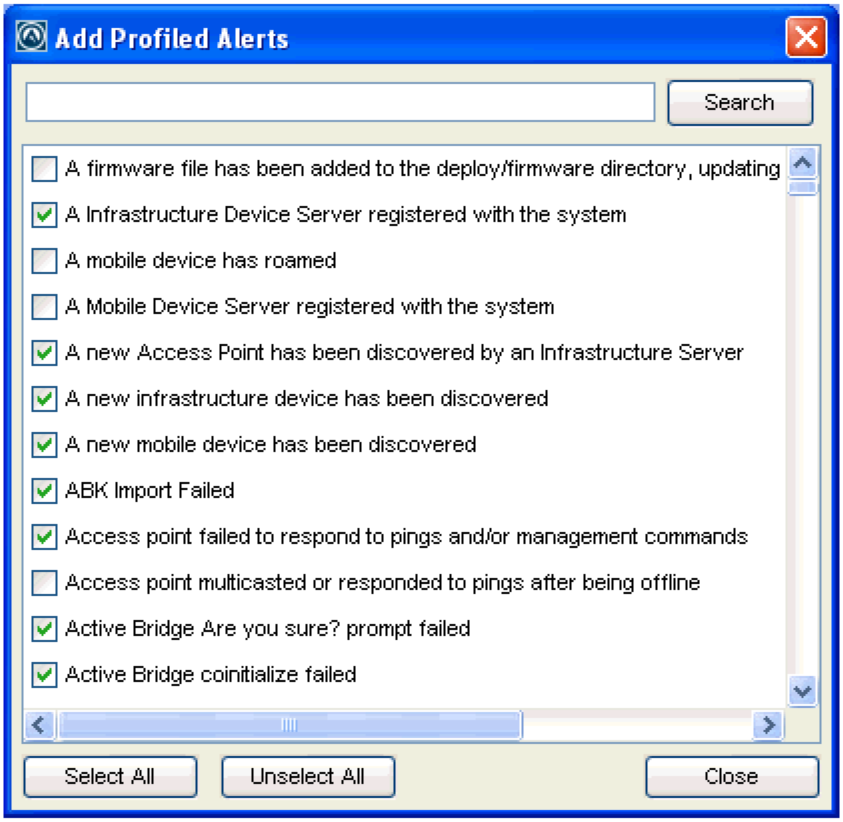
The Add Profile Wizard appears.

2 Select the **Alert Profile** option and click **Next**.

3 Type a **Name** for the profile and set the status to either **Enabled** or **Disabled**. Click **Next**.

4 Click **Add** to specify the alerts the profile will monitor.

The *Add Profiled Alerts* dialog box appears.



□ A firmware file has been added to the deploy/firmware directory, updating

☑ A Infrastructure Device Server registered with the system

□ A mobile device has roamed

□ A Mobile Device Server registered with the system

☑ A new Access Point has been discovered by an Infrastructure Server

☑ A new infrastructure device has been discovered

☑ A new mobile device has been discovered

☑ ABK Import Failed

☑ Access point failed to respond to pings and/or management commands

□ Access point multicasted or responded to pings after being offline

☑ Active Bridge Are you sure? prompt failed

☑ Active Bridge coinitialize failed

Add Profiled Alerts dialog box

5 From the list, select the events for which you want an alert to be generated. When you are finished, click **Close**.

6 The selected alerts appear in the list. click **Next**.

7 Confirm that the information is correct and click **Finish**.

The profile is added to the **Profile List**.

To configure an alert profile:

1 From the **Profiles** tab, select the alert profile you want to configure.

2 Click **Edit**.

3 Select **Enabled** to enable the profile, if desired.

4 In the **Alert Profile** tab, click **Add** in the Profiled Alerts area. From the list, select the events for which you want an alert to be generated. When you are finished, click **Close**.

5 If you want to forward alerts to an e-mail address or a proxy address:

- If you want to receive an e-mail when an alert is generated, click **Add** in the Profiled Contacts area.

  The *Contact Information* dialog box appears.

  Enter the contact information and click **OK**. The contact will appear in the Profiled Contacts list.

NOTE: You must configure the e-mail settings in the *Preferences* dialog box before Avalanche can e-mail you when alerts are generated. For information on configuring e-mail settings, see Configuring E-mail Settings.

- If you want to forward alerts to a SNMP proxy, click **Add** in the Profiled Proxies area.

  The *Proxy Address* dialog box appears.

  Enter the proxy address and click **OK**. The address will appear in the Profiled Proxies list.

6 Save your changes.

The alert profile is created and configured, and can be assigned to a location.

Adding E-Mail Contacts

Each alert profile can notify one or more e-mail addresses when related events occur. If you want the Avalanche Console to notify you of an alert by e-mail, add the e-mail address to the Profiled Contacts list for that profile. The entire contact list will receive e-mails for all alerts generated by that profile.

NOTE: You must configure the e-mail settings before Avalanche will send e-mails when alerts are generated. For information on configuring e-mail settings, see Configuring E-mail Settings.

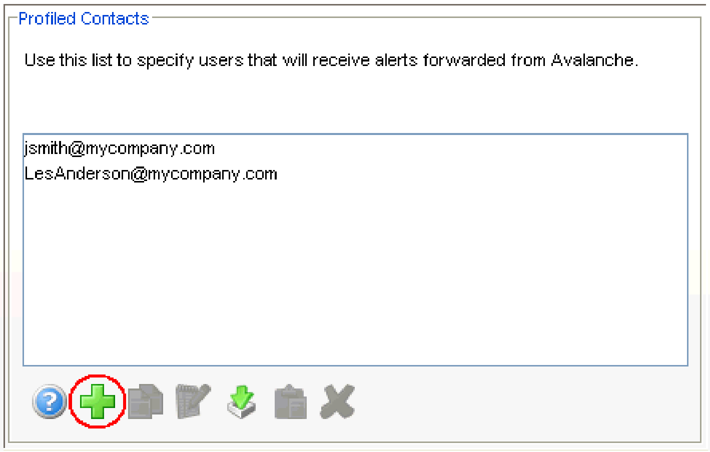
A list of e-mail addresses in a comma-delimited .csv file (for example, one exported from Microsoft Outlook) can be imported in order to add multiple e-mail addresses at a time.

To add e-mail contacts:

1 On the **Profiles** tab, select the profile you want to configure from the Profile List.

2 Click **Edit**.

3 In the **Profiled Contacts** tab, click **Add**.



Profiled Contacts

Use this list to specify users that will receive alerts forwarded from Avalanche.

jsmith@mycompany.com
LesAnderson@mycompany.com

Add button in the Profiled Contacts area

The *Contact Information* dialog box appears.

4 Type the desired information in the provided text boxes. An e-mail address is required. When you are done, click **OK**.

The contact is displayed in the **Profiled Contacts** list box.

5 Repeat Step 4 until you are finished adding e-mail addresses.

6 Save your changes.

To import e-mail addresses:

1 On the **Profiles** tab, select the profile you want to configure from the Profile List.

2 Click **Edit.**

3 In the Profiled Contacts region, click **Import Contacts**.

An *Open* dialog box appears.

4 Navigate to and select the .csv file that contains the e-mail addresses that you want to import.

5 Click **Open**.

The e-mail addresses contained in the text file appear in the **Available Contacts** list.

6 Click **OK**.

The contacts display in the **Profiled Contacts** list.

Adding SNMP Proxies

The Avalanche Console allows you to set one or more SNMP proxies for an alert profile. When you add a proxy to a profile, the Console automatically forwards all alerts for that profile to the IP address of the proxy, enabling you to integrate Avalanche with your existing network management tools.

To add an SNMP proxy:

1 On the **Profiles** tab, select the profile you want to configure from the Profile List.

2 Click **Edit**.

3 In the Profiled Proxies region, click **Add**.

The *Proxy Address* dialog box appears.

4 In the **Proxy Address** text box, enter the IP address and click **OK**.

The address appears in the **Profiled Proxies** list box.

5 Repeat Steps 3 and 4 until you are finished adding proxy addresses.

6 Save your changes.

Alerts Tab

The **Alerts** tab provides a real-time view of the health of your wireless network. You can tell at a glance which locations are operating normally and which require attention. The tab consists of two areas: the Map and the Alert Browser. This section contains information on the following tasks:

- Using the Alert Browser
- Using the Avalanche Map

Using the Alert Browser

In the **Alerts** tab, the area at the bottom of the screen is called the Alert Browser. The browser is a table overview of the alerts that occur on your wireless network. It provides the following information about each alert:

Ack Allows you to acknowledge that you have seen the alert. When you acknowledge an alert, the Server Location that sent the alert stops flashing in the Map pane.

Alert Displays the type of alert.

Date The time and date when the event occurred.

IP Displays the IP address where the event occurred.

Description Provides a brief description of the event.

When a new alert appears in the Alert Browser, the server location at which the alert was generated begins flashing in the map. To stop the flashing, acknowledge the alert. When the Alert Browser begins to fill with alerts, you may want to remove acknowledged alerts that are no longer relevant.

In the *Settings* dialog box, you can configure the way the Alert Browser manages and displays alerts. You can configure the following settings:

- Number of days an alert remains in the Alert Browser.
- Maximum number of alerts that are listed in the Alert Browser.
- Maximum number of alerts to store. Alerts are stored in the database on the Enterprise Server.

To acknowledge an alert:

- In the Alert Browser, enable the checkbox next to the alert you want to acknowledge. To immediately show the result, click **Refresh**.

  -Or-

- To acknowledge all alerts in the list, click **Acknowledge All**.

  The locations in the Map view stop flashing.

To clear alerts:

1. Acknowledge any alerts you want to clear by marking the checkbox next to the alert.
2. Click **Clear All**.

   All acknowledged alerts will be removed from the list. Alerts that were not marked as acknowledged will remain in the Alert Browser.

To customize the Alert Browser functions:

1. Click **Tools > Settings**.

The *Settings* dialog box appears.

2 On the **General** tab in the Alert Browser Settings area, use the boxes to configure the alert settings.

3 Click **Apply** to save your changes.

4 Click **OK** to close the dialog box.

The Alert Browser will update to reflect your changes.

Using the Avalanche Map

The map provides a geographical overview of the health of your network. Use the following methods to navigate the map:

- Use the navigation arrows to display different portions of the map.
- Center the map on its default location by using the center button of the navigation arrows.
- Zoom in on a portion of the map using the [+] magnifying glass icon.
- Zoom out on a portion of the map using the [-] magnifying glass icon.
- Apply filters so that only specific wireless components appear within the map. These filters are activated by the check boxes located next to the navigation arrows. You can apply the following filters:

Combined Servers Displays server locations that contain both a Mobile Device Server and an Infrastructure Server.

Mobile Device Servers Displays server locations that contain only a Mobile Device Server.

Infrastructure Servers Displays server locations that contain only an Infrastructure Server.

View Map By Region Displays only those server locations that belong to the area selected in the Navigation Window.

Mobile Devices Displays the mobile devices associated with the region selected.

Mobile Device GPS History Displays mobile devices by the GPS history.

- Color-code map components. This helps identify components and provide notifications of network health. The color codes for the components that appear in the map are as follows:

Purple Indicates a server location with both a Mobile Device Server and an Infrastructure Server.

Blue Indicates a server location with only a Mobile Device Server.

Dark Green Indicates a server location with only an Infrastructure Server.

Yellow Indicates a server location with one or more warning-level alerts (but no critical alerts).

Red Indicates a server location with one or more critical alerts.

When a server location generates a warning or critical alert, the icon in the Map flashes yellow or red, based on the highest severity level in its alert list. The flashing stops when you acknowledge the alert in the Alert Browser. The icon returns to its base color when all warnings and critical alerts for the server location have been cleared from the Alert Browser.

You can also save specific map views to simplify navigation.

To save a map view:

1. Position the map using the navigation arrows and zooming in on the relevant geographic area.
2. Click **Save View**.
3. Type the name of the view in the dialog box that appears.
4. Click **OK**.

The view can be accessed by selecting it from the **Go to View** drop-down list. The view will only be available to users on the local machine.

Chapter 18: Using Selection Criteria

Selection criteria are sets of rules which you can apply to profiles or devices. These criteria define which mobile devices or infrastructure devices receive the profile or are added to a group.

Additional selection criteria are typically built into software packages to restrict the distribution of the package to devices that can use it. The built-in selection criteria associated with a particular software package are set by Wavelink or the third-party application developer and, once created, cannot be modified.

A selection criterion string is a single expression (much like a mathematical expression) that takes a set of variables corresponding to different aspects of a mobile device and compares them to fixed values. For example, set a profile so that it is only applied to Hand Held 7400 devices by using the criterion:

```
ModelName = HHP7400
```

After the profile is enabled and applied to a location, it is distributed to devices in the location that meet the selection criterion.

If you want to set criteria but only want to match part of the expression, use an asterisk (*) as a wildcard to represent single or multiple characters. You can also use parentheses and boolean operators for flexible combination of multiple variables.

NOTE: The database interfaces used by Avalanche put a length limit on SQL expressions which can be exceeded when selection criteria get too complex. Selection criteria containing more than 150 expressions have a good chance of exceeding database-imposed limits. Due to the potential complexity of long selection criteria strings, it is recommended that you limit the selection criteria to 20 selection variables or less.

To reduce the size and complexity of selection criteria, the user should make use of the range and wildcard capabilities.

The selection criteria builder provides a list of operators and preset selection variables, and also allows you to add custom properties as selection variables. Use the selection criteria builder to build valid selection criteria.

This section provides the following information:

- Building Selection Criteria
- Selection Variables
- Operators
- Adding Properties to the Selection Variables

Building Selection Criteria

You can access the Selection Criteria Builder from several different places in the Avalanche Console, including network profiles, software profiles, infrastructure profiles, and mobile device groups. To access the Selection Criteria Builder, click the Selection Criteria button:

Selection Criteria button

NOTE: Selection criteria are also used for software packages; however, you cannot edit software package selection criteria in Avalanche.

In the Selection Criteria Builder, you can build the selection criteria string by selecting or typing string elements one element at a time. The string elements include:

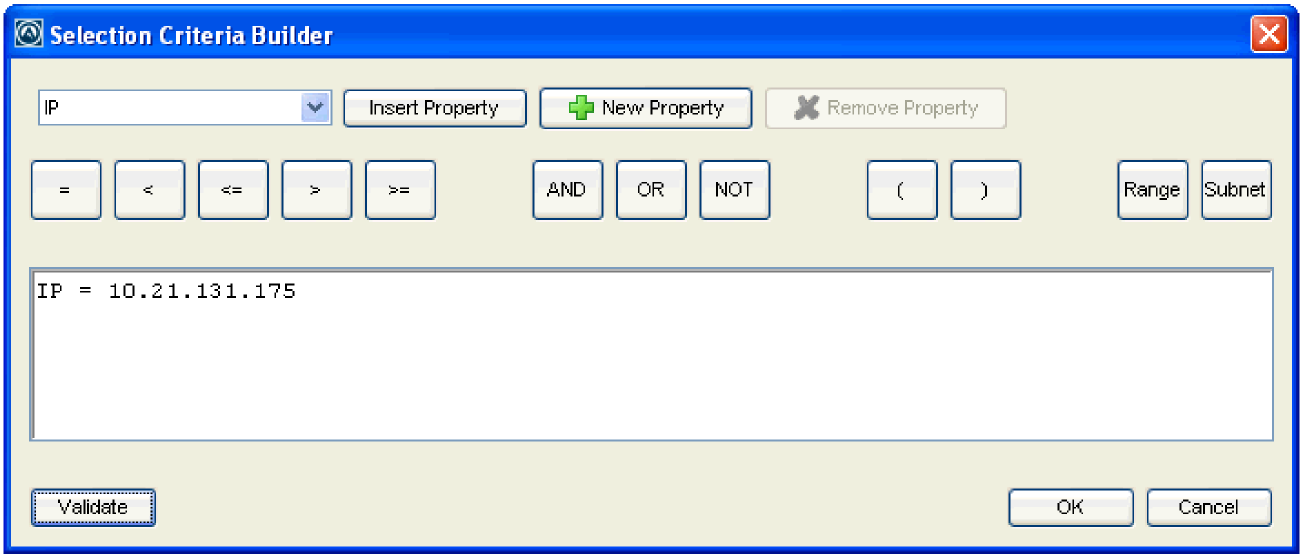
- Selection variables such as **ModelName** or **KeyboardName**. These variables determine the type of restriction placed on the package or profile. For example, by using a **ModelName** variable, you can restrict the package or profile to a specific class of mobile devices, based on their model numbers. You may use any property that you have assigned a device as a selection criterion variable.
- Operators such as AND (&), and OR (|) that are used to assign a value to a selection variable or to combine multiple variables.

NOTE: Parentheses are recommended when multiple operators are involved. Nesting of parentheses is allowed.

- Actual values that are assigned to a selection variable. For example, if you assign a value of 6840 to a **ModelName** variable by building the string `ModelName = 6840`, then you will restrict packages or profiles to model 6840 mobile devices.

To build selection criteria:

1. Access the Selection Criteria Builder.



```
IP = 10.21.131.175
```

Selection Criteria Builder

2 From the drop-down list, select a property and click **Insert Property**. For information about properties, see Selection Variables.

3 Select one of the operator buttons. For more information about operators, see Operators.

4 Type a value for the property that you selected.

5 For each additional element you want to add to the selection criteria string, repeat the preceding steps.

NOTE: Due to the potential complexity of long selection criteria strings, it is recommended that you limit the selection criteria to 20 selection variables or less.

6 Click **Validate**.

The Selection Criteria Builder will indicate whether the selection criteria expression is valid.

7 Click **OK** to return to the Selection Criteria Builder.

8 Click **OK** to close the *Selection Criteria Builder* dialog box.

Selection Variables

Selection criteria are based on the use of selection variables. Some selection variables are preset, or you can create your own

You can place numbers and strings directly in the selection criteria string with or without quotes. Selection criteria strings are case sensitive.

For example, the following selection criteria strings are all valid:

```
ModelName=6840
ModelName = 6840
ModelName=”6840”
```

The following string is valid:

```
Series = S
```

While these are not:

```
series = s
Series = s
```

Long strings are also supported as selection criteria. For example, the following string is valid:

```
Series = 3 | (MAC = 00-A0-F8-27-B5-7F | MAC = 00-A0-F8-80-3D-4B | MAC = 00-
A0-F8-76-B3-D8 | MAC = 00-A0-F8-38-11-83 | MAC = 00-A0-F8-10-24-FF | MAC =
00-A0-F8-10-10-10)
```

NOTE: Due to the potential complexity of long selection criteria strings, it is recommended that you limit the selection criteria to 20 selection variables or less.

The Selection Criteria Builder in Avalanche has some selection variables already created. You can also add custom device properties as selection variables. The following table lists the preset selection variables:

Columns The number of display columns the mobile device supports. The possible value range is 1 – 80.

Example:

```
Columns > 20
```

EnablerVer Predefined Enabler version number.

Values with decimals must be surrounded by double quote marks.

EnablerVer = “3.10-13”

IP

IP address of the mobile device(s).

Enter all IP addresses using dot notation. IP addresses can be written in three ways:

- Direct comparison with a single IP address. For example, `IP = 10.1.1.1`.
- Comparison with an arbitrary address range. For example, `IP = 10.1.1.5 – 10.1.1.15` (This can also be written as `IP = 10.1.1.5 – 15`.)
- Comparison with a subnet. This is done by supplying the network number along with the subnet mask or CIDR value. For example, `IP = 10.1.1.0/255.255.255.0`
  . Using CIDR notation, this can also be written as `IP = 10.1.1.0/24`
  .

KeyboardCode

A number set by the device manufacturer and used internally by the BIOS to identify the keyboard type.

Supported values include:

`0` = 35-Key
`1` = More than 35 keys and WSS1000
`2` = Other devices with less than 35 keys

Example:

```
KeyboardCode = 0
```

KeyboardName A value indicating which style of keyboard the mobile device is using (46key, 35key, etc.). This selection variable is not valid for CE devices.

Supported values include:

`35KEY`

`46KEY`

`101KEY`

`TnKeys`

Example:

```
KeyboardName = 35KEY
```

Last Contact

The parser for the LastContact property is unique because it not only allows specifying absolute time stamps, but also relative ones, forcing their constant reevaluation as the time-base changes.

Examples of time-stamp formats:

- mm/dd/yyyy

  `LastContact = “12/22/2005”` (All day)

- HH:MM mm/dd/yyyy

  `LastContact = “23:15 12/22/2005”` (All minute long, 24 hour notation)

- hh:mm AP mm/dd/yyyy

  `LastContact = “11:15 PM 12/22/2005”`

- Also range-forms of the above

The relative format uses an offset from the current time.

- <offset>M

  `LastContact = 60M` (60 minutes in the past)

- <offset>H

  `Last Contact = 1H` (one hour in the past, the whole hour)

- <offset>D

  `Last Contact = 1D` (one day in the past, the whole day)

- Also range-forms of the above

Special syntax allows inverted ranges from the range form to reduce the amount of confusion.

```
LastContact=7D-1M
```

MAC

MAC address of the mobile device.

Enter any MAC addresses as a string of hexadecimal digits. Dashes or colons between octets are optional. For example:

```
MAC = 00:A0:F8:85:E8:E3
```

ModelName

The standard model name for a mobile device. This name is often a number but it can be alphanumeric. Examples include 6840, 3940, and 4040. If the model number is unknown, it might appear in one of the views when the mobile device is selected.

A few of the supported values include:

```
1040, 1740, 1746, 1840, 1846, 2740, 2840, 3140, 3143,
3540, 3840, 3843, 3940, 4040, 5040, 6140, 6143, 6840,
6843, 6940, 7240, 7540, 7940, 8140, 8940, PTC960,
TR1200, VT2400, WinPC, WT2200, 7000CE, HHP7400, MX1,
MX2, MX3, VX1, iPAQ, iPAD, Falcon, ITCCK30, ITC700
```

Example:

```
ModelName = 6840
```

ModelCode

A number set by the device manufacturer and used internally by the BIOS to identify the hardware.

Supported values include:

1= LRT 38xx/LDT
2 = VRC39xx/69xx
3 = PDT 31xx/35xx
4 = WSS1000
5 = PDT 6800
6 = PDT 6100

Example:

```
ModelCode <= 2
```

This matches all 38xx, 39xx, and 69xx devices.

OSVer

Predefined property designated by the Enabler. Values with decimals in them must be surrounded by double quote marks.

```
OSVer = “4.20”
```

OS Type

Predefined property designated by the Enabler.

```
OSType = PocketPC
```

Processor

Predefined property designated by the Enabler.

```
Processor = ARM
```

ProcessorType Predefined property designated by the Enabler.

`ProcessorType = xScale`

Assigned IP IP address of the mobile device.

Enter all IP addresses using dot notation. IP addresses can be written in three ways:

- Direct comparison with a single IP address. For example, `IP = 10.1.1.1`.
- Comparison with an arbitrary address range. For example, `IP = 10.1.1.5 - 10.1.1.15` (This can also be written as `IP = 10.1.1.5 - 15`.)
- Comparison with a subnet. This is done by supplying the network number along with the subnet mask or CIDR value. For example, `IP = 10.1.1.0/255.255.255.0`
  Using CIDR notation, this can also be written as `IP = 10.1.1.0/24`

Series The general series of a device. This is a single character: '3' for Symbol '3000' series mobile devices, '7' for Symbol '7000' series mobile devices, etc.

Supported values include:

`3` = DOS 3000 Series
`P` = DOS 4000 and 5000 Series
`7` = DOS 7000 Series
`T` = Telxon devices
`C` = CE devices
`S` = Palm devices
`W` = Windows machines
`D` = PSC and LXE DOS devices

Example:

`Series = 3`

Rows

The number of display rows the mobile device supports. The possible value range is 1 to 25.

Example:

```
(KeyboardName=35Key)&(Rows=20)
```

This example matches all mobile devices with 20 rows and 35-key keyboards.

Syncmedium

The type of synchronization medium for the mobile device to use.

Supported values include:

```
anyipserial
```

Terminal ID

The unique ID for the mobile device generated by Avalanche or assigned by a user. The initial terminal ID is 1, and the values increment as needed. You can redefine terminal IDs for mobile devices as needed. If you are using terminal IDs in a workstation ID, the value must not exceed the character limit for the host. Typically, hosts support 10 characters.

Example:

```
Terminal ID = 5
```

@exists

Enables the user to check for the existence of a property. The `@exists` function name is case-sensitive and can only be used with an EQ or NE operator.

Example:

```
@exists ne some.property

@exists ==Some.property & Some.property = “value”
```

Operators

All selection criteria strings are evaluated from left to right, and precedence of operations is used when calculating the selection criteria. When more than one operator is involved, you must include parentheses in order for the selection criteria string to be evaluated properly.

For example:

```
(ModelName=3840) or ((ModelName=6840) and (KeyboardName= 46Key))
```

The proceeding selection criteria string states that both 3840 mobile devices (regardless or keyboard type) and 6840 mobile devices with a 46-key keyboard will receive the software profile.

You may use the symbol of the operator (!, &, |, etc.) in a selection criterion, or you may use the letter abbreviation (NOT, AND, OR, etc.). If you use the letter abbreviation for the operator, then you must use uppercase letters. Spaces around operators are optional, and you can use the wildcard character [*] for left wildcard constants and right wildcard constants.

Operators use the following precedence:

1 Parentheses

2 OR operator

3 AND operator

4 NOT operator

5 All other operators

The following operators can be used along with any number of parentheses to combine multiple variables.

NOT (!) Binary operator that negates the boolean value that follows it.

```
! (KeyboardName = 35Key) & (Rows = 20)
```

All mobile devices receive the software package except for those with both 20 rows and 35Key keyboards.

AND (&) Binary operator that results in TRUE if and only if the expressions before and after it are also both TRUE.

Example:

```
(ModelName=3840) | ((ModelName=6840) & (KeyboardName= 46Key))
```

OR (|) Binary operator that results in TRUE if either of the expressions before and after it are also TRUE.

```
(ModelName =6840) | (ModelName = 3840)
```

6840 and 3840 mobile devices can receive the software package.

EQ (=) Binary operator that results in TRUE if the two expressions on either side of it are equivalent.

Example:

```
ModelName = 6840
```

NE (!=) Not equal to.

Example:

ModelName != 6840

Targets all non-6840 mobile devices.

> Binary operator that results in TRUE if the expression on the left is greater than the expression on the right.

Example:

```
Rows > 20
```

< Binary operator that results in TRUE if the expression on the left is less than the expression on the right.

Example:

```
Rows < 21
```

>= Binary operator that results in TRUE if the expression on the left is greater than or equal to the expression on the right.

Example:

```
Rows >= 21
```

<= Binary operator that results in TRUE if the expression on the left is less than or equal to the expression on the right.

Example:

```
Rows <= 20
```

(*) Wildcard operator.

Wildcard expressions should be quoted and must be used with either an EQ or NE operator.

`Keyboardname = “35*”` - Tail is the wildcard

`Keyboardname = “*35”` - Head is the wildcard

`Keyboardname = “*”` - Entire constant is the wildcard

You can also use wildcards for IP addresses.

```
IP = 10.20.*.*
```

This would be equivalent to 10.20.0.0-10.20.255.255. A wildcard address must contain all four octets and can only be used with either the EQ or the NE operator.

Adding Properties to the Selection Variables

Using profiles, you can add custom properties to your devices. These custom properties or properties already existing on the device can be used for selection criteria. In order to use a property as a selection variable, add the property to the Selection Criteria Builder.

NOTE: Asterisks are not allowed in property names or values because the symbol denotes a wildcard.

To build custom properties:

1 From the Selection Criteria Builder, select **New Property**.

The *Add Custom Property* dialog box appears.

2 Enter the name for the custom property and click **OK**.

The new property is added to the drop-down list.

Chapter 19: Using the Task Scheduler

The Task Scheduler enables you to schedule network management activities for your locations.

When you configure an aspect of your wireless network using the Avalanche Console, those configurations are not immediately sent to the rest of your network. Instead, you can schedule specific times for the new configurations to be sent. The Task Scheduler provides several advantages, including the ability to specify which locations receive the changes and the ability to implement changes during periods of low network activity.

Scheduling options for the Task Scheduler include:

Perform the task now Runs the task immediately.

Schedule a one-time event for the task Performs the task once at the scheduled time. This selection allows you to configure the following options:

Task Start Time. The date and time of day the event will begin.

Run until complete. When this option is selected, the task will run until it is complete.

Use End Time. The time of day when the task will end.

Use Location's Local Time. Uses the time local to the specified server(s) rather than the local time of the enterprise server.

Schedule a recurring event for the task Performs the task repeatedly at the scheduled times. This selection allows you to configure the following options:

Task Start Time. The time of day the event will begin.

Use end time. The time of day the event will end.

Use Location's Local Time. Uses the time local to the specified server(s) rather than the local time of the enterprise server.

Daily. The task is performed daily. When Daily is selected, you can also configure the following options:

Every weekday. Runs the scheduled task every day Monday - Friday.

Every weekend. Runs the scheduled task every Saturday and Sunday.

Weekly. The task is performed on a weekly basis. When **Weekly** is selected, you can also configure the following options:

Run every __ week(s) on. This option allows you to configure whether the task is run weekly or at a longer interval. For example, if you want the task to run every other Saturday, type 2 in the text box and enable the **SAT** checkbox.

[days of the week]. These check boxes allow you to specify which days of the week the task is performed.

Monthly. The task is performed on a monthly basis. When **Monthly** is selected, you can also configure the following option:

Run on the __ day, every __ month(s). This option allows you to set the day of the month to run the task, and how many months apart the task should be run.

Start date. Specifies the date the task should begin running.

No end date. When this option is selected, the task will continue repeating indefinitely.

End by. When this option is selected, the task will no longer run after the specified date.

NOTE: Once Avalanche begins to send data to a location, it does not stop until all data is sent. This prevents a location from receiving only part of the information it needs. When an event's end time is reached, Avalanche completes any deployments that are in progress, but does not start sending data to any of the remaining locations.

The Task Scheduler allows you to perform the following tasks:

- Performing a Server Synchronization
- Deploying Servers
- Uninstalling Servers
- Deploying Infrastructure Firmware
- Applying and Deploying Profiles
- Backing Up the System

- Restoring the System
- Removing Completed Tasks

Performing a Server Synchronization

Any time you make changes to profiles, settings or configurations in the Avalanche Console, perform a server synchronization to send all the changes to your servers. A server synchronization updates the settings for the selected location or locations.

To perform a universal deployment:

1 Click **Tools > Task Schedule**.

The *Task Schedule* dialog box appears.

2 Click **Add**.

The *Scheduled Tasks Wizard* appears.

3 Select **Synchronization** from the **Task Type** drop-down list and click **Next**.

The Select Task Destinations screen appears.

4 Select the locations by enabling the check box next to the location name. You can select all locations by clicking **Select All**.

5 Click **Next**.

The Select Scheduling Options screen appears.

6 Determine when the event will occur and click **Next**.

The Review Your Task screen appears.

7 Review your the task to ensure that it is correct and click **Next**.

The Task Scheduled! screen appears.

8 Click **Next** to schedule a new event, or click **Finish**.

The task is added to the **Scheduled Tasks** list. Once it has completed, it will move to the **Completed Tasks** list.

Deploying Servers

After you have added a server location and created a deployment package, you can deploy an infrastructure or mobile device server using the Task Scheduler. When you deploy a server, it is installed at the server location.

NOTE: If the destination computer is running Windows 7 or Windows Server 2008 R2, use the local device server installer rather than a deployment. For information on the local device server installer, see Installing a Device Server.

To deploy a server:

1 Ensure you have created a server deployment package and a server location.

2 Click **Tools > Task Schedule**.

The *Task Schedule* dialog box appears.

3 Click **Add**.

The *Scheduled Tasks Wizard* appears.

4 Select **Deploy/Update Device Servers** from the **Task Type** drop-down list and click **Next**.

The Select Task Destinations screen appears.

5 Select the server location by enabling the checkbox next to its name and click **Next**.

The Select Server Package to Deploy screen appears.

6 Select a server package and click **Next**.

NOTE: If you have not created a deployment package, you can do so at this time by clicking the **Open Deployment Package Manager** link at the bottom of the dialog box. See Building Server Deployment Packages for more information on creating deployment packages.

The Select Scheduling Options screen appears.

7 Determine when the event will occur and click **Next**.

The Review Your Task screen appears.

8 Review your the task to ensure that it is correct and click **Next**.

The Task Scheduled screen appears.

9 Click **Next** to schedule a new event, or click **Finish**.

The task is added to the **Scheduled Tasks** list. The task will run according to its schedule, and once it has completed, it will move to the **Completed Tasks** list.

NOTE: You must perform a universal deployment after a server is deployed to a server location in order to activate the server.

Uninstalling Servers

You can remove a server from a server location at any time. When you remove a server from a server location, you will not longer be able to manage devices associated with that server. You can either install a new server or delete the server location.

To remove a server:

1 Click **Tools > Task Schedule**.

The *Task Schedule* dialog box appears.

2 Click **Add**.

The *Scheduled Tasks Wizard* appears.

3 Select **Uninstall Distributed Servers** from the **Task Type** drop-down list and click **Next**.

The Select Task Destinations screen appears.

4 Select the location of the server to be uninstalled by enabling the check box next to the location name.

The Select Distributed Servers to Uninstall screen appears.

5 Select if you want to uninstall the Infrastructure Server, the Mobile Device Server, or both servers at the location. Click **Next**.

The Select Scheduling Options screen appears.

6 Determine when the event will occur and click **Next**. Do not schedule this task as a recurring task.

The Review Your Task screen appears.

7 Review your the task to ensure that it is correct and click **Next**.

The Task Scheduled screen appears.

8 Click **Next** to schedule a new event, or click **Finish**.

The task is added to the **Scheduled Tasks** list. The task will run according to its schedule, and once the servers are removed, the task will move to the **Completed Tasks** list.

Deploying Infrastructure Firmware

Once you create a firmware package, you must deploy to the infrastructure servers in your network. For information about creating firmware packages, see Creating Firmware Packages.

To deploy firmware packages:

1 Click **Tools > Task Schedule**.

The *Task Schedule* dialog box appears.

2 Click **Add**.

The *Scheduled Tasks Wizard* appears.

3 Select **Update Infrastructure Firmware** from the **Task Type** drop-down list and click **Next**.

The Select Task Destinations screen appears.

4 Select the locations by enabling the check box next to the location name. You can select all locations by clicking **Select All**.

5 Click **Next**.

The Select Firmware Packages to Deploy screen appears.

6 Select the firmware packages you want to deploy by enabling the checkbox next to the name of the firmware package.

7 Click **Next**.

The Select Scheduling Options screen appears.

8 Determine when the event will occur and click **Next**.

NOTE: For this task, it is not recommended that you select the **Schedule a recurring event for the task** option.

The Review Your Task screen appears.

9 Review your the task to ensure that it is correct and click **Next**.

The Task Scheduled screen appears.

10 Click **Next** to schedule a new event, or click **Finish**.

Applying and Deploying Profiles

A profile must be applied and deployed in order for the settings to take effect. When you use the Task Scheduler to apply and deploy profiles, select a time for the profile to be deployed.

To deploy a profile:

1 Click **Tools > Task Schedule**.

The *Task Schedule* dialog box appears.

2 Click **Add**.

The *Scheduled Task Wizard* dialog box appears.

3 Select **Apply / Deploy Profiles** from the **Task Type** drop-down list and click **Next**.

The *Select the Targets* screen appears.

4 Select the locations to which the profile will be applied by enabling the check box next to the location name. You can also select the locations where the profile will be deployed at the time the task is performed. Click **Next**.

NOTE: If the scheduled task applies the profile but does not deploy it, the profile will be deployed during the next universal deployment.

The *Schedule the Time Window* dialog box appears.

5 Determine when the event will occur and click **Next**.

The *Review Your Task* dialog box appears.

6 Review your the task to ensure that it is correct and click **Next**.

The *Task Scheduled* dialog box appears.

7 Click **Next** to schedule a new event, or click **Finish**.

Backing Up the System

This section provides information about using the Task Scheduler to back up the Avalanche system. Backup and restore functionality is available when you are using PostgreSQL databases installed at the same location as the Enterprise Server. When you back up Avalanche, the enterprise database information and software packages are saved in a zip file.

You should back up the system regularly. If for any reason Avalanche files are deleted or corrupted, you will be able to restore them from the backup files. For information on the default backup directory or changing where backups are stored, see Specifying the Backup Location.

NOTE: If you are attempting to back up your system on a Linux operating system, Wavelink recommends you perform the back up manually.

To back up the system:

1 Click **Tools > Task Schedule**.

The *Task Schedule* dialog box appears.

2 Click **Add**.

The *Scheduled Task Wizard* appears.

3 Select **System Backup** from the **Task Type** drop-down list and click **Next**.

The Create A System Backup screen appears.

4 In the **Tag Name** text box, enter a name for the system backup and click **Next**.

NOTE: The tag is an identifier that can be used to select the correct file when restoring the system. The tag is not the same as the name of the zip file.

The Select Scheduling Options screen appears.

5 Determine when the event will occur and click **Next**.

The Review Your Task screen appears.

6 Review your task to ensure that it is correct and click **Next**.

The Task Scheduled screen appears.

7 Click **Next** to schedule a new event, or click **Finish**.

The task is added to the **Scheduled and Recurring Tasks** list.

Restoring the System

If you have created a system backup using the Task Scheduler, you can use the Task Scheduler to restore the information to Avalanche.

You cannot restore a system backup from a previous version of Avalanche. The backup version must match the Avalanche version. If you attempt to restore a system backup from a previous version of Avalanche, the restoration will fail.

NOTE: If you are attempting to restore the system on a Linux operating system, Wavelink recommends you perform the restoration manually.

To restore the system:

1 Click **Tools > Task Schedule**.

The *Task Schedule* dialog box appears.

2 Click **Add**.

The *Scheduled Task Wizard* appears.

3 Select **Restore System** from the **Task Type** drop-down list and click **Next**.

The Restore A System Backup screen appears.

4 Select the system backup you wish to restore and click **Next**.

- Select **Restore the most recent system backup** to restore Avalanche to the latest backup file.
- Select **Restore by path** to specify the file name and path of the desired system backup.
- Select **Restore selected** to choose the desired system backup from the list according to the tag name.

The Review Your Task screen appears.

5 Review your task to ensure that it is correct and click **Next**.

The Task Scheduled screen appears.

6 Click **Next** to schedule a new event, or click **Finish**.

The task is added to the **Scheduled and Recurring Tasks** list.

7 Restart the enterprise server, statistics server, and Tomcat service after the files are restored. If Avalanche is installed on a Windows OS, this is done from the Windows Services list. For the specific names of the services, see Avalanche Services.

Removing Completed Tasks

When the Task Scheduler has completed an event, that event appears in the **Completed Tasks** list. By default the Task Scheduler is set to retain all completed tasks in the list. You can configure Avalanche to remove tasks periodically.

To schedule task removal:

1 Click **Tools > Task Schedule**.

The *Task Schedule* dialog box appears.

2 Enable the **Remove Completed Events After** option and then select the number of days you want to pass before the completed tasks are removed.

3 Click **Refresh** to update the scheduler.

The completed tasks will be removed according to your settings.

SSL Certificates for the Web Console

When you use the Avalanche Web Console, by default it connects to the server using Hypertext Transfer Protocol (http), which is not encrypted. If you want your information to be encrypted, you can configure Avalanche to use https with an SSL certificate instead.

If you intend to use Avalanche with an SSL certificate for a secure connection, you have the options of purchasing a certificate through a third-party Certificate Authority (such as Verisign) or creating a self-signed certificate.

NOTE: If you create a self-signed certificate, web browsers will not initially recognize the certificate and will display warning messages that the site is not trusted. They may require you to make an exception in order to connect. The connection will be encrypted, however.

This section contains instructions for the following tasks:

- Implementing a Certificate from a Certificate Authority
- Implementing a Self-Signed Certificate

Implementing a Certificate from a Certificate Authority

You can choose to use Avalanche with a certificate from a Certificate Authority. Note that the following instructions are based upon acquiring a certificate through the certificate authority Verisign. The steps may vary somewhat when using another certificate authority vendor.

Wavelink strongly recommends that you backup the keystore file, the actual certificate file, the intermediate certificate, the certificate request, and the server.xml document after you have implemented your certificate. This would include the following files:

- amckeystore.keystore
- [your certificate].cer
- intermediateCA.cer
- certreq.csr
- server.xml

This section contains the following tasks for obtaining an SSL certificate from a certificate authority:

- Creating a Keystore
- Generating the Certificate Signing Request
- Importing an Intermediate Certificate

- Importing a Certificate
- Activating SSL for Tomcat
- Accessing the Web Console over a Secure Connection
- Troubleshooting

Creating a Keystore

To create a keystore for the certificate, use the keytool.exe utility. You will need to provide a Common Name (domain name), organizational unit, organization, city, state, and country code. You will also need to provide a keystore name and passwords for the keystore and alias. These are arbitrary, but should be noted for future reference.

To generate a keystore for the certificate:

1 From a command line, navigate to:
```
[Avalanche installation directory]\JRE\Bin
```

2 Use the command:
```
keytool -genkey -alias amccert -keyalg RSA -keystore
amckeystore.keystore
```

3 At the prompt **Enter keystore password**, type the keystore password. When prompted, re-enter the password.

4 At the prompt **What is your first and last name**, type the Common Name.

NOTE: The Common Name (domain name) you enter should be one that your company owns. Add a DNS entry if needed to resolve this computer to the Common Name.

5 At the prompts, enter your organizational unit, organization, city, state, and the country code.

6 When you are prompted to review your information, type `yes` to confirm that it is correct. If you type `no`, you will be guided through the prompts again.

7 At the prompt **Enter key password for <amccert>**, type a password to use for the alias. If you want to use the same password for the alias as you used for the keystore, press `Return`.

An example of generating a keystore:

```
Enter keystore password: avalanche

Re-enter new password: avalanche

What is your first and last name?[Unknown]: avaself.wavelink.com

What is the name of your organizational unit?[Unknown]: Engineering
What is the name of your organization?[Unknown]: Wavelink Corporation

What is the name of your City or Locality?[Unknown]: Midvale

What is the name of your State or Province?[Unknown]: Utah

What is the two-letter country code for this unit?[Unknown]: US

Is CN=avaself.wavelink.com, OU=Engineering, O=Wavelink Corporation,
L=Midvale, ST=Utah, C=US correct?[no]: yes

Enter key password for <amccert>(RETURN if same as keystore
password):
```

Generating the Certificate Signing Request

Once you have created the keystore, you can use the keytool.exe utility to generate a certificate signing request (`certreq.csr`) file to send to a certificate authority.

To generate a certificate signing request:

1. From a command line, navigate to:
   `[Avalanche installation directory]\JRE\Bin`

2. Use the command:
   ```
   keytool -certreq -keyalg RSA -alias amccert -file certreq.csr
   -keystore "[Avalanche installation
   directory]\JRE\bin\amckeystore.keystore"
   ```

3. Enter your keystore password.

When you apply to a certificate authority for an SSL web server certificate, you will need to submit the `certreq.csr` file. This file should be created in the `[Avalanche installation directory]\JRE\bin` folder.

Importing an Intermediate Certificate

When you acquire an intermediate certificate from your certificate authority, import it into the keystore. You may need to copy the contents of the intermediate certificate to a text editor and save the file as `intermediateCA.cer`. This file must be saved in the `[Avalanche installation directory]\JRE\bin` directory before you can import it.

To import an intermediate certificate:

1. From a command line, navigate to:
   `[Avalanche installation directory]\JRE\bin`

2. Use the command:
   ```
   keytool -import -alias intermediateCA -keystore "[Avalanche
   installation directory]\JRE\bin\amckeystore.keystore"
   -trustcacerts -file intermediateCA.cer
   ```

NOTE: In this command, the filename `intermediateCA.cer` is used. If your intermediate certificate has a different name, use it instead.

3 Enter your keystore password.

The intermediate certificate is added to the keystore.

Importing a Certificate

Once you have received your certificate, you need to import it into the keystore. Your certificate will probably come as a file with the extension `.cer` or in the body of an e-mail. If it comes in the body of an e-mail, copy the contents to a text editor and save the file with a `.cer` extension. This file must be saved in the `[Avalanche installation directory]\JRE\bin` directory before you can import it.

To import a certificate:

1 From a command line, navigate to:

```
[Avalanche installation directory]\JRE\bin
```

2 Use the command:

```
keytool -import -alias amccert -keystore "[Avalanche installation
directory]\JRE\bin\amckeystore.keystore" -trustcacerts -file
ava-wavelink-com.cer
```

NOTE: As an example, `ava-wavelink-com.cer` is used as the filename. Replace this filename with the name of your certificate.

3 Enter your keystore password.

The certificate is added to the keystore.

Activating SSL for Tomcat

Once you have generated a certificate, you must activate SSL for Tomcat. You must modify the `server.xml` file and then restart the Tomcat server.

To activate SSL for Tomcat:

1 Navigate to

```
[Avalanche Install location]\WebUtilities\tomcat\conf
```

and open the `server.xml` file with a text editor such as Notepad.

2 Find

```
<Connector port="8443" protocol="HTTP/1.1" SSLEnabled="true"
maxThreads="150" scheme="https" secure="true" clientAuth="false"
sslProtocol="TLS" />
```

3 Remove the comment markers so that the section is not commented out.

4 Modify the section to contain the following information:

```
<Connector port="8443"
protocol="org.apache.coyote.http11.Http11NioProtocol"
SSLEnabled="true" maxThreads="150" scheme="https" secure="true"
clientAuth="false" sslProtocol="TLS" keystoreFile="C:\Program
Files\Wavelink\AvalancheMC\ JRE\bin\amckeystore.keystore"
keystorePass="[keypass]"/>
```

Where `[keypass]` is the keystore password you entered when creating the certificate. For the above example, this would be `avalanche`.

```
keystorePass=”avalanche”
```

NOTE: If you are not using port 443 for any other applications, you can change the connector port to 443. Changing the port to 443 will allow you to access the Web Console without entering the port within the URL.

5 Save your changes to the file.

6 Restart the Apache Tomcat for Wavelink service.

Accessing the Web Console over a Secure Connection

Once you have generated a certificate, activated SSL for Tomcat, and restarted the Tomcat server, you can access the Web Console over a https connection.

To access the Web Console over a secure connection:

- In the address field of your browser, type:

```
https://[Your Domain Name]:8443/AvalancheWeb
```

-Or-

- If you changed the connector port to 443, type:

```
https://[Your Domain Name]/AvalancheWeb
```

Troubleshooting

To troubleshoot issues connecting to the Apache Tomcat server using SSL after changes are made, go to

```
[Avalanche installation directory]\WebUtilities\Tomcat\logs
```

to find Catalina Tomcat logs.

NOTE: You need to stop the Tomcat service to get all the log messages.

Example log file: `catalina.2010-02-24.log`

Implementing a Self-Signed Certificate

These instructions explain how to generate a self-signed certificate in the Apache Tomcat environment. If you choose not to use a Certificate Authority, you can still use a https connection to connect to the Web Console by creating your own certificate.

NOTE: Internet browsers will not recognize a self-signed certificate as legitimate and will display warnings before allowing you access.

NOTE: Wavelink strongly recommends backing up `server.xml` and `selfsignkeystore.keystore` when you have implemented a self-signed certificate.

This section contains the following tasks for implementing a self-signed certificate:

- Generating a Certificate
- Activating SSL for Tomcat
- Accessing the Web Console over a Secure Connection
- Troubleshooting

Generating a Certificate

To create a self-signed certificate, use the keytool.exe utility. You will need to provide a Common Name (domain name), organizational unit, organization, city, state, and country code when creating your certificate. You will also need to provide a keystore name and passwords for the keystore and alias. These are arbitrary, but should be noted for future reference.

To generate a self-signed certificate:

1 From a command line, navigate to:
```
[Avalanche installation directory]\JRE\Bin
```

2 Use the command:
```
keytool -genkey -alias amcselfcert -keyalg RSA -keystore
selfsignkeystore.keystore
```

3 At the prompt **Enter keystore password**, type the keystore password. When prompted, re-enter the password.

4 At the prompt **What is your first and last name**, type the Common Name.

NOTE: The Common Name (domain name) you enter should be one that your company owns. Use a DNS entry if needed to resolve this computer to the Common Name.

5 At the prompts, enter your organizational unit, organization, city, state, and the country code.

6 When you are prompted to review your information, type `yes` to confirm that it is correct. If you type `no`, you will be guided through the prompts again.

7 At the prompt **Enter key password for <amcselfcert>**, type a password to use for the alias. If you want to use the same password for the alias as you used for the keystore, press `Return`.

An example of generating a self-signed certificate:

```
Enter keystore password: avalanche

Re-enter new password: avalanche

What is your first and last name?[Unknown]: avaself.wavelink.com

What is the name of your organizational unit?[Unknown]: Engineering

What is the name of your organization?[Unknown]: Wavelink Corporation

What is the name of your City or Locality?[Unknown]: Midvale

What is the name of your State or Province?[Unknown]: Utah

What is the two-letter country code for this unit?[Unknown]: US

Is CN=avaself.wavelink.com, OU=Engineering, O=Wavelink Corporation,
L=Midvale, ST=Utah, C=US correct?[no]: yes

Enter key password for <amcselfcert>(RETURN if same as keystore
password):
```

Activating SSL for Tomcat

Once you have generated a certificate, you must activate SSL for Tomcat. You must modify the server.xml file and then restart the Tomcat server.

To activate SSL for Tomcat:

1 Navigate to
`[Avalanche Install location]\WebUtilities\tomcat\conf`
and open the `server.xml` file with a text editor such as Notepad.

2 Find
`<Connector port="8443" protocol="HTTP/1.1" SSLEnabled="true"`

```
maxThreads="150" scheme="https" secure="true" clientAuth="false"
sslProtocol="TLS" />
```

3 Remove the comment markers so that the section is not commented out.

4 Modify the section to contain the following information:

```
<Connector port="8443"
protocol="org.apache.coyote.http11.Http11NioProtocol"
SSLEnabled="true" maxThreads="150" scheme="https" secure="true"
clientAuth="false" sslProtocol="TLS" keystoreFile="C:\Program
Files\Wavelink\AvalancheMC\JRE\bin\selfsignkeystore.keystore"
keystorePass="[keypass]"/>
```

Where `[keypass]` is the keystore password you entered when creating the certificate. For the above example, this would be `avalanche`.

```
keystorePass=”avalanche”
```

NOTE: If you are not using port 443 for any other applications, you can change the connector port to 443. Changing the port to 443 will allow you to access the Web Console without typing the port as part of the URL.

5 Save your changes to the file.

6 Restart the Apache Tomcat for Wavelink service.

Accessing the Web Console over a Secure Connection

Once you have generated a certificate, activated SSL for Tomcat, and restarted the Tomcat server, you can access the Web Console over a https connection.

To access the Web Console over a secure connection:

- In the address field of your browser, type:

```
https://<Domain Name>:8443/AvalancheWeb
```

-Or-

- If you changed the connector port to 443, type:

```
https://<Domain Name>/AvalancheWeb
```

Troubleshooting

To troubleshoot issues connecting to the Apache Tomcat server using SSL after changes are made, go to

```
[Avalanche installation directory]\WebUtilities\Tomcat\logs
```

to find Catalina Tomcat logs.

NOTE: You need to stop the Tomcat service to get all the log messages.

Example log file: `catalina.2010-02-24.log`

Avalanche Services

This is a list all of the Avalanche services. Under each service title, you'll find the file path where the service is located for a default installation and which server the service is associated with.

Apache Tomcat for Wavelink

C:\Program Files\Wavelink\Avalanche\WebUtilities\Tomcat\bin\tomcat7.exe

The Tomcat server is responsible for making the Web Console available. It is normally installed with the Enterprise Server.

Wavelink Authentication Service AMC

C:\Program Files\Wavelink\AvalancheMC\CESecureServer.exe

The authentication server authenticates users when your system is configured to use SecurePlus or integrated logon. It is installed with the Enterprise Server.

Wavelink Agent

C:\Program Files\Wavelink\MM\Program\AgentSvc.exe

This is an infrastructure server. The server is deployed to a server location.

Wavelink Avalanche Service Manager (1 of 2)

C:\Program Files\Wavelink\MM\Program\WLAmcServiceManager.exe

The service manager starts and stops the infrastructure and mobile device servers. It is installed with a device server.

Wavelink Avalanche Service Manager (2 of 2)

C:\Program Files\Wavelink\Avalanche\Service\WLAmcServiceManager.exe

The service manager starts and stops the mobile device servers and infrastructure servers. It is installed with a device server.

NOTE: The last Wavelink Avalanche Service Manager to be installed determines the path to the service.

Wavelink Avalanche Enterprise Server

C:\Program Files\Wavelink\AvalancheMC\eserver.exe

This is the enterprise server.

Wavelink Information Router

C:\Program Files\Wavelink\AvalancheMC\WLInfoRailService.exe

The inforail service handles messages between servers and databases. It is normally installed with the enterprise server.

Wavelink License Server

C:\Program Files\Wavelink\AvalancheMC\WLLicenseService.exe

The license server manages licensing. It is normally installed with the enterprise server.

Wavelink Service Manager

C:\Program Files\Wavelink\MM\Program\svcmgr.exe

This service manager is used with the Infrastructure Site Tool to start and stop the infrastructure server. It is installed with the infrastructure server.

Wavelink Stat Server Enterprise

C:\Program Files\Wavelink\AvalancheMC\StatServer.exe

The statistics server handles reports and device statistics. It is generally installed with the enterprise server.

Wavelink TFTP Server

C:\Program Files\Wavelink\MM\Program\TftpSvc.exe

The TFTP server is installed with an infrastructure server.

Wavelink Deployment

C:\Program Files\Wavelink\AvalancheMC\iserv.exe

The deployment server handles device server packages and their deployments. It is installed with the enterprise server.

Wavelink Alerts

C:\Program Files\Wavelink\MM\Program\AlertSvc.exe

The alerts service manages alerts and runs local to an infrastructure server.

Wavelink Avalanche Agent

C:\Program Files\Wavelink\Avalanche\Service\WLAvalancheService.exe

This is the mobile device server.

Port Information

This page provides information about the ports used in Avalanche MC.

Database Inbound Ports

The databases listen on different ports depending on the database management system you are using (PostgreSQL, Oracle, or Microsoft SQL Server) and whether the database administrator has changed the port number. The following table lists the default port for each database management system. Be sure to configure Avalanche and your network with the correct port number.

The standard Avalanche installation uses a PostgreSQL database management system.

Database Management System	Default Port	UDP/TCP	Source
PostgreSQL	5432	TCP	Enterprise Server, Statistics Server, Web Console
Oracle	1521	TCP	Enterprise Server, Statistics Server, Web Console
MS SQL Server	1433	TCP	Enterprise Server, Statistics Server, Web Console

Enterprise/Statistics Server Ports

The following table provides a list of ports that the Enterprise and Statistics Server use to communicate. The Tomcat server is usually installed local to the Enterprise Server.

Traffic Description	Port	UDP/TCP	Source	Destination
LDAP user verification.	389	TCP	Enterprise Server	LDAP server
Active Directory user verification.	5002	TCP	Enterprise Server	Active Directory server
Mobile device servers and infrastructure servers requesting licenses from the License Server.	7221	TCP	Infrastructure Server, Mobile Device Server	Enterprise Server
InfoRail transmission of information between servers, consoles, databases.	7225	TCP	Infrastructure Server, Mobile Device Server, Enterprise Server, Web and Java Console, databases	Infrastructure Server, Mobile Device Server, Statistics Server, databases
InfoRail talking to itself.	7226	TCP	Local traffic	Local traffic
Web Console requesting information.	8080	TCP	Web Console	Tomcat server

NOTE: If you use an SSL certificate, the Tomcat server listens on 8443 for a connection. You can change this to 443 in the `server.xml` file if no other program is using 443. For more information on changing the port for a Web Console connection, see SSL Certificates for the Web Console.

Infrastructure Server Outbound Ports

The following table provides a list of remote ports that the Infrastructure Server sends information to.

Traffic Description	Port	UDP/TCP	Destination
SSH. Server manages device.	22	UDP/TCP	Infrastructure Device
Telnet. Server manages device.	23	UDP/TCP	Infrastructure Device
SMTP. Server sends e-mail notifications.	25	TCP	SMTP Server
HTTP. Server manages device.	80	TCP	Infrastructure Device
SNMP. Server manages device; includes SNMP V3.	161	UDP/TCP	Infrastructure Device
Communication between Infrastructure Server and Enterprise/Statistics Server.	7225	TCP	Enterprise Server (InfoRail)

Infrastructure Server Inbound Ports

The following table provides a list of the ports that the Infrastructure Server listens on.

Traffic Description	Port	UDP/TCP	Source
TFTP. Firmware upgrades.	69	UDP	Infrastructure Device
SNMP traps and VLACL information.	162	UDP	Infrastructure Device
IAPP. Discovery of Proxim APs.	2313	UDP	Proxim APs
RPC. Infrastructure Site Tool initiates authentication with Infrastructure Server.	7200	TCP	Infrastructure Site Tool
Alerts service connects to Infrastructure Server.	7205	TCP	Infrastructure Server (always local)
Alerts service authenticates with Infrastructure Site Tool.	7210	TCP	Infrastructure Site Tool

Traffic Description	Port	UDP/TCP	Source
Infrastructure Site Tool starts/stops Infrastructure Server.	7211	TCP	Infrastructure Site Tool
Communication between Infrastructure Site Tool and Infrastructure Server.	7212	UDP	Infrastructure Site Tool
Alerts service normal data communication.	7213	UDP	Infrastructure Site Tool
Infrastructure Server authentication with Infrastructure Site Tool.	7215	UDP	Infrastructure Site Tool

Mobile Device Server Ports

The following table provides a list of the ports that the Mobile Device Server uses to communicate with the Enabler installed on a mobile device.

Traffic Description	Port	UDP/TCP
Protocol Service. Traffic between the server and the Enabler.	1777	UDP/TCP
MUV3. Services persistent connections to mobile devices.	1778	TCP

Wavelink Products Used with Avalanche

The following table provides a list of the ports that are used by Wavelink products often used in conjunction with Avalanche.

Port	Product	Port Type
1899	Remote Control	TCP/UDP
1900	Remote Control	TCP
5001	CE Secure/SecurePlus	TCP

Supported Firmware

Avalanche is not packaged with any firmware files. You must obtain supported firmware from the manufacturer and then import the files into Avalanche.

The following table lists the vendor, hardware and firmware versions supported in Avalanche.

Vendor	Hardware	Supported Versions
Aruba	3200*	5.0.3.2
		3.4.2.6
	3400*	5.0.3.2
		3.4.2.6
Avaya	AP-3	2.5.2
		2.4.11
		2.4.5
		2.3.3
		2.3.2
	AP-4/5/6	2.5.2
		2.4.11
		2.4.5
		2.3.3
		2.3.2
	AP-8	2.5.2
		2.4.11

Vendor	Hardware	Supported Versions
Cisco	1100 IOS	12.3.8-JED1
		12.3-8JED
		12.3-8JEC3
		12.3-8JEC
		12.3-8JEB1
		12.3-8JEB
		12.3-8JEA3
		12.3-8JEA2
		12.3-8JEA1
		12.3-8JEA
		12.3-8JA
		12.3-7JA3
		12.3-7JA
		12.3-4JA
		12.3-2JA
		12.3-2JA2
		12.2-15JA
		12.2-13JA3
		12.2-13JA1
		12.2-11JA1

Vendor	Hardware	Supported Versions
	1130	12.4.21a-JY
		12.4.21a-JA1
		12.4.10b-JDA3
		12.4.10b-JA
		12.4-3gJA1
		12.4-3gJA
		12.3-8JEA3
		12.3-8JEA2
		12.3-11JA4
		12.3-11JA1
		12.3-8JEB
		12.3-8JEA1
		12.3-8JEA
		12.3-8JA
		12.3-7JA3
		12.3-7JA
		12.3-4JA
		12.3-2JA
		12.3-2JA2

Vendor	Hardware	Supported Versions
	1200	12.05
		12.04
		12.03T
		12.02T1
		12.01T1
		11.56
		11.42T

Vendor	Hardware	Supported Versions
	1200 IOS	12.3.8-JED1
		12.3-8JED
		12.3-8JEC3
		12.3-8JEC
		12.3-8JEB1
		12.3-8JEA3
		12.3-8JEA2
		12.3-8JEB
		12.3-8JEA1
		12.3-8JEA
		12.3-8JA
		12.3-7JA3
		12.3-7JA
		12.3-4JA
		12.3-2JA
		12.3-2JA2
		12.2-15JA
		12.2-13JA3
		12.2-13JA4
		12.2-13JA1
		12.2-11JA1

Vendor	Hardware	Supported Versions
Cisco	1240	12.4.21a-JA1
		12.4.10b-JDA3
		12.4.10b-JA
		12.4-3gJA1
		12.4-3gJA
		12.3-8JEA3
		12.3-8JEA2
		12.3-11JA4
		12.3-11JA1
		12.3-8JEB
		12.3-8JEA1
		12.3-8JEA

Vendor	Hardware	Supported Versions
	1310BR	12.4.21a-JY
		12.4.21a-JA1
		12.4.10b-JDA3
		12.4.10b-JDA2
		12.4.10b-JA
		12.4.3g-JA1
		12.3-8JEA3
		12.3-8JEA2
		12.3-11JA4
		12.3-11JA1
		12.3-8JEB
		12.3-8JEA1
		12.3-8JEA
		12.2(15)JA
		10.4-3g-JA
	340 AP	12.05
		12.04
		12.03T
		12.02T1
		12.01T1
		11.23T
		11.10T1

Vendor	Hardware	Supported Versions
	350 AP	12.05
		12.04
		12.03T
		12.02T1
		12.01T1
		11.23T
		11.10T1
	350 Bridge	12.05
		12.04
		12.03T
		12.02T1
		12.01T1
		11.23T
		11.10T1

Vendor	Hardware	Supported Versions
	350 IOS	12.3-8JEA3
		12.3-8JEA2
		12.3-8JEA1
		12.3-8JEA
		12.3-8JA
		12.3-7JA3
		12.3-7JA
		12.3-4JA
		12.3-2JA
		12.3-2JA2
		12.2-15JA
		12.2-13JA2
		12.2-13JA1
	4402*	5.2.178.0
Dell	TrueMobile 1170	2.2.2
HP	ProCurve 520wl	2.4.5
		2.1.2
Meru	MC1000*	3.6-111
Motorola/Symbol	**AP-3020**	**04.02-19**
	AP-4121	02.70-12
		02.70-06
		02.52-13
		02.51-23

Vendor	Hardware	Supported Versions
	AP-4131	03.95-04
		03.94-15a
		03.93-00
		03.92-21
		03.70-77
		03.70-46a
		03.50-26
		03.50-18
	AP-5131	2.3.2.0-008R
		2.3.1.0-004R
		2.3.0.0-019R
		2.2.2.0-001R
		2.2.1.0-007R
		2.2.0.0-023R
		2.1.1.0-001R
		2.1.0.1-003R
		2.1.0.0-030R
		2.0.0.0-045R
		1.1.2.0-005R
		1.0.1.0-004R
		1.1.0.0-045R
		1.0.0.0-188R
		1.1.1.0-020R

Vendor	Hardware	Supported Versions
Motorola/Symbol	AP 5181	2.3.2.0-008R
		2.3.1.0-004R
		2.3.0.0-019R
		2.2.2.0-001R
		2.2.1.0-007R
		2.2.0.0-023R
		2.1.1.0-001R
		2.1.0.1-003R
		2.1.0.0-030R
		2.0.0.0-045R
		1.1.2.0-005R
		1.1.1.0-020R
	AP 7131	4.1.2.0-012R
		4.1.1.0-017R
		4.1.0.0-072R
		4.0.3.0-010R
		4.0.2.0-003R
		4.0.1.0-019R
		4.0.0.0-057R
		3.2.2.0-005R
		3.2.1.0-012R
		3.2.0.0-067R
		3.0.2.0-028R
		3.0.0.0-039R

Vendor	Hardware	Supported Versions
	RFS 7000	4.3.3.0-004R
		4.3.2.0-012R
		4.3.1.0-016R
		4.3.0.0-059R
		4.2.1.0-005R
		4.2.0.0-024R
		4.1.0.0-042R
		4.0.2.0-001R
		4.0.1.0-005R
		4.0.0.0-067R
		1.3.2.0-010R
		1.3.1.0-003R
		1.3.0.0-029R
		1.2.0.0-040R
		1.1.1.0-003R
		1.1.0.0-038R
		1.0.1.0-012R

Vendor	Hardware	Supported Versions
	RFS 6000	4.3.3.0-004R
		4.3.2.0-012R
		4.3.1.0-016R
		4.3.0.0-059R
		4.2.1.0-005R
		4.2.0.0-024R
		4.1.0.0-042R
		4.0.2.0-001R
		4.0.1.0-005R
		4.0.0.0-067R
		3.3.2.0-010R
		3.3.0.0-029R
		3.2.0.0-040R
		3.1.0.0-024R
	RFS 4000*	4.3.0.0-059R
		4.3.2.0-012R
		4.3.3.0-004R

Vendor	Hardware	Supported Versions
Motorola/Symbol	WS 2000	2.4.5.0-006R
		2.4.4.0-001R
		2.4.3.0-020R
		2.4.1.0-005R
		2.4.0.0-023R
		2.3.2.0-003R
		2.3.1.0-012R
		2.3.0.0-035R
		2.3.0.0-034R
		2.2.3.0-020R
		2.2.2.0-003R
		2.2.1.0-018R
		2.2.0.0-021R
		2.1.1.0-009R
		2.1.0.0-035R
		2.0.0.0-036R
		1.5.0.0-216r
		1.0.10.08
	WS 5000	1.2.0.39o
		1.2.0.39f
		1.1.4.30f
		1.1.4.30SP1

Vendor	Hardware	Supported Versions
	WS 5000 v1.2+	2.1.5.0-003R
		2.1.4.0-001R
		2.1.3.0-010R
		2.1.2.0-010R
		2.1.1.0-006R
		2.1.0.0-029R
		2.0.0.0-034R
		1.4.3.0-012R
		1.4.2.0-005R
		1.4.1.0-014R
		1.2.5.0-022R
		1.1.4.30f
	WS 5100 v1.4+	2.1.5.0-003R
		2.1.4.0-001R
		2.1.3.0-010R
		2.1.2.0-010R
		2.1.1.0-006R
		2.1.0.0-029R
		2.0.0.0-034R
		1.4.3.0-012R
		1.4.2.0-005R
		1.4.1.0-014R

Vendor	Hardware	Supported Versions
	WS 5100 v3.0+	3.3.3.0-006R
		3.3.2.0-010R
		3.3.1.0-003R
		3.3.0.0-029R
		3.2.0.0-040R
		3.1.0.0-045R
		3.0.4.0-004R
		3.0.3.0-003R
		3.0.2.0-008R
		3.0.1.0-145R
		3.0.0.0-267R
Proxim	2000	2.5.5
		2.5.3
		2.5.2
		2.4.11
		2.4.5
		2.4.4
		2.3.3
		2.3.1
		2.2.2

Vendor	Hardware	Supported Versions
	4000	4.0.12
		4.0.3
		4.0.2
		4.0.0
		3.7.0
		3.6.3
		3.4.0
		3.2.1
		3.1.0
		2.6.0
		2.5.2
		2.4.11
		2.4.10
	4900	4.0.12
		4.0.9
		4.0.3
		4.0.2
		4.0.0
		3.7.0
		3.6.3
		3.4.0
		3.2.1
		3.1.0

Vendor	Hardware	Supported Versions
	600	2.5.5
		2.5.3
		2.5.2
		2.4.11
		2.4.5
		2.4.4
		2.3.3
		2.3.1
		2.2.2
	700	4.0.12
		4.0.3
		4.0.2
		4.0.1
		4.0.0
		3.7.0
		3.6.6
		3.4.0
		3.2.1
		3.1.0
		2.6.0
		2.5.2
SYSTIMAX	AirSPEED AP 541	2.6.0
		2.5.2

Vendor	Hardware	Supported Versions
	AirSPEED AP 542	2.6.0
		2.5.2
		2.4.11

* These models are supported using a Extended Device Support script available from Wavelink. You must import the EDS script before Avalanche can manage these devices. To obtain an EDS script, contact Wavelink Customer Support. For more information on importing an EDS script, see Importing an Infrastructure Device Support File.

Transitional Firmware

Transitional firmware refers to the rare cases when a particular firmware version is required when updating to a newer revision of firmware.

For example, when updating the WS5100 v1.4+ to a WS5100 v3.0+, you must first be on the 2.1.1.0-006R firmware, and then update to 3.0.0.0-267R. Once the update to 3.0.0.0-267R is completed, you may then update to any 3.x.x firmware.

Transitional firmware versions are fully supported in Avalanche.

The following is a list of transitional firmware:

Cisco 350 AP	12.2-13JA1
Cisco 1200	12.2-11JA1
Motorola/Symbol WS2000	2.0.0.0-036R
Motorola/Symbol WS5000	1.1.4.30SP1
Motorola/Symbol WS5100	2.1.1.0-006R
	3.0.0.0-267R

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Use of zlib

zlib.h -- interface of the 'zlib' general purpose compression library version 1.2.5, April 19th, 2010

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Igor Pavlov
```

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Uninstalling Avalanche

You can run the Avalanche uninstall utility from the Windows Control Panel or from the **Programs** menu.

When you uninstall Avalanche, you are given the option to uninstall the PostgreSQL database as well. If you select to uninstall Avalanche and the PostgreSQL database, all components of Avalanche and the database will be removed. If you select to uninstall Avalanche but opt to leave the database, the `\db` folder located in the default installation directory will remain on your system. (The default location is `C:\Program Files\Wavelink\AvalancheMC\db`.)

The uninstall utility will not uninstall any infrastructure or mobile device servers that have been deployed. If you want to uninstall device servers, use the Task Scheduler to uninstall them *before* using the uninstall utility. For more information see Uninstalling Servers.

If you uninstall and reinstall the enterprise server (on the same system) without uninstalling the device servers, the device servers are automatically discovered and appear in the **Unassigned Server Locations** region. If you install the enterprise server on a different system, device servers are not auto-discovered. They will need to be redeployed.

NOTE: If you plan on uninstalling Avalanche and/or the PostgreSQL database, it is recommended that you extract and backup database information and software profiles with the Task Scheduler. For more information, see Using the Task Scheduler.

To uninstall Avalanche:

1 From the **Start** menu, select **Settings > Control Panel > Add or Remove Programs > Wavelink Avalanche** and click **Change/Remove**.

-Or-

From the **Start** menu, select **Programs > Wavelink Avalanche > Uninstall Avalanche**.

The *Uninstall Wizard* appears.

2 Follow the wizard prompts, based on what you want to remove.

Upon completion, Avalanche and any selected components are removed from your system.

Wavelink Contact Information

If you have comments or questions regarding this product, please contact Wavelink Customer Service.

E-mail Wavelink Customer Support at: CustomerService@wavelink.com

For customers within North America and Canada, call the Wavelink Technical Support line at 801-316-9000 (option 2) or 888-699-9283.

For international customers, call the international Wavelink Technical Support line at +800 9283 5465.

For Europe, Middle East, and Africa, hours are 9 AM - 5 PM GMT.

For all other customers, hours are 7 AM - 7 PM MST.