# UNDERSTANDING INFRASTRUCTURE DEVICE FIRMWARE IN AVALANCHE MC

This document provides information about infrastructure device firmware packages in Avalanche MC.

## OVERVIEW

This document contains the following sections:

- Types of Firmware Support
- Manually Adding Firmware
- Creating Firmware Packages
- Deploying Infrastructure Firmware Packages
- Document History

Firmware is the software installed on infrastructure devices that determines what sort of properties and features that an infrastructure device supports. Avalanche MC supports a wide range of firmware for many different types of infrastructure devices.

When you first deploy an Infrastructure dServer to a dServer Location, you specify a selection of firmware that the dServer supports. If you want to expand this selection, you can do so at any time by updating the infrastructure device firmware at the dServer Location.

This document provides information about the following topics related to infrastructure device firmware:

- Types of Firmware Support

- Manually Adding Firmware

- Creating Firmware Packages

- Deploying Infrastructure Firmware Packages

## TYPES OF FIRMWARE SUPPORT

To support as many firmware versions as possible, Avalanche MC interacts with infrastructure devices in one of two ways: either in full support mode or in compatibility mode. Avalanche MC selects which mode to use based on whether it can recognize the firmware version installed on an infrastructure device. If neither mode is available for the firmware, the Avalanche MC does not manage the infrastructure device until the firmware version is changed.

Using the full support and compatibility modes provides a great deal of flexibility when determining what firmware versions you want to install on your infrastructure devices. These modes also reduce the risk of infrastructure devices going unengaged because their firmware type was not recognized.

### FULL SUPPORT MODE

If the firmware version installed on an infrastructure device matches a firmware version known to the Avalanche MC Server, the Server can communicate with that infrastructure device in full support mode. In full support mode, the Server is able to retrieve and set a vast majority of properties for that infrastructure device. This mode is the standard mode the Server uses to manage infrastructure devices.

### COMPATIBILITY MODE

If the Server is unable to recognize the firmware installed on the infrastructure device, it attempts to communicate with it in compatibility mode. In compatibility mode, the Server relies on existing firmware property files to retrieve and set as many of the device's properties as possible.

When the Server detects an infrastructure device that has an unrecognized firmware version, the Server compares that firmware against a list of defined firmware ranges. Each firmware range corresponds to a firmware version that the Server fully supports. If the unrecognized firmware falls within one of these

ranges, the Server manages the infrastructure device using the corresponding fully-supported firmware. If the unrecognized firmware does not fall within a firmware range, the Server uses a pre-defined firmware version to manage the infrastructure device.

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**NOTE:** The Server uses alternative firmware versions only as a basis to manage infrastructure devices with unrecognized firmware; the Server does not update the actual firmware of the infrastructure device unless you specifically instruct it to do so.

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See your Avalanche Mobility Center Release Notes for the specific firmware ranges the Server uses to manage infrastructure devices with unrecognized firmware.

The following table illustrates how the Server selects a matching property file

| Hardware | Fully-supported Firmware | Compatible Firmware Range |
| --- | --- | --- |
| Cisco-Aironet 350 | 12.01T1 | 12.01T1 - 12.99 |
| Symbol T3 | 03.50-18 | 03.50-00 - 03.50-99 |

The following example uses the information in the table to demonstrate how the Server manages infrastructure devices with unrecognized firmware.

A Cisco-Aironet access point is installed on a network that used firmware version 12.02T1. The Server discovers this access point, and identifies that it cannot recognize the firmware version. The Server then checks to see if firmware 12.02T1 falls within a firmware range. It finds that if a firmware version falls between 12.01T1 and 12.99, it should use firmware version 12.01T1 to manage the access point. Consequently, the Server begins to manage the new access point based on the 12.01T1 firmware.

### SUPPORTED FIRMWARE

When you create firmware packages, you can view and then select from all the versions of firmware that Avalanche MC supports. The Infrastructure dServer will be able to manage infrastructure devices with any of the firmware types listed.

### BUNDLED FIRMWARE

Avalanche MC includes certain versions of firmware that are bundled with the Avalanche MC installation. These versions can be built into firmware packages and deployed to the Infrastructure dServer to either install that firmware or upgrade existing firmware. However, Avalanche MC is not bundled with all possible firmware versions that are supported. You can still use Avalanche MC with these non-bundled firmware; the firmware is just not provided/bundled with Avalanche MC.

Please see *Avalanche Mobility Center Release Notes* for a list of the firmware that comes bundled with Avalanche MC.

## MANUALLY ADDING FIRMWARE

Avalanche MC contains a limited number of firmware versions that can deployed to the Infrastructure dServers. You can manually place additional firmware binary files into the `firmware` directory.

When you place these binary files in the correct directory, Avalanche MC will recognize the files within 10 minutes and update the firmware package wizard. An alert is generated if the system detects manual firmware files.

The system will only recognize firmware files that are pre-coded in the existing available firmware list. Avalanche MC will not recognize any firmware file names that do not already exist in the list of supported firmware.

### To manually add firmware to Avalanche MC:

1. Obtain the firmware binary files from the device manufacturer or contact Wavelink Customer Service.

2. Place the binary files in the Avalanche MC `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 MC to update with the new firmware information. An alert will appear and display information about the newly added firmware.

   -Or-

   Stop and restart the Wavelink Avalanche MC Enterprise Server to force Avalanche MC to update immediately.

   The new firmware is now available to deploy to Infrastructure dServers. When you create a firmware package, you will be able to select and bundle the added firmware to the firmware package.

## CREATING FIRMWARE PACKAGES

A firmware package is a collection of files that allow dServers 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 given dServer Location.

### To create a firmware package:

1. From the `Tools` menu, select `Deployment Packages`.

   The *Deployment Package Manager* dialog box appears.

2. Click `Add`.

   The *New Package Wizard* dialog box appears.

3. Select the `Create a Firmware Update Package` option and click `Next`.

   The *Select Infrastructure Firmware Support* dialog box appears. This dialog box contains a collection of folders, with each folder representing a specific type of infrastructure device.

4. If you only want to select from firmware bundled with Avalanche MC, enable the `Only show available firmware binaries included on server` option.

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NOTE: When you enable the `Only show available firmware binaries included on server` option, you will be able to select firmware that is bundled with Avalanche MC and will deploy to the Infrastructure dServer.

If you do not enable this option, you will see a list of all firmware support, but not all firmware options are bundled with Avalanche MC.

If you manually added firmware to Avalanche MC, your firmware will appear in the `Only show available firmware binaries included on server` list.

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5. Select the firmware versions the dServer will support.

    To select firmware, open the appropriate folder within the dialog box. A list of available firm-ware versions appears. Enable the checkbox next to the firmware name. You can select any number of firmware versions from each folder.

6. Click **Next**.

    The *Enter Package Name* dialog box appears.

7. Type a name for the package in the **Package Name** text box and click **Next**.

    Avalanche MC begins to create the deployment package. When it is finished, a *Package Complete* dialog box appears.

8. Click **Finish**.

    Avalanche MC 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.

## DEPLOYING INFRASTRUCTURE FIRMWARE PACKAGES

Once you create a firmware package, you must deploy to the Infrastructure dServers in your dServer Locations and regions.

### To deploy firmware packages:

1. Select **Task Schedule** from the **Tools** menu.

    The *Task Schedule* dialog box appears.

2. Click **Add**.

    The *Select A Task* dialog box appears.

3. Select **Update Access Point Firmware** from the **Task Type** list and click **Next**.

    The *Select Task Destination* dialog box appears.

4. Select the regions or dServer Locations by enabling the checkbox next to the group or dServer Location name. You can also select all groups by clicking **All**.

5. Click **Next**.

    The *Select Firmware Packages to Deploy* dialog box 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** dialog box appears.

8. Determine when the event will occur.

    If you want the event to occur immediately, select the **Perform the task now** option.

    If you want the event to occur at some point in the future, select the **Schedule a one-time event for the task** option.

    If you want the event to occur on a regular basis, select the **Schedule a recurring event for this task** option. This option is not necessary if the firmware package is not expected to change.

9.  Click **Next**.

10. If you selected the **Schedule a one-time event for this task** option, the *Schedule the Time Window* dialog box appears.

    Within this dialog box, you can set the following parameters for the event:

    • Select the start date and time for the event.

    • Determine when you want the event to end. If you want the event to end only after the deployment is complete, select the Run until complete option. If you want the event to end after a specified amount of time, select the End by option and then select the end date and time for the event. If the event is not finished by this date and time, Avalanche MC will generate an alert.

    • If you want the start and end time for this event to be based on the local time for the dServer Location, enable the Use dServer Location's Local Time option. Otherwise, the start and end times are based on the local time for the Avalanche MC Console.

11. If you selected the **Schedule a recurring event option**, the *Configure Task Recurrence* dialog box appears.

    Within this dialog box, you can set the following parameters for this event:

    • Select the start time for the event.

    • Determine when you want the event to stop. If you want the event to end only after the deployment is complete, select the Run until complete option. If you want the event to end after a specified amount of time, select the End by option and then select the end date and time for the event. If the event is not finished by this date and time, Avalanche MC will generate an alert.

    • Set the frequency of the event. You can set whether the event occurs daily, weekly, or monthly.

    • Set the start and end dates for the event.

    • If you want the start and end time for this event to be based on the local time for the dServer Location, enable the Use dServer Location's Local Time option. Otherwise, the start and end times are based on the local time for the Avalanche MC Console.

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**NOTE:** Once Avalanche MC begins to send data to a dServer Location, it does not stop until all data is sent. This prevents a dServer Location from receiving only part of the information it needs. When an event's end time is reached, Avalanche MC completes any deployments that are in-progress, but does not start sending data to any of the remaining dServer Locations.

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12. Click **Next**.

    The *Review Your Task* dialog box appears.

13. Review your the task to ensure that it is correct and click **Next**.

    The *Task Scheduled* dialog box appears.

14. Click **Next** to schedule a new event, or click **Finish** to return to the *Task Schedule* dialog box.

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Wavelink Corporation
1011 Western Avenue, Suite 601
Seattle, WA 98104
Main: 206.274.4280