Boosters

FileWave Boosters help you reduce bandwidth use in deploying to remote sites, and also help the server have fewer connections.

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Booster Overview

Introduction

A Booster in the context of FileWave is a critical component designed to scale the management of devices within a network. It is a server component that can be installed on macOS, Windows, and Linux systems and is used to distribute data from the FileWave server to devices. The Booster is thus an integral part of the FileWave Management Suite.

Booster Requirements for Customers

Hosted Customers

If you are a Hosted customer, it is required that you have a Booster, regardless of the number of macOS or Windows clients you have. (It is not required if you have Android, ChomeOS, iPad, or AppleTV devices, as Boosters do not help those client types.) The Booster helps facilitate the efficient and effective management of these devices in your environment. Without a Booster, your macOS and Windows clients will draw a lot more data from the hosted server, ultimately translating into higher hosting prices.

As a Hosted customer, you may also want to consider the architecture of your Boosters. For this, you can refer to the Booster Deployment Planning article, which provides valuable insights and recommendations on Booster planning.

On-Premise Customers

For On-Premise customers, it is recommended that you also refer to the Booster Deployment Planning article to plan and architect your Boosters effectively. This is particularly crucial when considering scalability and efficient device management.

Why Consider Boosters?

- Enhanced Performance: Implementing Boosters can significantly reduce the load on your hosted FileWave Server, ensuring smoother, faster operations.
- Optimized Bandwidth Use: Especially if your clients primarily connect via a work network or VPN without split-tunneling, Boosters can help manage bandwidth more efficiently.
- Cost Management: One of our aims is to continuously provide you with the best services at competitive rates. The more we collaborate in optimizing bandwidth (a significant factor in our pricing), the easier it is for us to maintain and possibly reduce costs. This mutual effort benefits us all.

Key Insights on Boosters

- Applicable For: macOS and Windows Clients. (For iPads/AppleTV, an Apple Caching Server is recommended and we can assist with that setup too!)
- Platform Compatibility: Can run on macOS, Windows, and Linux. While macOS and Windows support around 400 connections, Linux can handle a whopping 2,000 connections. Even a Linux setup within VirtualBox on macOS or Windows can cater to these 2,000 connections.
- Functionality: Boosters essentially cache Filesets from the FileWave Server. • Resources: For a more visual understanding, please check our Boosters best practices video. Moreover, we've compiled a range of KB articles right here for your convenience.

Whether your clients are on a centralized network or scattered across multiple networks (like remote workers or students), Boosters can be immensely beneficial.

What's Next?

If you're unsure about how to set up Boosters, or if you believe you've already implemented them but would like a configuration review, we're here to help! A quick call can clarify and assist. Please connect with Customer Technical Support about any issues that arise, but use Professional Services & Training for guidance on best practices as a paid service or leverage the YouTube video listed below.

Related Content

- Booster Deployment Planning
- Booster Installation
- Boosters best practices video

Booster Deployment Planning

Planning

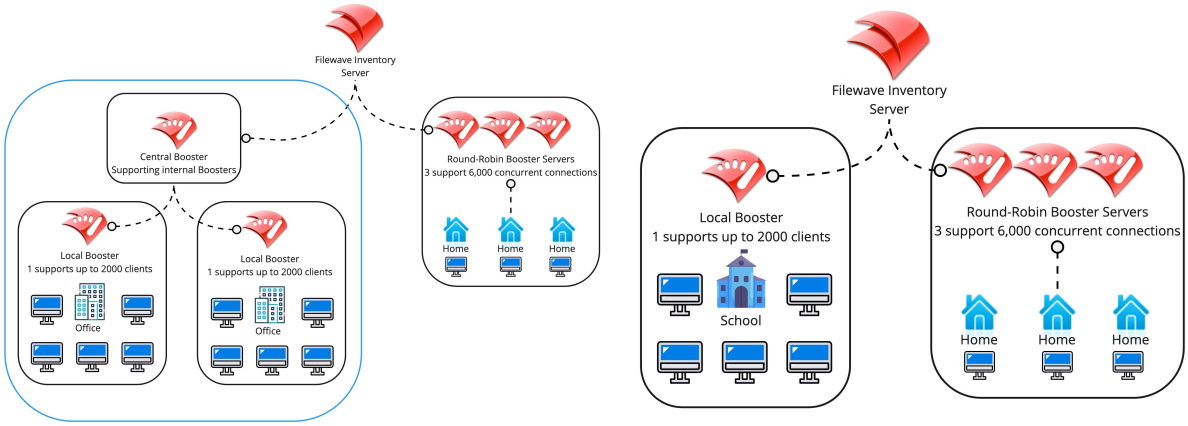
Scalability is largely determined by how many devices can be maintained simultaneously in a managed environment. A standalone FileWave Server can support a limited number of devices. Linux and macOS-based FileWave Servers can support between 1000-1500 desktop/laptop devices, and a Windows server can reliably support only about 500 devices (due to a problem with Apache and web services in Windows not playing well together). Because the Filesets sent to iOS devices usually consist of either profiles or URLs to the iTunes/App Store. The amount of data sent from the FileWave Server is a lot less with iOS devices, so a FileWave server can support many more iOS devices than it can computers.

> If you also include Apple caching servers into your environment this will then allow iOS and MDM enrolled macOS devices to download VPP apps from your Apple caching servers instead of having to leave your network to get them.

Some rules-of-thumb for Booster planning:

1. A Booster should be configured for every set of 2,000 or fewer devices.
2. A Booster should be configured to support every physical location, such as a building, campus, or city.
3. If there are multiple locations in a given geographic area that is removed from the data center hosting the FileWave Server, each of the location Boosters should connect to a central area Booster; e.g., city A has an area Booster, sites 1 – 4 each has at least one Booster, that is connected to Booster A, which in turn is connected to the FileWave Server.

The end result of the configuration model above is that each of the sites has between 1-3 FileWave Boosters, some of which are serving a couple of locations due to lighter loads, and some are consolidated into a "round-robin" load balancing cluster. There are a series of Boosters directly connected to the FileWave server to begin spreading out the load, then those Boosters provide Filesets to the individual site Boosters.



Boosters and Imaging

Since FileWave v9, Imaging has been able to take advantage of Boosters. Images are stored as Filesets, and as such, can be cached on Boosters. When you create an Image Fileset to use in deployment, the Imaging Virtual Server (IVS) handles the network boot drive for PXE boot; but the Image Fileset that is used in the deployment is stored at the main FileWave server - unless there is a Booster on the subnet where the IVS resides. In that case, the original Fileset will remain on the main server; but the Image Fileset that is used for the imaging process will come from the Booster on that subnet.

Booster Setup

Everything you need to set up your Booster Environment

Booster System Requirements

Requirements

As of May 2023 v15.0.1 the below are supported for running Boosters, but for updated information always consult the specific release on the Downloads Page. The FileWave Booster can also be installed on a Virtual Machine.

- macOS 12, 13 (Intel and Apple Silicon)
- Windows 10 (Ent/Pro 21H1 and above), 11 (Ent/Pro 21H2 and above), Server 2019, Server 2022
- Linux CentOS 7.9 x86_64
- Debian 12.x

The general guidance on CPU / RAM / Network / Storage is:

- CPU: For physical hardware use at least the equivalent of an Intel Core i5 or Apple M1
- CPU: For virtual hardware, use at least 2 virtual processors
- RAM: Use a minimum of 8Gb of RAM with 16Gb recommended
- Network: At least 1Gb network connection
- Storage: 1Tb is a recommended minimum, but this will depend highly on OS updates and Filesets as well as if Windows Imaging is in use leveraging a Booster

> ⚠ Make sure you have enough space on your hard disk to store the cached Filesets for your FileWave Clients. A Booster could conceivably contain a full mirrored set of all Filesets on the main FileWave server.

Booster Installation

Description

Booster software is compatible with either macOS, Windows or Debian. All necessary installers or appliances can be found on the current download pages: FileWave Software Downloads

Installers

Debian

Linux has two options. FileWave provides (as with the FileWave Server) a pre-built Debian VM. Alternatively, it is possible to self-install the software on a Debian system.

macOS & Windows

Installers are available as PKG or MSI.

> As typically with MSI installers, options exist not only for install, but repair and deletion

Install Paths

Booster installs the software to one of the following locations:

- Windows: C:\Program Files\FileWave\fwBooster.exe
- macOS, Debian: /usr/local/sbin/fwBooster

Booster Configuration

Once installed, configuration is via the Booster Monitor application, available for both macOS and Windows from the same downloads page.

> Note that the standalone application, Booster Monitor, will only be able to connect to a Booster for initial configuration. Once a Booster is configured you must access Booster Monitor from FileWave Central in the Boosters section. This is because authentication is protected, and the FileWave Central application provides a secure connection. Launching Booster Monitor directly would not have that same authentication, and you will see an error about the Booster not running.

Installation

Debian

If using the pre-built Debian Appliance, simply add the VM to the VM infrastructure. Alternatively, follow the commands provided on the downloads page.

macOS & Windows

Run the relevant PKG or MSI installer, accepting any terms and agreements.

> Custom Installers may be created, pre-defining details, e.g. Server Address, Port and Booster Monitor Preferences password: Custom Installers

Configuration

Network Address

Configure a static IP for the Booster and consider adding a Domain Name within the DNS for this IP.

macOS and Windows can be configured using the Settings. However, Debian will require some command line configuration.

▼ Debian IP Setup

Network Interface

The current IP may be determined with the 'ip addr' command:

```
# ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
       valid_lft forever preferred_lft forever
2: ens192: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 00:0c:29:9d:4d:7e brd ff:ff:ff:ff:ff:ff
    altname enp11s0
    inet 192.168.1.98/24 brd 192.168.1.255 scope global dynamic ens192
       valid_lft 68853sec preferred_lft 68853sec
    inet6 fe80::20c:29ff:fe9d:4d7e/64 scope link
       valid_lft forever preferred_lft forever
```

The key part here is the name of the network interface. In the above example, this is 'ens192'.

Edit Network File

Make a backup of the current file:

```
cp /etc/network/interfaces /etc/network/interfaces-mybackup
```

Edit the original file:

```
sudo nano /etc/network/interfaces
```

Add the chosen IP and other necessary details for this interface. Given the details above, it may look something like the below once edited:

```
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

source /etc/network/interfaces.d/*

# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
iface ens192 inet static
address 192.168.1.22
netmask 255.255.255.0
gateway 192.168.1.255
dns-nameservers 8.8.4.4 8.8.8.8
```

Once complete, save and then restart the network service:

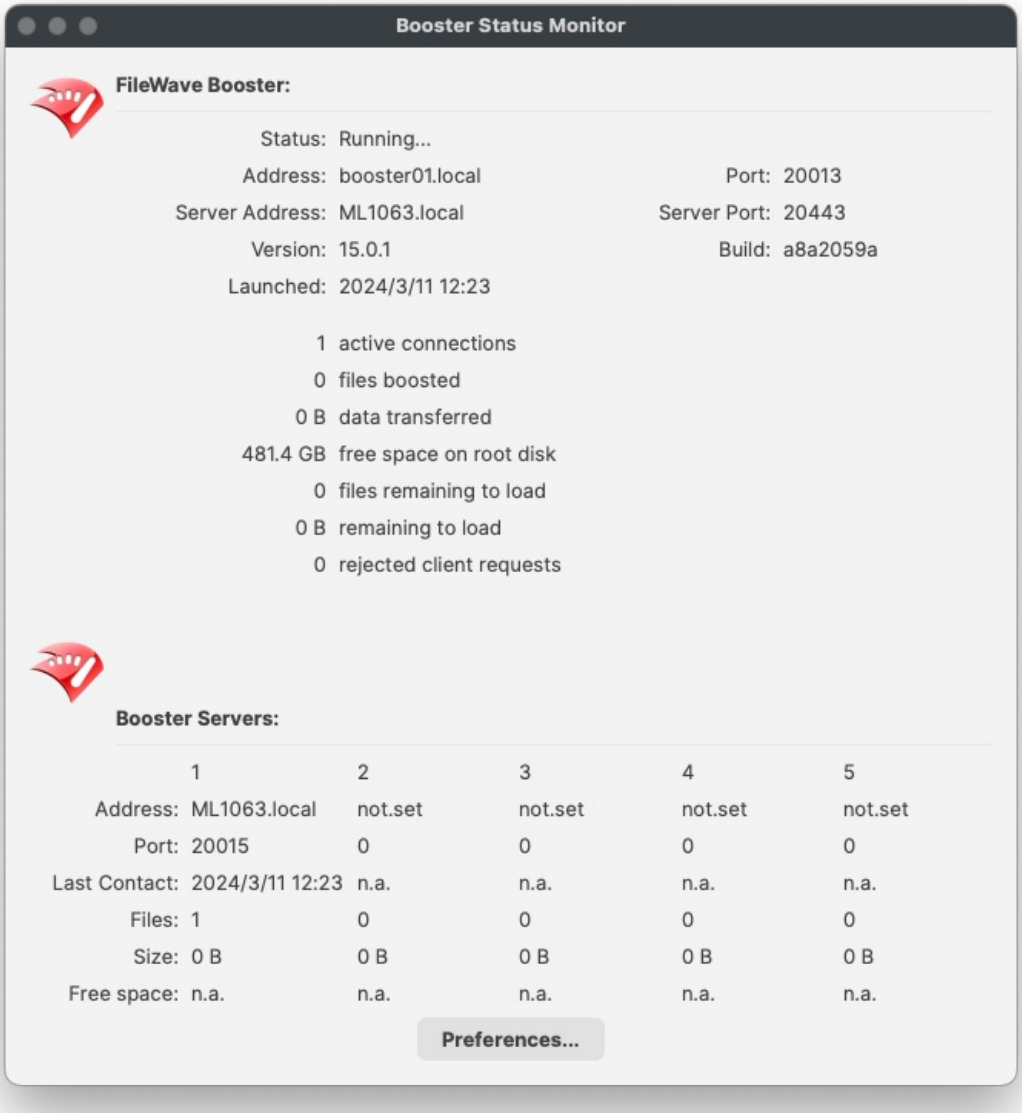
```
sudo systemctl restart networking
```

Re-running the 'ip addr' command should now show the new details.

Add a name with this IP on the DNS.

Booster Setup

Install the Booster Monitor on a chosen macOS or Windows device. On launching the Booster Monitor, use the above created network address. The initial view is akin to the FileWave Client Monitor, but with Booster specific details:

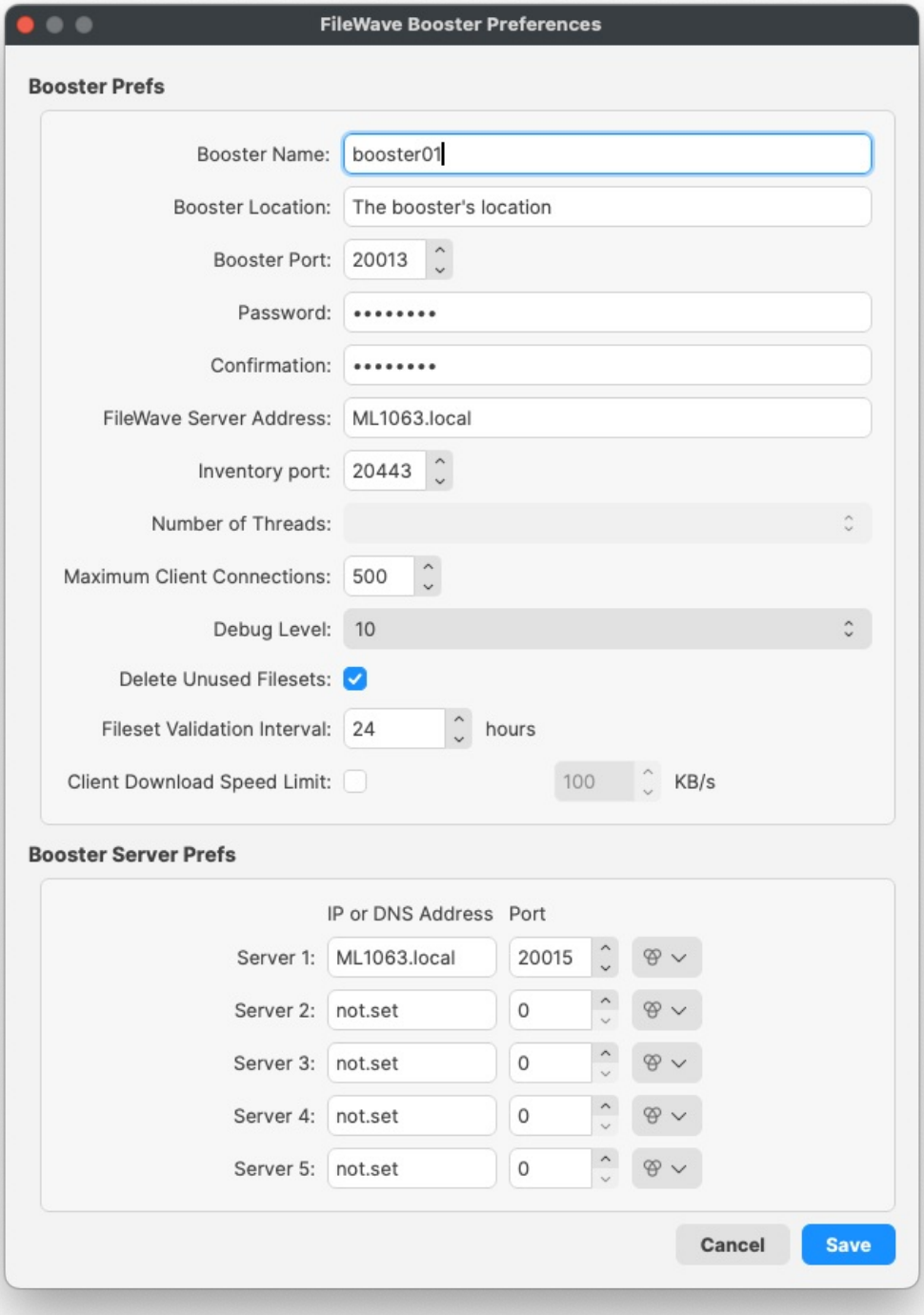


Select Preferences, enter the created password (or default password as provided from the downloads page)

Consider changing this password at the earliest possible moment

This password is only used to access the Preferences from the Booster Monitor.

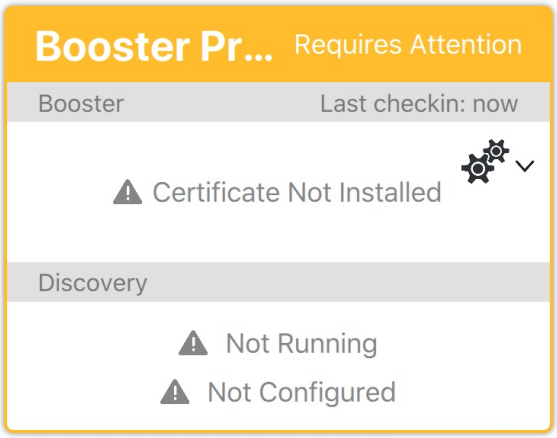
The Booster Monitor may then be used to configure the Booster. At a very basic level, the Server Address and port should be added.



Approving Boosters

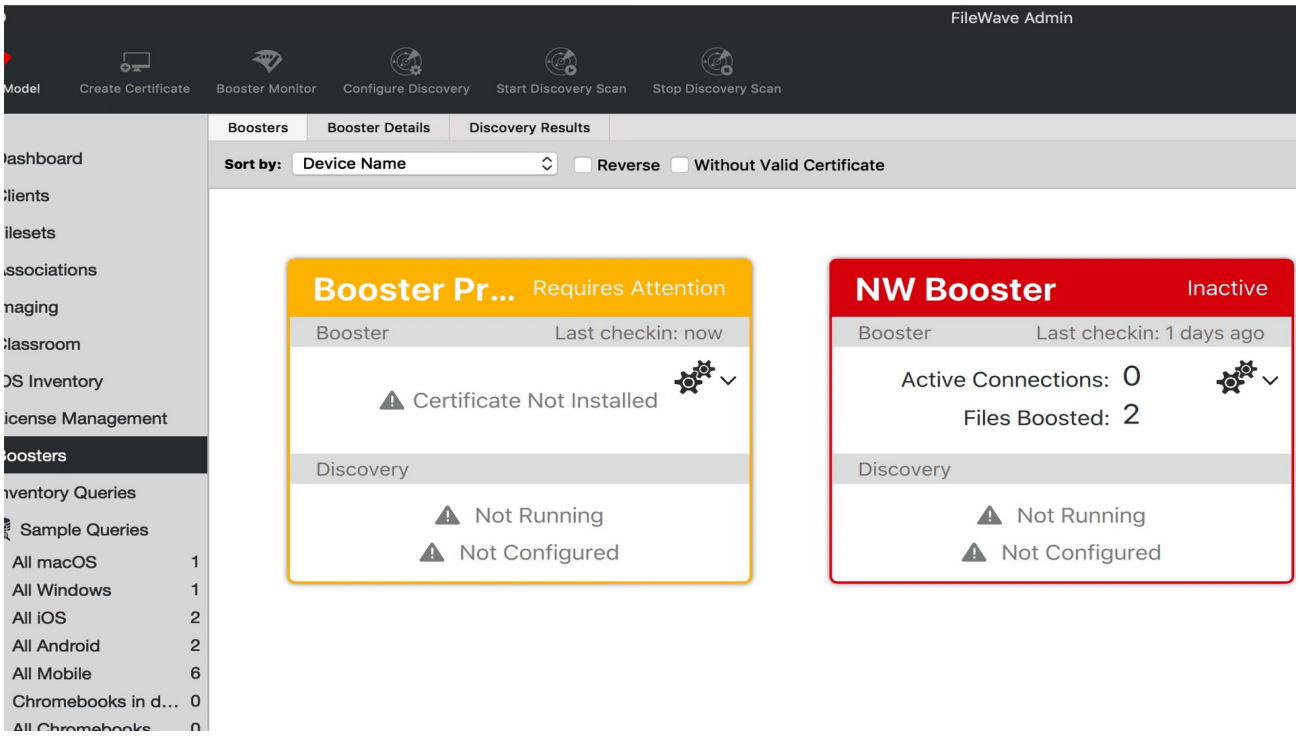
Once a Booster is setup on the network with the relevant FileWave Server details, it should then check-in with the server and be visible in the Booster section of the FileWave Central admin application software.

> As of FileWave 13.1.0, additional security and certificates were introduced, requiring the approval process.



The approval process generates a certificate for the Booster. There are four ways to generate a certificate for a booster.

1. Select booster(s) in the Booster view → right-click → Create Certificate/Enroll Booster
2. Select booster(s) in the Booster view → Create Certificate/Enroll Booster (in the button bar)
3. Select booster(s) in the Booster Details → right-click → Create Certificate/Enroll Booster
4. Select booster(s) in the Booster Details → Create Certificate/Enroll Booster (in the button bar)

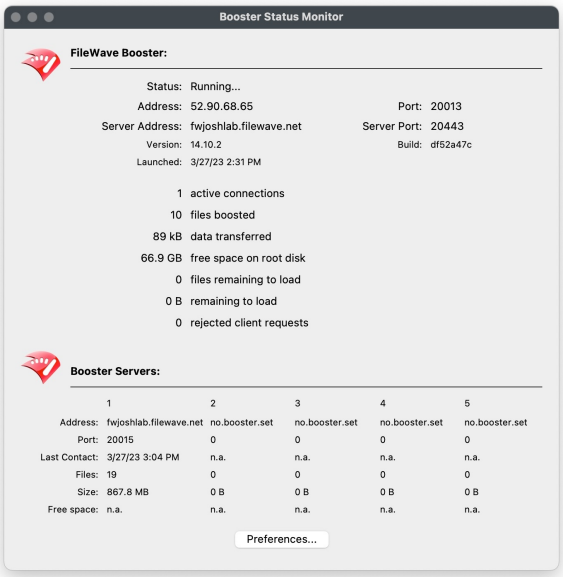


Booster Deletion

If a Booster were deleted from FileWave, this will revoke the certificate. If still running, on a subsequent check-in, the approval process should need to be re-actioned.

Booster Monitor and Configuration Settings

Booster Monitor



When you first launch Booster Monitor, it will attempt to connect to the Booster at the default address of 127.0.0.1 with the assumption that you are running the monitor on the system you installed it on. You can change that address to any valid IP address or FQDN of a Booster you have installed. If you try to connect to a Booster from FileWave Central on the list of Boosters, and it won't connect you should check what IP it lists there for the Booster. For some network setups, the FW server may see the Booster coming from a different address than what your clients connect to it on.

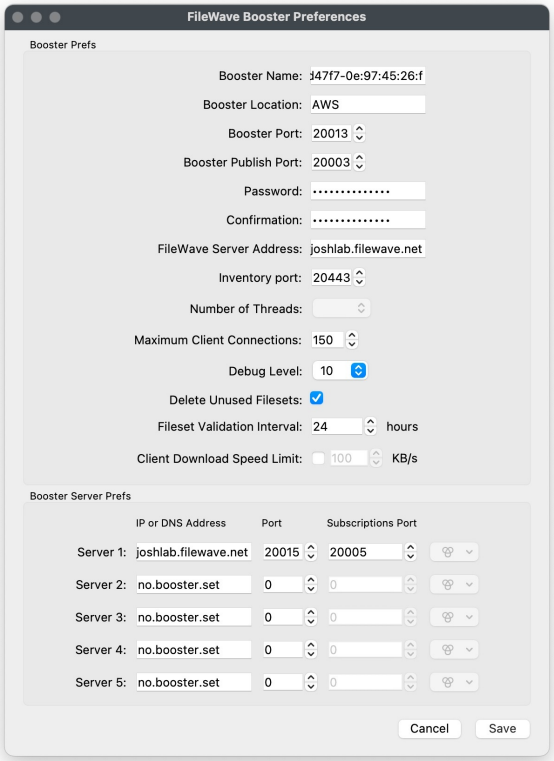
> ⚠ Note that the standalone application, Booster Monitor, will only be able to connect to a Booster for initial configuration. Once a Booster is configured you must access Booster Monitor from FileWave Central in the Boosters section. This is because authentication is protected, and the FileWave Central application provides a secure connection. Launching Booster Monitor directly would not have that same authentication, and you will see an error about the Booster not running.

The default password will be "filewave" or if you used the https://custom.filewave.com website, it may be "f1lewav3" or whatever you set it to.

Once you have connected with your Booster, you will see its Status Monitor window. The status window lets you see the current settings and cache of the Booster.

You can set the Booster preferences to choose how the Booster can be reached, how it works with other Boosters, the main FileWave Server, and how it handles network traffic.

Booster Prefs



- Booster Name – This is an identifier for you to distinguish a Booster in the FileWave Admin GUI. It does not have to be the hostname of the Booster, but would be a good practice to follow.
- Booster Location – This is a text field to help someone know the physical location of the Booster (it shows in the Booster view of FileWave
- Booster Port – By default, this is 20013; but you can change it to any valid TCP port that won't interfere with active connections on your network. This port should also be open in the network firewall for external connections and you need to make your booster listen on this port.
- Booster Publish Port – This is no longer used but was for the Observe client before 14.8.0.
- Password / Confirmation – the default password is "filewave" or “f1lewav3“ or a custom password depending on how you installed.
- FileWave Server Address – This should be the FileWave Server that the booster talks to.
- Inventory port – This should be the 20443 which is the port inventories are sent to.
- Number of Threads – This is not used in this interface anymore and can not be changed.
- Maximum Client Connections – This is the number of connections the Booster can accept. For macOS and Windows-based Boosters, the limit is 400, but Linux can support up to 2000 connections. After a Booster runs out of connections then clients will be sent to the next Booster in their list. If no additional Boosters are in the list of Boosters, then the client will fall back to the FileWave Server.
- Debug Level – you can change this value if you are troubleshooting an issue with FileWave Support. The higher the level, the more log files generated.
- Delete Unused Filesets – this setting will cause the Booster to delete any Filesets that have been deleted at the main FileWave Server. If you leave this setting unchecked, then the Booster will keep every Fileset it has cached. This can come in handy as an ad-hoc backup of all your Filesets for recovery purposes. We recommend keeping this checked so your Booster does not run out of space from old Fileset / Payload files.
- Fileset Validation interval – this value determines how often the Booster checks to make sure it has every Fileset that the clients have requested and that the versions of the Filesets are correct and up-to-date.
- Client Download Speed Limit – you can use this setting to throttle the bandwidth that the Booster will utilize with a given client. A word of caution though, if the Booster is feeding an IVS, you probably don't want to limit the download speed between the Booster and the IVS, as images can be quite large and take a lot of time to copy when unrestricted.

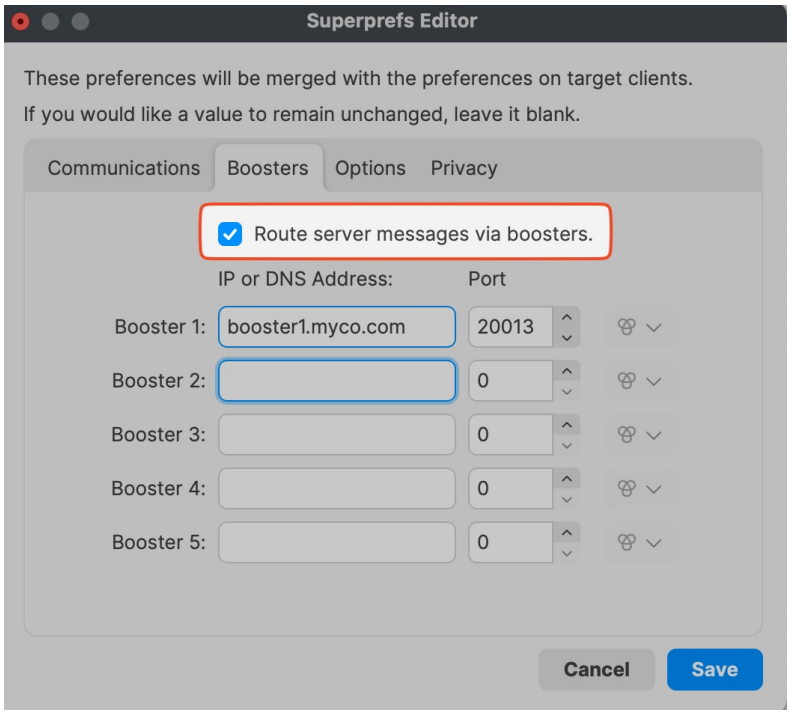
Booster Server Prefs

These settings are where you build your distribution "tree" by assigning where this Booster connects. This specifies the order in which connection attempts will be made. The best way to set this up is to follow these guidelines:

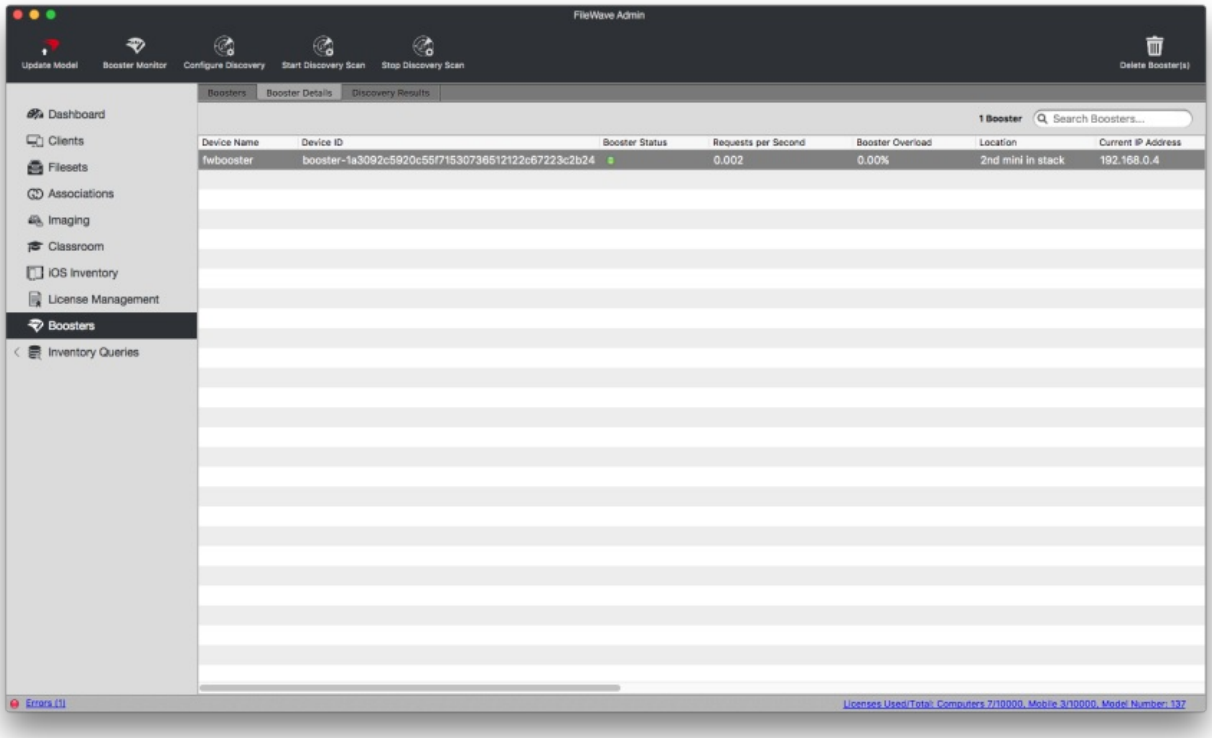
- Set Server 1 to be the next Booster upstream from your Booster. This may be the main FileWave Server or another Booster upstream from this one.
- Set the other servers to be Boosters in the same general area or location as this Booster or ones that are upstream from each other (e.g., #2 would be upstream from #1). Do not set these to the other Boosters in a DNS "round-robin" configuration - that would leave these Boosters all asking each other for Filesets none of them may have.
- If you have not entered the FileWave Server as server 1, set the last value in the table to the main server. This guarantees that if all the other Boosters never respond, the main FileWave Server will be contacted.
- The Port should be 20015 if the entry is a FW server, and 20013 if it is a Booster. This is true even though you will note that a different port is really used. FileWave will automatically change the port to the SSL port so use these values as stated here.
- The Subscriptions Port is not used anymore but as long as it is there you can put 20003 if Server1 is a Booster and 20005 if it is a FileWave server until we remove this, but it is not used anymore.

Configuring Clients to use Boosters for Server Messages

To activate the server message routing functionality introduced with FileWave 11, you must enable it using either the option on the Booster page of Superprefs or Client Preferences. More detail on this feature is here: What are "Server Messages" and why do I want them?



Boosters View



On the above screenshot you can see new options in the Boosters tab in Boosters view:

"Device Name" column contains the name of the Booster. This is configured in Booster's preferences.
"Booster Status" column indicates green/orange/red icon based on last check-in time:

- green = OK (check-in within the last 5 minutes and everything is fine)
- orange = Warning / Requires Attention
  - Check-in between the last 5 and 10 minutes

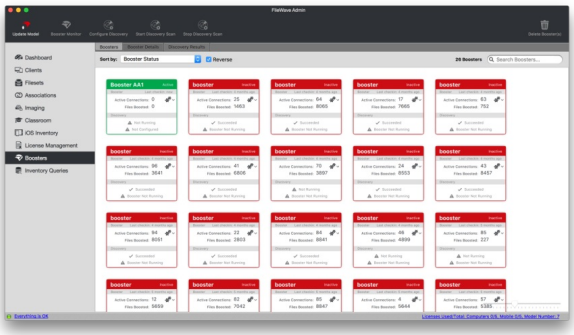
- Booster is Outdated. See: Booster Auto-Upgrade for upgrading
- Certificate Not Installed. See for Booster installation certificate approval)

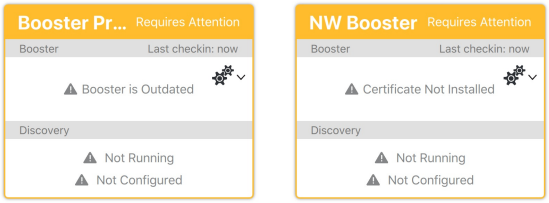
- red = Danger (check-in more than 10 minutes ago and booster is offline)

"Next Scan Start Time" column indicates the start time of the next scan
"Requests per Second" column indicates the number of Booster requests per second within the last 15 minutes. Additionally, Booster statistics are sent by the Booster every 15 minutes at fixed times e.g. 0:00, 0:15, 0:30, 0:45.
"Booster Overload" column indicates if there are any clients' requests that couldn't be served by Booster. This doesn't necessarily mean the Booster is failing; it simply implies that the client has been told to retry later.
"Location" column contains location configured in Booster's preferences.

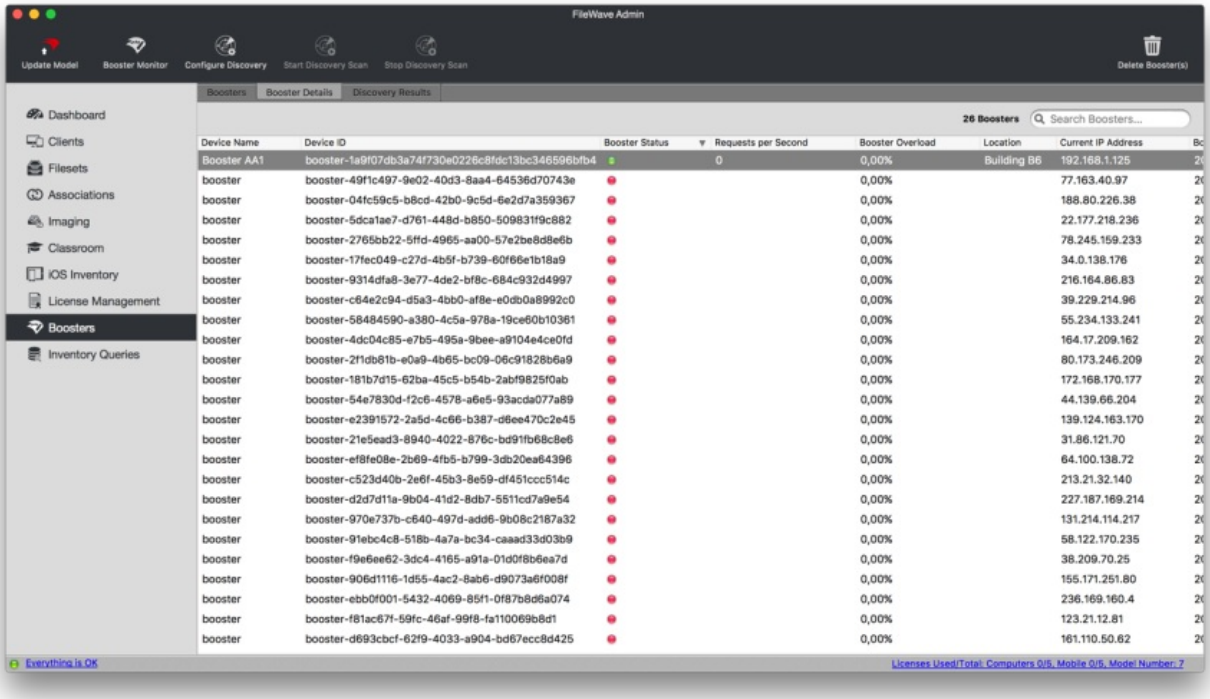
View Modes

The Boosters view offers two primary view modes: the Cards view (which requires OpenGL on the administrator machine running FileWave Admin) and the Details view. These modes operate independently. Double-clicking on a Booster in either view opens the Booster Monitor for that particular Booster.





In the Cards view, each Booster is displayed as a card, with just an overview of its status. Besides using the contextual menu, on the top-right corner of each card there are two gears that when clicked open the same menu.
When the Booster Details tab is clicked on, the Boosters tab switches to the Details view. In this mode, a list with many columns is displayed instead:


FileWave Admin
Update Model
Booster Monitor
Configure Discovery
Start Discovery Scan
Stop Discovery Scan
Delete Booster(s)
Dashboard
Clients
Filesets
Associations
Imaging
Classroom
iOS Inventory
License Management
Boosters
Inventory Queries
Boosters
Booster Details
Discovery Results
26 Boosters
Search Boosters...
Device Name
Device ID
Booster Status
Requests per Second
Booster Overload
Location
Current IP Address
Booster AA1
booster-1a9f07db3a74f730e0226c8fdc13bc346596bfb4
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192.168.1.125
booster
booster-49f1c497-9e02-40d3-8aa4-64536d70743e
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0,00%
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booster
booster-d693cbcf-62f9-4033-a904-bd67ecc8d425
0,00%
161.110.50.62
Everything is OK
Licenses Used/Total: Computers 0/5, Mobile 0/5, Model Number: 7

Device Details - Booster Client Preferences Reporting

What

Want to ensure that your clients are connected to your boosters? Maybe even ensure your FileWave Clients are configured with the proper FileWave tickle time interval, is the “Route server messages via boosters” checked, or the current upstream is reporting to the correct server? FileWave can report these data values with custom fields.

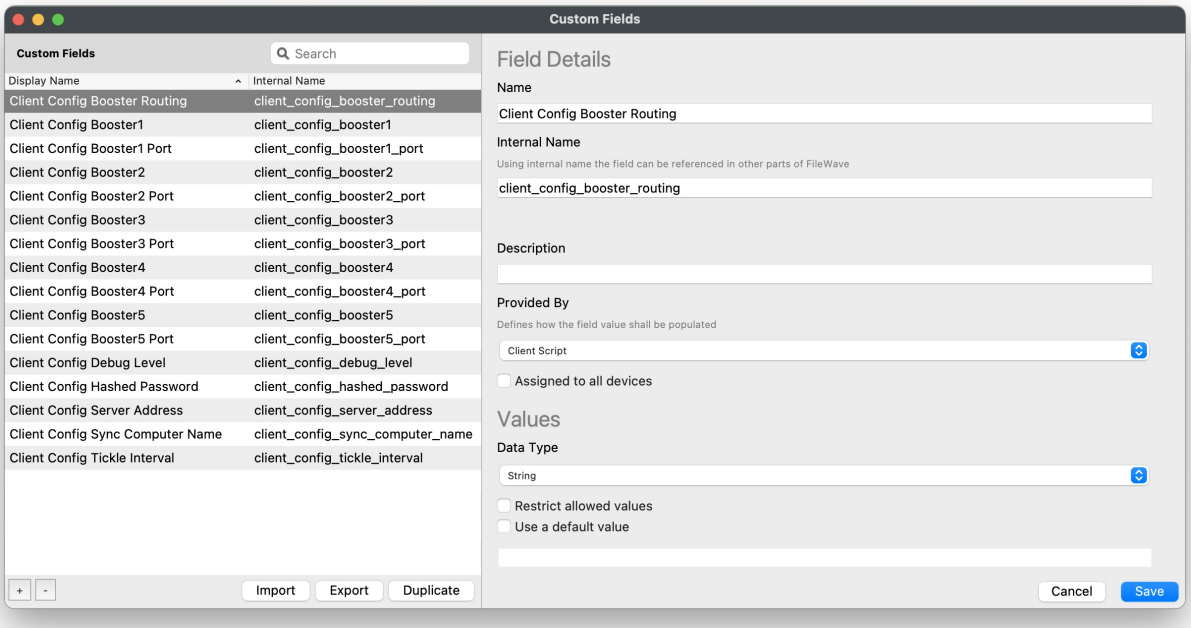
When/Why

After you have set up boosters, you may want to wonder if these clients are connecting to them. With custom fields, we can report and gather inventory data from the device details to confirm that clients are indeed communicating with the FileWave server and your newly configured boosters. In addition, providing other details that can be vital to ensure proper check-in times, routing messaging, upstream server, and even memory usage.

How

Below are the custom fields that may be imported into FileWave Central (native admin). Navigate to Assistants > Custom Fields > Edit Custom Fields... > Import and select the custom fields file to import.

Once imported, you will see listed Client Config fields ready to be assigned to your devices.

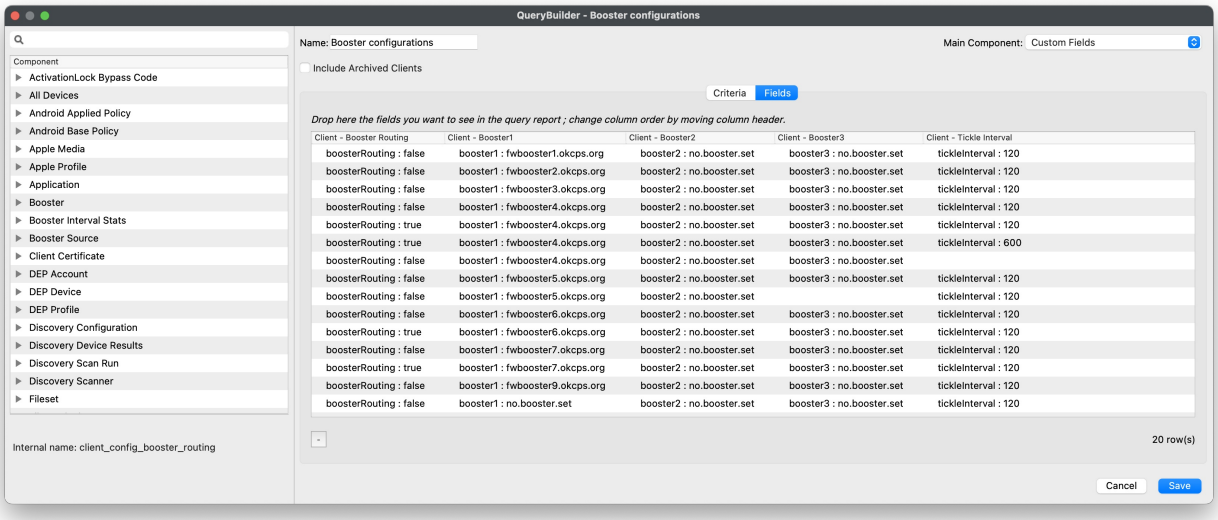


After importing, highlight the Client Configuration field you would like to assign to your devices. Recommend assigning to all devices to confirm that clients are connecting to your Boosters and interval times are set properly. Once you have selected all the Client Configuration fields desired, click on Save.

Give the devices time to check in and acquire the new custom fields to report their data values.

As the device checks in, you may view these custom field values in FileWave Client Info > Device Details. Scroll down through the list for Client Config Booster1, Booster2, etc. to view the data values reported by the client. Below is an example inventory query to view

your device booster configurations: routing messages enabled, booster 1, booster 2, and/or booster 3 upstream connections along with the Tickle Interval.



Note that now that you have these fields you can create queries that show which devices are connected to which Boosters and if any clients are going to the Server when you thought they shouldn't be. This should be an easy way to show your configuration.

Digging Deeper

These custom fields report the .plist data from the FileWave Client directly so the values will be accurate unless a device has not submitted inventory. Check when it last connected to see if it has and use Verify to ask a device to check in now.

Booster Auto-Upgrade

What
This feature will offer FileWave administrators (14.4+) a centralized way to upgrade all their boosters from within FileWave.

When/Why
Having to ssh or remote control to every booster to download and run the booster upgrade takes too much time. Starting with FileWave 14.4, the "Boosters" and "Booster Details" tabs will provide an action for each Booster that has an applicable upgrade available. Some of the criteria to determine if there is an applicable upgrade are:

- Booster has to be at least 14.4
- The operating system version has to be supported by the target version
- The booster has to be running in order to trigger an upgrade
- The version number of the target version has to be higher than the currently installed version (i.e you cannot use this feature to reinstall/downgrade to a specific version)

Upgrading a Single Booster

What

The auto-upgrade Booster feature will offer FileWave administrators a centralized way to upgrade all their boosters from within FileWave.

When/Why

Having to ssh or remote control to each of them to download and run the installer takes too much time. Starting with FileWave 14.4, the "Boosters" and "Booster Details" tabs will provide an option for each Booster that has an applicable upgrade available. Some of the criteria to determine if there is an applicable upgrade are:

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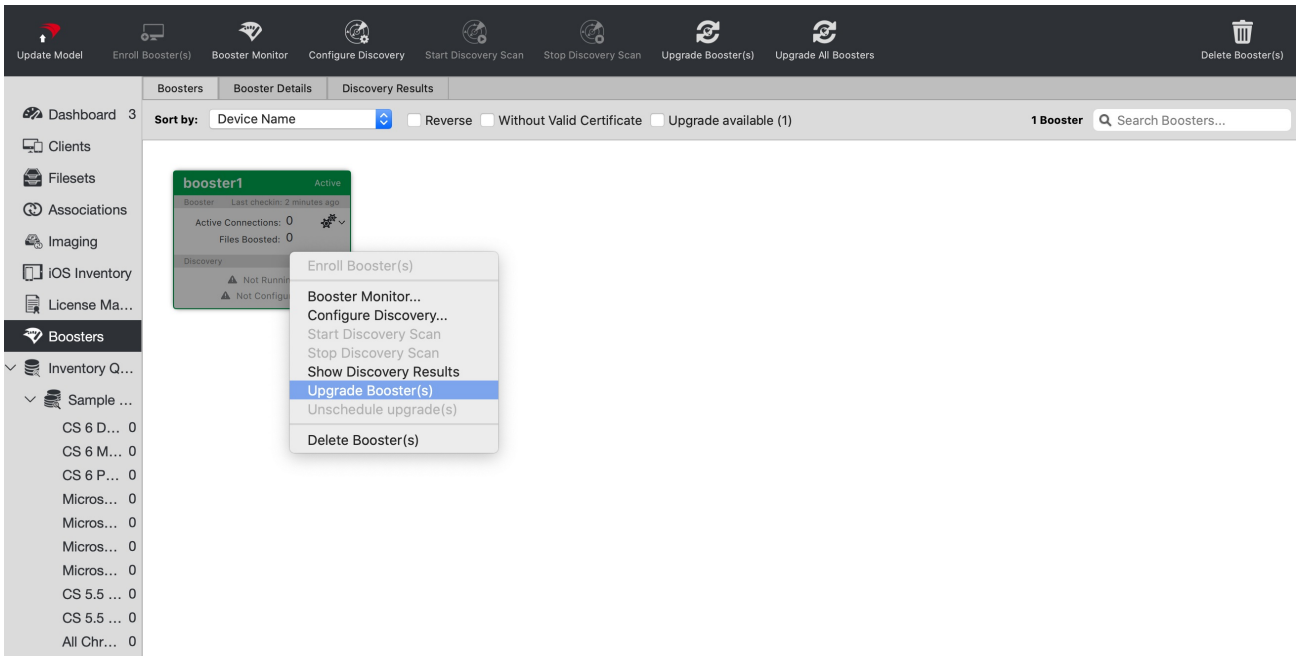
- The operating system version has to be supported by the target version
- The booster has to be running in order to trigger an upgrade
- The version number of the target version has to be higher than the currently installed version (i.e you cannot use this feature to reinstall/downgrade to a specific version)

This will discuss a single Booster setup. Even in this case, the process for upgrade is made more simple by being able to upgrade it in one step.

How

To upgrade a particular booster, just right-click it and select "Upgrade Booster". You can also right-click the booster in the "Booster Details" tab.



Upgrading Multiple Boosters

What

The auto-upgrade Booster feature will offer FileWave administrators a centralized way to upgrade all their boosters from within FileWave.

When/Why

Having to ssh or remote control each of them to download and run the installer takes too much time. Starting with FileWave 14.4, the "Boosters" and "Booster Details" tabs will provide an option for each Booster that has an applicable upgrade available. Some of the criteria to determine if there is an applicable upgrade are:

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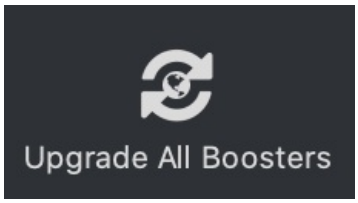
- The booster has to be running in order to trigger an upgrade
- The version number of the target version has to be higher than the currently installed version (i.e you cannot use this feature to reinstall/downgrade to a specific version)

This will discuss a multi-Booster setup. As you increase the number of Boosters in use this process will save more and more time.

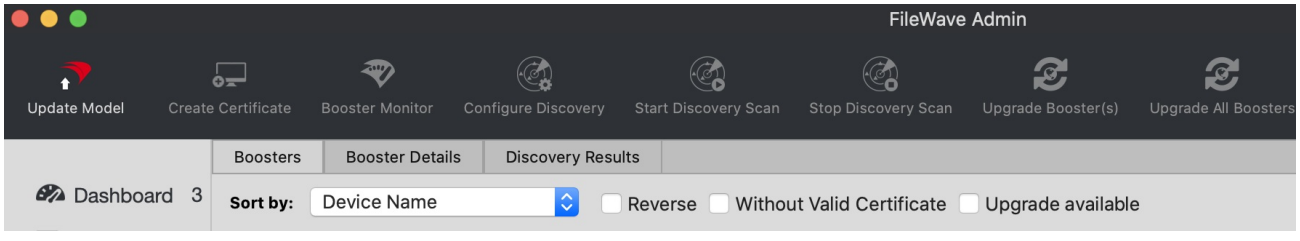
How

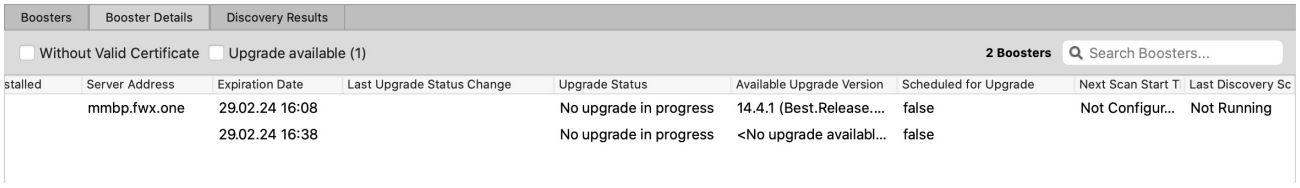
It is also possible to upgrade multiple boosters. In this case, one booster will be upgraded one after another in alphabetical order. The simplest way to upgrade multiple boosters is to use the "Upgrade All Boosters" button in the toolbar of the Boosters section of the native console:



It automatically schedules all boosters to upgrade. Alternatively, you can select multiple boosters and use the context menu or toolbar button to upgrade them.

To track the progress of upgrading multiple boosters, you can use the new Booster Upgrade status field mentioned earlier. You can also use the new check box Upgrade available which allows you to filter out boosters that have no upgrade available. This check box is displayed in both the Boosters and Booster Details tabs:





With this new functionality, the process to upgrade Boosters should be greatly simplified, especially for larger environments.

Related Content

- Booster deployment planning
- Booster installation
- Upgrading a Single Booster

- Reporting / Monitoring Booster Upgrade Process

Reporting / Monitoring Booster Upgrade Process

What

The auto-upgrade Booster feature will offer FileWave administrators a centralized way to upgrade all their boosters from within FileWave.

When/Why

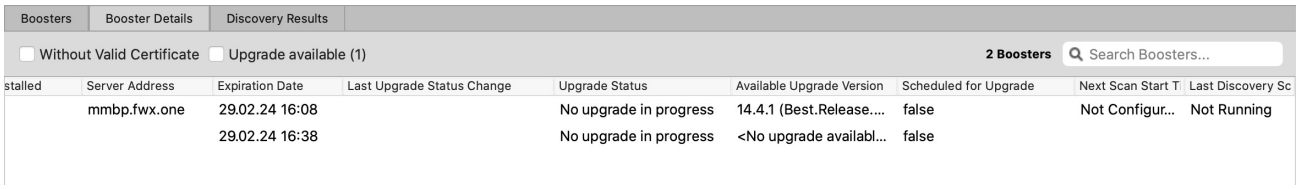
Having to ssh or remote control to each of them to download and run the installer takes too much time. Starting with FileWave 14.4, the "Boosters" and "Booster Details" tabs will provide an action for each Booster that has an applicable upgrade available. Some of the criteria to determine if there is an applicable upgrade are:

- Booster has to be at least 14.4
- The operating system version has to be supported by the target version
- The booster has to be running in order to trigger an upgrade
- The version number of the target version has to be higher than the currently installed version (i.e you cannot use this feature to reinstall/downgrade to a specific version)

This will discuss the reporting functions around this auto-upgrade process.

How

In the "Booster Details" tab, there are three new fields that indicate the status of the booster upgrade:



Upgrade Status - This field shows the current progress of the booster with one of the below statuses:

- No upgrade in progress: Currently, no upgrade is being installed. This status is also shown when the last upgrade was successful.
- Downloading: Indicates that the booster is currently downloading a new booster upgrade from the server; a necessary step before the upgrade can be installed.
- Installing: The booster is currently installing an update. This should either lead to the "No upgrade in progress" or "Failed" state. The default timeout is one hour.
- Failed: Indicating the upgrade was unable to complete.

Available Upgrade Version - Reports which upgrade version is available to this particular booster, given its operating system.

Scheduled for Upgrade - This flag indicates whether the booster is in the current upgrade queue.

- 'true': Booster is either processing an upgrade or waiting for a preceding Booster to finalize an upgrade, including failures.
- 'false': No upgrade is scheduled

> Only on each upgrade success, will subsequent Boosters continue to automatically upgrade, if scheduled, to the version indicated by the 'Available Upgrade Version'. Booster upgrade failures prevent further automated, scheduled upgrades until addressed or overridden by bypassing the failed Booster from the 'Unschedule Booster' context menu item.

Related Content

- Booster deployment planning
- Booster installation
- Upgrading a Single Booster
- Upgrading Multiple Boosters

Digging Deeper

When an upgrade is triggered through FileWave Central, the server sends a notification to the Booster with a URL parameter pointing to the upgrade package (rpm for Linux, pkg for Mac, MSI for Windows) that shall be downloaded and installed. Currently, this URL will point to the FileWave CDN (https://fwdl.filewave.com/) for official releases. Both "Boosters" and "Booster Details" view offer a filter to only show Boosters that can be upgraded.

The location for auto upgrade logs is;

- Linux and MacOS: `/var/log/fwbooster_upgrade.log`
- Windows: `C:\ProgramData\FileWave\FWBooster\Data Folder\upgradeBooster.log`

Adjustment of Windows Booster Settings via Scripting

Description

Boosters running on Windows systems may be configured with a SuperPrefs Fileset: Creating a Superprefs Fileset

Alternatively, it is possible to script Booster settings using a script. The following script may be used to change booster settings of multiple clients preferences:

Directions

```
@echo off
NET STOP "FileWave WinClient">NUL
REG ADD HKLM\SOFTWARE\WOW6432Node\FileWave\WinClient /v booster1 /t REG_SZ /d no.booster.set /f
REG ADD HKLM\SOFTWARE\WOW6432Node\FileWave\WinClient /v booster1port /t REG_DWORD /d 0 /f
REG ADD HKLM\SOFTWARE\WOW6432Node\FileWave\WinClient /v booster2 /t REG_SZ /d no.booster.set /f
REG ADD HKLM\SOFTWARE\WOW6432Node\FileWave\WinClient /v booster2port /t REG_DWORD /d 0 /f
REG ADD HKLM\SOFTWARE\WOW6432Node\FileWave\WinClient /v booster3 /t REG_SZ /d no.booster.set /f
REG ADD HKLM\SOFTWARE\WOW6432Node\FileWave\WinClient /v booster3port /t REG_DWORD /d 0 /f
REG ADD HKLM\SOFTWARE\WOW6432Node\FileWave\WinClient /v booster4 /t REG_SZ /d no.booster.set /f
REG ADD HKLM\SOFTWARE\WOW6432Node\FileWave\WinClient /v booster4port /t REG_DWORD /d 0 /f
REG ADD HKLM\SOFTWARE\WOW6432Node\FileWave\WinClient /v booster5 /t REG_SZ /d no.booster.set /f
REG ADD HKLM\SOFTWARE\WOW6432Node\FileWave\WinClient /v booster5port /t REG_DWORD /d 0 /f
NET START "FileWave WinClient"

exit
```

Copy this script to a text editor. This script can change the names of all boosters, from booster1 through booster5. Add and remove lines according to requirements. Edit each entry per Booster, replacing:

- 'no.booster.set' with the name of the Booster
- Booster port to the required port; set as 20013 if Booster uses default settings

Leave as '`no.booster.set`' where there is no Booster required.

Always use Fully Qualified Domain Names for the Booster name

Save the script with the .bat extension. Ensure the script is configured for 'Execute once when activated' from the 'Get Info' > 'Executables' tab.

Example

Modify Booster 1 as:

- 'booster1.filewave.com'
- 20013

```
REG ADD HKLM\SOFTWARE\WOW6432Node\FileWave\WinClient /v booster1 /t REG_SZ /d booster1.filewave.com /f
REG ADD HKLM\SOFTWARE\WOW6432Node\FileWave\WinClient /v booster1port /t REG_DWORD /d 20013 /f
```

FileWave Boosters Improved Server Message Routing (15.3+)

What

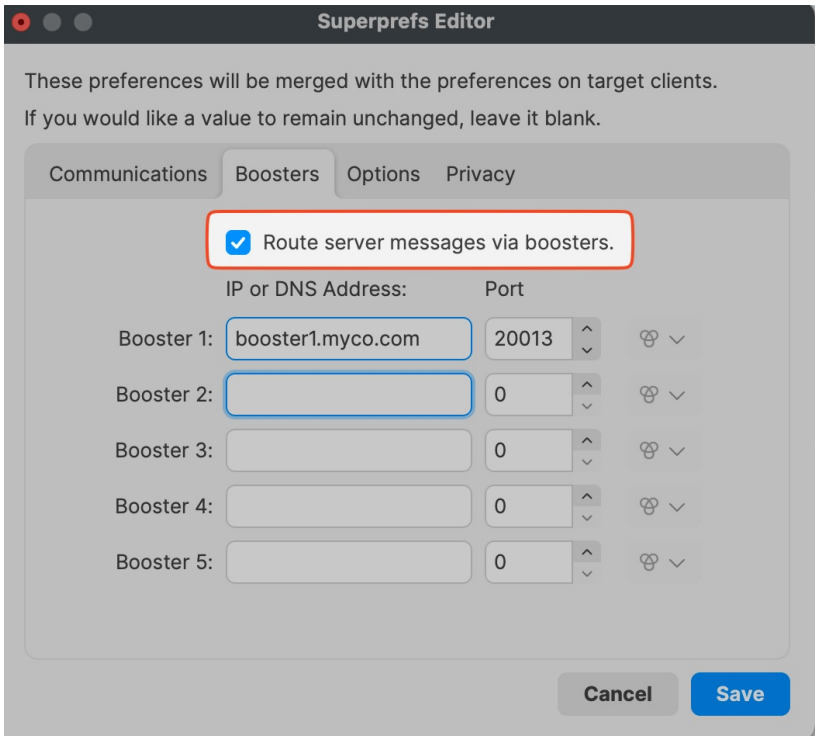
FileWave 11 introduced Booster Routing, a feature that allows off-loading direct traffic to the server by routing messages via Booster. This feature provides additional security if you only allow boosters to connect to your server and have all your devices only reach boosters. With FileWave 15.0, the internal notification system has switched entirely to NATS, replacing ZMQ; NATS, in addition to built-in security features and improved performances, brings much more flexibility and can then be used in more areas.

When/Why

FileWave 15.3 can now use NATS as the communication protocol for all maintenance messages between client and server. Fileset delivery still uses the classic protocol, but messages like Fileset status or check-in now use the lightweight and fast delivery mechanism offered by NATS.

How

Please review the Boosters documentation. If you manage Windows or macOS systems, you most likely need one or more Boosters. For Hosted customers, you are required to have Boosters to minimize the data traffic from your Hosted FileWave Server. You'll want to ensure that "Route server messages via boosters." is enabled in your Superprefs or Custom FileWave Client.



Related Content

- Boosters
- Creating a Superprefs Fileset

Automated Booster Configuration for Dynamic Network Environments

Description

There are setups where automated Booster configuration is desirable; for example devices that may move in and out of the business or between offices. Covered here is an example method allowing clients to automatically adapt their Booster settings based upon certain criteria.

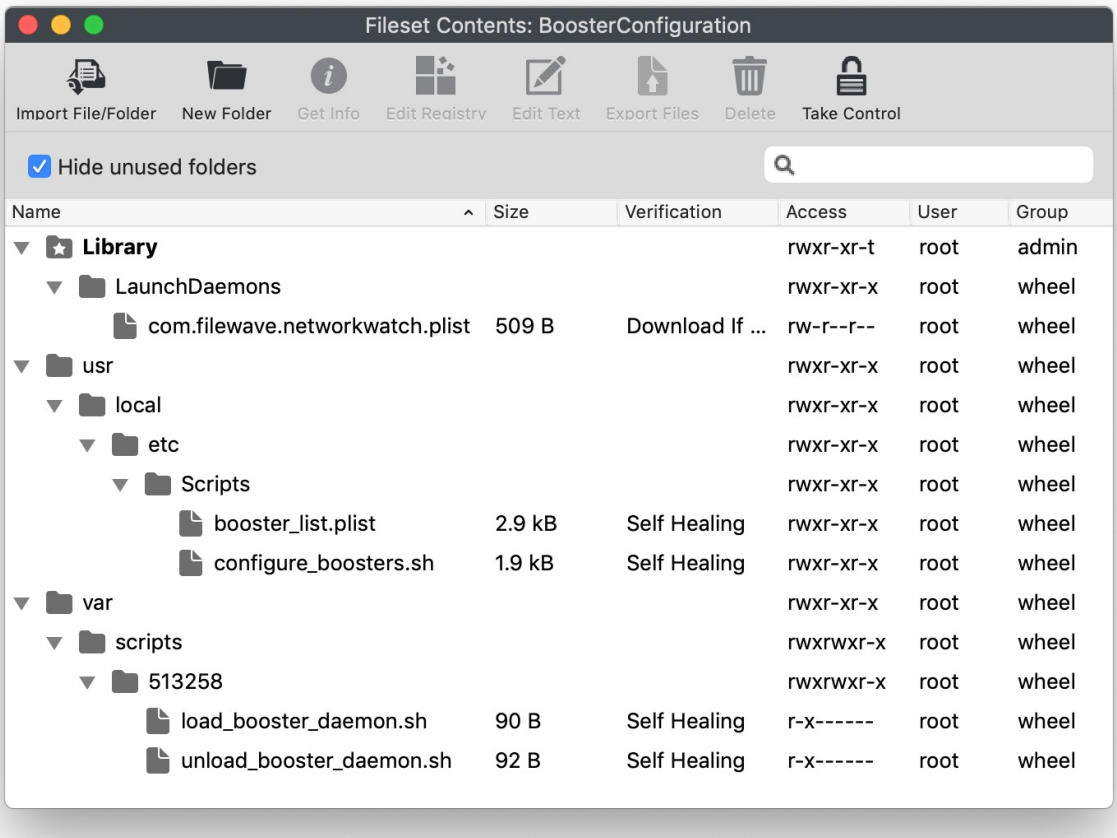
Information

The following provides an example setup for macOS. Similar functionality could be achieved on Windows and some ideas of this are shown also in this KB.

Requirements:

- Provided Booster Configuration Fileset - BoosterConfiguration.fileset.zip
- Editing of 'booster_plist.plist'

The Fileset contains the following items:



- Activation Script: load_booster_daemon.sh
- Pre-Uninstallation Script: unload_booster_daemon.sh
- LaunchDaemon: com.filewave.networkwatch.plist
- Script: configure_boosters.sh
- Plist file: booster_list.plist

The Fileset will place the LaunchDaemon which is set to be triggered on load and any network change. Where a network change has occurred, the provided script will run, reconfigure the Booster settings if required and then restart the FileWave client. By providing an additional plist file for booster settings per domain, the file may be updated without the requirement to reload the LaunchDaemon to react to the updated settings.

> LaunchDaemon Verification

The verification settings of the LaunchDaemon are set to 'Download if missing'. The script triggered by the daemon will read and write to this file, preventing unnecessary re-runs. Therefore, the file should not be changed to Self-Healing.

Directions

- Download and import the Fileset into FileWave Admin
- Edit the 'booster_list.plist' file to meet requirements

The example provided utilises the domain name from the device and based upon the booster plist file, the relevant dictionary of items is read into the client settings and then the client is restarted. The LaunchDaemon script uses the 'hostname' command to achieve this.

For example, if the command returned the following:

hostname

```
$ hostname
ML1015.filewave.ch
```

The script would look in the booster_list.plist file for a dictionary called 'filewave.ch' and configure the client to match this dictionary. The example file has been provided with 3 dictionaries for the following domains:

- 'filewave.ch'
- 'local'
- 'home'

The example dictionary from the 'booster_list.plist' for 'filewave.ch' is:

booster_list.plist

```
        <key>filewave.ch</key>
        <dict>
                <key>booster1</key>
                <string>booster1.filewave.ch</string>
                <key>booster1Port</key>
                <integer>20013</integer>
                <key>booster1PublishPort</key>
                <integer>20003</integer>
                <key>booster2</key>
                <string>booster2.filewave.ch</string>
                <key>booster2Port</key>
                <integer>20013</integer>
                <key>booster2PublishPort</key>
                <integer>20003</integer>
                <key>booster3</key>
                <string>booster3.filewave.ch</string>
                <key>booster3Port</key>
                <integer>20013</integer>
                <key>booster3PublishPort</key>
                <integer>20003</integer>
                <key>booster4</key>
                <string>booster4.filewave.ch</string>
                <key>booster4Port</key>
                <integer>20013</integer>
                <key>booster4PublishPort</key>
                <integer>20003</integer>
                <key>booster5</key>
                <string>no.booster.set</string>
                <key>booster5Port</key>
                <integer>0</integer>
                <key>booster5PublishPort</key>
                <integer>0</integer>
                <key>boosterRouting</key>
                <false/>
        </dict>
```

Edit the name of the domain, booster names and settings for each dictionary to meet requirements. Note, if no booster is required for any of the five boosters, 'use no.booster.set' as in the above example for booster5.

If the device reports a domain that is not in the list, a default domain will be used. Specify which default domain should be used within the 'booster_list.plist' file. The example provided is set to use 'local' as the default domain and if implemented, the values of

the 'local' dictionary keys will be read from the 'booster_list.plist' file.

Default Domain

```
        <key>default</key>
        <string>local</string>
```

Once all domains have been set, with relevant criteria for each dictionary, the Fileset may be associated, tested and then implemented.

Windows

Windows has a similar option to LaunchDaemons, 'Task Scheduler'. Powershell may be used to import scheduled tasks:

https://docs.microsoft.com/en-us/powershell/module/scheduledtasks/register-scheduledtask?view=win10-ps

As such, in theory a Scheduled task could be created based upon network event IDs

- Log: Microsoft-Windows-NetworkProfile/Operational
- Source: NetworkProfile
- Event ID 10000 Connection to a network
- Event ID 10001 Disconnection from a network

This task could trigger a script. Once created, it may then be exported, added to a Fileset with an appropriate script to be triggered by the task, designed to update the booster configuration of the client, and installed using an Activation script by the register-scheduledtask Powershell command.

Conclusion

The above is an example of how boosters could be configured automatically. Similar could be used to specify IP ranges, however it is more likely that IP ranges can overlap between networks which could cause unexpected configurations. It may therefore be necessary to adapt the script to allow for both domain and IP ranges, depending upon network topology.

Each setup is unique and as such it is not possible to provide a Fileset that is a 'one-fit-for-all'. Whichever method is chosen, try to identify something that will distinguish device locations to ensure settings are delivered as intended.

> Incorrect Configuration
> If devices receive configurations that do not match the location of the device, it may be possible that device management is lost until the mis-configuration is addressed. Thorough testing should be applied before implementation.

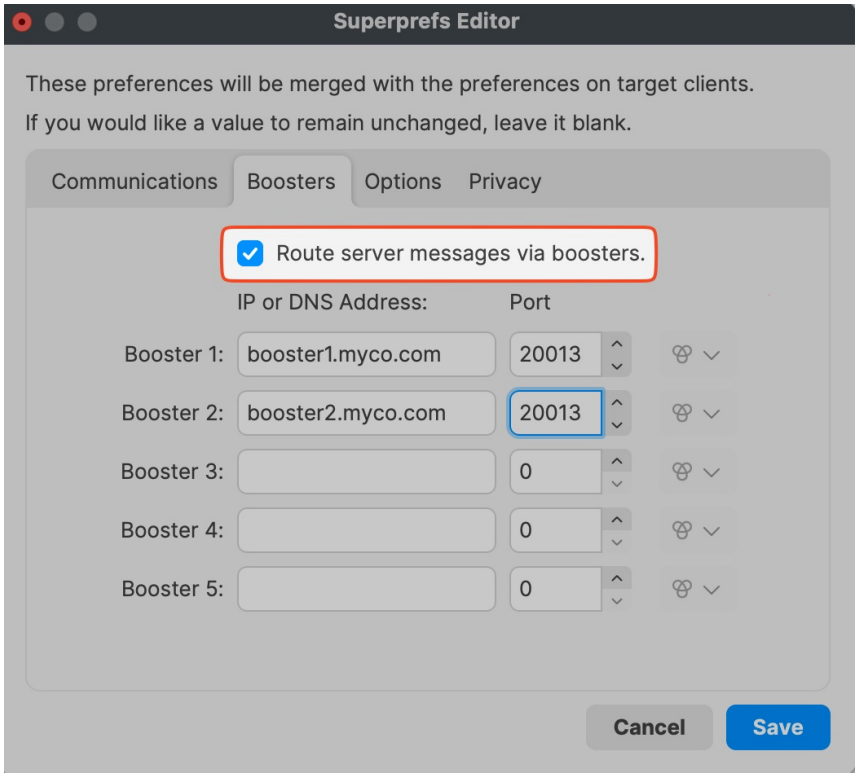
Troubleshooting

Troubleshooting

What are "Server Messages" and why do I want them?

What

Perhaps you have seen the option in Superprefs Editor or in Client Monitor about "Route server messages via boosters" and asked yourself what that was?



When/Why

We know that when a client is talking to the FileWave server it does a check-in every so often (2min default). But how does it talk and what is said?

When we take a look at the Default TCP and UDP Port Usage for FileWave we see 20015 and 20017 (communications between client and server). There is also NATS ports that handle notifications for things like initiating a TeamViewer session.

> Note: The default port setting is 20015. However, SSL is now required, and the system will automatically use port 20017 instead when 20015 is entered. Do not manually set the port to 20017. Always enter 20015, and the system will handle the SSL port change for you.

How

Basically, server messages are the communications a client needs to work with the server. Below is a list of messages that could be sent via the publishing and routing services if this option is enabled. You should enable Route Server Messages via boosters to let your Boosters handle these additional communications to take burden off the FileWave Server.

- Checkin
- Fileset properties and status
- Software updates
- Lock / Unlock client
- Kiosk categories and item info

Troubleshooting

Networking - Assign static IP Address for a FileWave Booster Appliance

For the Linux based Booster if you cannot use the port https://server:10000 to change network setting please follow the instructions below:

▼ Debian Linux

Debian Linux

Changing the IP address in Debian 12, which uses `systemd-networkd` for network management, involves different steps compared to CentOS. The following guide is tailored for Debian 12 servers using `systemd-networkd` but you could also use Webmin on your server assuming the server comes online initially with DHCP.

> ⚠ For Webmin know that you will need to go to Webmin -> Webmin Configuration -> Operating System and Environment and make sure it's set to Debian 12.4 (Or whatever version we are at when you set up your system. You can see this with `cat /etc/debian_version` on the server.

1. Locate Network Interface:
   First, identify the network interface you wish to configure. You can list all network interfaces using:

   ```
   networkctl list
   ```

   ```
   admin@ip-172-30-3-220:/etc/network$ networkctl list
   IDX LINK TYPE     OPERATIONAL SETUP
     1 lo   loopback carrier     unmanaged
     2 ens5 ether    routable    configured

   2 links listed.
   ```

2. Configure Network Settings:
   `systemd-networkd` uses individual `.network` files for each network interface, located in `/etc/systemd/network/`. Create or edit the network configuration file for your interface, named like `10-eth0.network` (replace `eth0` with your interface name).

   ```
   sudo nano /etc/systemd/network/10-eth0.network
   ```

3. Configure IP Address:
   In the `.network` file, add or modify the following sections:

   ```
   [Match]
   Name=eth0

   [Network]
   Address=192.168.1.100/24
   Gateway=192.168.1.1
   DNS=8.8.8.8
   DNS=8.8.4.4
   LinkLocalAddressing=no
   IPv6AcceptRA=no
   ```

   Replace `eth0` with your actual network interface name.
   Modify the `Address` with your new IP and subnet mask (e.g., `/24` for a 255.255.255.0 netmask).
   Set the `Gateway` and `DNS` entries as per your network configuration.

   You'll also want to edit `/etc/network/interfaces` because ens192 is configured there for DHCP. That's how you might have gotten to it via Webmin for instance. Edit the file to put a # before the 2 lines that have ens192 on them. Those 2 lines in the file will look like this after editing:

   ```
   # The primary network interface
   #allow-hotplug ens192
   #iface ens192 inet dhcp
   ```

4. Reload and Restart systemd-networkd:
   After making changes, enable the Networkd service so interfaces come up at boot time, and reload the daemon and restart the network:

   ```
   sudo systemctl enable systemd-networkd
   sudo systemctl daemon-reload
   sudo systemctl restart systemd-networkd
   ```

5. Verification:
   Check the status of your network interface to ensure the new settings are active:

   ```
   networkctl status eth0
   ```

   You can also use `ip addr show eth0` to view the IP configuration.

▼ CentOS Linux

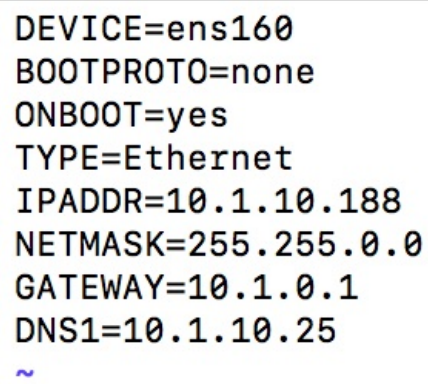
CentOS Linux

Depending if you are using the appliance we offer for a CentOS Linux virtual appliance or a Linux machine you built the steps may be slightly different. The steps shown below will be for the FileWave virtual appliance that we offer.

1. Configure the "ifcfg-ens160" file on the server. (This file will be different if you are not using our Virtual Appliance and will have a different name like "ifcfg-eth1" for example)

   ```
   vi /etc/sysconfig/network-scripts/ifcfg-ens160
   ```

2. Change/add the following values of the file.
   1. Change BOOTPROTO=none
   2. Add "IPADDR", "NETMASK", "GATEWAY", "DNS1" to the file with your network configurations. I attached a screen shot of a completed file below. (If you want to add more then one DNS server you can add DNS2, etc to the file)

   3. Save the file using "esc" then ":wq"
3. Now you will need to restart the network services on the server.

   ```
   /etc/init.d/network restart
   ```

Booster ID Generation

Description

In some circumstances, a Booster may appear as missing or multiple boosters may overwrite a single Booster record in the Admin console. This can occur where each booster is a copy of another booster, e.g. VM source is identical.

Where Booster IDs conflict, it generating a new Booster ID will be necessary

Directions

Running the following command through a Booster shell should force a Booster to configure a new Booster ID.

Linux & macOS

```
fwcontrol booster stop && rm -f /etc/xdg/FileWave/Booster.conf && rm -f /var/FWBooster/*.key && rm -f /var/FWBooster/*.crt && fwcontrol booster start
```

It will then be necessary to 'Enroll Booster(s)' from their contextual menu, even if previously enrolled.

Enable core dumps for booster crashes

For centOS

Step-by-step guide

1. edit this file:
   `vi /usr/local/etc/filewave/supervisor/supervisord-booster.conf`
2. Uncomment this line:
   `command=/bin/bash -c "ulimit -c unlimited && /usr/local/sbin/fwbooster`
3. restart the booster:
   `sudo /etc/init.d/fw-booster restart`
4. edit this file:
   `vi /etc/sysctl.conf`
5. Add the lines below:
   `kernel.core_uses_pid = 1`
   `kernel.core_pattern = /tmp/core-%e-%s-%u-%g-%p-%t`
   `fs.suid_dumpable = 2`
6. Enable debugging:
   `echo "DAEMON_COREFILE_LIMIT='unlimited'" >> /etc/sysconfig/init`
7. Reload the settings in /etc/sysctl.conf:
   `sysctl -p`

> For testing purpose:
> Kill booster process e.g:
> (ps ax | grep fw)
> `kill -6 3014`
>
> Check if a core dump is generated under /tmp.
> Should be something like this:
> core-fwbooster-6-0-0-8440-1509016449