

Blaser mDNS Repeater

Version 1.0

Introduction

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For the latest information, please see http://www.blaser.us/software/mDNS/

Abstract

This introduction to the Blaser Software mDNS Repeater provides a basic understanding of the system, its intent and purpose and the value that can be derived by using the program. In addition, this introduction is designed to provide its audience with the ability to explore the full documentation set in a meaningful context in order to realize maximum benefit when implementing the software.

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Executive Summary

The **Blaser mDNS Repeater** is a Windows service that will bind to multiple IP addresses on a single system; listening for and repeating mDNS (Apple Bonjour) packets and traffic between different VLANs associated to the network card on the computer. This enables services between VLANs such as AirPlay, AirPrint and more while maintaining the integrity and security between VLANs in the corporate or educational environment.

For more information and to download a fully-functioning demo, please visit the **Blaser mDNS Repeater** website at <u>http://www.blaser.us/software/mDNS/</u>

Introduction

This document provides the information needed to install and use Blaser Software's **Blaser mDNS Repeater**.

Who Should Read This Document

This introduction is intended for audiences who are installing the **Blaser mDNS Repeater** or make decisions in the planning, development, deployment, or operational aspects of the application in their IT infrastructure. The document aims to educate the audience sufficiently to help determine what value can be derived from the **Blaser mDNS Repeater in** their environment.

Approach & Design Goals

Blaser mDNS Repeater was designed to enable Apple AirPlay and AirPrint services between network VLANs. **Blaser mDNS Repeater** is a Windows service that can run on a Windows server or workstation computer that has access to multiple VLANs.

Benefits

The **Blaser mDNS Repeater** is a small program that runs as a Windows Service. Once configured **Blaser mDNS Repeater** will function to provide a bridge between mDNS (Bonjour) packets on different network VLANS. A VLAN is a group of computers in a switched network that is logically segmented (by function, division, etc.) without regard to the physical locations of the users or devices. VLANs have the same attributes as physical LANs, but with VLANS, you can connect computers together even if they are not physically located on the same LAN segment.

VLANs can also be considered broadcast domains. Broadcast packets, such as mDNS or Bonjour packets on a VLAN are only forwarded to computers within the same VLAN since each VLAN is considered to be a logical network.

Blaser mDNS Repeater can be configured to bridge the transmission of mDNS or Bonjour packets between VLANS, which maintains the integrity of the VLAN but can also enable additional functionality such as Apple AirPlay, AirDrop and AirPrint between VLANs. This functionality is ideal in the new business or education workplace.

Blaser mDNS Repeater simplifies Apple TV and AirPlay in the enterprise. Users want their iPhones and iPads to work and communicate with other resources on the network. That means dealing with Apple's "Bonjour" protocol and mDNS. Bonjour network traffic is constrained within single VLANs. How do you make that Apple TV or printer on one VLAN work with iPads on another? Blaser Software's mDNS Repeater is a scalable workaround to make this a reality - and it's available at a cost that is practical.

Licensing available in any quantity: as little as one or as many as a site license. Volume licensing pricing can be negotiated via <u>sales@blaser.us</u>

Installation

The steps below will outline the installation and configuration of the Blaser mDNS Repeater.

1. Download and execute the Blaser mDNS Repeater installer.



2. Accept the terms of the license agreement.

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License Agreement This Blaser Software installer package contains computer software belonging to Blaser Software. THE FOLLOWING TERMS AND CONDITIONS SHALL APPLY TO THE USE OF THE SOFTWARE. 1. GRANT OF LICENSE. The enclosed software package, Blaser mDNS Repeater (the Software), is available is two (2) modes: Trial License for one (1) computer for thirty (30) days for ↓
Print Back Next Cancel

3. Select the installation folder.



4. Click Install to install the Blaser mDNS Repeater service and configurator program.

When you install the Blaser mDNS Repeater, mDNS Configurator is installed as well. This companion application establishes the basic settings of the mDNS Repeater Service.



5. When the installation has completed, click **Finish**.



Configuration

After installation, begin by configuring the **mDNS Service**. To do this, start the **mDNS**

Server Configurator via the Start Menu: Start,

All Programs, mDNS Configurator



General

This tab allows you set the mDNS packet repeating options.

Each pulldown control contains the list of IP addresses that are bound to your network adapters(s) in your system. The first pulldown control is the source network; the second pulldown control is the destination network.

In this example, we want to repeat mDNS packets from the network connected to **10.1.0.112** to the network connected to **192.168.234.1.** This is a one-way repeat.

В	Blaser Software - mDNS Configurator	? ×
General License		
10.1.0.112	▼ then 192.168.234.1 ▼	
	Add Remove	
IP1	IP2	
10.1.0.112	192.168.183.1	
10.1.0.112	192.168.234.1	
	OK Cancel	Apply

To have mDNS packets move between these two networks in both directions, you would also have to add an entry in the reverse; that is to make the source **192.168.234.1** and the destination **10.1.0.112**.

The mDNS repeater has logic built-in to prevent itself from repeating packets that are selfgenerated which could occur as the network list relationships become more complex.

	Blaser Software - mDNS Configurator	? ×
License	General License	[
On this tab, you can enter your license information for the software.	Provide your license information in the sections below. The license information provided determines the capabilities of the software. Name Mr. Blaser Company Blaser Software	
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Enter the name of the licensee.	License CertificateBLASER SOFTWARE - BEGIN CERTIFICATE 7964B224663F00945B9E0916198C60904CC5816B84CCC0E6D4E 6A927E0BDD919181C9AE6E994AB80C5F1247C7B792F78629C0F 2A9EF20FD PD 40 F07 A1967090000000000000000000000000000000000	
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The 25-character alpha-numeric license key.	B243D23345FE10B6E9DCAC664E79C2D1056D9EDC7EC773C0FI BLASER SOFTWARE - END CERTIFICATE	
	OK Cancel	Apply

License Certificate

The license certificate that corresponds to the license key entered.

The combination of these two pieces determines the capabilities of the mDNS system.

If the license information is correct, a green check will appear on the right side of the dialog box.

If you do not have a license file loaded, the following message will appear:



To acquire a 30-day trial license for the mDNS Repeater, visit the Blaser Software licensing homepage at <u>http://www.blaser.us/license/</u>

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- 1. Complete the trial license request form to receive a trial license key and certificate
- 2. Select **mDNS Repeater** from the *Product* pulldown list.
- 3. Click the **Submit** button.

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4. After the form has been submitted, you will be instructed to check your e-mail for the trial license key and license certificate.

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- 5. In your e-mail, look for a message from <u>contact@blaser.us</u> which contains a message regarding your **Trial License Key mDNS Repeater**
- 6. The body of the e-mail will contain the 25-character license key and the license certificate will be attached to the e-mail message.

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I look forward	to hearin	ng from y	you soor	n. Thank yo	u for o	hoosing:	Blase	≥r Softw	vare.												
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7. Open the e-mail attachment containing the license certificate. **Select All**, and **Copy** the contents of the certificate to the Windows Clipboard.



- 8. Go back to the **mDNS Configurator** and click on the **License** tab.
- 9. Input the 25-character License Key into the corresponding fields.
- 10. Paste (Ctrl+V) the License Certificate into the License Certificate box.
- 11. Click **Apply** to apply the configuration details, to load the license file, and to check it for validity.

	Blaser Soft	tware - m	DNS Conf	ïgurator	? ×
General License					
Provide your lice information prov	ense information ided determines	in the sectio the capabilit	ns below. The	e license ware.	
Name	Mr. Blaser				
Company	Blaser Softwar	e			
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TRIAL	TTBC2	P8BDB	46GP8	X7TQ2	
	ERR SOFTWAR 24663700945B 306D919181C3 2EBAB9A79EA 0A7F6703BA1A E123DBC897E6 DAA76708937C 9833E63465362 8860F4693793 1D839F534F1 895816F2A9ED D55EC5E2FD2 33F5ABED1F10 D55EC5E2FD2 33F5ABED1F10 D55EC5E2FD2 9ED9200200C4B F61D4E134C2B 9ED9200200C4B F61D4E134C2B 3245FE10B6E9 EER SOFTWAR	E - BEGIN CI BE0516198C IAE6E994AB I38E03080CF FA3437AA4 FA3437AA4 FA3437AA4 FA3437AA4 FA325AC 1031B36ACD 164C0E255C 1039B65C27 50309AC91 43D2C02A9 BF68E0039 14180A9726C DCAC664E7 E - END CEF	ERTIFICATE 60904CC5118 80CC581247C 80CC886E902 80C2886E902 9042629885 047686C429 044A838C42 33932F98004 033F530L4A4 033F530L4A4 033F530L4A4 033F530L4A4 7305E56288 7305E56288 7305E56288 7305E56288 7305E56288 7305E56288 7305E56288 7305E56288 7305E56288 7305E56288 7305E56288 7305E56288 7305E56288 7305E56288 7305E56288 7305E5628 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 7305E568 730555555555555555555555555555555555555		
			ОК	Cancel	Apply

When you have finished establishing your settings, click the **OK** button and you will see the following dialog:



The **mDNS Repeater** service loads it settings from the registry at startup. For any new changes to take effect, the **mDNS Repeater** service must be restarted.

To do this, go to: Control Panel, Administrative Tools, Services

Find and Restart (or Start if it not running) the service named Blaser mDNS Repeater



Network Adapter Configuration

The Blaser **mDNS Repeater** service relies on your computer's network configuration in order to facilitate in the operation of repeating mDNS/Bonjour packets between physical or virtual (VLAN) networks.

In the following steps, we will look at an Intel Pro 1000 network adapter settings that is connected to a switch trunk port containing several VLAN tags.

- 1. Go to the Windows Control Panel, and select the properties for the physical network adapter.
- 2. Select the **VLANs** tab from the properties dialog. This will display the VLANs associated with the network adapter.
- 3. Click **New** to associate add a new VLAN to the network adapter.



4. In the **VLAN ID** field enter a numeric value for the associated VLAN you wish to bind to the network card. This VLAN must also be configured on the switch.

The Intel software will permit you to add multiple VLAN IDs by entering two or more IDs separated by commas or by specifying a range.



- 5. After you have created the new VLAN, it will appear as a network adapter in the list of network connections.
- 6. Right-click on the new network adapter, and select **Properties**.
- 7. Double-click the **Internet Protocol (TCP/IP)** protocol from the properties dialog to view and configure the IP address information for this network adapter.

- 8. Specify a static IP address for this new network adapter that is valid on the VLAN that you have associated with it.
- 9. Specify the corresponding subnet mask and default gateway.
- 10. Optionally provide the DNS server information for this network adapter.





? ×

General Authentication							
Connect using:							
Intel(R) PR0/1000 MT Network Con							
This connection uses the following items:							
File and Printer Sharing for Microsoft Networks The State of Advanced Network Services Protocol							
Internet Protocol (TCP/IP)							
Install Uninstall Properties							
Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.							
Sho <u>w</u> icon in notification area when connected ✓ Notify <u>me</u> when this connection has limited or no connectivity							
OK Cancel							

🚣 VLAN33 Properties

Blaser mDNS Repeater does not require the use of DNS in order to function.

11. Launch the **mDNS Configurator**

program and take note that the new IP addresses that you have added to your system will appear in the pulldown controls on this configuration dialog.

	Blaser Software - mDNS Configurator	? ×
General License		
10.1.0.112	▼ then 192.168.234.1 ▼	
,	Add Berneuro	
	<u><u> </u></u>	
IP1	IP2 100 100 1	
192.168.183.1	192.168.183.1	
10.1.0.112	192.168.234.1	
1		
	Cancel	Apply

Network Adapter Troubleshooting

In order to troubleshoot IP configuration you can open a command-prompt by running the command CMD. In the command-line window, run the *ipconfig* program included with Windows:

Ipconfig /all

This will display all configuration information, including IP addresses, for network adapters on your system.

CH.	C:\WINDOWS\system32\cmd.exe	^
Connection-specific DNS Link-local IPv6 Address IPv4 Address Subnet Mask Default Gateway	Suffix : : fe80::f535:659c:9f35:c190%6 : 192.168.234.1 : 255.255.255.0 :	^
Ethernet adapter Local Are: Connection-specific DMS Link-local IPv6 Address IPv4 Address Subnet Mask IPv4 Address Subnet Mask Subnet Mask Default Gateway	a Connection: Suffix : fe80::8d2b:aa73:4117:3a68x5 : fe80::8d2b:aa73:4117:3a68x5 : 10.20.30.40 : 10.20.30.41 : 255.0.0.0	
Wireless LAN adapter Wi-Fi Connection-specific DNS Link-local IPv6 Address IPv4 Address Subnet Mask Default Gateway	: Suffix . : Blaser.local : fe80::51ca:3008:534:1fc7%4 : 10.1.0.112 : 255.0.0 : 10.1.0.1	~

Alternatively, you can download and use **Blaser Software's WINIPCFG** utility.

WINIPCFG provides a graphical user interface to the same information that is available from the command-line *ipconfig* program. WINIPCFG makes the information easier to read and understand. WINIPCFG can be downloaded from the Blaser Software website at

http://www.blaser.us/software/winipcfg/

3 IP configuration – 🗆 🗙
Host Information
DNS Servers 10.1.0.2
Node Type
NetBIOS Scope Id
IP Routing Enabled 🕅 WINS Proxy Enabled 🥅
NetBIOS Resolution Uses DNS
Adapter Information
Dell Wireless 1504 802.11b/g/n (💌
Adapter Address 70-18-8B-13-19-01
IP Address 10.1.0.112
Subnet Mask 255.0.0.0
Default Gateway 10.1.0.1
DHCP Server 10.1.0.2
Primary WINS Server 10.1.0.2
Secondary WINS Server
Lease Obtained Mon Mar 16 13:27:47 2015
Lease Expires Tue Mar 24 13:27:47 2015
OK Release Renew Release All Renew All

Summary

The goal of **Blaser Emergency Alert Messaging System** is to enable an organization with a means of notifying individuals in their organizations instantly when it becomes necessary. Companies, schools, hospitals, municipalities and many others need a way to alert people of unfolding situations immediately...BEAMS has the ability to get the message out in a timely fashion and in a way which doesn't rely on people checking for messages, like e-mail.

We encourage you to download a fully-functioning demo of the **Blaser Emergency Alert Messaging System** and try it for yourself. If you have suggestions that would improve the product, or requirements that you need in the product that would make you purchase it, let us know!

Beau Blaser Software is committed to making software that is easy to install, configure and use; and software that is useful! All of our products are coded in C++ using documented standards. Our code is clean (not messy) and we pride ourselves on robust and efficient products that are fast and easy to setup and use.

References

Totally Unattended Kiosk program information and available details can be found at: http://www.blaser.us/software/beams/

For feedback and information, send e-mail to:

contact@blaser.us

A few words from Beau...

I hope you like the Blaser mDNS Repeater. I started creating this in July 2014 to make some Apple iOS devices work within the office. It has enabled us and other companies and schools to take better advantage of AirPlay in the enterprise – without making major configuration changes or costly network upgrades.

Please give mDNS Repeater a try and let us know what you think. Feedback, criticism, advice and comments are all things that I want! The only way for the products to improve and become more useful is for people to let me know if I'm achieving my goal. I invite you to send me an e-mail and let me know what you think.

Sincerely,

Beau