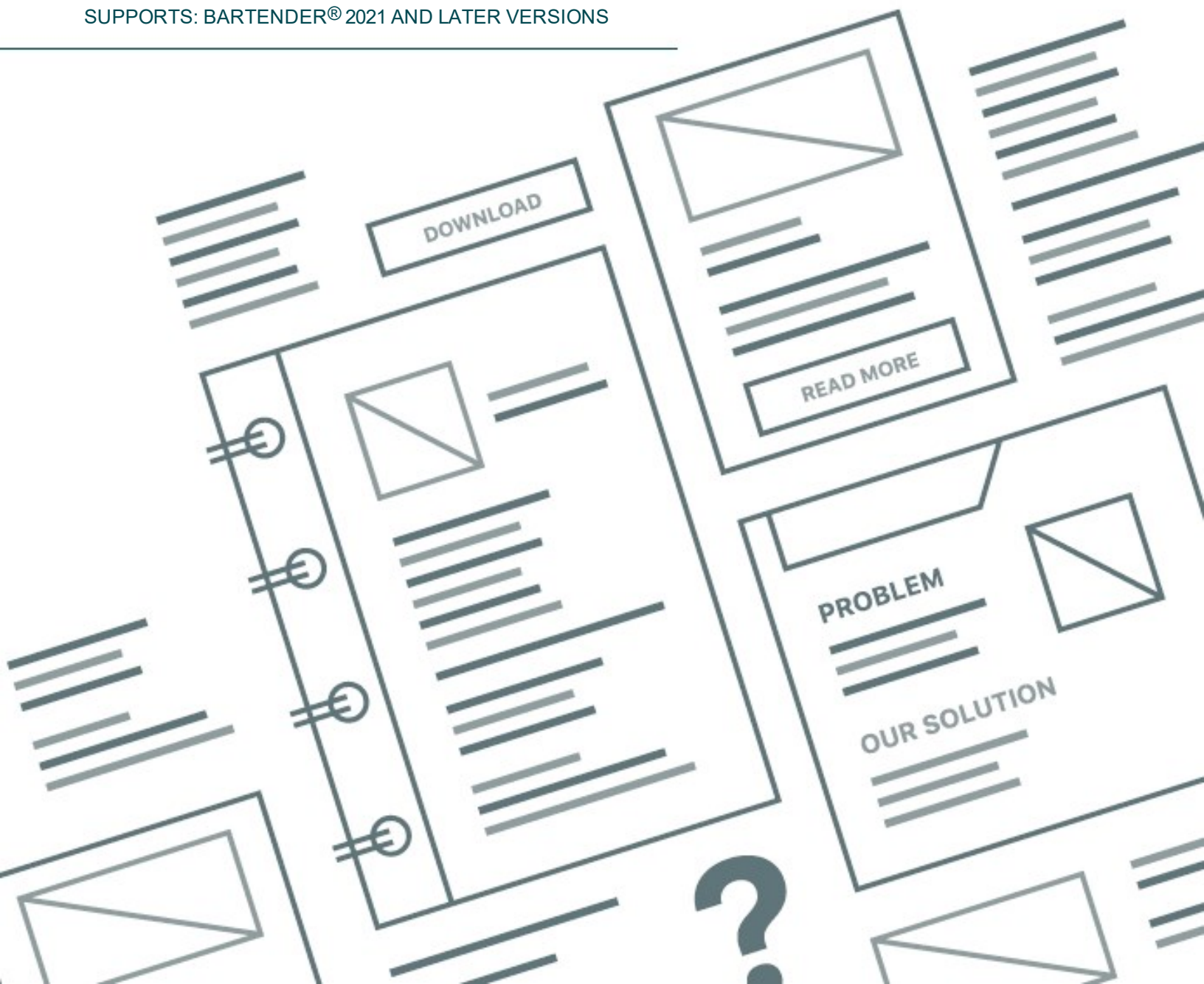![BarTender by Seagull Scientific logo]

License Server Redundancy

UNDERSTANDING THE BARTENDER®
AUTOMATIC FAILOVER SOLUTION

SUPPORTS: BARTENDER® 2021 AND LATER VERSIONS

Contents

Overview

License server redundancy provides an automatic failover solution to keep your print production environment running seamlessly in the event that one license server fails.

When BarTender is installed, you can use Administration Console to configure redundancy by setting up license servers in a backup relationship that uses two servers or in a triad relationship that uses three. Then, if the main or primary server cannot be reached by a BarTender client computer for any reason, the client automatically connects instead to the other servers in the relationship.

Comparing the Triad and Backup Server Relationships

Understanding the differences between the triad and backup server relationship will help you determine which configuration is the best choice for your organization.

Triad Relationships

A triad server relationship generally requires less management effort after setup is complete, but consider the following points before you configure this relationship:

- A triad relationship requires three servers, but these three serves behave like a single server and require only one license.

- Only Enterprise-edition licenses can be used for triad relationships.

- When network connectivity among servers is not reliable, using a triad server configuration can be problematic because the need to satisfy quorum becomes a factor of failure. Although the triad relationship implements tolerable timeouts and connection retries among triad servers, if the connection is broken repeatedly for several minutes or longer, the triad will fail. If your network connections are subject to these types of interruptions, a backup server relationship is the preferred choice.

Backup Relationships

A backup server relationship can be more flexible and have fewer restrictions than a triad relationship, but consider the following points before you configure this relationship:

- A backup relationship requires only two servers, and each server is fully operational when the servers cannot monitor one another. However, each server requires its own license.

- Both servers in a backup relationship can host non-Enterprise edition licenses, but there must be at least one mapped license, which does require an Enterprise-edition license.

- A backup relationship does not require a network connection to exist between the main server and the backup server. However, extra care is required to make sure that the server settings are synchronized so that failover will occur as expected. If a network connection is available, server settings are synchronized automatically. If a network connection is not available, users can still export

settings from the main server and then import them to the backup server to make sure that the settings are synchronized.

- The servers in the backup relationship accept requests independently. BarTender clients can set their current licenses to any licenses on either server. Typically, you can use these two servers to share the loads. If one server stops responding, clients will automatically fail over to the other running server. Then, when the server that hosts the client's current license is running again, the client automatically switches back to its original server.

- Printer usage statistics in the two servers are separate and are not merged after a failover occurrence. Therefore, if a client fails over to the other server, its printer usage statistics are scattered across the two servers.

Triad Relationship

In a triad relationship, you configure three license servers to act as primary, secondary, and tertiary servers. These servers host the same licenses and share the same settings, so they behave like a single server. The servers maintain regular communications with each other to verify that at least two of the three - a quorum - are running and communicating. BarTender clients automatically connect to whichever server can process their requests.

Server Roles and Synchronization

When the primary server connects to either the secondary or tertiary server, it becomes the active server and can then process BarTender client requests.

If the primary server fails for any reason and cannot connect to either the secondary or tertiary server, it reports to the BarTender clients that the secondary server is now the active server (if it can do so) and then stops accepting client print requests. When this happens, the secondary server tries to connect to the tertiary server to confirm that the tertiary also cannot connect to the primary. If the connection and confirmation are made, the secondary server becomes the active server (and notifies the tertiary server about the change) and can then process requests. The secondary server periodically tries to contact the primary server, and if it succeeds, it transfers control back to the primary.

The tertiary server's role is to satisfy quorum. Single servers in a triad do not act alone. If both the primary and secondary servers become unavailable, the tertiary server does not process print requests but monitors the other servers for availability.

## *Creating and Managing the Triad Relationship*

To create a triad relationship, click **Setup Server Redundancy** on the **Redundancy** page in Administration Console to start the Redundancy Setup wizard. This wizard guides you through the process of naming the triad and selecting the servers that you want to use as the primary, secondary, and tertiary servers.

Viewing and Managing the Triad Relationship

After you create the triad relationship, it is displayed on the **Redundancy** page in Administration Console as a diagram of the three servers that provides information about the servers (including name, IP address, and port), the role and status of each server (including an indication of which one is currently the active server), and the number of licenses that the triad includes.
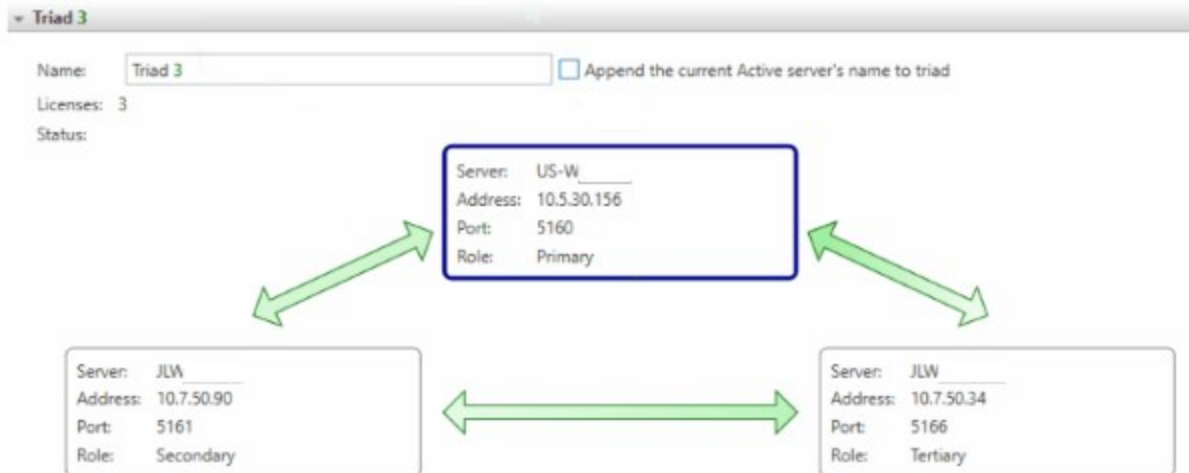
You can manage the triad's settings, such as changing the role of a selected server or replacing a server, by clicking ☰ to display a menu of management options.
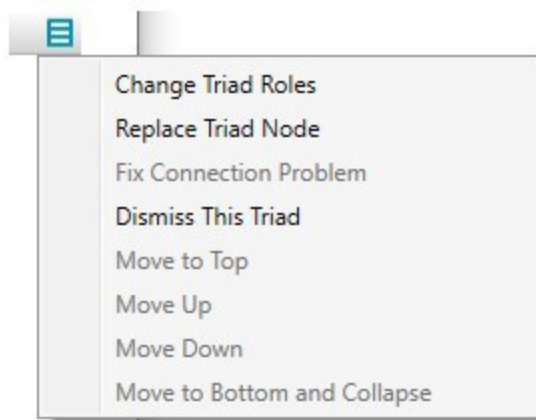
Changing the Triad Roles

You might want to change the role of a server in a triad, such as reassigning the secondary to the primary role. To do this, click ☰ , and then click **Change Triad Roles** to start the Change Triad Role wizard.

Replacing a Server

You might need to replace a server if it becomes damaged or unstable. You can do this without having to dismiss the triad relationship, which means that your license settings do not need to be changed, although a new triad relationship with the new server is created. To replace a server, click ☰ , and then click **Replace Triad Node** to start the Replace a Triad Node wizard.

Dismissing the Triad Relationship

To dismiss a triad relationship, click ☰ , and then click **Dismiss This Triad** to start the Dismiss the Triad wizard. You can always dismiss a triad, even if one or more servers are disconnected. If

the servers continue to host licenses and if at least two servers are connected, the wizard provides options for you to deactivate the licenses, move them to another server, or keep them in the triad's current active server.

Requirements

The following requirements must be met for the servers that you use when you configure a triad relationship:

- You have permissions to administer all three servers as configured in the access control rules, which are displayed under **Server Access** on the **Licensing** page in Administration Console.

- The server is running BarTender 2021 or a later version.

- At least one Enterprise edition license is installed and activated.

- The server is not already part of a triad or backup redundancy relationship.

- The server is not a provisional license server.

- The server is a printer-based license server.

Notes

- A client computer that is running BarTender 2019 can connect to a triad server.

- Triad redundancy can be created and managed only when the BarTender Suite is activated with an Enterprise license. However, regardless of the license edition, users can always dismiss a triad if they have permissions to administer all three servers as configured in the access control rules, which are displayed under **Server Access** on the **Licensing** page in Administration Console.

- Only Enterprise edition licenses can be used for triad relationships.

- Licenses that are activated for single-server use cannot work in a triad, and vice versa. Therefore, license reactivation is required after a triad is created and after it is dismissed.

- Licenses that are activated for a triad cannot work when one or more servers are replaced.

Therefore, license reactivation is required after a server is replaced.

- Printer usage statistics for client computers are synchronized and merged automatically after a failover occurrence, so you can track printer usage regardless of whether the primary or secondary server was being used.

- If you are configuring a triad relationship while the servers cannot contact the Seagull Activation Server, the servers that you want to use must not be hosting licenses before you create the triad. If there are licenses on the servers, you must deactivate them before you create the triad and then reactivate them afterward.

Backup Relationship

In a backup relationship, you configure a main license server and a backup license server. These servers host different licenses, so you must map one or more licenses from the main server to the backup server (redundancy takes effect only for mapped licenses). The servers share the same settings, and when they are connected, settings are periodically synchronized between the main server and the backup so that the backup can take over the responsibility of the main server when needed.

A backup relationship does not require connectivity between the two servers, however. Both servers run independently. If one server becomes unavailable, the other takes over as long as the client can communicate with the other server. The consequence of having no connectivity between servers is that any changes in their settings are not automatically synchronized.

Sample Scenario

The following sample scenario describes how the backup relationship provides automatic failover in the event that the main server becomes unavailable:

> In your print environment, you install BarTender and the BarTender Licensing Service on three computers: Server A, Server B, and Client C. You create a backup relationship between A (the main server) and B (the backup server) by mapping the licenses that A hosts to the licenses that B hosts. You then activate the instance of BarTender that is installed on C (the client computer) by using a license that A hosts. When you do this, BarTender print requests that C sends are forwarded to A. If C cannot reach A for any reason, those BarTender print requests are redirected to B.
>
> The settings that are shared between A and B (including permissions, license partitions, printer pools, and so on) are continually synchronized as long as the two servers are connected.

It is not required that client computers use the licenses that are hosted on the main server; the client could use a license that the backup server hosts. In this case, the main server provides redundancy for the backup server.

Creating and Managing the Backup Relationship

To create a backup relationship, click **Setup Server Redundancy** on the **Redundancy** page in Administration Console to start the Redundancy Setup wizard. This wizard guides you through the process of selecting the servers that you want to use as the main and backup servers and of mapping the licenses from the main server to the backup server.

If you want to set up a backup relationship but are using a computer that cannot connect to both the main server and the backup server at the same time, follow these steps:

1. On a computer that is connected to the backup server, export a license list file. For information about how to do this, refer to the procedure that follows under **Exporting a License List File**.

2. On a computer that is connected to the main server, do the following:

a. On the **Redundancy** page in Administration Console, click **Setup Server Redundancy** to start the Redundancy Setup wizard to select and configure the main server.

b. On the **Select the Backup Server** page of the wizard, select **Specify by previously exported server license list**, browse to the license list file that you created previously, and then click **Next**.

c. On the **Map Licenses** page, click **Import Backup Server's License List**. The licenses are imported and mapped. Click **Next**.

d. On the **Export Backup Relationship Setup Data** page, select the path to save the .bkdat file to, and then click **Next**. You will use this file to configure the backup relationship on the backup server later.

3. On a computer that is connected to the backup server, do the following:

a. On the **Redundancy** page in Administration Console, click **Setup Server Redundancy** to start the Redundancy Setup wizard to select and configure the backup server.

b. On the **Create a Backup Relationship** page of the wizard, select **I want to import a backup relationship data file**, browse to the .bkdat file that you saved previously, and then click **Next**.

c. Complete the rest of the wizard steps.

Exporting a License List File

You can export and save a license list file so that you do not have to manually enter product key codes when you use the wizard to map licenses from the main server to the backup. To do this, follow these steps:

1. Start Administration Console on a computer that can connect to the server that you want.

2. In the left navigation pane, click **Licensing** to open the **Licensing** page.

3. Under **License Servers**, right-click the target server, and then click **Export license list**.

4. In the **Export License List** dialog, click **Export**.

When you use the Backup Relationship Setup wizard to set up license mapping, you are given an option to import this license list file.

Viewing and Managing the Backup Relationship

After you create the backup relationship, it is displayed on the **Redundancy** page in Administration Console in a table that provides information about the servers (including name, IP address, and port) and the role and status of each server.

You can manage these servers by using the Backup Relationship Setup wizard. The wizard evaluates the status of the relationship between the servers and automatically displays the page that applies to the relationship. To access this wizard, use one of the following methods:

- Right-click a relationship to display a menu that indicates the page in the Backup Relationship Setup wizard that applies to the selected relationship (for example, when **Manage Backup Relationship and Export Main Server's Settings** appears in this list and you click this option, the wizard starts on that page).
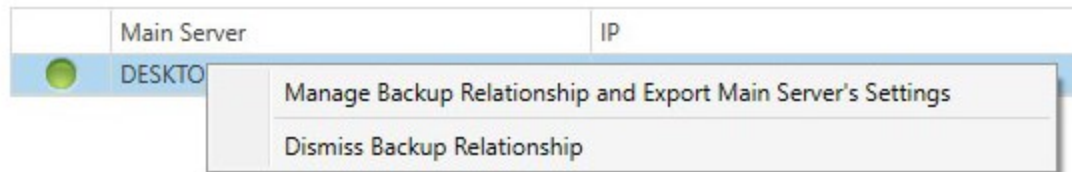
- Point to the ⚙ icon to display the page in the Backup Relationship Setup wizard that applies to the selected relationship. Click the icon to start the wizard on that page.

Dismissing the Backup Relationship

To dismiss a backup relationship, right-click it, and then click **Dismiss Backup Relationship**. Alternatively, click ✖ to start the Backup Relationship Setup wizard on the **Dismiss a Backup Relationship** page.

Requirements

The following requirements must be met for the servers that you use when you configure a backup relationship:

- You have permissions to administer both the main and the backup server as configured in the access control rules, which are displayed under **Server Access** on the **Licensing** page in Administration Console.

- The server is running BarTender 2021 or a later version.
- At least one Enterprise edition license is installed and activated.
- The server is not already part of a backup or triad redundancy relationship.
- The server is not a provisional license server.
- The server is a printer-based license server.

Notes

- A client computer that is running BarTender 2019 can connect to a server that is in a BarTender 2021 backup relationship. However, if the main server becomes unavailable, the client does not automatically connect to the backup server.
- Licenses that are hosted on the main server can be mapped to licenses on the backup server without regard to the number of printers that are associated with the licenses.
- Both servers in a backup relationship can host licenses that are not mapped.
- The BarTender client computer can use only as many printers as are allowed by the license that is hosted on the server that the client is currently connected to.
- For load balancing purposes, you can configure half of your client computers to use the main server's license and the other half to use the backup server's corresponding (mapped) license. When both servers are running, the load is distributed over the two servers. If either server is down, all clients send requests to the other running server.
- Printer usage statistics for client computers are not merged after a failover occurrence. The main and backup servers log printer usage statistics separately.

Related Documentation

Technical Documents

- *Administration Console*

To view and download technical documents, visit:

https://www.seagullscientific.com/resources/white-papers/

User Guides

- *Getting Started with BarTender*
  https://support.seagullscientific.com/hc/categories/200267887

BarTender Help System

- Redundancy Page

Other Resources

Please visit the BarTender website at *https://www.seagullscientific.com*.