streamline

Redundant System Configuration Guide

Version 6.2

ROSS

Thank You for Choosing Ross

You've made a great choice. We expect you will be very happy with your purchase of Ross Technology.

Our mission is to:

1. Provide a Superior Customer Experience
   - offer the best product quality and support
2. Make Cool Practical Technology
   - develop great products that customers love

Ross has become well known for the Ross Video Code of Ethics. It guides our interactions and empowers our employees. I hope you enjoy reading it below.

If anything at all with your Ross experience does not live up to your expectations be sure to reach out to us at *solutions@rossvideo.com*.

David Ross
CEO, Ross Video
dross@rossvideo.com

Ross Video Code of Ethics

Any company is the sum total of the people that make things happen. At Ross, our employees are a special group. Our employees truly care about doing a great job and delivering a high quality customer experience every day. This code of ethics hangs on the wall of all Ross Video locations to guide our behavior:

1. We will always act in our customers' best interest.
2. We will do our best to understand our customers' requirements.
3. We will not ship crap.
4. We will be great to work with.
5. We will do something extra for our customers, as an apology, when something big goes wrong and it's our fault.
6. We will keep our promises.
7. We will treat the competition with respect.
8. We will cooperate with and help other friendly companies.
9. We will go above and beyond in times of crisis. *If there's no one to authorize the required action in times of company or customer crisis - do what you know in your heart is right. (You may rent helicopters if necessary.)*

Streamline Redundant System · Configuration Guide

- Ross Part Number: **4950DR-006-6.2**
- Release Date: May 16, 2022. Printed in Canada.
- Software Issue: **6.2**

The information contained in this Guide is subject to change without notice or obligation.

Copyright

Patents

Patent numbers 4,205,346; 5,115,314; 5,280,346; 5,561,404; 7,034,886; 7,508,455; 7,602,446; 7,834,886; 7,914,332; 8307284, 2039277; 1237518; 1127289 and other patents pending.

Warranty and Repair Policy

Ross Video Limited (Ross) warrants its Streamline Server systems to be free from defects under normal use and service a time period of 15 months from the date of shipment:

If an item becomes defective within the warranty period Ross will repair or replace the defective item, as determined solely by Ross.

Warranty repairs will be conducted at Ross, with all shipping FOB Ross dock. If repairs are conducted at the customer site, reasonable out-of-pocket charges will apply. At the discretion of Ross, and on a temporary loan basis, plug in circuit boards or other replacement parts may be supplied free of charge while defective items undergo repair. Return packing, shipping, and special handling costs are the responsibility of the customer.

This warranty is void if products are subjected to misuse, neglect, accident, improper installation or application, or unauthorized modification.

In no event shall Ross Video Limited be liable for direct, indirect, special, incidental, or consequential damages (including loss of profit). Implied warranties, including that of merchantability and fitness for a particular purpose, are expressly limited to the duration of this warranty.

This warranty is TRANSFERABLE to subsequent owners, subject to Ross' notification of change of ownership.

Extended Warranty

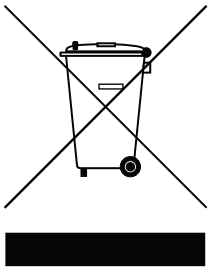
For customers that require a longer warranty period, Ross offers an extended warranty plan to extend the standard warranty period by one year increments. For more information about an extended warranty for your Streamline Server system, contact your regional sales manager.

Environmental Information

The equipment that you purchased required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.

To avoid the potential release of those substances into the environment and to diminish the need for the extraction of natural resources, Ross Video encourages you to use the appropriate take-back systems. These systems will reuse or recycle most of the materials from your end-of-life equipment in an environmentally friendly and health conscious manner.

The crossed-out wheeled bin symbol invites you to use these systems.



If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

You can also contact Ross Video for more information on the environmental performances of our products.

Use of Hazardous Substances in Electrical and Electronic Products (China RoHS)

Ross Video Limited has reviewed all components and processes for compliance to:

“Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products” also known as China RoHS.

The “Environmentally Friendly Use Period” (EFUP) and Hazardous Substance Tables have been established for all products. We are currently updating all of our Product Manuals.

The Hazardous substances tables are available on our website at:

http://www.rossvideo.com/about-ross/company-profile/green-practices/china-rohs.html

电器电子产品中有害物质的使用

Ross Video Limited 按照以下的标准对所有组件和流程进行了审查：

“电器电子产品有害物质限制使用管理办法”也被称为中国RoHS。

所有产品都具有“环保使用期限”（EFUP）和有害物质表。目前，我们正在更新我们所有的产品手册。

有害物质表在我们的网站：

http://www.rossvideo.com/about-ross/company-profile/green-practices/china-rohs.html

Company Address

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Website:	http://www.rossvideo.com

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Introduction

A Word of Thanks

Thank you for choosing Ross Video Streamline as your media asset management solution.

We are committed to providing you with the highest level of customer satisfaction possible. If, for any reason, you have questions or comments, please call Ross Video at +1-613-652-4886 or send us an e-mail at techsupport@rossvideo.com.

We hope that you visit our website www.rossvideo.com to stay up to date with ongoing software releases, join our customer forum and learn more about the complete range of Ross Video products.

Note that software maintenance and extended warranties are available for your system to protect and extend the life of your investment. Our sales team is more than happy to provide further information on the plans available. Members of our sales team will promptly response to e-mails sent to: solutions@rossvideo.com.

Again, thank you for your purchase of a Streamline media asset management solution from Ross Video. We are confident of your future pleasure with your choice.

Yours Sincerely,

Christopher Kelly
Marketing Product Manager – Asset Management & Storage
ckelly@rossvideo.com

About This Guide

This guide contains the following chapters that cover the installation and configuration of Streamline Server software:

- Chapter 1, "**Introduction**" summarizes the guide and provides important terms, conventions, and features.
- Chapter 2, "**System Requirements**" provides the recommended minimum hardware and software requirements to ensure that the Streamline Redundant System software functions correctly.
- Chapter 3, "**Database Software Installation**" provides instructions for installing and configuring database software on the Primary Streamline Server computer and the Redundant Streamline Database computer in an Streamline Redundant System.
- Chapter 4, "**Streamline Server Software Installation**" provides instructions for installing and configuring Streamline Server software on the Primary Streamline Server computer in an Streamline Redundant System.
- Chapter 5, "**Recovery**" provides instructions to fail over to the database on the Streamline Redundant System in the case of a database failure on the Primary Streamline Server.

If you have questions pertaining to the operation of the Ross Video product, please contact us at the numbers listed in the section "**Contacting Technical Support**" on page 1–3. Our technical staff is always available for consultation, training, or service.

Documentation Conventions

This guide uses special text formats to identify parts of the user interface, text that a user must enter, or a sequence of menus and submenus that a user must follow to reach a particular command.

Interface Elements

Bold text identifies a user interface element such as a dialog box, a menu item, or a button. For example:

In the **Media Manager Client**, click **Channel 1** the **Channels** section.

User Entered Text

Courier text identifies text that a user must enter. For example:

In the **File Name** box, enter `Channel01.property`.

Referenced Guides

Italic text identifies the titles of referenced guides, manuals, or documents. For example:

For more information, refer to the section "**Twitter Configuration**" on page 3–6 in the ***Streamline User Guide***.

Menu Sequences

Menu arrows identify a sequence of menu items that a user must follow to reach a particular command. For example: if a procedure step contains "**Server** > **Save As**," a user should click the **Server** menu and then click **Save As**.

Important Instructions

Star icons identify important instructions or features. For example:

✶ After installing Streamline Server software, you must obtain Streamline feature licenses from Ross Video Technical Support before users can access Streamline features.

Getting Help

To access the Streamline Server Online Help system, click the  **Help** icon in the main toolbar. For help about the currently open panel, click he **Help** button in a panel title bar to view a help topic about the panel.

The Online Help system contains the following navigation tabs to locate and access Online Help topics:

- **Contents** — table of contents
- **Search** — full text search
- **Favorites** — preferred information storage and access

Ross Video also supplies print-ready PDF files of the ***Streamline Server Installation Guide***, ***Streamline Server Configuration Guide***, and the ***Streamline User Guide*** on the Streamline Server Software Installation DVD.

The Streamline Online Help system contains information about how to configure various aspects of your Streamline application. There are two separate Streamline Online Help systems; one for the Configuration interface, and one for the User interface.

Contacting Technical Support

Technical Support is staffed by a team of experienced specialists ready to assist you with any question or technical issue.

Ross Video has technical support specialists strategically located around the globe to ensure a prompt response to technical inquiries. Our primary technical support center is located in Ottawa, Ontario, Canada. In addition, we have offices in The United Kingdom (London), Australia (Sydney), and Singapore with satellite locations in New York City, The Netherlands, and China. As we expand our presence globally, we are constantly evaluating other key locations to have a local technical support specialist in order to better service our customers.

North America

Our North America center located in Ottawa, Ontario, Canada and is open Monday to Friday 8:30 a.m. to 6:00 p.m. EST, with 24/7/365 on-call service after hours.

Our telephone number is: +1-613-686-1557

Toll free within North America: +1 844-652-0645

EMEA

Our EMEA center is open Monday to Friday 8:30 a.m. to 5:00 p.m. GMT. After hours support is provided by our North America location.

Our telephone number is: +44 (0)1189502446

International toll free: +800 3540 3545

If the local support specialist is not available, your call will be transferred automatically to our North America center.

Australia

Our Sydney, Australia office is located in Alexandria, NSW.

Our local support telephone number is: 1300 007 677

If the local support specialist is not available, your call will be transferred automatically to our North America center.

Online

E-mail: techsupport@rossvideo.com

Website: open a support request using the link http://www.rossvideo.com/support/tech-support.html to open a support request.

System Requirements

Ross Video bases the Streamline Redundant System on mainstream PC hardware that uses the Windows® operating system and a load balancer. To ensure that your Streamline Redundant System functions correctly, verify that the computers in your system and the installed software meet the recommended minimum requirements described in this chapter.

This chapter discusses the following topics:

- Streamline Redundant System
- Hardware
- Software

Streamline Redundant System

An Streamline Redundant System contains a two Streamline Servers and a load balancer. Users access Streamline by opening the **load balancer URL** in a web browser. The load balancer spreads users between the two Streamline Servers in the system. The results of Streamline actions on both Streamline Servers are saved in the Primary database on the Streamline Server 1 computer. The data contained in the Primary database is automatically replicated in the Redundant database on Streamline Server 2.

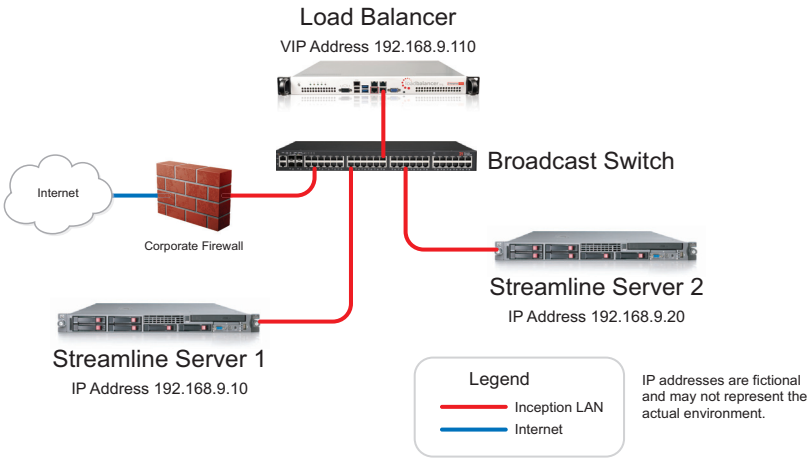


***Figure 2.1** Streamline Redundant System*

If Streamline falters one of the Streamline Servers, the load balancer automatically directs users to the instance of Streamline running on the other Streamline Server. If the Primary database falters, operation can continue by manually switching the Streamline to the Redundant database on the Streamline Server 2 computer.

✶ Ross Video recommends repairing faulty components of an Streamline Redundant System as soon as possible.

Hardware

Ross Video recommends the following minimum hardware configurations for an Streamline Redundant System:

- **Streamline Servers**
  - › **CPU** — quad-core Intel® Xeon® E3 with Hyper-Threading
  - › **RAM** — 32GB
  - › **Hard Drive** — Minimum 2 GB free
  - › **LAN** — 100 MB/s
- Loadbalancer.org Load Balancer

Software

Ross Video recommends the following minimum software configuration for both Streamline Server computers in an Streamline Redundant System:

- Microsoft® Windows® Server 2019 64-bit English only with latest patches, or
  Microsoft® Windows® Server 2016 64-bit English only with latest patches, or
  Microsoft® Windows® Server 2012 R2 64-bit English only with latest patches
- MySQL Community Edition Server v5.7.13 or higher

Database Software Installation

This chapter provides instructions for installing and configuring database software on the two Streamline Server computers in an Streamline Redundant System.

This chapter discusses the following topics:

- Streamline Server Time Synchronization
- Before You Install Database Software
- Install Streamline Database Software
- Configure Database Replication on Streamline Server 2
- Start Replication on the Streamline Server 2 Computer

Streamline Server Time Synchronization

For your Streamline Redundant System to run properly, the time on the Streamline Server computers in the system must be synchronized. You must enable NTP on each Streamline Server in your Streamline Redundant System.

To enable NTP on Streamline Server computers:

1. Log in to an **Streamline Server** computer as an **administrator**.
2. Open a **Command Prompt** window.
3. At the prompt in the **Command Prompt** window, enter the following command to check if NTP is already configured on the Streamline Server computer:

   ```
   w32tm /query /status
   ```

   When NTP is synchronizing the time on the Streamline Server computer, the Terminal displays the following information:

   ```
   Leap Indicator: 0(no warning)
   Stratum: 6 (secondary reference - syncd by (S)NTP)
   Precision: -6 (15.625ms per tick)
   Root Delay: 0.1371613s
   Root Dispersion: 0.1972975s
   ReferenceId: 0x0A000047 (source IP:  10.0.0.71)
   Last Successful Sync Time: 5/31/2018 10:10:19 AM
   Source: SRVOTTDC03.rossvideo.com
   Poll Interval: 13 (8192s)
   ```

4. When NTP is not enable on a Caprica Server computer, enter the following three commands to enable NTP:
   a. Set the NTP Server to use, where <NTP_Server> is the hostname of the NTP Server for your Streamline Servers to reference.
      - **Windows Server 2008**
        `w32tm /config /manualpeerlist:<NTP_Server>,0x8 /syncfromflags:MANUAL`
      - **Windows Server 2012**
        `w32tm /config /manualpeerlist:<NTP_Server> /syncfromflags:MANUAL`

   b. Stop the NTP Service.
      - **Windows Server 2008**
        `net stop w32time`
      - **Windows Server 2012**
        `Stop-Service w32time`

   c. Start the NTP Service.
      - **Windows Server 2008**
        `net start w32time`
      - **Windows Server 2012**
        `Start-Service w32time`
5. Repeat this procedure on each Streamline Server computer in your Streamline Redundant System.

Before You Install Database Software

Before you install database software on the Streamline Server computers in an Streamline Redundant System, perform the following tasks:

- Have a qualified Ross Video technician perform any required maintenance or repairs on the computers in your Streamline Redundant System.
- Exit all other Windows® programs currently running on the computers in your Streamline Redundant System.
- Temporarily disable antivirus software running on the computers in your Streamline Redundant System. Some heuristic-based intrusion detection systems prevent the installation of Streamline database software. Re-enable antivirus software after installing Streamline database software.

Contact a Ross Video sales representative for information about Streamline Commissioning, Training, and Update services.

For More Information on...

- contacting Ross Video Technical Support, refer to the section "**Contacting Technical Support**" on page 1–3.

Install Streamline Database Software

Streamline uses the MySQL Community Edition Server database to store and manage application data on the Streamline Server computers in an Streamline Redundant System. You must complete the following procedures before installing the Streamline Server software on the Streamline Server computers in your Streamline Redundant System:

- "**To install MySQL Community Edition Server database software on an Streamline Server computer**" on page 3–3
- "**To tune MySQL Server options**" on page 3–9
- "**To install MySQL Community Edition Server database software on the Streamline Server 2 computer**" on page 3–10
- "**To configure database replication on the Streamline Server 2 computer**" on page 3–10

Only the initial installation or recovery installations of Streamline Server software on a computer require the installation of the MySQL Community Edition Server database software.

Streamline Server 1 Computer

✶ You must install and configure MySQL Community Edition Server database software on both Streamline Server computers in your Streamline Redundant System before you install Streamline Server software.

To install MySQL Community Edition Server database software on an Streamline Server computer

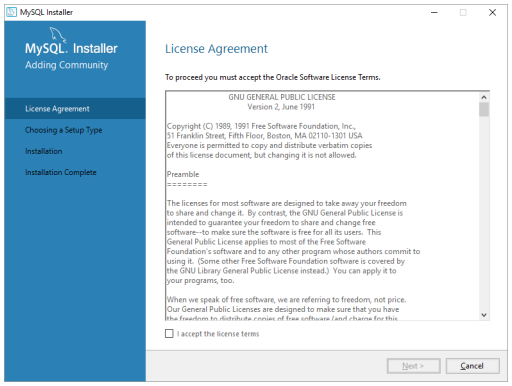
1. Log in to the **Streamline Server 1** computer as an **administrator**.
2. Exit all currently running Windows® applications.
3. Use the following URL to open the **Download MySQL Community Server** page:

   `http://dev.mysql.com/downloads/mysql`
4. Locate and download the latest **MySQL Installer MSI**.

   Save the **MySQL Installer MSI** to install the MySQL Community Edition Server database on the Streamline Server 2 computer.

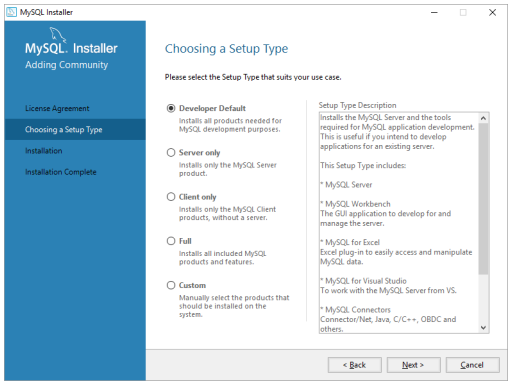
5. Double-click the **mysql-installer-community-x.x.x.x.msi** file.

   The **MySQL Installer** wizard opens with the **License Agreement** screen.



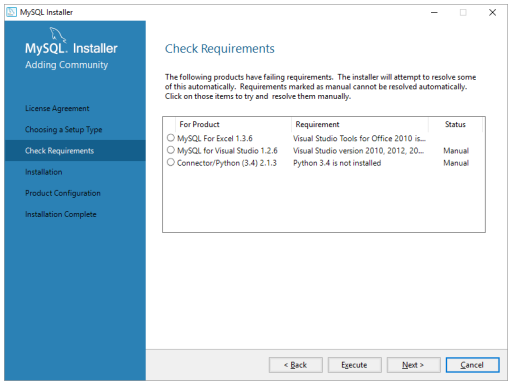
6. Read the GNU GENERAL PUBLIC LICENSE.
7. Select the **I accept the license terms** check box.
8. Click **Next**.

   The **Choosing a Setup Type** screen opens.



9. Select the **Custom** option.
10. Click **Next**.

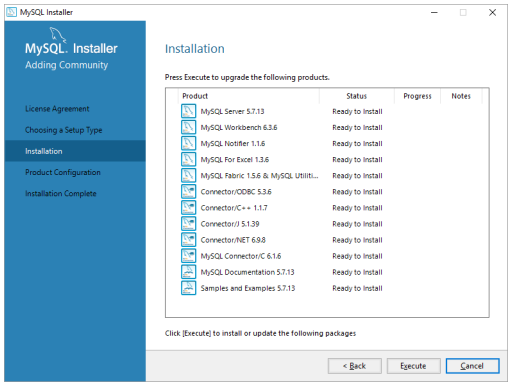
    The MySQL Installer wizard checks your computer for required supporting software. The **Check Requirements** screens open to report products that have failing requirements:



11. Based on the results displayed on the **Check Requirements** screen, do one of the following:

    - If your computer requires the installation of supporting software for MySQL, click **Execute** to run the installers for the required software. After installing the required software, click **Next**.
    - If your computer has all the required supporting software for MySQL, click **Next**.

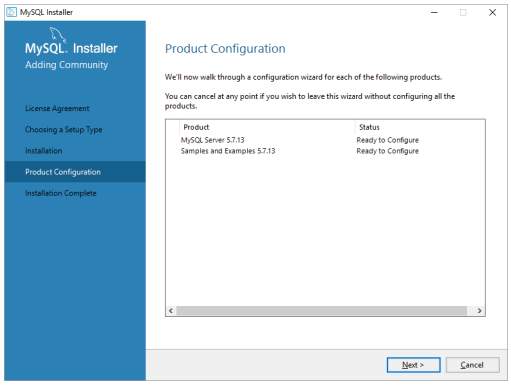
    The **Installation Progress** screen opens.



12. Click **Execute**.

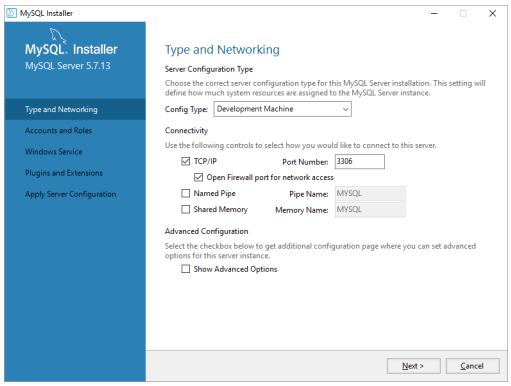
13. After the MySQL Installer wizard finishes installing the required files, click **Next**.

    The **Product Configuration** screen opens.



14. Click **Next**.

    The **Type and Networking** screen opens.



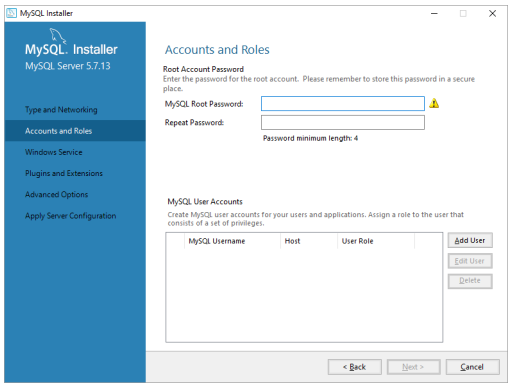
15. In the **Server Configuration Type** section, use the **Config Type** list to select **Server Machine**.

16. In the **Connectivity** section, select the **TCP/IP** check box.

17. In the **Port Number** box, enter `3306`.

18. Select the **Open Firewall port for network access** check box.
19. In the **Advanced Configuration** section, select the **Show Advanced Options** check box.
20. Click **Next**.

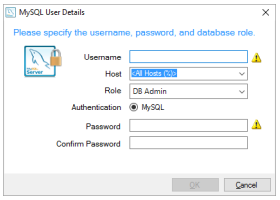
    The **Accounts and Roles** screen opens.



21. In the **Root Account Password** section, enter a password for the database **root** account in the **MySQL Root Password** box.

    The Streamline Server uses **password** as the password to connect to the MySQL database. Ross Video recommends using a strong password since the database accepts remote connections. If you set a new password for the MySQL root account, record the password in a safe location.
22. Enter your MySQL root account password in the **Repeat Password** box.
23. In the **MySQL User Account** section, click **Add User**.

    The **MySQL User Details** dialog box opens.



24. Follow these steps to add a **root** user:
    a. In the **MySQL User Details** dialog box, enter `root` in the **Username** box.

       The **root** account enables remote Streamline systems to connect to the MySQL database.
    b. Use the **Host** list to select **<All Hosts (%)>**.
    c. Use the **Role** list to select **DB Admin**.
    d. In the **Password** box, enter the same password as you entered for the **root** account in step **21** on page 3-6.
    e. Enter your **root** user password in the **Confirm Password** box.
    f. Click **OK**.

       The **MySQL User Details** dialog box closes, and the MySQL Installer wizard adds the **root** account to the **MySQL User Accounts** list.
25. Click **Add User**.

    The **MySQL User Details** dialog box opens.

26. On the **Streamline Server 1** computer only, follow these steps to add a **replication** user:

a. In the **MySQL User Details** dialog box, enter `replication` in the **Username** box.

The **replication** account enables the replication/backup server to synchronize database transactions between the databases in an Streamline Redundant System.

b. Use the **Host** list to select **<All Hosts (%)>**.

c. Use the **Role** list to select **DB Admin**.

d. In the **Password** box, enter a password for the **replication** user.

Record the **replication** user password in a safe location.

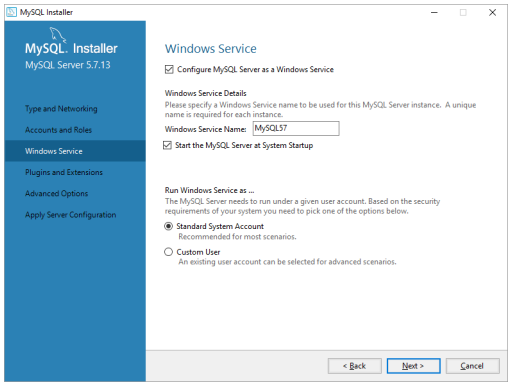
e. Enter your **replication** user password in the **Confirm Password** box.

f. Click **OK**.

The **MySQL User Details** dialog box closes, and the MySQL Installer wizard adds the **replication** account to the **MySQL User Accounts** list.

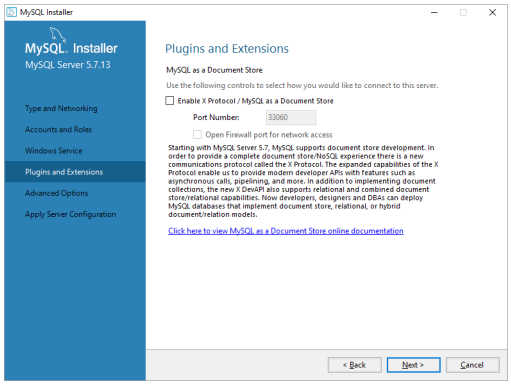
27. Click **Next**.

The **Windows Service** screen opens.



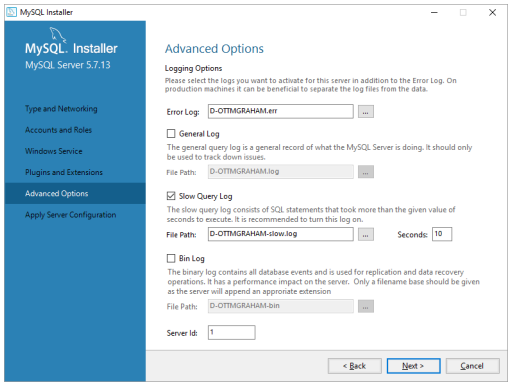
28. Click **Next**.

The **Plugins and Extensions** screen opens.



29. Click **Next**.

    The **Advanced Options** screen opens.



30. In the **Logging Options** Section, select the **Slow Query Log** check box.

31. Select the **Bin Log** check box.

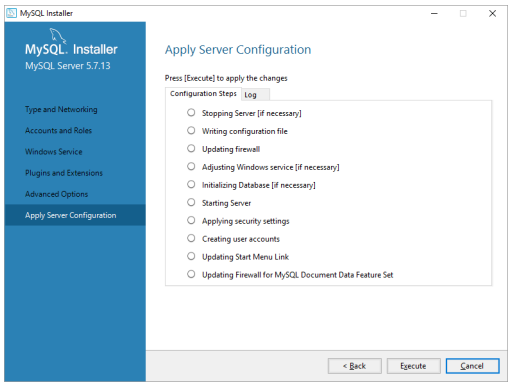
    Selecting the **Bin Log** check box is critical to enabling replication. The database uses the binary write log as a transaction log on the master server to ensure that all database changes are written to the replication server.

32. Depending on the computer onto which you are installing MySQL Community Edition Server database software, enter one of the following IDs in the **Server Id** box:

    - **Streamline Server 1 computer**: `1`
    - **Streamline Server 2 computer**: `2`

33. Click **Next**.

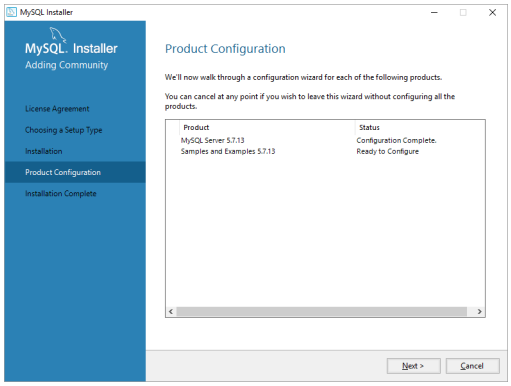
    The **Apply Server Configuration** screen opens.



34. Click **Execute**.

35. After the configuration operation stops, click **Finish**.

    The **Product Configuration** screen opens.



36. Click **Cancel**.

    The **Cancel** alert opens.

37. Click **Yes**.

    The MySQL Installer wizard closes.

Tune MySQL Server Options

The my.ini file contains MySQL Server configuration options. The configuration options to tune are as follows:

- **max_connections** — in an Streamline Redundant System the two Streamline Servers simultaneously connect to the active MySQL database. To enable the required connections, the maximum permitted number of simultaneous client connections to the MySQL database must increase to 400 connections.
- **max_allowed_packet** — set to 16 megabytes to handle large data packets.
- **default_password_lifetime** — set to 0 to disable the automatic password expiration policy and allow passwords to never expire.

To tune MySQL Server options

1. On the **Streamline Server 1** or the **Streamline Server 2** computer, locate the `my.ini` file in the following folder:

   ```
   C:\ProgramData\MySQL\MySQL Server x.x
   ```

   If the path to the **my.ini** file is hidden, enter the path into a **File Explorer** window to open the folder.

2. Use a text editor to open and edit the **my.ini** file.

3. To set the maximum size of one packet or any generated string, complete the following steps:

   a. In the **my.ini** file, locate the following setting:

      ```
      max_allowed_packet
      ```

   b. Replace the default connections value for the **max_connections** setting with the following tuned value:

      ```
      max_allowed_packet = 16M
      ```

4. To set the maximum permitted number of simultaneous client connections, complete the following steps:

   a. In the **my.ini** file, locate the following setting:

      ```
      max_connections
      ```

   b. Replace the default connections value for the **max_connections** setting with the following tuned value:

      ```
      max_connections = 400
      ```

5. To disable the automatic password expiration policy and allow passwords to never expire, complete the following steps:
   a. Scroll to the bottom of the **my.ini** file.
   b. On a new line in the **my.ini** file, add the following comment:

      ```
      # Specify the automatic password expiration policy (0=never)
      ```

   c. Below the new comment, add the following setting:

      ```
      default_password_lifetime=0
      ```

6. To set the automatic binary log file removal to seven days, complete the following steps:
   a. Scroll to the bottom of the **my.ini** file.
   b. On a new line in the **my.ini** file, add the following comment:

      ```
      # Specify the automatic binary log file removal policy (0=never)
      ```

   c. Below the new comment, add the following setting:

      ```
      expire_logs_days=7
      ```

7. Save the updated **my.ini** file and exit the text editor.
8. Restart the MySQL service as follows:
   a. From the Windows desktop, press **Windows Key+R**.
   b. In the **Open** box, type `services.msc`.
   c. Click **OK**.
   d. In the **Services** list of the **Services** dialog box, locate and select the **MySQLXX** service.
   e. Click **Restart** for the **MySQLXX** service.

Streamline Server 2 Computer

✶ You must install and configure MySQL Community Edition Server database software on both Streamline Server computers in your Streamline Redundant System before you install Streamline Server software.

To install MySQL Community Edition Server database software on the Streamline Server 2 computer

1. On the **Streamline Server 2** computer, exit all currently running Windows® applications.
2. Copy the **MySQL Installer MSI** from the **Streamline Server 1** computer to the **Streamline Server 2** computer.
3. Follow step **5** on page 3-4 to step **37** on page 3-9 of the **To install MySQL Community Edition Server database software on an Streamline Server computer** procedure.
4. Follow step **1** on page 3-9 to step **8** on page 3-10 of the **To tune MySQL Server options** procedure.

Configure Database Replication on Streamline Server 2

After you install the MySQL Community Edition Server database software on the Streamline Server 2 computer, you must edit the main database configuration file and the SetReplication script file to configure database replication.

To configure database replication on the Streamline Server 2 computer

1. Log in to the **Streamline Server 2** computer as an **administrator**.
2. Locate the `my.ini` file in the following folder:

   ```
   C:\ProgramData\MySQL\MySQL Server x.x
   ```

3. Use a text editor to open and edit the **my.ini** file.
4. In the **my.ini** file, locate the following setting:

   ```
   server-id
   ```

5. Replace the default value with the following:

   ```
   server-id=2
   ```

6. Save the updated **my.ini** file and exit the text editor.
7. Restart the MySQL service as follows:
   a. From the Windows desktop, press **Windows Key+R**.
   b. In the **Open** box, type `services.msc`.
   c. Click **OK**.
   d. In the **Services** list of the **Services** dialog box, locate and select the **MySQLXX** service.
   e. Click **Restart** for the **MySQLXX** service.
8. In the **MySQL Workbench** window, use the **File** menu to select **Exit**.

   The **MySQL Workbench** window closes.
9. On the Streamline Server 2 computer, locate the `SetReplication` script file in the following folder:

   ```
   C:\Program Files\Ross Video\Streamline\utilities\database\MySQL
   ```

10. Use a text editor to open and edit the **SetReplication** script file.
11. Use your system values to edit the following variables.

    ```
    SET MASTER_HOST=<Primary_Host_Name>

    SET MYSQL_USERNAME=root

    SET MYSQL_PASSWORD=<Root_User_Password>

    SET MYSQL_DATABASE=streamline


    SET MYSQL_REPLICATION_USERNAME=replication

    SET MYSQL_REPLICATION_PASSWORD=<Replication_User_Password>


    SET STREAMLINE_SERVICE=Streamline

    SET MYSQL_SERVICE=MySQLxx

    SET MYSQL_BIN=C:\Program Files\MySQL\MySQL Server x.x\bin
                  C:\Program Files (x86)\MySQL\MySQL Server x.x\bin


    SET BACKUP_DIRECTORY=C:\BACKUP
    ```

12. Save the updated **SetReplication** script file and exit the text editor.

Start Replication on the Streamline Server 2 Computer

After you configure the main database configuration file and the SetReplication script file, you can start database replication on the Streamline Server 2 computer.

To start replication on the Streamline Server 2 computer

1. On the **Streamline Server 2** computer, locate the `SetReplication` script file in the following folder:

   `C:\Program Files\Ross Video\Streamline\utilities\database\MySQL`

2. Double-click the **SetReplication** file.

3. At the prompt in the **Command Prompt** window, enter **Y**.

   With replication running on the Streamline Server 2 computer, any additions or changes made to the database on the Streamline Server 1computer are automatically replicated in the database on the Streamline Server 2 computer.

At this point in the Streamline Redundant System setup you can switch to the Streamline Server 1 computer to create the Streamline database and install the Streamline software.

To view the replication status

1. From the Windows desktop, use the **Start** menu to select **All Programs** > **MySQL** > **MySQL Workbench x.x CE**.

   The **MySQL Workbench** window opens.

2. In the **MySQL Connections** list, click **Local instance MySQLxx**.

   The **Connect to MySQL Server** dialog opens.

3. In the **Password** box, enter the password set for the database user **root**.

   The **Local instance MySQLxx** tab opens in the **MySQL Workbench** window.

4. In the **Query 1** tab, enter the following command:

   ```
   SHOW SLAVE STATUS;
   ```

5. Click the  **Execute** icon.

   The first column in the table should display: **waiting for master to send event**. The second column in the table should display: **slave_io_running** and **yes**.

Streamline Server Software Installation

This chapter provides instructions for installing and configuring Streamline Server software on the Streamline Server computers in an Streamline Redundant System.

This chapter discusses the following topics:

- Create the Streamline Database on Streamline Server 1
- Before You Install Streamline Server Software
- Install Streamline Server Software
- Configure Streamline Server 1 to Use the MySQL Database
- Set Up Streamline Server 2

Create the Streamline Database on Streamline Server 1

Before you install the Streamline Server software on the Streamline Server 1 computer you must create the MySQL Streamline database on the Streamline Server 1 computer.

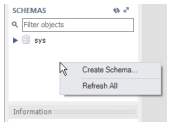
To create the Streamline database on the Streamline Server 1 computer

1. Log in to the **Streamline Server 1** computer as an **administrator**.
2. From the Windows desktop of the **Streamline Server 1** computer, use the **Start** menu to select **All Programs** > **MySQL** > **MySQL Workbench x.x CE**.

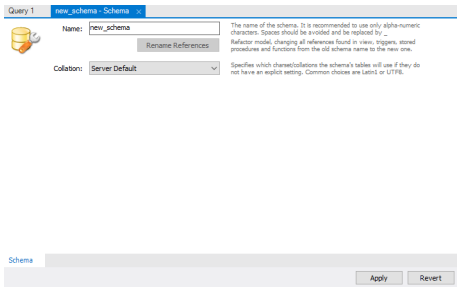
   The **MySQL Workbench** window opens.
3. In the **MySQL Connections** list, click **Local instance MySQLxx**.

   The **Connect to MySQL Server** dialog opens.
4. In the **Password** box, enter the password set for the database user **root**.

   The **Local instance MySQL56** tab opens in the **MySQL Workbench** window.
5. In an open area of the **SCHEMAS** section of the **Navigator** panel, right-click and select **Create Schema** from the shortcut menu.



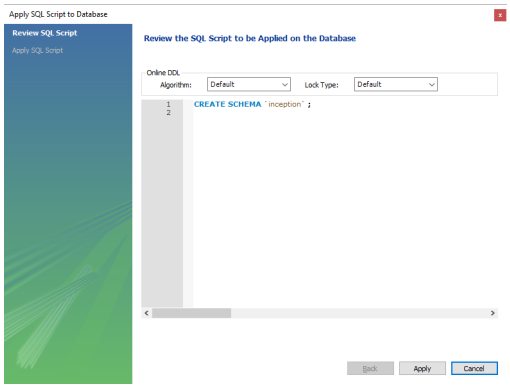
   The **Schema** tab opens.



6. In the **Schema** tab, enter the following name in the **Name** box:

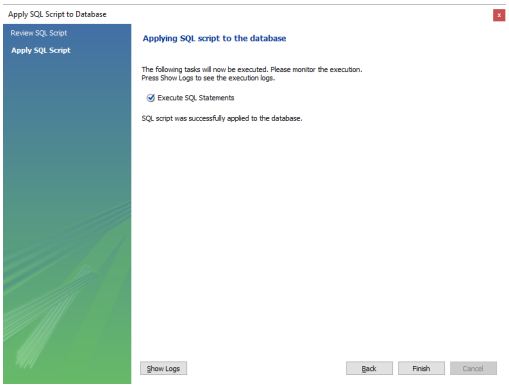
   `streamline`
7. At the bottom of the **Schema** tab, click **Apply**.

   The **Apply SQL Script to Database** dialog box opens.



8. In the **Apply SQL Script to Database** dialog box, click **Apply**.

   The **Apply SQL Script** screen opens.



9. Click **Finish**.

   MySQL adds the **streamline** database to the **SCHEMAS** section of the **Navigator** panel.

10. In the **MySQL Workbench** window, use the **File** menu to select **Exit**.

    The **MySQL Workbench** window closes.

Before You Install Streamline Server Software

Before you install database software on the Streamline Server computers in an Streamline Redundant System, perform the following tasks:

- Have a qualified Ross Video technician perform any required maintenance or repairs on the computers in your Streamline Redundant System.
- Exit all other Windows® programs currently running on the computers in your Streamline Redundant System.
- Temporarily disable antivirus software running on the computers in your Streamline Redundant System. Some heuristic-based intrusion detection systems prevent the installation of Streamline database software. Re-enable antivirus software after installing Streamline database software.

Contact a Ross Video sales representative for information about Streamline Commissioning, Training, and Update services.

For More Information on...

- contacting Ross Video Technical Support, refer to the section "**Contacting Technical Support**" on page 1–3.

Install Streamline Server Software

With a MySQL Community Edition Server database software installed and configured on the Streamline Server computers in your Streamline Redundant System, you are ready to install the Streamline Server software on the Streamline Server 1 computer.

✶ After installing Streamline Server software, you must obtain Streamline feature licenses from Ross Video Technical Support before users can access Streamline features.

To install Streamline Server software on the Streamline Server 1 computer

1. On the **Streamline Server 1** computer, exit all currently running Windows® applications.
2. Temporarily disable anti-virus software running on the Streamline Redundant System computer.

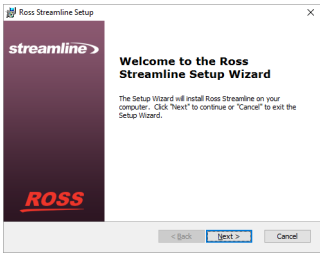
   Some heuristic-based intrusion detection systems prevent the installation of Streamline Redundant System software.

3. Insert the Streamline Redundant System software DVD into the DVD-ROM drive.

4. On the Desktop, open **My Computer**.
5. In the **My Computer** explorer window, open the **DVD-ROM Drive**.
6. Double-click **Streamline Redundant System-6.x.x-xxxx-xxxx.msi**.

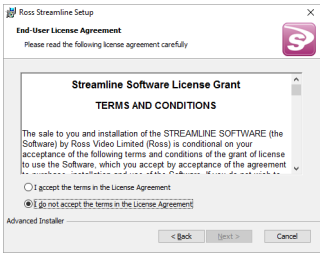
   If a **Security Warning** displays, click **Run**.

   The **Ross Streamline Setup** wizard opens.



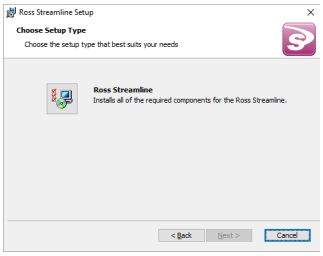
7. Click **Next**.

   The **End-User License Agreement** screen opens.



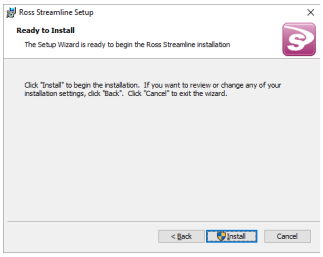
8. Read the Streamline Software License Grant.
9. Select the **I accept the terms of the license agreement** option.
10. Click **Next**.

    The **Choose Setup Type** screen opens.



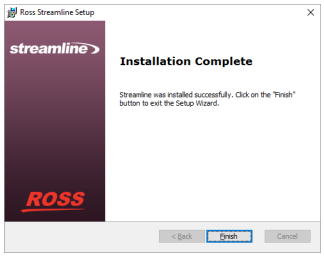
11. Click the **Ross Streamline** icon.

    The **Ready to Install** screen opens.



12. Click **Install**.

    After installation of the Streamline Server software is complete, the **Installation Complete** screen opens.



13. Click **Finish**.

    The **Ross Streamline Setup** wizard closes and adds the following icons to the Desktop:

    - **Streamline Readme**
    - **Streamline Release Notes**
    - **Ross Streamline**

    The Streamline Server starts automatically after the installation of the Streamline Server software.

14. Re-enable antivirus software.

Tune Streamline for Performance

The goal of the Streamline Server performance tuning is to maximize use of system resources to perform work as efficiently and rapidly as possible. The installation of Streamline Server software configures the Streamline Server to manage work effectively, but it is possible to greatly improve performance by tuning the values of a few key Streamline Server settings.

The Streamline Server saves configuration settings in the jvm.conf file. The settings to tune are as follows:

- **wrapper.java.initmemory** — sets the initial Java heap size for the Streamline Server.
- **wrapper.java.maxmemory** — sets the maximum Java heap size for the Streamline Server.

✶ You must retune Streamline Server settings after each install or upgrade of Streamline Server software.

To tune Streamline Server settings in the jvm.conf file

1. On the Streamline Redundant System computer, locate the **jvm.conf** file in the following folder:

   `C:\Program Files\Ross Video\Streamline Redundant System\configuration`

2. Use a text editor to open and edit the **jvm.conf** file.

3. In the **jvm.conf** file, locate the following setting:

   `wrapper.java.initmemory`

4. Replace the default memory value for the **wrapper.java.initmemory** setting with a tuned value. The tuned value depends on the amount of RAM installed in the Streamline Redundant System system. Use the following table to set the **wrapper.java.initmemory** value for your Streamline Redundant System:

System RAM					
2 GB	**4 GB**	**8 GB**	**12 GB**	**16 GB**	**32 GB**
256	512	1024	1536	2048	4096

5. Locate the following setting:

   `wrapper.java.maxmemory`

6. Replace the default memory value for the **wrapper.java.maxmemory** setting with a tuned value. The tuned value depends on the amount of RAM installed in the Streamline Redundant System. Use the following table to set the **wrapper.java.initmemory** value for your Streamline Redundant System:

System RAM					
2 GB	**4 GB**	**8 GB**	**12 GB**	**16 GB**	**32 GB**
512	1024	2048	3072	4096	8192

7. Save the updated jvm.conf file and exit the text editor.
8. Re-start the Streamline Redundant System service as follows:
   a. From the Windows Desktop, press **Windows Key+R**.
   b. In the **Open** box, type `services.msc`.
   c. Click **OK**.
   d. In the **Services** list, locate and select the **Ross Streamline Redundant System** service.
   e. Click **Restart** for the **Ross Streamline Redundant System** service.
   f. Use the **File** menu to select **Exit**.

Configure Streamline Server 1 to Use the MySQL Database

After installing Streamline Server software on the Streamline Server 1 computer, you must configure the Streamline server to use the installed MySQL Community Edition Server database. You may also need to set the password for the root database superuser if you changed the standard password when you installed the MySQL Community Edition Server database software on the Streamline Server 1 computer.

To configure Streamline Server 1 to use the MySQL database

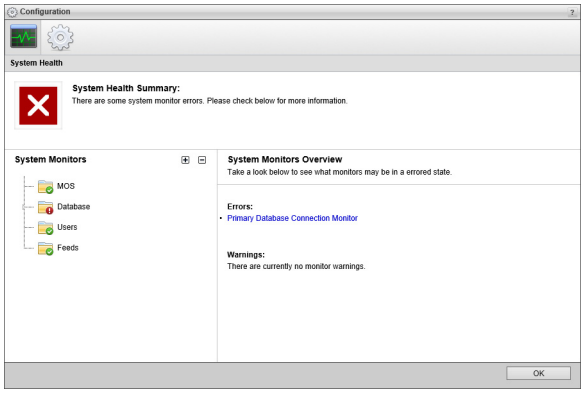
1. On the **Streamline Server 1** computer, use one of the following methods to open the **Streamline** web page:
   - On the Desktop, double-click the **Ross Streamline** icon.
   - Use the **Start** menu to select **All Programs** > **Ross Streamline** > **Ross Streamline**.

   The **Streamline Login** screen opens. If the **Streamline Login** screen does not open, please contact Ross Video Technical Support.
2. At the **Streamline Login** screen, enter the following user name and password in the provided boxes:
   - **Username** — `maintenance`
   - **Password** — `maintenance`
3. Click **Login**.

   Streamline opens.

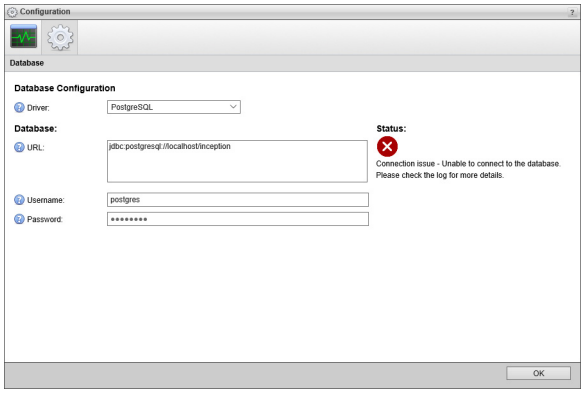
4. On the main toolbar, click the **Configuration** icon.

   The **Configuration** window opens.



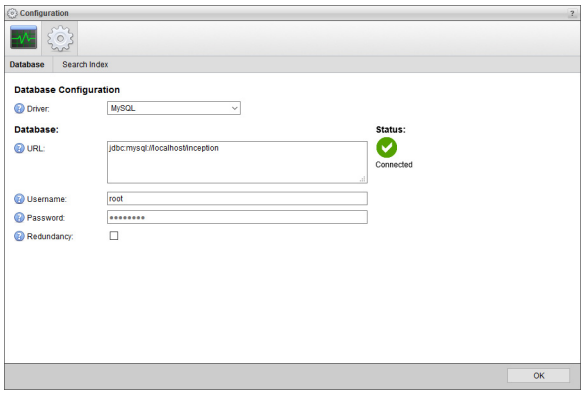
5. On the **Configuration** window toolbar, click the **System** icon.

   The **System** panel opens.



6. Use the **Driver** menu to select **MySQL**.

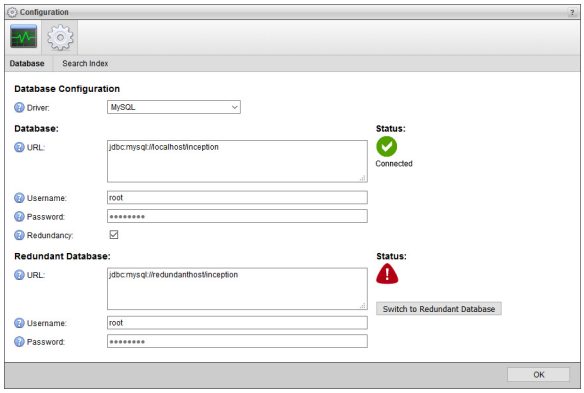
   The MySQL database settings open in the **Database** tab.



7. If you set a custom password for the **root** superuser account when you installed the MySQL Community Edition Server database software on the Streamline Server 1 computer, enter your custom password in the **Password** box.

8. Select the **Redundancy** check box.

   The **Redundant Database** settings open in the **Database** tab.



9. In the **URL** box, enter the following JDBC URL to connect Streamline **Server 1** with the Streamline Redundant Database on **Streamline Server 2**.

   `jdbc:mysql://<Server2_Host_Name>/streamline`

   Replace `<Server2_Host_Name>` with the hostname or IP address of the **Streamline Server 2** computer in your Streamline Redundant System.

10. If you set a custom password for the **root** superuser account when you installed the MySQL Community Edition Server database software on the **Streamline Server 2** computer, enter your custom password in the **Password** box.

11. Click **OK**.

    An **Alert** dialog box opens.

12. In the **Alert** dialog box, click **OK**.

    A second **Alert** dialog box opens.

13. Click **OK**.

    The **Alert** dialog box and the **Configuration** window close.

14. On the main toolbar, click the **Logout** icon.

    An **Alert** dialog box opens.

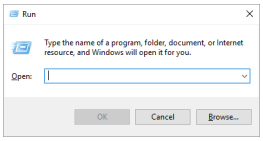
15. Click **OK**.

    Streamline logs you out.

16. Close the web browser.

17. From the Windows desktop, press **Windows Key+R**.

    The **Run** dialog box opens.

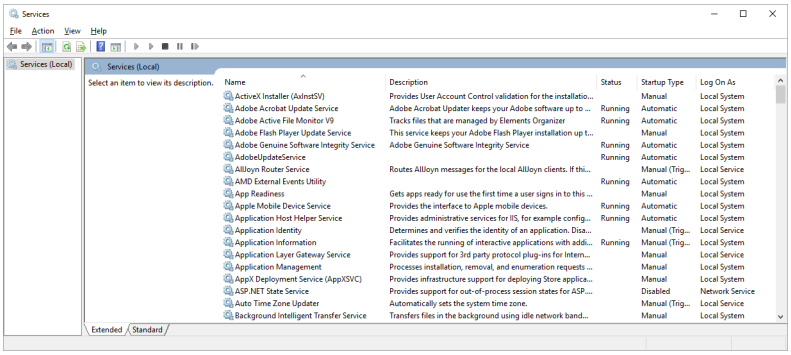


18. In the **Open** box, type the following application name:

    `services.msc`

19. Click **OK**.

    The **Services** window opens.



20. In the **Services** list, locate and select the **Ross Streamline** service.

21. Click **Restart** for the **Ross Streamline** service.

22. Use the **File** menu to select **Exit**.

    The **Services** dialog box closes.

23. Open the **Streamline** web page to complete the installation of the Streamline Server software on the **Streamline Server 1** computer.

24. At the **Streamline Login** screen, enter the following user name and password in the provided boxes:

    - **Username** — `root`
    - **Password** — `password`

25. Click **Login**.

    Streamline logs you into the Streamline Server as an administrator.

26. Obtain Streamline feature licenses from Ross Video Technical Support before users can access Streamline features.

For More Information on...

- licensing Streamline Server software, refer to the chapter "**Software Licensing**" on page 5–1 of the ***Streamline Server Installation Guide***.

Set Up Streamline Server 2

After setting up Streamline Server 1, you can set up Streamline Server 2. Setting up Streamline Server 2 involves installing and licensing Streamline Server software on the Streamline Server 2 computer and setting the database location.

To setup Streamline Server 2

1. Log in to the **Streamline Server 2** computer as an **administrator**.

2. Install and tune **Streamline Server** software on **Streamline Server 2**.

   For information on installing and tuning Streamline Server software, refer to the section "**Install Streamline Server Software**" on page 4–3.

3. Use one of the following methods to open the **Streamline** web page:

   - On the Desktop, double-click the **Ross Streamline** icon.
   - Use the **Start** menu to select **All Programs** > **Ross Streamline** > **Ross Streamline**.

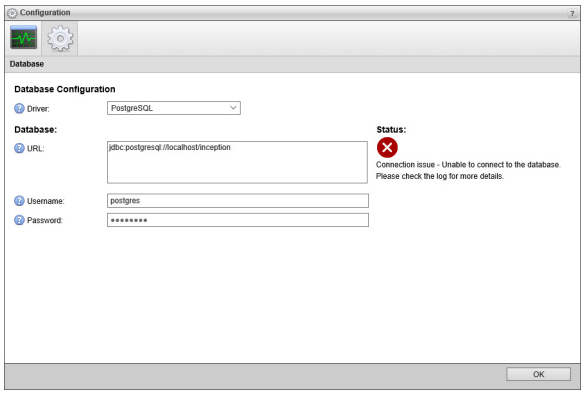
   The **Streamline Login** screen opens. If the **Streamline Login** screen does not open, please contact Ross Video Technical Support.

4. At the **Streamline Login** screen, enter the following user name and password in the provided boxes:
   - **Username** — `maintenance`
   - **Password** — `maintenance`
5. Click **Login**.

   Streamline opens.
6. On the main toolbar, click the **Configuration** icon.

   The **Configuration** window opens.
7. On the **Configuration** window toolbar, click the **System** icon.

   The **System** panel opens.



8. Use the **Driver** menu to select **MySQL**.

   The **Database** tab displays the MySQL database settings.
9. In the **URL** box, enter the following JDBC URL to connect **Streamline Server 2** with the Streamline Primary Database on **Streamline Server 1**.

   `jdbc:mysql://<Server1_Host_Name>/Streamline`

   Replace `<Server1_Host_Name>` with the hostname or IP address of the **Streamline Server 1** computer in your Streamline Redundant System.
10. If you set a custom password for the **root** superuser account when you installed the MySQL Community Edition Server database software on the **Streamline Server 1** computer, enter your custom password in the **Password** box.
11. Select the **Redundancy** check box.

    The **Redundant Database** settings open in the **Database** tab.
12. In the **URL** box, enter the following JDBC URL to connect **Streamline Server 2** with the Streamline Redundant Database on the same computer.

    `jdbc:mysql://localhost/streamline`
13. If you set a custom password for the **root** superuser account when you installed the MySQL Community Edition Server database software on the **Streamline Server 2** computer, enter your custom password in the **Password** box.
14. Click **OK**.

    An **Alert** dialog box opens.
15. In the **Alert** dialog box, click **OK**.

    A second **Alert** dialog box opens.

16. Click **OK**.

    The **Alert** dialog box and the **Configuration** window close.

17. On the main toolbar, click the  **Logout** icon.

    An **Alert** dialog box opens.

18. Click **OK**.

    Streamline logs you out.

19. Close the web browser.

20. Restart the Streamline service as follows:

    a. From the Windows desktop, press **Windows Key+R**.

    b. In the **Open** box, type `services.msc`.

    c. Click **OK**.

    d. In the **Services** list, locate and select the **Ross Streamline** service.

    e. Click **Restart** for the **Ross Streamline** service.

    f. Use the **File** menu to select **Exit**.

21. Open the **Streamline** web page to complete the installation of the Streamline Server software on the **Streamline Server 2** computer.

22. At the **Streamline Login** screen, enter the following user name and password in the provided boxes:

    - **Username** — `root`
    - **Password** — `password`

23. Click **Login**.

    Streamline logs you into the Streamline Server as an administrator.

24. Obtain Streamline feature licenses from Ross Video Technical Support before users can access Streamline features.

For More Information on...

- licensing Streamline Server software, refer to the chapter "**Software Licensing**" on page 5–1 of the ***Streamline Server Installation Guide***.

Load Balancer Configuration

An Streamline Redundant System contains at least two Streamline Servers and a load balancer. The load balancer distributes users between the Streamline Servers in the system. The results of user actions on any Streamline Server are simultaneously saved to the databases.

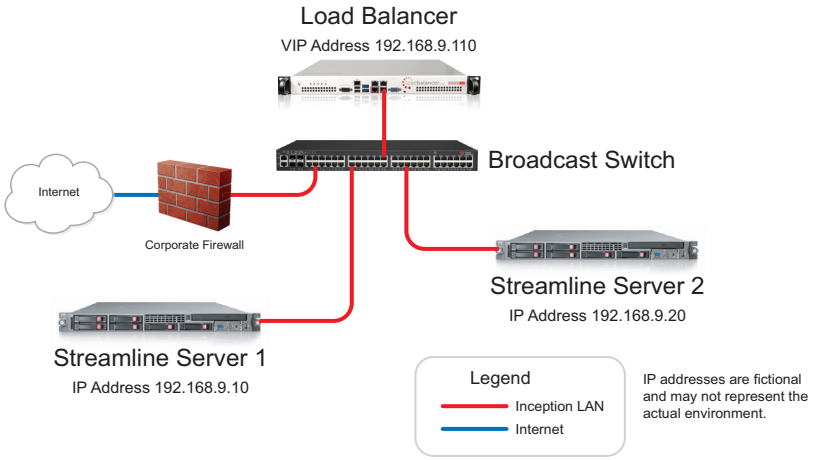


Figure 5.1 *Streamline Redundant System*

If an Streamline Servers is unable to service user requests, the load balancer automatically directs users to one of the running Streamline Servers in the system.

This chapter discusses the following topics:

- Load Balancer First Time Log In
- Configure Required Load Balancer Settings

Load Balancer First Time Log In

The first time you log in to your load balancer you must configure the load balancer to work with the Streamline Servers in your system.

Configuration Methods

Use one of the following methods to connect to and configure the load balancer in your Streamline Redundant System:

- **Direct Connection** — to perform initial configuration directly on the load balancer, complete the following steps:
  - **a.** Connect a keyboard, mouse, and monitor directly to the load balancer or through a KVM switch.
  - **b.** Complete the procedure "**To configure the load balancer through the console**" on page 5–2.
- **Network Connection** — to perform initial configuration over the network, complete the following steps:
  - **a.** Connect a network cable from the load balancer **eth0** port (outlined in red) to a network switch or a computer.
  - **b.** Complete the procedure "**To configure the load balancer over the network**" on page 5–4.

Console Configuration

With a keyboard, mouse, and monitor connected to the load balancer you are ready to use the console to configure the load balancer.

To configure the load balancer through the console

1. Log in to the load balancer at the **lbmaster** login prompt using the following credentials:
   - **Username** — `setup`
   - **Password** — `setup`
2. Follow the prompts to enter the required details to connect to the network. The prompts automatically advance after you enter a setting value and press **ENTER**.

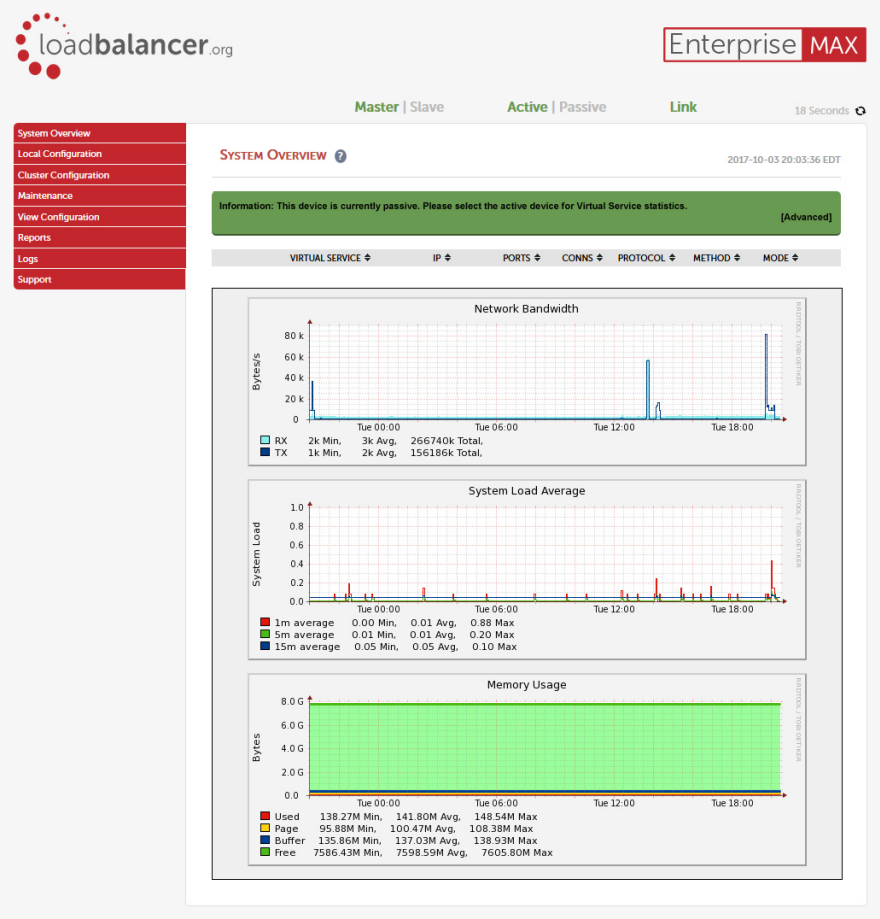
   The following is an example of a load balancer configuration"

```
Loadbalancer.org basic network set up

        This will overwrite the current configuration.
        If you do not wish to procced please enter CTRL + c.

        Static IP address (eg. 192.168.0.26)     :   192.168.1.20

        Interface netmask (eg. 24)               :   24

        VLAN tag ID (Press enter to skip) (eg. 10)       :   120

        Default gateway (eg. 192.168.0.1)        :   192.168.1.254

        DNS Servers
                Primary (eg. 192.168.0.250)      :   8.8.8.8
                Secondary (Leave blank to omit)  :   _
```

3. Common netmasks are as follows:
   - `255.255.255.0 = 24`
   - `255.255.254.0 = 23`
   - `255.255.0.0 = 16`
   - `255.0.0.0 = 8`

4. Most networks do not use a VLAN tag directly on the load balancer. Press **ENTER** to skip entering a VLAN unless a network engineer provides a VLAN.
5. When prompted **Are you recovering from a node failure?** press the **N** key.
6. On a computer connected to the same network as the load balancer, use a web browser to open the one of the following URLs:
   - `http://<ip_of_loadbalancer>:9080`
   - `https://<ip_of_loadbalancer>:9443`
7. Use the following credentials to log in to the load balancer:
   - **Username** — `loadbalancer`
   - **Password** — `loadbalancer`

   The load balancer **Utility** page opens.



8. Continue with the procedure "**To configure the virtual service**" on page 5–5.

Network Configuration

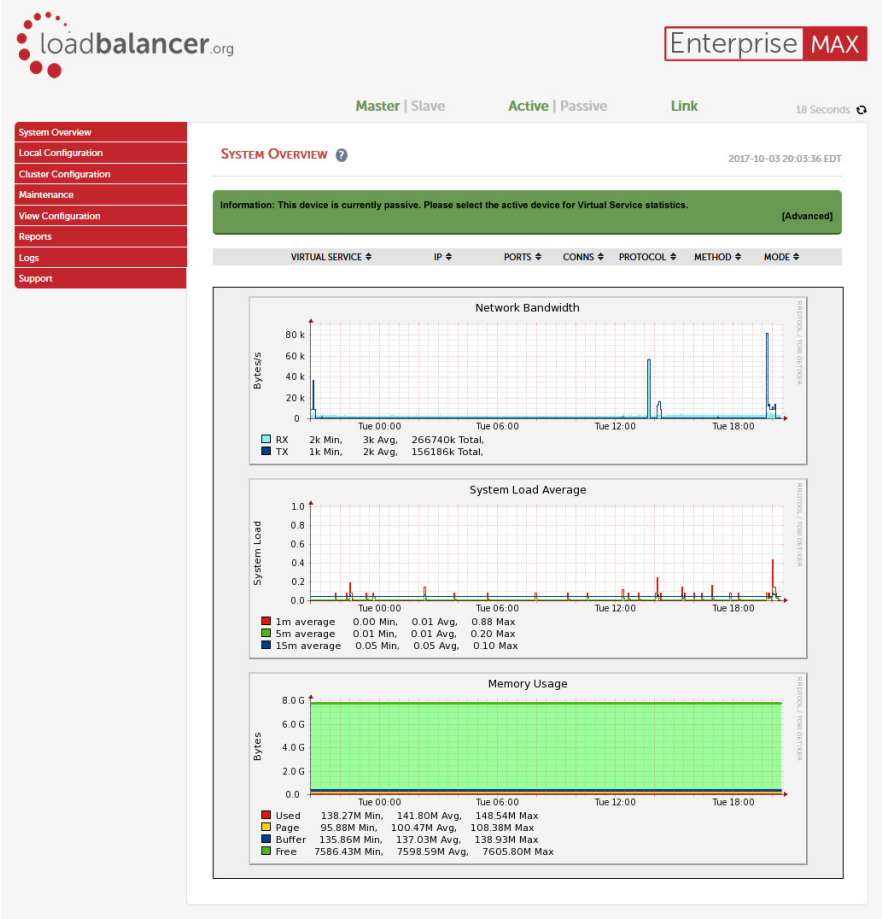
With a the load balancer connected to the network you are ready to configure the load balancer over the network.

To configure the load balancer over the network

1. Configure the computer connected to the load balancer **eth0** port with an **IP** in the `192.168.2.1` range with a **netmask** of `255.255.255.0`.
2. Use a web browser to open the one of the following URLs:
   - `http://192.168.2.21:9080`
   - `https://192.168.2.21:9443`

   An **Authentication** dialog box opens.
3. Use the following credentials to log in to the load balancer:
   - **Username** — `loadbalancer`
   - **Password** — `loadbalancer`

   The load balancer **Utility** page opens.



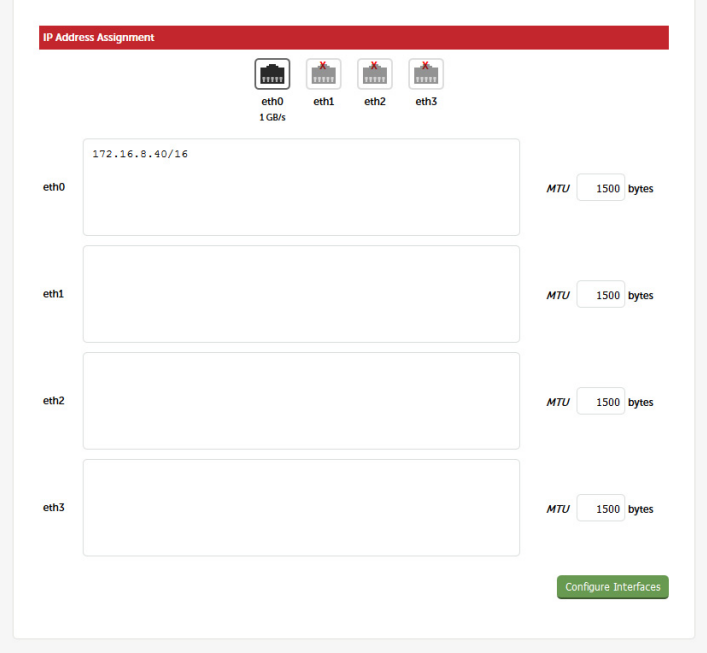
4. Select **Local Configuration > Hostname & DNS**.

   The **Hostname & DNS** page opens.
5. In the **Hostname** box, enter a hostname for the load balancer.

   Streamline users will use the set hostname to connect to an Streamline Server through the load balancer.
6. In the **Domain Name Server** section, enter the IP address of your primary Domain Name Server in the **Primary** box.

7. In the **Secondary** box, enter the IP address of your secondary Domain Name Server.
8. Click **Update**.
9. Select **Local Configuration > Network Interface Configuration**.

   The **Network Interface Configuration** page opens.
10. In the **IP Address Assignment** section, use CIDR notation (IP/MASK) to enter the load balancer IP address in the **eth0** box. Common MASK values include: 24 (255.255.255.0), 16 (255.255.0.0), and 8 (255.0.0.0).



11. Click **Configure Interfaces**.

    The **Modifying IP address assignments...** opens displaying your new IP address assignment.
12. Select **Local Configuration > Routing**.

    The **Routing** page opens.
13. In the **Default Gateway** section, enter the IP address of your default IP v4 gateway in the **IP v4** box.
14. Continue with the procedure "**To configure the virtual service**" on page 5–5.

Initial Virtual Service Configuration

With the initial load balancer configuration complete you are ready to configure the virtual service.

To configure the virtual service

1. Select **Local Configuration > License Key**.

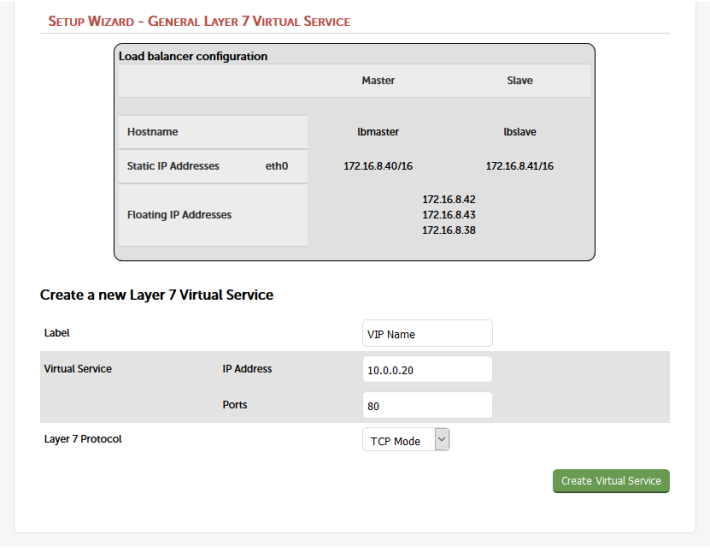
   The **Install License Key** page opens.
2. Verify that the correct license key is activated on your load balancer.

   If license key is not activated for your load balancer, use the **License Key** page to load a license key file.
3. Select **Cluster Configuration > Setup Wizard**.

   The **Setup Wizard** page opens.

4. Click **General Layer 7 Virtual Service**.

   The **Setup Wizard - General Layer 7 Virtual Service** page opens.



5. In the **Label** box, enter a name for the virtual service.

   Usually STREAMLINE is used for this label.

6. In the **IP Address** box, enter the virtual service IP address.

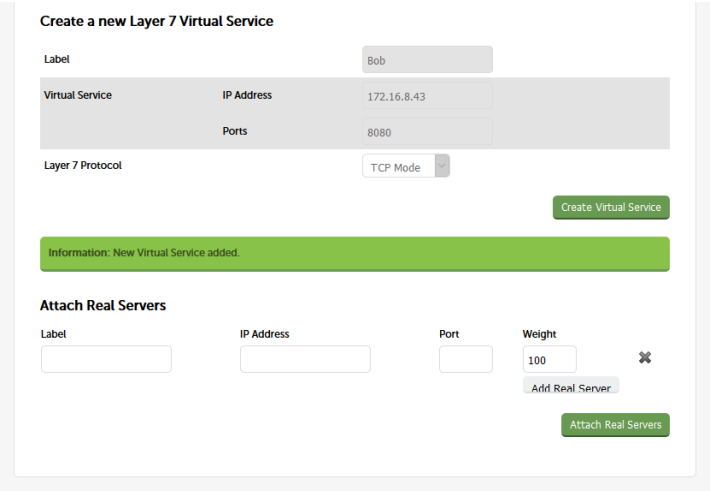
   This is the IP used by Streamline users to connect to the Streamline Redundant System.

7. In the **Ports** box, enter `80` as the port number on which to listen.

8. Use the **Layer 7 Protocol** list to select **HTTP Mode**.

9. Click **Create Virtual Service**.

   The **Attach Real Servers** section opens.



10. In the **Attach Real Servers** section, enter the following settings to add your **Streamline Server 1** to the virtual service:

    - **Label**: `Streamline Server 1`
    - **IP Address**: `<Streamline Server 1 IP Address>`
    - **Port**: `80`
    - **Weight**: `100`

11. Click **Add Real Server**.

    A new **Real Server** row opens in the **Attach Real Servers** section.

12. In the new **Real Server** row, enter the following settings to add your **Streamline Server 2** to the virtual service:

    - **Label**: `Streamline Server 2`
    - **IP Address**: `<Streamline Server 2 IP Address>`
    - **Port**: `80`
    - **Weight**: `100`

13. Repeat steps **11** and **12** for each additional real server in your Streamline Redundant System.

14. Click **Add Real Servers** to add your newly created Streamline Servers to the virtual service.

15. Click **Continue**.

    The **Layer 7 - Virtual Services** page lists your new virtual service.

16. In the **Commit changes** section, click **Reload HAProxy** to complete the initial configuration of the load balancer in your Streamline Redundant System.

17. Continue with the section "**Configure Required Load Balancer Settings**" on page 5–7.

Configure Required Load Balancer Settings

After you complete the initial configuration of your load balancer, you must configure Virtual Service and Advance Configuration settings before users can start accessing your Streamline Redundant System through the load balancer.

To configure required load balancer settings

1. Select **Cluster Configuration > Layer 7 – Virtual Services**.

   The **Layer 7 - Virtual Services** page displays a table of the virtual services defined on your load balancer.

2. In the table, click the **Modify** button associated with the virtual service you created for your Streamline Redundant System.

   The **Layer 7 - Modify Virtual Services** page opens.

3. Use the **Persistence Mode** list to select **Source IP**.

4. Click **Edit HTTP Headers**.

   The **HTTP Header Control** dialog box opens.

5. Use the **Type** list to select **Request**.

6. Use the **Option** list to select **Set**.

7. In the **Header Name** box, enter `X-Forwarded-Port`.

8. In the **Header Value** box, enter `%[dst_port]`.

9. Click **Add**.

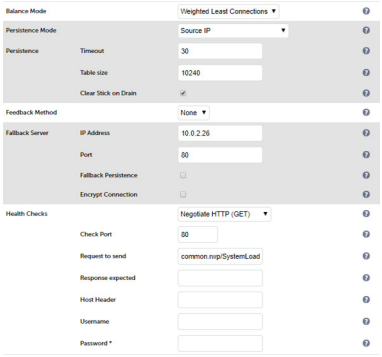
10. Click **Save**.

    The **HTTP Header Control** dialog box closes.

11. Use the **Health Checks** list to select **Negotiate HTTP (GET)**.

12. Set **Check Port** to **80**.
13. In the **Request to send** box, enter `common.rwp/SystemLoad/Object/Status.js`.
14. In the **Fallback Server** section make the following changes:
    - **IP Address** — set to the **IP of the first node**.
    - **Port** — set to **80**.
15. Click **Update**.

    The **Layer 7 - Modify Virtual Services** page displays the new settings.



16. Select **Cluster Configuration > Layer 7 – Advanced Configuration**.

    The **Layer 7 – Advanced Configuration** page opens.
17. In the **Connection Timeout** box, enter `1800000`.
18. In the **Client Timeout** box, enter `1800000`.
19. In the **Real Server Timeout** box, enter `1800000`.
20. Click **Update**.

    The settings in the **Layer 7 – Advanced Configuration** page update.
21. In the **Commit changes** section, click **Reload HAProxy** to complete the configuration of the load balancer in your Streamline Redundant System.

    Streamline users can now use the IP address or hostname of the load balancer virtual service to open Streamline.

Optional SSL Offloading Setting Configuration

Some customers may wish to use a HTTPS connection between their end users and Streamline. HTTPS is a required configuration for the customers planning to have Streamline accessible from the public internet.

Add an SSL Certificate

The first step is to add an SSL certificate to the load balancer in your Streamline Redundant System.

To add an SSL certificate to the load balancer.

1. Use a web browser to open the one of the following URLs:
    - `http://192.168.2.21:9080`
    - `https://192.168.2.21:9443`

    An **Authentication** dialog box opens.

2. Use the following credentials to log in to the load balancer:

   - **Username** — `loadbalancer`
   - **Password** — `loadbalancer`

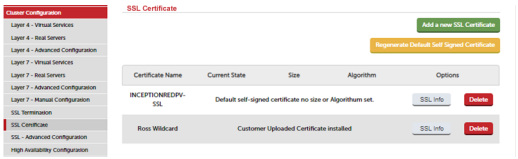
   The load balancer **Utility** page opens.

3. Click **Cluster Configuration**.

   The **Cluster Configuration** section opens.

4. In the **Cluster Configuration** section, click **SSL Certificate**.

   The **SSL Certificate** section opens.



5. Click **Add a new SSL Certificate**.

   The **Add a new SSL Certificate** section opens.

6. Depending on the type of SSL certificate you are adding, complete one of the following procedures:

   - **Existing SSL Certificate** — to add an existing certificate such as a wild card certificate, complete the procedure "**To add an existing SSL certificate**" on page 5–9.
   - **New SSL Certificate** — to add a completely new certificate, complete the procedure "**To add an existing SSL certificate**" on page 5–9.

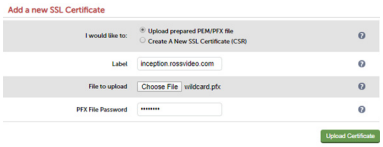
Existing SSL Certificate

When you already have an SSL certificate you can add it to the load balancer in your Streamline Redundant System

To add an existing SSL certificate

1. In the **Add a new SSL Certificate** section, select the **Upload prepared PEM/PFX file** option.

   The **Add a new SSL Certificate** section displays the upload settings.

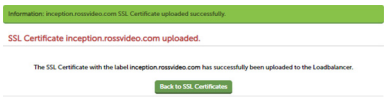


2. In the **Label** box, enter a unique name for the SSL certificate.
3. Click **Choose File**.
4. Use the file browser to navigate to and select and existing SSL certificate file.

   The SSL certificate file must contain any intermediate and root certificates needed as well as the private key for the server certificate it contains. The SSL certificate file can be in pem or pfx format.

5. In the **PFX File Password** box, enter the password for the selected SSL certificate file.
6. Click **Upload Certificate**.

   The **Information** screen displays after the successful upload of the selected SSL certificate uploads to the load balancer.



7. Click **Back to SSL Certificate**.

   The **Information** screen closes.

8. Continue with the procedure "**To configure SSL termination settings**" on page 5–11.

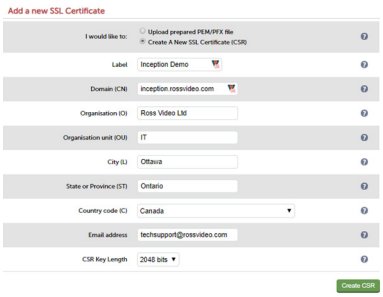
New SSL Certificate

If you do not have an SSL certificate you must create a new SSL certificate for the load balancer.

To create a new SSL certificate

1. In the **Add a new SSL Certificate** section, select the **Create a new SSL Certificate (CSR)** option.

   The **Add a new SSL Certificate** section displays the create settings.



2. In the **Label** box, enter a unique name for the SSL certificate.
3. In the **Domain (CN)** box, enter the URL that Streamline users use to access Streamline Redundant System. For example: `streamline.rossvideo.com`.
4. In the **Oranisation (O)** box, enter the name of the organisation. For example: `Ross Video Ltd`.
5. In the **Organisational Unit (OU)** field enter the name of the department or group responsible for the SSL certificate. For example: `IT`.
6. In the **City (L)** box, the name of the city in which the SSL certificate is used.
7. In the **State or Province (ST)** box, enter the name of the state or province in which the city entered in step **6** is located.
8. Use the **Country code (C)** list to select the country in which the state or province entered in step **7** is located.
9. In the **Email address** box, enter the email address of the person or group responsible for the SSL certificate.
10. Use the **CSR Key Length** list to elect the required CSR key length for the SSL certificate.

    A key length of **2048** bits is sufficient for most signing authorities. A more secure key length of **4096** bits is also available.

11. Click **Create CSR**.

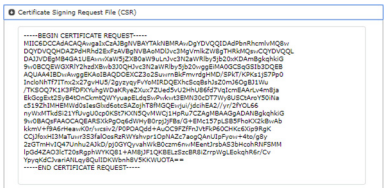
    The **Add a new SSL Certificate** section closes to return you to the **SSL Certificate** section.

12. Click the **Modify** button associated with the SSL certificate you just created.

    You entered the name of the new SSL certificate in step **2**.

13. Click the line labeled **Certificate Signing Request File (CSR)** to get your CSR.

    The CSR displays.



14. Copy the displayed **CSR** and paste it into a file with the extension `.csr`.

15. Send your **.csr** file to your signing authority.

    You require a signed certificate in **pem** format. A certificate designed for Apache or Nginx should be in the **needed** format.

16. After you receive your SSL certificate from your signing authority, enter the server certificate contents in the **Your Certificate** section.

    If you received an **intermediate certificate**, enter the server certificate contents in the **Intermediate Certificate** section.

17. Enter the **root certificate** contents in the **Root Certificate** section.

18. Click **Update**.

19. Continue with the procedure "**To configure SSL termination settings**" on page 5–11.

SSL Termination

After uploading an existing SSL certificate to your load balancer or created a new SSL certificate for it, you are ready to configure SSL termination settings.

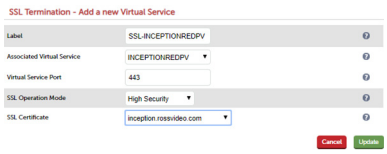
To configure SSL termination settings

1. In the **Cluster Configuration** section, click **SSL Termination**.

   The **SSL Termination** section opens.

2. Click **Add a new Virtual Service**.

   The **SSL Termination - Add a new Virtual Service** section displays the add settings.



3. Use the **Associated Virtual Service** list to select the virtual service to add to the SSL termination.

   The following settings update after you select a virtual service:

   - **Label** — automatically set from the selected virtual service.
   - **Virtual Service Port** — should remain set to **443**.
   - **SSL Operation Mode** — should remain set to **High Security**.

4. Use the **SSL Certificate** list to select the SSL certificate added in the section "**Existing SSL Certificate**" on page 5–9 or created in the section "**New SSL Certificate**" on page 5–10.

5. Click **Update**.

   The **Commit changes** alert opens.

6. Click **Reload STunnel**.

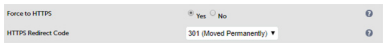
   The **Commit changes** alert closes.

7. Under the virtual service you are adding to the SSL termination, select the **Yes** option for the **Force to HTTPS** setting.

   This setting enables to X-Forwarded-Proto header needed for proper operation.

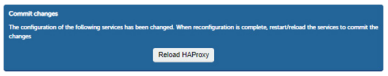
8. Verify that the **HTTPS Redirect Code** is set to **301 (Moved Permanently)**.

   SSL Termination settings.



9. Click **Update**.

   The **Commit changes** alert opens.



10. Click **Reload HAProxy**.

    The **Commit changes** alert closes.

11. On one of the Streamline Servers, use a text editor to edit the following file:

```
C:\Program Files\Ross Video\Streamline\Configuration\http.cnf
```

12. Change the **SSL Offload Configuration** to **true** as follows:

```
#*****************************#
# SSL Offloading Configuration #
#*****************************#
wrapper.java.additional.60=-Dorg.eclipse.equinox.http.jetty.https.offload=true
```

13. Save the **http.conf** file.

14. Restart the Streamline Server.

15. Repeat steps **11** to **14** on all remaining Streamline Servers in your Streamline Redundant System.

Redundant Load Balancer Setup

When an Streamline Redundant System contains two load balancers to provide redundancy you must set one as the Master and the other as the Peer. Physical connections and initial network configuration of both load balancers are identical except that the procedures in the Configure Required Load Balancer Settings section should only be done on the Master load balancer. After configuring the pair of redundant load balancers all of the settings from the Master load balancer are automatically replicated on the Peer load balancer as changes are saved and on initial clustering.

To set the Master load balancer

1. Use a web browser to open the one of the following URLs:

   - `http://192.168.2.21:9080`
   - `https://192.168.2.21:9443`

   An **Authentication** dialog box opens.

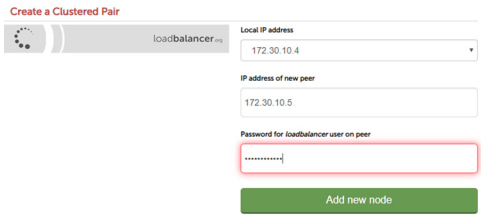
2. Use the following credentials to log in to the load balancer:

   - **Username** — `loadbalancer`
   - **Password** — `loadbalancer`

   The load balancer **Cluster Configuration** page opens.

3. Click **High Availability Configuration**.

   The **Create a Clustered Pair** section opens.



4. Verify that the IP address displayed in the **Local IP address** box is the same as the load balancer management IP address configured in the section "**Load Balancer First Time Log In**" on page 5–2.

5. In the **IP address of new peer** box, enter the management IP address of the Peer load balancer.

6. In the **Password for *loadbalancer* user on peer** box, enter the password for the **loadbalancer** user.

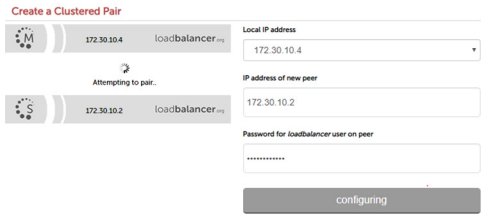
   The default password for the **loadbalancer** user is `loadbalancer`.

7. Click **Add new node**.

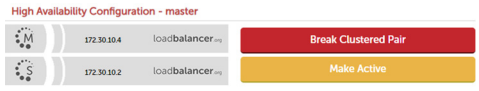
   An alert opens informing you that this process will overwrite the configuration of the selected peer.

8. Click **OK**.

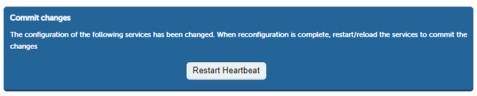
   A screen similar to the following displays while the two load balancers synchronize:



   A screen similar to the following displays after the synchronization completes:



   Finally the **Commit changes** alert opens.



9. Click **Restart Heartbeat**.

   The **Commit changes** alert closes. The Master load balancer automatically connects to the Peer load balancer to update the configuration of the Peer load balancer based on the configuration of the Master load balancer. From this point on ALL configuration is done on the Master load balancer. The cluster automatically synchronizes the two load balancers.

Recovery

In the exceptionally rare circumstance that the Primary database on your Streamline Server 1 computer falters, you can switch to the Redundant database on your Streamline Server 2 computer to continue operation of your Streamline system. After you repair the Primary database in your Streamline system, you can return to normal operation by switching your two Streamline Servers back to the Primary database.

If Streamline falters one of the Streamline Servers, the load balancer automatically directs users to the instance of Streamline running on the other Streamline Server.

This chapter discusses the following topics:

- Recover from a Primary Database Problem
- Switch Back to the Primary Database

Recover from a Primary Database Problem

In an Streamline Redundant System, the instances of Streamline running on the Streamline Server 1 and Streamline server 2 both store data in the Primary database on the Streamline Server 1 (**Figure 6.1**). Database replication keeps the Redundant database on the Streamline Server 2 up to date with Primary database.

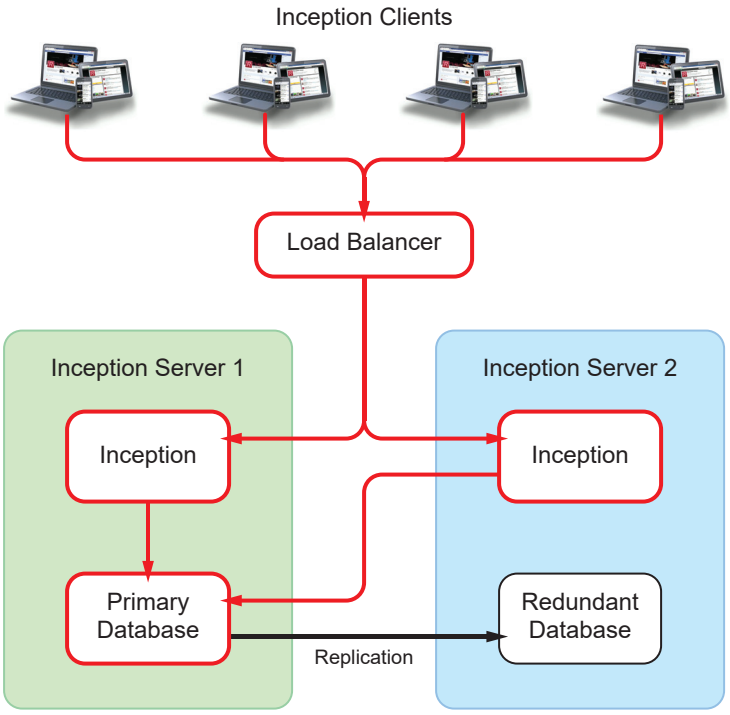


Figure 6.1 *Streamline Redundant System Connections*

In the exceptionally rare circumstance that the Primary database on the Streamline Server 1 computer falters, you can switch to the Redundant database on the Streamline Server 2 computer to continue operation of your Streamline Redundant System.

✶ Changes made to the Redundant database are not automatically replicated to the Primary database. You should restore the Primary database with a backup of the Redundant database at the earliest available opportunity.

To switch Streamline to the Redundant database:

1. Open the **load balancer URL** in a web browser to access your Streamline Redundant System.

   The **Streamline Login** screen opens. With no connection to the Primary database, Streamline will be in Maintenance mode.

2. At the **Streamline Login** screen, enter the following user name and password in the provided boxes:

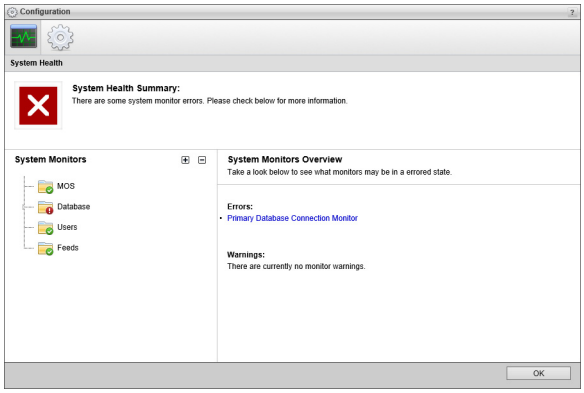
   - **Username** — `maintenance`
   - **Password** — `maintenance`

3. Click **Login**.

   Streamline opens.

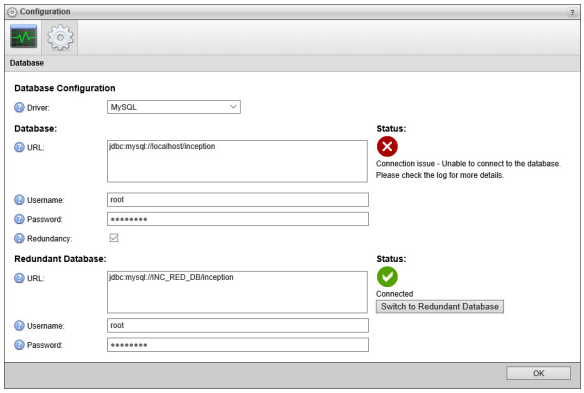
4. On the main toolbar, click the **Configuration** icon.

   The **Configuration** window opens.



5. On the **Configuration** window toolbar, click the **System** icon.

   The **System** panel opens.



6. In the **Redundant Database** section, click **Switch to Redundant Database**.

   An **Alert** opens.

7. Click **OK**.

   A second **Alert** opens.

8. Click **OK**.

   The database connection switches and your Streamline Redundant System starts using the **Redundant** database on the **Streamline Server 2** computer.

9. In the **System** panel, click **OK**.

   The **Configuration** window closes.

10. On the main toolbar, click the **Logout** icon.

    An **Alert** dialog box opens.

11. Click **OK**.

    Streamline logs you out.

Switch Back to the Primary Database

After you repair the Primary database you should switch to back to the Primary database as soon as possible to continue normal operation of your Streamline system. Switching back to the Primary database involves completing the following procedures:

- "**Stop Streamline on Both Streamline Server Computers**" on page 6–4
- "**Backup the Redundant Database on the Streamline Server 2 Computer**" on page 6–5
- "**Restore the Primary Database on the Streamline Server 1 Computer**" on page 6–5
- "**Restore Replication on the Streamline Server 2 Computer**" on page 6–7

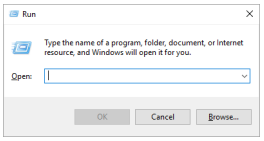
Stop Streamline on Both Streamline Server Computers

To insure against data lost, you must stop Streamline on the Streamline Server 1 and Streamline Server 2 computers. You can start Streamline after you restore the Primary database.

To stop Streamline

1. Log in to the **Streamline Server 1** computer.
2. From the Windows desktop, press **Windows Key+R**.

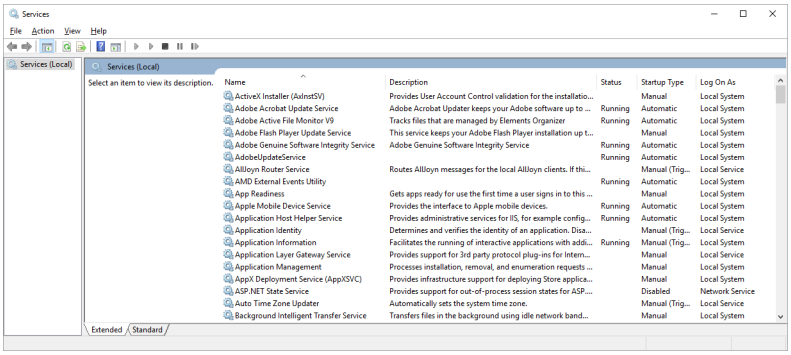
   The **Run** dialog box opens.



3. In the **Open** box, type the following application name:

   `services.msc`
4. Click **OK**.

   The **Services** window opens.



5. In the **Services** list, locate and select the **Ross Streamline** service.
6. Click **Stop** for the **Ross Streamline** service.
7. Use the **File** menu to select **Exit**.

   The **Services** dialog box closes.
8. Log in to the **Streamline Server 2** computer.
9. Repeat steps **2** to **7**.

Backup the Redundant Database on the Streamline Server 2 Computer

To preserve the information entered in your Streamline Redundant System while it was connected to the Redundant database, you must copy a backup of the Redundant database to the Streamline Server 2 computer. Restoring the Primary database with a backup of the Redundant database will bring your Primary database up to date.

To backup the Redundant database and copy it to the Streamline Server 1 computer

1. From the Windows desktop of the **Streamline Server 2** computer, use the **Start** menu to select **All Programs** > **MySQL** > **MySQL Workbench x.x CE**.

   The **MySQL Workbench** window opens.

2. In the **MySQL Connections** list, click **Local instance MySQLxx**.

   The **Connect to MySQL Server** dialog opens.

3. In the **Password** box, enter the password set for the database **root** account.

   The **Local instance MySQLxx** tab opens in the **MySQL Workbench** window.

4. In the **MANAGEMENT** section of the **Navigator** panel, click **Data Export**.

   The **Administration - Data Export** tab opens.

5. In the **Tables to Export** section, select the **streamline** database.

6. In the **Export Options** section, select the **Export to Self-Contained File** option.

7. Enter a filename for the Redundant database export.

8. Click **Start Export**.

9. Copy the **Redundant** database backup file to the **Streamline Server 1** computer.

Restore the Primary Database on the Streamline Server 1 Computer

Restoring the Primary database with the Redundant database backup file updates the Primary database with the Streamline changes made while connected to the Redundant database.

To restore the Primary database with the Redundant database backup file

1. From the Windows desktop of the **Streamline Server 1** computer, use the **Start** menu to select **All Programs** > **MySQL** > **MySQL Workbench x.x CE**.

   The **MySQL Workbench** window opens.

2. In the **MySQL Connections** list, click **Local instance MySQLxx**.

   The **Connect to MySQL Server** dialog opens.

3. In the **Password** box, enter the password set for the database **root** account.

   The **Local instance MySQLxx** tab opens in the **MySQL Workbench** window.

4. In an open area of the **SCHEMAS** section of the **Navigator** panel, right-click the **streamline** database and select **Drop Schema** from the shortcut menu.

   An **Alert** opens.

5. Click **Drop Now**.

6. In the **MANAGEMENT** section of the **Navigator** panel, click **Data Import/Restore**.

   The **Administration - Data Import/Restore** tab opens.

7. In the **Import Options** section, select the **Import from Self-Contained File** option.

8. Select the **Redundant** database backup file you copied from the **Streamline Server 2** computer.

9. In the **Default Schema to be Imported To** section, click **New**.

   The **Create Schema** dialog box opens.

10. In the **Name of schema to create** box enter `streamline`.

11. Click **OK**.

    The **Create Schema** dialog box closes.

12. Click **Start Import**.

13. After the import successfully completes, use the **File** menu to select **Exit**.

    The **MySQL Workbench** window closes.

14. Start the **Streamline** service as follows:

    a. From the Windows desktop, press **Windows Key+R**.

    b. In the **Open** box, type `services.msc`.

    c. Click **OK**.

    d. In the **Services** list, locate and select the **Ross Streamline** service.

    e. Click **Start** for the **Ross Streamline** service.

    f. Use the **File** menu to select **Exit**.

15. Open the **Streamline Server 1 URL** in a web browser to directly access Streamline on **Streamline Server 1**.

    The **Streamline Login** screen opens.

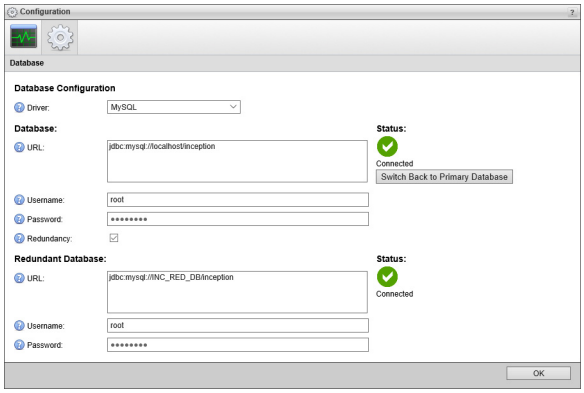
16. Log in to Streamline as an **administrator**.

17. On the main toolbar, click the **Configuration** icon.

    The **Configuration** window opens.

18. On the **Configuration** window toolbar, click the **System** icon.

    The **System** panel opens.



19. In the **Database** section, click **Switch Back to Primary Database**.

    An **Alert** opens.

20. Click **OK**.

    The database connection switches and your Streamline Redundant System starts using the **Primary** database on the **Streamline Server 1** computer.

21. In the **System** panel, click **OK**.

    The **Configuration** window closes.

Restore Replication on the Streamline Server 2 Computer

After switching Streamline back to the Primary database on the Streamline Server 1 computer, you can restart replication on the Streamline Server 2 computer. With replication running on the Streamline Server 2 computer, any additions or changes made to the Primary database are automatically replicated on the Redundant database.

To restart replication on the Redundant Streamline Server computer

1. On the **Streamline Server 2** computer, start the **Streamline** service as follows:
   a. From the Windows desktop, press **Windows Key+R**.
   b. In the **Open** box, type `services.msc`.
   c. Click **OK**.
   d. In the **Services** list, locate and select the **Ross Streamline** service.
   e. Click **Start** for the **Ross Streamline** service.
   f. Use the **File** menu to select **Exit**.
2. Locate the `SetReplication` script file in the following folder:

   `C:\Program Files\Ross Video\Streamline\utilities\database\MySQL`
3. Double-click the **SetReplication** file.
4. At the prompt in the **Command Prompt** window, enter **Y**.

For More Information on...

- about viewing the replication status, refer to the procedure "**To view the replication status**" on page 3–12.