Redundant System Configuration Guide

Version 17.4

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.)*

Inception Redundant System · Configuration Guide

- Ross Part Number: **4950DR-006-17.4**
- Release Date: June 12, 2025. Printed in Canada.
- Software Issue: **17.4**

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

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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 Inception Server systems to be free from defects under normal use and service 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

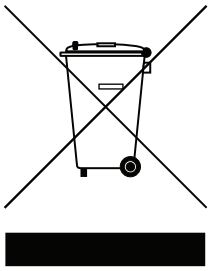
For customers that require a longer warranty period, Ross offers an extended warranty plan to extend the standard warranty period by one year increments. For more information about an extended warranty for your Inception Server system, contact your regional sales manager.

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

Contents

Introduction

A Word of Thanks

Thank you for choosing Ross Video Inception as your newsroom and social media 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 are more than happy to provide further information on the plans available. Members of our sales team promptly respond to e-mails sent to: solutions@rossvideo.com.

Again, thank you for your purchase of an Inception management solution from Ross Video. We are confident of your future pleasure with your choice.

Yours Sincerely,

Peter Abecassis
Director of Product Management - Production Workflow
peter.abecassis@rossvideo.com

About This Guide

This guide contains the following chapters that cover the installation and configuration of Inception 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 Inception Redundant System software functions correctly.
- Chapter 3, "**Database Software Installation**" provides instructions for installing and configuring database software on the Primary Inception Server computer and the Redundant Inception Database computer in an Inception Redundant System.
- Chapter 4, "**Inception Server Software Installation**" provides instructions for installing and configuring Inception Server software on the Primary Inception Server computer in an Inception Redundant System.
- Chapter 5, "**Recovery**" provides instructions to fail over to the database on the Inception Redundant System in the case of a database failure on the Primary Inception 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 "**Create Broadcast Stories**" on page 5–2 in the ***Inception 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 Inception Server software, you must obtain Inception feature licenses from Ross Video Technical Support before users can access Inception features.

Getting Help

To access the Inception 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 ***Inception Server Installation Guide***, ***Inception Server Configuration Guide***, and the ***Inception User Guide*** on the Inception Server Software Installation DVD.

The Inception Online Help system contains information about how to configure various aspects of your Inception application. There are two separate Inception 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: +1 833-859-0499

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.

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: use the link https://support.rossvideo.com/ to open a support request.

System Requirements

Ross Video bases the Inception Redundant System on mainstream PC hardware that uses the Windows® operating system and a load balancer. To ensure that your Inception 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:

- Inception Redundant System
- Hardware
- Software

Inception Redundant System

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

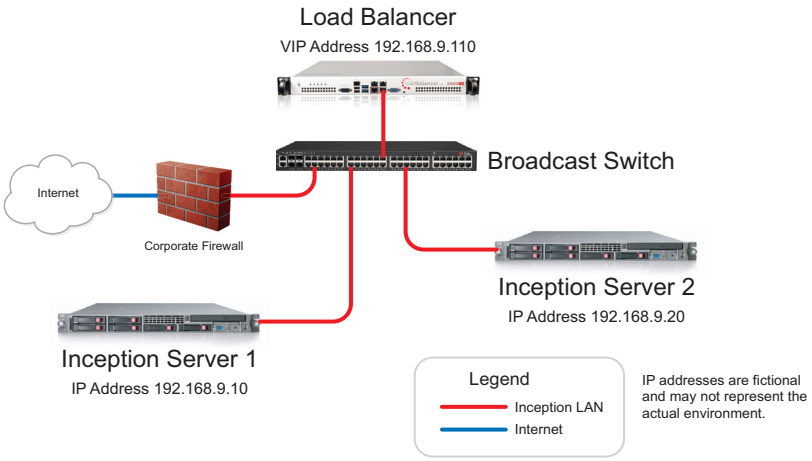


***Figure 2.1** Inception Redundant System*

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

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

Hardware

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

- **Inception 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 Inception Server computers in an Inception 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 Inception Server computers in an Inception Redundant System.

This chapter discusses the following topics:

- Inception Server Time Synchronization
- Before You Install Database Software
- Install Inception Database Software
- Configure Database Replication on Inception Server 2
- Start Replication on the Inception Server 2 Computer
- Database Time Zone Information Maintenance

Inception Server Time Synchronization

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

To enable NTP on Inception Server computers:

1. Log in to an **Inception 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 Inception Server computer:

   ```
   w32tm /query /status
   ```

   When NTP is synchronizing the time on the Inception 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 Inception 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 Inception 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 Inception Server computer in your Inception Redundant System.

Before You Install Database Software

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

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

Contact a Ross Video sales representative for information about Inception 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 Inception Database Software

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

- "**To install MySQL Community Edition Server database software on an Inception Server computer**" on page 3–3
- "**To tune MySQL Server options**" on page 3–11
- "**To install MySQL Community Edition Server database software on the Inception Server 2 computer**" on page 3–14
- "**To configure database replication on the Inception Server 2 computer**" on page 3–14

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

Inception Server 1 Computer

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

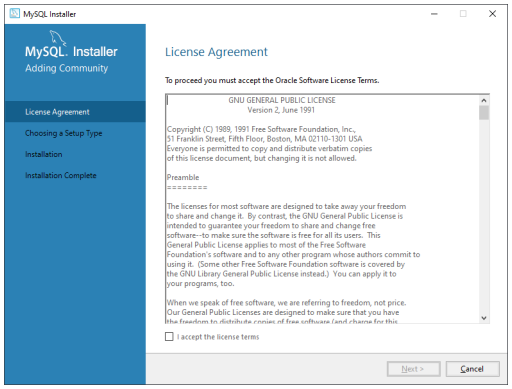
To install MySQL Community Edition Server database software on an Inception Server computer

1. Log in to the **Inception Server 1** computer as an **administrator**.
2. Exit all currently running Windows® applications.
3. Use the following URL to log in to the **Ross Video Transfer** site:

   `https://transfer.rossvideo.com/`
4. On the **Ross Video Transfer** site, open the **Inception/Releases/Database Server** folder.
5. Download the **mysql-installer-community-5.7.23.0.msi** file to the **Inception Server 1** computer.

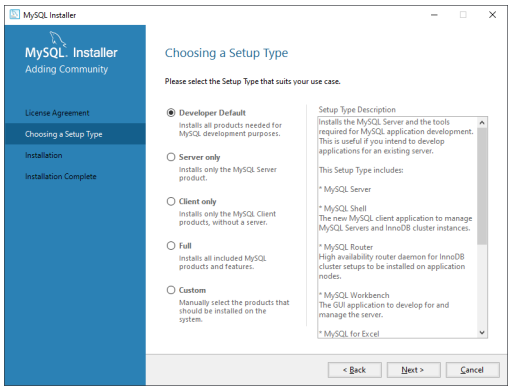
6. Double-click the **mysql-installer-community-5.7.23.0.msi** file.

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



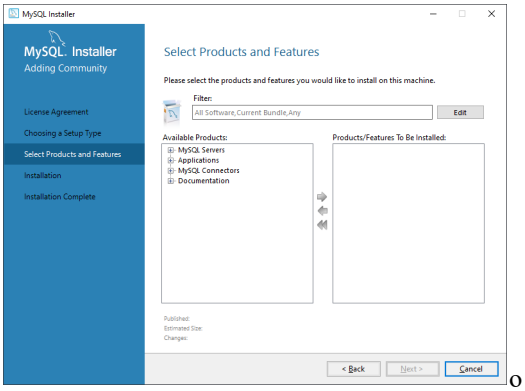
7. Read the GNU GENERAL PUBLIC LICENSE.
8. Select the **I accept the license terms** check box.
9. Click **Next**.

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



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

    The **Select Products** screen opens.



o

12. In the **Available Products** section, expand the following nodes:

    MySQL Servers > MySQL > MySQL Server 5.7

13. In the **MySQL Server 5.7** node, select the **MySQL Server 5.7.23 - X64** product.

14. Click **Add** to add the **MySQL Server 5.7.23 - X64** product to the **Products/Features To Be Installed** section.

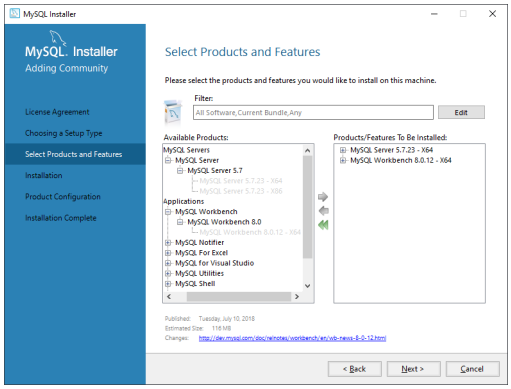
15. In the **Available Products** section, expand the following nodes:

    Applications > MySQL Workbench > MySQL Workbench 8.8

16. In the **MySQL Workbench 8.0** node, select the **MySQL Workbench 8.0.12 - X64** product.

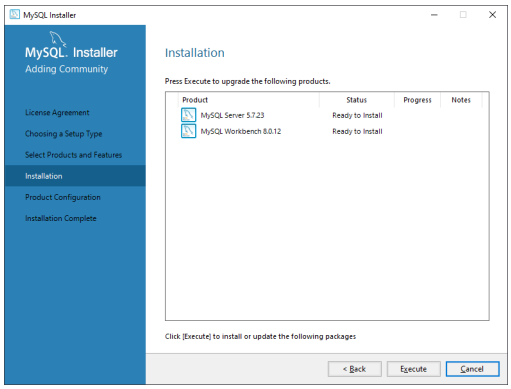
17. Click **Add** to add the **MySQL Workbench 8.0.12 - X64** product to the **Products/Features To Be Installed** section.

    The required products are ready to install.



18. Click **Next**.

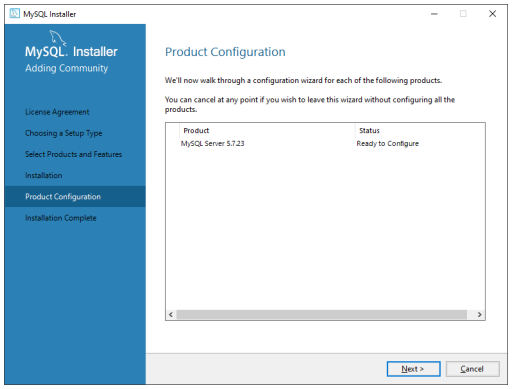
    The **Installation** screen opens.



19. Click **Execute**.

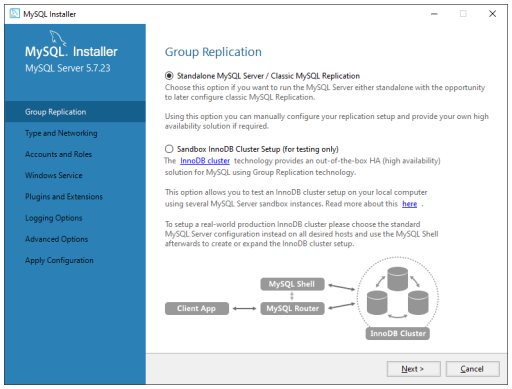
20. After the MySQL Installer wizard finishes installing the required files, click **Next**.

The **Product Configuration** screen opens.



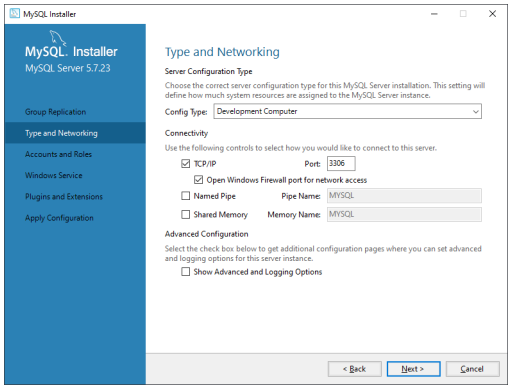
21. Click **Next**.

The **Group Replication** screen opens.



22. Click **Next**.

The **Type and Networking** screen opens.



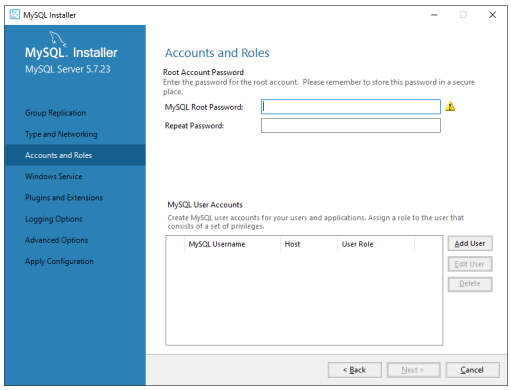
23. In the **Server Configuration Type** section, use the **Config Type** list to select **Server Computer**.

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

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

26. Select the **Open Firewall port for network access** check box.
27. In the **Advanced Configuration** section, select the **Show Advanced and Logging Options** check box.
28. Click **Next**.

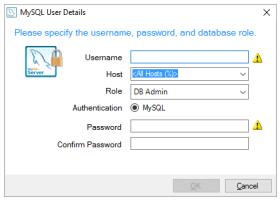
    The **Accounts and Roles** screen opens.



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

    The Inception 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.
30. Enter your MySQL root account password in the **Repeat Password** box.
31. In the **MySQL User Accounts** section, click **Add User**.

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



32. 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 Inception 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 **29** on page 3-7.
    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.

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

    a. Click **Add User**.

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

    b. 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 Inception Redundant System.

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

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

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

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

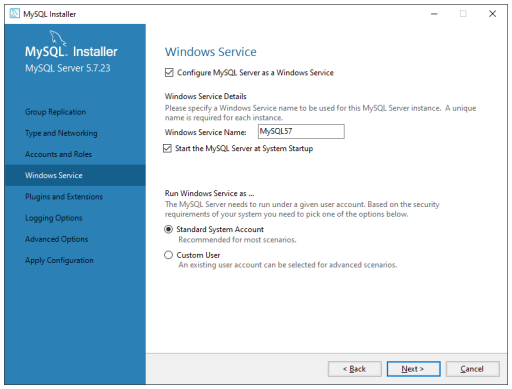
    f. Enter your **replication** user password in the **Confirm Password** box.

    g. Click **OK**.

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

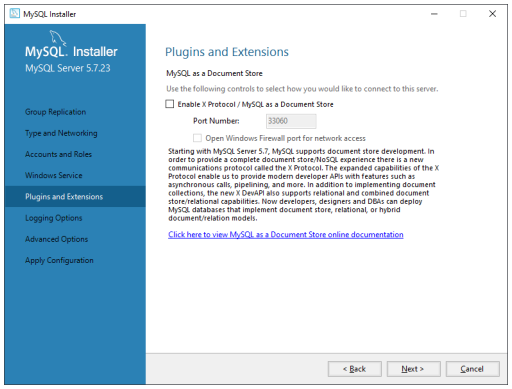
34. Click **Next**.

    The **Windows Service** screen opens.



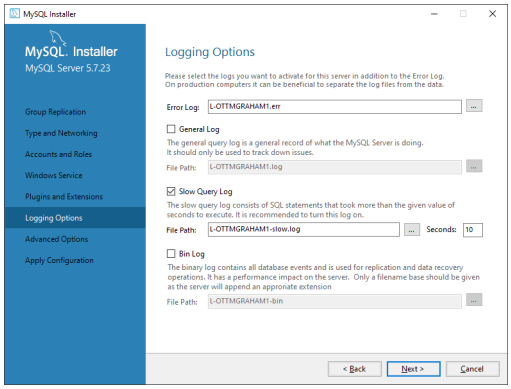
35. Click **Next**.

    The **Plugins and Extensions** screen opens.



36. Click **Next**.

The **Logging Options** screen opens.



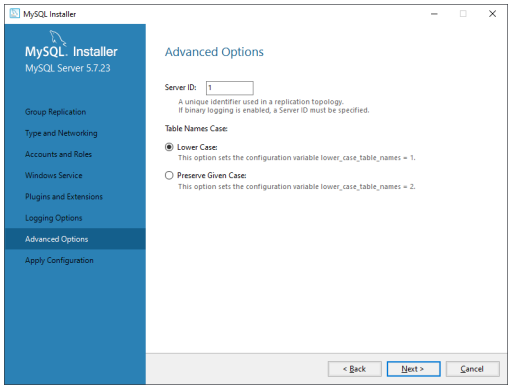
37. Select the **Slow Query Log** check box.

38. 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.

39. Click **Next**.

The **Advance Options** screen opens.

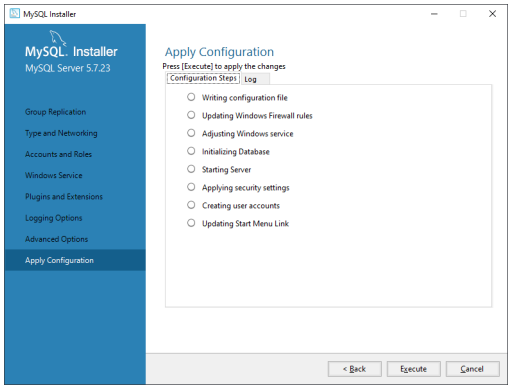


40. Depending on the computer onto which you are installing MySQL Community Edition Server database software, enter one of the following IDs in the **Server ID** box:

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

41. Click **Next**.

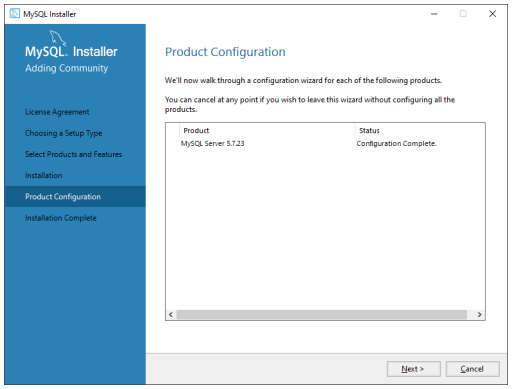
    The **Apply Server Configuration** screen opens.



42. Click **Execute**.

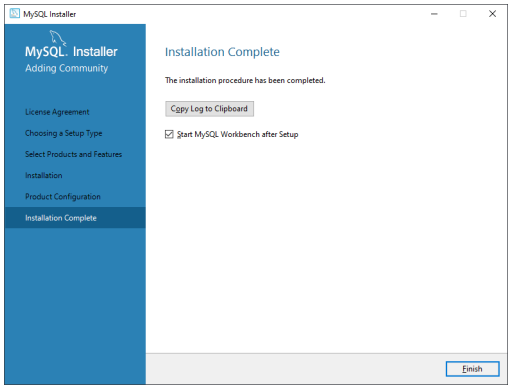
43. After the configuration operation stops, click **Finish**.

    The **Product Configuration** screen opens.



44. Click **Next**.

    The **Installation Complete** screen opens.



45. Clear the **Start MySQL Workbench after Setup** check box.

46. Click **Finish**.

    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:

- **key_buffer_size** — the size of the buffer used for index blocks, set to 1/16 of the memory allocated to MySQL.
- **tmp_table_size** — the maximum size of internal in-memory temporary tables, set to 64M.
- **innodb_buffer_pool_size** — the amount of memory space that holds in-memory data structures, set to 1/2 of the memory allocated to MySQL.
- **table_open_cache** — the number of open tables for all threads, set to 6000 tables.
- **max_allowed_packet** — the maximum size of one packet or any generated string, set to 16 megabytes to handle large data packets.
- **max_connections** — the maximum permitted number of simultaneous client connections, set to 1/2 of the memory allocated to MySQL.
- **sort_buffer_size** — the buffer allocated to each session that performs a sort, set to 2M.
- **read_buffer_size** — the buffer allocated to each thread that sequentially scans for a MyISAM table, set to 256K.
- **join_buffer_size** — the minimum buffer used for plain index scans, range index scans, and joins that do not use indexes; set to 256K.
- **default_password_lifetime** — set to 0 to disable the automatic password expiration policy and allow passwords to never expire.
- **expire_logs_days** — the number of days between automatic removals of the binary log file.

To tune MySQL Server options

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

   ```
   C:\ProgramData\MySQL\MySQL Server 5.7
   ```

   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 buffer size for index blocks, complete the following steps:

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

      ```
      key_buffer_size
      ```

   b. Use the following table to set the **key_buffer_size** value for your system with **32G** of RAM:

System Type	Value
Inception Server & Database	512M
Dedicated Database	2048M

      For systems with more than 32G of RAM, use 1/16 of the system RAM in MB allocated to MySQL as the **key_buffer_size** value. For systems the run both the Inception Server and MySQL database, base your calculation on 25% of the system RAM allocated to MySQL. For systems that only run the MySQL database, base your calculation on 100% of the system RAM allocated to MySQL.

   c. Replace the default setting with the following tuned value:

      ```
      key_buffer_size = <setting_from_step_b>
      ```

      The following example **key_buffer_size** setting would tune MySQL for a system with 32G of RAM running both the Inception Server and MySQL database:

      ```
      key_buffer_size = 512M
      ```

4. To set the maximum size of internal in-memory temporary tables, complete the following steps:
   a. In the **my.ini** file, locate the following setting:

      ```
      tmp_table_size
      ```

   b. Replace the default setting with the following tuned value:

      ```
      tmp_table_size = 64M
      ```

5. To set the amount of memory space to hold in-memory data structures, complete the following steps:
   a. In the **my.ini** file, locate the following setting:

      ```
      innodb_buffer_pool_size
      ```

   b. Use the following table to set the **innodb_buffer_pool_size** value for your system with **32G** of RAM:

System Type	Value
Inception Server & Database	4096M
Dedicated Database	16384M

      For systems with more than 32G of RAM, use 1/2 of the system RAM in MB allocated to MySQL as the **innodb_buffer_pool_size** value. For systems the run both the Inception Server and MySQL database, base your calculation on 25% of the system RAM allocated to MySQL. For systems that only run the MySQL database, base your calculation on 100% of the system RAM allocated to MySQL.

   c. Replace the default setting with the following tuned value:

      ```
      innodb_buffer_pool_size = <setting_from_step_b>
      ```

      The following example **innodb_buffer_pool_size** setting would tune MySQL for a system with 32G of RAM running both the Inception Server and MySQL database:

      ```
      innodb_buffer_pool_size = 4096M
      ```

6. To set the number of open tables for all threads, complete the following steps:
   a. In the **my.ini** file, locate the following setting:

      ```
      table_open_cache
      ```

   b. Replace the default setting with the following tuned value:

      ```
      table_open_cache = 6000
      ```

7. 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 setting with the following tuned value:

      ```
      max_allowed_packet = 16M
      ```

8. 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. Use the following table to set the **max_connections** value for your system with **32G** of RAM:

System Type	Value
Inception Server & Database	400
Dedicated Database	1600

      For systems with more than 32G of RAM, calculate the **max_connections** value as follows:

      ```
      max_connections = (1/2 of the MySQL allocated RAM in MB) / 10
      ```

      For systems the run both the Inception Server and MySQL database, base your calculation on 25% of the system RAM allocated to MySQL. For systems that only run the MySQL database, base your calculation on 100% of the system RAM allocated to MySQL.

   c. Replace the default setting with the following tuned value:

      ```
      max_connections = <setting_from_step_b>
      ```

      The following example **max_connections** setting would tune MySQL for a system with 32G of RAM running both the Inception Server and MySQL database:

      ```
      max_connections = 400
      ```

9. To set the buffer allocated to each session that performs a sort, complete the following steps:

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

      ```
      sort_buffer_size
      ```

   b. Replace the default setting with the following tuned value:

      ```
      sort_buffer_size = 2M
      ```

10. To set the buffer allocated to each thread that sequentially scans for a MyISAM table, complete the following steps:

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

      ```
      read_buffer_size
      ```

   b. Replace the default setting with the following tuned value:

      ```
      read_buffer_size = 256K
      ```

11. To set the minimum buffer used for plain index scans, range index scans, complete the following steps:

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

      ```
      join_buffer_size
      ```

   b. Replace the default setting with the following tuned value:

      ```
      join_buffer_size = 256K
      ```

12. 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
    ```
13. 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
    ```
14. Save the updated **my.ini** file and exit the text editor.
15. 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 **MySQL57** service.
    e. Click **Restart** for the **MySQL57** service.

Inception Server 2 Computer

★ You must install and configure MySQL Community Edition Server database software on both of the Inception Server computers in your Inception Redundant System before you install Inception Server software.

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

1. On the **Inception Server 2** computer, exit all currently running Windows® applications.
2. Copy the **MySQL Installer MSI** from the **Inception Server 1** computer to the **Inception Server 2** computer.
3. Follow step **6** on page 3-4 to step **46** on page 3-10 of the **To install MySQL Community Edition Server database software on an Inception Server computer** procedure.
4. Follow step **1** on page 3-11 to step **15** on page 3-14 of the **To tune MySQL Server options** procedure.

Configure Database Replication on Inception Server 2

After you install the MySQL Community Edition Server database software on the Inception 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 Inception Server 2 computer

1. Log in to the **Inception 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 Inception Server 2 computer, locate the `SetReplication` script file in the following folder:

   ```
   C:\Program Files\Ross Video\Inception\utilities\database\MySQL\replication
   ```

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=inception

    SET MYSQL_REPLICATION_USERNAME=replication
    SET MYSQL_REPLICATION_PASSWORD=<Replication_User_Password>

    SET INCEPTION_SERVICE=Inception
    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 Inception Server 2 Computer

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

To start replication on the Inception Server 2 computer

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

   `C:\Program Files\Ross Video\Inception\utilities\database\MySQL\replication`

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

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

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

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

Database Time Zone Information Maintenance

The system schema of each MySQL Community Edition Server database in an Inception Redundant System contains several tables that store time zone information. Time zone rules and daylight savings time transitions can occasionally change on a regional basis. To perform accurate time zone date conversions you must ensure that the databases in your Inception Redundant System are loaded with up-to-date time zone information.

To load up-to-date time zone information into the database

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

2. Use the following URL to open the MySQL Community Downloads page for time zone information files:

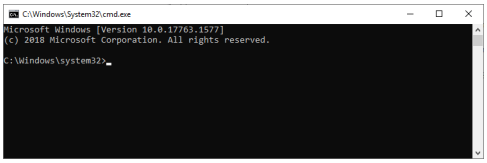
   `https://dev.mysql.com/downloads/timezones.html`

3. Download the time zone information file with leap seconds for the version of MySQL Community Edition Server software running on your Inception Redundant System.

4. Extract the contents of the downloaded time zone information file.

   The `timezone_2020d_leaps_sql` folder contains the extracted contents.

5. Open a **Command Prompt** window.



6. In the **Command Prompt** window, change into the `timezone_2020d_leaps_sql` folder.
7. Enter the following command to load up-to-date time zone information into the MySQL Community Edition Server database:

   ```
   "C:\Program Files\MySQL\MySQL Server 5.7\bin\mysql.exe" -u root -p<db-password>
   mysql < timezone_leaps.sql
   ```

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.
9. If replication is enabled on your Inception Redundant System this procedure is complete. Replication automatically loads up-to-date time zone information into the MySQL Community Edition Server database on the Inception Server 2 computer.
10. If replication is not enabled on your Inception Redundant System, log in to the **Inception Server 2** computer as an **administrator** and repeat steps **2** to **8** to load up-to-date time zone information into the MySQL Community Edition Server database on the Inception Server 2 computer.

Inception Server Software Installation

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

This chapter discusses the following topics:

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

Create the Inception Database on Inception Server 1

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

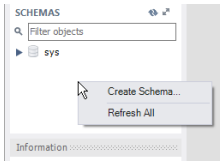
To create the Inception database on the Inception Server 1 computer

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

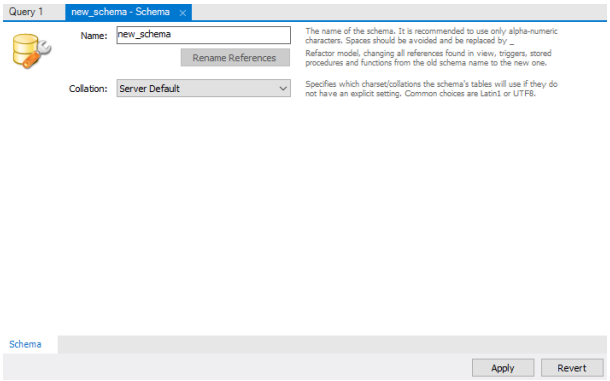
   The **MySQL Workbench** window opens.
3. In the **MySQL Connections** list, click **Local instance MySQLxx**.

   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.

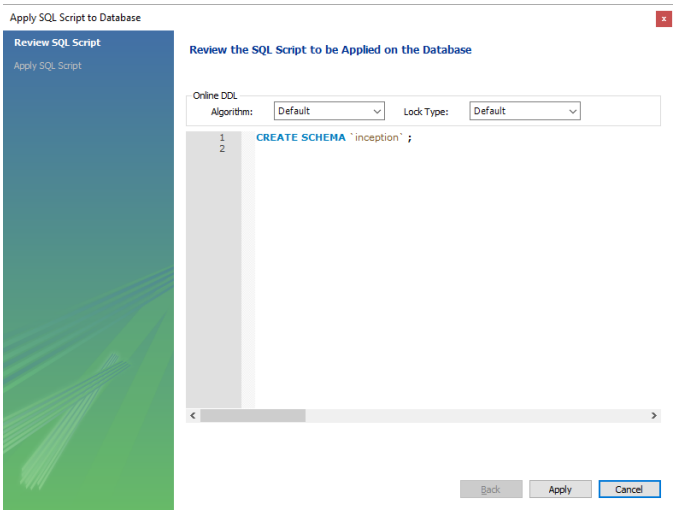


6. In the **Schema** tab, enter the following name in the **Name** box:

   `inception`

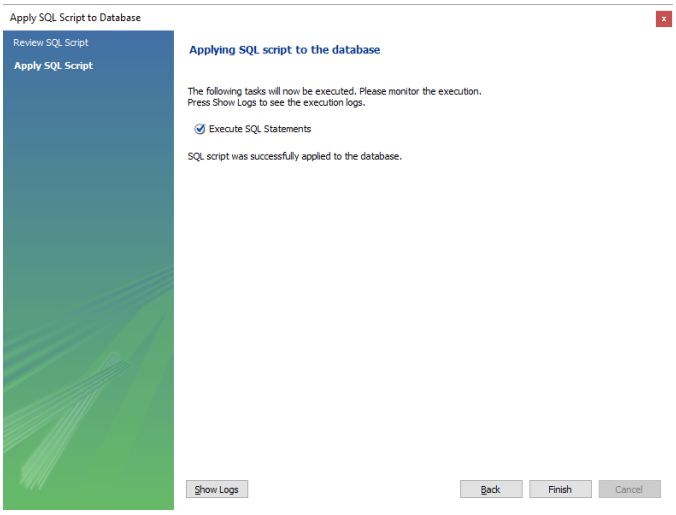
7. At the bottom of the **Schema** tab, click **Apply**.

   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 **inception** 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 Inception Server Software

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

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

Contact a Ross Video sales representative for information about Inception 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 Inception Server Software

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

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

To install Inception Server software on the Inception Server 1 computer

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

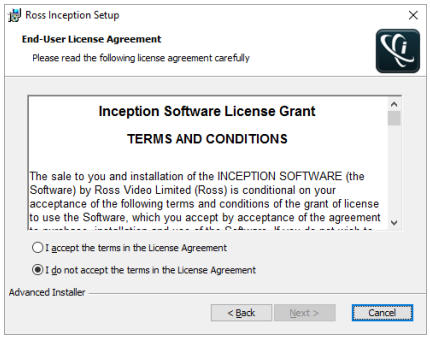
   Some heuristic-based intrusion detection systems prevent the installation of Inception software.
3. Insert the Inception software DVD into the DVD-ROM drive.
4. On the Desktop, open **My Computer**.
5. In the **My Computer** explorer window, open the **DVD-ROM Drive**.
6. Double-click **Inception-14.x.x-xxx-xxx.msi**.

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

   The **Ross Inception Setup** wizard opens.

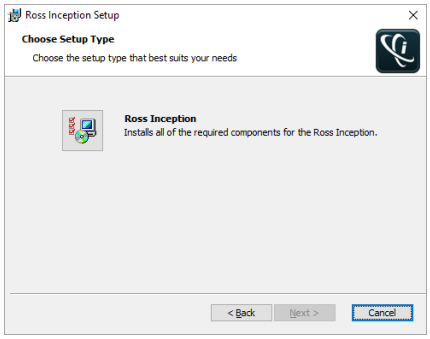
7. Click **Next**.

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



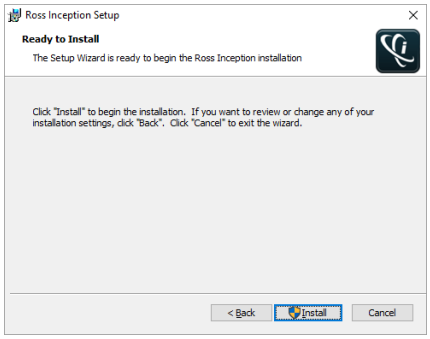
8. Read the **Inception Software License Grant**.
9. Select the **I accept the terms of the license agreement** option.
10. Click **Next**.

    The **Choose Setup Type** screen opens.



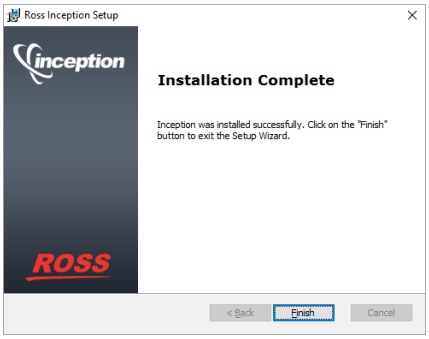
11. Click the **Ross Inception** icon.

    The **Ready to Install** screen opens.



12. Click **Install**.

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



13. Click **Finish**.

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

    - **Inception Readme**
    - **Inception Release Notes**
    - **Ross Inception**

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

14. Re-enable anti-virus software.

Tune Inception for Performance

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

The Inception 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 Inception Server.
- **wrapper.java.maxmemory** — sets the maximum Java heap size for the Inception Server.

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

To tune Inception Server settings in the jvm.conf file:

1. On the Inception Server computer, locate the **jvm.conf** file in the following folder.

   `C:\Program Files\Ross Video\Inception\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 for **wrapper.java.initmemory** depends on the software running on your Inception Server computer and the amount of RAM installed in the computer. Use the following table to set the **wrapper.java.initmemory** value for your Inception system:

	System RAM					
	2 GB	**4 GB**	**8 GB**	**12 GB**	**16 GB**	**32 GB**
Inception Server & Database	256	512	1024	1536	2048	4096
Dedicated Inception Server	1024	2048	4096	6144	8192	16384

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 for **wrapper.java.maxmemory** depends on the software running on your Inception Server computer and the amount of RAM installed in the computer. Use the following table to set the **wrapper.java.maxmemory** value for your Inception system:

	System RAM					
	2 GB	**4 GB**	**8 GB**	**12 GB**	**16 GB**	**32 GB**
Inception Server & Database	512	1024	2048	3072	4096	8192
Dedicated Inception Server	1536	3072	6147	9216	12288	24576

7. Save the updated **jvm.conf** file and exit the text editor.
8. Restart the Inception 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 Inception** service.
   e. Click **Restart** for the **Ross Inception** service.
   f. Use the **File** menu to select **Exit**.

Configure Inception Server 1 to Use the MySQL Database

After installing Inception Server software on the Inception Server 1 computer, you must configure the Inception 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 Inception Server 1 computer.

To configure Streamline Server 1 to use the MySQL database

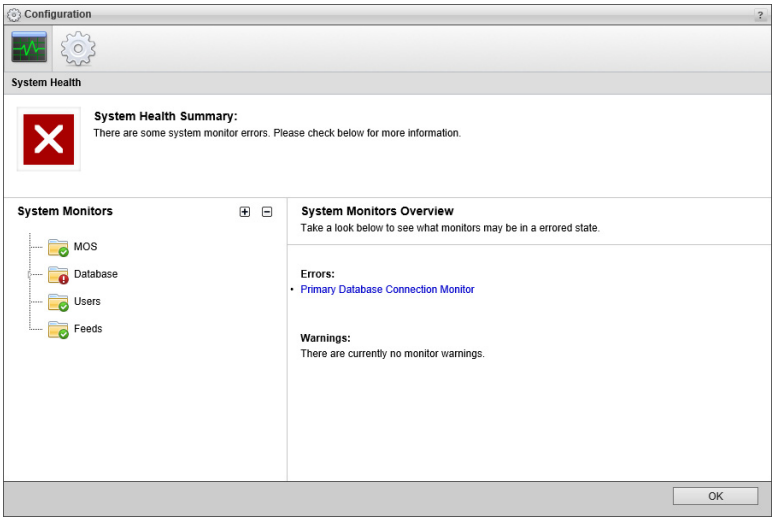
1. On the **Inception Server 1** computer, use one of the following methods to open the **Inception** web page:
   - On the Desktop, double-click the **Ross Inception** icon.
   - Use the **Start** menu to select **All Programs** > **Ross Inception** > **Ross Inception**.

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

   Inception opens.

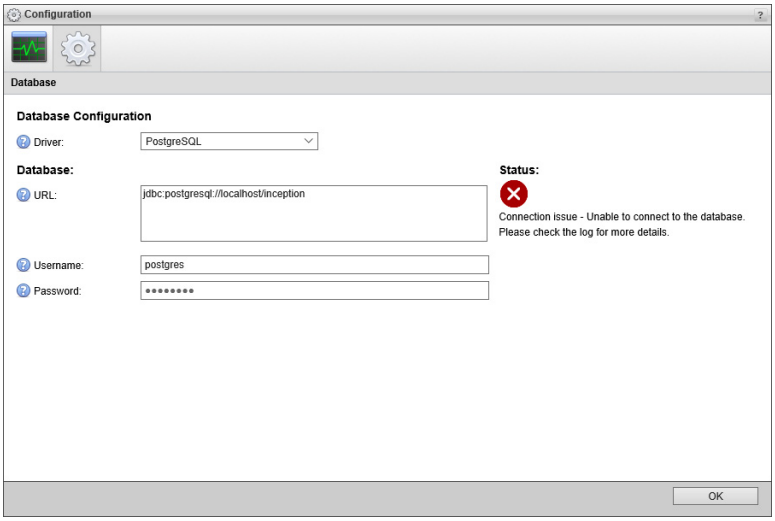
4. On the main toolbar, click the **Configuration** icon.

   The **Configuration** window opens.



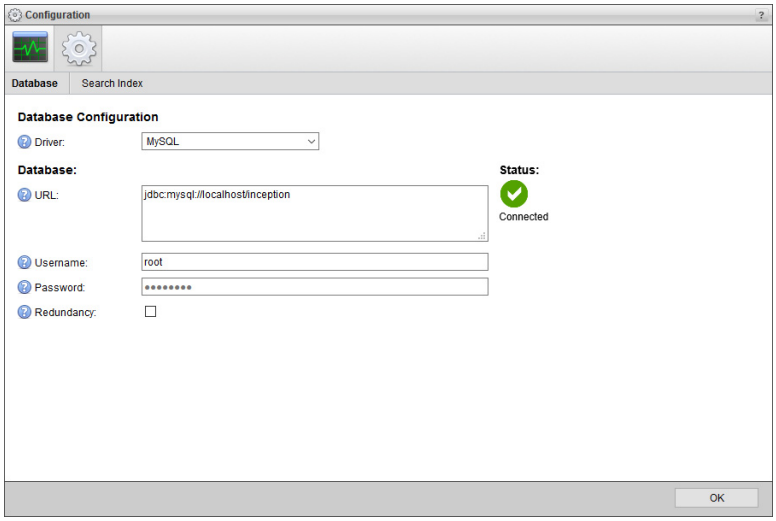
5. On the **Configuration** window toolbar, click the **System** icon.

   The **System** panel opens.



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

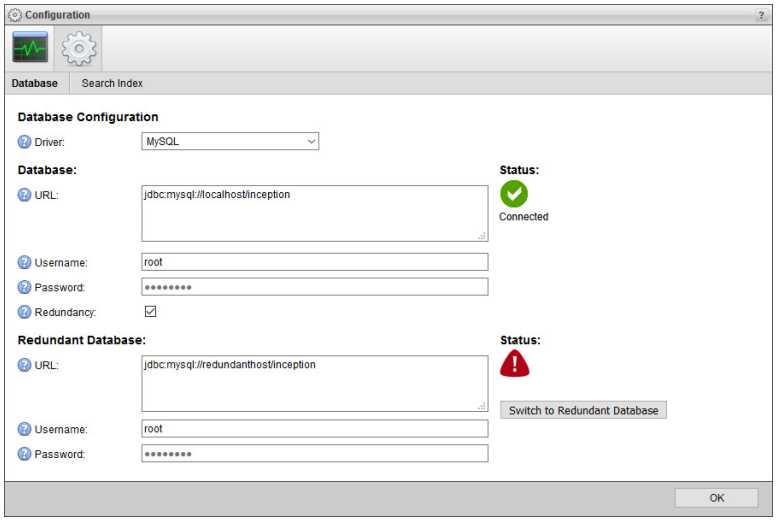
   The MySQL database settings open in the **Database** tab.



7. If you set a custom password for the **root** superuser account when you installed the MySQL Community Edition Server database software on the Inception 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 Inception **Server 1** with the Inception Redundant Database on **Inception Server 2**.

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

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

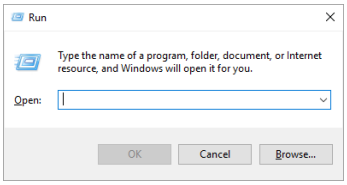
15. Click **OK**.

    Inception logs you out.

16. Close the web browser.

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

    The **Run** dialog box opens.

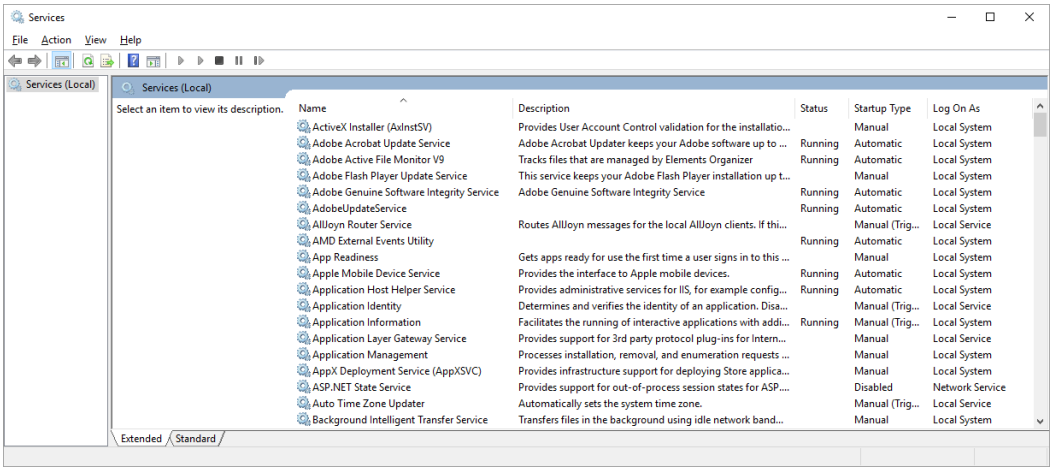


18. In the **Open** box, type the following application name:

    `services.msc`

19. Click **OK**.

    The **Services** window opens.



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

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

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

    The **Services** dialog box closes.

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

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

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

25. Click **Login**.

    Inception logs you into the Inception Server as an administrator.

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

For More Information on...

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

Configure the Inception Server 2

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

To set up Inception Server 2

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

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

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

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

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

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

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

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

5. Click **Login**.

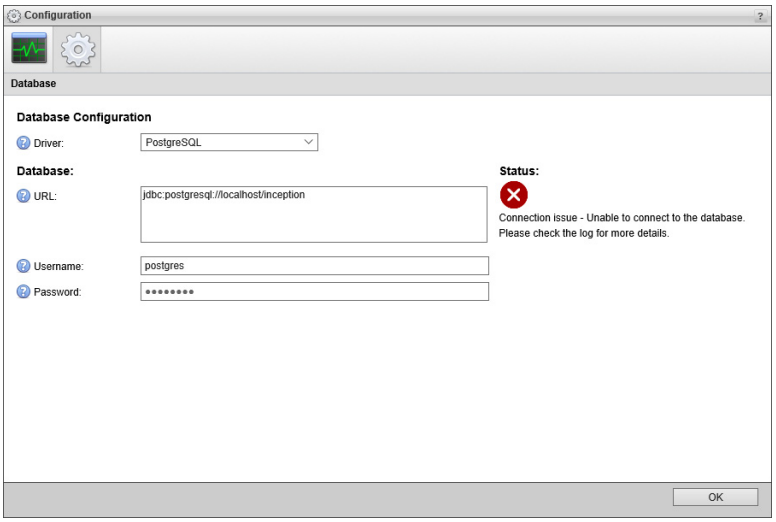
   Inception opens.

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 **Inception Server 2** with the Inception Primary Database on **Inception Server 1**.

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

   Replace `<Server1_Host_Name>` with the hostname or IP address of the **Inception Server 1** computer in your Inception 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 **Inception 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 **Inception Server 2** with the Inception Redundant Database on the same computer.

    ```
    jdbc:mysql://localhost/inception
    ```

13. If you set a custom password for the **root** superuser account when you installed the MySQL Community Edition Server database software on the **Inception 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**.

    Inception logs you out.

19. Close the web browser.

20. Restart the Inception 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 Inception** service.

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

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

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

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

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

23. Click **Login**.

    Inception logs you into the Inception Server as an administrator.

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

For More Information on...

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

Recovery

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

If Inception falters one of the Inception Servers, the load balancer automatically directs users to the instance of Inception running on the other Inception 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 Inception Redundant System, the instances of Inception running on the Inception Server 1 and Inception server 2 both store data in the Primary database on the Inception Server 1 (**Figure 5.1**). Database replication keeps the Redundant database on the Inception Server 2 up to date with Primary database.

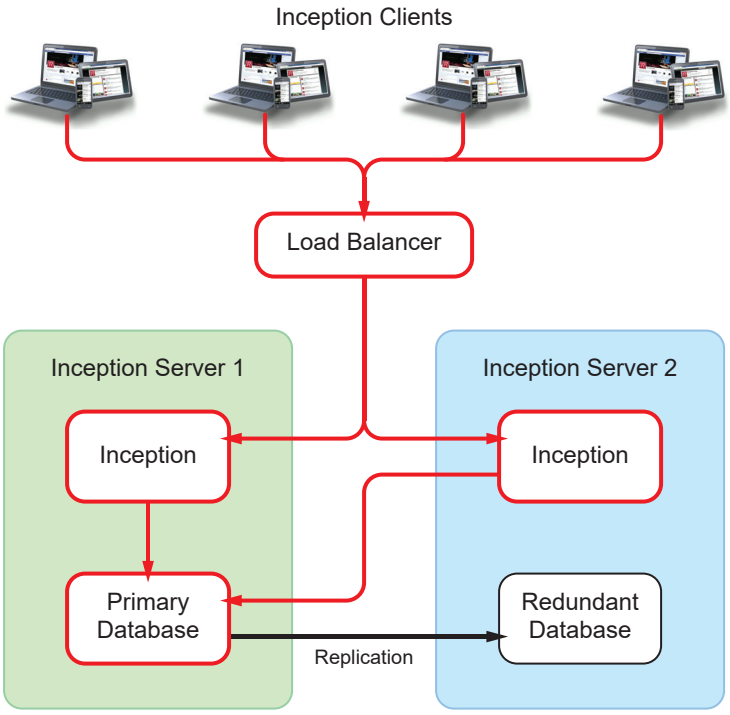


Figure 5.1 *Inception Redundant System Connections*

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

1. If Inception is still running on your **Inception Server 1** computer, stop the **Ross Inception** service. Refer to the procedure "**To stop Inception on the Inception Server computers**" on page 5–5 for the steps to stop the **Ross Inception** service.

   Leave Inception offline on your **Inception Server 1** computer until the Primary Database is fixed and ready to return to service.

2. Open the **load balancer URL** in a web browser to access your **Inception Server 2** computer.

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

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

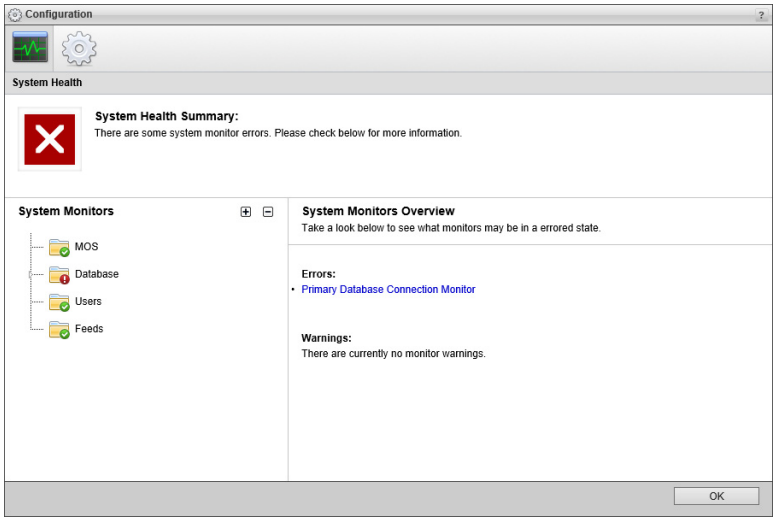
   - **Username** — `maintenance`
   - **Password** — `maintenance`

4. Click **Login**.

   Inception opens.

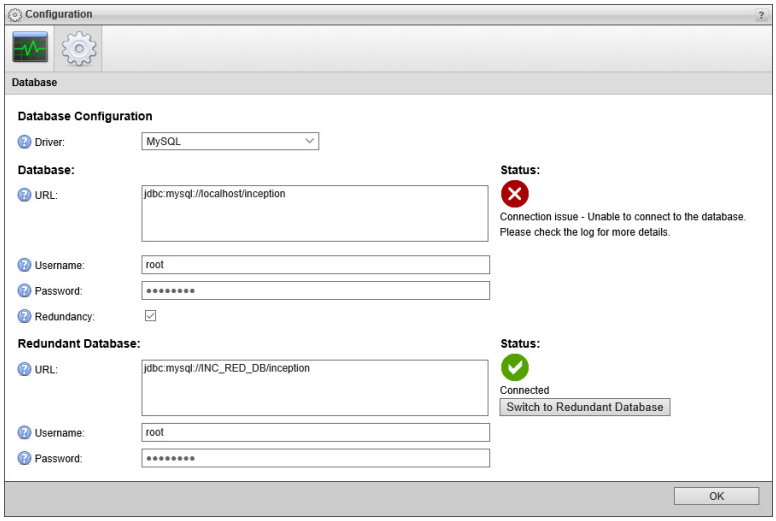
5. On the main toolbar, click the **Configuration** icon.

   The **Configuration** window opens.



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

   The **System** panel opens.



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

   An **Alert** opens.

8. Click **OK**.

   A second **Alert** opens.

9. Click **OK**.

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

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

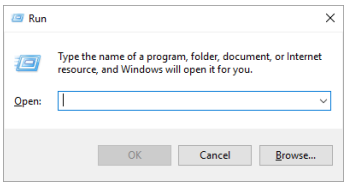
    The **Configuration** window closes.

11. Restart the **Ross Inception** service on the **Inception Server 2** computer as follows:

    a. Log in to the **Inception Server 2** computer.

    b. From the **Windows** desktop, press **Windows Key R**.

    The **Run** dialog box opens.

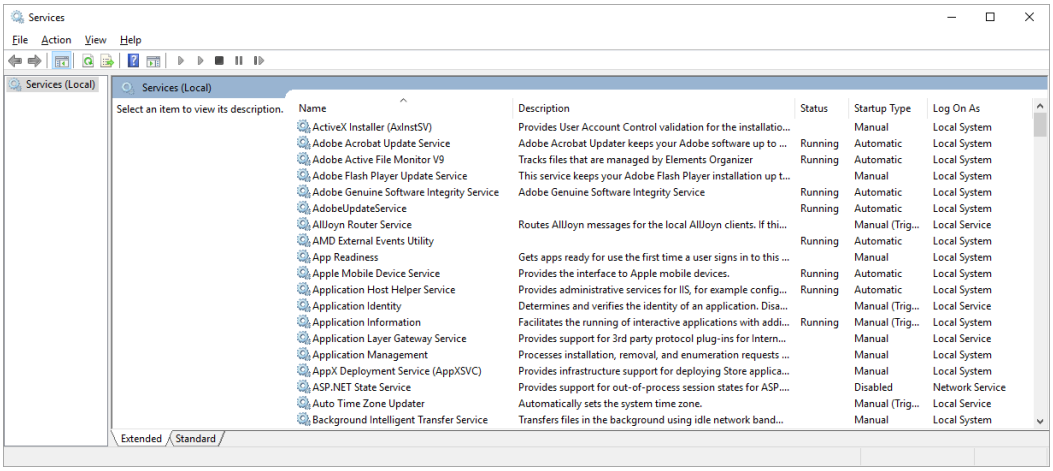


    c. In the **Open** box, type the following application name:

    `services.msc`

    d. Click **OK**.

    The **Services** window opens.



    e. In the **Services** list, locate and select the **Ross Inception** service.

    f. Click **Restart** for the **Ross Inception** service.

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

    The **Services** dialog box closes.

    Users can continue to work with Inception on the Inception Server 2 computer saving their content in the Redundant database.

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 Inception system. Switching back to the Primary database involves completing the following procedures:

- "**Stop Inception on Both Inception Server Computers**" on page 5–5
- "**Backup the Redundant Database on the Inception Server 2 Computer**" on page 5–6
- "**Restore the Primary Database on the Inception Server 1 Computer**" on page 5–6
- "**Switch the Inception Server 2 Computer Back to the Primary Database**" on page 5–7
- "**Restore Replication on the Inception Server 2 Computer**" on page 5–9

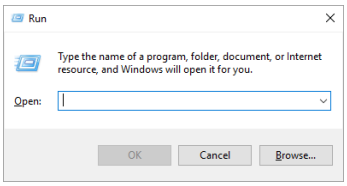
Stop Inception on Both Inception Server Computers

To insure against data lost, you must stop the Ross Inception service on the Inception Server 1 and Inception Server 2 computers. You can restart Inception on the Inception Server computers after restoring the Primary database.

To stop Inception on the Inception Server computers

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

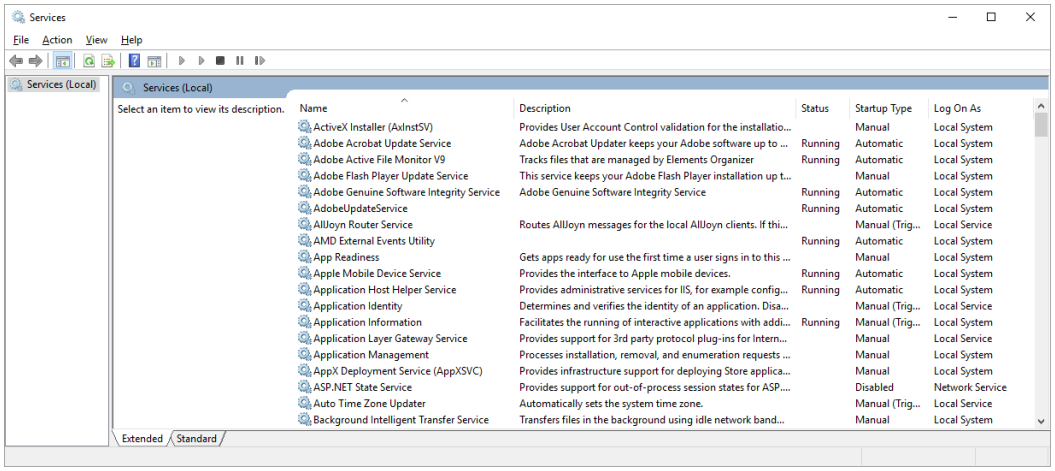
   The **Run** dialog box opens.



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 Inception** service.
6. Click **Stop** for the **Ross Inception** service.
7. Use the **File** menu to select **Exit**.

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

Backup the Redundant Database on the Inception Server 2 Computer

To preserve the information entered in your Inception Redundant System while it was connected to the Redundant database, you must copy a backup of the Redundant database to the Inception 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 Inception Server 1 computer

1. Log in to the **Inception Server 2** computer.
2. From the **Windows** desktop of the **Inception Server 2** 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 **root** account.

   The **Local instance MySQLxx** tab opens in the **MySQL Workbench** window.
5. In the **MANAGEMENT** section of the **Navigator** panel, click **Data Export**.

   The **Administration - Data Export** tab opens.
6. In the **Tables to Export** section, select the **inception** database.
7. In the **Export Options** section, select the **Export to Self-Contained File** option.
8. Enter a filename for the Redundant database export.
9. Click **Start Export**.

   MySQL creates a backup file of the Redundant database.
10. Copy the **Redundant** database backup file to the **Inception Server 1** computer.

Restore the Primary Database on the Inception Server 1 Computer

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

To restore the Primary database with the Redundant database backup file

1. Log in to the **Inception Server 1** computer.
2. From the **Windows** desktop of the **Inception 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 **root** account.

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

   An **Alert** opens.

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

   The **Administration - Data Import/Restore** tab opens.
8. In the **Import Options** section, select the **Import from Self-Contained File** option.
9. Select the **Redundant** database backup file you copied from the **Inception Server 2** computer.
10. In the **Default Schema to be Imported To** section, click **New**.

    The **Create Schema** dialog box opens.
11. In the **Name of schema to create** box enter `inception`.
12. Click **OK**.

    The **Create Schema** dialog box closes.
13. Click **Start Import**.
14. After the import successfully completes, use the **File** menu to select **Exit**.

    The **MySQL Workbench** window closes.

Switch the Inception Server 2 Computer Back to the Primary Database

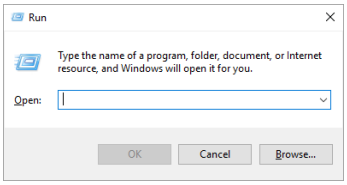
After restoring the Primary database from the Redundant database backup file, you are ready to start the Ross Inception service on the Inception Server 1 and Inception Server 2 computers. Inception on the Inception Server 1 computer should already be connected to the Primary database. After starting Inception on the Inception Server 2 computer, you must switch Inception back to the Primary database from the Redundant database.

To connect the Inception Server 2 to the Primary database

1. If Inception is still running on your **Inception Server 1** computer, stop the **Ross Inception** service.

   Refer to the procedure "**To stop Inception on the Inception Server computers**" on page 5–5 for the steps to stop the **Ross Inception** service.
2. Log in to the **Inception Server 2** computer.
3. Start the **Ross Inception** service on the **Inception Server 2** computer as follows:
   a. From the **Windows** desktop, press **Windows Key R**.

      The **Run** dialog box opens.

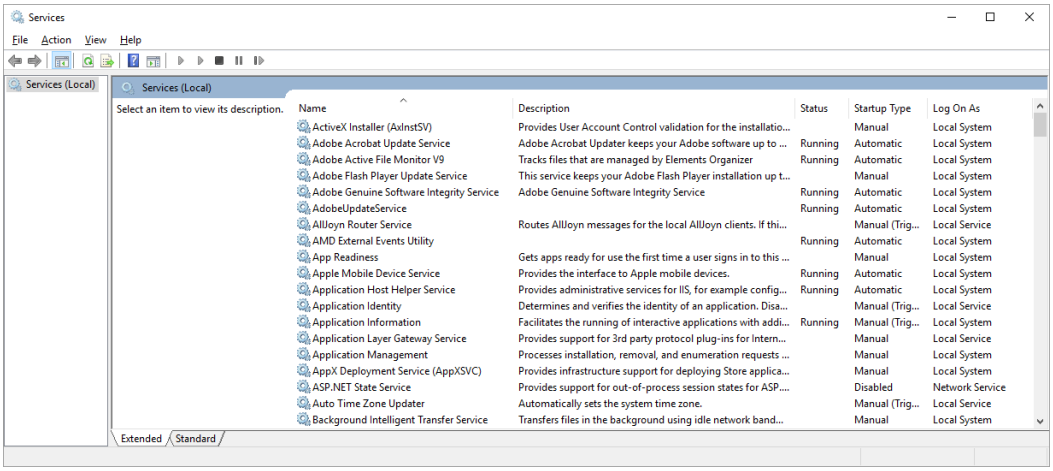
      

   b. In the **Open** box, type the following application name:

      `services.msc`

c. Click **OK**.

The **Services** window opens.



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

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

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

The **Services** dialog box closes.

4. Open the **load balancer URL** in a web browser to access your **Inception Server 2** computer.

The **Inception Login** screen opens.

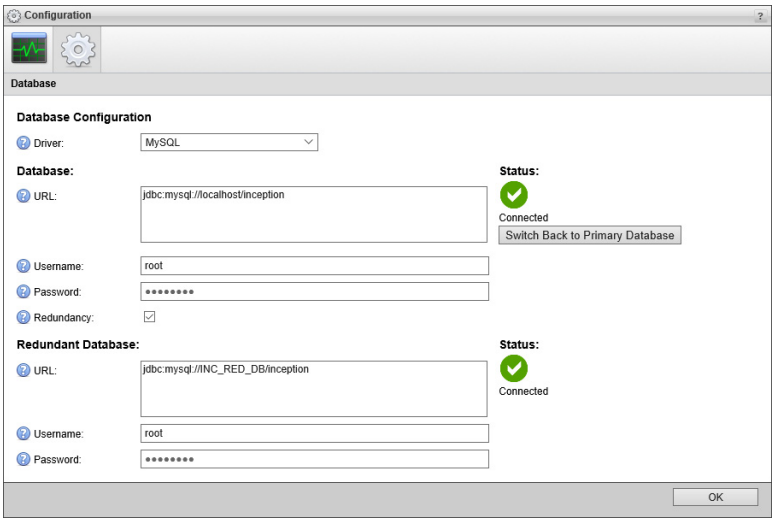
5. Log in to **Inception** as an **administrator**.

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

An **Alert** opens.

9. Click **OK**.

   The database connection switches and Inception on your **Inception Server 2** computer starts using the **Primary** database on the **Inception Server 1** computer.

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

    The **Configuration** window closes.

11. Log in to the **Inception Server 1** computer.

12. Start the **Ross Inception** service on the **Inception Server 1** computer. Refer to the procedure starting with step **a** on page 5-7 for the steps to start the **Ross Inception** service.

    Your Inception Redundant System is now restored with Inception running on both Inception Server computers connected to the Primary database.

Restore Replication on the Inception Server 2 Computer

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

To restart replication on the Inception Server 2 computer

1. Log in to the **Inception Server 2** computer.

2. Locate the `SetReplication` script file in the following folder:

   `C:\Program Files\Ross Video\Inception\utilities\database\MySQL\replication`

   To protect the `SetReplication` script file from being overwritten during Inception Server upgrades, copy the `SetReplication` script file to the desktop or another folder.

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

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

5. Start the **Ross Inception** service on the **Inception Server 2** computer.

   Refer to the procedure starting with step **a** on page 5-7 for the steps to start the **Ross Inception** service.

For More Information on...

- about viewing the replication status, refer to the procedure“**To view the replication status**” on page 3–16.

Load Balancer Configuration

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

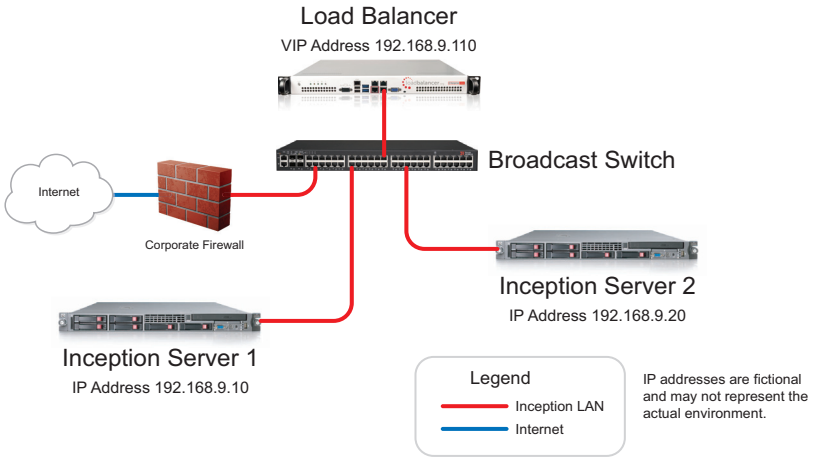


Figure 6.1 *Inception Redundant System*

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

Configuration Methods

Use one of the following methods to connect to and configure the load balancer in your Inception 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 6–2.
- **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 6–3.

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**.

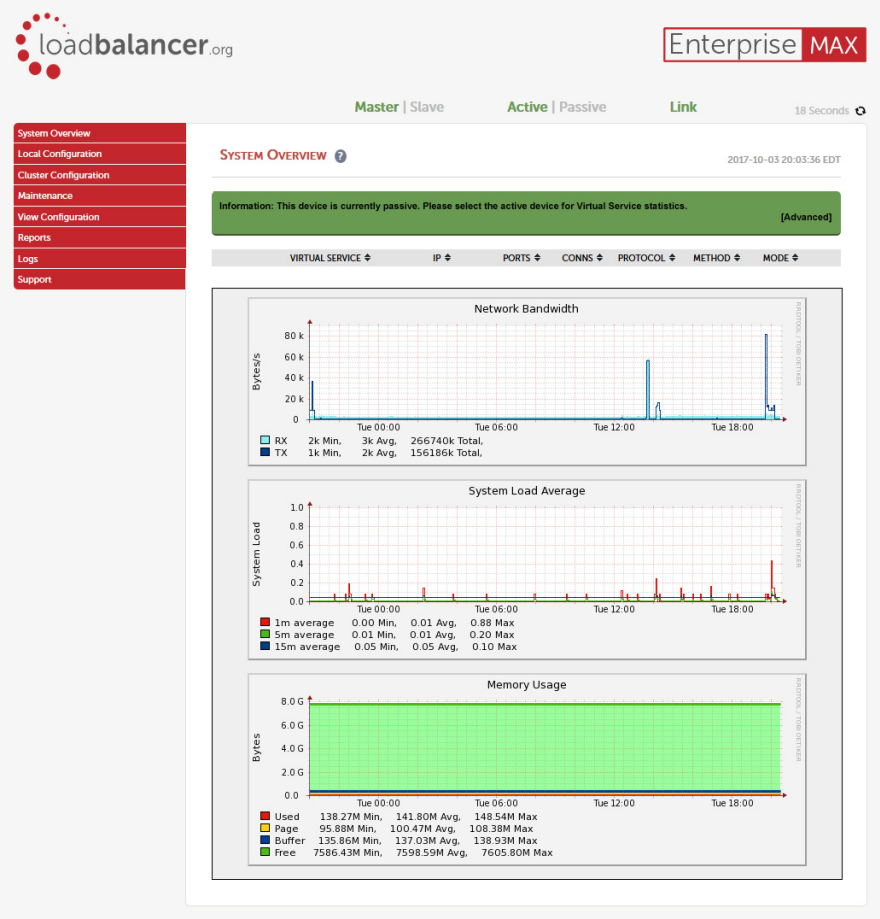
   The following is an example of a load balancer configuration"

```
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 6–5.

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

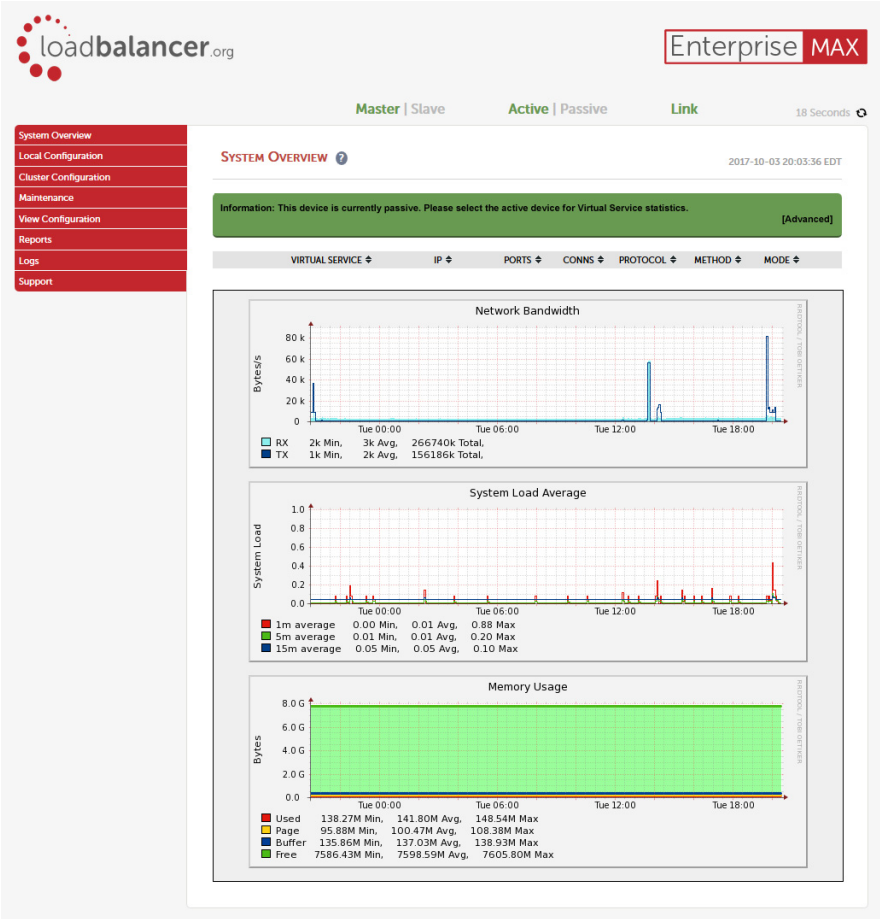
1. Configure the computer connected to the load balancer **eth0** port with an **IP** in the `192.168.2.1` range with a **netmask** of `255.255.255.0`.
2. Use a web browser to open the one of the following URLs:
   - `http://192.168.2.21:9080`
   - `https://192.168.2.21:9443`

   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.

   Inception users will use the set hostname to connect to an Inception 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.

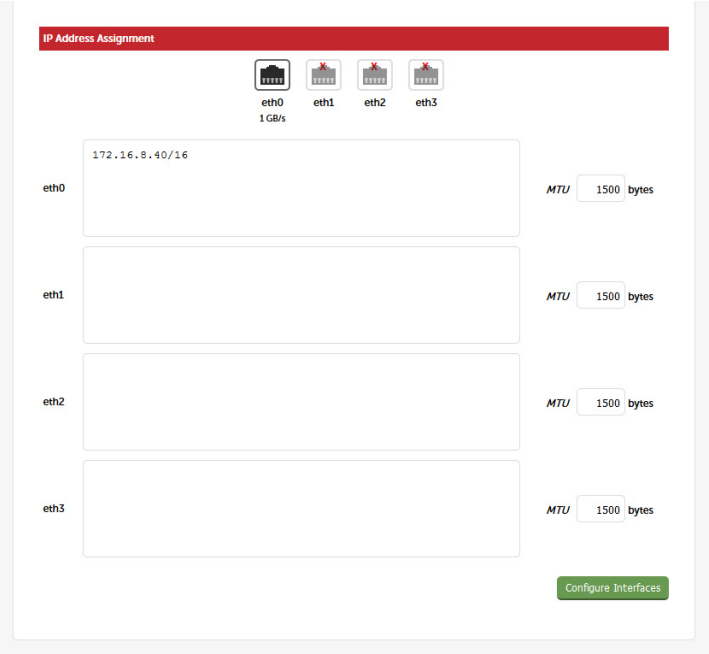
7. In the **Secondary** box, enter the IP address of your secondary Domain Name Server.

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 6–5.

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.

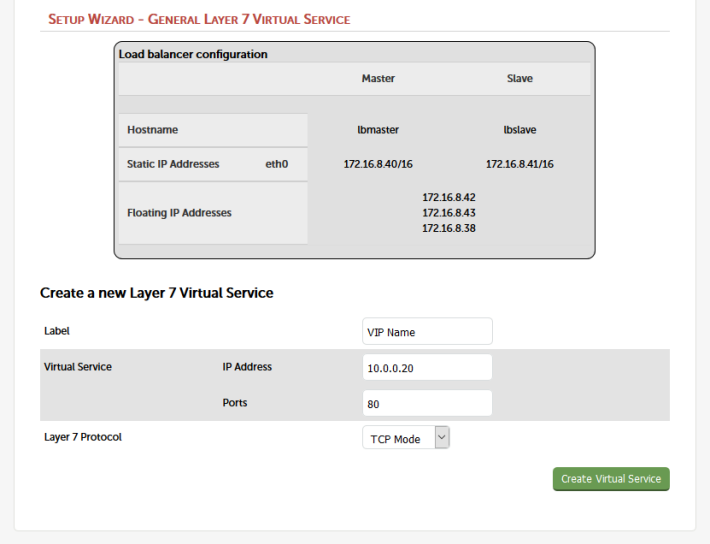
   If license key is not activated for your load balancer, use the **License Key** page to load a license key file.

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 INCEPTION is used for this label.

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

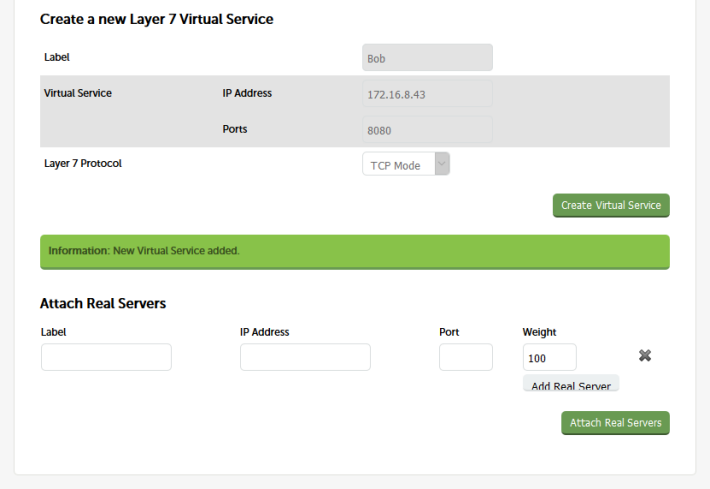
   This is the IP used by Inception users to connect to the Inception Redundant System.

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 **Inception Server 1** to the virtual service:

    - **Label**: `Inception Server 1`
    - **IP Address**: `<Inception 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 **Inception Server 2** to the virtual service:

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

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

14. Click **Add Real Servers** to add your newly created Inception 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 Inception Redundant System.

17. Continue with the section "**Configure Required Load Balancer Settings**" on page 6–7.

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 Inception 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 Inception Redundant System.

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

3. Click **Edit HTTP Headers**.

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

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

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

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

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

8. Click **Add**.

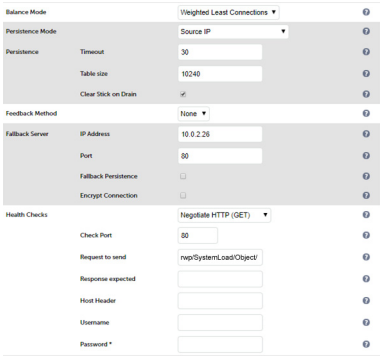
9. Click **Save**.

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

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

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

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



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

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

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

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

Optional SSL Offloading Setting Configuration

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

Add an SSL Certificate

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

To add an SSL certificate to the load balancer.

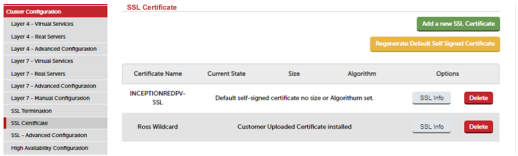
1. Use a web browser to open the one of the following URLs:
   - `http://192.168.2.21:9080`
   - `https://192.168.2.21:9443`

   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 6–9.
   - **New SSL Certificate** — to add a completely new certificate, complete the procedure "**To add an existing SSL certificate**" on page 6–9.

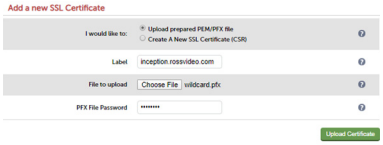
Existing SSL Certificate

When you already have an SSL certificate you can add it to the load balancer in your Inception 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**.

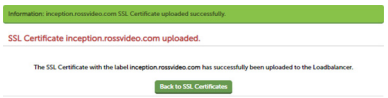
4. Use the file browser to navigate to and select and existing SSL certificate file.

   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 6–11.

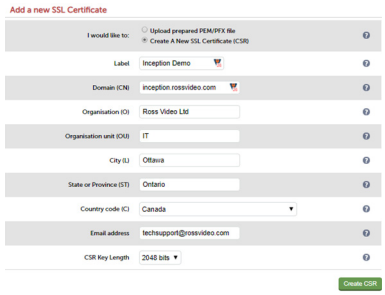
New SSL Certificate

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 Inception users use to access Inception Redundant System. For example: `inception.rossvideo.com`.

4. In the **Oranisation (O)** box, enter the name of the organization. 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**.

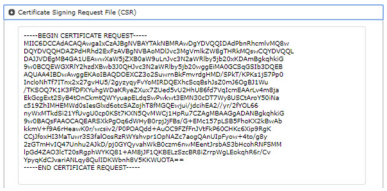
    The **Add a new SSL Certificate** section closes to return you to the **SSL Certificate** section.

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 6–11.

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.

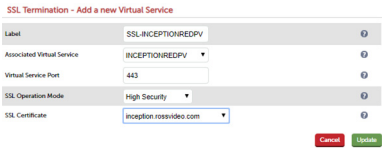
To configure SSL termination settings

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 6–9 or created in the section "**New SSL Certificate**" on page 6–10.
5. Click **Update**.

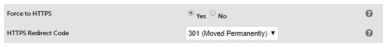
   The **Commit changes** alert opens.

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.

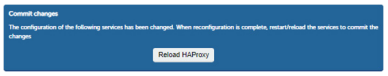
   This setting enables to X-Forwarded-Proto header needed for proper operation.
8. Verify that the **HTTPS Redirect Code** is set to **301 (Moved Permanently)**.

   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 Inception Servers, use a text editor to edit the following file:

```
C:\Program Files\Ross Video\Inception\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 Inception Server.
15. Repeat steps **11** to **14** on all remaining Inception Servers in your Inception Redundant System.
16. Configure all HTML5 based Inception plugins to use HTTPS.

    Inception users should to connect using HTTPS. All connections to HTTP should automatically redirect to HTTPS.

✶ You must configure HTML5 based Inception plugins to use HTTPS in order for them to work properly.

Redundant Load Balancer Setup

When an Inception 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.

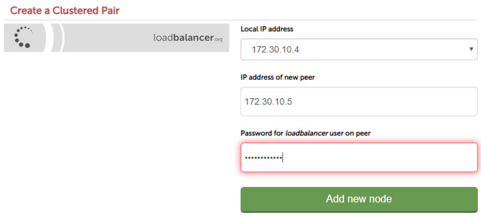
2. Use the following credentials to log in to the load balancer:

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

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

3. In the **Cluster Configuration** section, 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 6–2.

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.

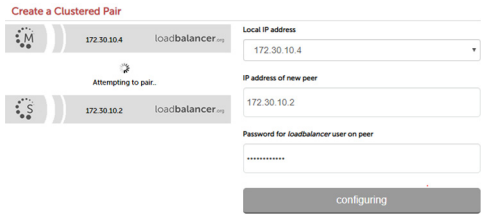
   The default password for the **loadbalancer** user is `loadbalancer`.

7. Click **Add new node**.

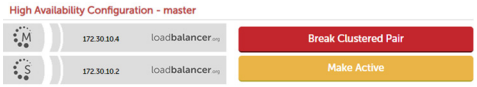
   An alert opens informing you that this process will overwrite the configuration of the selected peer.

8. Click **OK**.

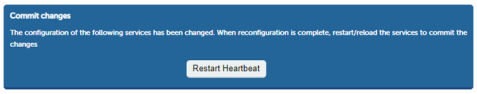
   A screen similar to the following displays while the two load balancers synchronize:



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.