Clearswift Information Governance Server
Installation & Getting Started Guide
Version 2.2.0

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1. About this guide

The Information Governance Server (IG Server) enables your organization to identify important information, and monitor and control the flow of this information within the organizational boundary and beyond.

The IG Server, along with other Clearswift products, provides the basis for the Clearswift Information Governance Platform (IGP). Collectively, the IGP allows you to register, control, and track content.

The IGP comprises the following:

- The Information Governance Server
- One or more Clearswift SECURE Gateways (Web, Email, Exchange, or ICAP)

This guide provides information on how to install your IG Server onto a virtual or physical machine using Red Hat Enterprise Linux 7.7.

This guide does not provide instructions on installing a Clearswift SECURE Gateway. You should consult documentation provided with your Gateway product for information on Gateway installation.

1.1 Who is this guide for?

This guide is provided for the administrator who is tasked with installing an IG Server. Some steps of this installation procedure are performed from a Linux command line, and it is assumed that the person who installs this software has the necessary experience of Linux administration.

We recommend that you read through this guide before installing your IG Server.

2. Before installing

This section includes considerations you need to make before installing your IG Server software.

> (i) Depending on your requirements, there might be multiple servers involved in the installation process.

2.1 Types of installation and hardware prerequisites

You can install your IG Server on:

- A dedicated physical server
- A VMware system, such as vSphere or ESXi

Minimum system requirements: 2 vCPU, 32 GB RAM, and appropriate storage. Large deployments require 8 vCPU, 64 GB RAM, and appopriate storage.

The table below provides guidance on some typical scenarios and the amount of disk space required.

Scenario	Approximate disk space consumed
Registration of 500,000 average-sized documents (10,000 words per document).	40 GB
Storage of 1 year's worth of tracking data from a Clearswift SECURE Email or Exchange Gateway for a company of 500 users	7.5 GB
Storage of 1 year's worth of tracking data from a Clearswift SECURE Email or Exchange Gateway for a company of 5000 users	68 GB
Storage of 1 year's worth of tracking data from a Clearswift SECURE Web or ICAP Gateway for a company of 500 users	76 GB
Storage of 1 year's worth of tracking data from a Clearswift SECURE Web or ICAP Gateway for a company of 5000 users	7.5 TB
Storage of 7 year's worth of tracking data from a Clearswift SECURE Web or ICAP Gateway for a company of 5000 users	52.5 TB

Depending on your organization's requirements these numbers might differ, and you should consider data retention periods and archiving processes when determining hardware resources.

2.1.1 Browser support

The following browsers and versions are supported by the IG Server:

- Internet Explorer IE11 (Windows 7, Windows 8)
- Mozilla Firefox - latest
- Google Chrome - latest
- Microsoft Edge (Windows 10)
- Apple Safari 12.0.3

The following browsers and versions are supported by Cockpit, the web-based interface used for managing Red Hat:

- Mozilla Firefox – 72.0.1
- Google Chrome – 79.0.x
- Microsoft Edge – 44.x

2.2 Installation process

To install the IG Server you need to do the following:

1. Install Red Hat Enterprise Linux 7.7.
2. Install Clearswift IG Server.
3. Install the IG Server database on a separate server, if required.

> ⓘ You need Internet access to install the IG Server online. To complete your IG Server installation, you need a valid Clearswift IG Server license key.
>
> You can also install IG Server in an offline environment, following the steps in the Offline Installation Guide.
>
> You do not need a license key to install Red Hat Enterprise Linux 7.7. However, the computer must be on a network with a DHCP server in order to download the `kickstart.cfg` file for installation.

We recommend that before you start the installation process, you fill in the form in Appendix C: Installation settings form. This will speed up your installation and ensure you have all the correct details to hand before you begin.

3. Install Red Hat Enterprise Linux 7.7 Server from the ISO image

The provided ISO installs Red Hat 7.7 with Clearswift-recommended parameters pre-configured, including partitioning and security settings. We recommend installation using this method.

> (i) DHCP access is also required to complete the installation process.

1. Insert the media containing the ISO image into the drive and power on the server.

   The **Red Hat Enterprise Linux 7.7** wizard enables you to configure various options.

2. Click **Language** to set the language displayed during the installation process. Select from the list and click **Continue**.

> (i) Some of the options in the **INSTALLATION SUMMARY** will be enabled automatically while the installation process continues.

3. Click **DATE & TIME** to select your locale by time zone or **Region** and **City**.
4. Click **KEYBOARD** to add your preferred keyboard layout.
5. Click **NETWORK & HOSTNAME** to add an IP address.

   Select **Ethernet (eth0)** and click **Configure**.

   Use **IPv4 Settings** to add your server **IP address**, **Subnet Mask**, and **Gateway** default route. Click **Save**.

6. When enabled, click **Begin Installation**. While the package is installing, Red Hat enables you to configure various **USER SETTINGS**:
   - Set a **ROOT** password. Confirm password entry.
   - Create an administrator in **USER CREATION**. Ensure you select the **Make this user administrator** check box and apply a password.

> (!) If there is only one configured system administrator and the unsuccessful login attempt limit is exceeded, the system administrator account will be locked.

> If this occurs, the only solution available is to force a reboot of the system, which will unlock the account.
>
> Clearswift recommends that you create a second system administrator account, which can be used to recover the locked account instead. See Appendix D: Managing administrator accounts for more information.

7. Click **Done**. The installer completes the process and prompts you to log in as **root**.

4. Install the Information Governance Server

You are now ready to install the IG Server software using the steps below.

1. Log in to the server using the administrative account you created.

2. Update the server:

```
sudo yum update
```

3. Install the IG Server software:

```
sudo yum install cs-igp
```

4. Reboot the system for the changes to take effect:

```
sudo reboot
```

5. Database options

There are a number of different ways to store and manage the data processed by IG Server:

- Local database - all the data is managed locally on the same server as your IG Server installation
- Remote database - a single additional server handles the data remotely
- High Availability (HA) cluster - multiple remote databases handle the data, providing redundancy and failover

> (i) Choose the solution that best fits your requirements and follow the steps below *before* launching the IG Server installation wizard.

5.1 Configuring a local database

Local hosting is the default for an IG Server installation. Configure your settings with the installation wizard and include **local host** in the **Database Server** section.

5.2 Configuring a remote database

If you require a single remote database component instead of hosting your data and IG Server together, you need to create an additional server, and install the database using the steps below.

1. Follow the steps in [Install Red Hat Enterprise Linux 7.7 Server from the ISO image](#) to install the additional server.
2. Log in to the new server, using the credentials you set.
3. Update the server:

   ```
   sudo yum update
   ```

4. Install the IG database component:

   ```
   sudo yum install cs-igp-database
   ```

5. Reboot the system for the changes to take effect:

   ```
   sudo reboot
   ```

6. Configure the IG Server installation wizard and select your server as the
    Database Server on the appropriate page.

> (!) You cannot move the database once the wizard has been run.

5.3 Configuring a High-Availability (HA) database cluster

> (i) The High-Availability provision in the Clearswift package uses the
> pg_auto_failover solution. However, you might want to use a
> different provision for your HA cluster. We recommend contacting
> Clearswift support for advice if this is required.

You can configure an HA database cluster, ensuring continuous service if one of
the components fails. Data is automatically replicated between databases and the
connectivity is monitored, enabling IG Server to switch between databases in the
event of a failure.

The following steps describe how to configure a cluster of two databases, a
primary and a secondary node:

1. On your IG Server installation, run the pre-installed monitor script to start the
    database monitor.

    ```
    sudo bash /opt/clearswift/igp/bin/igp-ha-start-monitor.sh
    ```

2. Run **ifconfig** and make a note of the monitor IP address. In this example
    <monitor ip address> = 10.100.158.122

    ```
    ens192: flags  4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
            inet 10.100.158.122  netmask 255.255.0.0  broadcast 10.100.255.255
            inet6 fe80::250::56:feb3:74fb  prefixlen 64  scopeid 0x20<link>
            ether 00:50:56:b3:74:fb  txqueuelen 1000  (Ethernet)
            RX packets 594  bytes 150909 (147.3 KiB)
            RX errors 0  dropped 0  overruns 0  frame 0
            TX packets 258  bytes 59522 (58.1 KiB)
            TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
    ```

3. Restart the IG Server.
4. Build a database server, and install the **cs-igp-ha-database** package. This will
    be the primary node of your cluster.

```
yum install cs-igp-ha-database
```

> See Install Red Hat Enterprise Linux 7.7 Server from the ISO image for information on how to build a new database server.

5. On the new server, run a script to register the primary database node with the monitor. You will need to use the monitor IP address.

```
sudo bash /opt/clearswift/igp/bin/igp-ha-register-node.sh -t primary -ma
<monitor ip address>
```

Check the status of the monitor service (on IG Server) to confirm that the node is registered.

```
sudo systemctl status rh-postgresql10-postgresql@cs-igp-ha-monitor.service
```

> The node is reported as **new state single**.

6. Build a second database server, and install the **cs-igp-ha-database** package. This will be the secondary node of your cluster.

```
yum install cs-igp-ha-database
```

7. Run the script to register the secondary node (use the same monitor IP address).

```
sudo bash /opt/clearswift/igp/bin/igp-ha-register-node.sh -t secondary -ma
<monitor ip address>
```

Check the status of the monitor service (on IG Server) to confirm the node is registered.

```
sudo systemctl status rh-postgresql10-postgresql@cs-igp-ha-monitor.service
```

> (i) The node is reported as **new state catchingup** while the monitor service replicates the data between the two nodes. When complete, the nodes display as **new state primary** and **new state secondary**.

8. Make a note of the IP addresses of each node so that you can configure IG Server to use the cluster later.

   To view the cluster status from any node, run the **show state** command:

   ```
   sudo su - postgres -c "/opt/rh/rh-postgresql10/root/usr/bin/pg_autoctl show
   state --pgdata /var/opt/clearswift/igp/database/data"
   ```

   The HA cluster is now ready to be configured in IG Server using the installation wizard.

6. Complete the IG Server installation process

To complete the installation, you need to provide a valid Clearswift IG Server license key and configure the IG Server settings from the IG Server installation wizard.

> (i) Before you start the installation wizard, you need to make sure that the following firewall ports are open to allow the IG Server to connect and make requests to the configured domain controller.
> - 3268
> - 3269 if using SSL

To start the installation wizard:

1. Open a web browser and go to the IP address as noted from **View System Status**:

    ```
    https://<ip address>
    ```

    The welcome page for the IG Server wizard is displayed.

2. Start the wizard. Provide your IG Server license key and apply configuration settings as appropriate for your installation. Settings can be changed after the installation process is complete from the IG Server Administrator user interface.

> (i) If you are installing a remote database or multiple remote databases in an HA cluster, please refer to Database options. You will need to provide the hostname/IP address of each remote server on the **Database Server** page.

> (i) If you are installing behind a proxy, please refer to Appendix B: Using a proxy.

> (i) As part of your IG Server configuration, you have to supply

> (i) directory server account credentials. It is possible to lock all users out of the IG Server Administrator user interface if the account expires or there is a password change.
>
> **What can I do?**
>
> You should create a service account for this purpose and set password expiry to **disabled**.

3. Click **Finish** to complete the installation wizard.

6.1 After IG Server installation

> (i) If you have installed IG Server with a remote database or multiple remote databases, you must reboot the system at this point for the changes to take effect.
>
> Log in to the server on which you installed your IG Server software using the administrator credentials.
>
> ```
> sudo reboot
> ```
>
> Log in to IG Server and navigate to **System** > **Network** > **Database Server**. Click **Test** to validate your connection to the database servers.

Log in to the IG Server Administrator user interface and click **Help** on the toolbar. We recommend that you read:

- First Steps in the Get started section.
- Known issues

Appendix A: Install RHEL 7.7 from the Clearswift RPM server

The following steps guide you through the process of installing a Red Hat Server from the Clearswift RPM, that will host either your IG Server software or a separate IG database. Where possible, Clearswift recommends installation from the ISO provided, as described in [Install Red Hat Enterprise Linux 7.7 Server from the ISO image](#).

1. Download the latest Red Hat Enterprise Linux 7.7 Server ISO from the Red Hat web site: https://access.redhat.com/downloads.
2. Boot your server from the ISO to display the main installation menu.
3. Select **Test this media & install Red Hat Enterprise Linux 7.7**.
4. Press **TAB** and add the following path to the kickstart file boot options:

   ```
   inst.ks=http://repo.clearswift.net/rhel7/igp/kickstart.cfg
   ```

5. Press **ENTER** to continue with the installation wizard.
6. At the Red Hat splash screen, enter the language you want to use for the installation wizard.
7. From the Installation Summary screen, configure the following:
   - Date and Time
   - Keyboard
   - System Language
   - Network & Host Name
8. Click **Begin Installation**.
9. While the server is installing, click **User Creation** to create a new user account with administrator privileges.

> ⚠ Ensure that you create the administrator account at this time, as you won't have the opportunity to do it at a later stage. If you don't create an administrator account at this point, you will need to start the process again in order to do so.

10. Allow the installation to continue until it has completed.

If there is only one configured system administrator and the unsuccessful login attempt limit is exceeded, the system administrator account will be locked.

If this occurs, the only solution available is to force a reboot of the system, which will unlock the account.

Clearswift recommends that you create a second system administrator account, which can be used to recover the locked account instead. See Appendix D: Managing administrator accounts for more information.

Appendix B: Using a proxy

Configuring a proxy post-installation

The following steps describe how you can configure your IG Server to work behind a proxy.

1. Install Red Hat Enterprise Linux 7.7 by following the steps described in this guide.

2. When Red Hat Enterprise Linux 7.7 has been installed, log on to the terminal using the administrator account you created, and run the following command:

   ```
   sudo vi /etc/environment
   ```

3. Add or edit the following four lines:

   ```
   http_proxy=http://<proxy server address>:<proxy server port>/
   https_proxy=https://<proxy server address>:<proxy server port>/
   HTTP_PROXY=http://<proxy server address>:<proxy server port>/
   HTTPS_PROXY=https://<proxy server address>:<proxy server port>/
   ```

   > (i) If you are working through an authenticating proxy, you must provide the local proxy in the following format:
   >
   > ```
   > http://<username>:<password>@<proxy server address>:<proxy server port>/
   > ```

4. Restart network services by running the following command:

   ```
   sudo systemctl restart network
   ```

5. Install the IG Server by following the steps in Install the Information Governance Server.

Appendix C: Installation settings form

Before you start the installation process, it is recommended that you complete the following form.

Items required for initial installation of the Red Hat operating system

IG Server Network details:

	Value
Server hostname and/or IPv4 address	
Network mask	
Gateway IPv4 address	
DNS Server hostname and/or IPv4 address	

Remote IG Database Network details

	Value
Server hostname and/or IPv4 address	
Firewall port	10110
Network mask	
Gateway IPv4 address	
DNS Server hostname and/or IPv4 address	

System administrator details:

	Value
System administrator name	
System administrator password	
Recovery system administrator name	
Recovery system administrator password	

Items required in the browser wizard

IG Server license details:

	Value
Company Name	
License key	
Serial number	

Directory Server details:

	Value
Directory Server hostname and/or IPv4 address	
Fully Qualified Domain Name (FQDN)	
NetBIOS domain name	
Directory Server communications service account name	
Directory Server communications service account password	

Mail Server:

	Value
The name or address of the corporate mail server that the IG Server uses to send emails	
The email address the IG Server uses as the 'sent from' address when sending emails	

Administration:

	Value
The domain user who will be the system administrator	
The password for the domain user who will be the system administrator	

Appendix D: Managing administrator accounts

The Linux Pluggable Authentication Modules (PAM) rules, which are applied by the security profile during installation, lock a user account after making several incorrect password entry attempts.

> ⚠ If there is only one configured system administrator and the unsuccessful login attempt limit is exceeded, the system administrator account will be locked.
>
> If this occurs, the only solution available is to force a reboot of the system, which will unlock the account.
>
> Clearswift recommends that you create a second system administrator account, which can be used to recover the locked account instead.

You can create accounts either by using the Cockpit interface or by SSH Console.

Create an account using Cockpit

1. Log in to Cockpit as a user with administrator permissions.

   Ensure the **Reuse my password for privileged tasks** option is selected.

User name	administrator
Password	••••••••
	☑ Reuse my password for privileged tasks
	Log In

   > ⓘ Use the administrator account you created when you installed Cockpit.

2. Click **Create New Account**.
3. Create the new account and set a password.

Create New Account

Full Name	cs-admin
User Name	cs-admin
Password	••••••••••••••••••••••••••••••••••••••
Confirm	••••••••••••••••••••••••••••••••••••••

Excellent password

Access ☐ Lock Account

Cancel   **Create**

4. Open and edit the new account.

5. Select the **Server Administrator** check box. This adds the user to the Unix administrators group.

cs-admin

Full Name	cs-admin
User Name	cs-admin
Roles	☑ Server Administrator ◀ Unix group: wheel

ⓘ The user must log out and log back in to fully change roles.

Last Login	Never
Access	☐ Lock Account Never lock account

ⓘ You can lock or unlock accounts in Cockpit. However, you cannot use Cockpit to unlock an account that was locked by password retry failure.

Create an account using SSH console

1. Log in as a user with administrator permissions:

```
sudo su
```

2. Create the new user and add it to a group of users with administrator privileges:

```
useradd --groups wheel <username>
```

3. Set the password for the new user:

```
passwd <username>
```

Unlock a user account

If an account requires unlocking, it is possible to log in with an administrator account and use the *faillock* utility to recover the locked account.

If you want to check the authentication failure records use the following command:

```
sudo faillock --user <username>
```

If you want to reset the authentication failure records use the following command:

```
sudo faillock --user <username> --reset
```

Appendix E: Troubleshooting

The installation hangs before the Red Hat splash screen is displayed

This error occurs if the Red Hat Enterprise Linux 7.7 installer cannot download the `kickstart.cfg` file from `http://repo.clearswift.net/rhel7/igp/`. First check that the server is on the same network as a DHCP server, and can access the internet. If it is and the installation still hangs, we recommend that you download the `kickstart.cfg` file to a web server on your local network that your Red Hat Enterprise Linux 7.7 installer can access.

Please ensure that you maintain the Linux line ending format for the installer to process the file. Clearswift recommends you follow the steps:

1. Open a browser with access to the Internet and navigate to `http://repo.clearswift.net/rhel7/igp/`.

2. Right click on the `kickstart.cfg` link and select Save link/target as....

3. Save the file as `kickstart.cfg` and then copy it to a web server on your local network.

4. Check that you can access the file in a browser. Example: `http://mylocal.server/path/to/kickstart.cfg`

5. Restart the installation process using the steps in Appendix A: Install RHEL 7.7 from the Clearswift RPM server. Enter the new location of the `kickstart.cfg` file when you edit the file parameter.

Error setting up base repository

On some systems, particularly when using VMware, the installation wizard reports "Error setting up base repository".

This is a known Red Hat issue (https://access.redhat.com/solutions/976603). Click the warning triangle, then click Done on the installation media selection page.

Failed to validate license

This error can occur when you are running the IG Server installation wizard.

If no previous errors have occurred until now, this error might be the result of a missing HTTPS proxy or firewall configuration. We recommend you carefully perform the steps listed in Appendix B: Using a proxy.