How Genero Licensing Works

Contents

How Genero Licensing Works

This guide is intended as a general overview and introduction to licensing Genero products. It presents the options for Genero licensing, and enables you to decide on the best licensing solution for your requirements.

This guide does not include step-by-step instructions for installing and managing product licenses. For these instructions, see *Installing and Licensing your Genero Products*.

License basics

Here you can find answers to some common questions you may have about how to manage licenses and keep your products up to date.

Note: For specific license details, see your license agreement, or contact your nearest Four Js sales office.

Recognizing a license key by product, what to look for

Four Js provides a license number and license key with the product package, as well as a maintenance key with your maintenance contract.

Before you begin Genero product licensing, locate your email message that contains the following:

- product license key
- product license number
- product maintenance key
- your customer code

If you do not have this email, contact your local Four Js sales office.

Genero Business Development Language (BDL) license numbers may start with the letter T. For example:

- License number: TAB#X35006TG
- License key: RFAL8FS73XDT
- Maintenance key: M9A3R5UCLMGH

Genero Mobile license numbers may start with the letter M. For example:

- License number : MAC#AAP00014
- License key : QYBW9RXAQ0DF
- Maintenance key: WAGQRSYFL8S7

Genero Report Writer license numbers may start with the letter R. For example:

- License number: R4Z#X34006TG
- License number key: GFAS9FD78XDT
- Maintenance key: M0ST5VXLMFH

How to install licenses

You can install your license as a local license using a graphical user interface application (see What is Genero Licenser? on page 7) or a command line tool known as the license controller (see What is the License Controller? on page 6). These tools are included with your Genero product.

You can also use the Four Js License Manager (FLM) (See What is the Four Js License Manager (FLM)? on page 9) to install licenses for multiple Genero products installed on machines across your network.

Maintenance key

An active maintenance contract is required to license a product. A maintenance key (also known as a subscription key depending on your contract) is provided with your maintenance contract. The maintenance key determines which version of the Genero product you are authorized to use with your license, and the date that the maintenance contract expires. When you are licensing a product, you will be prompted for the maintenance key during the licensing process.

What happens when my license expires?

Licenses apply to the version or build of the product you have installed. If, for example, you have an evaluation license, it is **date-limited**. The date when the license expires is shown when you run the license controller command, `fglWrt -a info license`.

```
C:\Program Files\FourJs\Genero_Studio_3_00_22\fgl\bin>fglWrt.exe -a info
  license
License      : THM#XXXXXXXX
License key  : KKKKKKKKKKKK
Product      : Four Js Universal Compiler
Type         : Development version
Users        : 5
Extension(s) :
        - Open Database Interface
        - Enhanced license key format
This license is date limited and expires the 2016/03/31 (Year/Month/Day).
Warning! This is a temporary license, installation number is 'NNNNNNNNNNNNN'.
This temporary installation will expire in 28 day(s).
WARNING! Your maintenance key has expired. Please contact your vendor.
End of maintenance date: 2016/03/03 (Year/Month/Day).
```

What happens when my maintenance contract expires?

If you see the following message in the DVM output, then your maintenance key has expired.

```
WARNING! Your maintenance key has expired. Please contact your vendor.
```

You can continue to use your Genero product after the expiration of the maintenance contract but this will have an impact on how you can use your Genero product.

Contact your local sales office to purchase a new maintenance contract. With a valid maintenance contract, you have full use of the product and can continue to install any new product update or patch that is provided by Four Js.

My maintenance contract has expired, can I still use the installed versions of Genero?

You can continue to use your Genero product after the expiration of the maintenance contract but you can **not** install any new update or patch where the Genero product build date is later than the expiration date of the maintenance key, without installing a new maintenance key. If you try to run a product version built after the expiration of your maintenance contract, for example:

```
C:\fjs\fgl\2.20-9999\demo>fglrun demo.42r
```

You will get an error message like the following when you run applications:

```
Program stopped at 'demo.4gl', line number 20.
FORMS statement error number -6144.
The DVM build date is greater than the maintenance key expiration date.
Contact your nearest FourJ's sales representative to update the maintenance
 key.
```

Genero BDL

For Genero Business Development Language (BDL) product licensing, you are allowed continued use of the product as follows:

- You can continue to run the product version built prior to the expiration date of the maintenance key.
- You can continue to run applications that you have already packaged and deployed before the maintenance contract expired, these will remain valid and will continue to work.
- You can continue to run your applications with all the versions of the Genero product that were built before the end of maintenance date.

Genero Report Engine (GRE) under DVM Maintenance

For Genero Report Engine licensing under DVM maintenance with your Genero BDL installation, applications will continue to work for a grace period of **two months** after the end of the maintenance contract.

At the beginning of the third month the following notice will be printed on the first page of each report the GRE generates.

```
ERROR(-33015) : Please contact your
 sales office regarding licensing.
```

The GRE stops functioning at the end of the third month and you will need to purchase a maintenance contract.

Note: If you have a Genero Report Writer installed, the GRE will not be limited under the DVM maintenance but instead will function under the Genero Report Writer installation maintenance.

Genero Report Writer

For Genero Report Writer product licensing, your are allowed continued use of the product as follows:

- You can continue to run the product version built prior to the expiration date of the maintenance key.
- You can continue to run applications that you have already packaged and deployed before the maintenance contract expired, these will remain valid and will continue to work.
- You can continue to run your applications with all the versions of the Genero product that were built before the end of maintenance date.

My maintenance contract has expired, can I still add users to installed versions of Genero?

Even if your license is not under maintenance, you can still add users up to the number of users allowed by the original version of the license.

My maintenance contract has expired, can I reinstall my Genero product?

After the expiration of the maintenance contract, you can only reinstall your Genero product on the same hardware and operating system as originally installed. Exceptions to this may be allowed. For more information, please see the Order Processing Procedures document on the *About Licensing* page of http://www.4js.com/.

What hardware or software changes affect licensing?

Some hardware changes affect licensing. If, for example, a network card is used for license locking to a server and you have to change your network card on the machine where the license was installed, you have to reapply your Four Js product license. Network cards are used if found because they allow a license to be restored to the same location and on the same hardware when you need to do a restore from backup.

On devices or systems that have no network card, license locking may rely on inodes in Linux®/UNIX™, device-id (MAC address), or file indexes used in Windows® NTFS file system. If, for example, a directory change is required, such as an inode structure change, this may impact the license.

The path where the license has been installed should not change, even though latest versions of the licensing software take symbolic links into account, but older versions may not. If, for example, you have to move your Genero runtime FGL directory, it requires you to reapply the license. To reapply the license:

1. Delete the existing license: run the license controller command, for example `fglWrt -d`, to uninstall the existing license.
2. Apply the license: run the command, `fglWrt -l` to install the license.

Note: If you are unsure of what impact a server hardware or software change may have on licensing, please contact your local Four Js support center.

Related concepts

License types on page 12
Different types of license are needed for executing Genero applications (runtime license) and compiling source files (development license).

Multi-user Licensing on page 13
A license is needed for every server where a Genero product is installed and for every user that can access it to run your applications.

License installation example on page 17
Genero product licensing involves a standard license installation process; requiring you to install the license number, license key, maintenance key, and installation key for the product.

What is the License Controller?

The license controller allows you to perform the installation, updating, and management of licenses locally and also view license information and various types of license-related statistics.

The license controller (for example `fglWrt`) is a command line program only.

Tip: The Genero Licenser tool provides an interface to the license controller via your Web browser, which you can use instead to manage licensing. See What is Genero Licenser? on page 7.

License controller programs

The license controller appropriate for your product is provided in the product package.

Table 1: Genero Products and License Controllers

Genero product	License controller
Genero Enterprise	`fglWrt`
Genero Mobile	`fglWrt`
Genero Report Writer for Java, C#, PHP, and Swift	`grxWrt`
Genero Report Engine	`greWrt`

Locating the License Controller

- The `fglWrt` program is located in `$FGLDIR/bin`.
- The `grxWrt` and `greWrt` programs are located in `$GREDIR/bin`.

What is Genero Licenser?

You can license your Genero product using the Genero licensing user interface. You can use it to perform the installation, updating, and management of your Four Js product license on your machine.

This image shows a sample licensing page which opens in your Web browser when you launch the Genero Licenser tool.

Figure 1: Genero BDL Licenser

Genero Licenser programs

Different Genero Licenser user interfaces are used by Genero products. They have a different look-and-feel to distinguish the products but they essentially perform the same function:

- **Genero BDL Licenser** (for Genero Enterprise or Genero Mobile products)
- **Genero Report Engine for Java Licenser** (for Genero Report Writer products)
- **Genero Report Engine Licenser** (for Genero Report Engine (GRE))

The Genero Licenser tool appropriate for your product is provided in the product package. You can access it either from within the product interface **Tools** menu, or from the desktop by selecting the Genero Licenser tool from your Four Js program list.

Related concepts

What is the License Controller? on page 6

The license controller allows you to perform the installation, updating, and management of licenses locally and also view license information and various types of license-related statistics.

What is the Four Js License Manager (FLM)?

With the license manager you can manage Four Js products installed on the same machine or the same network as the License Manager.

License Manager Overview

One license manager can manage various types and versions of Four Js products. Once installed you access it via its command line program, `flmprg`, to install and manage licenses. You configure each Genero product for the license manager by updating its profile file (for example, FGLPROFILE file) with the following details:

1. The products license number and license key.
2. Details of the license manager it uses to validate the license.

The license manager has the advantage of allowing you to share licenses for different versions of a Genero product, or different Genero products of the same type with the same license extensions (this means for specific conditions of the license, but not including temporary licenses), as long as your maintenance contract is up to date.

When FLM is required

In the following situations, a license manager is required:

- Management of licensing for Genero products on a Remote File Systems (such as NFS or Samba) requires use of an FLM. A local license configuration is not supported.
- The management of licensing for Genero products in a Docker container requires the use of an FLM configuration outside the container. The FLM server can not run inside a docker instance. This is effective since version 5.19.00.

When FLM is not required

Important: Licensing for Genero Report Writer for Java, C#, PHP, and Swift must be managed locally as it can not be managed by the License Manager.

Considerations for FLM use

Use of FLM is recommended in development environments as it allows you to share your licenses amongst multiple Genero product versions. For example, your 2.50, 3.00, and 3.20 product versions can all share the same license. Otherwise you need a separate license for each version.

In a runtime environment it is suggested to only use FLM where there is a technical requirement to do so; this typically means when two or more Genero installations, or two or more servers share a single Genero license. If you have one Genero installation on one server, FLM is not required.

Four Js License Manager usage scenarios

Use the scenarios described here to understand some ways you can implement an FLM in your network.

FLM can prove to be very useful in both development and user environments as it allows for easier management of licensing for different machines, platforms, Genero products, and product versions connected across a network.

Scenario 1: Development and/or runtime License Sharing

In this scenario you have two or more development and/or runtime licenses for the same Genero product used by different teams. In a local licensing scenario you have, for example:

- Five users on one license
- Ten users on a second license

Often the demand for licenses can change from one team to the other.

Using FLM, you can combine the licenses. Instead of having five users on one license and ten users on the other, you now have fifteen users using the two licenses as demand permits.

The image illustrates the scenario where two development teams are connecting to the Four Js License Manager and sharing the developer licenses. This scenario can equally be applied for runtime purposes.
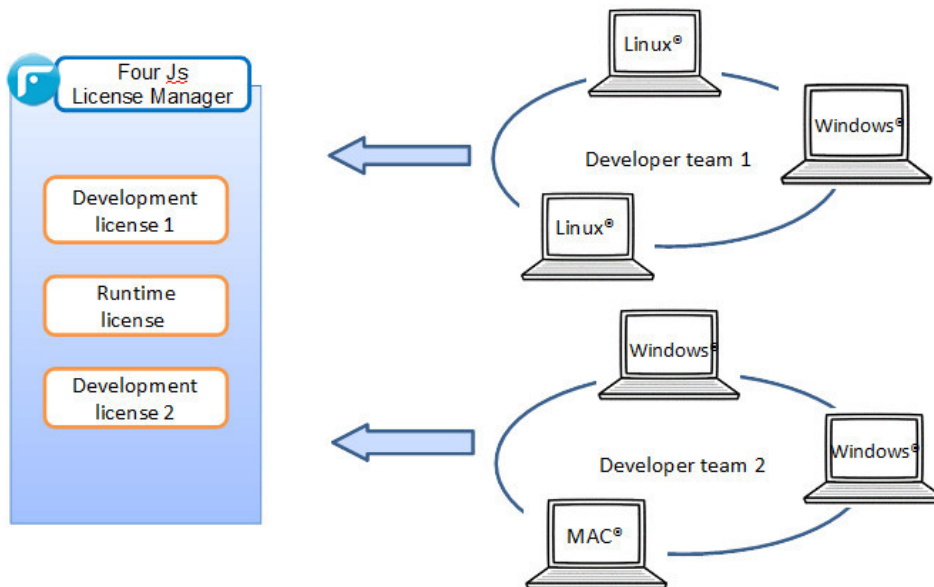

Figure 2: Four Js License Manager Scenario

Implementation

On the network:

- Install the Four Js License Manager (FLM) on a server.
- In the FLM configuration file, `$FLMDIR/etc/lmprofile`:
    - Set the resource `flm.server` to the name of the machine that hosts FLM.
    - Set the `flm.service` to the port number for the communication between the license controller and FLM.
    - Set the resource `flm.license.shared=1` (1 is the default setting).
- Start the FLM service. Run `flmprg -r` on UNIX®/Linux® and `flmprg --service-start` on Windows®.

On the user server:

- Update the Genero product FGLPROFILE file:
    - Set the `flm.server` and `flm.service` with details of the FLM
    - Add details of the license in the `flm.license.number` and `flm.license.key` configuration. Only one license needs to be specified in the FGLPROFILE file.

Note: This license sharing solution applies only to licenses for the same product, type (runtime or developer), and extension (specific conditions of the license). The total user count can not exceed the number of users allowed for by the combined licenses.

Scenario 2: Different versions of Genero products

In this scenario you have a five-user developer license. You have five developers whose workload on any given day could be divided between the following:

- Working on the next release of your products
- Supporting the current release of your product
- Supporting one or more older releases of your product

For example, two users may be using Genero product version 3.00 and three users may be using version 3.10. With FLM this scenario is supported.

Implementation

On the network:

- Install the Four Js License Manager (FLM) on a server.
- In the FLM configuration file, $FLMDIR/etc/lmprofile:

  - Set the resource `flm.server` to the name of the machine that hosts FLM.
  - Set the `flm.service` to the port number for the communication between the license controller and FLM.

- Start the FLM service. Run `flmprg -r` on UNIX® /Linux® and `flmprg --service-start` on Windows®.

On the user server:

- Update the Genero product FGLPROFILE file:

  - Set the `flm.server` and `flm.service` with details of the FLM
  - Add details of the license in the `flm.license.number` and `flm.license.key` configuration.

    Tip: When you install a new product version, just add details of the license in the Genero product FGLPROFILE file. With FLM there is no need to register the license (get the installation key).

Scenario 3: Sharing licenses on different servers for QA and Development

In this scenario you have more than one server in your development environment. There are three servers dedicated to QA; a Windows®, a Linux®, and a Mac® server. You have five QA team members and on any given day they could be testing on Windows, Linux, or Mac® versions of your product. You also have ten-users on a developer server.

In a local license scenario all four servers need separate Genero licenses:

- A ten-user license for your development server
- A two-user license for your Linux® QA server
- A two-user license for your Windows® QA Server
- A two-user license for your Mac® QA Server

Using FLM you only need one license that all these different servers share. You might, for example, decide to have a fourteen-user license that is shared by all users as demand permits.

Implementation

On the network:

- Install the Four Js License Manager (FLM) on a server on the network.
- In the FLM configuration file, $FLMDIR/etc/lmprofile:

  - Set the resource `flm.server` to the name of the machine that hosts FLM.
  - Set the `flm.service` to the port number for the communication between the license controller and FLM.

- Start the FLM service. Run `flmprg -r` on UNIX® /Linux® and `flmprg --service-start` on Windows®.

On the QA and developer servers:

- Update the Genero product FGLPROFILE file:

  - Set the `flm.server` and `flm.service` with details of the FLM
  - Add details of the license in the `flm.license.number` and `flm.license.key` configuration.

Note: The license server included in Windows® DVM distributions version 2.60 and earlier is not compatible with Four Js License Manager. This earlier license server module (which only existed on Windows® operating systems) can be replaced by Four Js License Manager.

Related concepts

What is the Four Js License Manager (FLM)? on page 9

With the license manager you can manage Four Js products installed on the same machine or the same network as the License Manager.

License types

Different types of license are needed for executing Genero applications (runtime license) and compiling source files (development license).

You need a *development license* in a development environment to compile your source files. The development license also allows developers to run applications. For production environments, you need *runtime licenses* for users accessing applications you deploy on production sites.

Note: Depending on your requirements, you may also need runtime licenses for QA testers, document writers, and other internal staff that need to run applications.

License types by product

Genero BDL (desktop or web) has two types of license:

- You need a *development license* in a development environment. A development license is needed to compile your Genero Business Development Language (BDL) source (4gl) files.
- You need *runtime licenses* on production sites.

Genero Mobile has two types of license:

- You need a *development license* in a development environment.

  Note: You do not need a separate Genero Mobile development license if you have a Genero BDL development license under maintenance. Otherwise, a license is required.

  The development license is free for personal use and suitable for applications whose p-code is under 64 KB. You can monitor the size of your apps using the --program-size and --module-size options of the fglrun command. For more information see *Find your mobile app p-code size* in the *Install and License your Genero Products* guide.

  For applications whose p-code exceeds 64 KB and/ or to receive different levels of support, developer subscription plans are offered. See the Genero Mobile web site for details on the different plans.

  Important:

  When licensing Genero Mobile, your Genero Business Development Language (BDL) license must be for a Genero Mobile installation. If you receive an error message:

  ```
  ERROR(-6024) : Modules compiled
   with Genero Mobile require a
   Genero Mobile license at runtime.
  ```

This means that the Genero BDL license you have is not valid for Genero Mobile. Please contact your local sales office for further information.

- You need a *runtime license* for each app deployed to a mobile device. Please contact your local sales office for details.

Genero Report Writer has two types of license:

- You need a *development license* in a development environment. A development license is needed to compile your source files.
- You need *runtime licenses* on production sites.

Note: For Genero Report Engine licensing: if your Genero BDL installation has a valid maintenance key, you do not need to install a license for the Genero Report Engine. Otherwise, a license is required.

Evaluation licenses

Evaluation licenses are issued to users trialing the software, for example, as part of the Genero Evaluation Program (GEP). These are fully-functional licenses allowing use of the Genero family of products (compiler, database, Studio, and runtime environments) to a specified number of users. The license are time limited for a period (typically 90 days) and can only be activated (registered) once.

Backup licenses

A backup license is a duplicate license installed on a "mirror" machine for secure installations requiring fault-tolerant or fail-over configurations. The backup license is a mirror of the active server license and must have an equal number of users and be of the same version.

Related concepts

A license is needed for every server where a Genero product is installed and for every user that can access it to run your applications.

Genero product licensing involves a standard license installation process; requiring you to install the license number, license key, maintenance key, and installation key for the product.

Multi-user Licensing

A license is needed for every server where a Genero product is installed and for every user that can access it to run your applications.

For example, when an application is requested from a user agent (for example, desktop or Web browser), the dispatcher starts a Dynamic Virtual Machine (DVM) to handle the connection. It is the DVM that consumes the license.

When the application is closed and the DVM is stopped, the license is freed. This license is then available for another user. In this way the license controller maintains a pool of licenses and only active users consume licenses.

This section describes the options you have for purchasing volume licenses to ensure that you have a sufficient pool of licenses available when users connect to a server to run your applications.

User Licenses

The User license option ensures that a sufficient pool of licenses is available where a specified number of users may connect to a server to run applications.

The size of this User License pool is defined by the number of licenses purchased, which is encrypted in the license key and verified by the license controller.

Typically, the number of users equals the number of connections, but it is recommended to anticipate a greater number because multiple connections may be needed by applications which open more than one active window or browser tab.

To determine the number of licenses used, run the license controller command, for example, `fglWrt -u` followed by `fglWrt -a info users` on the application server where the Genero runtime is installed. If you are using the Four Js License Manager, run the license manager command `flmprg -u`.

When the pool of connections is exhausted, the Dynamic Virtual Machine (DVM) will output a message blocking access to new users.

```
-6017 User limit exceeded. Cannot run this program.
```

If this occurs frequently, it is recommended to purchase more users and add them to the license. However, a better option may be to consider using CPU licenses instead. See CPU Licenses on page 14.

Related concepts

Estimating how many licenses you need on page 15
Information about how runtime licenses are consumed may help you use licenses as efficiently as possible.

CPU Licenses

The CPU license option ensures that a sufficient pool of licenses is available for an unspecified number of users connecting to a server to run your applications.

This licensing option provides for an **infinite** pool of available connections. The CPU license is so called because the number of physical or virtual CPUs (cores/threads) in the server where the product is installed must match the number encrypted in the license when verified by the license controller.

Degraded Mode

CPU licenses operate in degraded mode if the physical CPUs on the server do not match the CPUs purchased on the license. The license controller will limit the size of the license pool to the number of CPUs purchased multiplied by 25. So, for example, if a server has 32 CPUs and the license is only for 16, then the available pool will be 400 connections. If you see the following message, it means that your CPU license is operating in degraded mode. To resolve this, you will need to contact your local Four Js sales office.

```
-6180 CPU limit exceeded. The users control is reactivated.
```

Important: Before ordering CPU licenses, you need to run the license controller command, for example, `fglWrt -a cpu` on the application server where the Genero runtime is installed, to determine the exact number of CPUs (cores/threads) for licensing.

CPU licensing is recommended for the following:

Large sites	Large sites may potentially have many active users. CPU licenses are better suited than User licenses because they provide for an infinite pool of connections.

Genero Browser Client (GBC) applications

For GBC applications, detecting when the user has left the application or simply closed the browser (as opposed to stopping the application by explicitly exiting it taking the appropriate action) has implications for licensing. If the user closes the browser without exiting the application, the DVM stays running and continues to consume a license. While the DVM will eventually timeout, timeout configuration is not as critical to license management when CPU licenses are used.

Tip: We recommend that you read the examples given in the *Licensing examples* section of the *Genero Application Server User Guide* that show you how you can take advantage of ways of running applications and implementing GAS configurations so as to help you use licenses as efficiently as possible.

Web services applications

A Web Service consumes a license in the same way that a user does, with one notable difference. On reaching the available limit in the connections pool, Web services are **queued** rather than **blocked** as with users. However, the greater the number of connections you can allocate for the Web service pool, the greater the Web service throughput. This is why it is generally recommended to opt for CPU licenses for Web services.

Logical Partition (LPAR) and Virtualization

Where Genero is installed on LPAR or Workload Partitions (WPARs) using virtualization technology, such as that used on IBM® Advanced Interactive eXecutive (AIX®) systems, CPU licenses are recommended. In this case, you will need to provide the number of virtual CPUs allocated, not the number of physical CPUs in the server, to determine the exact number of CPUs for licensing.

Related concepts

Estimating how many licenses you need on page 15
Information about how runtime licenses are consumed may help you use licenses as efficiently as possible.

Estimating how many licenses you need

Information about how runtime licenses are consumed may help you use licenses as efficiently as possible.

A Genero license is not consumed at the MAIN statement of the application, but as soon as there is a user interface instruction in the code. This can be an instruction to open a window or form, to set an OPTIONS attribute, to display a menu, and so on.

If there is no UI instruction in the application, no license is consumed, even if it connects to a client. For example, no license is consumed if the application simply runs reports, accesses databases, completes file transfers, or makes front-end function calls.

TUI applications (applications run in text mode using a text-based user interface) and GUI applications (applications that use the Genero front-ends) have the same requirements for licenses.

There are licensing considerations specific to Web services and to the front-ends. These considerations are detailed in the following sections.

GDC applications

For Genero Desktop Client (GDC) applications, one license is consumed per GDC process. If you have multiple GDC clients started on one machine, and each GDC client runs one or more applications, one license will be used per GDC.

For example, if you run one or more GBC applications on a GDC server, there is one license used. But if, however, you start another GDC server to run applications, a new license is used for this process.

To summarize: For each GDC that is running applications, one license is consumed, no matter how many applications that GDC is running.

Web applications

For Genero Browser Client (GBC) applications, one license is consumed per browser. For example, if you have multiple applications started on browser tabs, one license will be used.

No additional licenses are consumed when an application is started by a RUN or a RUN WITHOUT WAITING request.

For example, if you run GBC applications on tabs of a Firefox® browser, there is one license used. If you start another browser, such as Chrome, or Microsoft® Edge, and so on, to run additional applications, a new license is used for each of these new browsers.

The license controller also views an application open in a browser's private or incognito tab as a distinct browser and a new license is used for that application.

In the event that the user refreshes a browser page running a GBC application (regardless of whether it is the first application started or one started by RUN), a new application is started but the same license is used, not a new one.

A browser refresh does not properly close the DVM that was running before the refresh. But as the GBC is no longer active, it is only a matter of time before the DVM times out on the server (set by the USER_AGENT timeout) and the DVM shuts down. See the section *Freeing up licenses* on this page.

DVM license use with RUN

When a user requests an application, the dispatcher starts a DVM to handle the request. It is the DVM that consumes a license. If a RUN or a RUN WITHOUT WAITING is executed within this application, the same license is used.

Web services

For Web service applications, one license is consumed per service started. If your Web service applications are secured by the Genero Identity Provider, additional licenses may be used. As GIP is based on micro services, each of its services your application calls consumes a license.

Genero Web service DVMs are managed in a pool by the GAS. Unlike application DVMs, the license is bound to the Web service process id. If a new child process is started, an additional license is consumed.

You can control the maximum number of licenses consumed by a Web service by configuring its MAX_AVAILABLE pool element. If the number of user requests exceeds what is available in the pool at any one time, the request will be queued (rather than blocked) until a DVM becomes available.

A Web service client does not consume a license. Users can make a request to a Web service server without needing a license.

Freeing up licenses

When a license is freed depends on how the application is exited. A license is freed when the applications closes, or to be more exact, when the DVM is shut down. If the user exits the application by clicking on the cancel or exit button, the DVM is shut down and the license is immediately freed.

If the user does not exit the application, but instead closes the user agent (browser), the DVM continues to run until the application times out (the number of seconds is set for the USER_AGENT timeout). After the timeout period passes, the proxy closes the connection to the DVM, the DVM shuts down, and the license is freed.

Checking licenses in use

To determine the number of licenses used, run the license controller command on the application server where the Genero runtime is installed. For example run:

```
fglWrt -u
```

Followed by:

```
fglWrt -a info users
```

Recommendations

It is recommended to size your runtime license number to the number of users anticipated to run your applications. Another option is to use CPU Licenses on page 14.

License installation example

Genero product licensing involves a standard license installation process; requiring you to install the license number, license key, maintenance key, and installation key for the product.

Licensing steps

Note:

- The example given here is valid for a local license only. For examples of licensing using the Four Js License Manager, see the Four Js License Manager usage scenarios on page 9 topic.
- For more detailed information on installing and managing licenses see the *Install and License your Genero Products* manual.

This example describes the licensing process of a BDL product using the command line tool. The same procedure can be applied to the licensing of all Genero products.

Tip: Another option is to use the Genero Licenser Application tool (see What is Genero Licenser? on page 7) to complete license installation.

The license controller appropriate for your product is provided in the product package.
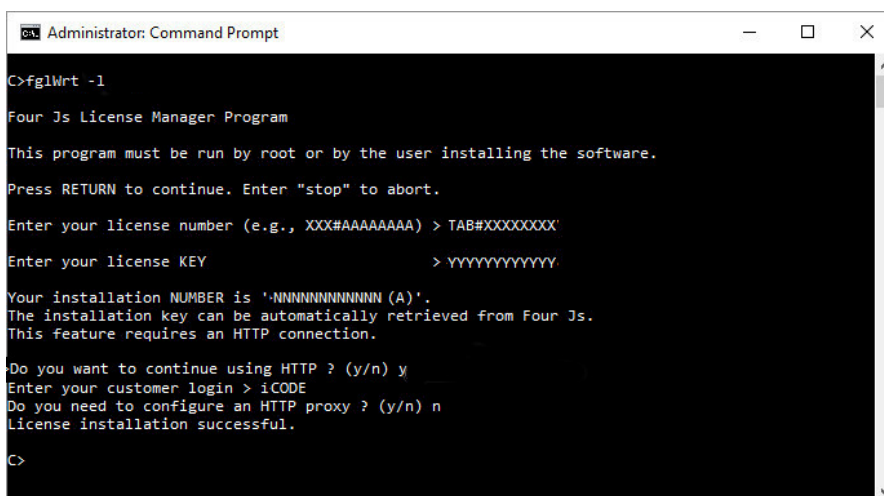
Table 2: Genero Products and License Controllers

Genero product	License controller
Genero Enterprise	`fglWrt`
Genero Mobile	`fglWrt`
Genero Report Writer for Java, C#, PHP, and Swift	`grxWrt`
Genero Report Engine	`greWrt`

With Internet Access

With internet access, you can complete the installation of your license and maintenance key via HTTP as shown.

1. At the prompts enter the license key and license number.

Figure 3: Installing and registering a license via HTTP with fglWrt

2. At the prompt:

```
Do you want to continue using HTTP ? (y/n)
```

Enter: y .

3. At the prompt:

```
Enter your customer code >
```

Enter: customer_code .

4. If your access to the internet is through a proxy, you must take that option and provide the required information (server name/IP address and port) when prompted.

License installation is now completed.

Without Internet Access

If you do not have internet access from the machine you are installing the license, you can complete licensing manually as described in the following steps:

1. Install the license key and license number locally on your machine; (an **installation number** is generated and displayed in the output).

Figure 4: Installing license with fglWrt without internet access

2. At the prompt:

```
Do you want to continue using HTTP ? (y/n)
```

Enter: n .

3. At the prompt:

```
Enter your maintenance KEY (Empty to continue)
```

Enter the maintenance key.

Your Genero product has now a temporary license as shown when you run the following command:

```
fglwrt -a info license
```


Figure 5: License information

Under a temporary license you have full access to all the product's features for a limited period of 30 days.

Important: You also have 30 days to register the **installation number** and obtain an **installation key**.

4. Register your license by providing the installation number to the vendor over the phone or by registering on the Four Js website. You are given an installation key.

5. At the command line enter the command to install the installation key:

```
fglWrt -k <installation-key>
```

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