

HAL_SERVERS

The HAL_SERVERS (redundant servers) directive enables high availability licensing (HAL). HAL lets end users specify backup (redundant) license servers that will continue to enable license hosting in the event that the primary license server goes down.

When HAL is enabled, the end user must have a set of three license servers. Whenever two of the servers (majority rule) are up, the servers will issue licenses.

This directive can be used only with network licenses; accordingly, the [COUNT](#) directive *must* be set if HAL is set.

Usage and recommendations

High availability licensing (HAL) is an important feature for applications that require high availability. Activating HAL introduces fault tolerance, because the applications no longer depend on a single point of failure.

Each of the three HAL license servers has a fixed role, which is specified in the LM-X security configuration file. Assigning fixed roles to HAL license servers simplifies maintenance as well as helping to protect against intentional or unintentional license overuse.

The roles are:

HAL License Server Number	Role
1	This HAL license server can allow clients to both checkout and borrow licenses, exactly like a normal license server.
2	In the event that HAL license server #1 is down, this server can allow clients to checkout licenses, but will deny borrow requests.
3	This HAL license server will deny any requests, but is required as a part of the configuration to ensure high availability.

If you want to lock the license to the license server HostID, you *must* provide values for all three license servers to ensure proper functionality. This means that you should issue end users a single license that works on all three machines. However, locking the license to a HostID is optional and you may choose not to lock the license to any HostID, as described in [Specifying HostIDs to lock the license to](#).

HAL requires a stable network connection to prevent hiccups in traffic between the servers, which can potentially cause license checkout problems. Too many network problems will make the system unstable and people will not get reliable access to the software. For this reason, enabling HAL over WAN is recommended only if the connection is fast and stable.

Note that a license server can serve either HAL-enabled licenses or normal network licenses. To enable HAL, you must specify the HAL server information as described in [FEATURE settings](#).

We recommend that end users specify all three servers in their license path when using this feature if automatic server discovery is not used. Doing so will let the license client choose the appropriate secondary license server in the event that the primary license server goes down.