



Setting up Rational Tokens

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Setting up Rational Tokens

Rational® Token licensing is an entitlement that you can purchase and use to run z Systems™ Development and Test Environment. With Rational Tokens, z Systems Development and Test Environment maintains a connection to a Rational License Key Server and starts and continues to run only when sufficient Rational Tokens are available.

Use of Rational Tokens does not replace the requirement for a license key for z Systems Development and Test Environment. Either a software-based license key file or a USB hardware device with a valid update file is still required. In either case, the license key file indicates that Rational Tokens are required.

After you purchase entitlement to Rational Token licensing, do these steps to use Rational Token licensing to run z Systems Development and Test Environment. These steps assume that you already have a USB hardware device.

Installing, configuring, and administering a Rational License Key Server

Setting up the Rational License Key Server is beyond the scope of this document, but additional information can be found in the Rational License Key Server documentation that is provided in the Rational License Key Server media.

If you need to use configuration files to specify extra Rational licensing configurations, you must specify the variable `RDTCNF` to point to a directory that contains the Rational configuration files. For example:

```
export RDTCNF=/etc/yourconf/files/
```

Returning any existing license key for the USB hardware device or license manager

If you want to allow Rational Token licensing for a USB hardware device or license manager you are already using, you must first return the license key that was previously created for that device. The Rational License Key Center does not generate new license keys unless any previously created license keys for that device are returned.

To return an existing license key for a license manager, see [Returning a software-based license key less than 31 days before expiration](#).

To return the existing update file for a USB hardware device, log in to the Rational License Key Center, select your account and use the **Return Keys** link to return the old update file. For instructions for returning your existing update file, see [Getting the replacement file](#).

Obtaining and activating a new license key for Rational Token licensing

Links to information about how to obtain and install a new license key for Rational Token licensing for license managers and for USB hardware devices.

To obtain and install a license key file for a license manager, see [Activating a license manager](#).

To obtain a license key file for a USB hardware device, use the same procedures that are documented in [Obtaining update files for Rational Tokens](#) to obtain an update file for Rational Token Licensing. To activate the update file, use the steps that are described in [Activating the USB hardware device](#).

Important: In a product license server configuration, do not mix USB hardware devices that require Rational Tokens with USB hardware devices that do not require Rational Tokens. This approach is not supported and can result in unpredictable behavior. For more information about Rational Tokens and activating the USB hardware device, see [Product enablement checklist](#).

Activating the USB hardware device

Applying the update file that you obtained from the Rational License Key Center to your USB hardware device activates the device. Each time that you apply an update file, it overwrites the previous activation on the USB hardware device. To properly activate, the update file must be generated with the same serial number as the USB hardware device that it applies to. To change the activation of a USB hardware device, you must obtain and apply a new update file that activates the total number of license entitlements you intend to use on that device. Changing the activation of a USB hardware device involves returning and regenerating licenses in the Rational License Key Center.

The process for applying update files to USB hardware devices recently changed. For instructions on applying update files to USB hardware devices for z Systems Development and Test Environment version 9.1 or later, see [Activating a USB hardware device](#)

For instructions on applying update files to USB hardware devices for Rational Development and Test Environment for z Systems version 9.0 or earlier, see [Activating a USB hardware device for version 9.0 or earlier](#)

Important: In a product license server configuration, do not mix USB hardware devices that require Rational Tokens with USB hardware devices that do not require Rational Tokens. This approach is not supported and can result in unpredictable behavior.

Updating the device map to point to a Rational License Key Server

The Rational License Key Server that is used to distribute Rational Tokens must be available through TCP/IP. It is likely that your installation already has such a server configured. Installation materials and documentation for the server are available on separate e-images that are included with the z Systems Development and Test Environment offering.

When you are using Rational Tokens, an instance of z Systems Development and Test Environment must be able to locate the specific Rational License Key Server you intend to use with that instance. The port and location of the server is specified either in the Linux environment variable that is named `RDTSERVER` or in the device map. If both are specified, the device map setting is used. To enable Rational Tokens in the device map, add the `rdtserver` statement to the `[system]` stanza. For example, to have z Systems Development and Test Environment

retrieve Rational Tokens from port 27000 on a server at address `sampsrvr.yournetwork.com`, add the following line to your `[system]` stanza in the device map:

```
rdtserver 27000@sampsrvr.yournetwork.com
```

To have z Systems Development and Test Environment retrieve Rational Tokens from port 27000 on a server at address `sampsrvr.yournetwork.com`, you can export the `RDTSERVER` environment variable in your `.bashrc` script. For example, if you run z Systems Development and Test Environment with ID `ibmsys1`, you would edit `/home/ibmsys1/.bashrc`, and add the line:

```
export RDTSERVER=27000@sampsrvr.yournetwork.com
```

Troubleshooting connections with Rational License Key Servers

Activity that is associated with the use of Rational Tokens is logged for diagnostic purposes in the log directory `$HOME/z1090/logs` in files that start with the name **feutlicm**. Messages from a Rational License Key Server and diagnostic information can be found in these logs. These logs are intended for use by IBM® service but might provide useful information for quick diagnosis of problems when Rational Tokens cannot be obtained. In some cases when Rational Tokens cannot be obtained, the messages that are issued by the Rational License Key Server are also written to the Linux console on which the **awsstart** command was entered. The **feutlicm** log can be viewed with the **less** command while z Systems Development and Test Environment is running.

Two environment variables can be used to help in troubleshooting connections to Rational License Key Servers and problems that occur when you are obtaining Rational Tokens.

Variable `RDATALOG=TTY`, if set before you start z Systems Development and Test Environment, routes all Rational Token-related logging to the Linux console in addition to the log.

Variable `RDDEBUG=DEBUG`, if set before you start z Systems Development and Test Environment, adds more information to the logs. If `RDATALOG=TTY` is also set, these additional messages are also written to the Linux console.

Do not set `RDATALOG=TTY` in everyday use because it sends frequent unsolicited messages to your Linux console. Setting `RDDEBUG=DEBUG` in regular use has no negative side effects, other than slightly larger logs.

Rational Tokens are checked out and checked back in so that they will become available automatically after 30 minutes unless z Systems Development and Test Environment renews them before that time. z Systems Development and Test Environment renews tokens approximately every half hour.

When z Systems Development and Test Environment ends, tokens are returned immediately. However, it can take up to 2 minutes for those tokens to become available for use again. If network connectivity is lost to the Rational License Key Server, or if anything prevents a normal return, the Rational Tokens become available within 30 minutes.

To limit unnecessary log file growth, logging of successful interactions with the Rational License Key Server is suspended after about 30 successful token renewal cycles. Logging resumes if any errors are encountered.

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