

*Token licensing in IBM Maximo Asset
Management*



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Overview

Token licensing is a fixed-term license control method for new customers of IBM® Maximo® Asset Management version 7.6.1 IFIX007 or later. Whether you purchase Maximo Asset Management or Maximo industry solutions with or without Maximo add-ons, you can purchase token licenses, which are also known as tokens. You purchase the total number of tokens that are needed based on your predicted usage of the tokens. You use IBM Rational® License Key Server to store and manage the license keys for your tokens. Tokens have a 1-1 relationship to the license keys that are in Rational License Key Server.

You enable token licensing after you set up your Maximo system. To enable token licensing, you install and configure Rational License Key Server, configure the client file, configure the Token Licensing Setup application, and then activate the UserAnalyzer cron task. If you are using Maximo Asset Management version 7.6.1, you also must update the presentation.xml file for the Token Licensing Setup application.

If you used token licensing for Maximo Asset Management version 7.6.1 and then you upgraded to Maximo Asset Management version 7.6.1.1, you must refresh the license keys for your system after you upgrade. For more information, review the "Refreshing the token license keys" section of this article.

Before you enable token licensing, consider the following information:

- Perpetual or non-token licenses and tokens cannot be mixed on the same server.
- The License Usage Monitor application does not report on token licenses and cannot be used with token licensing.

Token consumption

How many and when tokens are consumed and released varies according to the installed version of Maximo Asset Management and whether you have multiple Maximo environments. A request is sent from the Maximo server to Rational License Key Server whenever a token is consumed or released. The User Analyzer cron task tracks and updates token usage data.

Note: Closing the browser does not release the tokens. If a user does not release the tokens by exiting the application or logging out of the Maximo system before the browser or browser tab is closed, tokens are not released until the timeout value, which is specified in the web.xml file and is 30 minutes by default. If the timeout is longer than 30 minutes, the number of tokens that are in use might be higher than expected. The mxe.tokenlic.cleanupinterval property is used to locate sessions that are inactive after the timeout value. By default, every 5 minutes, the Maximo system is scanned for these sessions. If a session is located, it is automatically ended and the tokens are released. You can edit this frequency.

If your Maximo system includes IBM Maximo Enterprise Adapter, tokens for Maximo Enterprise Adapter are consumed when the Maximo server starts in addition to the tokens that are consumed for users when the users log in.

The tokens that are consumed at login are allocated by username and product combination. If a single username is logged in to several Maximo sessions simultaneously, and each session involves identical Maximo products, tokens are consumed for only one session. If the sessions do not involve identical Maximo products, tokens are consumed for each session.

Token consumption for Maximo Asset Management version 7.6.1.1

If you use token licensing with Maximo Asset Management version 7.6.1.1, access types are automatically assigned to your users and determine how many tokens are consumed. Access types are assigned to users when the UserAnalyzer cron task runs. The user's security profile determines which access type is assigned.

The UserAnalyzer cron task runs daily. In the Token Licensing Setup application, you can edit the schedule for the cron task in by selecting **More Actions > Data Collection Settings**.

All access types include token-free access to the Maximo self-service applications, such as the Self-Service Requestor and the Desktop Requisitions applications.

The following access types are available. Each access type inherits the qualities of the lower access types. For example, express access types are assigned to users who qualify for an express access type and for a self-service access type. Limited access types are assigned to users who qualify for limited, express, and self-service access types.

- Self-service

This access type is assigned to users who can access only the self-service applications.

- Express

This access type is assigned to users who have read-only access to one or more Maximo applications, can change the status of records, and can update work orders that are assigned to them. Users who are assigned the express access type consume fewer tokens than any other type of user except for users who are assigned the self-service access type.

- Limited

This access type is assigned to users who can update data in three or fewer Maximo modules but who also have read-only access to one or more Maximo applications. For a user to be assigned the limited access type, they must not be able to access to the Administration module. Users can update work orders that are assigned to them, and the Work Orders module is not included in the three-module limit. Users who are assigned the limited access type consume more tokens than users who are assignment the express access type but fewer tokens than users who are assigned the full access type.

- Full

This access type is assigned to users who have read-only and update access to four or more Maximo modules. Users who are assigned the full access type consume the most tokens.

The following table describes when tokens are consumed and released for a single user session in a single Maximo environment. The table does not describe the number of tokens that are consumed, which depends on the user's access type.

<i>Table 1. Token consumption for Maximo Asset Management version 7.6.1.1 products for a single user session</i>		
Scenario	Tokens consumed	Tokens released
User logs in to Maximo Asset Management.	The predefined number of tokens for the license that is associated with the user's access type. If an access type is not assigned to the user or Maximo Asset Management is not specified as a product in the Token Licensing Setup application, the predefined number of tokens for Maximo Asset Management are consumed.	When the user logs out of the Maximo system, the tokens are released.

Table 1. Token consumption for Maximo Asset Management version 7.6.1.1 products for a single user session (continued)

Scenario	Tokens consumed	Tokens released
<p>User logs in to an instance of Maximo Asset Management that includes one or more industry solutions.</p>	<p>The predefined number of tokens for the license that is associated with the user's access type.</p> <p>If a single industry solution is installed and if an access type is not assigned to the user or the industry solution is not specified in the Token Licensing Setup application, only the predefined number of tokens that are required for that industry solution are consumed.</p> <p>If multiple industry solutions are installed and an access type is not assigned to the user or the industry solutions are not specified in the Token Licensing Setup application, the highest predefined number of tokens for one of the industry solutions is consumed, and the predefined number of tokens for an add-on are also consumed for each of the other industry solutions.</p> <p>For example, IBM Maximo for Oil and Gas, which requires Y tokens, and IBM Maximo for Aviation, which requires Z tokens, are both installed on the same system. Y is a higher number than Z. When a user logs in, Y tokens are consumed.</p>	<p>When the user logs out of the Maximo system, the tokens are released.</p>

Table 1. Token consumption for Maximo Asset Management version 7.6.1.1 products for a single user session (continued)

Scenario	Tokens consumed	Tokens released
<p>After a user logs in to Maximo Asset Management, the user accesses an application that is part of an add-on.</p>	<p>The predefined number of tokens for the license that is associated with the user's access type.</p> <p>If an access type is not assigned to the user or the products are not specified in the Token Licensing Setup application, the predefined number of tokens for the add-on are consumed. For example, if Y is the predefined number of tokens for Maximo Asset Management, and X is the predefined number of tokens for the add-on, Y tokens are consumed when the user logs in to the Maximo system and X tokens are consumed when the user accesses an application that is part of an add-on.</p> <p>However, if the associated add-on is part of an industry solution, more tokens are not consumed for accessing that application. These rules do not apply to IBM Maximo Calibration or to IBM Maximo Linear Asset Manager. Review the following row in this table for more information.</p>	<p>When the user exits the application, X tokens are released.</p>

Table 1. Token consumption for Maximo Asset Management version 7.6.1.1 products for a single user session (continued)

Scenario	Tokens consumed	Tokens released
<p>After a user logs in to Maximo Asset Management, the user accesses an application that is part of IBM Maximo Calibration, IBM Maximo Linear Asset Manager, or both add-ons.</p>	<p>The predefined number of tokens for the license that is associated with the user's access type.</p> <p>If an access type is not assigned to the user or the products are not specified in the Token Licensing Setup application, the predefined number of tokens for the add-on or, if an application is affected by both add-ons, the combined predefined number of tokens for both add-ons is consumed.</p> <p>For example, Maximo Calibration and Maximo Linear Asset Manager both affect the Work Order Tracking application. If both products are installed on the same system and if Maximo Calibration requires Y tokens and Maximo Linear Asset Manager requires Z tokens, Y plus Z tokens are consumed when the user accesses the Work Order Tracking application. Maximo Linear Asset Manager and Maximo Calibration both affect the following applications:</p> <ul style="list-style-type: none"> • The Work Order Tracking application • The Assets application • The Preventive Maintenance application 	<p>When the user exits the application, Y plus Z are released.</p>
<p>User accesses a IBM Maximo Anywhere application.</p>	<p>The predefined number of tokens for the license that is associated with the user's access type.</p> <p>If an access type is not assigned to the user or Maximo Anywhere is not specified in the Token Licensing Setup application, the predefined number of tokens that are required for Maximo Anywhere are consumed.</p>	<p>When the user exits the application, the tokens are released.</p>

Table 1. Token consumption for Maximo Asset Management version 7.6.1.1 products for a single user session (continued)

Scenario	Tokens consumed	Tokens released
User accesses IBM Maximo APM - Asset Health Insights On-Premises.	The number of tokens as determined by the resource value units (RVU). Tokens are consumed when the Maximo server is running.	When the Maximo server is no longer running, the tokens are released.
User accesses IBM Maximo Enterprise Adapter for Oracle Applications or IBM Maximo Enterprise Adapter for SAP Applications.	The predefined number of tokens for that product. Tokens are consumed when the Maximo server is running.	When the Maximo server is no longer running, the tokens are released.
User is a Maximo Integration Framework (MIF) user.	No tokens are consumed.	Not applicable.

Token consumption for Maximo Asset Management version 7.6.1

If you are using token licensing with Maximo Asset Management version 7.6.1, the number of tokens that are used during a single user session in a single Maximo environment depends on which Maximo products are installed and which Maximo products are accessed during the session.

Note: If the March 2019 update is installed for Maximo Asset Management version 7.6.1 and you have only Maximo Asset Management or Maximo Asset Management and at least one industry solution installed, the number of tokens that are consumed for a single user session in a single Maximo environment also depends on the assigned access type for the user.

The access type determines how many tokens are consumed when a user logs in to the Maximo system. The user's security profile determines which access type is assigned. The UserAnalyzer cron task runs daily in the Maximo system and automatically assigns access types to users. The user's security profile determines which access type is assigned. In the Token Licensing Setup application, you can edit the schedule for the cron task in by selecting **More Actions > Data Collection Settings**.

All access types include token-free access to the self-service applications, such as the Self-Service Requestor and the Desktop Requisitions applications.

If a user has update access to an industry solution, the user is automatically assigned a full access type.

- Self-service

This access type is assigned to users who can access only the self-service applications.

- Express

This access type is assigned to users who have read-only access to one or more Maximo applications, can change the status of records, and can update work orders that are assigned to them. Users who are assigned an express access type consume fewer tokens than any other type of user except for users who are assigned a self-service access type.

- Limited

This access type is assigned to users who can update data in three or fewer Maximo modules, but who also have read-only access to one or more Maximo applications. Users can update work orders that are assigned to them, and the Work Order module does not count toward the three-module limit. Users who are assigned a limited access type consume more tokens than users who are assigned an express access type. For a user to be assigned a limited access type, the user must not be able to access to the Administration, Integration, Security, and System Configuration modules.

- Full

This access type is assigned to users who do not qualify for any other access type. Users who are assigned a full access type consume the most tokens.

The following table shows the token consumption for a single user session in a single Maximo environment, if the March 2019 update is not installed. If the March 2019 update is installed and the other conditions are met, the predefined number of tokens that are consumed when the user logs in is the number of tokens required for the user's assigned access type.

<i>Table 2. Token consumption for Maximo Asset Management version 7.6.1 products for a single user session</i>		
Scenario	Tokens consumed	Tokens released
User logs in to Maximo Asset Management.	The predefined number of tokens that are required for Maximo Asset Management.	When the user logs out of the Maximo system, the tokens are released.
User logs in to an instance of Maximo Asset Management that includes one or more industry solutions.	<p>If a single industry solution is installed, only the predefined number of tokens that are required for that industry solution are consumed.</p> <p>If multiple industry solutions are installed, the highest predefined number of tokens for one of the industry solutions is consumed.</p> <p>For example, IBM Maximo for Oil and Gas, which requires Y tokens, and IBM Maximo for Aviation, which requires Z tokens, are both installed on the same system. Y is a higher number than Z. When a user logs in, Y tokens are consumed.</p>	When the user logs out of the Maximo system, the tokens are released.

Table 2. Token consumption for Maximo Asset Management version 7.6.1 products for a single user session (continued)

Scenario	Tokens consumed	Tokens released
<p>After a user logs in to Maximo Asset Management, the user accesses an application that is part of an add-on.</p>	<p>The predefined number of tokens for the add-on.</p> <p>For example, if Y is the predefined number of tokens for Maximo Asset Management, and X is the predefined number of tokens for the add-on, Y tokens are consumed when the user logs in to the Maximo system and X tokens are consumed when the user accesses an application that is part of an add-on.</p> <p>However, if the associated add-on is part of an industry solution, more tokens are not consumed for accessing that application. These rules do not apply to IBM Maximo Calibration or to IBM Maximo Linear Asset Manager. Review the following row in this table for more information.</p>	<p>When the user exits the application, X tokens are released.</p>
<p>After a user logs in to Maximo Asset Management, the user accesses an application that is part of IBM Maximo Calibration, IBM Maximo Linear Asset Manager, or both add-ons.</p>	<p>The predefined number of tokens for the add-on or, if an application is affected by both add-ons, the combined predefined number of tokens for both add-ons.</p> <p>For example, Maximo Calibration and Maximo Linear Asset Manager both affect the Work Order Tracking application. If both products are installed on the same system and if Maximo Calibration requires Y tokens and Maximo Linear Asset Manager requires Z tokens, Y plus Z tokens are consumed when the user accesses the Work Order Tracking application. Maximo Linear Asset Manager and Maximo Calibration both affect the following applications:</p> <ul style="list-style-type: none"> • The Work Order Tracking application • The Assets application • The Preventive Maintenance application 	<p>When the user exits the application, Y plus Z are released.</p>

Table 2. Token consumption for Maximo Asset Management version 7.6.1 products for a single user session (continued)

Scenario	Tokens consumed	Tokens released
User accesses a IBM Maximo Anywhere application.	The predefined number of tokens that are required for Maximo Anywhere.	When the user exits the application, the tokens are released.
User accesses IBM Maximo APM - Asset Health Insights On-Premises.	The number of tokens as determined by the resource value units (RVU). Tokens are consumed when the Maximo server is running.	When the Maximo server is no longer running, the tokens are released.
User accesses IBM Maximo Enterprise Adapter for Oracle Applications or IBM Maximo Enterprise Adapter for SAP Applications.	The predefined number of tokens for that product. Tokens are consumed when the Maximo server is running.	When the Maximo server is no longer running, the tokens are released.
User is a Maximo Integration Framework (MIF) user.	No tokens are consumed.	Not applicable.

Token consumption for multiple environments

For both Maximo Asset Management version 7.6.1 and Maximo Asset Management version 7.6.1.1, the existence of multiple Maximo environments, such as a development environment, a test environment, and a production environment, impacts your license usage. Usage of non-production environments is tracked by the same token consumption standards for your production environment for your version of Maximo Asset Management. Each environment should be a complete Maximo instance on its own database.

The following examples reflect the behavior that you can expect when you use multiple Maximo environments:

- **Example 1:** A system administrator logs in to Maximo Asset Management in the development environment. After the system administrator logs in, the system administrator opens another browser and logs in to Maximo Asset Management in the production environment. Because the user ID and product combination is the same and the system administrator logged in to the development environment first, tokens were consumed only when the system administrator logged in to the development environment. Tokens were not consumed when the system administrator logged in to the production environment.
- **Example 2:** A system administrator logs in to Maximo Asset Management in the development environment. After the system administrator logs in, the system administrator opens another browser and logs in to Maximo for Oil and Gas in the production environment. The user ID is the same for each environment, but the product is different. Because the product is different, tokens were consumed when the system administrator logged in to the development environment and more tokens were consumed when the system administrator logged in to the production environment.

If you have Maximo Enterprise Adapter installed on your system and you have multiple environments, all environments consume individual sets of tokens and retain those tokens from the time that the Maximo server starts running until the Maximo server stops running, in addition to the tokens that are consumed for user logs in as described in the prior examples.

For example, if you have a development environment, a test environment, and a production environment, when the Maximo starts running, each of those environments consumes Y tokens and retain those tokens until the Maximo server stops running.

Token usage data

After the UserAnalyzer cron task runs, you can review updated token usage data for your users. If you have Maximo Asset Management version 7.6.1, you can review token usage data in the tokenlicusers database table. If you have Maximo Asset Management version 7.6.1.1, you can review token usage data in the tokenlicusers database table, or you can enable a tab that contains token usage data for the Users application.

To enable the tab, complete the following steps:

1. In the Security Groups application, select a security group.
2. On the **Applications** tab, in the Applications table, select the Users application.
3. In the signature option rows, open the row for the User Token Profile signature option.
4. Select the **Grant Access** check box, and then save the security group.

Triads

A triad, which is also known as a system of redundant servers, is an instance of three, connected license servers. By setting up a triad, you can increase the reliability of your licensing system. For token licensing, one license server in the triad serves the tokens on behalf of the other license servers in the triad. If one of the license servers is down, your users are not affected because the other two license servers can still run. If two license servers are down, the remaining license server does not run.

You do not need a special port or URL to set up a triad. However, all license servers that are a part of a triad must be geographically aligned with the associated Maximo server. Significant time-zone differences between a triad and the Maximo server can result in increased latency or failure of a request.

For more information about the possible errors, review [IBM Support](http://www-01.ibm.com/support/docview.wss?uid=swg21325553) (www-01.ibm.com/support/docview.wss?uid=swg21325553).

For more information about triads, review [Configuring a license server on Microsoft Windows](https://www.ibm.com/support/knowledgecenter/SSSTWP_8.1.4/com.ibm.rational.license.doc/topics/r_redundant_servers_win.html) (https://www.ibm.com/support/knowledgecenter/SSSTWP_8.1.4/com.ibm.rational.license.doc/topics/r_redundant_servers_win.html) or [UNIX](https://www.ibm.com/support/knowledgecenter/SSSTWP_8.1.4/com.ibm.rational.license.doc/topics/r_lic_server_unix.html) (www.ibm.com/support/knowledgecenter/SSSTWP_8.1.4/com.ibm.rational.license.doc/topics/r_lic_server_unix.html) in IBM Knowledge Center.

Stand-alone servers

If you set up stand-alone license servers, each license server requires its own license file, and you must divide the token pool among the license servers. You cannot set up both triads and stand-alone servers.

If you have multiple stand-alone license servers and one of the license servers cannot complete a token request, another license server is used to complete the request. The order in which license servers are used is determined by the order of the addresses in the **Server Address** field of the Token Licensing Setup application, which you configure when you enable token licensing.

Performance

The performance of your license servers is affected by the network that is used, the number of users who are requesting tokens from the license server, and the availability of tokens on the license server. Performance is measurable in ping time.

Ping time is the time that is required for a request to be sent plus the time that is required for that request to be acknowledged; it is the round-trip time for requests that are sent from the originating host to a destination computer. Any value that is less than the request timeout for the associated product is an acceptable ping time for the license server. The request timeout varies according to the associated product.

To help to ensure connectivity and improve performance, complete the following tasks when you set up your license servers:

- Connect your license server to a network that is at least 100 ms. The performance of a license server is directly proportional to the bandwidth and latency of the network that the license server is connected to. The consumption of network bandwidth is directly proportional to the number of users who are requesting tokens from the license server.
- Add a license server to the same geographical region as the users of that server.
- Use Linux or UNIX for the license server. By using Linux or UNIX, you can have more control over the file descriptor size, which you can use to control performance. If the license server is running on Windows and more than 3000 users are requesting tokens, distribute the token pool across multiple license servers, with each license server handling requests for no more than 3000 users.

Enabling token licensing

To enable token licensing, you must install and configure Rational License Key Server, configure the client file, configure the Token Licensing Setup application, and then activate the UserAnalyzer cron task. If you are using Maximo Asset Management version 7.6.1, you also must update the `presentation.xml` file for the Token Licensing Setup application.

Checklist

You can use the following checklist to ensure that all of the following steps are completed successfully.

Table 3. Checklist for enabling token licensing	
Done	Task
	Review the "Token Licensing for Maximo Asset Management" article.
	Complete the prerequisites.
	Install and configure Rational License Key Server.
	Configure the client file.
	Configure the Token Licensing Setup application.
	Activate the UserAnalyzer cron task.
	If you are using Maximo Asset Management version 7.6.1, update the <code>presentation.xml</code> file for the Token Licensing Setup application.

Prerequisites

Ensure that you have the following products, permissions, and resources before you enable token licensing:

- Maximo Asset Management version 7.6.1 IFIX007 or later.
- An IBMid.
- A [Rational License Key Center](https://licensing.subscribenet.com/control/ibmr/login) (licensing.subscribenet.com/control/ibmr/login) account. You use this account to manage the license keys that are in Rational License Key Server. If you are the primary site contact or site technical contact for your Passport Advantage account, you are automatically a

member of the Rational License Key Center account and receive a welcome email from rationallicense-keys@subscribenet.com. Use the instructions in the email to access the account.

If you cannot locate your welcome email and you are unable to access your account, in Rational License Key Center, select **Forgot your password**. Instructions for resetting your password are sent to your email.

If you are not the primary site or site technical contact, complete one of the following tasks to receive access to the Rational License Key Center account:

- Request access from your primary site contact.
- If you have the site number for the license purchase, on the Rational License Key Center login page, select **Don't have a password** and complete the Join Account form. If you have the sales order number, specify it. An email is sent to the administrator of the Rational License Key Center account to request approval for your membership.

For more information about setting up a Rational License Key Center account, see [How to access Rational License Key Center](https://www.youtube.com/watch?v=aLte61Ll4yc&feature=youtu.be) (<https://www.youtube.com/watch?v=aLte61Ll4yc&feature=youtu.be>).

Installing and configuring Rational License Key Server

To set up Rational License Key Server, you must install the product and then retrieve and import the license keys for each license server.

Procedure

1. Install Rational License Key Server
 - a) Download the files from Fix Central. For instructions, review the [product documentation in IBM Knowledge Center](http://www.ibm.com/support/knowledgecenter/en/SSSTWP_8.1.5/com.ibm.rational.license.doc/topics/t_download_files_support.html) (www.ibm.com/support/knowledgecenter/en/SSSTWP_8.1.5/com.ibm.rational.license.doc/topics/t_download_files_support.html).
 - b) Complete the installation. For installation instructions, review [installation product documentation in IBM Knowledge Center](https://www.ibm.com/support/knowledgecenter/en/SSSTWP_8.1.5/com.ibm.rational.license.doc/topics/c_node_installing.html) (https://www.ibm.com/support/knowledgecenter/en/SSSTWP_8.1.5/com.ibm.rational.license.doc/topics/c_node_installing.html). Your installation of Rational License Key Server includes IBM Rational License Key Server Administration and Reporting Tool, which is also known as Rational License Key Administrator.
2. For each of your license servers, generate your license keys in Rational License Key Center.
 - a) Log in to [Rational License Key Center](http://licensing.subscribenet.com/control/ibmr/login) (licensing.subscribenet.com/control/ibmr/login) by using your account user name and password.
 - b) Select **Get Keys > IBM Rational Tokens**.
 - c) In the LICENSE KEYS FOR THIS ORDER section, select the check box for the license key and then select **Next**.
 - d) In the **Existing hosts** and **Server Configuration** fields, select the options for your license server.
 - e) In the **Host ID Type** field, select an option that is associated with your operating system. Do not select the IP address option.
 - f) In the **Host ID** and **Hostname** fields, specify the values that are included in Rational License Key Administrator. To view this information, in Rational License Key Administrator, select **License Keys > Host Data**.
 - g) Select **Generate**. A license key is saved to your computer.
3. For each of your license servers, import the license key.
 - a) In the Rational License Key Administrator, select **License Keys > Import License Key(s)**.
 - b) Import the license key from your computer.

Results

After the license keys are imported, products are added to the window.

Configuring the client file

The client file enables your Maximo server to communicate with the license server.

Procedure

1. Download the `client_file.zip` file from the Token licensing for Maximo Asset Management article on IBM Support (<https://www.ibm.com/support/pages/token-licensing-maximo-asset-management>).
2. Extract the files from the `client_files.zip` file. The `client_files.zip` file contains two files.
3. Relocate your client file to any directory that your Maximo server can access. If you are using Microsoft Windows, your client file is the `rcl_ibmratl.dll` file. If you are using Linux or UNIX, your client file is the `librcl_ibmratl.so` file.
4. Add the following text to the `jvm` parameter of the Maximo server. Replace the *client file directory* variable with your client file directory: `-Djava.library.path=client file directory`

Configuring the Token Licensing Setup application

After you set up the client file, you must configure the Token Licensing Setup application. You use the Token Licensing Setup application to connect your Maximo system to Rational License Key Server.

About this task

If you have Maximo Asset Management version 7.6.1.1, as part of configuring the Token Licensing Setup application, you must specify your Maximo products in the **Manage Products** dialog box. If a product is purchased but is not specified in the **Manage Products** dialog box, users who can access that product consume tokens for whichever specified product requires the most tokens.

For example, Maximo Asset Management, which consumes Y tokens, Maximo for Aviation, which consumes Z tokens, and Maximo for Oil and Gas, which consumes X tokens, are purchased but Maximo for Oil and Gas is not specified in the **Manage Products** dialog box. A user who can access Maximo for Oil and Gas consumes Y or Z tokens at login, depending on which is the higher number.

Procedure

1. Enable the Token Licensing Setup application.
 - a) Log in to your Maximo system as the system administrator.
 - b) In the Security Groups application, select the MAXADMIN security group.
 - c) On the **Applications** tab, filter for `token licensing setup` and then select the **Grant Access** check box for the application.
 - d) Save the security group.
 - e) Log out and log back in to the Maximo system.
2. In the Token Licensing Setup application, in the **Server Address** field, specify the address for your instance of Rational License Key Server. Your instance of Rational License Key Server is your license server.
 - The format for a single address is `port@hostname`
 - The order in which license servers are used is determined by the order of the addresses in the field.
 - If you are using a Linux or UNIX system, separate multiple addresses by using colons (:).
 - If you are using a Windows system, separate multiple addresses by using semicolons (;).
 - Separate multiple addresses for redundant license servers or a triad by using a comma (,).
 - If you specify a hostname that is not fully qualified, the connection to the server might not be established. If the connection cannot be established, specify a fully qualified hostname.

3. Complete the following steps according to your installed version of Maximo Asset Management:

- If you have Maximo Asset Management version 7.6.1, select **OK** and save the record.
- If you have Maximo Asset Management version 7.6.1.1, complete the following steps in the Token Licensing Setup application:
 - a. Select **Manage Products**.
 - b. In the **Manage Products** dialog box, select **New Row**.
 - c. In the **Product Name** field, select the product that you want to add a license for.
 - d. In the **License Type** field, select the license type.
 - e. Select **OK** and save the record.
 - f. Change the status of the record to Active.

Activating the UserAnalyzer cron task

The UserAnalyzer cron task gathers and updates token usage data. To learn more about token usage data, review the "Token consumption" section of this article.

Procedure

1. In the Token Licensing Setup application, in the **More Actions** menu, select the **Data Collection Settings** action.
2. Select the **Activate** check box and then save and close the dialog box.

Updating the presentation file

If you are using Maximo Asset Management version 7.6.1, you also must update the `presentation.xml` file for the Token Licensing Setup application. By updating the presentation file, you can ensure that you have the latest version of the Token Licensing Setup application in your system.

Procedure

1. Create a `tokenlic.xml` text file.
2. Paste the following text into the `tokenlic.xml` file:

```
<?xml version="1.0" encoding="UTF-8"?>
<presentation id="tokenlic" mboname="tokenlic" version="7.1.0.0" >
<page id="mainrec" >
<include id="single_pageHeader"/>
<clientarea id="clientarea">
<tabgroup id="maintabs" style="form" format="carddeck">
<tab id="results" default="true" label="List">
<section id="main_grid2_122">
<sectionrow id="main_grid2_1_row2222">
<sectioncol id="main_grid2_1_row2_col1222">
<section id="main_grid2_1_row2_col1_1222">
<textbox id="box1" dataattribute="LICENSEPATH"/>
</section>
</sectioncol>
</sectionrow>
</section>
</tab>
</tabgroup>
</clientarea>
```

3. In the Application Designer application, for the Token Licensing Setup application, import the `tokenlic.xml` file to replace the existing `presentation.xml` file for the application.

Refreshing the license keys

If you used token licensing for Maximo Asset Management version 7.6.1, you must refresh the license keys for your system after you upgrade to version 7.6.1.1.

Procedure

1. Log in to Rational License Key Center, and then select **View keys by host**.
2. For each of your license servers, complete the following steps:
 - a) Select **Refresh**.
 - b) Download the new license key.
 - c) In Rational License Key Administrator, select **License Keys > Import License Key(s)**.
 - d) Import the new license key.

Troubleshooting token licensing

If you need to troubleshoot your token licensing configuration, set the **tokenlic** logger to DEBUG and set the UserAnalyzer cron task to a shorter frequency. To set the cron task to a shorter frequency, in the Token Licensing Setup application, in **Data Collection Settings** dialog box, update the **Schedule** field. By setting a shorter frequency, you can more quickly determine whether your configuration is working as expected.

About this task

A license server can be unable to complete a request for the following reasons:

- The license server is unavailable.
- The network or firewall that is used for the license server is unavailable or the quality of the network is poor. If a poor network is used and if the Maximo server is unable to queue up simultaneous requests to load or adjust and adapt to the delay that is caused by the network, the requests can time out before the requests reach the license server.
- The user who requests the tokens is blocked from the license server. You can block users from a license server by using the license option file.
- The license server has no available tokens.
- Too many users are requesting tokens from a license server simultaneously. If many users are requesting tokens, users can experience an unresponsive Maximo system and long delays between the time that the token is requested and when the token is consumed.

If a significant difference exists between the time zone of the license server and the time zone of the Maximo server, tokens are not served to users. In this case, the following error occurs in the license server log file after a license request is sent: `Licensing Error: Clock Difference too large between client and server`.

If the BMXAA4214E error occurs when you activate the UserAnalyzer cron task, ensure that you installed the latest interim fix for your Maximo system and then complete the following steps:

1. In the `maximo_root/deployment` directory, open the `buildmaximoear.xml` file.
2. Append the following text to the end of the `maximo.businessobjects.classpath` property: `lib/license_metric_logger_2.1.1.201507131115.jar`
3. Rebuild and redeploy the EAR file, and then activate the UserAnalyzer cron task.

The following text is an example of this change:

```
<property name="maximo.businessobjectsclasspath"> lib/  
license_metric_logger_2.1.1.201507131115.jar
```


