thingworx kepware edge

ThingWorx Kepware Edge License Server

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Help version 1.016

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Overview

The ThingWorx Kepware Edge License Server is a centralized system deployed within the OT network that allows and tracks the number of ThingWorx Kepware Edge products that can run given the purchased licenses. The ThingWorx Kepware Edge License Server "leases" a license to an instance of ThingWorx Kepware Edge for a period of time. During this lease interval, the ThingWorx Kepware Edge instance periodically checks in with the license server to renew this lease.

Leases given by the ThingWorx Kepware Edge License Server last for seven (7) days and the ThingWorx Kepware Edge instance will request to renew this lease about every day (15% of the lease interval).

The ThingWorx Kepware Edge License Server is not intended to be run on the same host as the ThingWorx Kepware Edge Server.

System Requirements

Supported Server Platforms

Operating System	Linux	Windows *.Net framework 4.5 or later is required*
CPU Architecture	86 / x86-64	86 / x86-64
Operating System Versions	- CentOS 7.x - Red Hat Enterprise Linux 7.x - Red Hat Enterprise Linux 8.x	- Windows 8.1 - Windows 10 - Windows Server 2012 R2 - Windows Server 2016 - Windows Server 2019

The following software is required:

- OpenJDK 11.0 or greater
  - *Java environment variable must be set*
- Minimum of 4 GB of RAM for the host
- Python3
  - *Python path must be added to environment variables*
- Latest Linux Standard Base (LSB) package
  - *For Linux operating systems only*

A working knowledge of the following is required:

- The selected operating system and commands
- Command line interfaces
- Certificate management and authentication

Architecture

Single Factory or Location Architecture
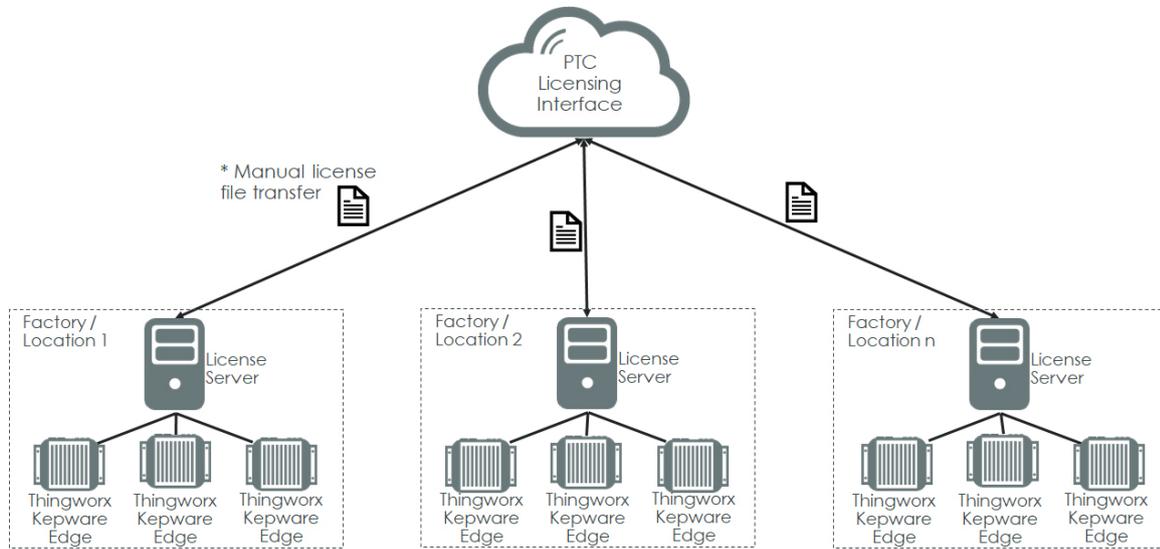
Company-Wide Architecture
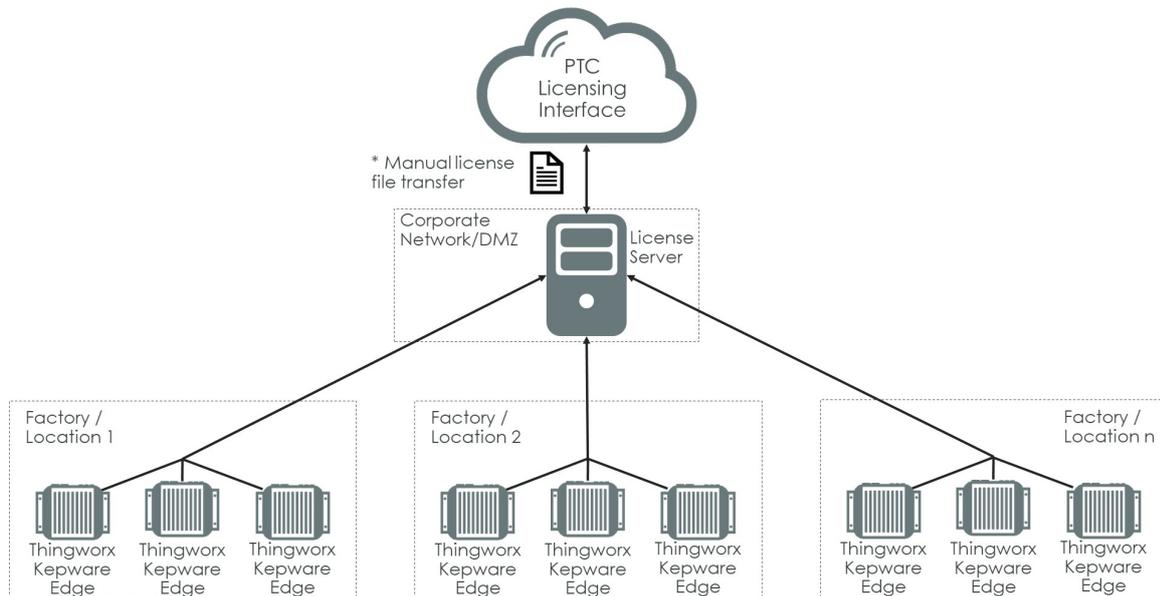
Installing

ThingWorx Kepware Edge License Server must be installed by a user with root permissions.

Setup

The ThingWorx Kepware Edge License Server utilizes port 1443 for secure communication and 7070 for insecure communication.

Note: These ports must be allowed through the server firewall for the license server to work correctly.

The installer supports both GUI and terminal installations.

To install on Linux, run the following command:

```
sudo ./setup-linux-x64.run
```

To install on Windows, run the command or double click the file:

```
setup-windows.exe
```

Note: The installation directory must have "Users" group permissions.

System Time Synchronization

The License Server "leases" licenses to instances of ThingWorx Kepware Edge for specific periods of time. It is therefore important to ensure that the system times of the ThingWorx Kepware Edge License Server and the ThingWorx Kepware Edge instances are kept synchronized as closely as possible.

It is recommended to configure the ThingWorx Kepware Edge instance to synchronize system time to the ThingWorx Kepware Edge License Server.

Note: If the system clocks lose synchronization by more than 180 minutes, license checks may fail and cause the instance to stop operating.

Configuring Secure Communications

At installation, a self-signed certificate is generated to secure communications between the ThingWorx Kepware Edge instances and the license server. It is strongly recommended that this certificate be replaced with a Certificate Authority (CA) signed certificate. After importing the CA signed certificate to the java keystore, follow these steps to apply the certificate to the licensing server:

1. Copy the certificate file onto the system, in a location the flexnetls user can access.

2. Open the <installation_directory>/ptc_p/local-configuration.yaml file in a text editor.

3. Set the keystore-path and keystore-password variables. The default location for the keystore-path is <installation_directory; though another location could be used.

   🔸 It is strongly recommended to obfuscate the password so that it is not stored as plain text.

   To do this, execute the following command from the <installation_directory</ptc_p path location to obtain an obfuscated password:
   ```
   java -jar flexnetls.jar --password=<password>
   ```
   Example:
   ```
   ███████████████████$ java -jar flexnetls.jar --password=abracadabra
   abracadabra => OBF:1ri71v1r1v2n1ri71shq1ri71shs1ri71v1r1v2n1ri7
   ```

   The response provides a string, such as "OBF:<obfuscated_password>", and the entire string should be included as the keystore-password variable including the "OBF:" prefix.

4. Save the file.

5. Restart the license server daemon/service using the following command:

   Linux:
   ```
   sudo systemctl restart flexnetls-ptc_p.service
   ```
   Windows:
   ```
   net stop FNLS-ptc_p && net start FNLS-ptc_p
   ```

Changing the Administrator Password

To change the administrator password, run the following command:

```
<installation_directory>/ptcls_cli/ptcls_admin.py --user admin manage-credentials --set-admin
```

The requirements for the administrator password for license server are:

- At least 8 characters
- At most 64 characters
- At least one digit
- At least one upper-case character
- At least one lower-case character
- No space characters
- At least one special character (^*$-+?_&=!%{}/#)
  🟢 **Tip**: Specifically and only these special characters

Adding Licenses

1. Prior to obtaining licenses, determine the Host ID of the host on which the license server is running. To get that information, run the following command:

```
<installation_directory>/ptcls_cli/ptcls_admin.py --user admin manage-status
--host-id
```

Example host-id that would be provided by command:

```
VM_UUID:A39F4D56-D607-61CF-5D2E-C436B7F29127:8898
```

2. Take this value to the MyKepware and follow the **Activate Product License** link to generate the licenses activation response file.

3. Save the activation response file.

4. Copy the activation response file onto the license server system.

5. Install the license(s) using the following command:

```
<installation_directory>/ptcls_cli/ptcls_admin.py --user admin manage-enti-
tlement --install <filename>
```

6. View the licenses hosted on the license server using the following command:

```
<installation_directory>/ptcls_cli/ptcls_admin.py --user admin manage-enti-
tlement --show
```

Transferring Licenses

Transferring licenses is necessary to migrate activation IDs from one license server to another. Moving activation IDs off the license server is a multi-step process:

1. Navigate to MyKepware and select **Return an Activation**.

2. Download the return-request file.

3. Remove the licenses from the local license server.

    a. Copy the return-request file generated in the previous step to the license server.

    b. Process that file using the following command:

    ```
    <installation_directory>/ptcls_cli/ptcls_admin.py --user admin manage-
    entitlement --install <filename>
    ```

4. Provide confirmation to MyKepware to demonstrate that the licenses have been removed from the server.

    a. On the license server, Issue the following command:

    ```
    <installation_directory>/ptcls_cli/ptcls_admin.py --user admin manage-
    entitlement --confirm <filename>
    ```

    b. This generates a return file to be uploaded to MyKepware to confirm removal of the licenses.

5. To apply the activation ID to a new license server, follow the **Adding Licenses** instructions.

    ◈ **Note**: This is necessary to use the activation IDs on another license server.

Upgrade the License Server

The following procedure is for customers upgrading the license server to a new version. It is necessary to "transfer" off the current licenses to safely store them while uninstalling the old software then install the new version. Once installed, the licenses that were saved to MyKepware can be pulled to the new instance and work can proceed.

🔶 Use port 1443 for secure communication and 7070 for insecure communication.
◽**Note**: These ports must be allowed through the server firewall for the license server to work correctly.

Transfer the Licenses

1. Prior to returning licenses, determine the Host ID of the host on which the license server is running. To get that information, run the following command:

   ```
   <installation_directory>/ptcls_cli/ptcls_admin.py --user admin manage-status
   --host-id
   ```

   Example host-id that would be provided by command:
   ```
   VM_UUID:A39F4D56-D607-61CF-5D2E-C436B7F29127:8898
   ```

2. Navigate to **MyKepware** and select **Return an Activation**.

3. Use the host-id to select the license server from which to return licenses.

4. Download the return-request file.

5. Remove the licenses from the local license server.

   a. Copy the return-request file generated in the previous step to the license server.
   b. Process that file using the following command:
   ```
   <installation_directory>/ptcls_cli/ptcls_admin.py --user admin manage-enti-
   tlement --install <filename>
   ```

6. Provide confirmation to **MyKepware** to demonstrate that the licenses have been removed from the server.

   a. On the license server, Issue the following command:
   ```
   <installation_directory>/ptcls_cli/ptcls_admin.py --user admin manage-enti-
   tlement --confirm <filename>
   ```

   This generates a return file to be uploaded to **MyKepware** to confirm removal of the licenses.

Uninstall Old Server Version

Linux:
Run the following command with administrator privilege:
```
sudo <installation_directory>/uninstall
```

Windows:
Run the following application:
```
<installation_directory>/uninstall.exe
```

Install New Server Version

Linux:
To install, run the following command:
```
sudo /.setup-linux.run
```

Windows:
Run the following application:
```
setup-windows.exe
```

Reinstall Licenses

1. Navigate to **MyKepware**.

2. Follow the **Activate Product License** link to generate the licenses activation response file.

3. Use the host-id previously obtained for returning the licenses.

4. Save the activation response file.

5. Copy the activation response file onto the license server system.

6. Install the license(s) using the following command:
   ```
   <installation_directory>/ptcls_cli/ptcls_admin.py --user admin manage-enti-
   tlement --install <filename>
   ```

7. View the licenses hosted on the license server using the following command:
   ```
   <installation_directory>/ptcls_cli/ptcls_admin.py --user admin manage-enti-
   tlement --show
   ```

Resources

The following documents or sites provide information that may be helpful in deployment, configuration, and use of the ThingWorx Kepware Edge License Server.

*For more information on licensing, please visit the **Licensing Support** page.*

*For information on the following topics, see the Resources section of the **ThingWorx Kepware Edge** product page:*

- Quick start guides
- User manuals
- How-to videos

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Glossary

A

Activate / Activation

The process to license product instances to allow licensed operation.

Activation ID

A unique identifier provided for one or more product unlocks.

Activation Response File

In MyKepware, when a user successfully finishes the 'Activate Product License' workflow, this file is generated to apply to the license server. If this file is not applied to the license server, the product instances cannot successfully activate.

H

Host ID

The machine identity where the license server is installed.

L

Lease

Each product instance will check with the license server daily to ensure an unlock is available to continue to run. Each day, the instance receives a 7-day permission to continue to run in the event there are network connection issues preventing the instance from contacting the license server.

License Server

A centralized system deployed within the OT network that allows and tracks the number of products that can run given the purchased licenses. Tracking includes activation ID, number of product unlocks used, and number of unlocks still available.

License Server Name

A "friendly" descriptive name of the server that helps identify the server location later (i.e. NZ-01 might be used to indicate country and operating line).

R

Return

The process of moving an activation ID from one license server to another. The return process starts in MyKepware. Note: an activation ID can only be used on one license server.

Return-Request File

File generated from the license server when returning a license. Note: the return process needs to start in MyKepware.

Return file

The file generated during the start of a return process in MyKepware. The file is applied to the existing license server so that a return-request file is generated.

T

Transfer License

See Return

U

Unlocks

An activation ID can have multiple product unlocks that the license server uses to manage how many product instances and tags are allowed.