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# 1 Configuring License Management

## 1.1 Introduction

### 1.1.1 License Management Overview

A user needs to install a correct license file to use some extension functions of a device. The extension functions provided by Orion\_B26Q Network Operating System (NOS) include the virtual switch device (VSD), Transparent Interconnection of Lots of Links (TRILL) and Fibre Channel over Ethernet (FCoE), and user concurrency supported by virtual private network over Secure Sockets Layer (SSLVPN). A user can use the general and extension functions of the NOS only after obtaining a license.

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**Note**

Generally, all features of the NOS are pre-installed in the factory. For feature licenses and license types, see their configuration guides. NOS features or basic functions that are not expressly specified can be used directly without licenses.

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### 1.1.2 Principles

#### 1. Basic Concepts

- Software to be licensed

A software function used by only a licensed user.

- Feature license

As a license for a special feature, it is obtained through a license file, hardware entity, or legal contract. This license specifies the maximum number of supported users, the maximum number of supported instances, and valid period.

- Product authorization key (PAK)

It is a manner of granting a license to a user by providing a license code.

- Purchase voucher

A voucher of purchasing a license. The voucher contains the PAK and license download address. The legitimate owner of the purchase voucher logs in to the license download address, and uses the PAK to sign up. The license file is downloaded from the displayed link or is directly sent to the registered email.

- Host ID

A unique serial number for identifying each device.

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**Caution**

A license matches the host ID of any device added to a VSU. When the device is removed from the VSU, the feature enabled by the license becomes invalid.

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- License file

A file that controls the features of a licensed software. A license file is generated by using a special tool based on contract information, and each license file contains a digital signature to prevent tampering. The license file serves a product. That is, one license file is used on only one device and matches the device's host ID. License is not transferred. Licensed functions are available when the license file is installed.

- Temporary license

A temporary license becomes invalid after the valid period expires.

- Evaluation license

An evaluation license is temporary, and has been installed on the device before delivery. It is used to provide users with features for trial use. This type of license is independent of the host ID.

- Permanent license

This license has no time limit and is permanently effective upon purchase by the user.

- License stacking

Different licenses can be used on one device. For example, if a device provides both the FCoE and TRILL functions, users can purchase the licenses of the two functions and use them on the same device.

- Single-Instance license

Only one license can be installed for one feature at a time.

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**⚠ Caution**

Licenses for the features like user concurrency supported by VSD, TRILL, FCoE, and SSLVPN are all single-instance licenses.

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- Multi-instance license

Multiple license files can be installed for the same feature on a device.

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**⚠ Caution**

Only the license for the feature "user connections supported by the AP" is a multi-instance license.

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- Grace period warning

A grace period warning is generated in forms of log and trap messages 180 days before a license expires. Setting a grace period warning prevents licensed software from being affected when an aging license suddenly stops working upon expiration.

## 2. License Acquisition and Use

- Use of License

A license must be obtained from Orion\_B26Q's official website or marketing channel. It is device-specific. You log in to the website specified in the purchase voucher and provide the PAK and host ID to obtain the license file, which is directly downloaded or given through an email. After acquisition, you need to install the license file. Afterwards, you can use the features of the license.

NOS licenses include permanent license and temporary license. When a user first enables a temporary license to use a feature, the valid period of the license starts, and after the period ends, the feature will be

disabled. To continue using this feature, this user can purchase another license (permanent or temporary) from Orion\_B26Q's official website or marketing channel.

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**⚠ Caution**

In the VSU environment, multiple devices form one virtual device. In this scenario, if one device obtains the license for a feature, the whole VSU is licensed to use this feature. But when the devices in the VSU are separated, the license is checked by device.

The VSD function provided by the NOS helps divide one NOS device into multiple virtual devices. For external users, each virtual device works like an independent device. That is, when the license for a feature is obtained, the license for this feature is effective to all VSD domains. In addition, licenses are installed and managed in the default VSD only.

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- License check

After a device starts to run, the license for each feature needs to be checked. If the corresponding license is properly installed, this feature is ready for application. Otherwise, this feature becomes invalid and cannot be used.

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**i Note**

Checking the licenses for various features occurs at different times. The licenses for some features are checked during startup, and the licenses for other features are checked in real time.

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- Loss of License File

License files are stored in the **/data** directory of a device and is not lost after software upgrade.

If the memory or file system is damaged during product use but the license file has been backed up, you can install the backup license file again after system recovery. If the license file is not backed up, you can visit Orion\_B26Q's website to obtain the license file again. This process is the same as the previous acquisition process (you do not need to purchase the license again).

Licensing is device-based. After a license is provided for a specified device, the license file is verified only on this device. Upon maintenance or replacement of a device, the host ID may change and the obtained license file may not be identified. In this case, contact Orion\_B26Q after-sales personnel.

### 3. Backup, Update, and Uninstallation of a License File

- License File Backup

When a fault such as damage of file system storage media occurs on a device, the license file on this device may be lost after you troubleshoot this fault. Therefore, you need to back up the license file in advance to reinstall it after you troubleshoot the fault.

- License File Update

If the existing license of the system fails to meet the feature requirements, you can visit Orion\_B26Q's website to purchase a desired license and then update the license file locally.

- License File Uninstallation

If you do not need a feature, you can uninstall the license for this feature to improve the utilization of resources like the memory. To reuse this feature, reinstall the license. It is recommended that license files be kept properly.

## 1.2 Configuration Task Summary

Configuration of license management includes the following tasks:

- (1) [Installing License File](#)
- (2) [Backing Up License File](#)
- (3) (Optional) [Grace Period Warning](#)
- (4) (Optional) [Updating License File](#)
- (5) (Optional) [Uninstalling License](#)
- (6) (Optional) [Unbinding License](#)

## 1.3 Configuring License Management

### 1.3.1 Overview

This section describes how to enable or disable a feature by installing or uninstalling a license file.

### 1.3.2 Installing License File

#### 1. Overview

This section describes how to install a license file to enable a licensed feature.

#### 2. Restrictions and Guidelines

- Orion\_B26Q provides a paper purchase voucher that contains a PAK when you purchase a license.
- Log in to Orion\_B26Q's website and obtain a license file as prompted.
- If you use a feature without being licensed, the CLI window displays a prompt, indicating that the feature is not licensed and is unavailable, and provides a website to download a license file.
- After downloading a license file from the specified website, upload this license file to the device (or store it in a USB flash drive) for installation. You can install the license file offline. Copy the license file to the file system of the device. Use conventional file system operation commands. For example, download the license file through Trivial File Transfer Protocol (TFTP) or copy the license file to a USB flash drive.
- After a license file is installed on a device, this license file is automatically backed up in the **/data** directory of the system (the license file is suffixed with **.lic**). The backup license file is deleted when the installed license is uninstalled.
- In a VSU environment, run the **license install** command on a master supervisor module to install the license file on all devices, or run this command on a non-CM supervisor module to install the license file only on the device from which you enter commands.
- In a VSU environment, run the **license auto-install** command to automatically match compliant devices to install the license file. In a non-VSU environment, run the following commands to do the same:
- In a VSU environment, when the license for a feature is obtained by one device by running the **license**

**install** command, the whole VSU system is licensed to use this feature. But when the devices in the VSU are separated, the licensed device can still use the license.

- In a VSU environment, run the **license install** command on a CM supervisor module to install a license on all boards, or run the **license auto-install** command on a CM supervisor module to install a license on a matched board only. Run the **license install** command on a non-CM supervisor module to install a license on the local device, or run the **license auto-install** command on a non-CM supervisor module to automatically match and install a license on all devices.
- The **license auto-install** command enables the auto-matching function only in a VSU environment, and has the same function as the **license install** command in other environments.
- In a VSD environment, licenses are managed in global configuration mode. When the license for a certain feature is obtained, the license for this feature is effective to all VSD domains. In addition, licenses are installed and managed in the default VSD only.
- Different devices do not share the same license file.

### 3. Procedure

(1) Enter the privileged EXEC mode.

**enable**

(2) Obtain **host-id** of the device.

**show license hostid**

The name of a license file cannot be modified.

This command can be executed without permission.

(3) (Optional) Install the license file. Please select either configuration.

- Install a license manually.

**license install { flash: | usb0: } filename**

- Install a license automatically.

**license auto-install { flash: | usb0: } filename**

## 1.3.3 Backing Up License File

### 1. Overview

This section describes how to back up the license files of one or all features in the system.

### 2. Restrictions and Guidelines

- Evaluation license files cannot be backed up.
- Sufficient storage space is required to store backup license files. Generally, one license file is 4 KB to 10 KB.
- Backup license files are normal files.
- When all license files in the system are backed up, a .tar file is generated.
- You can run the **dir** command to save the license files to other storage devices, for example, a USB flash drive.
- After backing up license files, you can run the **dir** command to confirm the generated license files, and

compare them with the license file names displayed in the **installed license** fields of permanently licensed features in the command output of the **show license all-license** or **show license file** command, to check whether licenses are correctly backed up.

- The **installed license** field displayed in the **show license all-license** command and **show license file** command is available only for multi-instance licenses. The name of a file internally backed up in the multi-instance license system is determined by the ID of the multi-instance license. One single-instance license file exists at most in the system at a time. Therefore, the internally backed up single-instance license file is named after the feature.

### 3. Procedure

(1) Enter the privileged EXEC mode.

```
enable
```

(2) Back up the license files in the system.

```
license { copy-all | copy-file filename } { flash: | usb0: } [ target-filename ]
```

## 1.3.4 Configuring Grace Period Warning

### 1. Overview

This section describes how to evaluate the expiration date of a license and how to provide early warnings in form of log messages to remind users of taking actions in advance.

### 2. Restrictions and Guidelines

- Each licensed feature is separately configured.
- The grace period warning is affected by the device time.
- A permanent license file needs no grace period warning.

### 3. Procedure

(1) Enter the privileged EXEC mode.

```
enable
```

(2) Set the grace period warning for a licensed feature.

```
license grace-period filename days
```

The grace period before the expiration of a license is 180 days by default.

## 1.3.5 Updating License File

### 1. Overview

This section describes how to update the license file for a feature of the system. Generally, this function is performed to update an evaluation license file into a temporary license file.

### 2. Restrictions and Guidelines

- A formal permanent license file does not need to be updated.
- A later license version cannot be updated into an earlier one.
- A license file contains a generation time field. The value of this field is the time when the license file is generated on the website. When the value is closer to the current time, the license file has a later version.

### 3. Procedure

(1) Enter the privileged EXEC mode.

```
enable
```

(2) Update the license file.

```
license update { flash: | usb0: } filename
```

## 1.3.6 Uninstalling License

### 1. Overview

This section describes how to uninstall one or all feature licenses in the system when the features are not needed.

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#### Note

This function becomes invalid when the corresponding license is uninstalled.

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### 2. Restrictions and Guidelines

- If the licensed feature is running, the uninstallation does not take effect immediately, but takes effect after the feature is enabled or restarted next time.
- You are advised to back up a license file before uninstallation to reinstall an uninstalled license when needed.

### 3. Procedure

(1) Enter the privileged EXEC mode.

```
enable
```

(2) Uninstall a license in the system.

```
license auto-uninstall devic license [ filename ]
```

This command can be executed without permission.

## 1.3.7 Unbinding License

### 1. Overview

If you want to unbind a license from a device on the license website, unbind the license on the device first.

### 2. Restrictions and Guidelines

- Upon unbinding a license, you obtain a verification code, which is used to unbind the license on the license website.
- After the license is unbound, the corresponding license file cannot be reinstalled.

### 3. Procedure

(1) Enter the privileged EXEC mode.

```
enable
```

(2) Unbind a license in the system.



**license unbind pak**

This command can be executed without permission.

## 1.4 Monitoring

Run the **show** command to check the running status of a configured function to verify the configuration effect.

**Table 1-1**Monitoring

Command	Purpose
<b>show license all-license</b>	Displays the list of all installed license files on the device.
<b>show license file <i>file-license</i></b>	Displays the information about a specified license file on the device.
<b>show license dev-license</b>	Displays license configurations of all devices.
<b>show license usage</b>	Displays licenses in use.
<b>show license hostid</b>	Displays the device SN used for licensing.
<b>show license dev-hostid</b>	Displays the device SN of each device
<b>show license unbind-code</b>	Displays the verification code of a license unbound from the device.
<b>show license dev-unbind-code</b>	Displays the verification code of a license unbound from each device in the environment.