BROCADE

Brocade SLX-OS
Software Licensing Guide, 17s.1.00

Supporting the Brocade SLX 9140 and SLX 9240 Switches

Contents

Preface

Document conventions

The document conventions describe text formatting conventions, command syntax conventions, and important notice formats used in Brocade technical documentation.

Notes, cautions, and warnings

Notes, cautions, and warning statements may be used in this document. They are listed in the order of increasing severity of potential

hazards.

NOTE
A Note provides a tip, guidance, or advice, emphasizes important information, or provides a reference to related information.

ATTENTION
An Attention statement indicates a stronger note, for example, to alert you when traffic might be interrupted or the device might reboot.

CAUTION
A Caution statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.

DANGER
A Danger statement indicates conditions or situations that can be potentially lethal or extremely hazardous to you. Safety labels are also attached directly to products to warn of these conditions or situations.

Text formatting conventions

Text formatting conventions such as boldface, italic, or Courier font may be used to highlight specific words or phrases.

Format	Description
bold text	Identifies command names.
	Identifies keywords and operands.
	Identifies the names of GUI elements.
	Identifies text to enter in the GUI.
italic text	Identifies emphasis.
	Identifies variables.
	Identifies document titles.
`Courier font`	Identifies CLI output.

Format	Description
	Identifies command syntax examples.

Command syntax conventions

Bold and italic text identify command syntax components. Delimiters and operators define groupings of parameters and their logical relationships.

Convention	Description
bold text	Identifies command names, keywords, and command options.
italic text	Identifies a variable.
value	In Fibre Channel products, a fixed value provided as input to a command option is printed in plain text, for example, **--show** WWN.
[ ]	Syntax components displayed within square brackets are optional.
	Default responses to system prompts are enclosed in square brackets.
{ **x** | **y** | **z** }	A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options.
	In Fibre Channel products, square brackets may be used instead for this purpose.
x | **y**	A vertical bar separates mutually exclusive elements.
< >	Nonprinting characters, for example, passwords, are enclosed in angle brackets.
…	Repeat the previous element, for example, *member*[*member*…].
\	Indicates a "soft" line break in command examples. If a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.

Brocade resources

Visit the Brocade website to locate related documentation for your product and additional Brocade resources.

White papers, data sheets, and the most recent versions of Brocade software and hardware manuals are available at www.brocade.com. Product documentation for all supported releases is available to registered users at MyBrocade.

Click the **Support** tab and select **Document Library** to access product documentation on MyBrocade or www.brocade.com. You can locate documentation by product or by operating system.

Release notes are bundled with software downloads on MyBrocade. Links to software downloads are available on the MyBrocade landing page and in the Document Library.

Document feedback

Quality is our first concern at Brocade, and we have made every effort to ensure the accuracy and completeness of this document. However, if you find an error or an omission, or you think that a topic needs further development, we want to hear from you. You can provide feedback in two ways:

- Through the online feedback form in the HTML documents posted on www.brocade.com
- By sending your feedback to documentation@brocade.com

Provide the publication title, part number, and as much detail as possible, including the topic heading and page number if applicable, as well as your suggestions for improvement.

Contacting Brocade Technical Support

As a Brocade customer, you can contact Brocade Technical Support 24x7 online or by telephone. Brocade OEM customers should contact their OEM/solution provider.

Brocade customers

For product support information and the latest information on contacting the Technical Assistance Center, go to www.brocade.com and select **Support**.

If you have purchased Brocade product support directly from Brocade, use one of the following methods to contact the Brocade Technical Assistance Center 24x7.

Online	Telephone
Preferred method of contact for non-urgent issues: • Case management through the MyBrocade portal. • Quick Access links to Knowledge Base, Community, Document Library, Software Downloads and Licensing tools	Required for Sev 1-Critical and Sev 2-High issues: • Continental US: 1-800-752-8061 • Europe, Middle East, Africa, and Asia Pacific: +800-AT FIBREE (+800 28 34 27 33) • Toll-free numbers are available in many countries. • For areas unable to access a toll-free number: +1-408-333-6061

Brocade OEM customers

If you have purchased Brocade product support from a Brocade OEM/solution provider, contact your OEM/solution provider for all of your product support needs.

- OEM/solution providers are trained and certified by Brocade to support Brocade® products.

- Brocade provides backline support for issues that cannot be resolved by the OEM/solution provider.

- Brocade Supplemental Support augments your existing OEM support contract, providing direct access to Brocade expertise. For more information, contact Brocade or your OEM.

- For questions regarding service levels and response times, contact your OEM/solution provider.

About This Document

What's new in this document

This document is updated for SLX OS software release 17s.1.00.

Supported hardware and software

In those instances in which procedures or parts of procedures documented here apply to some devices but not to others, this guide identifies exactly which devices are supported and which are not.

Although many different software and hardware configurations are tested and supported by Brocade Communications Systems, Inc. for SLX-OS Release 17s.1.00, documenting all possible configurations and scenarios is beyond the scope of this document.

The following hardware platforms are supported by this release:

- Brocade SLX 9140 switch
- Brocade SLX 9240 switch

  NOTE
  Some of the commands in this document use a slot/port designation. Because the Brocade SLX 9140 switch and the Brocade SLX 9240 switch do not contain line cards, the slot designation must always be "0" (for example, 0/1 for port 1).

To obtain information about other Brocade OS versions, refer to the documentation specific to that version.

Software Licensing Overview

Software-based licensing overview

The Brocade SLX-OS includes optional features that are enabled by license keys. You can purchase Brocade licenses per product or per feature. Each switch must have its own licenses. Licenses may be part of the licensed paperpack supplied with your switch software, or you can purchase them separately from your switch vendor.

How software-based licensing works

A permanent license (for select features on specific units) can be ordered pre-installed in a Brocade device when first shipped from the factory, or later ordered and installed by the customer. In either case, additional licenses can be ordered as needed.

When a license is ordered separately (not pre-installed), an *entitlement certificate* or e-mail message, along with a *transaction key*, are issued to you by Brocade as proof of purchase. The *transaction key* and license ID (*LID)* of the Brocade device are used to generate a license key from the Brocade software licensing portal. The license key is contained within a *license file* , which is downloaded to your PC. You can add the license key to a switch using the command. Once a license is installed on the SLX-OS switch, you may be prompted to disable and reenable the chassis or specific ports to activate the license. The license key is stored in the flash file system.

License types

The following license types are supported in SLX-OS:

- Permanent licenses - A permanent license (also referred to as a chassis-wide license) has no expiration date and is locked to a single switch identified by the switch license ID.
- Self Authenticated Upgrade (SAU) licenses - This license enables the advanced licensed feature set prior to purchasing a license. The SAU license does not require an activation process or transaction key. You do not need to install a physical license on the SLX-OS platform to use the licensed feature set. You must accept the End-User License Agreement (EULA) through the CLI commands before the system can support the licensed capabilities. Once you accept the EULA, you can configure and begin using the feature on the device. The EULA requires a license to be purchased within 30 days of accepting the license EULA statement through the CLI. A Certificate of Entitlement (CoE) is issued through Brocade once you have paid for SAU license. The CoE document certifies that you have paid for the license to use the feature on for a specific platform.

Software license terminology

The following terms are used in this document:

- Entitlement certificate - The proof-of-purchase certificate (*paper-pack*) issued by Brocade when a license is purchased. The certificate contains a unique transaction key that is used in conjunction with the *license ID (LID)* of the Brocade device to generate and download a software license from the Brocade software portal.
- License file - The file produced by the Brocade software portal when the license is generated. The file is uploaded to the Brocade device and controls access to a *licensed feature* or feature set.

- License ID (LID) - The identification number that uniquely identifies the Brocade device. The LID is used in conjunction with a transaction key to generate and download a software license from the Brocade software portal. The software license is tied to the LID of the Brocade device for which the license was ordered and generated.
- Licensed feature - Any hardware or software feature or set of features that require a valid software license in order to operate on the device.
- Transaction key - This unique key, along with the *LID* , is used to generate a software license from the Brocade software portal. The transaction key is issued by Brocade when a license is purchased. The transaction key is delivered according to the method specified when the order is placed:
  - **Paper-pack** - The transaction key is recorded on an *entitlement certificate,* which is mailed to the customer.
  - **Electronic -** The transaction key is contained in an e-mail, which is instantly sent to the customer after the order is placed. The customer receives the e-mail within a few minutes after the order is placed, though the timing will vary depending on the network, Internet connection, and so on.
  - If a delivery method was not specified at the time of the order, the key will be delivered via paper-pack.

Licensing rules

The following table lists the license requirements by platform.

TABLE 1 License requirements by platform

Platform	License type	Notes
SLX 9240	SAU License	Advanced features are available with the SAU license.
SLX 9140	SAU License	Advanced features are available with the SAU license.

The following table provides descriptive details for the license type.

TABLE 2 Brocade licenses for SLX-OS

License	Description
Advanced License • ADVANCED_FEATURES	The SAU license enables the advanced licensed features prior to purchasing a license. On the Brocade SLX 9240 and SLX 9140 platforms, the Advanced Feature license set includes OVSDB integration, Guest VM, gRPC, and Timestamping.

Licensing considerations

This section lists the generic rules, restrictions, and considerations related to the software licensing:

- A license is tied to the unique LID of the blade or the switch for which the license was generated. Therefore, a license can be used on one switch only. It cannot be used on any other switch.
- More than one license for multiple features can be installed per switch.
- Only one permanent license at a time can be in effect for a licensed feature.
- Licenses are not interchangeable between units.
- Licenses are independent of configuration files and are therefore not affected when you make changes to a configuration file or restore the default configuration.

Software licensing configuration tasks

This section describes the configuration tasks for generating and obtaining a software license, and then installing it on the Brocade device. Perform the tasks in the order as given in the following list.

Following are the configuration tasks for software licensing:

1. Order the desired license.

2. Retrieve the LID of the Brocade device after you receive the transaction key. If the transaction key is received by way of paperpack, record the LID on the entitlement certificate in the space provided.

3. Log in to the Brocade software portal (http://swportal.brocade.com) to generate and obtain the license file.

4. Upload the license file to the Brocade SLX 9140 and Brocade SLX 9240.

5. Verify that the license is installed.

Generating a license

Before you can use a software license, you must generate it from the Brocade software portal.

The following procedure demonstrates how to generate and obtain a software license.

1. Order a license.

    You will receive the license transaction key in the form of a paperpack or electronic transaction key. When you receive the paperpack or electronic transaction key, retrieve the LID of your Brocade device by entering the **show license id** command on the device. If you have received a paperpack transaction key, write the LID in the space provided on the entitlement certificate and on the unit ID label.

    > **NOTE**
    > To order and obtain a trial license, contact your Brocade representative.

   > **NOTE**
    > Do not discard the entitlement certificate or e-mail with the electronic key. Keep it in a safe place in case it is needed for technical support or product replacement (RMAs).

2. Log in to the Brocade software portal at http://swportal.brocade.com and complete the software license request. If you do not have a login ID and password, request access by following the instructions on the screen.

    The following figure shows the Software Licensing portal login window.

    FIGURE 1 Software Licensing portal login window
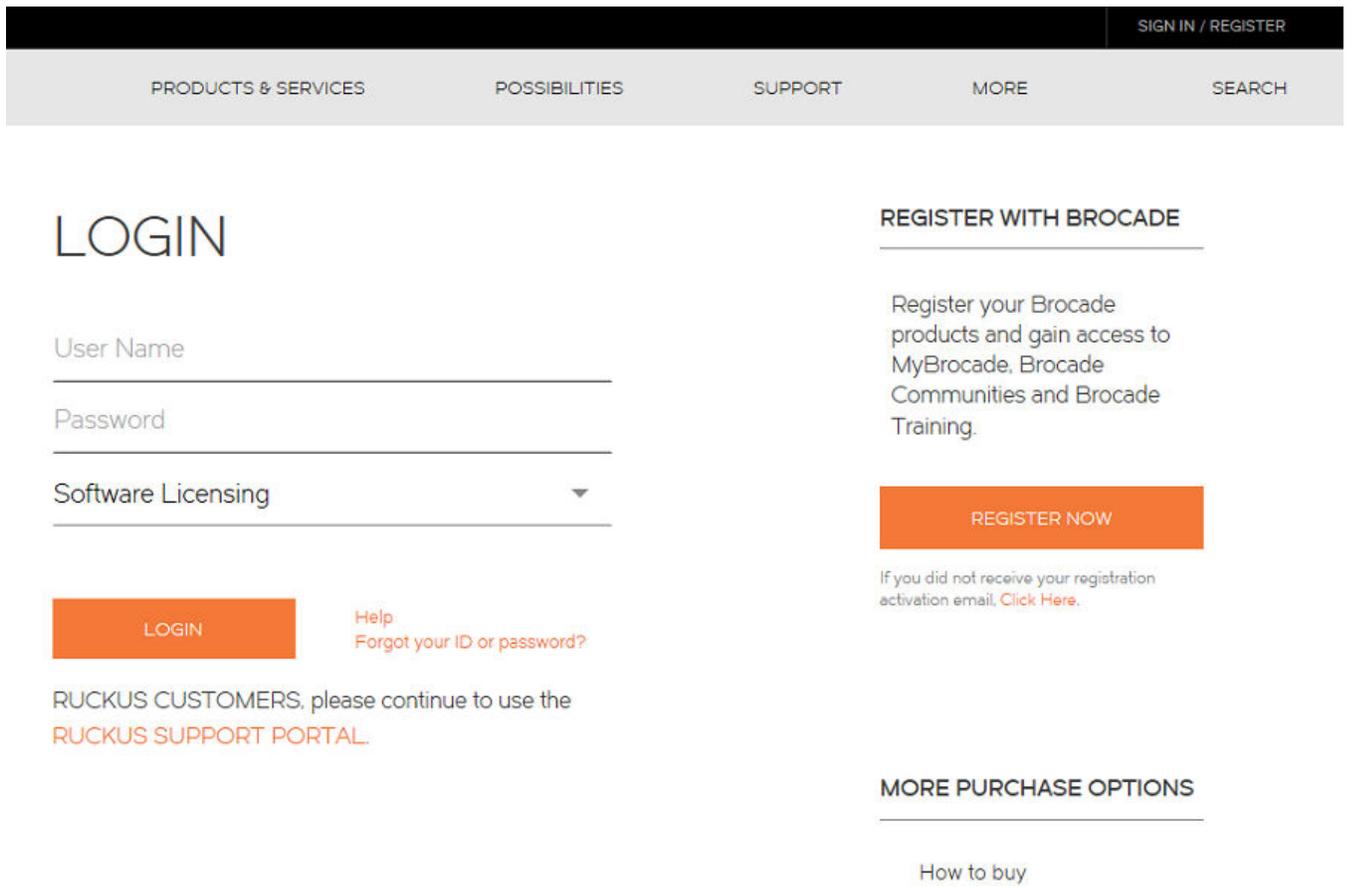
3. Enter your user name and password and click **LOGIN**.
   The **License Generation** window appears.

   FIGURE 2 License Generation window

4. Enter the licensing transaction key, token, or certificate and click **Next**.
   The **License Information** window is displayed.

   FIGURE 3 License Information window

5. Enter the requested information in the **Product Information** field.
6. Read the Brocade End User License Agreement and select the **I have read and accept** check box.

7. Click **Generate**.

   The **Results** window displays an order summary and the results of the license request.

   • If the license request is successful, the Status field shows "Success" and the **License** field contains a hyperlink to the generated license file. The license file is automatically sent by e-mail to the specified customer e-mail address.

   • If the license request fails, the reason it failed and the action to be taken is displayed on the page.

FIGURE 4 Results window
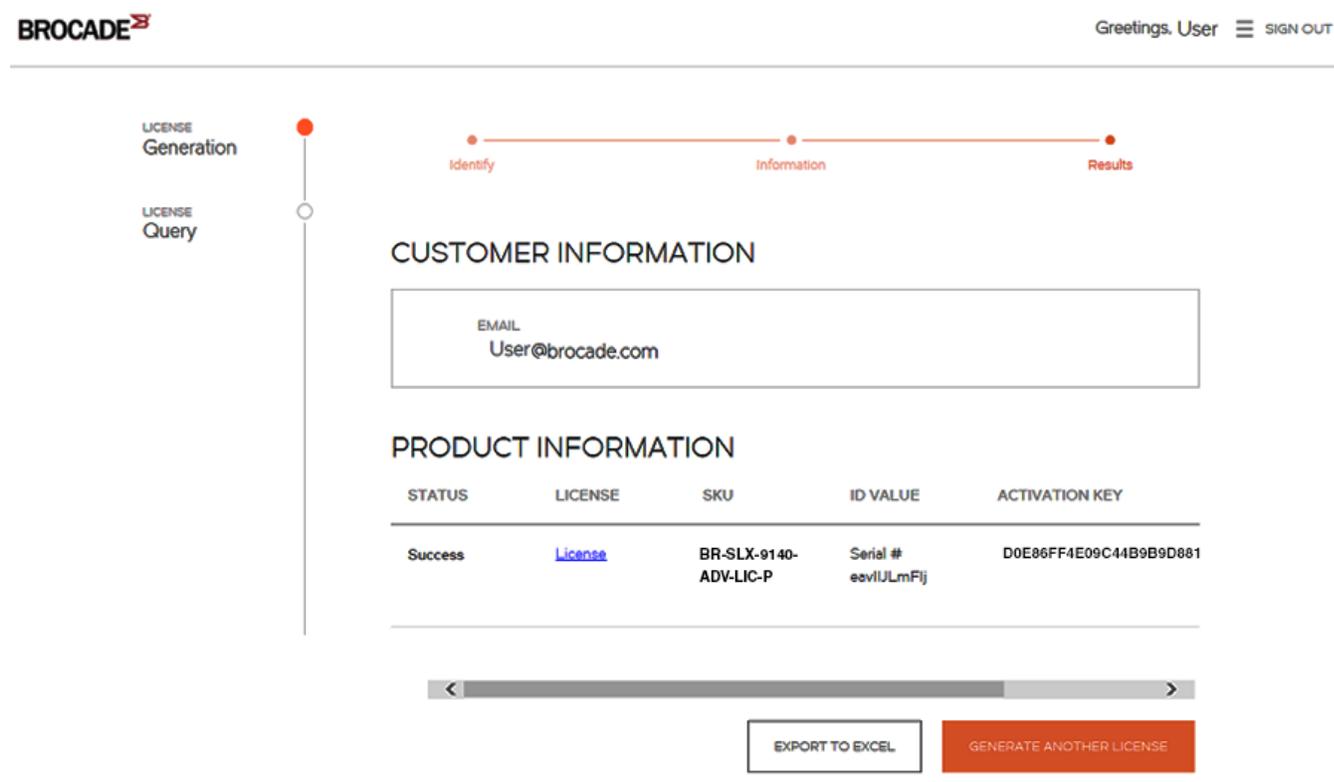
8. Click the hyperlink in the **License** field to download the license file to your PC.

9. Upload the license file to the Brocade device. You can also refer to the e-mail sent with the license files for instruction on installing a license.

10. Click **Export to Excel** to export the results to a Microsoft Excel file or click **Generate Another License** to generate a new license.

Querying a license

To view software license information for a particular product, you can use the License Query option with an Activation key or License ID (LID).

1. To display the License Query window, you must select the **Unit License Query** option, from the **License Management Welcome** window, select **License Management** > **Brocade NOS** > **Unit License Query.**

   FIGURE 5 License Query window

   Click **input guidelines** for more information on the input value.

2. You must enter the **License ID**,**Serial #** or **Activation Key** to query a particular product.

3. Click **Search**. Depending on the status of the license (for example, whether or not the license was generated), the report includes the following product information:

   - Product name SKU

   - ID value

   - Activation key

   - License

   - Created date

   - Capacity

   - Customer name

   - Description

FIGURE 6 License Product Information window

In the figure, the first row under PRODUCT INFORMATION displays hardware-related information and the second row displays software-related information. If the query is performed before the transaction key is generated, the hardware-related information will not appear as part of the search results. Similarly, if the query is performed before the license is generated, some of the information in the software-related information will not be displayed.

4. Click **more** or **less** in **ID value** to view the License ID.

5. Click the **License** hyperlink to download the license information.

6. Click **Export to Excel** to download the report for sharing or archiving purposes, or Click **Search Another Unit** to query another product.

Software Licensing Tasks

Adding or removing a SAU license

You can add a SAU license using the **license eula accept** command. The EULA text can be displayed using the **show license eula** command.

The following example displays the EULA text.

```
device# show license eula
Use of the features enabled via the "license eula accept" CLI requires a license to
be purchased within 30 days. By accepting the EULA you indicate that you
have read and accept the Brocade End User License Agreement found at the following URL.
[www.brocade.com/en/legal/software-terms-eulas/brocade-network-operating-system.html].
```

When the **license eula accept** command is entered, you are agreeing to purchase a license within a specific timeframe. You can begin using the features immediately.

The following example shows how to accept the EULA for the SAU license (Advanced Features).

```
device# license eula accept ADVANCED_FEATURES
2016/12/05-13:35:00, [SEC-1120], 64,, INFO, SLX9240, License EULA entry added for ADVANCED_FEATURES feature
(capacity 0).

EULA accepted for feature [ADVANCED_FEATURES]

Use of the ADVANCED_FEATURES feature requires a license to be purchased within 30 days.
By accepting the EULA you indicate that you have read and accept the Brocade End User License Agreement
found at the following URL
[www.brocade.com/en/legal/software-terms-eulas/brocade-network-operating-system.html].
You can decline the EULA acceptance now by entering "license eula decline ADVANCED_FEATURES"
at the CLI prompt; declining the EULA will prevent use of the licensed feature.
```

The **show license** command will also display the SAU license when the EULA is accepted.

```
device# show license
Chassis:
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Advanced Features license
Feature name:ADVANCED_FEATURES
License is Trust Based
EULA acceptance date: Mon Dec  5 13:35:00 2016
```

If the SAU license is not accepted using the **license eula accept** command, the Advanced features cannot be used. In the following example for gRPC configuration, the **license eula accept** command was not accepted prior to the configuration. You must accept the SAU license before you can begin using the Advanced features.

```
device(config)# telemetry server use-vrf mgmt-vrf
device(config-server-mgmt-vrf)# transport tcp
device(config-server-mgmt-vrf)# port 50051
device(config-server-mgmt-vrf)# activate
%ERROR: ADVANCED_FEATURE license is required for this feature.
```

You can remove a SAU license using the **license eula decline** command. The following example displays removing a SAU license (Advanced features).

```
device# license eula decline ADVANCED_FEATURES

 EULA removed for feature [ADVANCED_FEATURES]
```

When the **license eula decline** command is entered, you are no longer able to use the licensed features. Before you can "decline" the licensed features, all configuration settings related to the feature must be restored to default settings.

The following CLI message is displayed when you attempt to configure a feature that requires a SAU license, and you have not accepted the EULA and there is no SAU license installed for that feature.

```
No ADVANCED_FEATURES EULA accepted for this feature
```

Displaying the device license ID

The switch license ID identifies the switch for which the license is valid. You will need the switch license ID when you activate a license key.

To display the switch license ID, enter the **show license id** command in privileged EXEC mode.

```
device# show license id
Location  License ID

====================================================

Chassis  10:00:C4:F5:7C:40:01:46
```

Troubleshooting licensing issues

Some features require licenses in order to work properly. Non-SAU Licenses are created using a switch license identifier (LID), so you cannot apply one license to different switches. Before calling your switch support provider, verify that you have the correct licenses installed by using the **show license** command.