OVERVIEW

Adding new features to your existing AOS unit is possible by purchasing additional features from ADTRAN. Once you have purchased the new feature, a confirmation email is sent to you which includes the Activation key(s). More than one Activation key can be provided in the confirmation email depending on how many features you purchase. Each Activation key is used for enabling a specific feature for the AOS unit for which it was purchased.

Options for licensing AOS features depends on the AOS firmware installed on the AOS device. With the release of AOS firmware R13.4.0, the licensing process is streamlined into a 2-step process, using the AOS CLI. In units using releases prior to R13.4.0, but R11.8.0 or later, the licensing process requires 4-steps, using both the AOS CLI or GUI. Instructions for both licensing processes are described in the following sections.

GETTING STARTED WITH AOS FIRMWARE R13.4.0 AND LATER

To enable new features on your AOS unit, running AOS firmware R13.4.0 and later, you must complete a 2-step process using the AOS CLI. The first step is to configure a license server, from which license keys are automatically retrieved by the AOS unit. Once the server has been specified, the Activation key for each feature is specified using a single command, automatically resulting in the features being licensed on the AOS unit. To license and activate features on your AOS unit, using AOS firmware R13.4.0 or later, follow the steps outlined below.

> **i** **NOTE**
>
> You must follow this process exactly as described. The prerequisites listed in "Pre-Licensing Requirements for AOS R13.4.0 and Later" must be met before you can successfully complete this process. Additional information is also provided in the "Troubleshooting" and "Additional Licensing Options" sections.

Pre-Licensing Requirements for AOS R13.4.0 and Later

To complete the licensing process on an AOS unit running AOS firmware R13.4.0 or later, you must meet the following requirements:

- Have installed AOS firmware R13.4.0 or later.
- Have access to the AOS unit (via CLI) on which the new feature is being activated.
- Have purchased an AOS license for the new feature.
- Have received a confirmation email, which includes the Activation key(s).

STEP 1: CONFIGURE THE LICENSE SERVER

This step requires: Access to an AOS unit using the CLI.

In this step, you will configure a license server, from which license keys are automatically retrieved by the AOS unit.

To configure the license server, connect to the AOS CLI, and enter the **license server [vrf** *<name>*] **url** *<url>* command from the Global Configuration mode prompt. (For more detailed instructions on accessing the CLI of your device, refer to the Quick Start that shipped with your unit). The optional **vrf** *<name>* parameter specifies a non-default virtual routing and forwarding (VRF) instance on which to specify the license server. The *<url>* parameter specifies the uniform resource locator (URL) address of the server using either Hypertext Transfer Protocol (HTTP) or HTTP Secure (HTTPS), for example, **https://example.com**. Enter the command as follows:

```
(config)#license server url https://example.com
(config)#
```

If you do not specify this command, the license key request is automatically sent to **https://portal.adtran.com/web/ptapi/generate**.

ADTRAN®

STEP 2: SPECIFY FEATURE ACTIVATION KEYS

This step requires: Access to an AOS unit using the CLI.

In this step, you will specify up to five Activation keys provided to you when you purchased the AOS features. These activation keys are automatically sent to the license server (configured in "Step 1: Configure the License Server"), and then the features are automatically licensed on the AOS unit.

To specify the feature Activation keys, enter the **license activate** *<activation key>* command from the Enable mode prompt. (For more detailed instructions on accessing the CLI of your device, refer to the Quick Start that shipped with your unit). Up to five Activation keys can be specified using this single command. Enter the command as follows:

```
#license activate key1 key2 key3
#
```

STEP 3: VERIFY THE AOS FEATURES ARE LICENSED

You can optionally choose to verify that the AOS features have been properly licensed by entering the **show license features** command from the Enable mode prompt. The following is sample output from the **show license features** command:

```
#show license features
Name                                    Installed               Active Quantity
--------------------------------------  ----------------------  ------------------------
Enable Media Anchor                     no                      n/a
Enable Voice Trunks                     yes                     10
Enable Voice Users                      yes                     10
SIP Call Capacity                       no                      n/a
```

If all purchased features indicate they have been licensed correctly, you have completed AOS feature licensing. Refer to "Troubleshooting" or "Additional Licensing Options" for additional information.

GETTING STARTED WITH AOS FIRMWARE R11.8.0 OR LATER

With AOS units running AOS firmware later than R11.8.0, but prior to R13.4.0, a 4-step licensing process is required for licensing AOS features. First, you must verify that you have your Activation key(s) for each AOS feature you want to license in the confirmation email after your purchase. Next, you will generate a License Request key from the AOS unit on which you want to enable the newly purchased features. Each License Request key contains a unique unit identifier. You will use both the License Request key and the Activation key(s) to generate a license file which is then uploaded to the AOS unit. This 4-step process takes less than 10 minutes to complete if you have access to both the AOS unit and the ADTRAN AOS Licensing Portal through the Internet. Figure 1 describes this process.
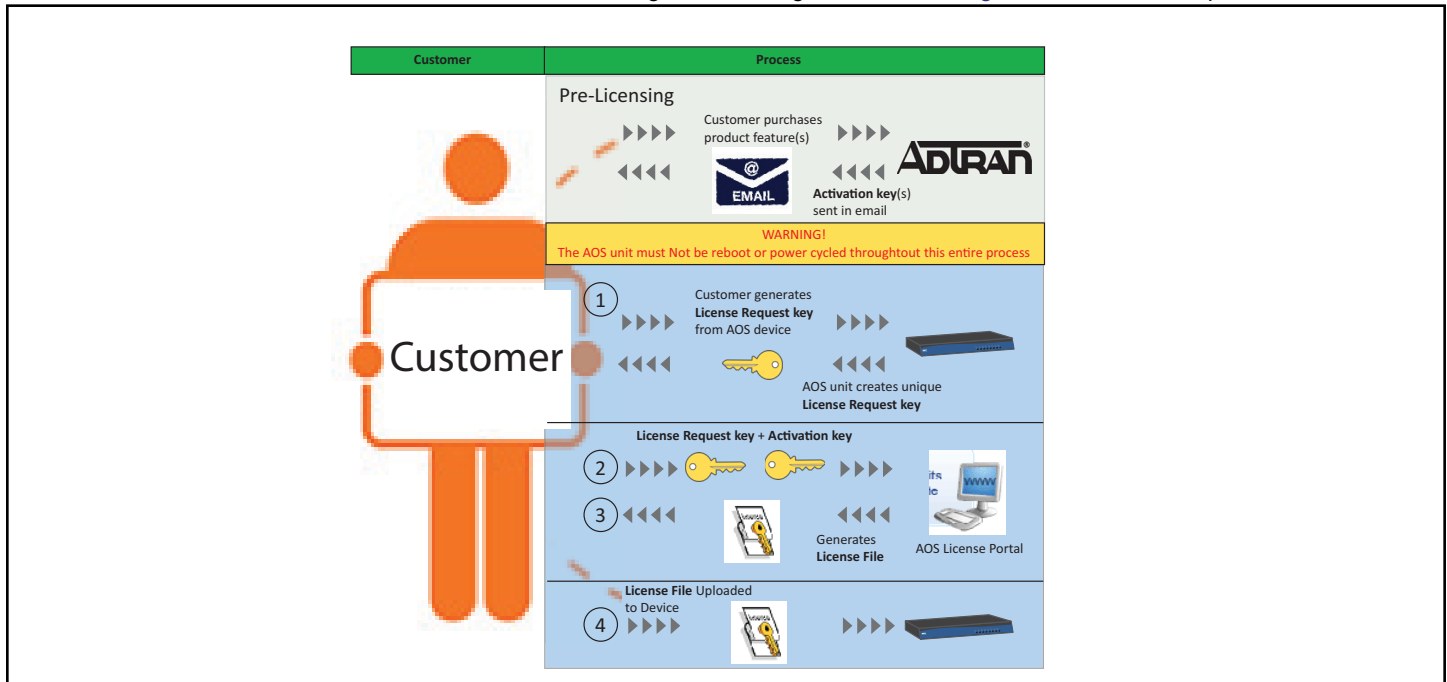

Figure 1. AOS Licensing Process

To enable new features on your AOS unit, you must follow this multi-step process exactly as described. The prerequisites listed in "Pre-Licensing Requirements for AOS Firmware R11.8.0 or Later" must be met before you can successfully complete this process. Additional information is also provided in the "Troubleshooting" and "Additional Licensing Options" sections.

Pre-Licensing Requirements for AOS Firmware R11.8.0 or Later

To complete the licensing process on an AOS unit, you must meet the following requirements:

- Have installed AOS firmware R11.8.0 or later.
- Be a registered user at ADTRAN.com.
- Have access to the AOS unit (via CLI or GUI) on which the new feature is being activated.
- Have access to the AOS Licensing Portal located at www.adtran.com/AOSlicensing.
- Have purchased an AOS license for the new feature.
- Have received a confirmation email, which includes the Activation key(s).

STEP 1: GENERATE A LICENSE REQUEST KEY

This step requires: Access to an AOS unit (either GUI or CLI)

| i | NOTE

IMPORTANT: The AOS unit must remain powered on through the duration of the licensing process. If the unit is rebooted or power cycled after the License Request key is generated, the key will no longer be valid and you will have to start the process from the beginning.

The License Request key is a unique key generated by AOS which contains information about the unit that validates it for one-time use only. Once a license key has been installed, the License Request key is cleared and no longer valid.

1. To generate a License Request key, use either the CLI or the GUI instructions below. (For more detailed instructions on accessing the CLI or GUI of your device, refer to the Quick Start that shipped with your unit.)
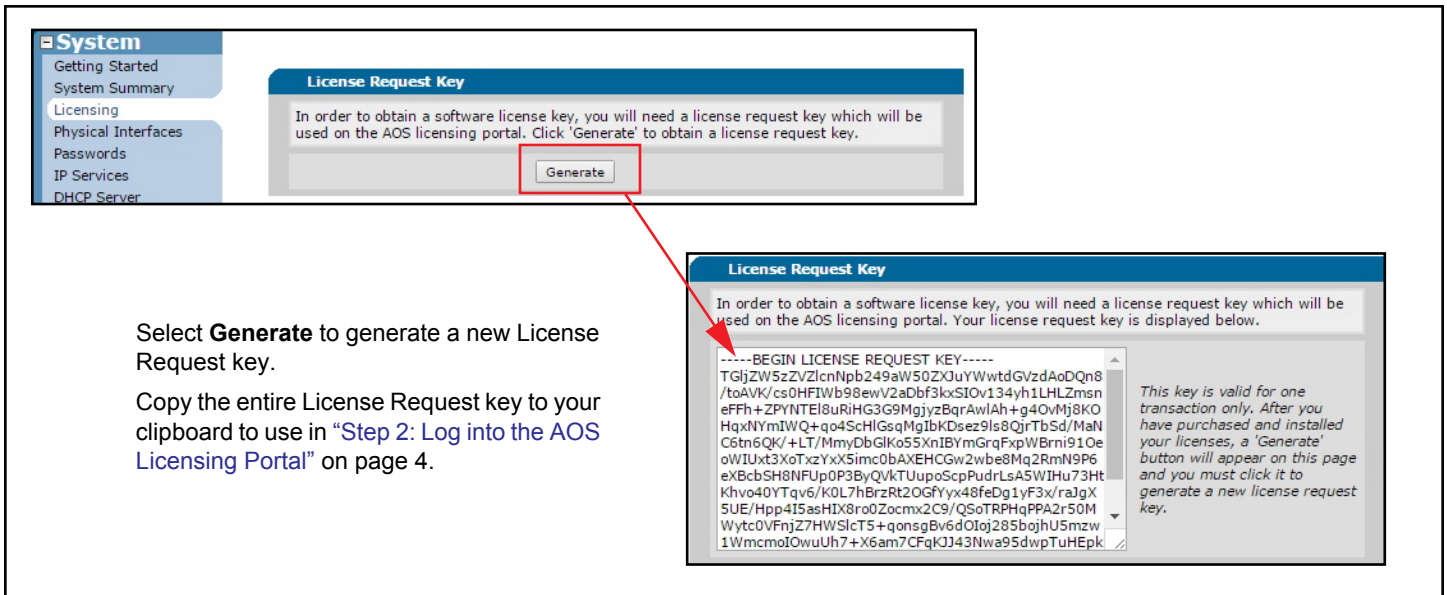
   Using the CLI

   a. Log into the AOS unit using Telnet or SSH.

   b. From the Enable Mode prompt, enter the command: **license request key generate**

   Using the GUI

   a. Log into the GUI of the AOS unit.

   b. Navigate to **System** > **Licensing**.

   c. Select **Generate** from the **License Request Key** section of the menu.

   You will use the resulting License Request key to generate a license file from the AOS License Portal as shown in Figure 2 on page 4.

Figure 2. Requesting a License Key Using the GUI

2. Using either the CLI or GUI, copy the License Request key by selecting the entire key and using the copy function (either through the browser or your terminal session with the AOS unit). Be sure to select the entire License Request key, including all dashes and text in the beginning and ending delimiters which identify the start of the license request key and the end. The following is an example License Request key:

```
-----BEGIN LICENSE REQUEST KEY-----

Q29uZ3Jlc3Mgc2hhbGwgbWFrZSBubyBsYXcgcmVzcGVjdGluZyBhbiBlc3RhYmxpc2htZW50IG9mIHJlbGlnaW9uLCBvciBwcm9oaWJpdGluZyB0aGUgZnJlZSBleGVyY2lzZSB0aGVyZW9mOyBvciBhYnJpZGdpbmcgdGhlIGZyZWVkb20gb2Ygc3BlZWNoLCBvciBvZiB0aGUgcHJlc3M7IG9yIHRoZSByaWdodCBvZiB0aGUgcGVvcGxlIHBlYWNlYWJseSB0byBhc3NlbWJsZSwgYW5kIHRvIHBldGl0aW9uIHRoZSBHb3Zlcm5tZW50IGZvciBhIHJlZHJlc3Mgb2YgZ3JpZXZhbmNlcy4=

    -----END LICENSE REQUEST KEY----
```

3. As soon as possible, proceed to "Step 2: Log into the AOS Licensing Portal".

[i] **NOTE**
IMPORTANT: Use the License Request key as soon as possible to generate a license file from the AOS License Portal and complete the licensing process. Otherwise, the request key could be overwritten by generating a new License Request key on the AOS unit.

STEP 2: LOG INTO THE AOS LICENSING PORTAL

This step requires: Internet Browser

1. Navigate to *www.adtran.com/AOSlicensing*.

2. Log in as a registered user. This can be a common user for your company or an individual account. The user you log in as will receive the email with the license file attached or you can download the license file from the AOS Licensing Portal. Ensure that you have either access to the email account or will be able to copy the contents of the downloaded license file to your AOS unit.

[i] **NOTE**
Using one common user account for your company allows anyone at your company that has the user login credentials access to all the devices registered to that account.

3. Select **Add a New License Feature to Your AOS Device** from the action list.

STEP 3: GENERATE A LICENSE FILE

This step requires:

- Internet Browser
- Confirmation Email

1. Paste the License Request key (from the AOS unit) into the appropriate field in the AOS Licensing Portal.

2. Copy the Activation key(s) from the confirmation email you received after purchasing your licensed AOS feature.

> ℹ️ **NOTE**
>
> **IMPORTANT:** Be sure to use only the Activation key(s) for the feature(s) you intend to apply to the specific AOS unit from which the License Request key was generated. Your email confirmation may include more than one feature Activation key. Once the Activation key(s) is applied to a License Request key to generate a license file, it cannot be undone.

3. Paste the Activation key(s) into the appropriate field in the AOS Licensing Portal (refer to Figure 3).

Figure 3. Paste Activation Key(s) into AOS Licensing Portal

4. Select the **Preview your License** button. A summary screen is presented to allow you an opportunity to verify the features you are currently activating for the device from which the License Request key was generated. You should review this information to make sure it is correct before continuing.

5. Select the **Generate your AOS License** button. Once the license file is generated, it is emailed to the registered user and is available for immediate download. The license file is a text file and is named using the serial number of the AOS unit for which it was generated.

6. Retrieve the license file from the confirmation email or save the license file. You will need the contents of this file in the next step.

STEP 4: INSTALL THE LICENSE FILE

This step requires:

- Access to an AOS unit (either CLI or GUI)
- Newly generated license file

> ⚠️ **CAUTION!**
>
> The AOS unit must remain powered on through the duration of the licensing process. If the unit is rebooted or power cycled after the License Request key is generated, the key will no longer be valid and you will have to start the process from the beginning.

ADTRAN

To complete the licensing process, you must install the license file on the AOS unit using either the CLI or the GUI instructions below.

Using the CLI

1. From the AOS unit's CLI, enter the following command and follow the prompts:

```
>enable
#license key install
```

Enter the entire license key. End with two consecutive carriage returns or the word "quit" on a line by itself:

2. Copy the contents of the license file by opening the license file in a text editor of your choice. Be sure to select all of the license file contents, including all dashes and text in the beginning and ending delimiters which identify the start of the license key and the end. For example:

```
-----BEGIN LICENSE KEY-----
License Serial Num:  12345678
License Part Num:    1962SBCF50
Device Serial Num:   LBADTN0000000
-----BEGIN BODY-----
RGV2aWNlU2VyaWFsTnVtPUxCQURUTjAwMDAwMDANCkxpY2Vuc2VWZXJzaW9uPWRvY3VtZW50YXRp
b25fZGVtbw0KRW52ZWxvcGU9V2V1UgaG9sZCB0aGVzZB0cnV0aHMgdG8gYmUgc2VsZi1ldmlkZW50
LCB0aGF0IGFsbCBtZW4gYXJlIGNyZWF0ZWQgZXF1YWwsIHRoYXQgdGhleSBhcmUgZW5kb3dlZCBi
eSB0aGVpciBDcmVhdG9yIHdpdGggY2VydGFpbiB1bmFsaWVuYWJsZSBSaWdodHMsIHRoYXQgYW1v
bmcgdGhlc2UgYXJlIExpZmUsIExpYmVydHkgYW5kIHRoZSBwdXJzdWl0IG9mIEhhcHBpbmVzcy4=
-----END BODY-----
-----BEGIN AUTHENTICATION-----
Rm91ciBzY29yZSBhbmQgc2V2ZW4geWVhcnMgYWdvIG91ciBmYXRoZXJzIGJyb3VnaHQgZm9ydGgg
b24gdGhpcyBjb250aW5lbnQsIGEgbmV3IG5hdGlvbiwgY29uY2VpdmVkIGluIExpYmVydHksIGFu
ZCBkZWRpY2F0ZWQgdG8gdGhlIHByb3Bvc2l0aW9uIHRoYXQgYWxsIG1lbiBhcmUgY3JlYXRlZCБl
cXVhbC4=
-----END AUTHENTICATION-----
-----END LICENSE KEY-----
```

| **i**   NOTE |

If you are installing more than one license file on the same AOS unit, you must install them at the same time. Each license begins with -----BEGIN LICENSE KEY----- for easy identification.

3. Once the license file contents are pasted into the CLI, type **quit** or press the **Enter** key twice.

Using the GUI

If you plan to use the GUI to install the license file, you can upload the file that was generated in the previous step, or copy the contents of the file and paste it into the GUI. Refer to the figure below for detailed instructions.

1. To begin, navigate to **System** > **Licensing**.

2. Select either Option 1 or Option 2 as described in Figure 4 on page 7:
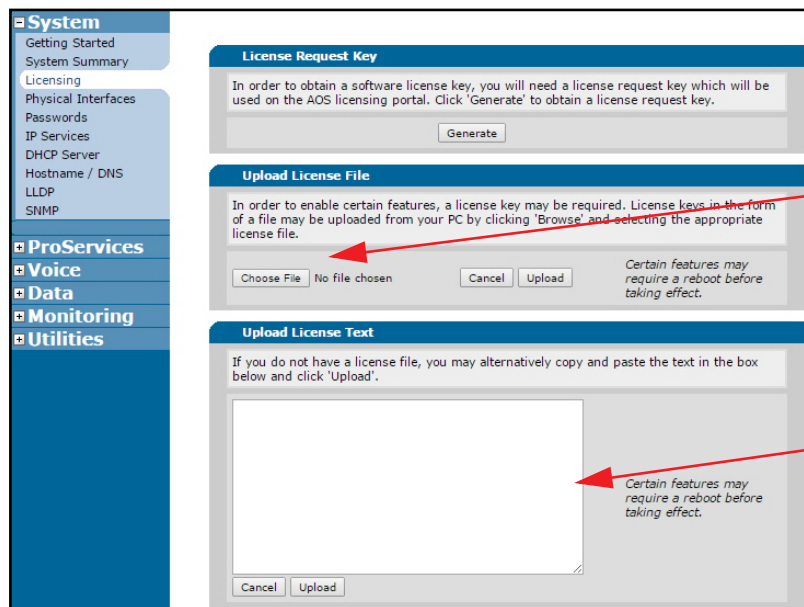
Option 1: Upload the license file.

To upload the file, select **Choose File** from the **Upload License File** section of the menu.

Select **Upload**.

Option 2: Copy the text from the license file and paste it into the GUI.

Open the license file in a text editor and copy the license text.

Return to the GUI and paste the text in the **Upload License Text** field provided.

Select **Upload**.

Figure 4. Using the GUI to Install License File

3. You will see a confirmation that the upload was successful.

ⓘ NOTE
Once the license file is applied, some features may require the device be rebooted before they will take effect.

TROUBLESHOOTING

When generating and applying new features through the AOS Licensing process, there are errors that could occur on the Web Portal or on the AOS unit. The following tables identify some of the errors you may encounter and provide suggested actions to correct them.

AOS License Portal Error Messages

Error Message	Corrective Action
Invalid Activation Key	Verify your activation key is correct. Compare the confirmation email received and the activation key used in the AOS Licensing Portal to confirm that they match.
Invalid Request Key	Verify your request key is correct. Verify the License Request key was generated from the correct AOS unit. License Request keys include information that link them to a specific AOS unit. Beginning and ending delimiters may have been omitted from the License Request key. Check the entry to make sure to include all dashes and text in the delimiters. Refer to the example in "Step 1: Generate A License Request Key" on page 3.
This Activation Key has already been used on another device.	Review existing activation keys on the AOS Licensing Portal. If the activation key has already been used to generate a License Request key on another device, you will not be able to use it again. To view your registered products and activation keys, from the ADTRAN website (www.adtran.com), select **Support** > **View My Products & Licenses**, select **Activation Keys**.
Invalid Activation Key	Verify your activation key is correct. Compare the confirmation email received and the activation key used in the AOS Licensing Portal to confirm that they match.
Invalid Request Key	Verify your request key is correct. Verify the License Request key was generated from the correct AOS unit. License Request keys include information that link them to a specific AOS unit. Beginning and ending delimiters may have been omitted from the License Request key. Check the entry to make sure to include all dashes and text in the delimiters. Refer to the example in "Step 1: Generate A License Request Key" on page 3.

Error Message	Corrective Action
This Activation Key has already been used on another device.	Review existing activation keys on the AOS Licensing Portal. If the activation key has already been used to generate a License Request key on another device, you will not be able to use it again. To view your registered products and activation keys, from the ADTRAN website (www.adtran.com), select **Support** > **View My Products & Licenses**, select **Activation Keys**.
Invalid Activation Key	Verify your activation key is correct. Compare the confirmation email received and the activation key used in the AOS Licensing Portal to confirm that they match.
Invalid Request Key	Verify your request key is correct. Verify the License Request key was generated from the correct AOS unit. License Request keys include information that link them to a specific AOS unit. Beginning and ending delimiters may have been omitted from the License Request key. Check the entry to make sure to include all dashes and text in the delimiters. Refer to the example in "Step 1: Generate A License Request Key" on page 3.
This Activation Key has already been used on another device.	Review existing activation keys on the AOS Licensing Portal. If the activation key has already been used to generate a License Request key on another device, you will not be able to use it again. To view your registered products and activation keys, from the ADTRAN website (www.adtran.com), select **Support** > **View My Products & Licenses**, select **Activation Keys**.

AOS Unit Error Messages

Error Message	Possible Causes and/or Corrective Action
% Invalid license sentinels	Could result because some characters are missing in the entered or pasted text. Attempt to copy and paste the text a second time.
% Translator: validateBase64Text Failure	Could result because some characters are missing in the entered or pasted text. Attempt to copy and paste the text a second time.
% License Verification Failure: License key does not match License Request key	License Request key of the unit does not match the one for which the license was generated. Generate a new License Request key and use it to generate a new license file on the AOS Licensing Portal.
% Decryption Failure: failed to decrypt license payload	Results from attempting to install a license on a different unit than the one for which it was generated. Verify you are installing the license on the correct AOS unit. If the unit is correct, generate a new License Request key and use it to generate a new license file on the AOS Licensing Portal.
% Invalid license sentinels	Could result because some characters are missing in the entered or pasted text. Attempt to copy and paste the text a second time.
% Translator: validateBase64Text Failure	Could result because some characters are missing in the entered or pasted text. Attempt to copy and paste the text a second time.
% License Verification Failure: License key does not match License Request key	License Request key of the unit does not match the one for which the license was generated. Generate a new License Request key and use it to generate a new license file on the AOS Licensing Portal.
% Decryption Failure: failed to decrypt license payload	Results from attempting to install a license on a different unit than the one for which it was generated. Verify you are installing the license on the correct AOS unit. If the unit is correct, generate a new License Request key and use it to generate a new license file on the AOS Licensing Portal.
% Invalid license sentinels	Could result because some characters are missing in the entered or pasted text. Attempt to copy and paste the text a second time.

ADDITIONAL LICENSING OPTIONS

To assist in troubleshooting and understanding the current status of your licensed features, AOS provides several additional CLI commands. These statuses can also be viewed from the AOS GUI.

Using the CLI

Full Command	Description
`show license request key`	Displays the currently active License Request key.
	A key will not display until the **license request key generate** command has been issued at least once. Generating a new License Request key clears any previous license request keys.
`show license [errors | features | keys | usage]`	Displays license information.
	Depending on the parameter entered, the output displays all license information or the specified information only. For more detailed information about this command and the available parameters, refer to the *AOS Command Reference Guide*.
`show license status [current | deprecated | inactive | installed | obsolete | partial | reboot | remove | running]`	Displays license status.
	Depending on the parameter entered, the output displays the status for the specified parameter. For more detailed information about this command and the available parameters, refer to the *AOS Command Reference Guide*.
`debug licensing`	Displays licensing event messages in real time.
`show license request key`	Displays the currently active License Request key.
	A key will not display until the **license request key generate** command has been issued at least once. Generating a new License Request key clears any previous license request keys.
`show license [errors | features | keys | usage]`	Displays license information.
	Depending on the parameter entered, the output displays all license information or the specified information only. For more detailed information about this command and the available parameters, refer to the *AOS Command Reference Guide*.
`show license status [current | deprecated | inactive | installed | obsolete | partial | reboot | remove | running]`	Displays license status.
	Depending on the parameter entered, the output displays the status for the specified parameter. For more detailed information about this command and the available parameters, refer to the *AOS Command Reference Guide*.
`debug licensing`	Displays licensing event messages in real time.
`show license request key`	Displays the currently active License Request key.
	A key will not display until the **license request key generate** command has been issued at least once. Generating a new License Request key clears any previous license request keys.

Using the GUI

To view the current status of licensed features from the AOS unit's GUI, navigate to **System** > **Licensing**. The features with currently installed licenses are shown in the **Licensed Feature Summary** portion of the menu.

Figure 5. Licensing Feature Summary

REMOVING A LICENSE

To remove a license file from your AOS unit, enter the **license key uninstall** command from the Enable mode prompt. Include an appropriate parameter (depending on your needs) as described in the following table:

Full Command	Description
`license key uninstall all`	Specifies removing all license keys.
`license key uninstall invalid`	Specifies removing invalid license keys only.
`license key uninstall unsupported`	Specifies removing unsupported license keys only.
`license key uninstall <serial number>`	Specifies a license serial number to remove.
`license key uninstall all`	Specifies removing all license keys.
`license key uninstall invalid`	Specifies removing invalid license keys only.
`license key uninstall unsupported`	Specifies removing unsupported license keys only.
`license key uninstall <serial number>`	Specifies a license serial number to remove.
`license key uninstall all`	Specifies removing all license keys.

Documentation for AOS products is available for viewing and download directly from the ADTRAN Support Community, available online at https://supportforums.adtran.com

ADTRAN offers training courses on our products, including customized training and courses taught at our facilities or at customer sites.

For inquiries, go to: https://adtran.com/training

The following online documents and resources provide additional information for this product:
AOS Command Reference Guide

C A U T I O N !
SUBJECT TO ELECTROSTATIC DAMAGE
OR DECREASE IN RELIABILITY
HANDLING PRECAUTIONS REQUIRED

ADTRAN CUSTOMER CARE:
From within the U.S.   1.888.423.8726
From outside the U.S. +1 256.963.8716
PRICING AND AVAILABILITY 1.800.827.0807

6AOSQSG001-13B