



SAS[®] Viya[®] 3.5 Administration: Licensing

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Licensing: Overview

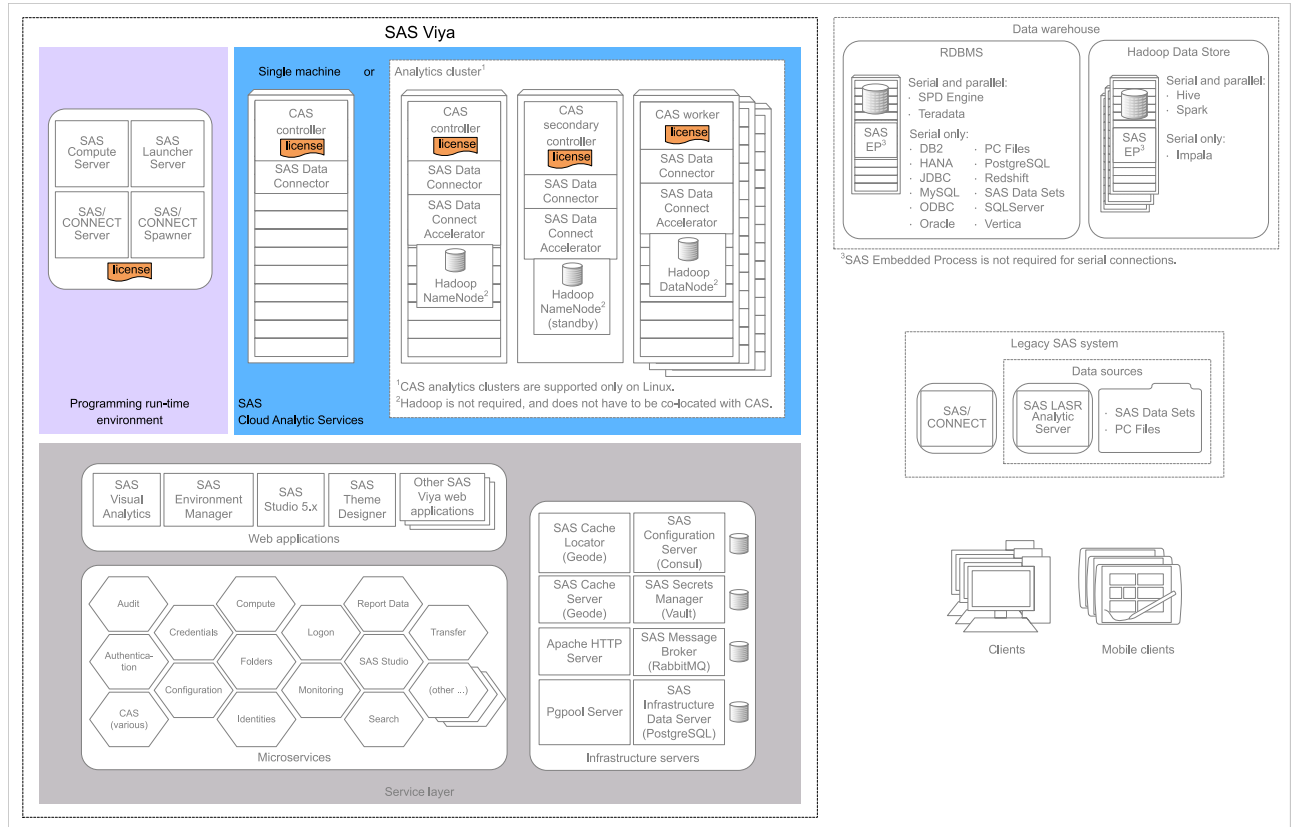
SAS Viya provides a license in two file formats: a traditional text file and a new JSON web token file. The JSON file includes the same information as the text file, and enables additional licensing information to be provided. Some SAS Viya products use the text file format. Other products use the JSON file format. Both SAS Cloud Analytic Services (CAS) and the SAS programming run-time environment use the same license.

During installation, a license is applied to both the CAS in-memory compute engine and the SAS programming run-time environment. You apply a new license to enable new products or to extend expiration dates on existing products.

The following diagram identifies where the license file resides in SAS Viya.

For more information, see [How To on page 2](#).

Figure 1 Where the SAS License File Resides



Licensing: How To Apply Licenses

Apply New Licenses (Linux)

Apply New Licenses Using Ansible

You apply a new SAS license when your current license has expired, or when you are adding new SAS products to your deployment. If your deployment was performed using Ansible, you can use Ansible to apply a new license. Ansible applies your new license to the CAS controllers—primary and backup—and also to the SAS programming run-time environment.

Note: To add a new license without using Ansible, see [“Apply New Licenses Manually”](#) on page 4.

- 1 Log on to your Ansible controller machine with a user that meets the requirements in [“Set Up the User Account that Deploys the Software”](#) in *SAS Viya for Linux: Deployment Guide*.

- 2 Move the current license files into a backup location.

Copies of your current license files should reside in your Ansible playbook directory (`sas_viya_playbook/`, by default).

The license files are named, `SASViyaV0300_order-number_site-number_Linux_x86-64.jwt` and `SASViyaV0300_order-number_Linux_x86-64.txt`.

- 3 SAS distributes renewal licenses to customers as file attachments in a renewal order email (ROE). Make sure that your new license files (a .txt file and a .jwt file) reside in your Ansible playbook directory.

Note: Some SAS Viya products use the text file (.txt). Other products use the JSON web token file (.jwt). Both SAS Cloud Analytic Services (CAS) and the SAS programming run-time environment use the same license.

- 4 Modify your Ansible playbook to point to the new license files.

Open `sas_viya_playbook/vars.yml`, locate `LICENSE_FILENAME` and `LICENSE_COMPOSITE_FILENAME`, and replace the current license filename with the corresponding new license filename.

Note: The JSON web token license file (.jwt) is also referred to as a composite license.

Here is an example:

```
# The name of the license file on the Ansible machine.
LICENSE_FILENAME: "SASViyaV0300_09MMMV_Linux_x86-64.txt"

# The name of the composite license file on the Ansible machine.
# If both files are present, the playbook will use the
# composite license file.
LICENSE_COMPOSITE_FILENAME: "SASViyaV0300_09MMMV_70180938_Linux_x86-64.jwt"
```

- 5 Run the following Ansible command for the default inventory file:

```
ansible-playbook apply-license.yml
```

IMPORTANT If you deployed additional CAS servers, run the `ansible-playbook` command with the `-i` option using the appropriate inventory file.

CAS sessions created after you apply the new license automatically update with license information from the new license.

- 6 Verify that your SAS Cloud Analytic Services license has been renewed by following the steps in [“View SAS Cloud Analytic Services License Information”](#) on page 9.
- 7 Verify that your SAS programming run-time license has been renewed by following the steps in [“View SAS Programming Run-Time License Information”](#) on page 8.

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- 8 If you deployed additional CAS servers, then perform [Step 5 – Step 6](#) on your additional controller and your additional backup controller machines.
- 9 If you deployed CAS servers in a multi-tenant environment, then use the following command for each tenant that you want to license:

```
ansible-playbook -i inventory.ini -e "@<tenantID>_vars.yml" utility/apply-cas-tenant-license.yml
```

Apply New Licenses Manually

You apply a new SAS license when your current license is about to expire, or when you are adding new SAS products to your deployment. You must apply your license to all CAS controllers—primary and secondary—and also to the SAS programming run-time environment.

Note: To add a new license using Ansible, see [“Apply New Licenses \(Linux\)”](#) on page 2.

- 1 On the machine where the SAS programming run-time environment is deployed, log on as a user that meets the requirements in [“Set Up the User Account that Deploys the Software”](#) in *SAS Viya for Linux: Deployment Guide*.
- 2 Move the current license files into a backup location.
Your current license files reside in `/opt/sas/spre/home/SASFoundation/`.
The license file is named `license`.
- 3 SAS distributes renewal licenses to customers as file attachments in a renewal order email (ROE). Make sure that your new license files (a `.txt` file and a `.jwt` file) reside in location that is accessible from your SAS programming run-time machine.

Note: Some SAS Viya products use the text file (`.txt`). Other products use the JSON web token file (`.jwt`). Both SAS Cloud Analytic Services (CAS) and the SAS programming run-time environment use the same license.

- 4 Run the following command to apply the license to your SAS programming run-time environment:

```
sudo su -s "/bin/sh" -c  
"/opt/sas/spre/home/SASFoundation/utilities/bin/apply_license  
/path/SASViyaVrelease-number_order-number_site-number_Linux_x86-64.jwt" sas
```

where *path* is the location where the new license file resides.

Here is an example:

```
sudo su -s "/bin/sh" -c  
"/opt/sas/spre/home/SASFoundation/utilities/bin/apply_license  
/opt/sas/installfiles/SASViyaV0300_09MMMV_70180938_Linux_x86-64.jwt" sas
```

You receive a message that your license has been applied.

- 5 Verify that your SAS programming run-time license has been renewed by following the steps in [“View SAS Programming Run-Time License Information”](#) on page 8.
- 6 On the machine where the CAS controller is deployed, log on as a user that meets the requirements in [“Set Up the User Account that Deploys the Software”](#) in *SAS Viya for Linux: Deployment Guide*.

- 7 Make sure that your new license files (a .txt file and a .jwt file) reside on your CAS controller machine in the following directory: `/opt/sas/viya/config/etc/cas/default/`.

IMPORTANT On machines that contain additional CAS servers, the path for the license file is `/opt/sas/viya/config/etc/cas/cas-instance-name`.

- 8 Update the symbolic link for `sas_license.txt` to point to the new CAS license file. (This should be the .jwt file.)

Here is an example:

```
cd /opt/sas/viya/config/etc/cas/default
ln -sf SASViyaV0300_09MMMV_70180938_Linux_x86-64.jwt sas_license.txt
```

Here is an example for an additional CAS server:

```
cd /opt/sas/viya/config/etc/cas/casserver2
ln -sf SASViyaV0300_09MMMV_70180938_Linux_x86-64.jwt sas_license.txt
```

CAS sessions created after you apply the new license automatically update with information from the new license file.

- 9 If you are running a multi-tenant deployment and have multiple CAS servers on a single machine, repeat [Step 7](#) – [Step 8](#) for each tenant instance of the CAS server (for example, `/opt/sas/tenant-1/config/etc/cas/default`, `/opt/sas/tenant-2/config/etc/cas/default`, and so on).
- 10 If you have a distributed CAS server, repeat [Step 6](#) – [Step 8](#) for each CAS worker node machine.
- 11 Verify that your SAS Cloud Analytic Services license has been renewed by following the steps in [“View SAS Cloud Analytic Services License Information”](#) on [page 9](#).
- 12 If you deployed a CAS backup controller (also referred to as a secondary controller), then perform [Step 7](#) – [Step 11](#) on your backup controller machine.
- 13 If you deployed additional CAS servers, then perform [Step 7](#) – [Step 11](#) on your additional controller and your additional backup controller machines.
- 14 Check the administration documentation for your SAS Viya product in case there are additional steps required for applying a license.

Apply New SAS Data Agent Licenses

SAS Data Agent has special licensing instructions. Apply a new SAS Data Agent license with the following steps:

- 1 Determine which machines are assigned to the DataAgent host group. This information is found in the `sas_viya_playbook/inventory.ini` file.
- 2 On each of these machines, copy the new text license file to `/opt/sas/viya/config/etc/dagentsrv/default/setinit.txt`.
- 3 Ensure that ownership of this file is `sas:sas` and Read and Write permissions are set to mode 660.
- 4 Restart the `sas-viya-dagentsrv-default` service.

In multi-tenant environments, repeat these steps for each tenant to update the file at `/opt/sas/tenant/config/etc/dagentsrv/default/setinit.txt`, set the owner of the file as the tenant administrator, and restart `sas-tenant-dagentsrv-default` on each tenant.

Apply New Licenses (Windows)

You apply a new SAS license when your current license is about to expire, or when you are adding new SAS products to your deployment. The license file is used by both SAS Foundation and SAS Cloud Analytic Services (CAS).

- 1 Log on to the SAS Viya machine as a user that is a member of the Windows Administrators group.
- 2 Move the current license files into a backup location.

Copies of your current license files should reside in the directory where your SAS Viya deployment scripts were created.

TIP If you followed the recommendation in the *SAS Viya for Windows: Deployment Guide* your deployment scripts and license files reside underneath `\sas\install`.

The license files are named, `SASViyaV0300_order-number_Win_x64_Wrkstn_Srv.jwt` and `SASViyaV0300_order-number_Win_x64_Wrkstn_Srv.txt`.

- 3 SAS distributes renewal licenses to customers as file attachments in a renewal order email (ROE). Make sure that your new license files (a TXT file and a JWT file) reside in the same directory as your SAS Viya deployment scripts.

Note: Some SAS Viya products use the text file (TXT). Other products use the JSON web token file (JWT). Both SAS Cloud Analytic Services (CAS) and SAS Foundation use the same license.

- 4 Change to the deployment scripts directory, open the file, `vars.psd1`, and modify the license file names to match the new license file name.

Here is an example:

```
COMPOSITE_LICENSE_FILENAME = "SASViyaV0300_09ML1N_70196364_Win_x64_Wrkstn_Srv.jwt"  
LICENSE_FILENAME = "SASViyaV0300_09ML1N_Win_x64_Wrkstn_Srv.txt"
```

- 5 Run the following command to apply your new SAS license:

```
setup.bat -apply-license
```

CAS sessions created after you apply the new license are not automatically updated with the new license information. You must restart CAS for the new license to take effect. Note that this behavior is different on Windows and Linux.



- 6 Verify that your SAS Foundation license has been renewed by following the steps in [“View SAS Programming Run-Time License Information” on page 8](#).
- 7 Verify that your SAS Cloud Analytic Services license has been renewed by following the steps in [“View SAS Cloud Analytic Services License Information” on page 9](#).

Licensing: How to View Licenses (SAS Environment Manager)

Introduction

These instructions explain how to view product license information using [SAS Environment Manager](#).

Navigation

In the applications menu () , under **Administration**, select **Manage Environment**. In the navigation bar, click .

The Licensed Products page is an advanced interface. It is available to only SAS Administrators.

Licensed Products Page

Use the Licensed Products page to view and filter license status for one or more SAS products.

For each product, the following icons depict the effective license status:



The SAS license is current.



The SAS license is due for renewal (grace period).

The grace period is a predetermined range of days immediately after the license expiration date.

For example, if the expiration date is 30 June, the grace period might extend 45 days: from 1 July - 14 August.



The SAS license is about to expire (warning period).

The warning period is a predetermined range of days that follows the grace period.

For example, if the expiration date is 30 June, the warning period might extend 56 days: from 15 August - 09 October.



The SAS license has expired.

License expiration occurs immediately after the warning period ends. An expired license means that SAS does not run.

For example, if the warning period ends on 09 October, SAS stops running at 12:00 a.m. on 10 October.

Licensing: How To View Licenses (SAS Studio)

View SAS Programming Run-Time License Information

- 1 Open a web browser and sign in to SAS Studio with administrator privileges.

Here is an example:

```
https://mysasserver.example.com/SASstudioV
```

.....
Note: If your site uses a programming-only deployment, or your site uses SAS Studio 4.x, then in the preceding example, replace `SASstudioV` with `SASstudio`.
.....

- 2 In the **Code** tab, enter the following command:

```
proc setinit; run;
```

- 3 Click .

You should see output similar to the following:


```

56      proc setinit;
57
58
59      OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
Original site validation data
Current version: V.03.03M0P040416
Site name:      'smp statistics, ml, data connectors pkg chg 3.30'.
Site number:    70068118.
Expiration:     22MAY2018.
Grace Period:  45 days (ending 06JUL2018).
Warning Period: 56 days (ending 31AUG2018).
System birthday: 24MAR2016.
Operating System:  LIN X64 .
Product expiration dates:
---Base SAS Software          22MAY2018
---SAS/CONNECT                22MAY2018
.
.
.

```

View SAS Cloud Analytic Services License Information

- 1 Open a web browser and sign in to SAS Studio with administrator privileges.

Here is an example:

`https://mysasserver.example.com/SASStudioV`

Note: If your site uses a programming-only deployment, or your site uses SAS Studio 5.2 (Basic), then in the preceding example, replace `SASStudioV` with `SASStudio`.

TIP

To obtain license information without running SAS Studio, run the `getLicenseInfo` Action from any CAS programming language client. For more information, see [getLicenseInfo Action](#) in the *SAS Viya: System Programming Guide*.

- 2 In the **Code** tab, enter the following commands:

```
cas casauto;
```

```
cas casauto listabout;
```

- 3 Click .

You should see output similar to the following:

```

1          OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
72
73          cas casauto;
NOTE: The session CASAUTO connected successfully to Cloud Analytic Services d2-18w30.uda.sashq-
r.openstack.sas.com using port 5570.
      The UUID is 0c5e49b1-730f-7144-a119-4a363fd3ca00. The user is grraka and the active caslib is
CASUSER(myuser) .
NOTE: The SAS option SESSREF was updated with the value CASAUTO.
NOTE: The SAS macro _SESSREF_ was updated with the value CASAUTO.
NOTE: The session is using 0 workers.
74          cas casauto listabout;
      Section: About
      CAS = Cloud Analytic Services
      Version = 3.04
      VersionLong = V.03.04M0P05282018
      Copyright = Copyright © 2014-2018 SAS Institute Inc. All Rights Reserved.
      ServerTime = 2018-06-01T16:40:32Z
      Section: System
      Hostname = my_host
      OS Name = Linux
      OS Family = LIN X64
      OS Release = 3.10.0-327.10.1.el7.x86_64
      OS Version = #1 SMP Sat Jan 23 04:54:55 EST 2016
      Model Number = x86_64
      Linux Distribution = Red Hat Enterprise Linux Server release 7.2 (Maipo)
      Section: license
      site = ZZ-ZZZ-18w30-lax-ML
      siteNum = 12345678
      expires = 01Sep2018:00:00:00
      gracePeriod = 45
      warningPeriod = 47
      maxCPUs = 9999
NOTE: Request to LISTABOUT completed for session CASAUTO.
75
76          OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
89

```

Licensing: How To (CLI)

The following examples assume that you have already signed in to SAS Viya at the command line. See [“Command-Line Interface: Preliminary Instructions”](#) in *SAS Viya Administration: Using the Command-Line Interfaces*.

Example: List site information, which includes the site name, the site number, the operating system name, the release number, the server date, the grace period, and the warning period.

```
sas-admin licenses site-info list
```

Example: List all products in the system whose name contains “Visual Analytics”.

```
sas-admin licenses products list --name-contains "Visual Analytics"
```

Example: List all products in the system that are expired.

```
sas-admin licenses products list --expired
```

Example: List the products in the system that have these identifiers: 827, 921, and 985.

```
sas-admin licenses products list --product-ids 827,921,985
```

Example: List the number of products with a current license that are deployed.

```
sas-admin licenses count --current
```

Example: List the Data Connector products whose licenses are covered within the grace period.

```
sas-admin licenses data-connectors list --grace
```

See Also

[“Command-Line Interface: Overview” in SAS Viya Administration: Using the Command-Line Interfaces](#)

Licensing: Troubleshooting

Licensed Products page cannot be viewed.

Explanation:

Users without SAS administrator privileges and intra-tenant administrators do not have access to the Licensed Products page.




Resolution:

Contact your SAS administrator.

Licensing: Interfaces

There are several interfaces that you can use to manage and to view SAS license information. The following table lists these interfaces, and the shading indicates the relative amount of SAS license administration that each covers:

Table 1 Interfaces to SAS Viya Licensing

	Ansible	A software orchestration tool that provides the only interface for renewing a license.
	Command-line interface	(Read-Only) A command-line interface that enables you to query SAS license information.
	SAS Environment Manager	(Read-Only) A graphical enterprise web application used to view SAS license information.

