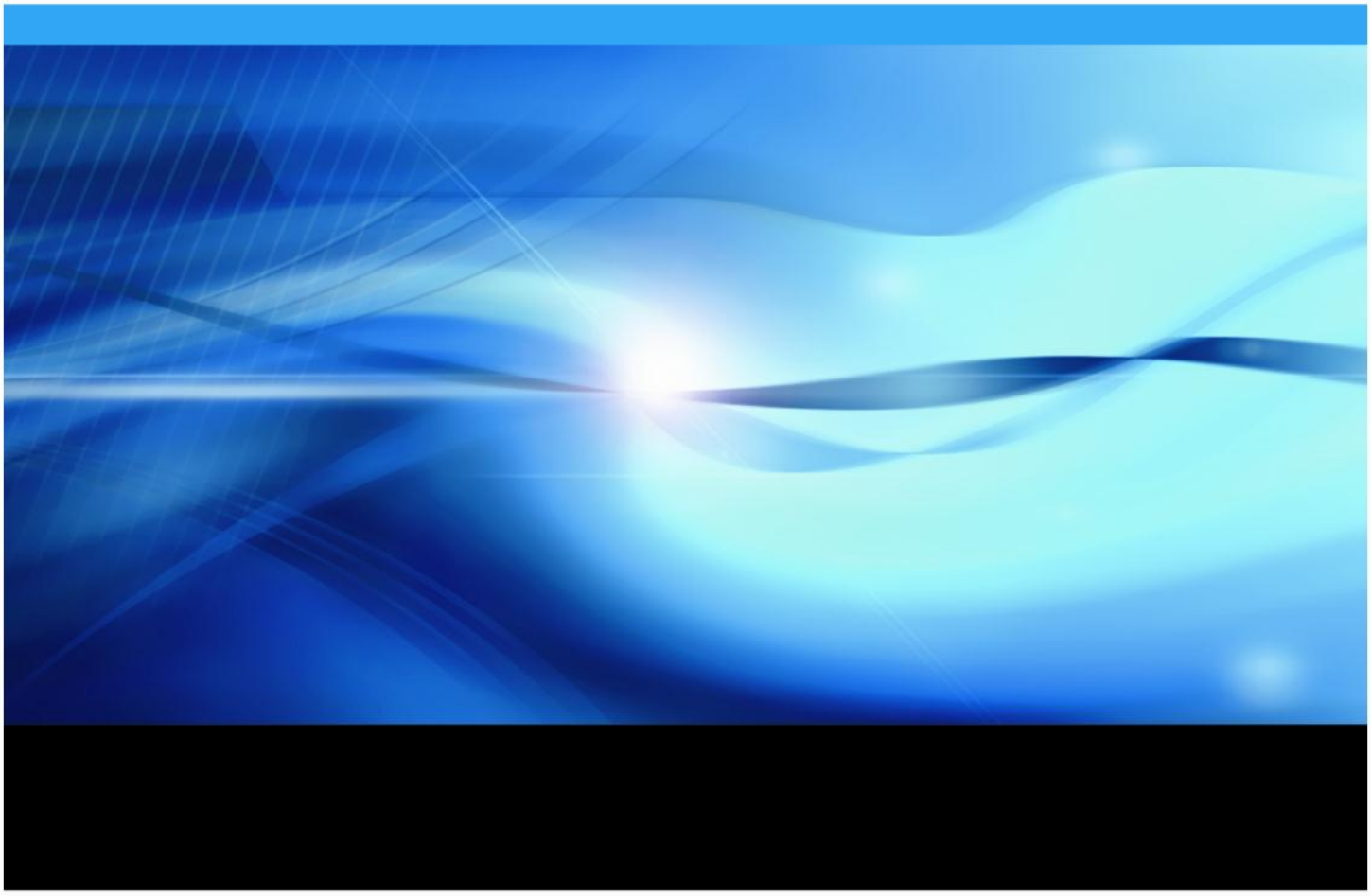
SAS® University Edition: Installation Guide for OS X



The correct bibliographic citation for this manual is as follows: SAS Institute Inc. 2014. SAS® University Edition: Installation Guide for OS X, Cary, NC: SAS Institute Inc.

SAS® University Edition: Installation Guide for OS X
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May 2014

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Table of Contents

Chapter 1 — Requirements 2

Chapter 2 — Instructions for Using VMware Fusion 3

Overview 3

Unzipping the SAS University Edition File 3

Configuring VMware Fusion 3

Starting SAS University Edition in VMware Fusion 4

Shutting Down SAS University Edition in VMware Fusion 6

Chapter 3 — Instructions for Using VirtualBox 7

Overview 7

Configuring VirtualBox 7

Starting SAS University Edition in VirtualBox 8

Shutting Down SAS University Edition in VirtualBox 10

Chapter 4 — Updating SAS University Edition 11

Chapter 5 — Troubleshooting and Online Help 12

Viewing the Installation Documentation 12

Using DropBox with SAS University Edition 12

Opening SAS Studio in a Different Browser Window 12

Missing Files on SAS Studio After Creating the first Shared Folder 13

Starting SAS Studio Without a Network Connection Results in a Delay 13

Running a SAS Program in SAS Studio Fails to Finish 13

Chapter 6 — Guidelines for Writing SAS Code for use with SAS University Edition 14

Chapter 1 — Requirements

- The SAS University Edition virtual image downloaded to your local system.
- An Apple Macintosh OS X 10.8 or later system.
- 64-bit hardware.
- One of the following virtualization software programs is required:
    - VMware Fusion for OS X 6.0. You can download VMware Fusion from https://my.vmware.com/web/vmware/info/slug/desktop_end_user_computing/vmware_fusion/6_0

      ***Note**: The SAS University Edition virtual image is configured to use 1GB of RAM and 2 processors. You can increase the RAM assigned to the SAS University Edition virtual image, but you should assign half (50%) or less of the available physical RAM. You cannot increase the number of processors assigned to the SAS University Edition virtual image.*
    - Oracle VirtualBox for OS X 4.3.12 or later. You can download VirtualBox from https://www.virtualbox.org/wiki/Downloads
- One of the following web browsers:
    - Apple Safari 6.0 or later
    - Mozilla Firefox 21 or later
    - Google Chrome 27 or later

***Note**: Updating SAS University Edition from earlier EA releases is not supported. Download the SAS University Edition virtual image and configure it in either VMware Fusion or Oracle VirtualBox.*

Chapter 2 — Instructions for Using VMware Fusion

Overview

To set up SAS University Edition, you will perform the following actions:

1. Unzip the SAS University Edition compressed file
2. Configure VMware Fusion
3. Start SAS University Edition in VMware Fusion

Unzipping the SAS University Edition File

Find the downloaded SAS University Edition zipped file, then double-click the file to expand the compressed files to the current location of the zipped file. Wait for the files to be expanded before you continue.

Configuring VMware Fusion

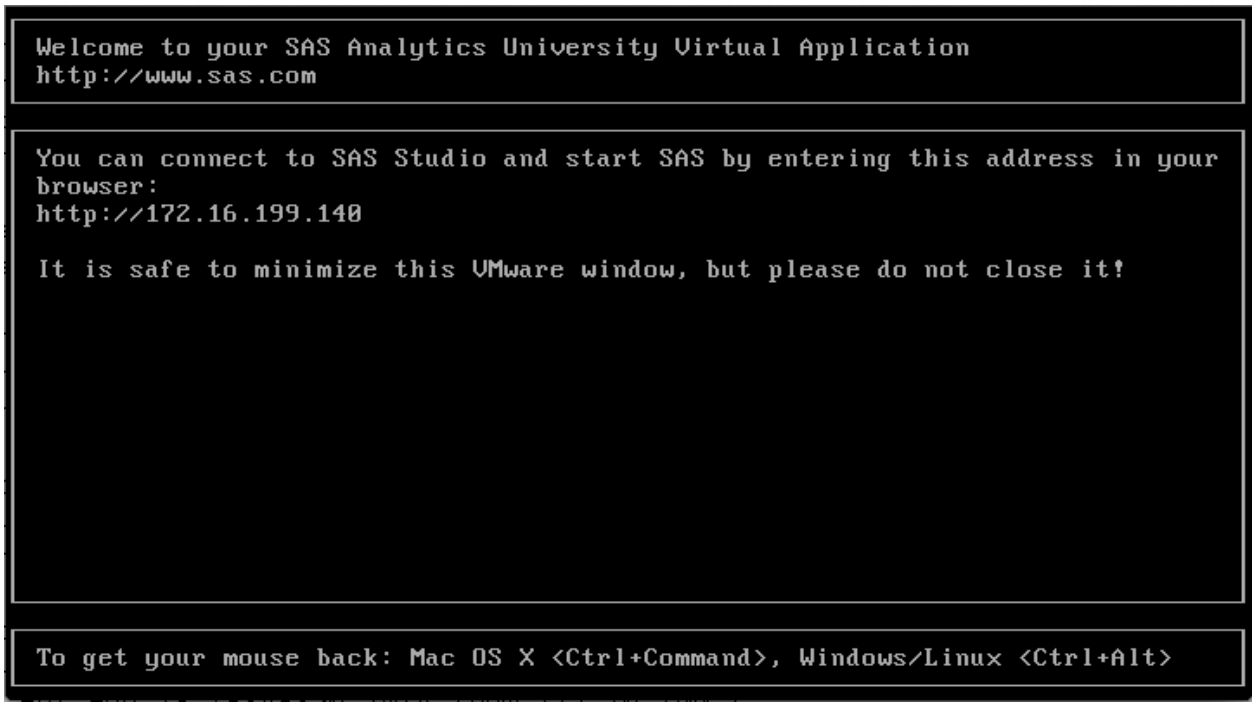
You will need to configure VMware Fusion to create a shared folder for your data that will be available to both the SAS University Edition virtual image and your local system. To configure VMware Fusion to work with SAS University Edition, perform the following steps:

1) On your local computer (in a location that you will remember), create a folder called `SASUniversityEdition` and a subfolder called `myfolders`. You will save all of your SAS University Edition files to this location.
2) Launch VMware Fusion.
3) Select **File > Open**.
   A file browser window is displayed.
4) In the file browser window, navigate to the downloaded SAS University Edition virtual image ending in `.vmx`.
5) Select the downloaded SAS University Edition virtual image, then click **Open**.
6) Share a folder from the SAS University Edition virtual image to the local system. Perform the following steps:
   a. Click **Virtual Machine > Sharing > Sharing Settings** to open the **University: Sharing** window.
   b. In the **University: Sharing** window, set the **Sharing Folders** value to **On**.
   c. In the lower left of the **Sharing** window, click **+**. A file browser window is displayed.
   d. Select the `myfolders` folder that you created, then click **Add**. This folder is mapped to the "My Folders" folder in SAS Studio.
      ***Note**: The shared folder name is case-sensitive.*
      ***Note**: You can add network folders that you have access permissions to. Do not include a backslash (\) in the network folder name.*
7) (Optional) Create additional shared folders. Additional shared folders are displayed in SAS Studio under "My Shortcuts".
8) Close the **Settings** window.
9) By default, the SAS University Edition virtual image network adapter is set to **NAT**. Confirm that the network adapter is set to **NAT** by performing the following steps:

a. In VMware Fusion, click **Virtual Machine > Settings...** to open the **Settings** window.
b. Click **Network Adapter** to open the **Network Adapter** window.
c. Click **Share with my Mac**.
d. Close the **Network Adapter** window.
e. Close the **Settings** window.

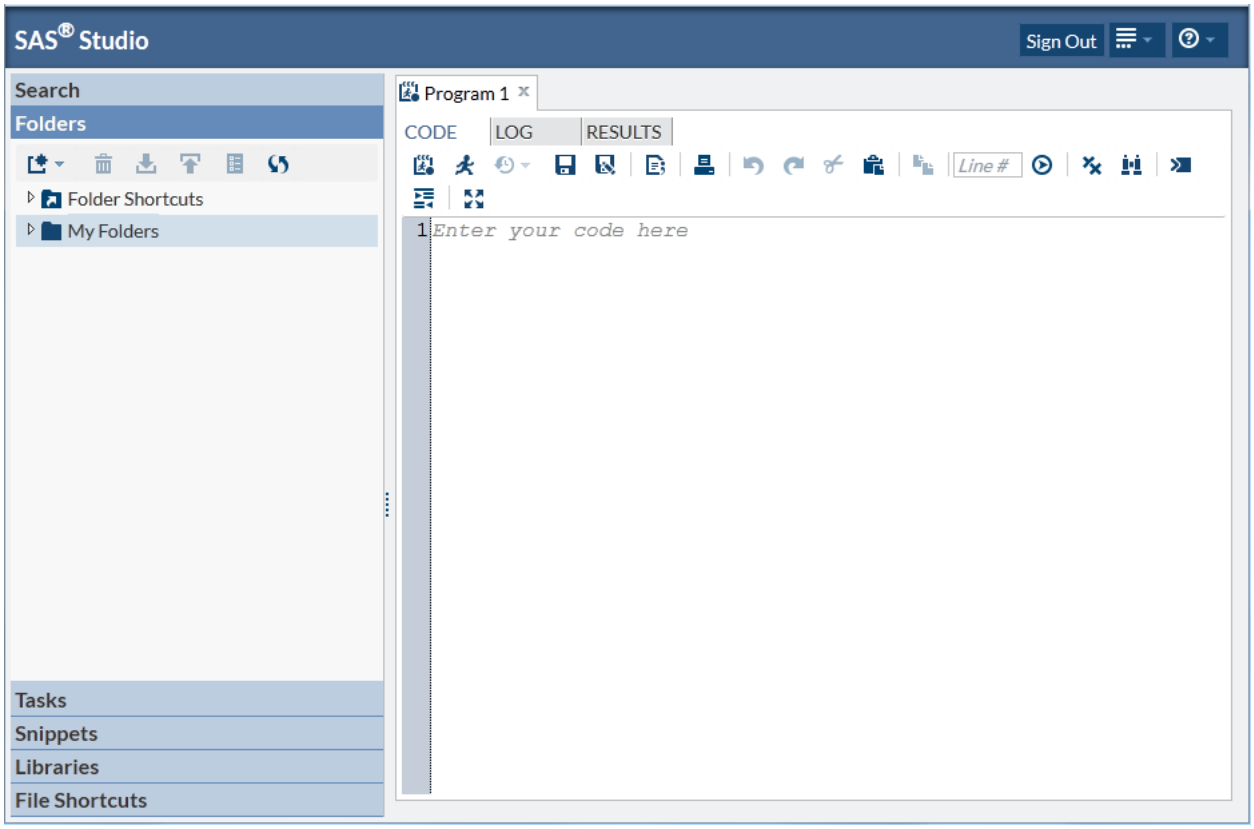
Starting SAS University Edition in VMware Fusion

1) In VMware Fusion, click **Virtual Machine > Start Up**.
2) Click **Don't upgrade**.
3) When start-up completes, you will see the SAS University Edition welcome screen:



4) Find the text in your welcome screen that is similar to the example in the above screenshot:
`You can connect to SAS Studio and start SAS by entering this address in your browser:`
`http://172.16.199.140`
Note: *Use the Uniform Resource Locator (URL) that is present on your SAS University Edition welcome screen. Do not use the example URL* `http://172.16.199.140` *that is shown here.*
5) In a web browser, enter the URL similar to the example that is shown on your welcome screen, and press **Enter** to open the SAS Information Center.

6) Click **Start SAS Studio** to open SAS Studio.



Shutting Down SAS University Edition in VMware Fusion

Use VMware Fusion to shut down the SAS University Edition virtual image. Select the **Virtual Machine > Shut Down** command.

Chapter 3 — Instructions for Using VirtualBox

Overview

To set up SAS University Edition, you will perform the following actions:

1. Configure VirtualBox
2. Start SAS University Edition in VirtualBox

Configuring VirtualBox

You will need to configure VirtualBox to create a shared folder for your data that will be available to both the SAS University Edition virtual image and your local system.

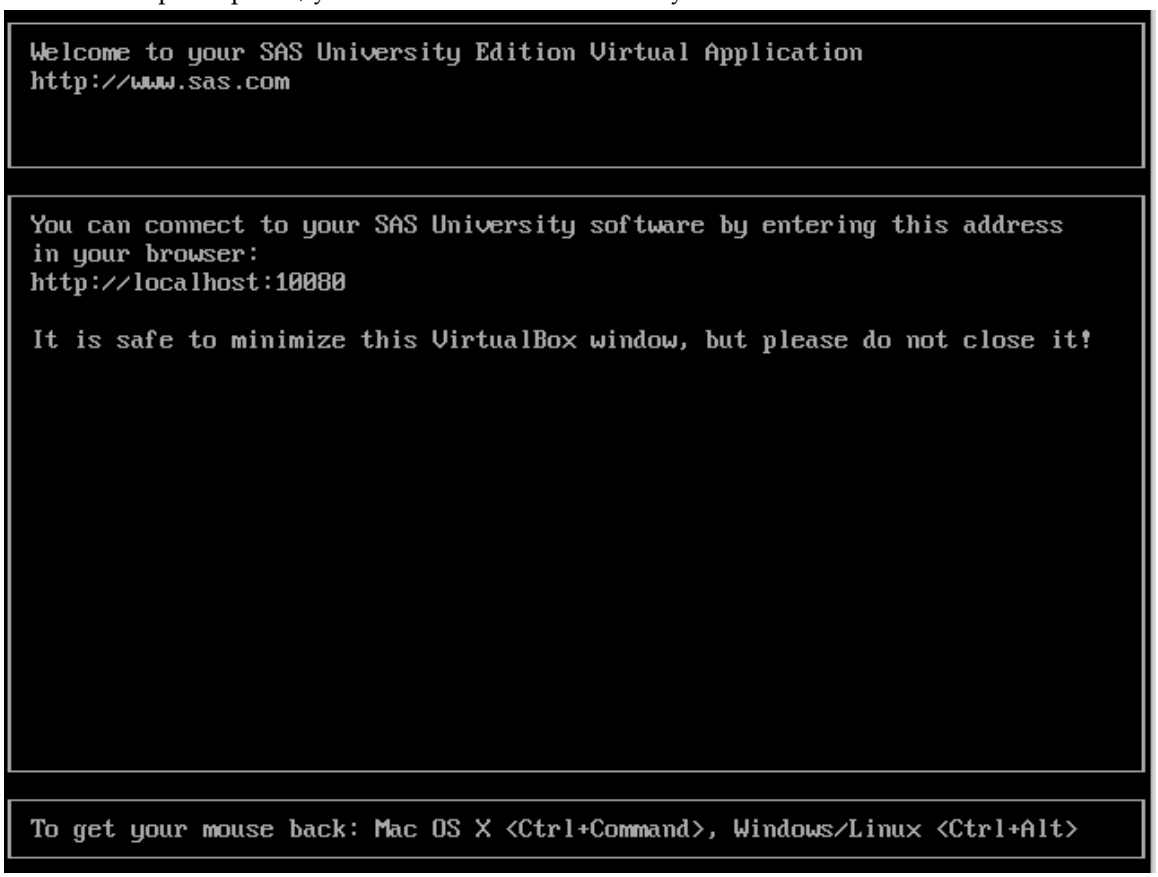
***Note**: If you add a shared folder to the SAS University Edition virtual image while the SAS University Edition virtual image is running, you must restart the SAS University Edition virtual image.*

1) On your local computer (in a location that you will remember), create a folder called `SASUniversityEdition` and a subfolder called `myfolders`. You will save all of your SAS University Edition files to this location.
2) Launch VirtualBox.
3) Click **File > Import Appliance**.
4) In the **Appliance to import** pane, click the folder icon to the right of the field.
   A file browser window is displayed.
5) Select the University .ova file.
6) Click **Open**.
7) Click **Continue**.
8) (Optional) In the **Appliance settings** window, edit the CPU and RAM.
   ***Note**: The SAS University Edition virtual image is configured to use 1GB of RAM and 2 processors. You can increase the RAM assigned to the SAS University Edition virtual image, but you should assign half (50%) or less of the available physical RAM. You cannot increase the number of processors assigned to the SAS University Edition virtual image.*
9) In the **Appliance settings** window, click **Import**. The imported virtual machine will be displayed in the Oracle VM VirtualBox Manager window.
   ***Note**: If a "drives in use" message is displayed, click **Ignore**.*
10) Select **Machine > Settings**.
11) Click the **Shared Folders** icon.
12) In the upper right of the window, click **+**. The **Add Share** window is displayed.
13) In the **Folder Path** field, click the arrow at the right end of the field and select **Other**.
    A file browser window is displayed.
14) Select the `myfolders` folder that you created, then click **Choose**. This folder is mapped to the "My Folders" folder in SAS Studio.
    ***Note**: The shared folder name is case-sensitive.*
    ***Note**: You can add network folders that you have access permissions to. Do not include a backslash (`\`) in the network folder name.*
15) In the **Add Share** window, confirm that **Read-only** is NOT selected.
16) In the **Add Share** window, click **Auto-mount**.

17) In the **Add Share** window, click **Make Permanent**.
*Note: The **Make Permanent** checkbox may not be present. If it is present, check it. If it is not present, you do not need to do anything.*
18) In the **Add Share** window, click **OK**.
19) (Optional) Create additional shared folders. Additional shared folders are displayed in SAS Studio under "My Shortcuts".
20) In the **Settings** window, click **OK**.

Starting SAS University Edition in VirtualBox

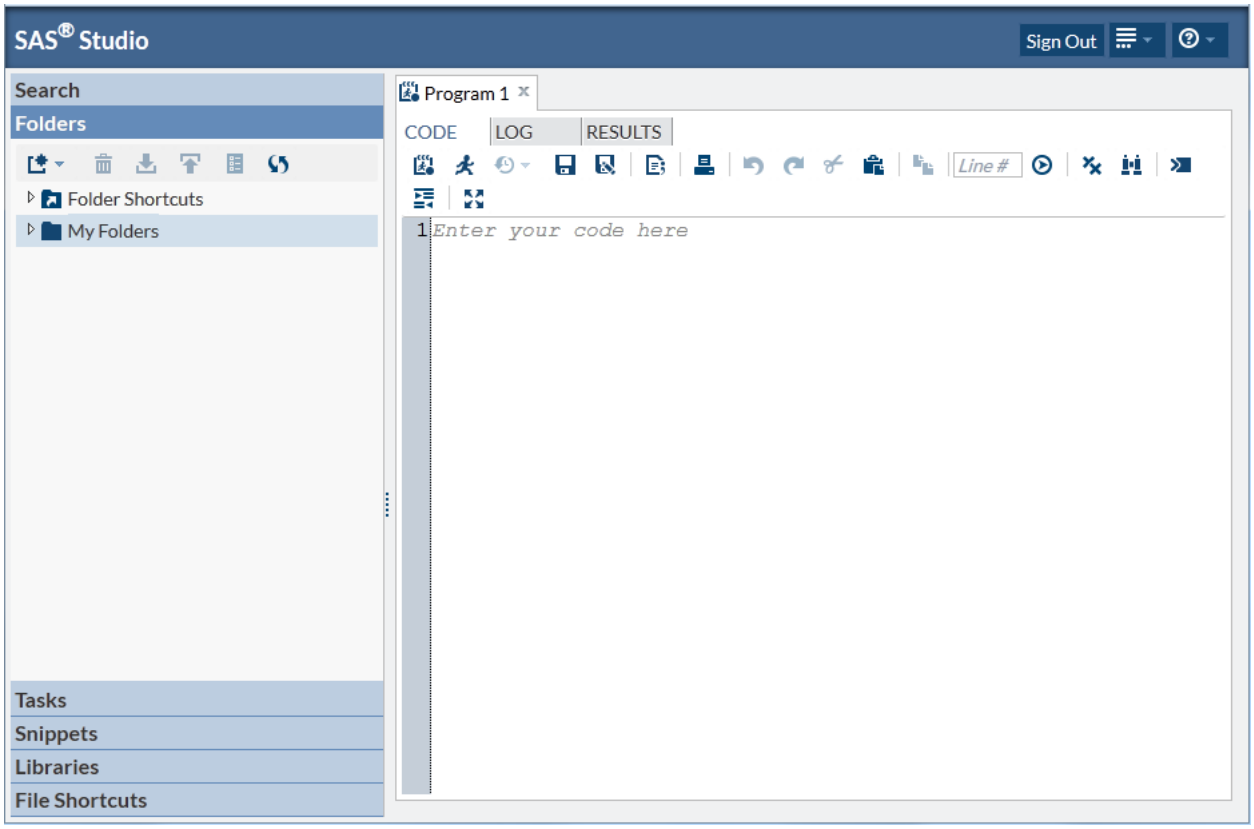
1) In VirtualBox, click **Machine > Start**.
2) (Optional) If prompted to upgrade, click **Don't upgrade**.
3) When start-up completes, you will see the SAS University Edition welcome screen:



4) Find the text in your welcome screen that is similar to the example in the above screenshot:
`You can connect to SAS Studio and start SAS by entering this address in your browser:`
`http://localhost:10080`
5) In a web browser, enter the URL similar to the following:
`http://localhost:10080`

6) Press **Enter** to open the SAS Information Center.

7) Click **Start SAS Studio** to open SAS Studio.



Shutting Down SAS University Edition in VirtualBox

1. In the left column of VirtualBox, click the SAS University Edition virtual image.
2. Select **Machine > Close > ACPI Shutdown**.

Chapter 4 — Updating SAS University Edition

You must be connected to the Internet to update SAS University Edition.

1) Start SAS University Edition. When the virtual image finishes starting up, you will see text similar to the following example:

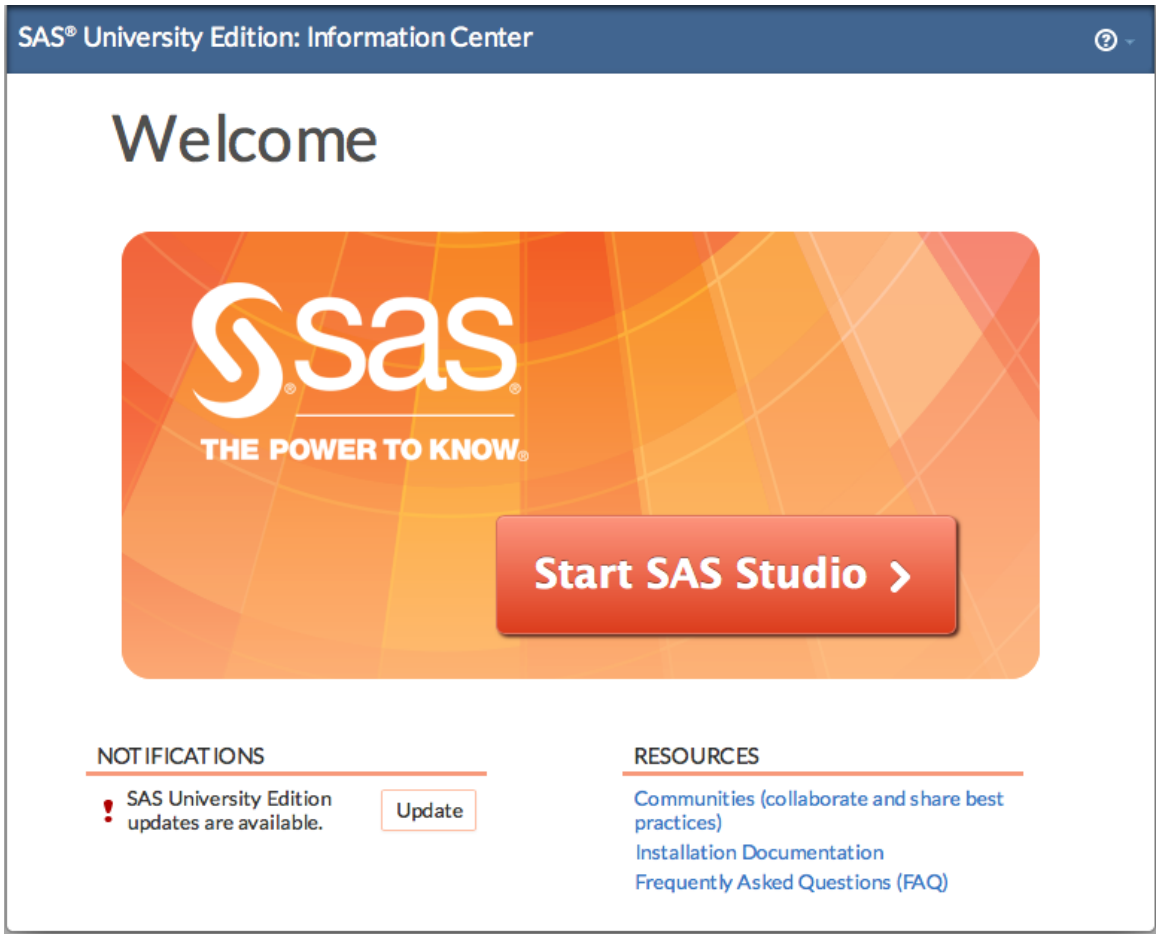
```
You can connect to SAS Studio and start SAS by entering this
address in your browser:
http://172.16.199.140
```

Note the IP address for the next step.

2) In a web browser, open the following URL:

`http://<ipaddress>/`

where *<ipaddress>* is the IP address you found in the welcome message.



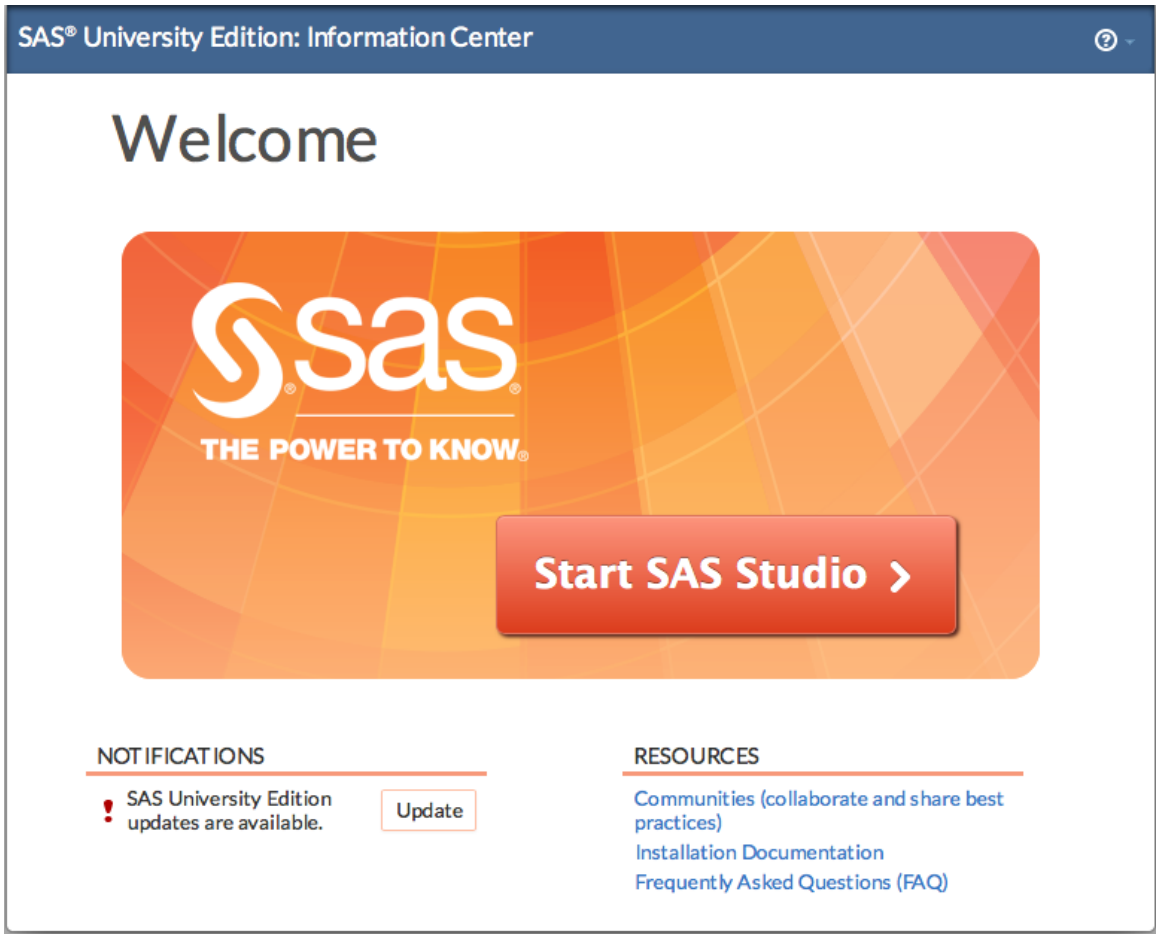
3) Click **Update**.
4) Click **Yes**.

Chapter 5 — Troubleshooting and Online Help

Viewing the Installation Documentation

You can view this document online from SAS University Edition. To do so, perform the following steps:

1) Start SAS University Edition. In a web browser, enter the URL that is shown on your welcome screen, and press **Enter** to open the SAS Information Center.



2) Click **Installation Documentation** to view the installation documentation.

Using DropBox with SAS University Edition

Configure the shared folders for your virtualization software to add the Dropbox folder on your local system as a shared folder.

Opening SAS Studio in a Different Browser Window

If you open SAS Studio, then open SAS Information Center in a new tab of the same web browser, then click Start SAS Studio, a window will display the following message

```
A SAS Studio session is already running in this browser. Would you like
to close it and start a new session?
```

If you click Yes, your SAS Studio session will open in the current browser window. If you click

No, the window will display the message again. If you do not want to open SAS Studio in the current browser window, close the current browser window.

Missing Files on SAS Studio After Creating the first Shared Folder

If a user starts SAS Studio, creates a file and saves it in the default My Folders location in SAS Studio, and then creates a shared folder of the default myfolders name, the existing SAS Studio My Folders is moved to the shared folder.

When the shared folder is created, existing files in the University virtual image's default folder are moved to the shared folder. When a file in the University virtual image is copied to the host operating system shared folder, if there is a name conflict of two files then the file on the host operating system is renamed.

For example: If you create "Program 1" in SAS Studio, and then create a shared folder to a folder on the host operating system that already has a file named "Program 1", then your SAS Studio "Program 1" is displayed as "Program 1". The host operating system's "Program 1" is renamed as "Program 1.~1~". An additional name collision of the same file creates "Program 1.~2~" and so on.

Starting SAS Studio Without a Network Connection Results in a Delay

If there is no network connection when you click **Start SAS Studio**, a long delay occurs before SAS Studio starts.

Running a SAS Program in SAS Studio Fails to Finish

If running a SAS program in SAS Studio does not succeed in a reasonable amount of time, refresh the SAS Studio browser tab and run it again.

Chapter 6 — Guidelines for Writing SAS Code for use with SAS University Edition

SAS University Edition runs as a virtual image inside virtualization software such as VMware Fusion or VirtualBox.

***Note**: You should store data in the shared folder on your local system. Do not store data in the SAS University Edition virtual image.*

The following guidelines will help you store data on your local system and access your data from SAS University Edition.

There are two categories of shared folders.

- myfolders - A special folder that maps to 'My Folders' in SAS Studio. To save your SAS Studio settings to the host filesystem, you must create this shared folder.
  Any SAS scripts present in 'My Folders' in SAS Studio will be moved to the shared folder when it is created.
  Because your SAS Studio settings are stored in the shared folder myfolders on the host filesystem, if you detach the shared folder then SAS Studio will be unable to access the settings file, and will start with new default settings. Any changes you may have made to the SAS Studio settings will not be active until that shared folder is reconnected.

- <all other shared folders> - Any other shared folder that is configured will appear under SAS Studio's My Shortcuts. These folders cannot be used to save SAS Studio settings.

The following points will help referencing shared folders and files.

- When referencing files in your Shared Folder, they should always be referenced as:

  `/folders/myfolders/`*`filename`*

  where *`filename`* is the name of the file you are referencing.

- If you add another shared folder in your virtualization software after the first shared folder, that folder will be created at the location

  `/folders/myshortcuts/`*`secondfolder`*

  where *`secondfolder`* is the name of the folder you created.

  Additional shared folders created in your virtualization software after the first shared folder will be at the following file path:

  `/folders/myshortcuts/`*`secondfolder`*

  `/folders/myshortcuts/`*`thirdfolder`*

  where *`secondfolder`* and *`thirdfolder`* are the name of the folders you created in the virtualization software.

- Always use '`/`' as the directory separator when referencing files in your shared folders, even if your operating system is Windows. For example,

`/folders/myfolders/`*`foldername`* `(valid)`

`\folders\myfolders\`*`foldername`* `(not valid)`

- File and directory references are case-sensitive. For example,

  `/folders/myfolders/`*`foldername`*

  is different than

  `/folders/myfolders/`*`FOLDERNAME`*

  The case specified must match the case of the name specified for the shared folder when defining it in your virtualization software.

- All files that you want to persist between sessions should be stored on your shared folder you created in the virtual manager:

  `/folders/myfolders/`*`foldername`*

  ***Note**: Currently, the virtual image does not stop you from saving to other locations, but there is no guarantee that those files will be persisted.*

- SASUSER is read-only and is not writeable, as in any SAS server-based environment. The following code example will NOT run successfully

```
/** Import an XLS file.  **/

PROC IMPORT DATAFILE="cars.xls"
             OUT=SASUSER.CARSBW
```

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