SAS® vApps 101

Danny Hamrick, Gary Kohan, Connie Robison, Rob Stephens, and Peter Villiers, SAS Institute Inc.

ABSTRACT

SAS® vApps (virtual applications) are designed to both logically and physically encapsulate a single- or multi-tier software solution into one or more virtual machines. In this paper, we examine the conceptual, logical, and physical design perspectives of a SAS vApp to give a high-level understanding of both the technical and business benefits of SAS vApp, and of the design decisions in envisioning and constructing a particular SAS vApp. These perspectives are presented in the context of the user roles involved in the lifecycle of a SAS vApp.

INTRODUCTION

Receiving a gift is wonderful: There's a thrill with receiving something new, discovering it for the first time, and anticipating how we might put it to immediate use. That elation abruptly halts when we realize that our gift's packaging is difficult to open, leading to a frantic and difficult scramble to tear into the package. This frustration both ruins the experience of receiving the gift and can also potentially damage the object. It's no wonder that both the consumer retail and Internet e-commerce sectors are trending toward easy-to-open packaging as a product feature. The mechanism by which an item is packaged and delivered plays an important role in a customer's evaluation of an item's quality.

SAS vApps are prepackaged and ready-to-run units of SAS products, tools, and solutions. A SAS vApp is a virtual machine application that contains software products that have been bundled together in a single, easy-to-use file. The SAS vApp is optimized to run on a virtual infrastructure using a virtualization software application. This enables you to run complex software products while reducing or eliminating the need to install, configure, and maintain individual components. SAS vApps make it easy to find, get, manage, and update SAS software.

In this paper, we discuss the following:

- how SAS vApps simplify installing and configuring SAS software
- the SAS vApp user experience
- the benefits of adopting SAS vApps in your organization

SAS vAPPS BY USER ROLE – WHAT'S IN IT FOR YOU?

Although SAS has provided tools to facilitate the deployment and implementation of applications, the ability to customize and select a wide variety of options has often required that deployment be performed by an IT department or with the aid of Professional Services. This increases the time it takes for the business user to get into the package and use the software.

SAS vApps come pre-assembled: The applications are defined as part of the packaging, and the level of customization is limited to integrating with your environment. This greatly decreases the time it takes for the users to start using the applications.

To explain more, let's describe the types of users:

Business Users

- Who you are: Programmers, data scientists, and data visualizers (business intelligence users).
- What you do: Use SAS applications to create programs, jobs, analyses, explorations, and reports in order to gain knowledge and share insight with your business.
- Why SAS vApps? SAS vApps empower business by providing individuals and workgroups with self-service and simplified access for obtaining, updating, and operating SAS software.

Data Administrators

- Who you are: DBAs, data analysts, data modelers, and programmers.

- What you do: Use administration and data management applications to consolidate, cleanse, transform, and stage data for analytics and visualization.

- Why SAS vApps? SAS vApps introduce little to no new data management activities. When SAS applications are the tools you prefer, SAS vApps enable you to start using them faster.

SAS Administrators

- Who you are: SAS administration experts.

- What you do: Use SAS administration tools to plan and implement SAS applications at your business and administer the SAS applications.

- Why SAS vApps? SAS vApps have made many of the administration choices for you based on common practices. This eases the tasks of installing, configuring, and managing SAS software.

IT Administrators

- Who you are: IT, system experts

- What you do: Procure, install, configure, and plan the deployment and implementation of SAS applications. Work with SAS Professional services and the SAS Administrators.

- Why SAS vApps? SAS vApps enable IT to empower business units, freeing IT to focus on enterprise-class computing challenges.

While this list is not a complete spectrum of all users of SAS applications, it provides a broad range that shows how business users can produce business value faster while easing the burden of administration. As you can see, SAS vApps simplify life for all users and provide a compelling value proposition for every role involved in an analytics lifecycle.

TRADITIONAL DEPLOYMENTS COMPARED TO vAPP DEPLOYMENTS

We have established that SAS vApps enable business users to start using the applications faster. What types of tasks are different for the administration and IT experts when working with SAS vApps? In Table 1, the phases of planning, installing, configuring, and implementing a SAS product are described for both a traditional deployment and a SAS vApp deployment.

Activity	Task	Traditional	vApp
Plan	Determine resources	IT (Physical)	IT (Virtual)
	Acquire hardware	IT	
	Review SAS products and releases	IT/Business	
	Determine downtime for updates	IT/Business	
Acquire software	Contact SAS	IT (Sales)	Admin (Sales) or User (Store)
Install	Download SAS Software	IT/PSD	SAS Admin/User
	Run SAS Deployment Wizard Install	IT/PSD	
Configure	Run SAS Deployment Wizard to configure each product/12-byte	IT/PSD	
	Perform post-configuration steps	IT/PSD	

Activity	Task	Traditional	vApp
	Apply settings to configure the SAS vApp		SAS Admin/User
Administer	Define SAS Folders and groups	SAS Admin	
	Administer using SAS® Management Console	SAS Admin	
Load Data	Use your tools	Data Admin	Data Admin
Use Software	Start the applications	SAS Admin	User
	Use the applications	User	User
Update	Update license	IT and SAS Admin	User
	Review current SAS products and releases	IT and Business	
	Deploy – again	IT	
	Apply updates in place	IT	User

Table 1. Traditional Deployments Compared to SAS vApp Deployments

Because the SAS vApp is pre-packaged and pre-assembled, many of the administration tasks have been removed. When this type of application meets the needs of the business users, the SAS vApp is a compelling option. If more customization and options are needed by the enterprise, the traditional deployment methods are still available.

THE SAS vAPP USER EXPERIENCE

We will now present the SAS vApp user experience, including screen images from several SAS vApps that are available.

SIMPLIFIED PROCUREMENT AND DEPLOYMENT

The SAS vApp goal is to simplify the complete experience from the time you decide you are interested in the software all the way to opening the first application. You are provided streamlined access to the SAS Store to enable you to download the SAS vApp to your system. You will see a page like Figure 1 to start the process.
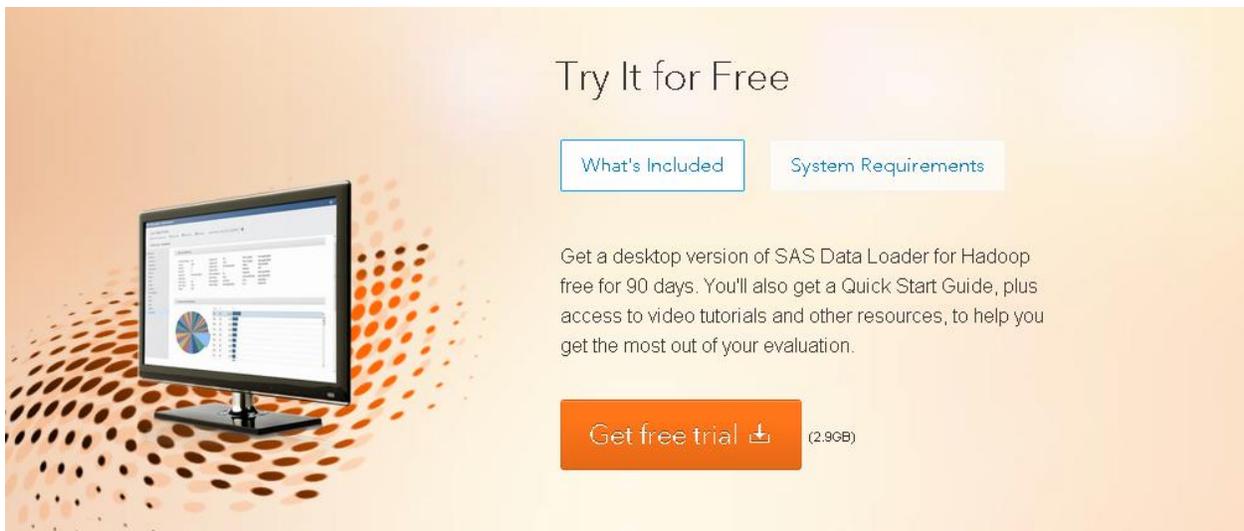
Figure 1: Get Free Trial

Clicking **Get free trial** takes you through a process that will download the SAS vApp using your browser. You will be sent a SAS Software Order by email with additional information and links to documentation that you will need. The email will look something like Figure 2 and Figure 3.

Figure 2: SAS Software Order

Shipment 174315-1

SAS® Data Loader for Hadoop - TRIAL   0.00 USD
VMware, ESD
90-day free trial

1 @ 0.00 USD

Download

	Subtotal:	0.00 USD
	Taxes:	0.00 USD
	Total for This Shipment:	0.00 USD

Note: For physical shipments, you will receive a separate confirmation email as soon as your order is shipped.

*If this invoice does not reflect VAT or GST, the purchaser may have the duty to make a self-assessment of VAT or GST and remit the tax to the appropriate taxing authorities.

Figure 3: SAS Software Order

The documentation provided on the link and in the email helps guide you through the few steps required to get the SAS vApp running. The SAS vApp runs as a virtual machine in a virtualization tool called a hypervisor, such as VMware Player and Workstation on Windows or VMware Fusion on OS X. The SAS vApp virtual machine is a fully installed and configured working instance of the software you want to use. It runs fully contained on your desktop and requires very little in the way of administration.

SIMPLIFIED ADMINISTRATION AND MANAGEMENT

An important goal of SAS vApps is to simplify the administration and management of SAS software.

After SAS vApp starts, you will see a console view that shows the IP address where the SAS vApp can be accessed. You enter the IP address into your browser, and SAS Information Center appears as shown in Figure 4.
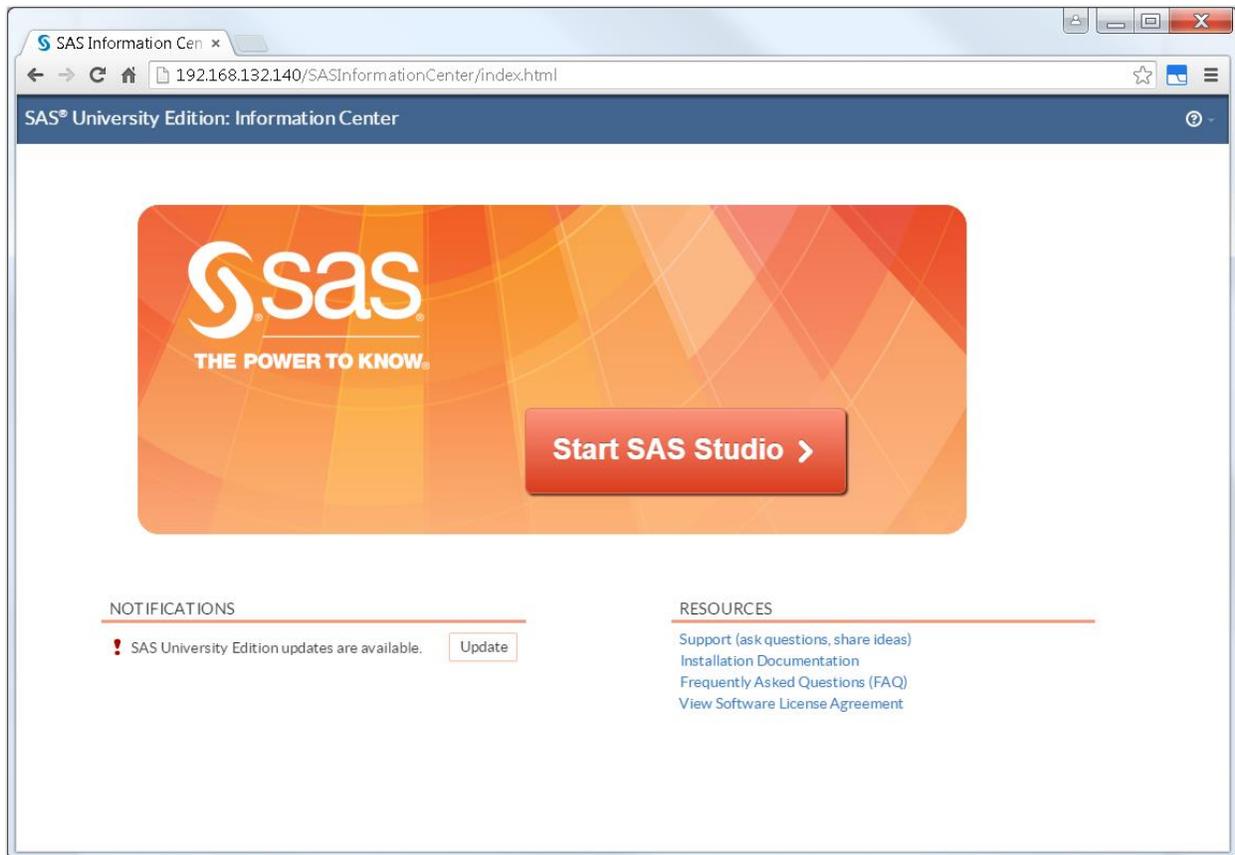
Figure 4: SAS Information Center

SAS Information Center is the initial landing page for SAS vApps. It provides a streamlined user interface to administer the SAS vApp. Each SAS vApp will present a similar view with additional information required by the software being packaged. Some SAS vApps will just require a license file (found in the Software Order email). Other SAS vApps might need more information such as your Hadoop configuration as shown in Figure 5.
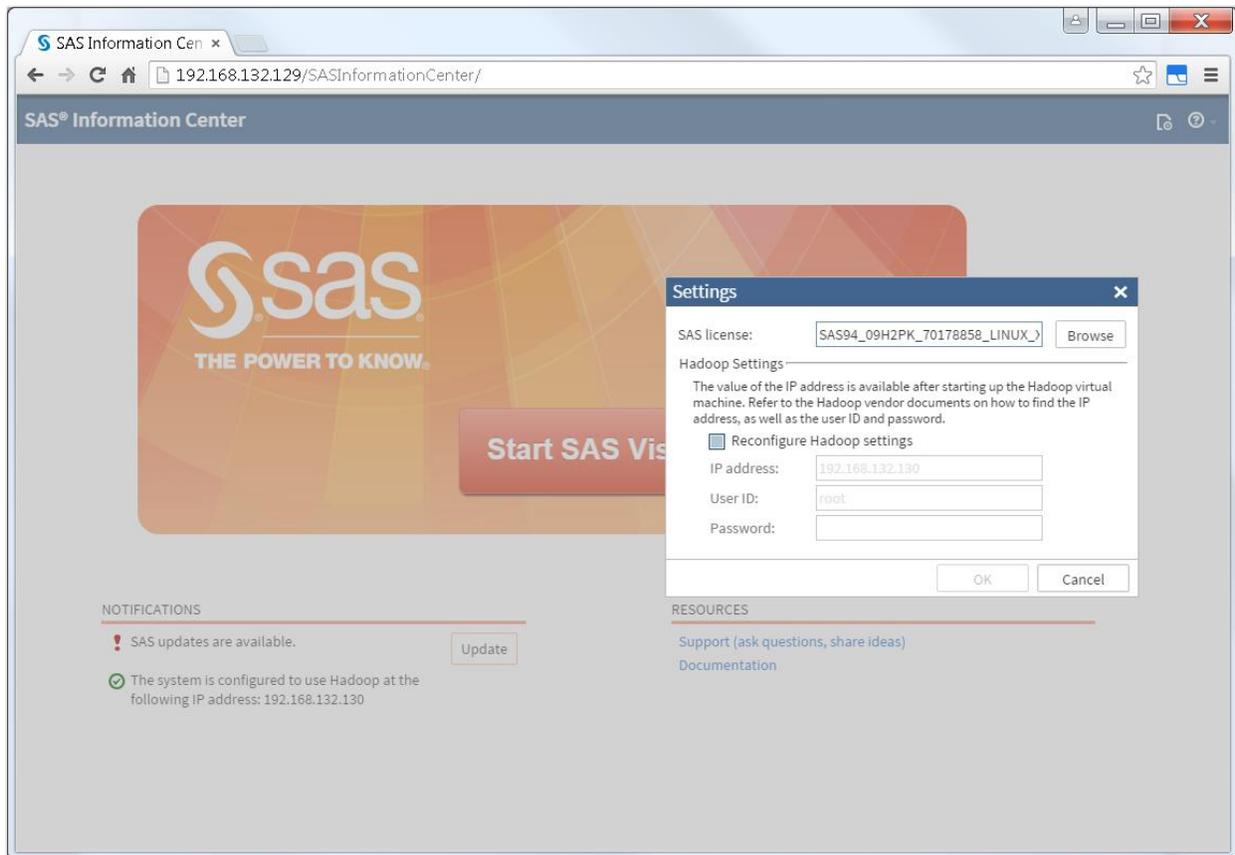
Figure 5: Settings

You fill in the required fields and click **OK**. The applications and services start without any further interaction. After the SAS vApp has started, the **Start** button will be available, and the SAS vApp is ready to go.

However, there's more to the life cycle of software than just starting the application the first time. There is also the management of the SAS vApp over time. For example, what happens when a required security update or hotfix needs to be applied? If we are truly simplifying administration and management, the SAS vApp has to handle this situation as well. SAS Information Center enables you to check to see if updates are available.

If the Internet can be accessed, SAS Information Center has the ability to apply updates provided directly from SAS. In the screenshot above, SAS Information Center displays "updates are available." Clicking **Update** will present a message similar to Figure 6.
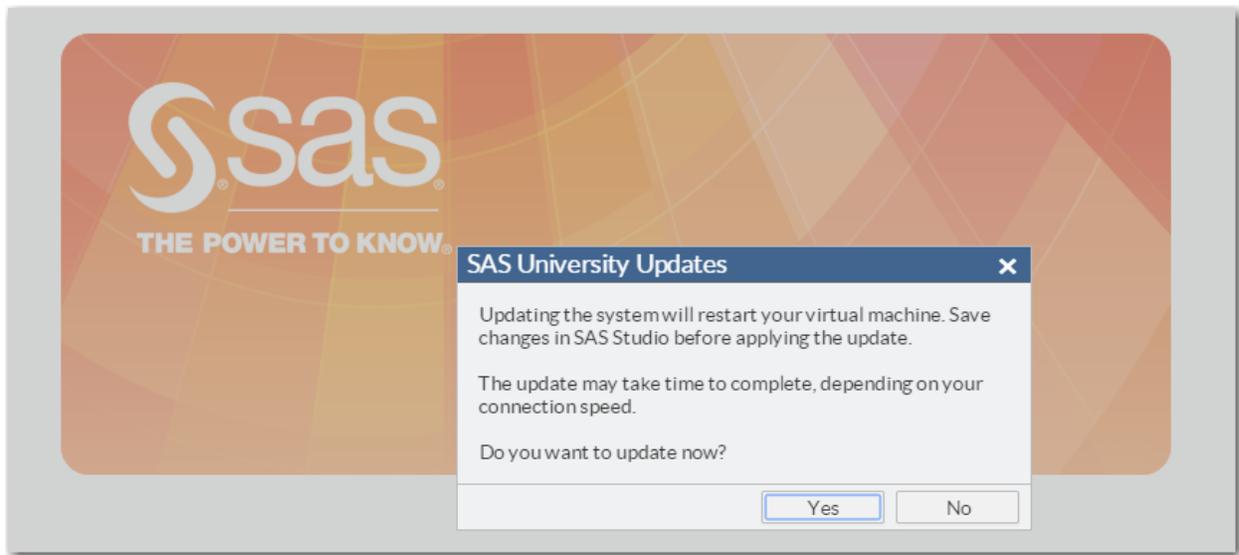
Figure 6: SAS University Updates

Clicking **Yes** instructs the SAS vApp to download and update as well as restart the applications and services to pick up these changes.

BENEFITS TO IT ORGANIZATIONS

SAS vApps simplify many tedious and time-consuming tasks of a SAS software deployment, which means less time spent by IT performing these tasks. This means that business users can start running the applications sooner.

IT continues to provide the infrastructure: the hardware or virtualization software needed to run the SAS vApp. IT also still ensures the integration between the SAS vApp and the physical environment, such as the authentication domains.

What IT does not need to do is determine how to deploy the applications into the environment because the deployment is based on the packaging of the applications. And the packaging is targeted to specific and predefined usage patterns. With SAS vApps, there is no running of the SAS Deployment Wizard. The packaging includes preset values required during the installation, configuration, organization, and connectivity of the software. This means that the package is encapsulated into a predefined and ready-to run-unit.

After the initial deployment, updates are handled by the applications. The user can check for updates to the application, including security patches. If there are updates, the user applies them directly to the application.

- Simplified packaging - You get a single image that is consistent across all users and target environments.

- Simplified ordering – The SAS vApp is predefined and self-contained.

- Same image runs in multiple locations, operating systems, virtualization platforms, and public Infrastructure as a Service (IaaS).

- No SAS Depot – It's all in the image.

- No SAS Deployment Wizard - It's already been run for you.

- All interaction is browser-based – no clients to install.

- Self-service by end users, reducing time spent on calls.

- Updates are automated and self-service.

SAS vApps need minimal involvement from your IT organization to get started. Your IT department has to ensure that users have virtualization software, and provide the security integration points. Then it's up to the users.

BENEFITS TO SAS USERS

SAS vApps simplify many of the time-consuming and detailed tasks of a SAS software deployment, which means business users can begin using the SAS applications faster. As a business user, you analyze, explore, and get results faster.

Some of these benefits to SAS users are as follows:

- Runs on multiple platforms so that you can use your platform of choice.

- Accesses SAS programs and data external to the SAS vApp, so you can use them across applications.

- All interaction is browser-based.

- Experiment and prototype – spin up a new environment and run them side by side

- Faster time-to-solution – faster time-to-value.

There are no substitutions with a SAS vApp: if you want or need customized SAS Solutions, then you should continue using traditional SAS deployment. However, if the predefined packaging of a SAS vApp provides your users with the experience they need, SAS vApps should be strongly considered.

CONCLUSION

To summarize, SAS vApps attempt to package and deploy SAS software simply by doing the following:

- Using a prescribed software installation topology that will work for a large percentage of customer deployments.

- Making the acquisition of this fully implemented system easy to acquire.

- Allowing a limited set of parameters to be set so that the SAS vApp can be incorporated into the environment in which it is deployed.

- Separating *WHAT* the configuration should look like from *HOW* to actually implement those choices. The customer specifies the *WHAT*, and the *HOW* is taken care of for them.

- Allowing interactions with SAS technical support to be based on a common understanding of how the software is configured and using tools built specifically for the SAS vApps.

- Providing simplified repeatability, which allows one image definition to be used by many audiences, run in a variety of locations, and with more consistent results and support.

In doing these things, SAS vApps reduce the mundane workload on key people in the organization.

Over the coming months, SAS Institute will be releasing a number of SAS vApps on various cloud providers. These SAS vApps will combine existing and new software in innovative combinations and will allow existing and prospective customers to experience the power of the SAS System with minimal experience of the underlying SAS configuration.

RECOMMENDED READING

- Mitchell-Guthrie, Polly, and Amy Peters. "SAS® University Edition—Connecting SAS® Software in New Ways to Build the Next Generation of SAS Users." *Proceedings of the SAS Global Forum 2015*. Cary, NC: SAS Institute Inc.

CONTACT INFORMATION

Your comments and questions are valued and encouraged. Contact the authors at:

Peter Villiers
Peter.Villiers@sas.com

Danny Hamrick
Danny.Hamrick@sas.com