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TECHNICAL PAPER

**USING VERSION 9.2 OF THE SAS BUSINESS INTELLIGENCE
PLATFORM TO ASSIGN UNIQUE SAS APPLICATION SERVERS TO
SAS IT RESOURCE MANAGEMENT DATA TIER**

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Introduction

With the advent of version 9.2 of the SAS System for Business Intelligence (BI), many SAS products will take advantage of the concept of a SAS Application Server. A SAS Application Server is a logical entity that represents the SAS server tier. This logical entity contains specific servers (for example, a SAS Workspace Server or a SAS Stored Process Server) that execute SAS code. Depending upon what software is licensed and purchased, a SAS Application Server will be created during deployment and configuration. By default, a typical SAS BI deployment will see two SAS Application Servers created.

SAS solutions will also leverage the use of a SAS Application Server and at times, may require “exclusive” access to one. “Exclusive” means that the fundamental nature of the SAS Application Server, or the entities it contains, will be changed in such a way that it no longer resembles the one created by default for the SAS BI platform. These changes make it usable only by a specific SAS solution or suite of solutions.

SAS IT Resource Management is a suite of solutions going out after the release of SAS 9.2, and its members need “exclusive” access to SAS Application Servers as defined above. Furthermore, a SAS Workspace Server is required, and a SAS Pooled Workspace Server and SAS/CONNECT Server are leveraged. There are two usage cases for SAS IT Resource Management.

1. SAS IT Resource Management deployed and configured on a “clean” system. In this case, “clean” implies that while there may be previous versions of SAS software present, no SAS 9.2 software is on the system. The customer has purchased SAS IT Resource Management as well as other SAS offerings and intends to deploy and configure them.
2. SAS IT Resource Management deployed and configured on an already configured system with SAS 9.2. In this case, SAS IT Resource Management is an upsell and is being added to an existing SAS 9.2 deployment which more than likely already contains one or more SAS Application Servers.

Each of these cases is discussed below.

Deployment and Configuration on a “Clean” System

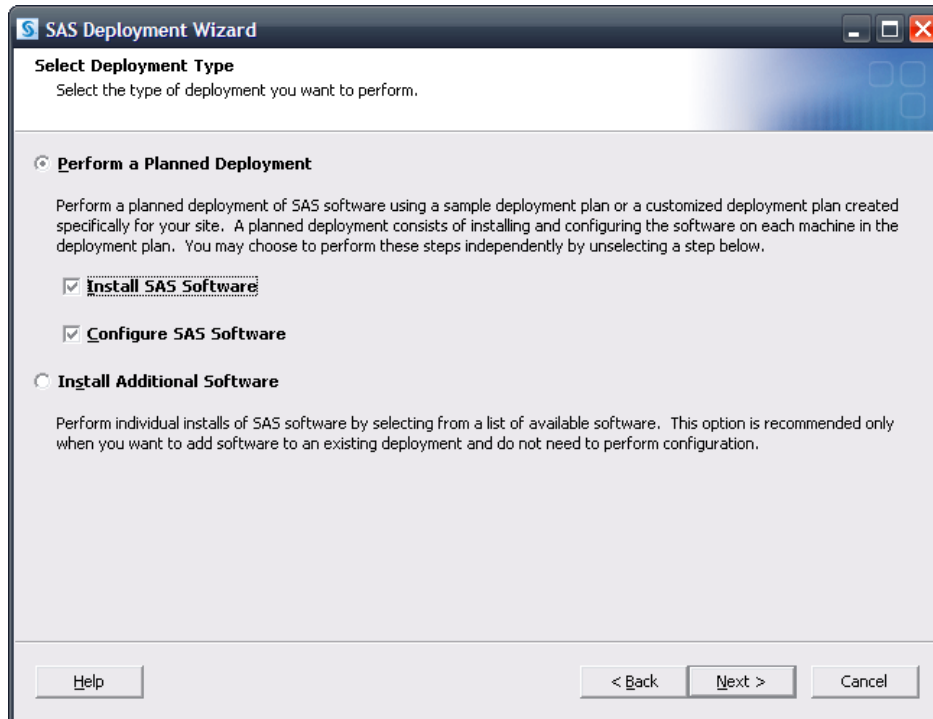
A “clean” system implies that no SAS 9.2 software is on the customer’s system. A customer would have ordered SAS IT Resource Management, a deployment plan file would be created and an image made available. The customer (or consultant) would make sure the third-party requirements and the pre-install checklist items had all been met and then could begin installation and configuration using the SAS Deployment Wizard. Software updates, if applicable, will be installed along with whatever products are in the plan.

In this example, the default SAS Application Server created during this deployment will be associated with SAS IT Resource Management. As noted above, SAS IT Resource Management requires exclusive use of a SAS Application Server. Thus, if a generic SAS Application Server is needed, the SAS Deployment

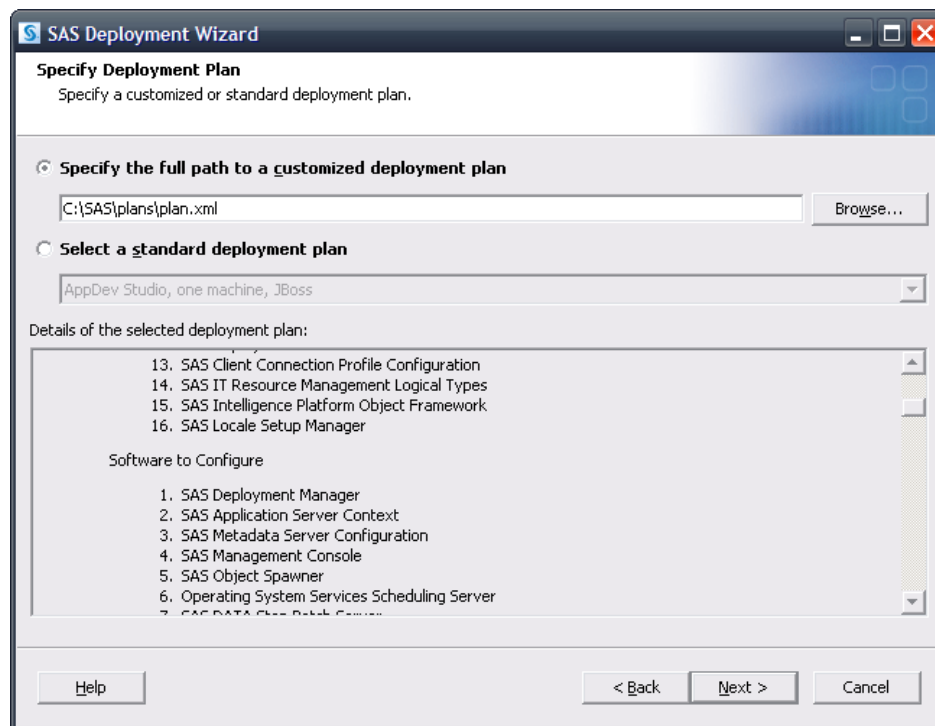
Wizard will have to be executed more than once. See the appendix for more details for creating such a SAS Application Server.

Begin by starting the SAS Deployment Wizard.

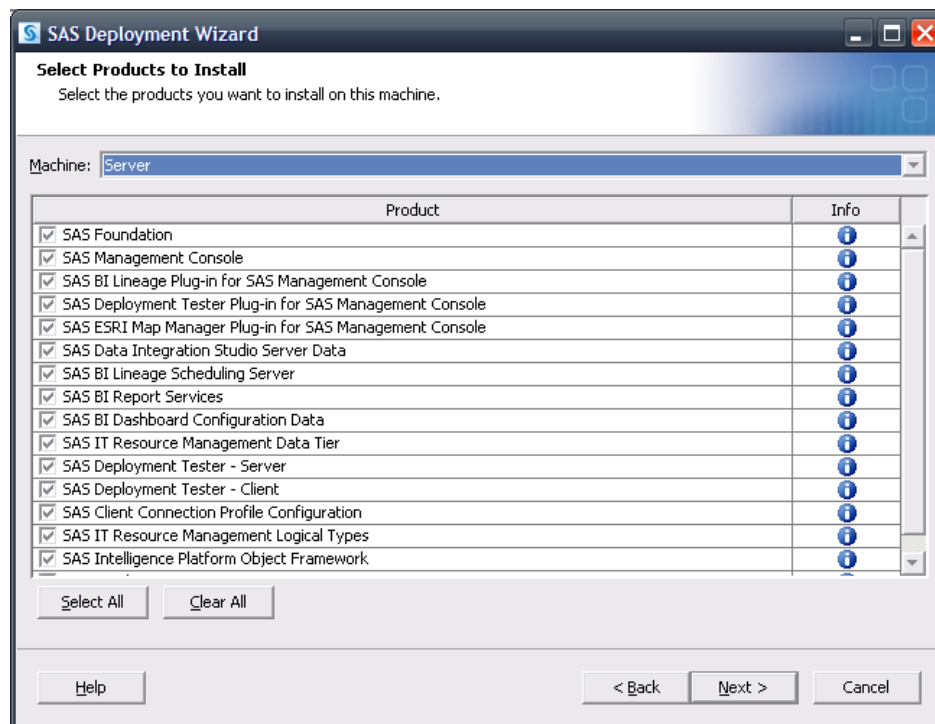
After specifying the order, select a deployment type, usually a “Planned Deployment” with **Install SAS Software** and **Configure SAS Software** selected.



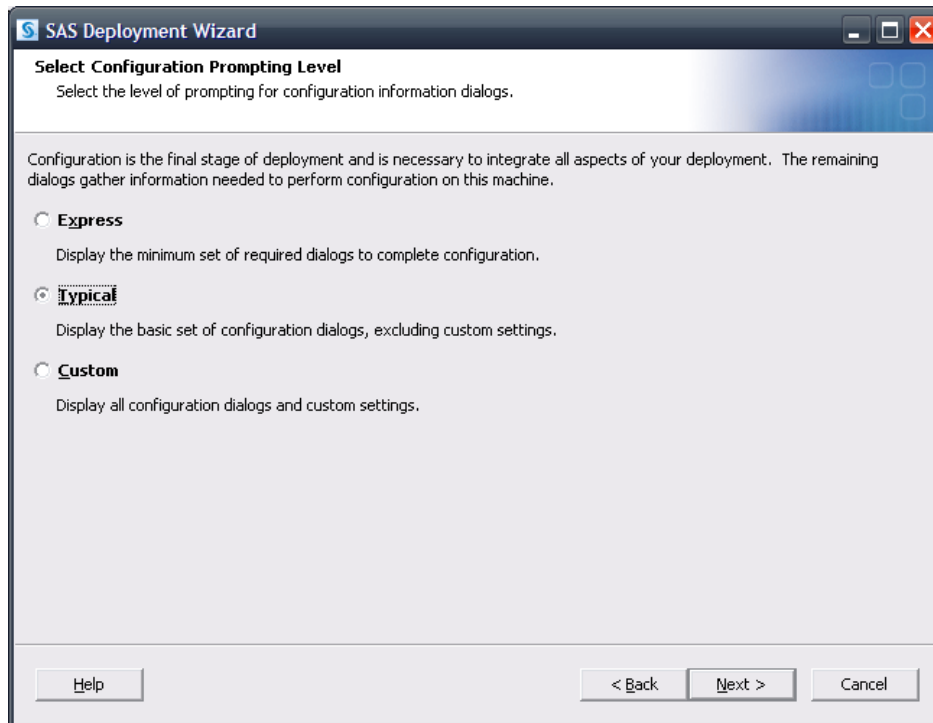
Next, select the deployment plan provided with the image.



Specify the machine. In this example, the **Server** machine is used.



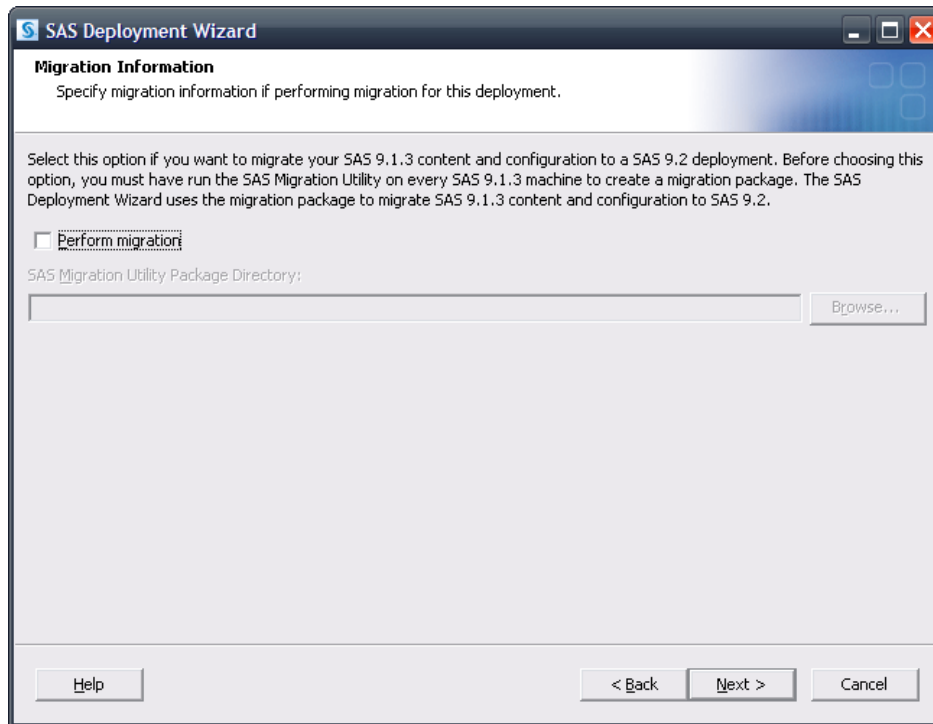
Continue through the pages until the configuration prompting level page opens.



The **Typical** prompting level can be used, but if more customizations are desired, select **Custom** and refer to the *SAS Intelligence Platform: Installation and Configuration Guide* at <http://support.sas.com/documentation/cdl/en/biig/60946/HTML/default/titlepage.htm> for additional information.

Continue on, specifying appropriate values for your system.

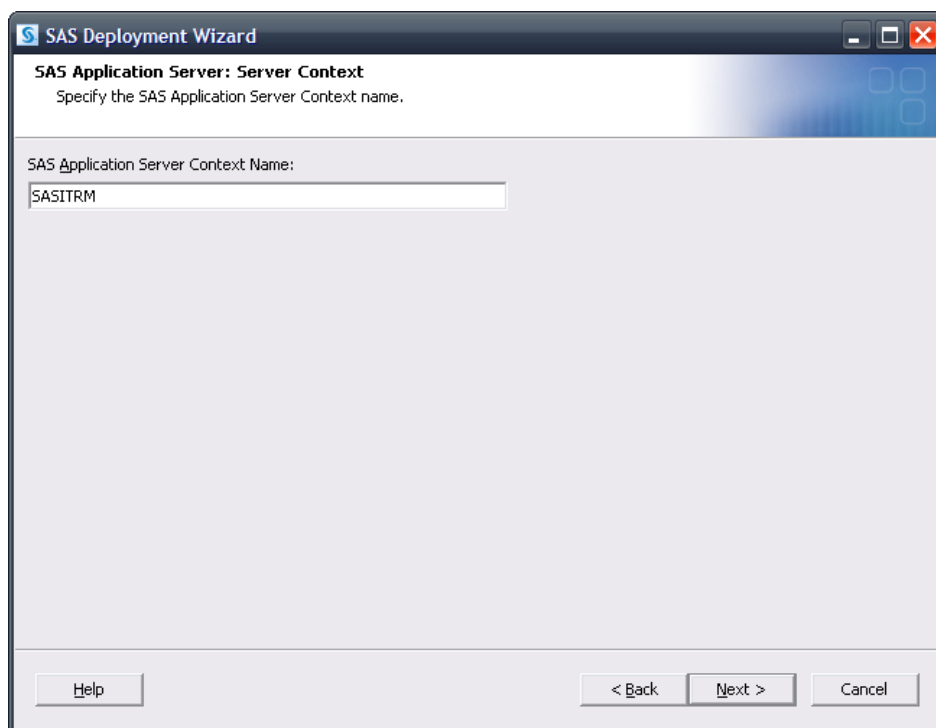
In the event previous versions of SAS Software are present, such as SAS 9.1.3, migration may be required or selected. Please see the *SAS Intelligence Platform: 9.1.3 to 9.2 Migration Guide* at <http://support.sas.com/documentation/cdl/en/bimig/61696/HTML/default/titlepage.htm> for more details and information.



It's important to note that if previous versions of SAS IT Resource Management solutions are also present in an existing 9.1.3 deployment, a SAS Application Server already exists and is currently used by SAS IT Resource Management. Thus, it is recommended that if prompted for a SAS Application Server to use, the newly migrated 9.2 SAS Application Server that is used by SAS IT Resource Management in 9.1.3 should be selected.

Continue on, specifying appropriate values for your system, including required user credentials information.

Of special interest is the **SAS Application Server: Server Context** page.



Since SAS IT Resource Management requires “exclusive” access to a SAS Application Server, using a name that identifies the SAS Application Server with SAS IT Resource Management is suggested. In this example, the name **SASITRM** has been chosen. Again, if a non-SAS IT Resource Management SAS Application Server context is desired, see the appendix for details on creating one. If an additional SAS Application server is going to be created, it is important to make note of what ports are associated with the various SAS servers to avoid potential conflicts.

Continue on through the pages and upon reaching the **Deployment Summary**, click **Start** to begin the installation and configuration process. When the SAS Deployment Wizard finishes, SAS IT Resource Management and its dependent components have been deployed and configured on the selected **Server** machine and are ready to use.

Deployment and Configuration in an Add-On Scenario

In this case, we use an “add-on scenario” involving a customer purchasing SAS 9.2 and other products, then purchasing SAS IT Resource Management later and adding it to their existing 9.2 environment. It is important to note that, with the release of the 9.2M3 SAS System for Business Intelligence, maintenance releases are available. For more detailed information, see *Maintenance Planning for SAS 9.2* at <http://support.sas.com/documentation/cdl/en/biig/60946/HTML/default/titlepage.htm>.

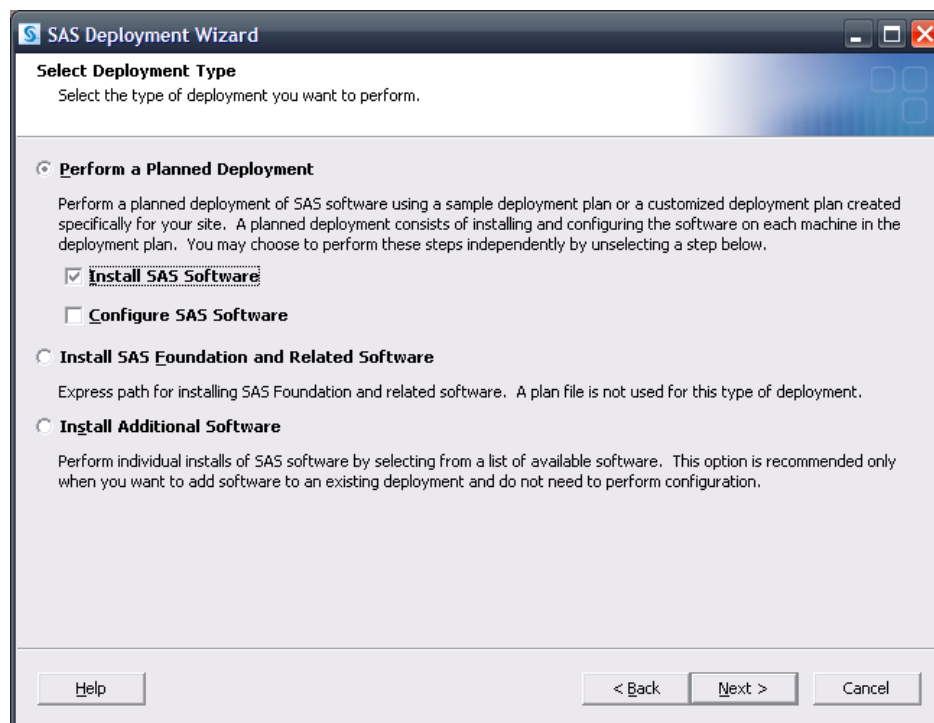
Before invoking the SAS Deployment Wizard, SAS strongly recommends that any active SAS sessions on the machine SAS IT Resource Management is going to be installed on, including but not limited to SAS Object Spawners and SAS servers, are stopped. Upon invoking the SAS Deployment Wizard, if any

product updates are required, the SAS Deployment Wizard goes into update mode and installs those product updates on that machine. Updates that are installed in a maintenance release apply only to software that is already installed at your site. No new software is installed during a maintenance installation. When all updates are installed, customers will have the opportunity to update any existing configurations. It's highly recommended that all configurations be updated, but in particular, the configuration intended to be used with SAS IT Resource Management should be updated. See *How to Install and Configure the Third Maintenance Release for SAS 9.2* at <http://support.sas.com/documentation/cdl/en/whatsdiff/63542/HTML/default/installsteps.htm> for more information.

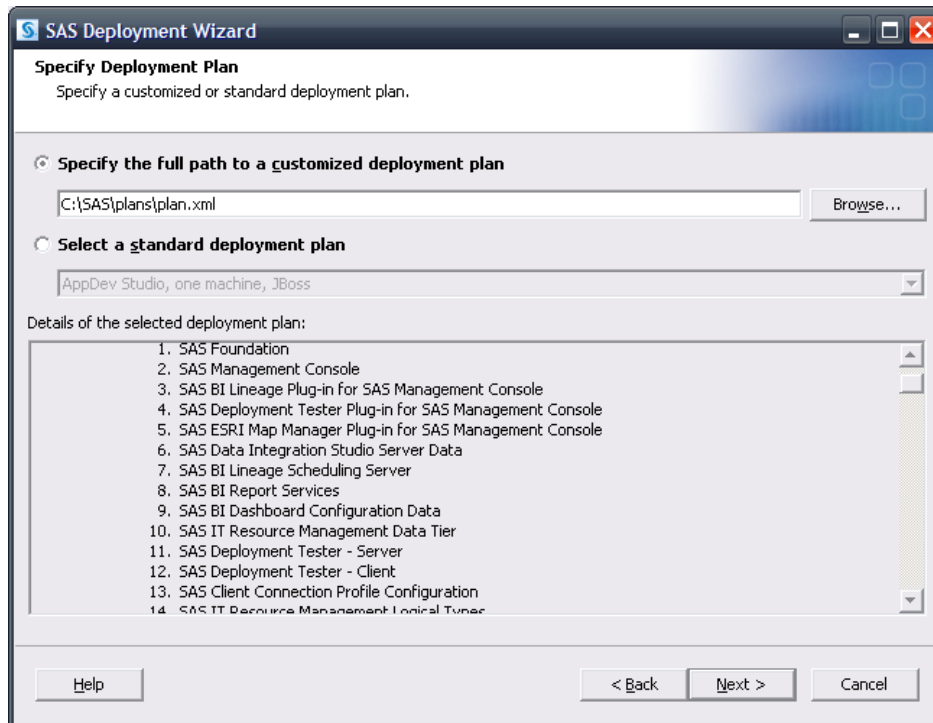
Since this is an “add-on scenario”, existing SAS Application Servers will more than likely be present. As a result, selecting a SAS Application Server to use with SAS IT Resource Management is important. The customer can use an existing SAS Application Server, such as **SASApp**, or choose to create a new SAS Application Server. The latter approach is more flexible since any existing SAS Application Server configurations and definitions would not be modified. Both approaches are discussed below.

Using an Existing SAS Application Server

When all intended configuration updates are complete, make sure that all SAS servers are stopped. Since SAS IT Resource Management software has yet to be installed, SAS recommends that no SAS software is running during installation. After stopping all running SAS servers and applications, invoke the SAS Deployment Wizard, choose a “Planned Deployment,” and specify only **Install SAS Software**.

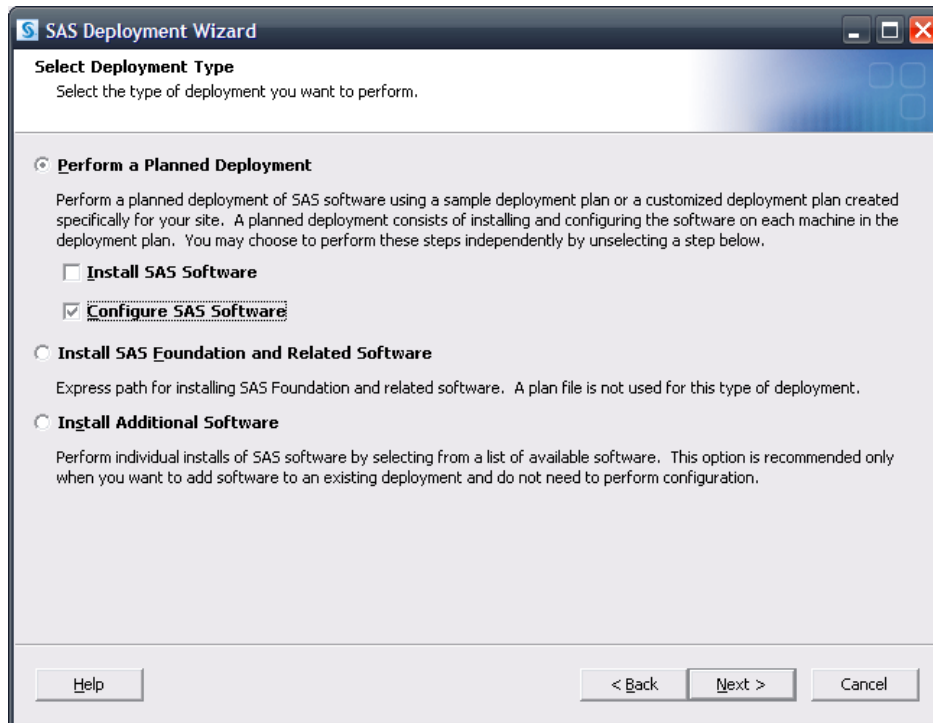


Next, select the deployment plan provided with the image.

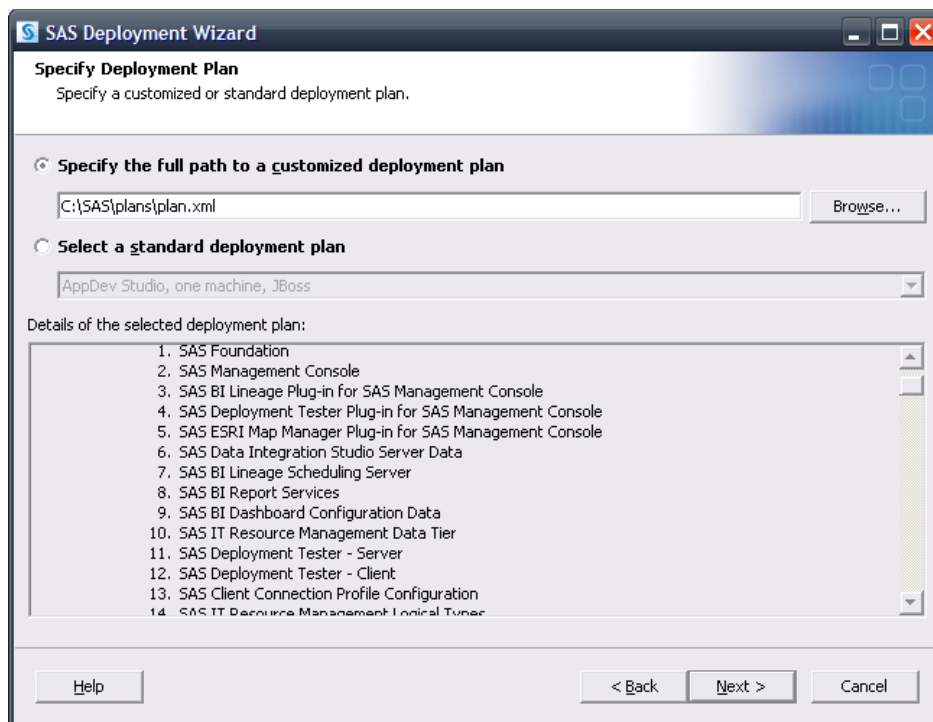


Select the machine. For this example, the **Server** machine is used. Continue on through the pages, and when you reach the **Deployment Summary**, click **Start** to begin the installation process. When the SAS Deployment Wizard finishes, SAS IT Resource Management and its dependent components have been installed on the selected **Server** machine and are ready to be configured. Restart all SAS servers and spawners and then invoke the SAS Deployment Wizard.

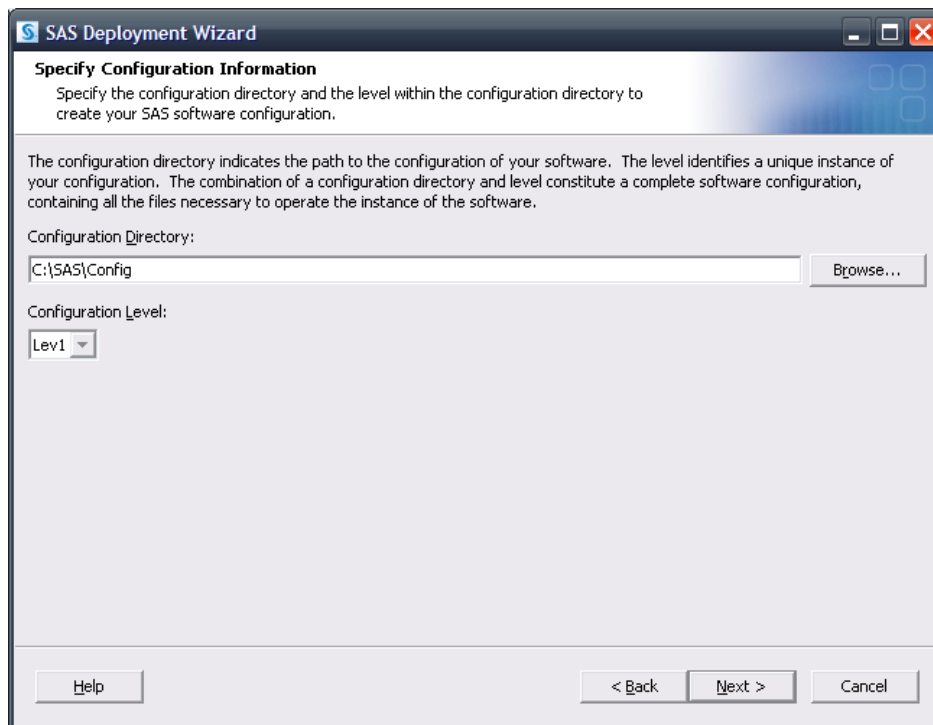
Select a “Planned Deployment” and specify **Configure SAS Software**.



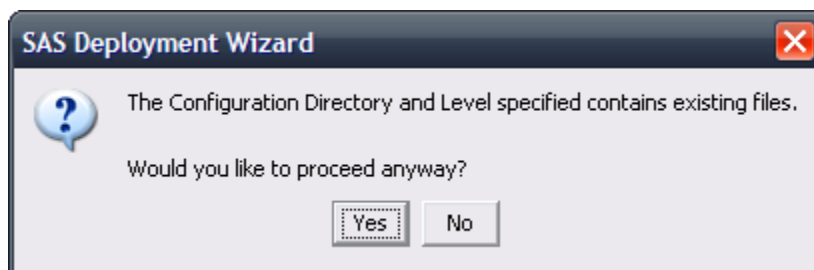
Next, specify the deployment plan provided with the image.



Select the machine. For this example, the **Server** machine is used. When prompted, specify the same configuration directory and level that is currently in use.

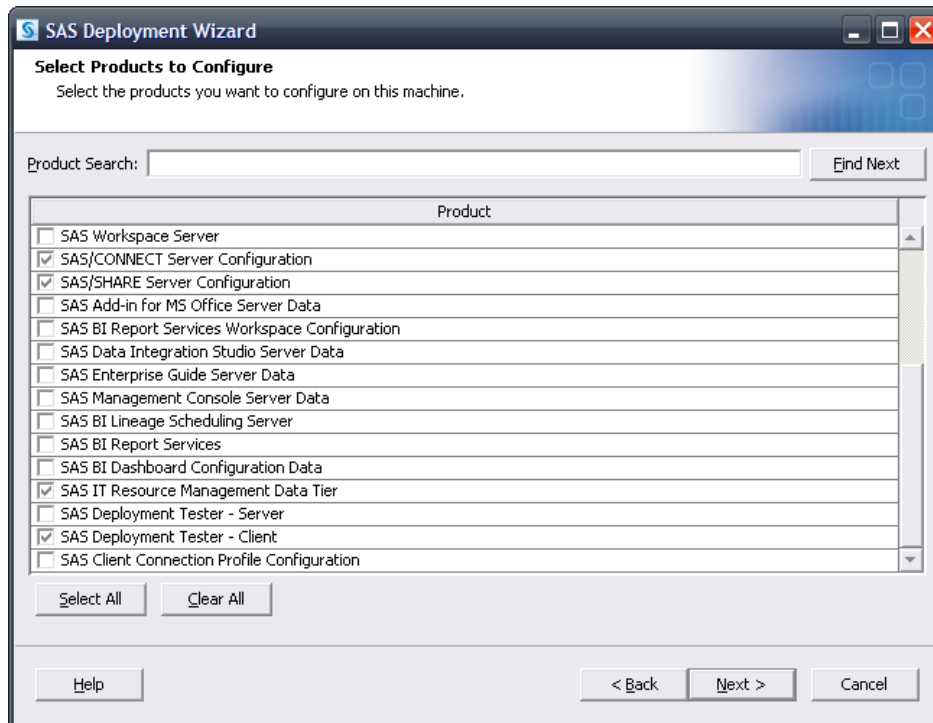


The SAS Deployment Wizard will recognize that this configuration directory and level directory already contain files.



Click **Yes** to proceed.

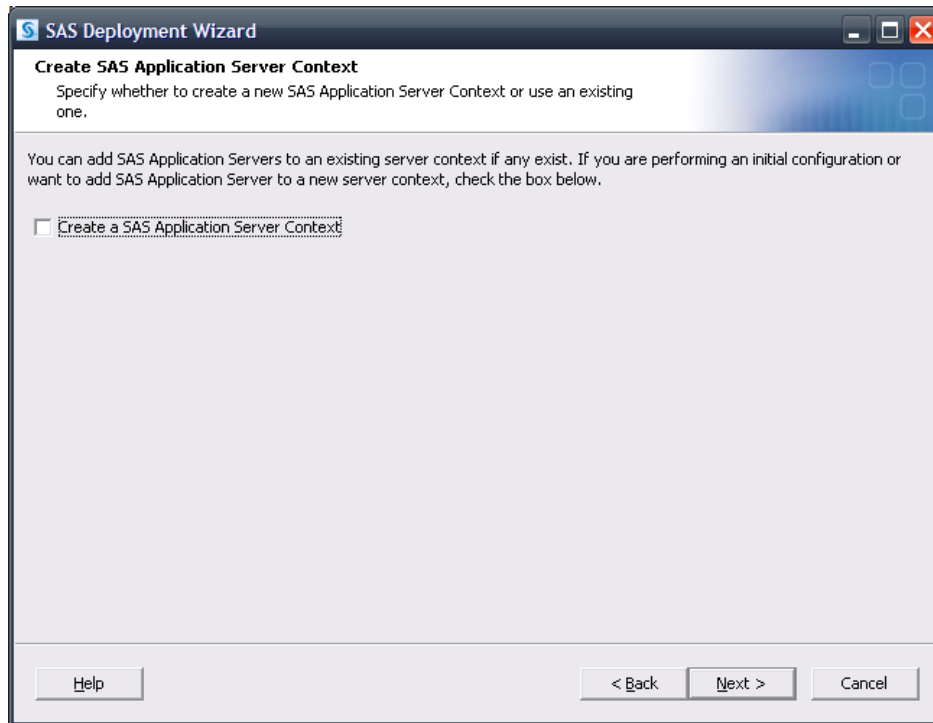
A dialog opens listing the products to configure.



By default, the SAS Deployment Wizard will present only products that have not been configured. Any products required by SAS IT Resource Management but not yet configured will be selected. Since an existing SAS Application Server is going to be used in this configuration, no SAS servers such as a SAS Workspace Server need to be selected. Select **Next** to proceed. Note though, servers that are also used by SAS IT Resource Management, such as SAS/CONNECT and SAS/SHARE are also selected.

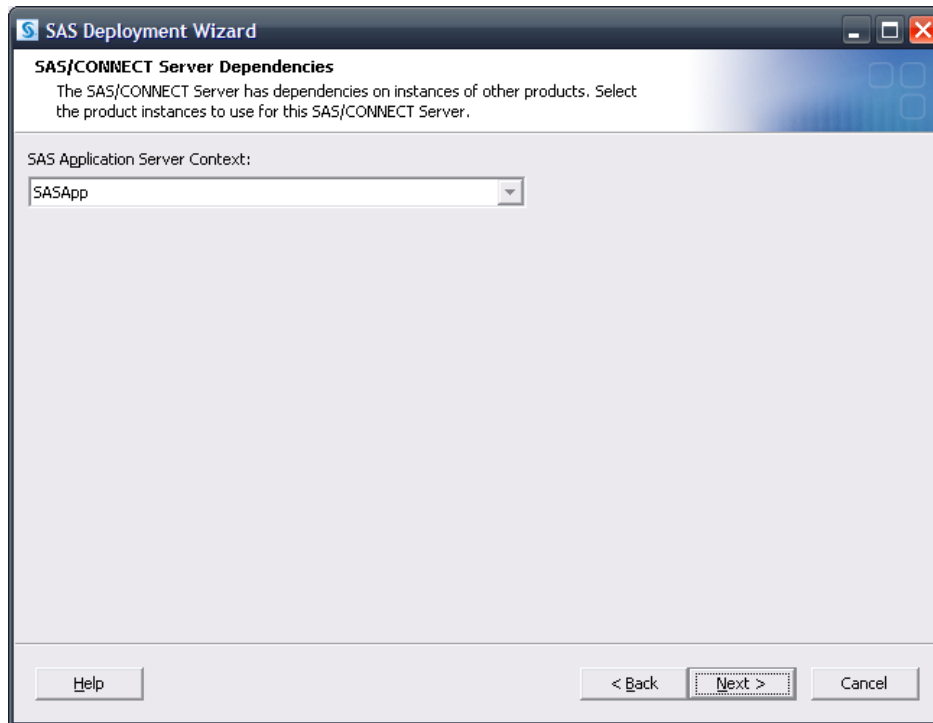
The same values that were used during the initial deployment must again be used. Specify the host information for the SAS Metadata Server as well as valid credentials for the SAS Administrator, the SAS Trusted User, and SAS Spawned Servers account.

Continue on, specifying the same connection information until the **Create SAS Application Server Context** page opens.

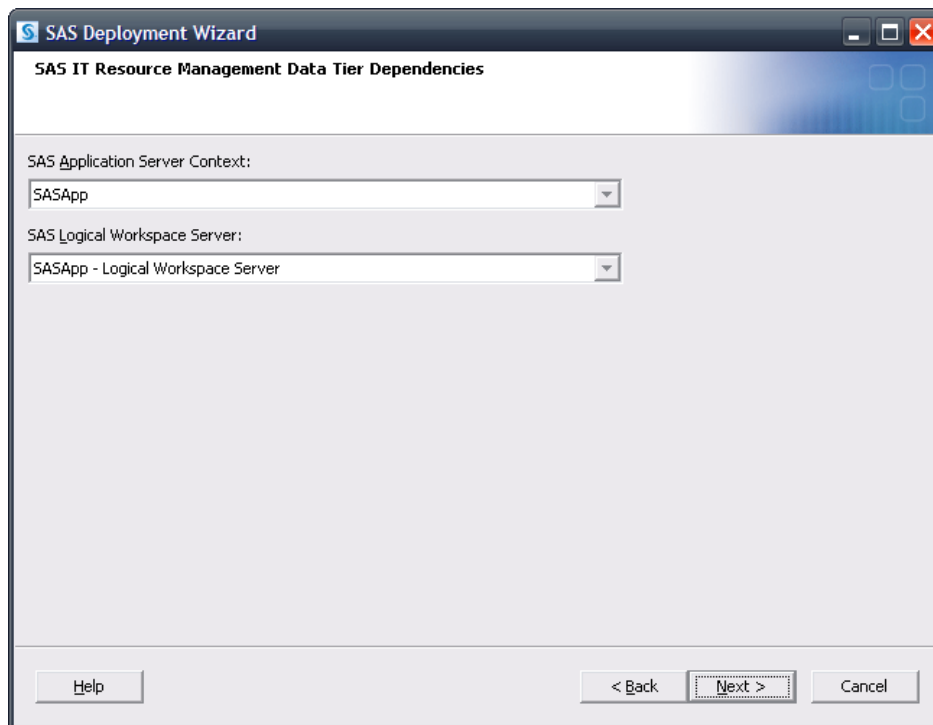


Since an existing SAS Application Server is being used, it is not necessary to create a new SAS Application Server Context. Continue specifying dependencies and required information.

If you are prompted for dependencies for the SAS/CONNECT Server, specify the same SAS Application Server you intend to use with SAS IT Resource Management.



Continue to the SAS IT Resource Management dependencies.

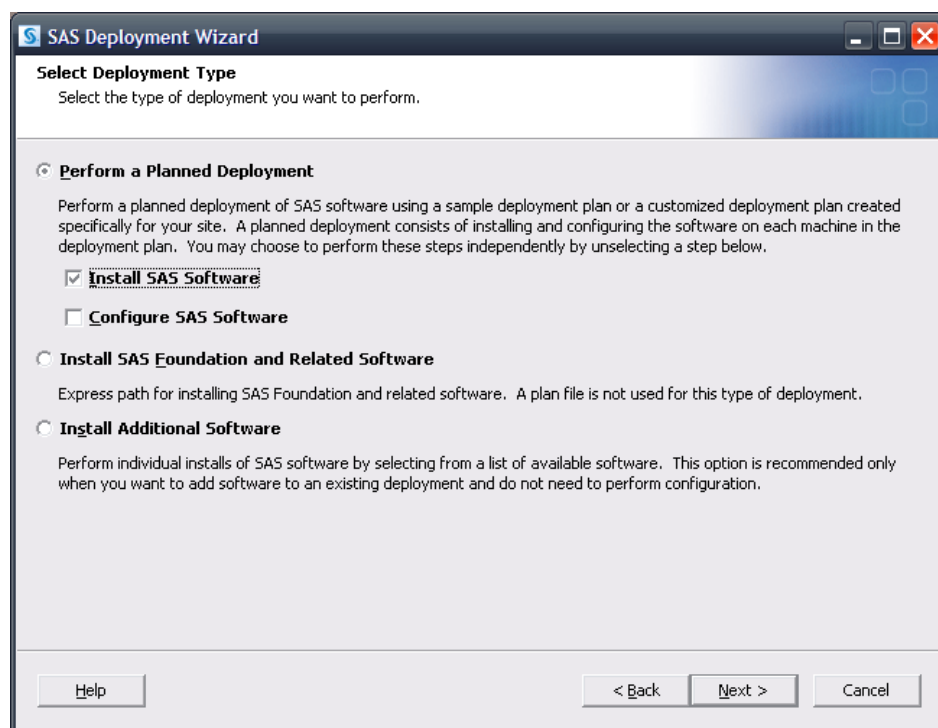


Note that **SASApp** is selected both as the SAS Application Server Context as well as the SAS Application Server associated with a SAS Workspace Server. This selection also matches with the SAS Application Server specified for the SAS/CONNECT Server, if applicable.

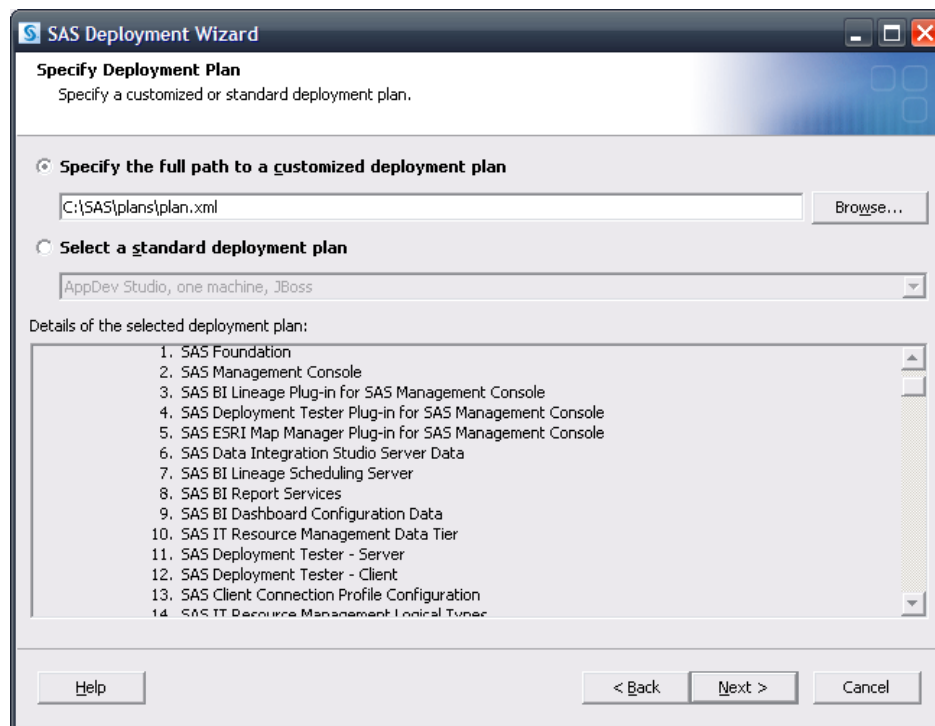
Continue on through the pages and upon reaching the **Deployment Summary**, click **Start** to begin the configuration process. When the SAS Deployment Wizard finishes, SAS IT Resource Management and its dependent components will be deployed on the selected **Server** machine and are ready to use.

Creating a New SAS Application Server

When all intended configuration updates are complete, make sure that all SAS servers are stopped. As SAS IT Resource Management software has yet to be installed, SAS recommends that no SAS software is running during installation. So, after stopping all running SAS servers and applications, invoke the SAS Deployment Wizard, choose a “Planned Deployment” and specify only **Install SAS Software**.

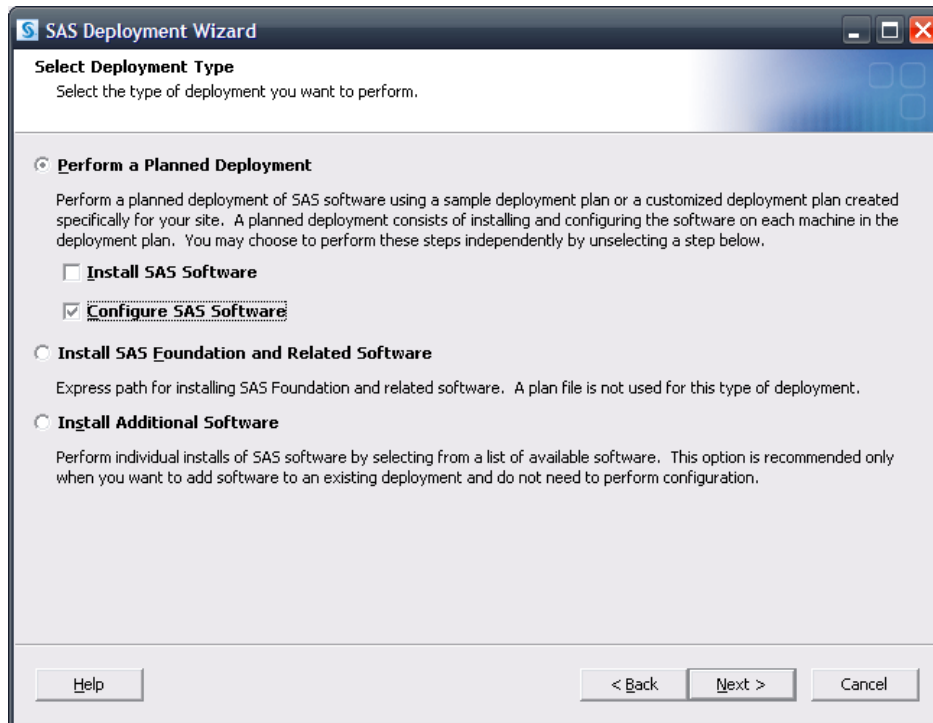


Next, select the deployment plan provided with the image.

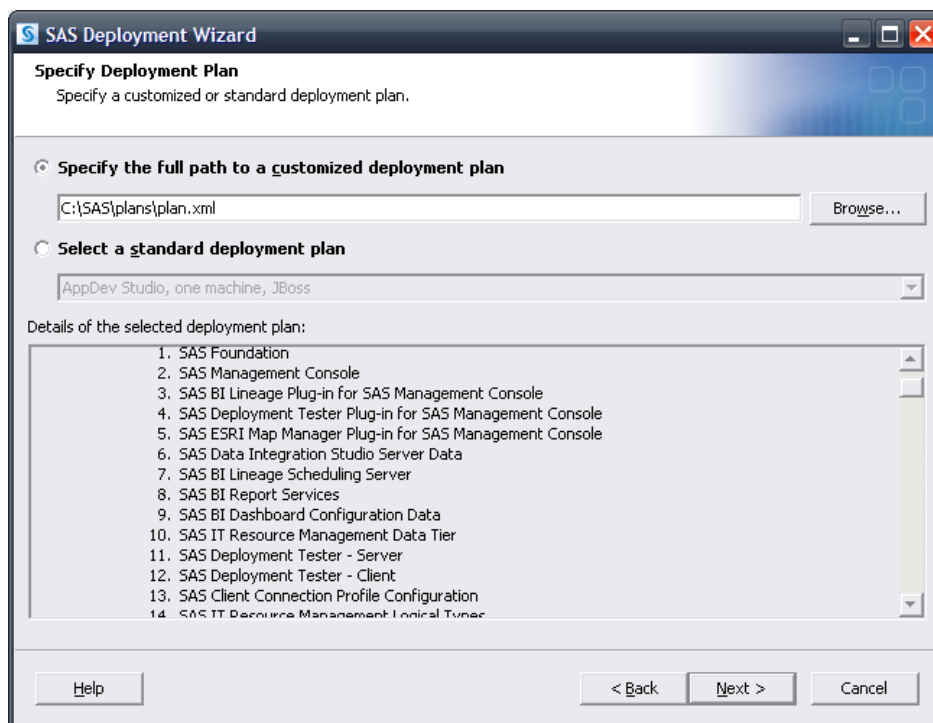


Select the machine. For this example, the **Server** machine is used. Continue on through the pages and upon reaching the **Deployment Summary**, click **Start** to begin the installation process. When the SAS Deployment Wizard finishes, SAS IT Resource Management and its dependent components will be installed on the selected **Server** machine and are ready to be configured. Restart all SAS servers and spawners and then invoke the SAS Deployment Wizard.

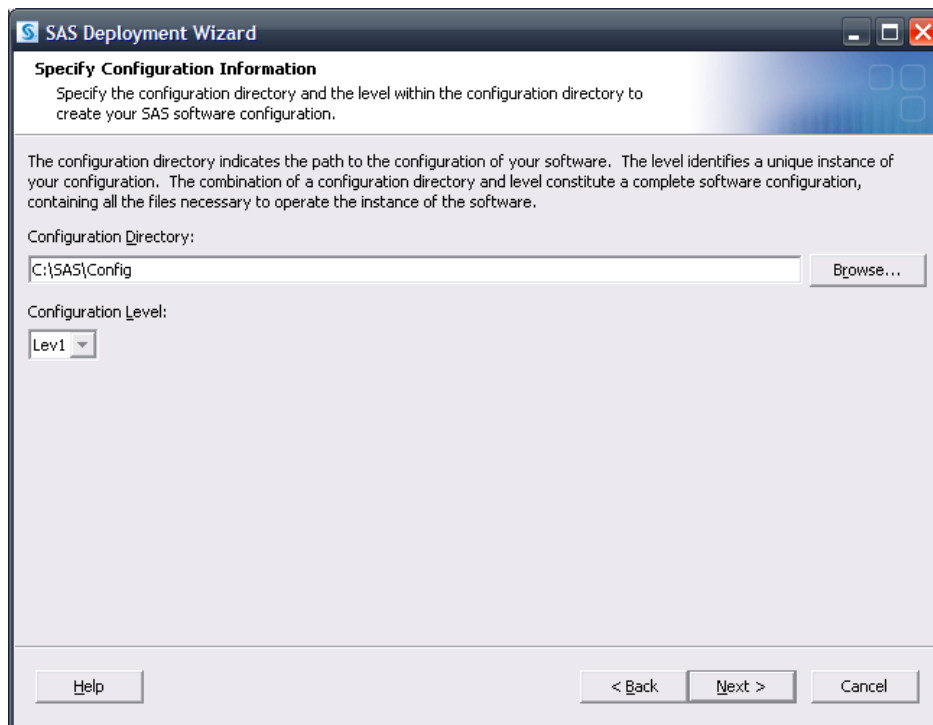
Select a “Planned Deployment,” and specify only **Configure SAS Software**.



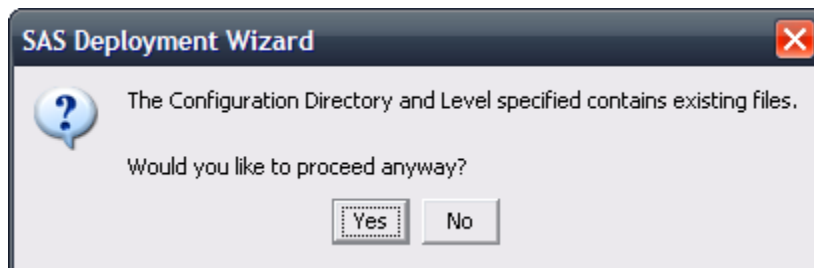
Next, specify the deployment plan provided with the image.



Select the machine. For this example, the **Server** machine is used. When prompted, specify the same configuration directory and level that is currently in use.

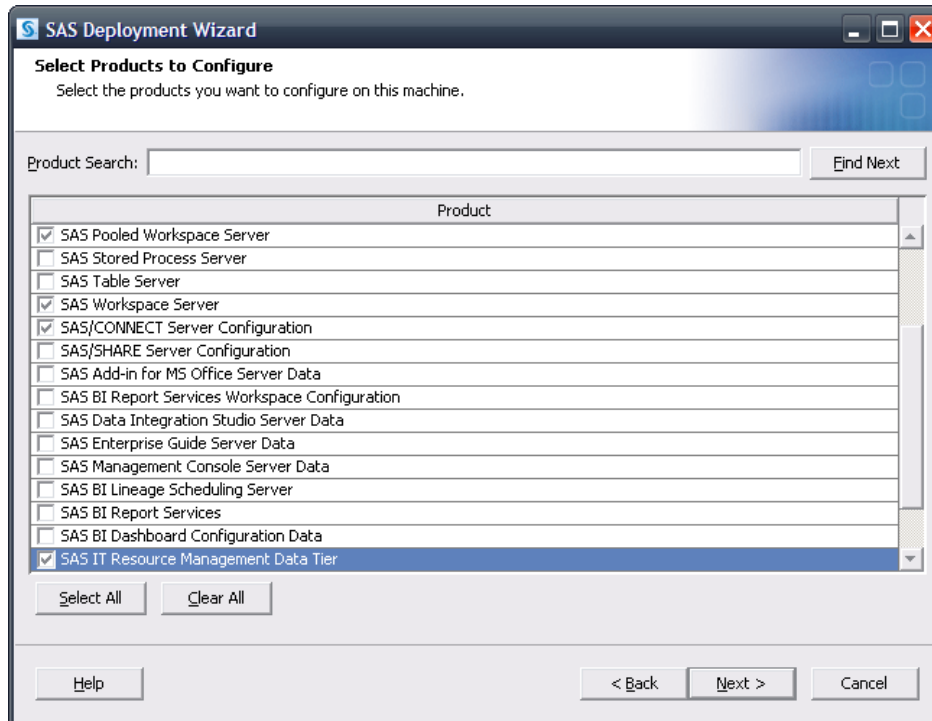


The SAS Deployment Wizard will recognize that this configuration directory and level directory already contain files.



Click **Yes** to proceed.

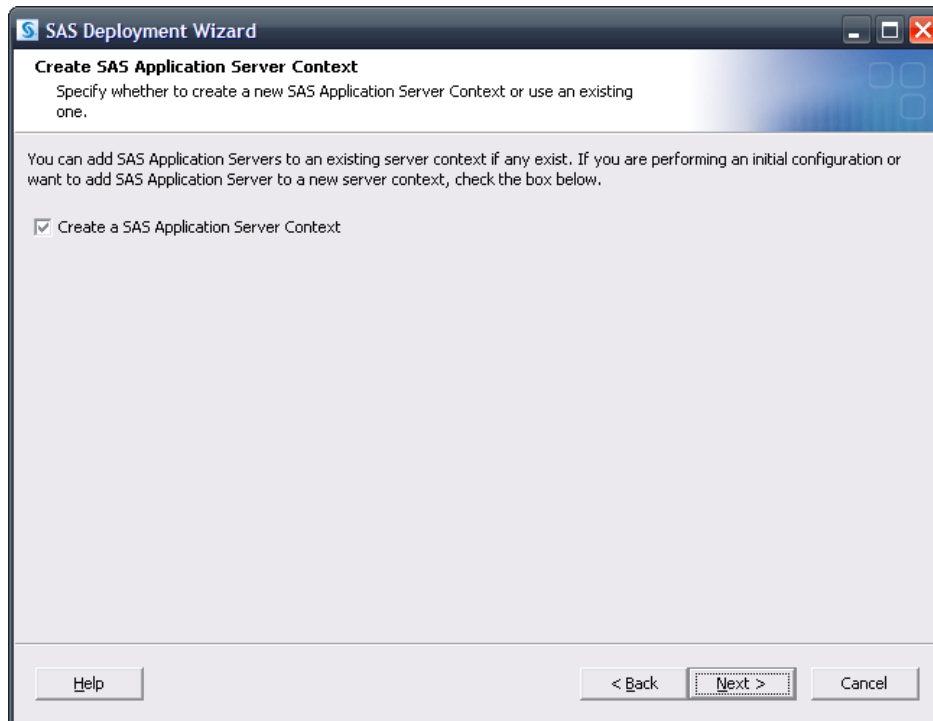
A dialog opens, listing the products to configure. By default, the SAS Deployment Wizard will present only products that have not been configured. Any products required by SAS IT Resource Management but not yet configured will be selected. However, since a new SAS Application Server is going to be created, the SAS servers required and used by SAS IT Resource Management will have to be configured.



As such, a SAS Pooled Workspace Server, a SAS Workspace Server, and a SAS/CONNECT Server have been specified in addition to SAS IT Resource Management to provide the required “exclusive” access. SAS/SHARE is also leveraged by SAS IT Resource Management and will need to be selected if a configuration of it is not already present. Select **Next** to proceed.

The same values that were used during the initial deployment must be used here. Specify the host information for the SAS Metadata Server as well as valid credentials for the SAS Administrator, the SAS Trusted User, and SAS Spawned Servers account.

Continue on, specifying the same connection information until the **Create SAS Application Server Context** page opens. Select **Create a SAS Application Server**.



The page prompting for the name of the SAS Application Server opens. A unique name is required and it is suggested that a mnemonic name, easily associated with SAS IT Resource Management is used. In this example, **SASITRM** has been specified.

The screenshot shows the 'SAS Deployment Wizard' window with the title 'SAS Application Server: Server Context'. Below the title bar, it says 'Specify the SAS Application Server Context name.' There is a text input field labeled 'SAS Application Server Context Name:' containing the text 'SASITRM'. At the bottom of the window, there are three buttons: 'Help', '< Back', and 'Next >', and a 'Cancel' button on the right.

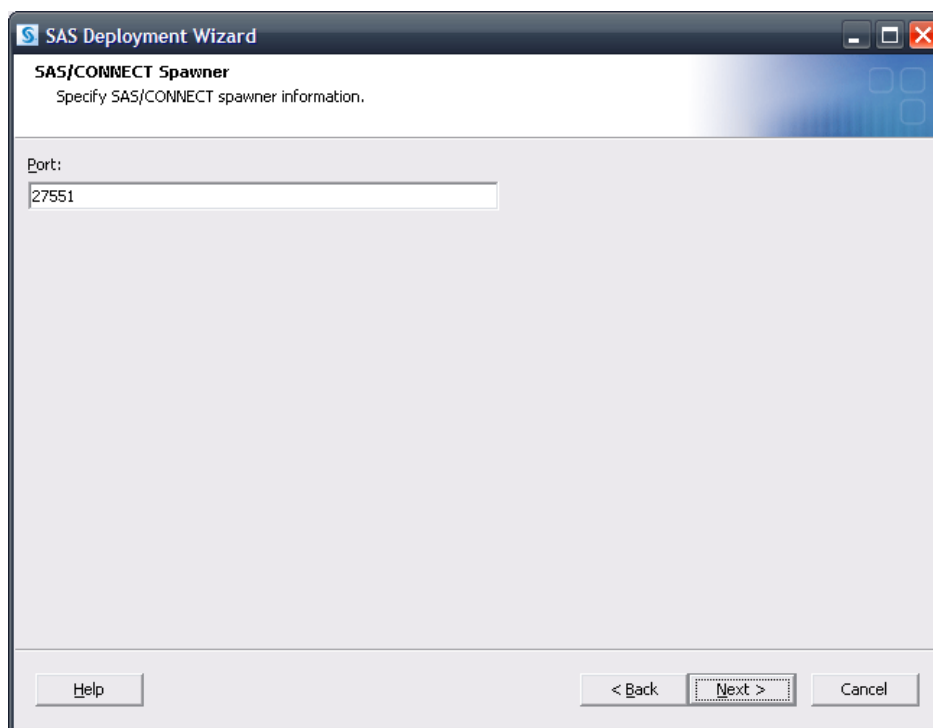
Each server being added to the SAS Application Server will prompt for which context to use.

The screenshot shows the 'SAS Deployment Wizard' window with the title 'SAS Workspace Server Dependencies'. Below the title bar, it says 'The SAS Workspace Server has dependencies on instances of other products. Select the product instances to use for this SAS Workspace Server.' There is a dropdown menu labeled 'SAS Application Server Context:' with 'SASITRM' selected. At the bottom of the window, there are three buttons: 'Help', '< Back', and 'Next >', and a 'Cancel' button on the right.

SASITRM should be the selection for each server.

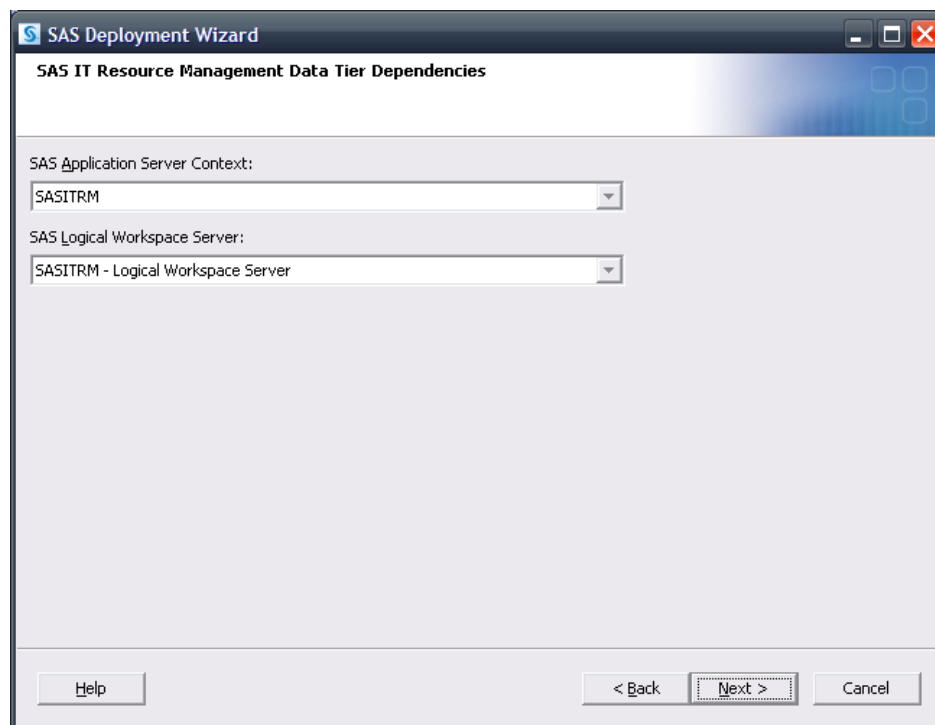
Each server being added will also prompt for their main port. The SAS Workspace Server and SAS Pooled Workspace Server being added to **SASITRM** can use whatever port is desired, including the same port the previous configuration might have used for them (provided that no other conflicts exist). The SAS 9.2 Object Spawner is fully capable of handling this issue such that no conflicts will occur in the spawning of these servers.

However, the SAS/CONNECT Spawner requires a unique port. 7551 is the default port for a SAS/CONNECT Spawner so for this example, a much different value is used, 27551. Any port that is appropriate and available can be used—it merely has to be unique and not in use.



Continue through the pages.

Specify the dependencies for SAS IT Resource Management using the newly created SAS Application Server, **SASITRM**, and its dependent application servers.



Continue on through the pages and upon reaching the **Deployment Summary**, click **Start** to begin the configuration process. When the SAS Deployment Wizard finishes, SAS IT Resource Management and its dependent components have been deployed and configured on the selected **Server** machine and are ready to use.

The *Configuration Guidelines and Details* will be presented upon completion of the SAS Deployment Wizard. As new servers are added that are managed by a SAS Object Spawner, the SAS Object Spawner associated with this configuration will need to be restarted to detect them.

Conclusions

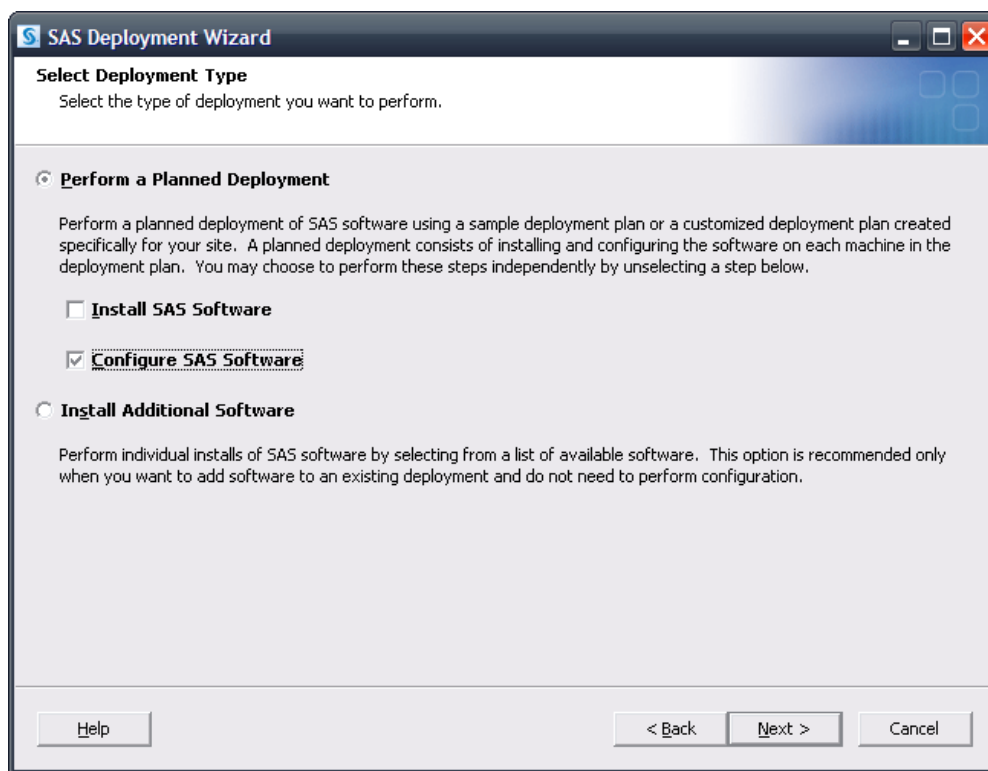
SAS IT Resource Management is a SAS solution that requires “exclusive” access to a SAS Application Server. The main issues to consider are what products are required in support of this solution and whether or not it will be installed and configured on top of an existing configuration. Either of the approaches discussed above should be able to handle most requirements. Be sure that unique ports are used when applicable and name things in such a way that they are easy to associate with the solution in question.

Appendix

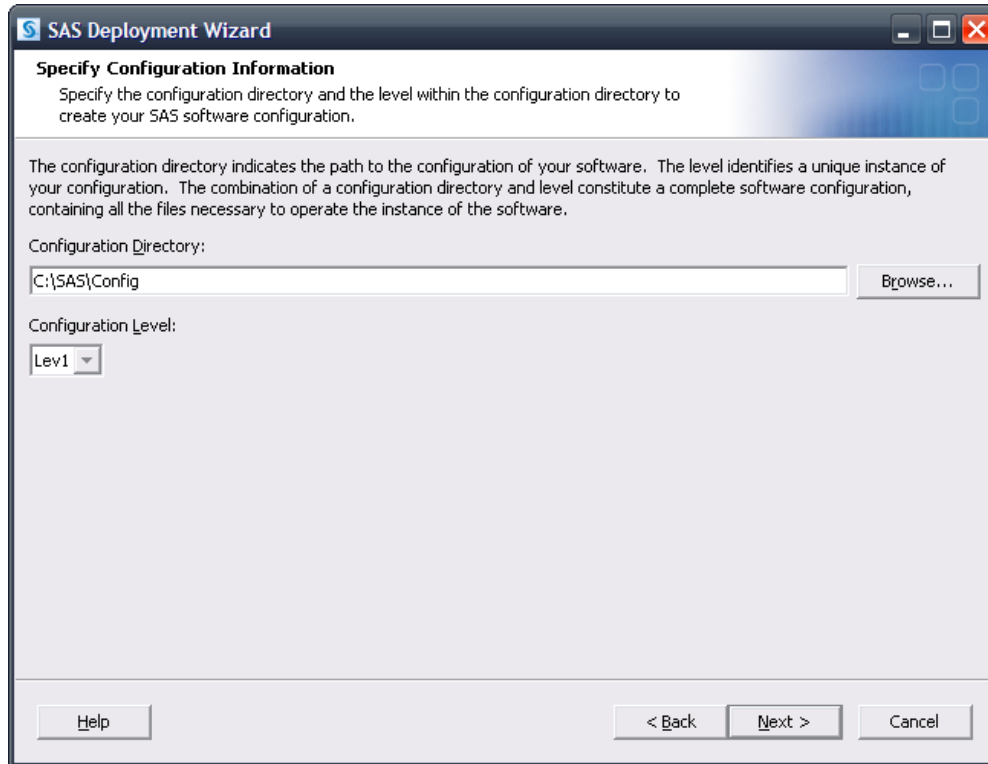
Creating a SAS Application Server Specific to the SAS Business Intelligence Platform

Deploying SAS IT Resource Management on a “clean” system resulted in the creation of the SAS IT Resource Management specific SAS Application Server, **SASITRM**. As mentioned above, in the event that an additional “vanilla” SAS Application Server is needed, the SAS Deployment Wizard can be used to create one.

Invoke the SAS Deployment Wizard. Choose “Perform a Planned Deployment,” and specify **Configure SAS Software**.



Choose the same plan and machine as before, for example, **Server**. Also, for this example, the same configuration location and level used in the initial deployment are specified.

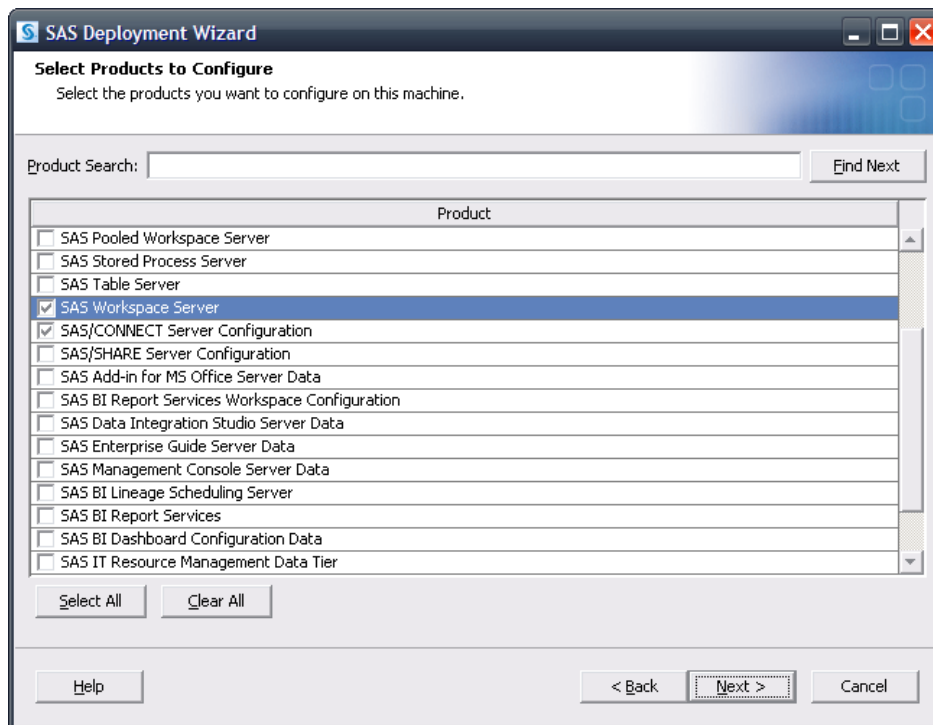


The SAS Deployment Wizard will recognize that this configuration directory and level directory already contain files.

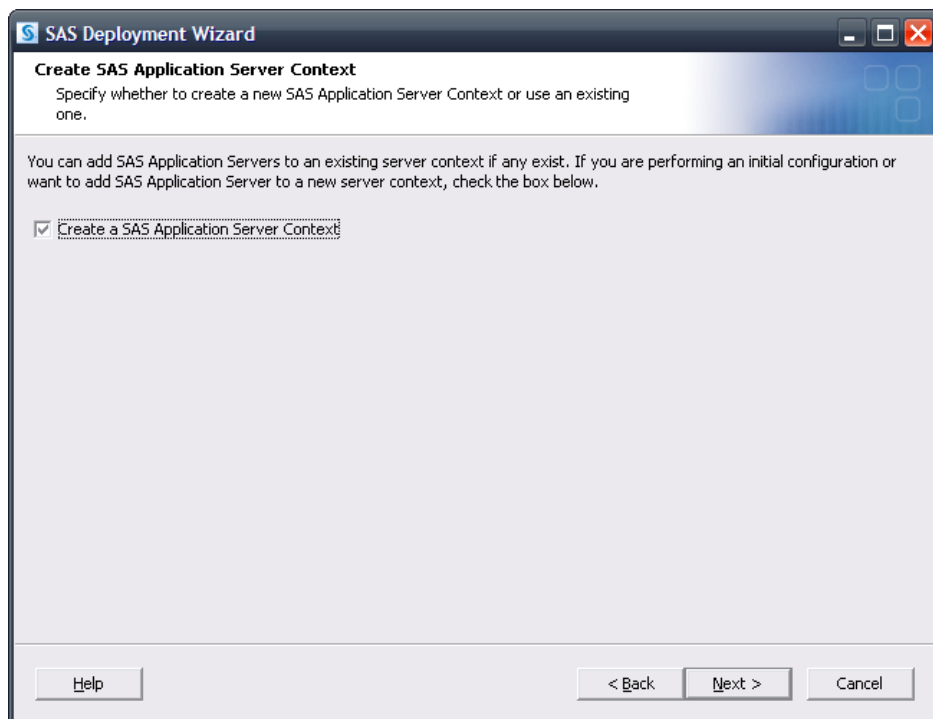


Click **Yes** to proceed.

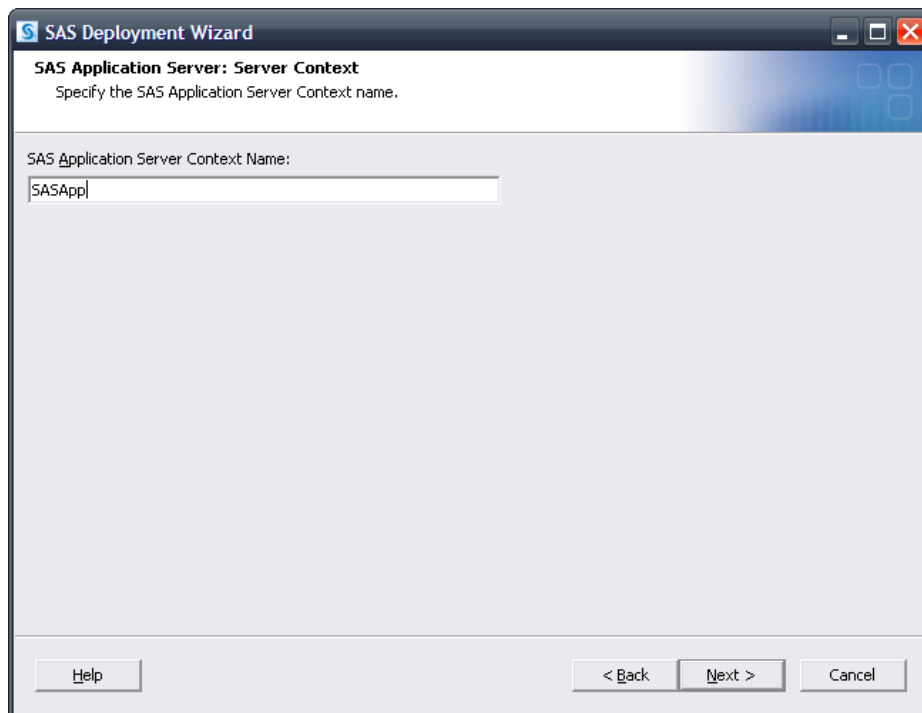
A page opens, listing the products to configure. Choose any of the SAS Application Servers that are desired to be added to the SAS Application Server that will be created. The examples below show a SAS/CONNECT Server and a SAS Workspace Server.



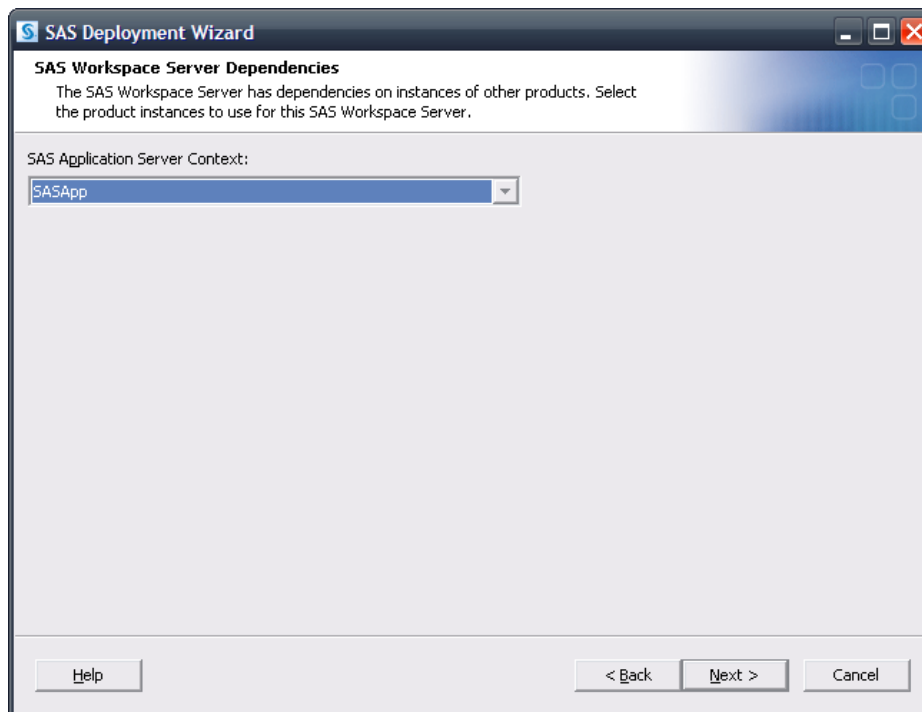
The SAS Application Server information opens next.



It is important here to select to create a SAS Application Server Context. This is done in order to provide an additional SAS Application Server. Assuming a SAS Application Server (**SASITRM**) specific to the SAS IT Resource Management solution has already been created, the usual default of **SASApp** can be used.

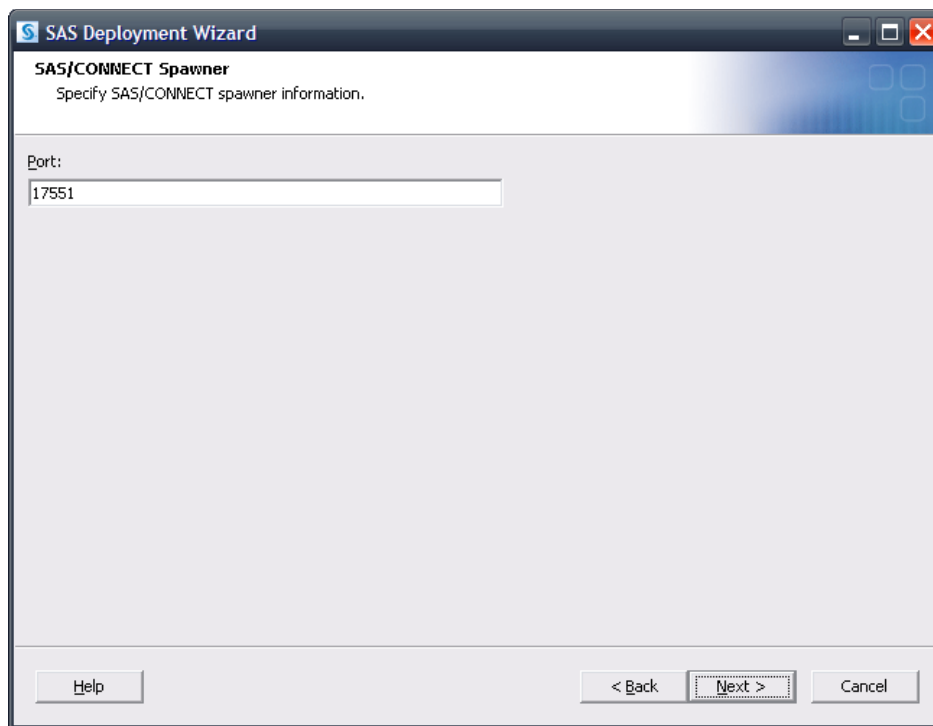


Dependencies for the application servers being added will then need to be specified.



Since these servers are intended to be associated to the new SAS Application Server, **SASApp** should be selected.

Each server being added will also prompt for their main port. For this example, the SAS Workspace Server can use whatever port is desired, including the same port the previous configuration might have used for them (provided that no other conflicts exist). The SAS 9.2 Object Spawner is fully capable of handling this issue such that no conflicts will occur in the spawning of this server. However, the SAS/CONNECT Spawner requires a unique port. 7551 is the default port for a SAS/CONNECT Spawner so for this example, a much different value is used, 17551. Any port that is appropriate and available can be used—it merely has to be unique and not in use.



Continue on through the pages and upon reaching the **Deployment Summary**, click **Start** to begin the configuration process. When the SAS Deployment Wizard finishes, SAS IT Resource Management and its dependent components have been deployed and configured on the selected **Server** machine and are ready to use.

The *Configuration Guidelines and Details* will be presented to upon completion of the SAS Deployment Wizard. As new servers are added that are managed by a SAS Object Spawner, the SAS Object Spawner associated with this configuration will need to be restarted to detect them.