

NetBackup powered by Cloud Scale Technology - Marketplace Deployment Guide on Azure Kubernetes Services

NetBackup powered by Cloud Scale
Technology

Release 10.1



NetBackup Marketplace Deployment Guide for Azure Kubernetes Services (AKS) Cluster

Last updated: 2022-12-27

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About Veritas NetBackup Marketplace Guide on Azure Kubernetes Services (AKS) Cluster

This chapter includes the following topics:

- [About NetBackup Marketplace Guide on Azure Kubernetes Services \(AKS\) Cluster](#)
- [Before you begin the deployment](#)

About NetBackup Marketplace Guide on Azure Kubernetes Services (AKS) Cluster

NetBackup provides the integrated deployment solution on the Azure Kubernetes Services (AKS) in Azure Cloud. The solution offers an orchestrated deployment of NetBackup components on AKS.

The template lets you specify the following details for the NetBackup deployment:

- **Installation type:** This is a full deployment where you can deploy the primary server, Media server, and Storage server. Storage server denotes MSDP server.
- **NetBackup license key:** To be used to validate your NetBackup entitlement.

This document provides the instructions for deploying NetBackup components on Azure Kubernetes Services (AKS) in Azure Cloud. The intended audience for this

document includes backup administrators, cloud administrators, architects, and system administrators.

Before you begin the deployment

1. A user-managed identity is required with Owner or Contributor role. Refer to the topic [Create a user-assigned managed identity](#) to create user-assigned identity.

To know more about user-managed identity, refer [How to manage user assigned managed identities?](#)
2. Private AKS cluster is not supported. If selecting existing cluster, then make sure it is not private.
3. Before starting deployment make sure all the required container images are downloaded in a ACR from the container offer. Refer See [“Download Container images to registry”](#) on page 8. for more details.
4. Keep the NetBackup license key ready.
5. Existing cluster with Kubernetes network plugin is not supported. If selecting existing cluster, then make sure network plugin is AzureCNI.

Prerequisites for deployment

This chapter includes the following topics:

- [Create Container registry](#)
- [Download Container images to registry](#)
- [Create a user-assigned managed identity](#)

Create Container registry

Container registry should have all the images downloaded in one place before starting with the deployment. Perform following steps to create registry:

To create Container registry

- 1 Select **Create a resource** > **Containers** > **Container Registry**.
- 2 In the **Basics** tab, enter values for **Resource group** and **Registry name**. The registry name must be unique within Azure constraints and contain 5-50 alphanumeric characters.
- 3 For **SKU**, select as per your requirement.
- 4 Modify or keep the default values as required for the remaining settings and then select **Review + create**. After reviewing the settings, select **Create**.

Refer [Quickstart: Create an Azure container registry](#).

Download Container images to registry

Veritas NetBackup powered by Cloud Scale Technology - Container images offer helps you in downloading the application images in your own ACR (Azure

Container registry). This is a prerequisite before deploying the actual application offer. You need to download all the images in your registry in any order. When all the container images are downloaded, they are prefixed with **Veritas**. You need to assign the **Contributor** or **Owner** role at the resource group or subscription level for the deployment to work.

How to download Container images

- 1 Access the Azure Marketplace.
- 2 On Marketplace, locate the offer **Veritas NetBackup powered by Cloud Scale Technology - Container images**.
- 3 On the **Plan** dropdown, you will find all the images along with tags:

Plan name	Tag for 10.1	Tag for 10.0
NetBackup Operator	10.1	10.0
NetBackup Server	10.1	10.0
MSDP Meta Data	10.1	10.0
MSDP Controller	10.1	10.0
MSDP Engine	10.1	10.0
MSDP Operator	10.1	10.0
Flexsnap Nginx	10.1.0.0.1027	NA
Flexsnap MongoDB	10.1.0.0.1027	NA
Flexsnap API Gateway	10.1.0.0.1027	NA
Flexsnap Deploy	10.1.0.0.1027	NA
Flexsnap RabbitMQ	10.1.0.0.1027	NA
Flexsnap fluentd	10.1.0.0.1027	NA
Flexsnap Core	10.1.0.0.1027	NA
Flexsnap Certauth	10.1.0.0.1027	NA
NetBackup DataMover	10.1.0.0.1027	NA
Flexsnap Idm	10.1.0.0.1027	NA

- 4 You can select any one of the images and click **Create**.
- 5 A new page is opened named **Subscribe** where you need to provide the configuration details.

Below are the details for the images for NetBackup Operator, NetBackup Server, MSDP Meta Data, MSDP Controller, MSDP Engine, and MSDP Operator :

See [“Parameters required for Container images”](#) on page 10.

Parameters required for Container images

You can provide the details for deploying the image. These details are common for all the other images: NetBackup Operator, NetBackup Server, MSDP Meta Data, MSDP Controller, MSDP Engine, and MSDP Operator

Table 2-1 Details to deploy image

Parameters	Description
Subscription	Select the subscription from the dropdown.
Azure Container Registry	Provide details for Container Registry by selecting Create new / use existing option.
Resource group	Select an existing Resource group from the dropdown. Optionally you can create a new resource group using the create new option.
Location	Select the appropriate location from the dropdown.
Tag	Select the appropriate Tag from the dropdown. Do not select the "latest" value from the dropdown. Refer the tags table from the topic. See “How to download Container images” on page 9.
Auto-update	If you check this checkbox you can enroll for auto-update that will push new tag or digest updates of the container image to your ACR. It is not recommended to select this checkbox.
Terms of use Privacy policy	You can read through the terms and policy usage.
Contact details	
Name	Provide your name.
Primary email address	Provide your email address.
Primary phone number	Provide your phone number

Create a user-assigned managed identity

To create a user-assigned managed identity, your account needs the [Managed Identity Contributor](#) assignment.

Steps to create user-assigned managed identity role

- 1 Login into the [Azure portal](#).
- 2 In the search box, enter **Managed Identities**. Under **Services**, select **Managed Identities**.
- 3 Select **Add**, and enter values in the following boxes in the **Create User Assigned Managed Identity** pane:
 - **Subscription:** Choose the subscription to create the user-assigned managed identity under.
 - **Resource group:** Choose a resource group to create the user-assigned managed identity in, or select **Create new** to create a new resource group.
 - **Region:** Choose a region to deploy the user-assigned managed identity, for example, West US.
 - **Name:** Enter the name for your user-assigned managed identity, for example, UAI1.
- 4 Select **Review + create** to review the changes.
- 5 Select **Create**.

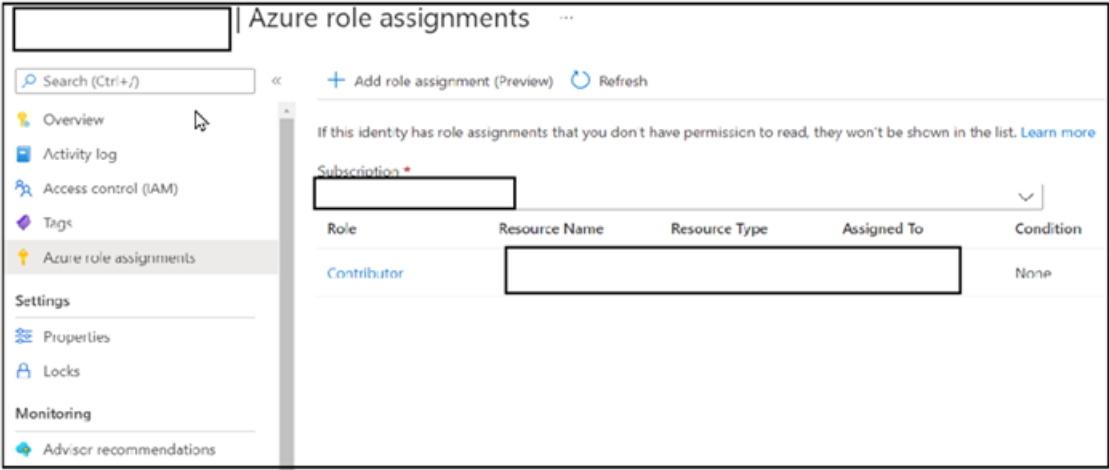
Add role assignment to the user-assigned managed identity

To list or read a user-assigned managed identity, your account needs to have either [Managed Identity Operator](#) or [Managed Identity Contributor](#) role assignments.

Steps to assign user-assigned identities

- 1 Login to [Azure portal](#).
- 2 In the search box, enter **Managed Identities**. Under **Services**, select **Managed Identities**.
- 3 Navigate to particular **Managed Identities** -> Go to **Azure role assignments** -> **Add role assignment (preview)**.
- 4 Assign **Contributor** or **Owner** role at the resource group or subscription level for the deployment.
- 5 You can now view the details about the managed identity as shown in the image below.

Figure 2-1 Details of the user-assigned managed identity



Deploying NetBackup on Azure Kubernetes Services (AKS)

This chapter includes the following topics:

- [Deploying NetBackup on Azure Kubernetes Services \(AKS\) using Marketplace](#)
- [Enable System Managed Identity provider plugin](#)

Deploying NetBackup on Azure Kubernetes Services (AKS) using Marketplace

To deploy NetBackup on Azure Kubernetes Services using Marketplace

- 1 Access the Azure Marketplace.
- 2 On Marketplace, locate the offer **Veritas NetBackup powered by Cloud Scale Technology - Deployment on AKS**
- 3 On the **Plan** dropdown, you will find **NetBackup 10.1**.
- 4 Click **Create**.
- 5 A new page is opened name **Veritas NetBackup powered by Cloud Scale Technology - Deployment on AKS** with different tabs. Provide the details on the individual tab using the following topics.
 - See [“Basics”](#) on page 15.Basics tab
 - See [“Cluster Configuration”](#) on page 16.Cluster Configuration
 - See [“Primary Server Details”](#) on page 19.Primary Server Details

- See [“Media Server Details”](#) on page 21. Media Server Details
 - See [“Storage Server Details”](#) on page 21. Storage Server Details
 - See [“Snapshot Manager details”](#) on page 23.
 - After all the configuration details are provided on all the tabs, click **Review + create**. The deployment starts which takes around 45 min or more to complete as per your replicas count for media and storage.
- 6 Refer to [How to access the NetBackup after deployment](#) for further steps to verify the deployment.

Enable System Managed Identity provider plugin

By deploying the NetBackup marketplace deployment, we have an Azure plugin already added into the Snapshot Manager through System Managed Identity. It will not be able to list all the virtual machines if the System Managed Identity on the setup is turned off.

Below are some of the steps to enable the System Managed Identity provider plugin:

1. Navigate to the **Cluster -> Properties**.
2. Navigate to **Infrastructure resource group** and in that search for <primary server pool> Virtual Machine Scale Set.
3. We have to change the system identity status to ON and save it.
4. Now add the Azure Role Assignment that has the Snapshot Manager permissions - by using any of the options mentioned in **Scope** dropdown.
5. Save the role and then after few (25-30) mins, execute the discovery on the Snapshot Manager . It should be able to list all the virtual machines.

Configuration parameters

This chapter includes the following topics:

- [Configuration parameters in NetBackup](#)
- [Basics](#)
- [Cluster Configuration](#)
- [Primary Server Details](#)
- [Media Server Details](#)
- [Storage Server Details](#)
- [Snapshot Manager details](#)

Configuration parameters in NetBackup

Refer to the following tables and provide the configuration details depending on the type of installation you want to perform.

Basics

On the Basics tab, provide the following details as required:

Table 4-1 Basics tab parameters

Parameter	Description
Project Details	
Subscription	Select the subscription ID using which you want to deploy NetBackup.

Table 4-1 Basics tab parameters (*continued*)

Parameter	Description
Resource group	Select from the existing resource groups under that subscription or create a new resource group
Instance Details	
Region	Select the region for the deployment.
Availability Zone	Specify the required availability zone or none for the selected region to deploy the resources.
User Assigned Managed Identity	Select user-assigned managed identity to execute the product deployment. The user-managed identity should have role assigned as Contributor or Owner at the resource group level for executing the deployment script.
Select Azure Container Registry	Select the existing Azure Container Registry in which you have downloaded the images. You need to ensure that all the required container images are available in the selected registry.
Instance Name	Provide an instance name which should be used for the application environment in the cluster.
License Key	Provide your NetBackup license key. When copy/pasting the license key, ensure that it is copied completely, including the hyphens. See NetBackup licenses
Media Server Replicas	Provide the number of replicas for Media server.
Storage Server Replicas	Provide the number of replicas for Storage server.

Click **Next: Cluster Configuration** >

Cluster Configuration

On the Cluster Configuration tab, provide the following details as required:

Table 4-2 Cluster configuration tab parameters

Parameters	Description
Create a new AKS cluster?	You can select Yes to create new AKS cluster or select No if you want to use the existing AKS cluster.
Yes / No	For the pre-existing cluster, ensure the following: 1 You need to map the pre-existing AKS cluster with ACR. Execute the below command: <pre>az aks update -n <pre-existing-cluster-name> -g <RG-name> --attach-acr <ACR-name></pre> 2 Cluster has Contributor role on the container registry. Execute the below command: <pre>az resource list -n <pre-existing-cluster-name> --query [*].identity.principalId --out tsv</pre> Output is: UUID number <pre>az role assignment create --assignee <replace-uuid-here> --role 'Contributor' --scope /subscriptions/<subscription-id>/resourceGroups /<VNET-resource-group-name>/providers/Microsoft.Network /virtualNetworks/<VNET-NAME>/subnets /<LoadBalancer-subnet-name></pre> 3 While using a dedicated subnet for the application Load balancer, ensure that the cluster has the required role assigned for the dedicated subnet.
Kubernetes cluster name	Provide the name of the Azure Kubernetes Service cluster.
Network configuration	This is the network plugin used for building the Kubernetes network. Only AzureCNI networking is supported for Netbackup cluster configuration.
Use a dedicated subnet for application load balancer?	You need to select this checkbox if you want to use a dedicated subnet for your application load balancer.
Select aks cluster	You need to select the existing cluster in case if was selected as No while creating new cluster.

Table 4-2 Cluster configuration tab parameters (*continued*)

Parameters	Description
Configure virtual networks	
Virtual Network	Select a virtual network for the AKS cluster subnet and the application Load Balancer subnet. Ensure to select the same network for the application load balancer subnet as that of the cluster vNet.
Subnet for AKS cluster	Select a subnet from the virtual network for AKS cluster creation.
Subnet for Load Balancer	Select a subnet from the virtual network for Application Load Balancer.
Kubernetes service address range	A CIDR notation IP address.
Kubernetes DNS service IP address	An IP address assigned to Kubernetes DNS service.
Docker Bridge address	An IP address and netmask assigned to Docker Bridge.
DNS name prefix	DNS name prefix to use with the hosted Kubernetes API server FQDN.
Primary Server Node pool Configuration	
Node pool name	Enter a unique name for the node pool.
Node size	Node size should have minimum 16vCPUs and 64 GB RAM.
Scale Method	Scale method to be used for your node pool. "Autoscale" is the default method used for your node pool.
Max node count	The number of nodes that will be created along with the cluster.
Media Server Node pool Configuration	
Node pool name	Enter the name of the node pool.
Node size	Node size should have minimum 8vCPUs and 32 GB RAM.

Table 4-2 Cluster configuration tab parameters (*continued*)

Parameters	Description
Scale Method	Scale method to be used for your node pool. "Autoscale" is the default method used for your node pool.
Max node count	The number of nodes that will be created along with the cluster.
Storage Server Node pool Configuration	
Node pool name	Enter the name of the node pool.
Node size	Node size should have minimum 8vCPUs and 64 GB RAM.
Scale Method	Scale method to be used for your node pool. "Autoscale" is the default method used for your node pool.
Max node count	The number of nodes that will be created along with the cluster.
Snapshot Manager Node pool Configuration	
Node pool name	Enter the name of the node pool.
Node Size	Node size should have minimum 4vCPUs and 16 GB RAM.
Scale Method	Scale method to be used for your node pool. "Autoscale" is the default method used for your node pool.
Max node count	The number of nodes that will be created along with the cluster.

Click **Next: Primary Server Details >**

Primary Server Details

On the Primary Server Details tab, provide the following details as required:

Table 4-3 Primary server details tab parameters

Parameters	Description
Network Configuration	

Table 4-3 Primary server details tab parameters (*continued*)

Parameters	Description
IP address	Provide the IP address of the NetBackup Primary Server.
Hostname	Provide hostname of the NetBackup Primary Server
Storage Configuration	
Catalog Storage Type	Specify the storage class type for Primary Server Catalog Storage Class
Catalog size in Gi	Provide the size for the primary server catalog. The catalog volume must be at least 100 Gi.
Logs Storage Type	Specify the storage type for the primary server Logs Storage Class.
Logs size in Gi	Provide the size for the primary server logs. The log volume must be at least 30 Gi.
Credentials	
Username	Provide username using which Primary Server will be configured.
Password	Provide password for the user using which Primary Server will be configured.
Confirm Password	Provide password for the user using which Primary Server will be configured.
KMS Configuration	
Host Master Key ID	Provide the Host Master Key ID.
Host Master Key Passphrase	Provide the Host Master Key passphrase.
Confirm Host Master Key Passphrase	Provide the Host Master Key passphrase.
Key Protection Key ID	Provide the Key Protection ID.
Key Protection Key Passphrase	Provide the Key Protection Key passphrase.
Confirm Key Protection Key Passphrase	Provide the Key Protection Key passphrase.

Click **Next: Media Server Details** >

Media Server Details

On the Media Server Details tab, provide the following details as required:

Table 4-4 Media Server details tab parameters

Parameters	Description
Network Configuration	
IP address	Provide the IP address. Provide as many pairs of IP address and hostname as per the media server replica count specified on the Basics tab.
Hostname	Provide Hostname. Provide as many pairs of IP address and hostname as per the media server replica count specified on the Basics tab.
Storage Configuration per Media Server replica	
Data Storage Type	Specify the storage type for Media server Data Storage Class.
Data size in Gi	Provide the size for Media server Data. The data volume must be at least 50Gi.
Logs Storage Type	Specify the storage type for Media server Logs Storage Class.
Logs size in Gi	Provide the size for Media server Logs. The log volume must be at least 30Gi

Click **Next: Storage Server Details >**

Storage Server Details

On the Storage Server Details, provide the following details as required:

Table 4-5 Storage server details tab parameters

Parameters	Description
Network Configuration	

Table 4-5 Storage server details tab parameters (*continued*)

Parameters	Description
IP address	Provide the IP address of the NetBackup Storage Server You can provide as many pairs of IP address and hostname as per the storage server replica count specified on the Basics tab.
Hostname	Provide the hostname address of the NetBackup Storage Server You can provide as many pairs of IP address and hostname as per the storage server replica count specified on the Basics tab.
Storage Configuration per Storage Server replica	
Data Storage Type	Specify the storage type for Storage server Data Storage Class
Data size in Ti	Provide the size for Storage server data volume at least 2Ti.
Catalog Storage Type	Specify the storage class type for Storage Server Catalog Storage Class
Catalog size in Gi	Provide the size for Storage Server Catalog. The catalog volume must be at least 20 Gi.
Logs Storage Type	Specify the storage type for Storage server Logs Storage Class.
Logs size in Gi	Provide the size for Storage Server logs. The log volume must be at least 5 Gi.
Credentials	
Username	Provide username using which Storage Server will be configured.
Password	Provide password for the user using which Storage Server will be configured.
Confirm Password	Provide password for the user using which Storage Server will be configured.
KMS Configuration	
KMS Key Group	Provide the KMS Key Group.

Table 4-5 Storage server details tab parameters (*continued*)

Parameters	Description
KMS Key Name	Provide the KMS Key name.
KMS Key Passphrase	Provide the KMS Key Passphrase.
Confirm KMS Key Passphrase	Provide the KMS Key Passphrase.

Click **Next: Snapshot Manager details** >

Snapshot Manager details

On the Snapshot Manager Details, provide the following details as required:

Table 4-6 Snapshot Manager details tab parameters

Parameters	Description
Network Configuration	
IP address	Provide IP address of the NetBackup Snapshot Manager Server
Hostname	Provide hostname of the NetBackup Snapshot Manager Server. Hostname must be entered in lower case and be compliant with RFC 1123 and RFC 952.
Storage Configuration	
Data Storage Type	Specify the storage class type for Snapshot Manager Data Storage Class.
Data size in Gi	Provide the size doe Snapshot Manager data. The data volume must be at least 20Gi.
Logs Storage Type	Specify the storage type for Snapshot Manager server Logs Storage Class.
Logs size in Gi	Provide the size for Snapshot Manager server logs. The log volume must be at least 30 Gi.
Credentials	
Username	Provide the username using which Snapshot Manager Server will be configured.

Table 4-6 Snapshot Manager details tab parameters (*continued*)

Parameters	Description
Password	Provide the password for the user using which Snapshot Manager Server will be configured.
Confirm Password	Provide the password for the user using which Snapshot Manager Server will be configured.

Click **Review + create** >. On the **Review + create** tab, you can review and validate all the configurations done on all the different tabs. After the validation is successful, click on **Create**. You will get a notification after submitting the deployment. Eventually, you will get a notification message for the successful deployment or failures.

After performing the above steps, refer topic See [“How to access the NetBackup after deployment”](#) on page 25.

Accessing the NetBackup installation

This chapter includes the following topics:

- [How to access the NetBackup after deployment](#)

How to access the NetBackup after deployment

After the deployment is successful, perform the below steps to access the NetBackup installation.

Steps to access NetBackup after deployment

- 1 After the successful deployment, click `Deployment details` (Download) link.
You will see all the deployment resources created and their corresponding status.
- 2 Click on the created cluster resource.
- 3 Click on the **Connect** and click **Open Cloud Shell** link of Azure CLI.
- 4 Execute the command `kubectl get namespaces`.
After executing the above command, you will get list of namespaces created. You can also view by navigating through UI under Kubernetes resources.
- 5 To view the operators through Cloud Shell, execute the below command:
 - **For MSDP Operator and NetBackup Operator:**
`kubectl get all --namespace netbackup-operator-system`

- 6
- To view the NetBackup deployment environment through the Cloud Shell, execute the below command. Verify that all the resources are up and running successfully.

```
kubect1 get -n netbackup
all,environments,primaryservers,mediaservers,msdpyscaleout,cpservers
```

Output:

```
All pod status should be Ready and Running
NAME                                READY    STATUS
pod/<environment-name>-primary-0    1/1     Running

Overall application environment status:
NAME                                READY    AGE    STATUS
environemt.netbackup.veritas.com/   4        27h    Success
<environment-name>

Primary server status:
NAME                                TAG      AGE    PRIMARY SERVER    STATUS
primaryserver.netbackup.veritas.com/ 10.1     27h    <primary server   Succes
<environment-name>                               fqdn>

Media server status:
NAME                                TAG      AGE    STATUS
mediaserver.netbackup.veritas.com/   10.1     26h    Success
<environment-name>

Storage server status:
NAME                                TAG      AGE    SIZE    READY
msdpyscaleout.msdp.veritas.com/      10.1     27h    4       4
<environment-name>

Snapshot Manager server status:
NAME                                TAG      AGE    STATUS
cpserver.netbackup.veritas.com/      10.1     146m   Success
<environment-name>
```

- 7 Access the NetBackup Web UI using **https://<primaryserver>/webui/login**.

Note: The primaryserver is the host name or IP address of the NetBackup primary server that you want to sign in to.

To get the primary server hostname you may use the following command and check the hostname under the Primary Server Details section:

```
kubect1 describe primaryserver.netbackup.veritas.com/<name of  
primaryserver custom resource>
```

- 8 From the Web UI under the **Storage Configuration > Storage servers**, you can see the storage server configuration details.

Troubleshooting

This chapter includes the following topics:

- [Troubleshooting](#)

Troubleshooting

1. netbackup-operator-validating-webhook-configuration already exists.

Error Description: This error occurs because of the existing NetBackup resources which must be cleaned up before starting a new deployment. For more details on cleaning up the resources, refer to the topics mentioned in the *NetBackup Deployment Guide for Azure Kubernetes Services (AKS) Cluster*.

- Uninstalling NetBackup environment and the operators
- Uninstalling MSDP Scaleout from AKS

2. Cleanup resources after deployment failure.

Description: If deployment fails, Azure does not auto-delete the successfully created resources. These resources exist for troubleshooting purpose and need to be deleted manually by identifying the successfully created resources and then deleting them from the resource group. For more details on cleaning up the resources, refer to the topics mentioned in the *NetBackup Deployment Guide for Azure Kubernetes Services (AKS) Cluster*.

- Uninstalling NetBackup environment and the operators
- Uninstalling MSDP Scaleout from AKS

3. Marketplace deployment failed with error - Adding certificates not required Registering and setting the cloud. Cloud is already registered Registering and setting the cloud completed.

Resolution steps: You need to retry the deployment.