



Tutorials

Virtual Desktop Managed Service

NetApp
July 30, 2021

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Tutorials

Installing applications on the session host virtual machine(s)

Application Delivery Methodology

Users can access any applications that are installed the session host virtual machine (SHVM) where their user session is running.

Users are assigned to a pool of SHVMs ("host pool") based on their membership in a user group. Every SHVM in that host pool is based on the same VM Image, has the same applications and runs on the same VM resources. Each time a user connects, they are assigned to SHVM in their host pool with the fewest current user sessions.

By adding or removing applications from each SHVM in the host pool the VDMS administrator can control which applications VDMS users can access.

Adding (or removing) applications from each SHVM can be performed directly on each SHVM or to a single VM Image which in turn can be deployed to all SHVMs in the host pool.

This article covers directly installing applications on the SHVMs. VM Image management is covered in [this article](#).

Manual Access

The VDMS management portal provides direct access to each VM via a just-in-time local admin account for all SHVMs and business servers. This access can be used to manually connect to each VM to manually install applications and make other configuration changes.

This functionality is found in Workspace > Servers > Actions > Connect

The screenshot shows the NetApp VDMS workspace interface. On the left is a sidebar with various navigation options like Home, Organizations, Deployments, Workspaces, Service Board, Scripted Events, Admins, Reports, Applications, Cost Estimator, and SaaS Backup. The main area shows a breadcrumb path: Home > Workspaces > NetApp VDMS > Servers. The title is "NetApp VDMS Workspace". Below the title are tabs: Overview, Users & Groups, Workload Schedule, WVD, and Servers (which is selected). The main content area is titled "Servers" and contains a table with three rows. The columns are Name, Type, Machine Size, RAM, CPU, Online, Status, and Actions. The first row has Name "JZSXTSD1", Type "TSData", Machine Size "Standard_B2s", RAM "4 RAM", CPU "2 CPU", Online "Online", Status "Available", and Actions (three dots). The second row has Name "JZSXTS1", Type "TS", Machine Size "Standard_D2s_v4", RAM "8 RAM", CPU "2 CPU", Online "Online", Status "Available", and Actions (three dots). The third row has Name "JZSXTS2", Type "TS", Machine Size "Standard_D2s_v4", RAM "8 RAM", CPU "2 CPU", Online "Online", Status "Available", and Actions (three dots). A context menu is open over the third row, showing options: Backup, Reboot, Connect (which is highlighted with a green border), and Stop.

Name	Type	Machine Size	RAM	CPU	Online	Status	Actions
JZSXTSD1	TSData	Standard_B2s	4 RAM	2 CPU	Online	Available	⋮
JZSXTS1	TS	Standard_D2s_v4	8 RAM	2 CPU	Online	Available	⋮
JZSXTS2	TS	Standard_D2s_v4	8 RAM	2 CPU	Online	Available	⋮

If domain admin credentials are required, VDMS privileged access management (PAM) functionality to generate domain admin credentials. Details can be [found here](#).

VDMS Automation

With the VDMS portal, the "Scripted Events" section includes functionality to remotely run code.

Within Scripted Events, the Repository tab contains "global" scripts that are published by NetApp. Custom scripts can be added using the "+ Add Script" button.

Within Scripted Events, the Activities tab contains the trigger that causes a script to run against a set of VMs. For VDMS, the "Manual" and "Scheduled" event types are best to push a script across the appropriate virtual machines.



Activities have many available triggers called "Event Types". For VDMS, the "Application Install" and "Application Uninstall" types do not apply. These are RDS-specific triggers and should not be used for VDMS since VDMS is a WVD-based service, and does not follow the design architecture of RDS.

Other Automation Tools

Virtual machines in VDMS can be managed with 3rd party management tools. Application changes and other VM configuration changes can be applied via any compatible tools.

Update and Deploy VM Images

Application Delivery Methodology

Users can access any applications that are installed the session host virtual machine (SHVM) where their user session is running.

Users are assigned to a pool of SHVMs ("host pool") based on their membership in a user group. Every SHVM in that host pool is based on the same VM Image, has the same applications and runs on the same VM resources. Each time a user connects, they are assigned to SHVM in their host pool with the fewest current user sessions.

By adding or removing applications from each SHVM in the host pool the VDMS administrator can control which applications VDMS users can access.

Adding (or removing) applications from each SHVM can be performed directly on each SHVM or to a single VM Image which in turn can be deployed to all SHVMs in the host pool.

This article covers VM Image management. Directly installing applications on the SHVMs is covered in [this article](#).

Updating the VM Image

The recommended method for adding (or removing) applications to SHVM(s) is by editing the VM Image assigned to the host pool. Once the VM Image is customized and validated, the VDMS support team can deploy it to all SHVMs in the host pool upon request.

How to edit the VM image

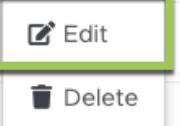
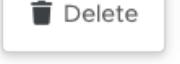
1. Navigate "Provisioning Collections" within the deployment in the VDS portal
2. Click on the provisioning collection associated with the host pool you wish to update.

Name	Type	Operating System Servers	Apps	Min. Cache	Current Cache	Status	Actions
Shared users	VDI	1	0	0	0	Available	⋮
VDI Users	VDI	1	0	0	0	Pending	⋮

- a. Make note of the "VM Template" name in the "Servers section."

Name	Role	VM Template	Storage Type	Actions
TS		sharedusers4044ver3	Standard_LRS	⋮

Servers

Template	Storage Type	Actions
sharedusers4044ver3	Standard_LRS	  

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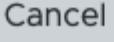
3. Edit the Server template ensuring that the source template is the VM Template noted in step 2.a. above.
Click "Continue"

Edit Server

VM Template Required
 

Storage Type Required
 

Data Drive

Don't edit these settings:

-  1. Type = VDI
2. Share Drive = empty
3. Minimum Cache = 0
4. Data Drive = Unchecked
5. Storage Type = Standard_LRS

1. The VDMS automation will now build a temporary VM in Azure, the machine name will be CWT#. Building this VM may take 25 minutes. Once the process completes the status will change to "Pending"
 - a. Note, this VM will run until the customization process is complete so it is important to build, customize and validate the VM within a day or two.
2. Once the temporary VM is ready, you can log on to the VM by editing the Provisioning Collection and then clicking "Connect" on the server.
 - a. When prompted for credentials, domain admin credentials can be generated by any VDMS admin with "PAM Approver" rights.

How to deploy an updated VM image

1. Once the VM image is validated, contact the VDMS support team to schedule an image refresh.
2. The team will build new session hosts based on the new image.
 - a. If required, please coordinate time to test the new hosts before we redirect new users to the new hosts.
3. Once ready, the support team will redirect all new user sessions to the new hosts. We'll shut down the old hosts once no users are connected. These old VMs will remain in a deallocated state for warm failover but these VMs will be automatically purged after 7 days.

Changing the SHVM(s) directly

Changes can be made directly on the SHVM(s) manually or via any available automation tools. More information on this is found in [this article](#).

When making changes directly to the SHVMs in a host pool it is critical that each SHVM remain configured in the same way or users may have inconsistent experiences as they connect to different SHVMs.



By default, individual SHVMs are not backed up because they typically don't have unique data and are based on a standardized VM image. If you're making customizations directly to the SHVMs, please contact support to get a backup policy applied to one of the SHVMs in the host pool.

Sysprep Troubleshooting

The VDMS image "Validate" function uses Microsoft's Sysprep utility. When validation fails, the most common culprit is a Sysprep failure. To troubleshoot failures, start in the Sysprep log file located on the CWT# VM in the path: C:\windows\system32\Sysprep\panther\setupact.log

Assigning Users to App Groups

User Assignment Methodology

Users are assigned to a session host virtual machine (SHVM) through AD security groups.

For each host pool, there is a linked user group on the "Users & Groups" tab within the workspace.

User groups are named with the workspace ID (a unique 3-4 digit code for each workspace), followed by the name of the host pool.

For example, the group "jzsx Shared Users" is linked to the Shared Users host pool in VDMS. All users added to "jzsx Shared Users" will be assigned access to the session hosts in the "Shared Users" host pool.

To assign a user to their host pool

1. Navigate to "Users & Groups" within the workspace
2. Users can be added to the group by editing the user list within the group.
3. Automation will automatically sync the members of the user group such that the user will be granted access to the appropriate host pool, app group and applications.



Users should only be assigned to one (and only one) app group. The type of host pool (Shared, VDI or GPU) must match the licensed SKUs purchased for VDMS. Misalignment of users and/or assignment to multiple app groups will cause resource contention issues and potentially impact their colleagues working in the environment.

Generate Domain Admin Credentials in VDMS

Privileged Access Management

VDMS admins can be given the "PAM Approver" role which enables the admin to grant PAM requests.

PAM requests will generate a domain level admin account to be used to authenticate on VDMS VMs when the just-in-time local admin credentials are not sufficient.

Any VDMS admin can submit a PAM request but only admins with the PAM Approver role can approve the requests. A PAM Approver can both request and approve their own request.

Submit a PAM Request

To submit a PAM request

1. Navigate to your admin username in the upper right corner and click "Settings"
2. Select the "PAM Requests" tab
3. Click "+ Add"
 - a. Select a duration, after which these credentials will expire
 - b. Choose the deployment
 - c. Enter an email address that the credentials can be provided. This can be any email address, allowing 3rd parties (e.g. a vendor) to be granted domain credentials.
 - d. Enter a phone number that can receive text messages
 - e. Enter any notes for the logs and for the PAM Approver to review.
4. Click "Add Request"

Approve a PAM Request

To review and approve/reject a PAM request

1. . Navigate to your admin username in the upper right corner and click "Settings"
2. Select the "PAM Requests" tab and click on the request
3. Review the request and click "Approve" or "Reject"
4. Enter any notes relevant to the approval/rejection decision

Using PAM Generated Credentials

Once approved, the provided email address is sent a confirmation email to activate their credentials:

Privileged Access Management Request Approved - Inbox

Delete Archive Move Flag Mark Unread ...

Privileged Access Management Request Approved

NetApp VDS NoReply <ng-vds-noreply@netapp.com> Today at 3:47 PM

To: [REDACTED]

Dear [REDACTED]
Your request for Deployment(ywf) access has been approved by [REDACTED]
Please use the link below to activate your temporary account.

[Activate Request](#)

Notes from the approver:
no notes provided

Following the "Activate Request" link will bring the user to the following page and send them a confirmation code via SMS. They will also be asked to set a secure password.

Activate Your Account

Confirmation Code Sent
We have sent a confirmation code to  - please enter the code below and set a password to activate your account.

Access Level Deployment	Confirmation Code <input type="text" value="123456"/>	Required	
Password <input type="password" value="*****"/>	Required	Confirm Password <input type="password" value="*****"/>	Required
Resend Code		Activate Account	

Upon successfully validating the account, the user receives a confirmation with their username.

Activate Your Account

Successfully Activated Account
Successfully activated account. Your account's username is 

Username


Adding User Access

New User Creation

New Active Directory deployments (a new Active Directory domain was created for VDMS)

1. Create the user in VDS
 - a. Navigate to the workspace, select the "Users & Groups" tab, click "Add", and select "Add User"

- b. Fill in the user's information then click "Add User"

Add User

Username	Required		
Test3			
First Name	Required	Last Name	Required
Test		User3	
Email	Phone		
Test3@TrainingKrisG.onmicrosoft.com	Phone...		
<input type="checkbox"/> Multi-Factor Auth Enabled		<input type="checkbox"/> VDI User Enabled	
<input type="checkbox"/> Wake On Demand Enabled		<input checked="" type="checkbox"/> Local Drive Access Enabled	
<input type="checkbox"/> Force Password Reset at Next Login			
		Cancel	Add User

2. Notify NetApp of the additional user using one of the methods below

a. Email support: VDSsupport@netapp.com

b. Phone Support: 844.645.6789

c. [VDMS Support Portal](#)

3. Assign the user to their host pool

a. On the users and groups tab, click on the user group linked to the host pool. For example, the group "kift WVD Shared" is linked to the WVD Shared host pool in VDMS. All users added to "kift WVD Shared" will be assigned access to the session hosts in the "WVD Shared" host pool.

The screenshot shows the 'Users & Groups' section of the CloudJumper interface. On the left, a sidebar lists various service categories like Home, Organizations, Deployments, Workspaces, App Services, etc. The 'Workspaces' section is expanded, showing 'TrainingKrisG' as the selected workspace. The main content area has tabs for Overview, Users & Groups (which is selected), Servers, AVD, and More... Below the tabs, there are two sections: 'Users' and 'Groups'. The 'Users' section displays three entries: 'Test@TrainingKrisG.onmicrosoft.com' (Test User3, Not Connected, Available), 'Test1@TrainingKrisG.onmicrosoft.com' (Tester 1, Not Connected, Available), and 'test2@TrainingKrisG.onmicrosoft.com' (Tester 2, Not Connected, Available). The 'Groups' section shows two groups: 'kift WVD Shared' (2 users) and 'kift-all users' (2 users). Both sections include filters, export options, and action buttons.

- b. Click on the edit icon inthe top right of the Users box then click "Add Users"

This screenshot shows the 'kift WVD Shared' group configuration. The left sidebar is identical to the previous screen. The main area shows the 'Users' section with two users listed: 'Test@TrainingKrisG.onmicrosoft.com' and 'test2@TrainingKrisG.onmicrosoft.com', both with checked 'Local Drive Access' boxes. An 'Add Users' button is highlighted with a red circle and a question mark. To the right, the 'Applications' section is visible, showing a single entry for 'Google Chrome' with 'Latest' version and 'No' enabled status. Navigation buttons for 'Previous', 'Page 1 of 1', and 'Next' are at the bottom of both sections.

- c. Check the box next to the user(s) to be added then click "Continue"

Select Users

1 item(s) selected
Show
Clear

Filter By

🔍 Keyword

<input type="checkbox"/>	Name	Username	Company Name	Company Code
<input type="checkbox"/>	Tester 1	Test1@TrainingKrisG.onmicrosoft.com	TrainingKrisG	kift
<input type="checkbox"/>	Tester 2	test2@TrainingKrisG.onmicrosoft.com	TrainingKrisG	kift
<input checked="" type="checkbox"/>	Test User3	Test3@TrainingKrisG.onmicrosoft.com	TrainingKrisG	kift

Previous Page 1 of 1 Next

Cancel
Continue

d. More detailed instructions can be found [here](#)

Existing Active Directory deployments (VDMS is connecting to an existing Active Directory)

1. Create the user in Active Directory as you normally would
2. Add the user to the Active Directory Group that is listed on the deployment

The screenshot shows the CloudJumper Training PP Virtual Desktop Service interface. On the left is a sidebar with navigation links like Home, Organizations, Deployments, Workspaces, App Services, etc. The main area has two tabs: 'Deployment Details' and 'Processes'.

Deployment Details:

- Microsoft Azure** logo
- Name:** TrainingKrisG.onmicrosoft.com
- ID:** vrg
- Version:** 6.0
- Hypervisor:** Azure
- Resource Allocation Type:** MachineSize
- Domain:** TrainingKrisG.onmicrosoft.com
- h5 Gateway:** vrg-h5gw.vrg.cloudworkspace.app
- RDP Gateway:** vrg-rds.vrg.cloudworkspace.app
- FTP Server Address:** None
- Directory Type:** ActiveDirectory
- Most Recent Heartbeat:** Jul 2, 2021, 3:51 PM

Processes:

Client	User
New	✓ Idle
Update	✓ Idle
Delete	✓ Idle
	New
	Update
	Delete

App Service	Other
New	✓ Idle
Update	✓ Idle
Delete	✓ Idle
	Server Cache

PAM Approval Details:

- Require Client Approval for PAM Access Requests

Active Directory Group:

Group Name
VDMS Access

3. Enable cloudworkspace
4. Notify NetApp of the additional user using one of the methods below
 - a. Email support: VDSsupport@netapp.com

- b. Phone Support: 844.645.6789
- c. [VDMS Support Portal](#)
5. Assign the user to their host pool
- a. On the users and groups tab, click on the user group linked to the host pool. For example, the group "kift WVD Shared" is linked to the WVD Shared host pool in VDMS. All users added to "kift WVD Shared" will be assigned access to the session hosts in the "WVD Shared" host pool.

Name	Total Users	Actions
kift WVD Shared	2	⋮
kift-all users	2	⋮

- b. Click on the edit icon inthe top right of the Users box then click "Add Users"

Name	Version	Enabled
Google Chrome	Latest	No

- c. Check the box next to the user(s) to be added then click "Continue"

Select Users

i 1 item(s) selected Show Clear

Filter By

<input type="checkbox"/> Name	Username	Company Name	Company Code
<input type="checkbox"/> Tester 1	Test1@TrainingKrisG.onmicrosoft.com	TrainingKrisG	kift
<input type="checkbox"/> Tester 2	test2@TrainingKrisG.onmicrosoft.com	TrainingKrisG	kift
<input checked="" type="checkbox"/> Test User3	Test3@TrainingKrisG.onmicrosoft.com	TrainingKrisG	kift

Previous
Page 1 of 1
Next

Cancel
Continue

d. More detailed instructions can be found [here](#)

Removing User Access

Removing a User

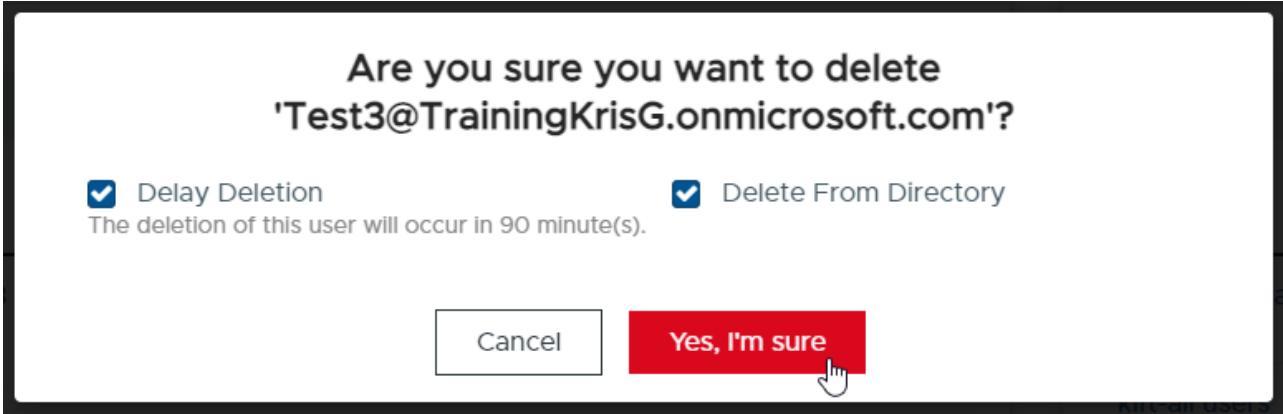
New Active Directory deployments (a new Active Directory domain was created for VDMS)

1. Delete the user in VDMS

a. Navigate to the workspace, select the "Users & Groups" tab, click the action dots next to the user to be deleted, then click "Delete"

The screenshot shows the CloudJumper Training PP Virtual Desktop Service interface. On the left, there's a sidebar with various service icons and navigation links like Home, Organizations, Deployments, Workspaces (highlighted with a red dot), App Services, Service Board, Scripted Events, Admins, Reports, Applications, Cost Estimator, and SaaS Backup. The main content area is titled 'TrainingKrisG Workspace' and shows the 'Users & Groups' tab selected. In the 'Users' section, there are three entries: 'Test User3' (selected), 'Tester 1', and 'Tester 2'. For 'Test User3', a context menu is open with options: Edit, Delete (highlighted with a red circle), Disable CloudWorkspace, and Reset Password. In the 'Groups' section, there are two groups: 'kift WVD Shared' (2 users) and 'kift-all users' (3 users). At the bottom, there are 'Previous', 'Page 1 of 1', and 'Next' buttons.

- b. A pop up will appear with options to Delay Deletion and Delete From Directory



- i. The Delay Deletion option will wait 90 minutes before deleting the user, which allows for the process to be cancelled. It is recommended to check this box.
 - ii. The Delete From Directory option will delete the Active Directory user account. This box should be checked.
2. Notify NetApp of the user removal using one of the methods below
- Email support: VDSsupport@netapp.com
 - Phone Support: 844.645.6789
 - [VDMS Support Portal](#)

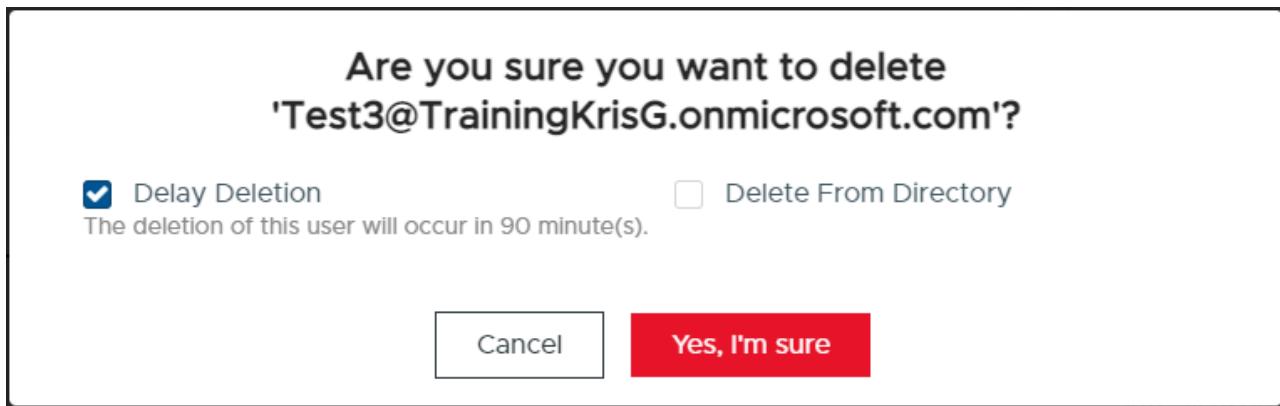
Existing Active Directory deployments (VDMS is connecting to an existing Active Directory)

1. Delete the user in VDMS
- Navigate to the workspace, select the "Users & Groups" tab, click the action dots next to the user to be deleted, then click "Delete"

Username	Name	Connection	Status	Actions
Test3@TrainingKrisG.onmicrosoft.com	Test User3	Not Connected	Available	Edit Delete Disable CloudWorkspace Reset Password
Test1@TrainingKrisG.onmicrosoft.com	Tester 1	Not Connected	Available	
test2@TrainingKrisG.onmicrosoft.com	Tester 2	Not Connected	Available	

Name	Total Users	Actions
kitt WVD Shared	2	
kitt-all users	3	

- b. A pop up will appear with options to Delay Deletion and Delete From Directory



- i. The Delay Deletion option will wait 90 minutes before deleting the user, which allows for the process to be cancelled. It is recommended to check this box.
 - ii. The Delete From Directory option will delete the Active Directory user account. It is recommended this box is NOT checked, and your organizations user account deletion process be followed to delete the account from Active Directory.
2. Notify NetApp of the user removal using one of the methods below
 - a. Email support: VDSsupport@netapp.com
 - b. Phone Support: 844.645.6789
 - c. [VDMS Support Portal](#)

Adding and Removing Admins in VDMS

Adding Admins in VDMS

- This process is handled by NetApp
- Contact NetApp VDMS support using one of the methods below:
 1. Email support: VDSsupport@netapp.com
 2. Phone Support: 844.645.6789
 3. [VDMS Support Portal](#)
- Please include the following for the new admin account:
 1. Partner code
 2. First and last name
 3. Email address
 4. If any permissions differ from the default set that are outlined in the [admin permissions](#)

Removing Admins in VDMS

- This process is handled by partners
 1. Navigate to the "Admins" tab
 2. Click the Action dots to the right of the admin you would like to remove
 3. Click "Delete"
 4. A confirmation box will appear; click on "Yes, I'm sure"

CloudJumper Training PP
Virtual Desktop Service
Version 6.0
Environment production

Home > Admins

Admins

Filter By: TestAdmin

Username	Name	Primary	Active Directory	MFA	Actions
TestAdmin@Training	Test Admin	x	x	x	2 3

Previous Page 1 of 1

Refresh Export Add Admin

1. Admins

2. Edit

3. Delete

- If you have any questions, contact NetApp VDMS support using one of the methods below:
 1. Email support: VDSsupport@netapp.com
 2. Phone Support: 844.645.6789
 3. [VDMS Support Portal](#)

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