



## Reference

### Virtual Desktop Service

NetApp  
September 12, 2021

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# Reference

## Release notes

### Virtual Desktop Service – v6.0 Release Notes

#### VDS v6 release: Thursday September 9th, 2021

*Components:* Virtual Desktop Service v6

*When:* Thursday September 9, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

#### Virtual Desktop Service

- Assorted proactive security and performance enhancements

#### VDS v6 release: Thursday August 26th, 2021

*Components:* Virtual Desktop Service v6

*When:* Thursday August 26, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

#### Virtual Desktop Service

- Update to the URL placed on a user's desktop when they are granted access to the VDS management UI

#### VDS v6 release: Thursday August 12th, 2021

*Components:* Virtual Desktop Service v6

*When:* Thursday August 12, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

#### Virtual Desktop Service

- Enhancements to Cloud Insights functionality and context
- Improved backup schedule frequency handling
- Bug fix - resolve an issue for CwVmAutomation service checking config on service restart
- Bug fix - resolve an issue for DCConifg that did not allow saving configurations in certain scenarios
- Assorted proactive security and performance enhancements

#### VDS v6 hotfix: Tuesday July 30th, 2021

*Components:* Virtual Desktop Service v6

*When:* Friday July 30th, 2021 at 7pm – 8pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## Virtual Desktop Service

- Deployment template update to facilitate automation improvements

### VDS v6 release: Thursday July 29th, 2021

*Components:* Virtual Desktop Service v6

*When:* Thursday July 29th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## Virtual Desktop Service

- Bug fix - resolve an issue for VMware deployments where CWAgent didn't get installed as intended
- Bug fix - resolve an issue for VMware deployments where creating a server with the Data role didn't function as intended

### VDS v6 hotfix: Tuesday July 20th, 2021

*Components:* Virtual Desktop Service v6

*When:* Tuesday July 20th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## Virtual Desktop Service

- Remediate an issue causing abnormally large amount of API traffic in a certain configuration

### VDS 6.0 release: Thursday July 15th, 2021

*Components:* 6.0 Virtual Desktop Service

*When:* Thursday July 15th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## Virtual Desktop Service

- Enhancement to Cloud Insights integration –capturing per-user performance metrics and displaying them in the User context
- Improvements to ANF provisioning automation – improved automated registration of NetApp as a provider in the customer's Azure tenant
- Phrasing adjustment when creating a new AVD Workspace
- Assorted proactive security and performance enhancements

### VDS 6.0 release: Thursday June 24, 2021

*Components:* 6.0 Virtual Desktop Service

*When:* Thursday June 4th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.



Due to scheduling around the 4th of July, the next VDS release will be on Thursday 7/15.

## Virtual Desktop Service

- Updates to reflect that Windows Virtual Desktop (WVD) is now Azure Virtual Desktop (AVD)
- Bug fix for username formatting in Excel exports
- Improved configurations for custom branded HTML5 login pages
- Assorted proactive security and performance enhancements

## Cost Estimators

- Updates to reflect that Windows Virtual Desktop (WVD) is now Azure Virtual Desktop (AVD)
- Updates to reflect the more services/GPU VMs are available in new regions

## VDS 6.0 release: Thursday June 10, 2021

*Components:* 6.0 Virtual Desktop Service

*When:* Thursday June 10th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## Virtual Desktop Service

- Introduction of an additional HTML5 browser-based gateway/access point for VMs
- Improved user routing after deleting a host pool
- Bug fix for a scenario where importing an unmanaged host pool was not functioning as expected
- Assorted proactive security and performance enhancements

## VDS 6.0 release: Thursday June 10, 2021

*Components:* 6.0 Virtual Desktop Service

*When:* Thursday June 10th, 2021 at 10pm eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## Technical enhancements:

- Update the version of the .NET framework installed on each VM from v4.7.2 to v4.8.0
- Additional back-end enforcement of the use of https:// and TLS 1.2 or greater between the Local Control Plane team and any other entity
- Bug fix for the Delete Backup Operation in the Command Center – this now properly references the time zone of CWMGR1
- Rename the Command Center action from Azure File share to Azure Files share
- Naming convention updates in Azure Shared Image Gallery
- Improved concurrent user login count collection
- Update to outbound traffic allowed from CWMGR1, if restricting traffic outbound from the CWMGR1 VM
- If you are not restricting outbound traffic from CWMGR1, you do not have to make any updates here
- If you are restricting outbound traffic from CWMGR1, please allow access to `vdctoolsapiprimary.azurewebsites.net`. Note: you no longer need to allow access to `vdctoolsapi.trafficmanager.net`.

**Deployment enhancements:**

- Lay the foundation for future support of custom prefixes in server names
- Improved process automation and redundancies for Azure deployments
- Numerous deployment automation enhancements for Google Cloud Platform deployments
- Support for Windows Server 2019 in Google Cloud Platform deployments
- Bug fix for a subset of scenarios where the Windows 10 20H2 EVD image

**Service delivery enhancements:**

- Introduces Cloud Insights integration, delivering streaming performance data for User Experience, VM and Storage layers
- Introduces a function that allows you to quickly navigate to a VDS page visited recently
- Substantially improved list (Users, Groups, Servers, Applications, etc.) loading times for Azure deployments
- Introduces the ability to easily export lists of Users, Groups, Servers, Admins, Reports, etc.
- Introduces the ability to control what VDS MFA methods are available for customers (customer prefers email vs. SMS, for example)
- Introduces customizable “from” fields for VDS self-service password reset emails
- Introduces the option to only allow VDS self-service password reset emails to go to specified domains (company owned vs. personal, for example)
- Introduces an update that can prompt the user to add their email to their account so that they can use it or MFA/self-service password resets
- When starting a stopped deployment, start all VMs within the deployment as well
- Performance improvement for determining which IP address to assign to newly created Azure VMs

**VDS 6.0 release: Thursday May 27, 2021**

*Components:* 6.0 Virtual Desktop Service

*When:* Thursday May 27th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

**Virtual Desktop Service**

- Introduce Start on Connect for Pooled session hosts in AVD host pools
- Introduce User performance metrics via Cloud Insights integration
- Display the Servers tab more prominently in the Workspaces module
- Allow the restoration of a VM via Azure Backup if the VM has been deleted from VDS
- Improved handling of Connect to Server functionality
- Improved handling of variables when creating and updating certificates automatically
- Bug fix for an issue where clicking an X in a drop-down menu didn't clear the selection as expected
- Improved reliability and automatic error handling for SMS message prompts
- Update to the User Support role – this can now terminate processes for a logged in user

- Assorted proactive security and performance enhancements

## **VDS 6.0 release: Thursday May 13, 2021**

*Components:* 6.0 Virtual Desktop Service

*When:* Thursday May 13th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Introduction of additional AVD host pool properties
- Introduce additional automation resilience in Azure deployments in the event of back-end service issues
- Include the server name in the new browser tab when using the Connect to Server feature
- Display the quantity of users in each group
- Enhanced resilience for the Connect to Server feature in all deployments
- Additional enhancements to setting MFA options for organizations and end users
  - If SMS is set as the only MFA option available, require a phone number but not an email address
  - If email is set as the only MFA option available, require an email address but not a phone number
  - If both SMS and email are set as options for MFA, require both an email address and a phone number
- Clarity improvement - remove the size of an Azure Backup snapshot, as Azure doesn't return the size of the snapshot
- Add the ability to delete a snapshot in non-Azure environments
- Bug fix for AVD host pool creation when using special characters
- Bug fix for workload scheduling for host pool via the Resources tab
- Bug fix for an error prompt that appears when cancelling a bulk user import
- Bug fix for a possible scenario with settings of application added to a Provisioning Collection
- Update to the email address sending notifications/messages – messages will now be sent from [noreply@vds.netapp.com](mailto:noreply@vds.netapp.com)
  - Customers safelisting inbound email addresses should add this email address

## **VDS 6.0 release: Thursday April 29, 2021**

*Components:* 6.0 Virtual Desktop Service

*When:* Thursday April 29th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Introduce Start on Connect feature for Personal AVD host pools
- Introduce Storage context in the Workspace module
- Introduce Storage (Azure NetApp Files) monitoring via Cloud Insights integration
  - IOPs monitoring
  - Latency monitoring

- Capacity monitoring
- Improved logging for VM Cloning actions
- Bug fix for a specific workload scheduling scenario
- Bug fix for not displaying a VM's time zone in a certain scenario
- Bug fix for not logging out a AVD user in a certain scenario
- Updates to automatically generated emails to reflect NetApp branding

### **VDS 6.0 hotfix: Friday April 16th, 2021**

*Components:* 6.0 Virtual Desktop Service

*When:* Friday April 16th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

#### **Virtual Desktop Service**

- Resolve an issue with automated certificate creation that arose after last night's update that improved automated certificate management

### **VDS 6.0 release: Thursday April 15, 2021**

*Components:* 6.0 Virtual Desktop Service

*When:* Thursday April 15th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

#### **Virtual Desktop Service**

- Enhancements to the Cloud Insights integration:
  - Frames Skipped – Insufficient Network Resources
  - Frames Skipped – Insufficient Client Resources
  - Frame Skipped – Insufficient Server Resources
  - OS Disk – Read Bytes
  - OS Disk – Write Bytes
  - OS Disk – Read Bytes/second
  - OS Disk – Write Bytes/second
- Update to task history in the Deployments module – improved handling of task history
- Bug fix for an issue where an Azure Backup couldn't be restored to CWMGR1 from a disk in a subset of scenarios
- Bug fix for an issue where certificates weren't automatically being updated and created
- Bug fix for an issue where a stopped deployment didn't start quickly enough
- Update to the State drop-down list when creating a Workspace – remove the item "National" from the list
- Additional updates to reflect NetApp branding



## **VDS 6.0 hotfix: Wednesday April 7th, 2021**

*Components:* 6.0 Virtual Desktop Service

*When:* Wednesday April 7th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Due to increasingly variable response times from Azure, we are increasing the amount of time we wait for a response when entering Azure credentials during the deployment wizard.

## **VDS 6.0 release: Thursday April 1, 2021**

*Components:* 6.0 Virtual Desktop Service

*When:* Thursday April 1st, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Updates to the NetApp Cloud Insights integration – new streaming data points:
  - NVIDIA GPU performance data
  - Round Trip Time
  - User Input Delay
- Update the Connect to Server function to allow administrative connections to VMs even when VMs are set to disallow connections from end users
- API enhancements to enabled theming & branding in a subsequent release
- Improved visibility of the actions menu available in HTML5 connections via Connect to Server or RDS user sessions via HTML5
- Increase the QTY of characters supported in the name of an activity Scripted Events
- Updated Provisioning Collections OS choices by type
  - For AVD and Windows 10, use the VDI collection type to ensure the Windows 10 OS is present
  - For a Windows Server OS, use the Shared collection type
- Assorted proactive security and performance enhancements

## **Virtual Desktop Service – v5.4 Release Notes**

### **VDS 5.4 release: Thursday August 12, 2021**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday August 12th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Updated AVD host pool links

## **VDS 5.4 release: Thursday May 13, 2021**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday May 13th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Bug fix for AVD host pool creation when using special characters
- Automation enhancements for long domain names in the CWA Setup deployment wizard
- Bug fix for cloning servers in a subset of scenarios in GCP deployments
- Bug fix for a scenario where deleting a snapshot wasn't functioning as intended
- Update to the email address sending notifications/messages – messages will now be sent from [noreply@vds.netapp.com](mailto:noreply@vds.netapp.com)
  - Customers safelisting inbound email addresses should add this email address

## **VDS 5.4 release: Thursday April 29, 2021**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday April 29th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

(No updates this release)

## **VDS 5.4 hotfix: Friday April 16, 2021**

*Components:* 5.4 Virtual Desktop Service

*When:* Friday April 16th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Resolve an issue with automated certificate creation that arose after last night's update that improved automated certificate management

## **VDS 5.4 release: Thursday April 15, 2021**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday April 15th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Continuous, ongoing updates to improve connectivity and communication with the vSphere / vCloud hypervisor
- Bug fix for an individual scenario where a user couldn't clone a AVD session host

## **VDS 5.4 hotfix: Tuesday March 23, 2021**

*Components:* 5.4 Virtual Desktop Service

*When:* Tuesday March 23rd, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Update to the displaying host pools – resolve an issue in a subset of scenarios where newly created host pools were completing successfully, but not promptly present in the VDS UI

## **VDS 5.4 release: Thursday March 18, 2021**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday March 18th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

- Virtual Desktop Service
- Allow Connect to Server functionality when end user connections to a VM are disallowed
- Phrasing adjustment to PAM messages users receive via SMS
- Assorted proactive security and performance enhancements

## **VDS 5.4 hotfix: Tuesday March 9, 2021**

*Components:* 5.4 Virtual Desktop Service

*When:* Tuesday March 9th, 2021 at 5pm – 5:15pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Apply an update to resolve a Connect to Server issue in a subset of scenarios

## **VDS 5.4 release: Thurs, Mar. 4, 2021**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday March 4th, 2021 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Introduction of DSC-driven deployment model for Google Cloud Platform deployments
- Scripted Events update to prevent a script from being deleted while it is actively running
- Automation enhancements to the deployment wizard's handling of NetBIOS for existing Active Directory environments
- Support applying different backup schedules for individual platform servers
- Support changing a user's password to require them to reset their password at the next login in the same command

- Bug fix – allow individual VMs set to migration mode to override deployment-wide migration mode settings
- Bug fix for vSphere scenario where sending too many API commands at once caused a delay starting VMs
- Update new deployments to support .NET 4.8.0
- Assorted proactive security and performance enhancements

#### **VDS 5.4 release: Thurs., Feb. 18, 2021**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday February 18th, 2021 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

##### **Virtual Desktop Service**

- Updates to the default install method for FSLogix per Microsoft best practices
- Proactive upgrades to platform components to support increased user activity
- Improved automation for handling certificate management variables
- Support forcing a reset of a User's MFA settings at next login when changing their password
- Remove VDS admin group from being managed within the Groups module VDS in AADDs deployments

##### **Cost Estimators**

- Updates to reflect that certain VMs no longer have Promo price points

#### **VDS 5.4 release: Thurs., Feb. 4, 2021**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday February 4th, 2021 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

##### **Virtual Desktop Service**

- Improved variable handling when using Connect to Server functionality
- API – side functionality for reboot and multi-select reboot functionality
- Deployment automation enhancements in Google Cloud Platform
- Improved handling of Google Cloud Platform deployments that are powered off

#### **VDS 5.4 release: Thurs., January 21, 2021**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday January 21st, 2021 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

##### **Virtual Desktop Service**

- Removal of TSD1 VMs from deployments selecting PaaS services for data management
- Assorted proactive security and performance enhancements

- Process streamlining for multi-server deployment configurations
- Bug fix for a specific configuration for a deployment in GCP
- Bug fix for creating Azure Files shares via the Command Center
- Update to provide Server 2019 as an OS in GCP

#### **Cost Estimators**

- Assorted proactive security and performance enhancements

#### **VDS 5.4 hotfix: Mon. January 18, 2021**

*Components:* 5.4 Virtual Desktop Service

*When:* Monday January 18th, 2021 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

#### **Virtual Desktop Service**

- VDS will be applying an update to deployments leveraging SendGrid for SMTP relay
- SendGrid is introducing a breaking change on Wednesday 1/20
- The VDS team had already been investigating upgrades to SendGrid
- We have been aware of this coming change and have tested and validated an alternative (Postmark)
- In addition to mitigating a breaking change, the VDS team has seen improved reliability and performance increases in deployments leveraging Postmark instead of SendGrid

#### **VDS 5.4 hotfix: Fri. January 8, 2021**

*Components:* 5.4 Virtual Desktop Service

*When:* Wednesday January 8th, 2021 at 12pm – 12:05pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

#### **Virtual Desktop Service**

- Brief, subsequent update to ensure that VDCTools is current in all deployments
  - By design, updates to VDCTools are applied intelligently – the update waits until no actions are being taken, then automatically completes any actions taken during the brief update period

#### **VDS 5.4 release: Thurs., January 7, 2021**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday January 7th, 2021 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

#### **Virtual Desktop Service**

- Assorted proactive security and performance enhancements
- Text update – change the Command Center action from Create Azure File Share to Create Azure Files Share

- Process enhancement for using Command Center to update Data/Home/Pro folders

#### Cost Estimators

- Assorted proactive security and performance enhancements

#### VDS 5.4 release: Thurs., December 17, 2020

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday December 17th, 2020 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.



The next release will be on Thursday January 7th, 2021 instead of New Year's Eve 2020.

#### Virtual Desktop Service

- Improved deployment automation when using Azure NetApp Files
- Enhancement to Provisioning Collections with updated Windows 10 images
- Update to VCC to better support variables in multi-site configurations
- Minor proactive security enhancement to Sites functionality
- API enhancements to Peak Live Scaling functionality within Live Scaling
- General usability and text clarity improvements in DC Config
- Assorted behind the scenes bug fixes and security enhancements

#### VDS 5.4 release: Thurs., December 3, 2020

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday December 3rd, 2020 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

#### Virtual Desktop Service

- Update to the FSLogix installation method
- Ongoing proactive security measures

#### VDS Setup

- Update to Azure NetApp Files deployment automation – support creating:
- 4 TB Capacity Pool/Volume at minimum
- 500 TB Capacity Pool/100 TB Volume at maximum
- Improved variable handling for advanced deployment options

#### Cost Estimators

- Removal of disk operations from the Google Cost Estimator
- Updates reflecting new services available by region in the Azure Cost Estimator

## **VDS 5.4 release: Thurs., November 19, 2020**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday November 19th, 2020 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **VDS**

- Privileged Account Management (PAM) emails now include deployment code details
- Permissions streamlining for Azure Active Directory Domain Services (AADDs) deployments
- Improved clarity for admins looking to perform admin tasks in a deployment that is completely powered down
- Bug fix for an error prompt that appeared when a VDS admin viewing RemoteApp App Group details for a host pool that is powered down
- Phrasing update to API Users to reflect that they are VDS API Users
- Faster results for returning the Data Center Status report
- Improved handling of variables for daily actions (nightly reboots, for example) for VMs
- Bug fix for a scenario where IP Addresses entered in DC Config were not saving correctly
- Bug fix for a scenario where unlocking an admin account didn't function as intended

### **VDS Setup**

- Form factor update – resolve a scenario where action buttons in the VDS Setup wizard were truncated

## **VDS 5.4 release: Thurs., November 5, 2020**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday November 5th, 2020 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **VDS**

- Introduction of scale-out mechanism for Sites in Command Center – use another Azure subscription with the same Tenant ID and Client ID
- Creation of VMs with the Data role now deploy as the VM selected in the VDS UI but will fall back to the default specified for the deployment if the VM selected is not available
- General enhancements to Workload Scheduling and Live Scaling
- Bug fix for Apply All checkbox for admin permissions
- Bug fix for a display issue when showing apps selected in a RemoteApp App Group
- Bug fix for an error prompt a subset of users see when accessing the Command Center
- Automated process improvements for manual certificate installs on HTML5 gateway VMs
- Ongoing proactive security measures

## VDS Setup

- Improved Azure NetApp Files orchestration
- Ongoing enhancements to gracefully handle Azure deployment variables
- New Active Directory deployments will automatically have the Active Directory Recycle Bin feature enabled
- Improved deployment orchestration for Google Cloud Platform

## VDS 5.4 hotfix: Wed. October 28, 2020

*Components:* 5.4 Virtual Desktop Service

*When:* Wednesday October 28th, 2020 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## VDS Setup

- Bug fix for a scenario where network details couldn't be entered properly in the deployment wizard

## VDS 5.4 release: Thurs., October 22, 2020

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday October 22nd, 2020 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## VDS

- If a VDS admin deletes a AVD host pool, automatically unassign users from that host pool
- Introduce improved, renamed automation driver – Command Center – in CWMGR1
- Bug fix for Workload Scheduling behavior in a Bug fix for updating site details when that resides in AWS
- Bug fix for Wake on Demand activation with specific Live Scaling settings applied
- Bug fix for creating a second site when incorrect settings were in place in the original site
- Ease of use improvements for Static IP details in DC Config
- Naming convention update to admin permissions – update Data Center permissions to Deployment permissions
- Update to reflect that fewer database entries are needed in single server deployment builds
- Update to manual AADDS deployment process update to streamline permissions
- Bug fix for reporting in VDS when changing the dates the report should return
- Bug fix for creating a Windows Server 2012 R2 template via Provisioning Collections
- Assorted performance improvements

## VDS Setup

- Deployment automation enhancements for primary domain controller and DNS components of a deployment
- Assorted updates to support selecting from a list of available networks in a future release



## Cost Estimators

- Improved handling of adding SQL to VMs

## REST API

- New API call to identify which Azure regions are valid and available for a subscription
- New API call to identify if a customer has Cloud Insights access
- New API call to identify if a customer has Cloud Insights activated for their Cloud Workspace environment

## VDS 5.4 hotfix: Wed., October 13, 2020

*Components:* 5.4 Virtual Desktop Service

*When:* Wednesday October 13th, 2020 at 10pm -11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## Cost Estimators

- Bug fix for an issue where a scenario in the Azure Cost Estimator where RDS VMs applied OS pricing improperly
- Bug fix for a scenario where selecting storage PaaS services in the Azure Cost Estimator and Google Cost Estimator resulted in an inflated price per VDI user

## VDS 5.4 release: Thurs., October 8, 2020

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday October 8th, 2020 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## VDS

- Stability enhancements when creating a VM during hours in which Workload Scheduling is applied
- Bug fix for a display issue when creating new App Services
- Dynamically confirm the presences of .NET and ThinPrint for non-Azure deployments
- Bug fix for a display issue when reviewing the provisioning status of a Workspace
- Bug fix for creating a VM in vSphere with a specific combination of settings
- Bug fix for a checkbox error under a set of permissions
- Bug fix for a display issue where duplicate gateways were being displayed in DCConfig
- Branding updates

## Cost Estimators

- Update to the display the CPU scaling details per workload type

## VDS 5.4 hotfix: Wed., September 30, 2020

*Components:* 5.4 Virtual Desktop Service

*When:* Wednesday September 30th, 2020 at 9pm -10pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## **VDS**

- Bug fix for an issue where a subset of App Services VMs were improperly tagged as cache VMs
- Upgrade to underlying SMTP configuration to mitigate email relay account configuration issues
  - Note: as this is now a control plane service, this results in a slimmer deployment footprint with fewer permissions/components in a customer's tenant
- Bug fix to prevent an admin using DCConfig from resetting the a service account's password

## **VDS Setup**

- Improved handling of environment variables for Azure NetApp Files deployments
- Enhanced deployment automation - improved handling of environment variables to ensure required PowerShell components are present

## **REST API**

- Introduction of API support for Azure deployments to leverage an existing Resource Group
- Introduction of API support for existing AD deployments with different domain/NetBIOS names

## **VDS 5.4 release: Thurs., September 24, 2020**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday September 24th, 2020 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## **VDS**

- Performance enhancement – the list of users for which Cloud Workspaces can be enabled will now populate faster
- Bug fix for handling site-specific AVD session host server imports
- Deployment automation enhancement - introducing an optional setting to direct AD requests to CWMGR1
- Improved handling of variables when importing servers to ensure that CWAgent is installed properly
- Introduce additional RBAC controls over TestVDCTools – require membership in the CW-Infrastructure group for access
- Fine tuning of permissions – grant admins in the CW-CWMGRAccess group access to registry entries for VDS settings
- Update for Wake on Demand for personal AVD host pools to reflect updates for the Spring Release – only power on the VM assigned to the user
- Update company code naming conventions in Azure deployments – this prevents an issue where Azure Backup cannot restore from a VM that starts with a number
- Replace deployment automation's use of Sendgrid for SMTP transmission with a global control plane to resolve an issue with SendGrid's back-end - this results in a slimmer deployment footprint with fewer permissions/components

## **VDS Setup**

- Updates to VM quantity selections available in multi-server deployments

## **REST API**

- Add Windows 2019 to GET /DataCenterProvisioning/OperatingSystems method
- Auto populate VDS admin first and last names when creating admins via the API method

## **Cost estimators**

- Introduction of Google Cost Estimator and a prompt for which hyperscaler you want to use for your estimate - Azure or GCP
- Introduction of Reserved Instances in the Azure Cost Estimator
- Updated list of services available per updated Azure products available by region

## **VDS 5.4 release: Thurs., September 10, 2020**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday September 10th, 2020 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Improved enforcement mechanism to confirm FSLogix is installed
- Support for multi-server configurations for Existing AD deployments
- Reduce the number of API calls used to return a list of Azure templates
- Improved management of users in AVD Spring Release / v2 host pools
- Referential link update in server resource nightly report
- Fix for changing administrative passwords to support improved, slimmer permission sets in AD
- Bug fix for creating VMs from a template via tools on CWMGR1
- Searches in VDS now point to content on docs.netapp.com
- Response time improvements for end users accessing the VDS admin interface with MFA enabled

## **VDS Setup**

- Post-provisioning link now points to instructions [here](#)
- Updated choices for platform configuration for existing AD deployments
- Improvements to automated processes for Google Cloud Platform deployments

## **VDS 5.4 hotfix: Tues., September 1, 2020**

*Components:* 5.4 Virtual Desktop Service

*When:* Tuesday September 1st, 2020 at 10pm -10:15pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## **VDS Setup**

- Bug fix for a referential link in the AVD tab

## **VDS 5.4 release: Thurs., August 27, 2020**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday August 27th, 2020 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Introduction of the ability to use the VDS interface to automatically update AVD host pools from the Fall Release to the Spring release
- Streamlined automation to reflect recent updates resulting in a slimmer permission set required
- Deployment automation enhancements for GCP, AWS and vSphere deployments
- Bug fix for a Scripted Events scenario where date and time info was being displayed as current date and time
- Bug fix for deploying large quantities of AVD session host VMs at the same time
- Support for an increased amount of Azure VM types
- Support for an increased amount of GCP VM types
- Improved handling of variables during deployment
- Bug fix for vSphere deployment automation
- Bug fix for a scenario when disabling a Cloud Workspace for a user returned an unexpected result
- Bug fix for 3rd party apps and RemoteApp app use with MFA enabled
- Increased Service Board performance when a deployment is offline
- Updates to reflect NetApp logo/phrasing

## **VDS Setup**

- Introduction of a multi-server deployment option for native/greenfield Active Directory deployments
- Further deployment automation enhancements

### **Azure Cost Estimator**

- Release of Azure Hybrid Benefits functionality
- Bug fix for a display issue when entering custom name information into VM details
- Bug fix for adjusting storage details in a specific sequence

## **VDS 5.4 hotfix: Wed., August 19, 2020**

*Components:* 5.4 Virtual Desktop Service

*When:* Wednesday August 19th, 2020 at 5:20pm – 5:25pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## **VDS Setup**

- Bug fix for variable handling to facilitate flexible automation
- Bug fix for DNS handling in a single deployment scenario
- Reduced membership requirements of CW-Infrastructure group

## **VDS 5.4 hotfix: Tues., August 18, 2020**

*Components:* 5.4 Virtual Desktop Service

*When:* Tuesday August 18th, 2020 at 10pm – 10:15pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## **Azure Cost Estimator**

- Bug fix for handling adding additional drives on certain VM types

## **VDS 5.4 release: Thurs., August 13, 2020**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday August 13th, 2020 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## **Virtual Desktop Service**

- Add Connect to Server option for AVD session hosts from AVD module
- Bug fix for a subset of scenarios where additional admin accounts cannot be created
- Update naming convention for resource defaults – change Power User to VDI User

## **VDS Setup**

- Automatically validate pre-approved network settings, further streamlining deployment workflows
- Reduced permission set required for existing AD deployments
- Allow domain names longer than 15 characters
- Text layout fix for a unique combination of selections
- Allow Azure deployments to continue if the Sendgrid component presents a temporary error

## **VDS Tools and Services**

- Proactive security enhancements behind the scenes
- Additional Live Scaling performance enhancements
- Enhanced support for hyperscaler deployments with hundreds of sites
- Bug fix for a scenario where deploying multiple VMs in a single command only partially succeeded
- Improved message prompts when assigning invalid paths as the target for Data, Home and Profile data locations
- Bug fix for a scenario where creating VMs via Azure Backup didn't function as intended
- Additional deployment validation steps added to GCP and AWS deployment process

- Additional options for managing external DNS entries
- Support for separate Resource Groups for VMs, VNETs, Services like Azure NetApp Files, Log Analytics Workspaces
- Minor back-end enhancements to the provisioning collection/image creation process

#### **Azure Cost Estimator**

- Add Ephemeral OS Disk support
- Improved tooltips for storage selections
- Disallow a scenario where a user became able to enter negative user counts
- Display the file server when using both AVD and File Server selections

#### **VDS 5.4 hotfix: Mon., August 3, 2020**

*Components:* 5.4 Virtual Desktop Service

*When:* Monday August 3rd, 2020 at 11pm – 11:05pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

#### **VDS Tools and Services**

- Improved handling of variables during deployment automation

#### **VDS 5.4 release: Thurs., July 30, 2020**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday July 30th, 2020 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

#### **Virtual Desktop Service**

- Proactive security enhancements behind the scenes
- Improved performance monitoring behind the scenes
- Bug fix for a scenario where creating a new VDS admin presents a false positive alert

#### **VDS Setup**

- Reduced permission sets applied to administrative accounts during the deployment process in Azure
- Bug fix for a subset of trial account signups

#### **VDS Tools and Services**

- Improved handling of FSLogix install process
- Proactive security enhancements behind the scenes
- Improved data point collection for concurrent usage
- Improved handling of certificates for HTML5 connections
- Adjustment to DNS section layout for improved clarity

- Adjustment to Solarwinds monitoring workflow
- Updated handling of static IP addresses

#### **Azure Cost Estimator**

- Ask if the customer's data needs to be HA and if so, define if cost and labor savings are available by leveraging a PaaS service like Azure NetApp Files
  - Update and standardize default storage type for both AVD & RDS workloads to Premium SSD
  - Behind the scenes performance enhancements
- \*  
== VDS 5.4 hotfix: Thurs., July 23, 2020

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday July 23rd, 2020 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

#### **VDS Setup**

- Automation enhancements for DNS settings in Azure deployments
- General deployment automation checks and improvements

#### **VDS 5.4 release: Thurs., July 16, 2020**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday July 16th, 2020 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

#### **Virtual Desktop Service**

- Proactive security enhancements behind the scenes
- Streamlining the AVD App Group provisioning process by auto-selecting the AVD Workspace if only one AVD Workspace is present
- Performance improvements in the Workspace module via paginating Groups under the Users and Groups tab
- If VDS admins select Azure in the Deployments tab, direct the user to log into VDS Setup instead

#### **VDS Setup**

- Proactive security enhancements behind the scenes
- Improved layout to streamline the deployment workflow
- Enhanced descriptions for deployments using an existing Active Directory structure
- General enhancements and bug fixes for deployment automation

#### **VDS Tools and Services**

- Bug fix for TestVDCTools performance in single server deployments

## REST API

- Usability enhancement for API consumption for Azure deployments – return usernames gathered even if first names are not defined on the user in Azure AD

## HTML5 Login Experience

- Bug fix for Wake on Demand for session hosts leveraging the AVD Spring Release (AVD v2)
- Updates to reflect NetApp branding/phrasing

## Azure Cost Estimator

- Display pricing dynamically by region
- Display whether relevant services are available in the region select to ensure that users understand whether the functionality desired will be available in that region. Those services are:
  - Azure NetApp Files
  - Azure Active Directory Domain Services
  - NV and NV v4 (GPU enabled) Virtual Machines

## VDS 5.4 release: Fri., June 26, 2020

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday June 26, 2020 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## Virtual Desktop Service

As of Friday July 17th, 2020 the release of v5.4 is supported as a production release.

## VDS Client for Windows Release Notes

**Date: Thursday July 29th, 2020 at 11pm Eastern**

*Impact:* Users will see the VDS Client for Windows update the next time they launch it

### Improvements

- Streamline the installation process - new end users will no longer have to accept terms and conditions when installing the VDS Client for Windows
- Add a confirmation during the install process to confirm that the end user's device is able to access the location where auto-updates originate

**Date: Thursday May 27, 2020 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

### Bug Fixes

- Improved clarity in the error message displayed if the password provided is not long enough



**Date: Thursday May 13, 2020 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

**Improvements**

- Additional automation to ensure resource availability for end users

**Updates**

- The URL that is required for access to automatic updates is changing. If you are not actively safelisting inbound traffic you will not need to make any changes.
  - All end users will continue to have access to their desktops even if no changes are made
  - Organizations actively safelisting inbound traffic will need to ensure that end user devices have access to the new URLs above to ensure access to automatic updates
  - The current sources for updates are:
    - Primary: cwc.cloudworkspace.com
    - Secondary: cloudjumper.com
  - The new sources for updates will be:
    - Primary: bin.vdsclient.app
    - Secondary: cwc.cloudworkspace.com
  - New users installing the Cloud Workspace Client for Windows will still need access to the URLs listed [here](#)

**Date: Thursday April 29, 2020 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

(No updates this release)

**Date: Thursday April 15, 2020 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

**Bug Fixes**

- Resolve an issue where network test results wouldn't be sent as intended

**Date: Thursday April 1, 2020 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

**Improvements**

- Update to RemoteApp applications - no longer prompt for credentials when users launch individual apps
- Update to allow end users to toggle between using ThinPrint and Windows printer redirection for printing
- Update to allow the VDS Client for Windows Designer users to exclude printing redirection services

## **VDS 5.4 release: Thurs., January 21, 2021**

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday January 21st, 2021 at 10pm - 11pm Eastern

*Impact:* Users will see the RDP client update the next time they launch it

### **Improvements**

- Improved experience for end users – better handling of users imported from external domains

## **Date: Thursday June 11, 2020 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

### **Improvements**

- Update the latest AVD RDP Client available for installation

## **Date: Thursday May 28, 2020 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

### **Improvements**

- Updates to reflect NetApp branding/phrasing. Note – this new branding will be applied for:
  - New VDS Client downloads
  - Existing, unedited VDS Client for Windows installs
  - Existing custom-edited/branded clients will only receive a new banner image if it was never customized. If the banner image was customized, it will remain as-is. All other colors and phrasing will remain the same.

## **Date: Thursday May 14, 2020 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

- No updates this release cycle.

## **Date: Thursday April 30, 2020 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

### **Bug Fixes**

- Bug fix for a subset of scenarios where self service password reset was not presented

## **Date: Thursday April 16, 2020 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

- No updates this release cycle.

**Date: Thursday April 2, 2020 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

- No updates this release cycle.

**Date: Thursday March 19, 2020 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

- No updates this release cycle.

**Date: Thursday, March 5, 2020 at 10pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

**Improvements**

- Graceful handling of a fringe bug with the RDP protocol where legacy credential types mixed with the most current patches on a RDS gateway results in an inability to connect to session hosts
  - If the end user's workstation is set up (whether by an external admin, internal customer admin or via the workstation's default settings) to use legacy credential types, there is a slim possibility this could have impacted users prior to this release
- Point the Info button in the Cloud Workspace Client Designer to an updated documentation source
- Improved auto-update process for the Cloud Workspace Client Designer

**Date: Thursday, February 20, 2020 at 10pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

**Improvements**

- Proactive enhancements to security, stability and scalability

**Considerations**

- The Cloud Workspace Client for Windows will continue to auto-update as long as a user launches it prior to 4/2. If a user does not launch the Cloud Workspace Client for Windows prior to 4/2 their connection to their desktop will still function, but they will need to uninstall and reinstall the Cloud Workspace Client for Windows to resume auto-update functionality.
- If your organization uses web filtering, please safelist access to [cwc.cloudworkspace.com](https://cwc.cloudworkspace.com) and [cloud.cloudworkspace.com](https://cloud.cloudworkspace.com) so that auto-update functionality remains in place

**Date: Thursday January 9, 2020 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

- No updates this release cycle.

**Date: Thursday December 19, 2019 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

- No updates this release cycle.

**Date: Monday December 2, 2019 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

- No updates this release cycle.

**Date: Thursday, November 14, 2019 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

#### Improvements

- Improved clarity for the reason a user would see a 'your services are currently offline' message. The potential causes for a message appearing are:
  - Session host server is scheduled to be offline and user does not have Wake on Demand permissions.
    - If the user was using the Cloud Workspace Client, they would see: "Your services are currently scheduled to be offline, please contact your administrator if you need access."
    - If the user was using the HTML5 login portal, they would see: "Your services are currently scheduled to be offline. Please contact your administrator if you need access."
  - Session host server is scheduled to be online and user does not have Wake on Demand permissions.
    - If the user was using the Cloud Workspace Client, they would see: "Your services are currently offline, please contact your administrator if you need access."
    - If the user was using the HTML5 login portal, they would see: "Your services are currently offline. Please contact your administrator if you need access."
  - Session host server is scheduled to be offline and user has Wake on Demand permissions.
    - If the user was using the Cloud Workspace Client, they would see: "Your services are currently offline, please contact your administrator if you need access."
    - If the user was using the HTML5 login portal, they would see: "Your services are currently scheduled to be offline. Click START to bring them online and connect."
  - Session host server is scheduled to be online and user has Wake on Demand permissions.
    - If the user was using the Cloud Workspace Client, they would see: "Please allow 2-5 minutes for your Workspace to start."
    - If the user was using the HTML5 login portal, they would see: "Your services are currently offline. Click START to bring them online and connect."

**Date: Thursday, October 31, 2019 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

- No updates this release cycle.

**Date: Thursday, November 17, 2019 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

## Improvements

- Add AVD elements:

**Date: Thursday October 3, 2019 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

## Improvements

- Improved handling of code signing certificates

## Bug Fixes

- Fix an issue where Users accessing RemoteApp that didn't have any apps assigned to them saw an error
- Resolve an issue where a user loses their internet connection in the middle of logging into their virtual desktop

**Date: Thursday September 19, 2019 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

## Improvements

- Add AVD elements:
  - If the end user has access to AVD resources, present a AVD tab
  - The AVD tab will provide options to:
    - Install the AVD RD Client, if it isn't already installed
    - If the AVD RD Client is installed, launch the RD Client
    - Launch Web Client to take the user to the AVD HTML5 login page
    - Click Done to go back to the prior page

**Date: Thursday, September 5, 2019 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

- No updates this release cycle.

**Date: Thursday, August 22, 2019 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

- No updates this release cycle.

**Date: Thursday, August 8, 2019 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

- No updates this release cycle.

**Date: Thursday, July 25, 2019 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

- No updates this release cycle.

**Date: Thursday, July 11, 2019 at 11pm Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

- No updates this release cycle.

**Date: Friday, June 21, 2019 at 4am Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

- No updates this release cycle.

**Date: Friday, June 7, 2019 at 4am Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

**Improvements**

- Enable Cloud Workspace Client to automatically launch RDP connections regardless of what the file type association for .rdp files is set to

**Date: Friday, May 24, 2019 at 4am Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

**Improvements**

- Improved performance during the sign in process
- Reduced load time on launch

**Date: Friday, May 10, 2019 at 4am Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

**Improvements**

- Improved performance during the sign in process
- Reduced load time on launch

**Date: Friday, April 12, 2019 at 4am Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

**Improvements**

- Enhanced login speed for Wake on Demand
- After the successful launch of the Cloud Workspace Client for Windows, we will be removing the Feedback button to free up space in the User interface

## Bug Fixes

- Resolve an issue where the Sign In button was unresponsive after an unsuccessful Wake on Demand action

**Date: Friday, March 15, 2019 at 4am Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

## Improvements

- Allow for Admins using the Cloud Workspace Client for Windows to provide a Support email address OR a phone number, not to require both
- Ensure that the HTML5 URL provided in Cloud Workspace Client is a valid URL – if not, this will default to <https://login.cloudjumper.com>
- Streamlining the process of applying updates for End Users

**Date: Friday, February 29, 2019 at 4am Eastern**

*Impact:* Users will see the RDP client update the next time they launch it

## Improvements

- The AppData folder has been moved for clarity from `c:\users\<username>\appdata\local\RDPClient` to `c:\users\<username>\appdata\local\Cloud Workspace`
- Implemented a mechanism to streamline upgrade paths if a User has not updated their client in multiple releases
- Enhanced log details has been enabled for Users working with the Beta version of the client

## Bug Fixes

- There will no longer be multiple lines displayed during the update process

**Date: Friday, February 15, 2019 at 4am Eastern**

*Impact:* Users will see the RDP client update when they launch it

## Improvements

- Enable Silent/Quiet installation options for remote installations
  - Install flags are as follows:
    - `/s` or `/silent` or `/q` or `/quiet`
      - These flags will install the client silently and in the background – the client will not launch after installation is complete
    - `/p` or `/passive`
      - Either of these will show the installation process, but not require any input and the client will launch after installation is complete
    - `/nothinprint`
      - Excludes ThinPrint from the installation process

- Registry entries have been added to HKLM\Software\CloudJumper\Cloud Workspace Client\Branding:
  - ClipboardSharingEnabled: True/False – allows or disallows clipboard redirection
  - RemoteAppEnabled: True/False – allows or disallows access to RemoteApp functionality
  - ShowCompanyNameInTitle: True/False – indicates whether or not the company name is displayed
- The following can be added to c:\Program Files (x86)\Cloud Workspace:
  - banner.jpg, banner.png, banner.gif or banner.bmp and this will be displayed in the client window.
  - These images should be in the 21:9 ratio

### Bug Fixes

- The Registered symbol has been adjusted
- Empty phone and email entries on the Help page have been fixed

## Previous versions

### Virtual Desktop Service – Version 5.3



There will be no further recurring releases for v5.3 of VDS – all releases will be considered hotfixes.

#### VDS 5.3 release: Thurs., December 17, 2020

*Components:* 5.3 Virtual Desktop Service

*When:* Thursday December 17th, 2020 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.



The next release cycle will be on Thursday January 7th, 2021 instead of New Year's Eve 2020.

### Virtual Desktop Service

- Update SMTP service to leverage Postmark

#### VDS 5.3 release: Thurs., October 22, 2020

*Components:* 5.3 Virtual Desktop Service

*When:* Thursday October 22nd, 2020 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### VDS

- Bug fix for scenarios where the MFA agent resides in a folder with legacy IIT naming conventions

#### VDS 5.3 release: Thurs., October 8, 2020

*Components:* 5.4 Virtual Desktop Service

*When:* Thursday October 8th, 2020 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.



## VDS

- Bug fix for Provisioning Collections – hypervisor template not auto-selected

### VDS 5.3 release: Thurs., September 10, 2020

*Components:* 5.3 Virtual Desktop Service

*When:* Thursday September 10th, 2020 at 10pm - 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### Virtual Desktop Service

- Reduce the number of API calls used to return a list of Azure templates
- Referential link update in server resource nightly report
- Fix for changing administrative passwords to support improved, slimmer permission sets in AD

### VDS 5.3 release: Thurs., August 27, 2020

*Components:* 5.3 Virtual Desktop Service

*When:* Thursday August 13th, 2020 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### Virtual Desktop Service

- Bug fix for a Scripted Events scenario where date and time info was being displayed as current date and time

## Azure Cost Estimator

- Release of Azure Hybrid Benefits functionality
- Bug fix for a display issue when entering custom name information into VM details

### VDS 5.3 release: Thurs., August 13, 2020

*Components:* 5.3 Virtual Desktop Service

*When:* Thursday August 13th, 2020 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

## Azure Cost Estimator

- Add Ephemeral OS Disk support
- Improved tooltips for storage selections
- Disallow a scenario where a user became able to enter negative user counts
- Display the file server when using both AVD and File Server selections

### VDS 5.3 release: Thurs., July 30, 2020

*Components:* 5.3 Virtual Desktop Service

*When:* Thursday July 30th, 2020 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Bug fix for a subset of scenarios where AVD Diagnostics were not displaying properly

### **Azure Cost Estimator**

- Ask if the customer's data needs to be HA and if so, define if cost and labor savings are available by leveraging a PaaS service like Azure NetApp Files
- Update and standardize default storage type for both AVD & RDS workloads to Premium SSD
- Behind the scenes performance enhancements

### **VDS 5.3 release: Thurs., July 16th, 2020**

*Components:* 5.3 Virtual Desktop Service

*When:* Thursday July 16, 2020 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Proactive security enhancements behind the scenes
- Performance improvements in the Workspace module via paginating Groups under the Users and Groups tab

### **VDS Setup**

- As new automation options are available, update for deployments selecting Azure Active Directory Domain Services (AADDs) to ensure the use of the Standard service tier
- Update to reflect a change to a Microsoft ARM API call

### **HTML5 Login Experience**

- Updates to reflect NetApp branding/phrasing

### **Azure Cost Estimator**

- Display pricing dynamically by region
- Display whether relevant services are available in the region select to ensure that users understand whether the functionality desired will be available in that region. Those services are:
  - Azure NetApp Files
  - Azure Active Directory Domain Services
  - NV and NV v4 (GPU enabled) Virtual Machines

### **VDS 5.3 release: Thurs., June 25, 2020**

*Components:* 5.3 Virtual Desktop Service

*When:* Thursday June 25, 2020 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual

Desktop Service will remain available.

### **Virtual Desktop Service**

- Updates to reflect NetApp branding/phrasing
- Bug fix for an isolated scenario where the list of users was not populating as expected
- Bug fix for a scenario where manual deployments were receiving a GPO configuration that was only partially correct

### **VDS Setup Wizard**

- Support for American Express
- Updates to reflect NetApp branding/phrasing

### **REST API**

- Ongoing enhancements to gather and display list data faster

#### **VDS 5.3 release: Thurs., June 11, 2020**

*Components:* 5.3 Virtual Desktop Service

*When:* Thursday June 11, 2020 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Proactive API processing enhancements
- Continued proactive hardening of platform elements

### **Cloud Workspace Tools and Services**

- Ongoing improvements to Live Scaling triggers
- Improved auto-correction of issues identified when migrating a deployment from vCloud to vSphere

#### **VDS 5.3 Hotfix: Thurs. May 7, 2020**

*Components:* 5.3 Virtual Desktop Service

*When:* Wednesday June 3rd, 2020 at 10:00am – 10:30am Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Cloud Workspace Tools and Services**

- Bug fix for an automated element of platform deployment automation. This only applies brand new deployments – there will be no impact to existing deployments.
- Bug fix for deployments into an existing Active Directory structure

#### **VDS 5.3 release: Thurs., May 28, 2020**

*Components:* 5.3 Virtual Desktop Service

*When:* Thursday May 28, 2020 at 10pm – 11pm Eastern

*Impact:* Access to desktops and application services for End Users will remain uninterrupted. Access to Virtual Desktop Service will remain available.

### **Virtual Desktop Service**

- Updates to reflect NetApp branding/phrasing
- Performance improvements for the Workspace module
- Proactive stability enhancement VDS functions powered by frequently used API calls

### **Virtual Desktop Service Deployment**

- Further streamlining of the footprint of the VDS platform in Azure deployments
- Bug fix for an optional scenario when deploying into an existing Active Directory Structure

### **Virtual Desktop Service Tools and Services**

- Ongoing improvements to the way the number of users logged into a server is identified for Live Scaling

### **Virtual Desktop Service Web Client**

- Updated branding to reflect NetApp branding/phrasing
- Support for shortening URLs saved as favorites that are longer than the default Web Client links to the default Web Client links (cloudworkspace.com/login/ to cloudworkspace.com, for example)

### **Azure Cost Estimator**

- Add SQL Server options for more VM series/sizes
- Update to the way IP address pricing is displayed – don't display the IP address cost unless additional IP addresses are added

### **CWMS 5.3 release: Thurs., May 14, 2020**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday May 14, 2020 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### **Azure Cost Estimator**

- Updated messaging to reflect NetApp branding/phrasing
- Updated platform server to reflect D2s v3 use
- Updated Windows 10 Enterprise E3 license details and price point
- Change default storage choice to Azure NetApp Files

### **CWMS 5.3 Hotfix: Thurs. May 7, 2020**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Friday May 8th, 2020 at 10:15am – 10:30am Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## Cloud Workspace Tools and Services

- Bug fix for the method in which DNS records are set for a specific combination of settings during the deployment process

**CWMS 5.3 release: Thurs., April 30, 2020**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday April 30, 2020 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## Cloud Workspace Management Suite

- Improved session tracking to enable a future update – the option to preview future features
- Update to Scripted Events to allow for increased flexibility in applications and activities
- Bug fix for a specific combination of Provisioning Collections configurations

## Cloud Workspace Tools and Services

- Enable the ability to set Workload Scheduling per AVD host pool
- Improved process of creating new deployments into an existing AD structure
- Enable the ability to assign Data/Home/Profile data paths for organizations using Azure Files
- Enable the ability to manage Resource Pools
- Improved handling of special characters in the deployment wizard process
- Adjustments to automated HTML5 components as a part of deployment for RDS (not AVD) workloads

## REST API

- Updated list of Azure regions available for deployment
- Improved handling of Azure Backup integration for servers with the TSData role
- Resolve an issue in subset of scenarios where a failed login result in two failed login attempts being logged

## CWA Setup

- Per Azure best practices, enforce that the Subnet IP details are within a Private IP address range. Accepted Private IP ranges are:
  - 192.168.0.0 through 192.168.255.255
  - 172.16.0.0 through 172.31.255.255
  - 10.0.0.0 through 10.255.255.255

## HTML5 Login Experience

- Behind the scenes hosting enhancements for <https://login.cloudworkspace.com> and <https://login.cloudjumper.com>. Note: there will be no impact for custom branded HTML5 login portals.
- Bug fix for a subset of scenarios where self service password reset was not presented

### **CWMS 5.3 Hotfix: Wedn. April 22, 2020**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Wednesday April 22nd, 2020 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### **Cloud Workspace Management Suite**

- Performance upgrade to accommodate increased Customer use

### **CWMS 5.3 release: Thurs., April 16, 2020**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday April 16, 2020 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### **Cloud Workspace Management Suite**

- Continual enhancements to validation of AVD host pool VM creation (accounting for Azure process times due to surge in Azure activity due to COVID-19)
- AVD stability improvement when initializing AVD – if the AVD tenant name is not unique to AVD globally, CloudJumper will replace it with an updated string unique to the Deployment/tenant.
- Include support for special characters in email addresses in CWMS password reset functionality
- Bug fix for a subset of scenarios when adding apps to an AVD RemoteApp app group didn't pull apps from the Start menu
- Bug fix for a subset of the user activity report
- Remove the requirement for a description of a AVD host pool (remains as an optional field)
- Bug fix for a single fringe scenario where VMs in a shared host pool were tagged as VDI VMs

### **CWA Setup**

- Additional support for order codes for Distributor workflows

### **Cloud Workspace Tools and Services**

- Enhancements to unmanaging VMs that are managed by the Solarwinds Orion RMM tool to accommodate Workload Scheduling

### **CWMS 5.3 release: Thurs., April 2, 2020**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday April 2, 2020 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### **Cloud Workspace Management Suite**

- Activity History fix resolving a display issue for regional deployments where date localization prevented some Activity History from being visible in CWMS

- Provisioning collection enhancement to allow for images of any size
- Bug fix for AADDs deployments in Azure tenants with multiple domains – newly created users would previously use the primary Azure domain rather than matching the Workspace's login ID
- Bug fix for activity history when updating a username – the functionality is working as expected, but the previous username was not being displayed correctly

### **CWA Setup**

- Improved handling of MFA on CWMS accounts used during registration
- Reduced permissions applied during deployment

### **Cloud Workspace Tools and Services**

- Reduced permissions required for ongoing services/automation
- Process enhancements to reduce resource consumption on CWMGR1

### **REST API**

- Bug fix for activity history when updating a username

### **CWMS 5.3 Hotfix: Tues. March 24, 2020**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Tuesday March 24th, 2020 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### **Azure Cost Estimator**

- Updated description of AVD User types and the programs they run per Microsoft documentation
- Increased clarity for CWMS licensing

### **CWMS 5.3 release: Thurs., March 19, 2020**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday March 19, 2020 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### **Cloud Workspace Management Suite**

- Connect to Server enhancement for multi-site deployments – automatically detect which site the CWMS admin is connecting to and process the connection
- Enabling migration mode now disables Live Scaling
- Bug fix for enabling new Cloud Workspace Services for an existing Client

### **CWA Setup**

- Behind the scenes improvements to the deployment wizard

## **CWMS 5.3 release: Thurs., March 5, 2020**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday March 5, 2020 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### **Cloud Workspace Management Suite**

- Performance improvement for the Master Client Report
- Remove the delete function from a VM that didn't get properly created, as it cannot be deleted if it was never created

### **Cloud Workspace Tools and Services**

- Bug fix for gracefully handling multi-site deployments where DC Config settings are not properly configured
- Bug fix for multi-site deployments where vSphere sites have resource allocation types set to Fixed

### **HTML 5 Portal**

- Process enhancement for users logging in with AVD credentials

### **Azure Cost Estimator**

- Clarity improvement for Live Scaling
- Phrasing adjustments to match Microsoft AVD messaging
- Bug fix for Workload Scheduling and Live Scaling savings details in heavily customized quotes

## **CWMS 5.3 release: Thurs., February 20, 2020**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday February 20, 2020 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### **Cloud Workspace Management Suite**

- Switch the word SDDC to Deployment in the VM Resource tab of the Workspaces module

### **CWA Setup**

- Streamlining the process of applying policies during deployment
- Increased security for new deployments using Azure Active Directory Domain Services
- Increased security for new deployments – require defined subnet isolation (as opposed to flat subnets) during deployment
- Bug fix for RDS (non-AVD) deployments when applying ThinPrint licensing
- Bug fix for proper handling of whether ThinPrint is installed in DC Config
- Additional checks and validation for organizations opting to leverage FTP functionality



## Cloud Workspace Tools and Services

- Bug fix for automated actions when a deployment with multiple sites has a site that is configured incorrectly
- Bug fix for an instance where deleting a VM didn't properly clear out the VM behind the scenes
- Functionality improvements and bug fixes when testing hypervisor connectivity in DC Config

## REST API

- Performance improvements when displaying the list of users for an organization
- Performance improvements when displaying the list of applications for an organization
- Improved functionality when adding Users to AVD App Groups:
- Limit the number of users imported to 425
- If attempting to import more than 425 users, proceed with the import of the first 425 users and display that AVD's limit for user imports is 425 and that they can proceed with additional imports in 5 minutes
- Update to reflect that the number of users in a group is the number of Cloud Workspace users in a group as opposed to the total number of users in a group (which may be less when deploying into an existing Active Directory structure)
- Enable application assignments via security group for named users that are a member of the group (nested groups will not receive the app assignment)

## Azure Cost Estimator

- Add a link at the bottom of the page so that users can request assistance
- Default Azure NetApp Files to the Premium tier
- Add Premium SSD to the choices for Fileserver storage type
- Update text for Azure Active Directory Domain Services – change from AADDS to Azure AD Domain Services
- Update text for Active Directory – change from Windows Active Directory VM(s) to Windows Server Active Directory

### CWMS 5.3 Hotfix: Thurs., February 13, 2020

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday February 13, 2020 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## Azure Cost Estimator

- Bug fix for pricing error when using E-series VMs in a subset of scenarios

### CWMS 5.3 release: Thurs., February 6, 2020

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday February 6, 2020 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## Cloud Workspace Management Suite

- Improved provisioning status details during the VM creation process
- Improved handling of automation for newly created session host VMs that are part of a AVD host pool
- Performance improvement to the User Activity report when including “Only Server Access Users”

## Cloud Workspace Tools and Services

- Bug fix for data path management when admins manually edit user accounts in traditional (non-Azure) Active Directory
- Improved Workload Scheduling stability in nuanced scenarios

## Azure Cost Estimator

- Describe the specific savings achieved via Workload Scheduling and Live Scaling separately vs. combined
- Display the “S” versions of servers in order to support Premium (SSD) storage
- Improved layout for printed estimates
- Bug fix for an issue where SQL server pricing was not being calculated correctly

**CWMS 5.3 release: Thurs., January 23, 2020**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday January 23, 2020 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## Cloud Workspace Management Suite

- Redirect the older <https://iit.hostwindow.net> site to the modern <https://manage.cloudworkspace.com>
- Bug fix for a subset of CWMS admins logging in via IE 11
- Correct a visual issue where deleting an API user correctly deleted them behind the scenes, but was were not showing as deleted in CWMS
- Streamline the process of clearing out Subscriptions so that you can re-provision a new/test environment
- Service board enhancement – only look at session host servers that are online for icons to place for application shortcuts

## Cloud Resource App

- Support importing users from an OU or Active Directory security group via command line

## Cloud Workspace Tools and Services

- Live Scaling enhancements behind the scenes

## CWA Setup

- Improved handling for scenarios when the account used during the CWA Setup process has MFA applied

## Azure Cost Estimator

- Update VM sizing defaults to mirror Microsoft's recommendations

### CWMS 5.3 release: Thurs., January 9, 2020

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday January 9, 2020 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## Cloud Workspace Management Suite

- Updating phrasing in the email admins receive after creating a new Workspace to reflect updated links
- Bug fix for an issue where servers were not appearing in the Servers list if a series of folder permissions errors existed
- Bug fix for servers were not appearing in the Servers list if a resource pool was not present in the Resource Pools table in CWMGR1

## Cloud Resource App

- Support importing users from an Active Directory security group.
- Enhanced validation – ensure the proper command line parameter is being used for command line argument/servers
- Enhanced validation – check for duplicate users when importing from command line
- Enhanced validation – ensure the servers being imported belong to the site specified when importing from command line

## REST API

- Additional behind the scenes security enhancements

## Cloud Workspace Tools and Services

- Enhanced command processing stability behind the scenes
- Workload Scheduling and Live Scaling enhancements behind the scenes
- Additional Workload Scheduling and Live Scaling stability behind the scenes
- Updates and improvements to FSLogix in new deployments – redirect Downloads and Favorites into Profile Container to match best practices
- Additional Host Pool VM creation stability enhancements
- Introduce the ability to specify the gateway for new sites
- Improved automation validation for VMs
- Improved automated database management
- Improved handling of user creation if the action takes place at the exact same time VMs are powered down
- Streamlined handling of temporary disks in Microsoft Azure deployments
- Improved handling of resource allocation type for GCP deployments
- Bug fix for drive expansion in ProfitBricks data centers

- Improved stability for App Services based client creation
- Bug fix and stability improvements after converting a server from one role to another

**CWMS 5.3 release: Fri., December 20, 2019**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Friday December 20, 2019 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.

Access to Cloud Workspace Management Suite will remain available.

**Cloud Workspace Tools and Services**

- Fix for scenario where user activity logging does not record data successfully

**CWMS 5.3 release: Thurs., December 19, 2019**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday December 19, 2019 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.

Access to Cloud Workspace Management Suite will remain available.

**Cloud Workspace Management Suite**

- Improvements for CWMS availability monitoring
- Fix for an issue with AVD app group user modal where the username is not always selected properly when it contains capital letters
- Fix for pagination in the Users list for 'User Support Only' admin role members
- Fix for alignment of radio buttons in MFA setup dialog
- Improvement for Dashboard/Overview page load by removing service board dependency
- Fix for issue where admin users cannot reset their own passwords if they don't have edit admin permissions
- Improvements collecting debug logging for future troubleshooting

**Cloud Resource App**

- Feature Enhancement: Allow import of users based on AD group membership.
- Feature Enhancement: Allow default logon identifier to be specified during import

**Azure Cost Estimator**

- Improve text and tooltip for storage under VMs

**CWA Setup**

- Release deployment workflow improvements

**Cloud Workspace Tools and Services**

- Improvement handling locking of the data server during new user creation
- Fix for scenario where a client is incorrectly flagged as a cache company during workload scheduling

- Fix to correctly update the company table when a organization is created without a workspace
- Fix for invalid characters appended to the AVD host pool name in the local control plane database
- Fix for issue with workload scheduling when a VM is listed in the local control plane database, but not the hypervisor
- Fix for issue preventing some VMs from having drives expanded automatically in Azure hypervisor
- Fix for client provisioning error 'Supplied data drive not valid'
- Fix for CWAgent install failure in certain scenarios
- Improvement for TestVDCTools to allow assignment of RDS Gateway URL during new site creation
- Fix for workload scheduling failure in some scenarios where it is set to 'disabled'
- Fix for issues starting servers when in still in cache
- Fix for failure to power on some VMs after automatic drive expansion
- Fix for issue managing folders/permissions when using Azure files or Azure NetApp Files

**CWMS 5.3 release: Mon. December 2, 2019**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Monday December 2, 2019 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### **Cloud Workspace Management Suite**

- Enhancements to automated FSLogix installs
- Updates and fixes to Live Scaling
- Add AMD (non-GPU) VMs to the drop-down list in CWMS
- Support for multiple tenants in the same AVD deployment

### **CWA Setup**

- Clarity improvements in the Help/Support section CWA Setup

### **Azure Cost Estimator**

- Bug fix for a scenario where electing to not include Microsoft licensing in the estimate continues to include it

### **Cloud Resource App**

- Additional validation when using the Data Center site command line functionality
- New command line argument – /listserversinsite
- Configuration enhancement – when importing a company, now set the RDSH deployment to use the RDHS Gateway configured for the site

### **Cloud Workspace Tools and Services**

- Updated vCloud support elements in DC Config
- Enhancement to TestVDCTools to correctly detect the server type in more specific scenarios

## **CWMS 5.3 release: Thurs., November 14, 2019**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday November 14, 2019 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### **Cloud Workspace Management Suite**

- Additional redundancy/high availability added behind the scenes
- Drop-down menus in CWMS will become searchable
- Performance improvements when using the Workspaces module
- Performance improvements when using the Servers section of the Workspaces module
- Display host pool name in the Servers section of the Workspaces module
- The Servers section of the Workspaces module will now be paginated, displaying 15 servers at a time
- Bug fix for a scenario where a subset of admins creating a new host pool would not see VM templates
- Bug fix for a scenario where navigating to a host pool, then a second host pool would sometimes display information from the first host pool
- Bug fix where a subset of admins could not log into an older version of CWMS
- Bug fix where navigating to AVD Diagnostics and then back to Workspaces displayed 'page not found'
- Change friendly name of a user's desktop (what appears in the AVD RDP client and in the blue bar at the top of the user's session) to match the name of the host pool
- Servers must be manually added to the pool with a checkbox "Allow New Sessions" which is unchecked by default. Checkbox was previously checked by default.

### **CWA Setup**

- Deployments will now automatically use FSLogix
- Add Azure Files as an optional storage target for Data, Home and Profile storage if the deployment will use Azure Active Directory Domain Services
- Deploy a package to support deployment automation where Azure tenants have enabled RBAC
- Install the latest version of Java and HTML5 licensing with each deployment
- Bug fix for when a subnet range was incorrectly calculated, causing a validation error prior to deployment

### **HTML5 Login Experience**

- Update default branding to reflect the branding of the Cloud Workspace Client for Windows. A preview is available [here](#).
- Apply in-place branding updates to additional branded HTML5 login pages

### **Azure Cost Estimator**

- Update the default storage tier for D4s v3 VMs (the default VM type for AVD) to Premium SSD in order to match Microsoft's default setting

## Cloud Resource App

- Add ability to pre-allocate a company code for use during import

**CWMS 5.3 release: Thurs., October 31, 2019**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday October 31, 2019 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## Cloud Workspace Management Suite

- Update for users logging into iit.hostwindow.net (the URL for the older v5.2 deployments, of which there are very few) will see a prompt indicating them to navigate to manage.cloudworkspace.com (the URL for v5.3 and future deployments)
- Allow users to delete AVD host pools via CWMS
- Enhancement that allows for future branding enhancements in CWMS
- Bug fix for an issue when validating a VDI Provisioning Collection

## Deployment Automation

- Improvements in automated issue resolution and behind the scenes process streamlining

## HTML5 Login Experience

- We will be making a series of user experience enhancements for end users logging into their virtual desktops from login.cloudjumper.com or login.cloudworkspace.com:
- Allow the user to view the AVD host pools the user has access to
- Enable Wake on Demand functionality for users with the proper permissions, allowing them to log in and work at a time which a AVD session host VM is scheduled to be offline
- Enable Self Service Password Reset for users that have an email or phone number set in their user account in CWMS

## Azure Cost Estimator

- Allow users to select Windows Active Directory VM(s) after selecting AVD for AD Connect use cases
- Update the default storage quantity for all VMs to 128 GB in order to match Microsoft's default value
- Update the default setting for uptime hours to 220 in order to match Microsoft's default value
- Update the names of the workload types to match the names that Microsoft changed them to

**CWMS 5.3 release: Thurs., October 17, 2019**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday October 17, 2019 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## **Cloud Workspace Management Suite**

- Support for Server 2019 as the OS for an organization's Workspace
- Update to improve showing active users in a AVD Host Pool
- Allow for multiple Organizations/Workspaces under a AVD deployment
- Add "Update" button for editing multiple fields associated with an Admin
- Add "Update" button for editing company details and contact info
- Updated search function to use Flight School
- Updated links in the bottom of CWMS
- Allow for the use of a Validation Host Pool in AVD deployments – this will provide earlier access to AVD features prior to them being GA (production release)
- Typo fix in a prompt responding to an action taken by an admin on an AADDs deployment
- Bug fix for a prompt for an admin that does not have App Services permissions

## **REST API**

- Support for Server 2019 as the OS for an organization's Workspace
- Bug fix for a scenario where call would return a client's services as offline

## **Deployment Automation**

- Bug fix for auto-generating Data Center site name
- Log files summarized and moved to c:\Program Files to c:\ProgramData

## **Cloud Workspace Tools and Services**

- Support for accessing templates from the Azure Shared Image Gallery
- Security improvement – reduced use of administrative accounts by changing the location of log files from c:\Program Files to c:\ProgramData (also an updated Microsoft best practice)
- Enhancement for data center site creation in VDCTools – sites can be created with a space in the name
- Feature add for Automatic Data Center Site creation – now able to automatically select the address range
- Feature add – add the configuration option to use unmanaged VHD files as templates
- Support for assigning a VM series/size in the provisioning collection
- Bug fix for a subset of scenarios where a license server setting was applied improperly
- Bug fix – deleting temp folders post deployment as intended
- Bug fix for a scenario when creating a server in Azure that has the same IP address as a VM already in use

## **Azure Cost Estimator**

- Update pricing to reflect that AVD customers pay for Linux OS VMs instead of Windows OS VMs
- Added an option to include relevant Microsoft licensing
- Update to storage defaults used according to Microsoft's updated calculator (flat vs. user count)
- Add SQL pricing for D4s v3 VMs



- Bug fix for a display issue when editing VMs

#### **CWMS 5.3 release: Thurs., October 3, 2019**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday October 3, 2019 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

#### **Cloud Workspace Management Suite**

- Workflow enhancement where clicking “Back” will return Users to the Workspace tab instead of the Organizations tab
- When provisioning Cloud Workspaces in Azure via CWMS, confirm that AADDs is successfully validated during the Validation step
- Support for usernames up to 256 characters

#### **CWA Setup**

- System improvements to remember linked Partner accounts in the event that the user links their account to CWMS, but did not complete the provisioning of the deployment the first time around
- Bug fix for a javascript error appearing when selecting a tenant to provision a Cloud Workspace deployment during the CSP workflow

#### **Azure Cost Estimator**

- Add an option to display or not display Microsoft licensing in the Azure Cost Estimator
- Not enabling this (default behavior) assumes that the organization already owns Microsoft licensing via their EA or existing Microsoft/Office 365 licensing
- Enabling this provides a more complete, TCO-level understanding of the solution
- Bug fix where hours of uptime was very slightly off when users were toggling uptime by increments of 15 minutes
- Bug fix for a scenario where users set the day to start in the afternoon/evening (PM setting) and end in the morning (AM setting)

#### **CWMS 5.3 release: Thurs., September 19, 2019**

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday September 19, 2019 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

#### **Cloud Workspace Management Suite**

- Default an Azure deployment’s Resource Allocation Type to Fixed; with the VM series/size selected being the VM defined by the Administrator in CWMS
- Add search functionality for User Activity audit functionality
- Improvement to bulk user creation process – enable the “force password change at next logon” feature when importing users

- Bug fix for incorrectly displaying session inactivity timeout warning after 5 minutes instead of 55 minutes
- User Support role fix – a subset of Admins with this role were unable to see the list of Users for their organization
- User sorting fix – sorting by username works as intended instead of sorting by status
- Added Heartbeat function to the Overview section of the Deployments tab, indicating the last time the deployment was polled to see if it is online
- Workflow improvements – when clicking “back” in the AVD module, you will now be taken the Workspaces module instead of the Organizations module
- Ensure Master Client Report is present; hide the non-applicable SPLA report for non-Master Software Partners

## Cloud Workspace Tools and Services

- Remove the standard ThinPrint agent from Azure Virtual Desktop (AVD) servers in host pools, as this is not the supported ThinPrint agent for AVD. Instead, organizations should contact ThinPrint about their ezeep solution.
- Enhanced password encryption behind the scenes
- Bug fix for Password Enforcement Notification (PEN) where using the “change password at next login” feature wasn’t working as intended if password expiration dates were set to null by an administrator in CWMGR1

## Cloud Workspace for Azure Setup App

- Fix for international administrators – this on longer requires a State if the Country is not the United States.
- Apply CloudJumper via Partner Admin Link (PAL) to present and future Azure deployments at the subscription level

## CWMS 5.3 release: Thurs., September 5, 2019

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday September 5, 2019 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## Cloud Workspace Management Suite

- Updates to the User Support Only role:
- Add searching for/filtering Users functionality
- Include Connection Status column for Users and their connections
- Provide access to the Force Password Change at Next Login feature
- Remove visibility of the Delete Client function
- Enforce logout of CWMS after 1 hour of inactivity
- Fix for a display issue where VM series/sizes were displaying incorrectly when viewing VM roles whose Resource Allocation Type is set to Fixed
- Fix for a display issue where environments with Workload Scheduling set to Always Off were displaying improper settings in CWMS, despite being correctly set to Always Off behind the scenes
- Permissions update – remove Resource Scheduling tab if the CWMS admin does not have access to the

Resources function in CWMS

- Remove the ability to add more than one VM instance in a VDI User Host Pool
- Display fix for Max Users per Session Host in a AVD Host Pool – these values now match the values set in the Live Scaling section of the Workload Scheduling tab

## Cloud Resource App

- Updated functionality – support for Command Line usage

## Cloud Workspace Tools and Services

- Support for the vCloud Rest interface

### CWMS 5.3 release: August 22, 2019

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday August 22, 2019 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### 5.3 Cloud Workspace Management Suite

- Add a message to the AVD tab defining under which circumstances AVD is supported
- Workflow improvements when returning from the AVD tab to the Workspace
- Text edit in the instructions on the AVD module

### 5.3 Cloud Workspace for Azure Setup

- Remove the requirement for entering a state when the Customer registering is outside of the United States
- Now deploys CWMGR1 as a D series VM for initial deployment, then resizes to B2ms for cost purposes after initial deployment

## Cloud Workspace Tools and Services

- Bug fix for SSL certificate management on Legacy (2008 R2) environments
- Additional health checks for certificate enforcement and lifecycle management

### CWMS 5.3 release: August 8, 2019

*Components:* 5.3 Cloud Workspace Management Suite

*When:* Thursday August 8, 2019 at 10pm – 11pm Eastern

*Impact:* Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### 5.3 Cloud Workspace Management Suite

- Bug fix for a subset of scenarios where connecting to CWMGR1 from CWMS was not functioning as expected

## Cloud Workspace Management Suite – Version 5.2



There will be no further recurring releases for v5.2 of CWMS – all releases will be considered hotfixes.

### **CWMS 5.2 release: Mon., December 2, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Monday December 2, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.

Access to Cloud Workspace Management Suite will remain available.

No updates this release cycle.

### **CWMS 5.2 release: Thurs., November 14, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday November 14, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.

Access to Cloud Workspace Management Suite will remain available.

No updates this release cycle.

### **CWMS 5.2 release: Thurs., October 31, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday October 31, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.

Access to Cloud Workspace Management Suite will remain available.

No updates this release cycle.

### **CWMS 5.2 release: Thurs., October 17, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday October 17, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.

Access to Cloud Workspace Management Suite will remain available.

No updates this release cycle.

### **CWMS 5.2 release: Thurs., October 3, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday October 3, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.

Access to Cloud Workspace Management Suite will remain available.

No updates this release cycle.

### **CWMS 5.2 release: Thurs., September 19, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday September 19, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### **Cloud Workspace Management Suite**

Default an Azure deployment's Resource Allocation Type to Fixed; with the VM series/size selected being the VM defined by the Administrator in CWMS

Add search functionality for User Activity audit functionality

Bug fix for incorrectly displaying session inactivity timeout warning after 5 minutes instead of 55 minutes

User Support role fix – a subset of Admins with this role were unable to see the list of Users for their organization

User sorting fix – sorting by username works as intended instead of sorting by status

Ensure Master Client Report is present; hide the non-applicable SPLA report for non-Master Software Partners

### **Cloud Workspace tools and services**

Enhanced password encryption behind the scenes

Bug fix for Password Enforcement Notification (PEN) where using the “change password at next logon” feature wasn't working as intended if password expiration dates were set to null by an administrator in CWMGR1

### **Cloud Workspace for Azure setup app**

Fix for international administrators – this on longer requires a State if the Country is not the United States.

Apply CloudJumper via Partner Admin Link (PAL) to present and future Azure deployments at the subscription level

### **CWMS 5.2 release: Thurs., September 5, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday September 5, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### **Cloud Workspace Management Suite**

Updates to the User Support Only role:

- \* Add searching for/filtering Users functionality

- \* Include Connection Status column for Users and their connections

- \* Provide access to the Force Password Change at Next Login feature

- \* Remove visibility of the Delete Client function

Enforce logout of CWMS after 1 hour of inactivity

Fix for a display issue where VM series/sizes were displaying incorrectly when viewing VM roles whose Resource Allocation Type is set to Fixed

Fix for a display issue where environments with Workload Scheduling set to Always Off were displaying improper settings in CWMS, despite being correctly set to Always Off behind the scenes

Permissions update – remove Resource Scheduling tab if the CWMS admin does not have access to the Resources function in CWMS

### **Cloud resource app**

Updated functionality – support for Command Line usage

## **Cloud Workspace tools and services**

Support for the vCloud Rest interface

### **CWMS 5.2 release: Thurs., August 22, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday August 22, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.

Access to Cloud Workspace Management Suite will remain available.

## **Cloud Workspace Management Suite**

Fix a display issue in the User profile for some monitor sizes

Add clarifying message for non-dynamic App Services notifying admins that it may take a few minutes for changes to take effect

Add refresh button for non-dynamic App Services to make it easier to tell if new clients/users have been added

## **Cloud Workspace for Azure setup**

Add support for MFA for the registration process when linking to an existing CWMS account

Improvement to post-provisioning instructions – link to new and improved Public KB

Improvement to post-provisioning instructions – link opens in a new tab

## **Cloud Workspace tools and services**

Bug fix for SSL certificate management on Legacy (2008 R2) environments

Additional health checks for certificate enforcement and lifecycle management

### **CWMS 5.2 release: Thurs., August 8, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday August 8, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.

Access to Cloud Workspace Management Suite will remain available.

No updates this release.

### **CWMS 5.2 release: Thurs., July 25, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday July 25, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.

Access to Cloud Workspace Management Suite will remain available.

## **5.2 CWA Setup**

Display a message post-provisioning that directs CWA Setup users to the CloudJumper Public KB where they can review next steps and how to refine their deployment

Improved handling of countries outside the United States during the registration process

Added a field to confirm the password of the newly created CWMS login during the CWA Setup process

Remove SPLA licensing section under circumstances where RDS licenses will not be required

## 5.2 Cloud Workspace Management Suite

Improved HTML5 connection handling for CWMS Admins in single server deployments

Bug fix for a scenario where restarting a user's processing (when it had failed previously) resulted in an "Internal Server Error" message

Remove SPLA licensing section under circumstances where RDS licenses will not be required

Include Automatic SSL certificate handling and Automatic SMTP to the provisioning wizard inside CWMS

## 5.2 Cloud Workspace tools and services

When a VDI user logs out of their VM at a time it is set to be powered off, power off that VM

Azure Backup enhancement – when restoring TSD1 servers as a VM, restore as a TS VM instead of an additional TSD VM

Streamlined preparation of Azure VMs for Azure Backup handling

Back end processing speed and security improvements

## 5.2 REST API

Improved handling of server information, enabling faster Wake-on-Demand server load times

### CWMS 5.2 release: Thurs., July 11, 2019

Components: 5.2 Cloud Workspace Management Suite

When: Thursday July 11, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.

Access to Cloud Workspace Management Suite will remain available.

## 5.2 Cloud Workspace tools and services

Ongoing behind the scenes security enhancements

Ongoing stability enhancements for auto-generated certificates

Least Privileged methodology improvement – adjustment to use an account with fewer permissions/less affected by generic lockdowns to perform nightly reboots

Improvements for integrated backups for Azure deployments

Improvements for integrated backups for GCP deployments

Bug fix to no longer unnecessarily reboot servers to apply resource adjustments when they were already correct

Process enhancement to allow for manual certificate management, if desired

### CWMS 5.2 release: Thurs., June 20, 2019

Components: 5.2 Cloud Workspace Management Suite

When: Thursday June 20, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.

Access to Cloud Workspace Management Suite will remain available.

## 5.2 Cloud Workspace Management Suite

Improved handling of Users imported into CWMS via the CRA process

Correct storage displays in the Server section of the Workspace module for a subset of scenarios

Updated year at the bottom of the CWMS web interface

## 5.2 Cloud Workspace tools and services

Enhanced automated certificate automation

## 5.2 REST API

Display correction – display the correct values previously entered in the Live Scaling feature when opening the Live Scaling feature again

Allow for creation of a default backup schedule for the Power User role (VDI Users).

**CWMS 5.2 release: Thurs., June 6, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday June 6, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## 5.2 Cloud Workspace tools and services

Improved handling of multiple emails for platform notifications

Bug fix for a subset of scenarios where Workload Scheduling was not turning servers off correctly

Bug fix for a subset of scenarios where restoring servers from Azure Backup didn't restore the proper storage type vs. a default storage type

## 5.2 CWA Setup

Continued security enhancements during the CWA Setup Process

Improved automated handling of subnet and gateway settings

Improved behind-the-scenes process of handling user accounts during the registration process

Includes a process to refresh tokens in the event a user remains in the CWA Setup process for more than 1 hour

**CWMS 5.2 release: Thurs., May 23, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday May 23, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## 5.2 Cloud Workspace Management Suite

Improved link in the AVD tab in the Workspaces module

Bug fix for a scenario where clicking a link to a Workspace from the Data Centers module wouldn't take you to that Workspace

Bug fix for a scenario where updating the contact info for a Primary Admin would remove their designation as Primary Admin

**CWMS 5.2 release: Thurs., May 9, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday May 9, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## 5.2 Cloud Workspace tools and services

Scalability improvements for deployments with several hundred to several thousand VMs



## **CWMS 5.2 release: Thurs., April 25, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday April 25, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### **5.2 Cloud Workspace Management Suite**

Interface improvement – in the event backups are not enabled for a server in Azure or GCP, remove the size column from the Backup section of a server

### **5.2 Cloud Workspace tools and services**

Bug fix for a scenario where changing resources for RDP and/or HTML5 gateway servers would not bring them back online after the resource change was complete

### **5.2 REST API**

Improved handling of initial MFA configurations, regardless of scenario

### **5.2 CWA Setup**

Support for existing CWMS accounts, empowering indirect CSPs to provision correctly and simplifying the process for existing Partners

Additional validation for Azure Active Directory Domain Services – display an error if Azure Active Directory Domain Services is selected, but is already in place

## **CWMS 5.2 release: Thurs., April 11, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday April 11, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### **5.2 Cloud Workspace Management Suite**

Bug fix for Provisioning Collections – saving a Provisioning Collection with an app that does not have a desktop icon will no longer display an error in CWMS

Bug fix – resolve an issue where starting a stopped platform server from CWMS displayed an error because there was no Partner code attached

### **5.2 Cloud Workspace tools and services**

Stability enhancement for deleting servers in vCloud deployments – in the event that multiple FMs are found in one vApps, only delete the VM instead of deleting the vApp

Add an option to not install wildcard certificates on infrastructure servers

Improvements for cloning TSD servers in AzureAD

Improvements for Server Resource Report – handling servers with multiple IP addresses

Bug fix for a subset of scenarios when a list of backups for a server didn't load for review in AzureRM

Bug fix when attempting to clone VMs with a prefix in Azure Classic (all new and recent deployments use AzureRM)

Bug fix for DNS errors not being reported correctly in the Server Resource Report for Server 2008 R2

Bug fix for not sending the Company Resource report in the event that a VM deleted from the hypervisor (but not from AD) and CWMS cannot find Azure backups in the hypervisor itself (only in AzureRM deployments)

## 5.2 CWA Setup

Adding a method to validate that the region selected to provision into has Azure Active Directory Domain Services available

Adding additional checks to resolve DNS timeout issues in a subset of scenarios

Remove B2s as a target for CMGR1 deployment, as it was slowing down the deployment process

**CWMS 5.2 release: Thurs., March 28, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday March 28, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## 5.2 Cloud Workspace Management Suite

Add Azure Virtual Desktop section to the CWMS interface

Allow a CWMS Admin to not set a company logo under Settings → Logo

Add requirement for External ID when updating an app in a Custom App Catalog

## 5.2 Cloud Workspace tools and services

Further streamlining and improvements to the Cloud Workspace for Azure (CWA) deployment process

A Premium Storage account is no longer required to create VMs with Premium Storage in Azure RM deployments

Resolve an issue in a subset of scenarios where Application Usage Tracking reports did not capture usage data

Resolve an issue where updating certificates on HTML5 portal servers would result in an error as HTML5 portal server licensing was updated

Bug fix for Password Expiration Notifications not updating passwords when using Azure Active Directory Domain Services

Adjusted location to which Password Expiration Notifications writes log files

## 5.2 REST API

Bug fix for starting/stopping Platform servers (not Customer servers) in the Data Center module

## 5.2 CWA Setup

Improvements for FTP role settings during deployment

Improved mechanism to ensure Admins are seeing the latest release every time they access the CWA Setup process

Improved handling of elements that time out during deployment

Bug fix for a scenario where a deployment was incorrectly tagged as using Azure AD

**CWMS 5.2 Minor Release: Thurs., March 14, 2019**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday March 14, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## 5.2 Cloud Workspace Management Suite

Change the name of the “Application Monitoring” feature to “Application Usage Tracking”

Apply a fix where refreshing a search for Scripted Events does not re-use selected start/end dates

Default File Audit to start with the date filter set to one day prior to the current date, streamlining the amount of data returned

Bug fix to Integrated Backups for Azure where restoring backups to a server was not functioning as intended in a subset of scenarios

Resolve an application error prompt when updating a Client that belongs to an App Service

## 5.2 REST API

Azure safeguard – when adding an Azure AD User, ensure that their email address is not already added to the account.

Bug fix – when adding an application for a Client and creating a Group at the same time, add the Users to the Group as intended

Add a validation step when disabling access to RDSH servers that ensures it is still applied after a server is rebooted

General improvements for CWA workflow automation

Bug fix for a subset of scenarios when adding an App to a Group affected other Users of that Group

## 5.2 CWA Setup

Add a refresh option for the list of subscriptions during the deployment process

Auto-set deployment flag for degraded, legacy MobileDrive service to False

Additional automation safeguards and checks in Azure

### CWMS 5.2 Minor Release: Thurs., February 28, 2019

Components: 5.2 Cloud Workspace Management Suite

When: Thursday February 28, 2019 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.

Access to Cloud Workspace Management Suite will remain available.

## 5.2 Cloud Workspace Management Suite

Improved clarity and confirmation message for what happens when deselecting the “VDI User” checkbox for Users in the CWMS interface (deletes VDI User’s server) and how to proceed if you do not want to delete the server

Back-end improvements to timestamp handling

## 5.2 Cloud Workspace tools and services

Updated settings for the license server name in Azure Domain Services

Behind-the-scenes improvements to the process by which a User can change their own password after being logged into their Cloud Workspace

Updated native 2FA to reflect CloudJumper imagery

Bug fix for 2FA if a rare setting is enabled

## 5.2 CWA Setup

Additional Help/Support content in the CWA Setup wizard

Add agreement terms and pricing to the CWA Setup wizard

Improved mechanism for detecting a Subscription’s quota and permissions

Streamline deployments for Azure Active Directory Domain Services based deployments  
Behind-the-scenes improvement to the storage account name format  
Bug fix for FTP server settings in a subset of scenarios

**CWMS 5.2 Minor Release: Thurs., February 14, 2019**

Components: 5.2 Cloud Workspace Management Suite  
When: Thursday February 14, 2019 at 10pm – 11pm Eastern  
Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.  
Access to Cloud Workspace Management Suite will remain available.

**5.2 Cloud Workspace Management Suite**

Performance improvement in User management actions  
Additional logging enabled to display who requested a change on a Group in the Data Center task history  
Resolve an issue in the Standard App Catalog where applications were not displaying in a subset of scenarios  
Resolve an issue in App Services with Dynamic Provisioning where an error is displayed if two applications with the same name are  
Remove the SDDC creation wizard from the CWMS 5.1 interface  
\* If you are running a SDDC that is on 5.1 and you wish to provision a new SDDC, please contact [support@cloudjumper.com](mailto:support@cloudjumper.com) to schedule an upgrade to CWMS 5.2  
Correct a spelling error in the API User creation screen of CWMS

**5.2 Cloud Workspace tools and services**

In vCloud based SDDCs, re-login to the hypervisor in the event the connection expires  
In vCloud based SDDCs, increase the default timeout when waiting for servers to boot up  
Improved limitations on CloudJumper's administrative access

**5.2 REST API**

When provisioning a new SDDC via the 5.1 interface of CWMS, the message displayed will be "New data center creation is only supported when using v5.2 of CWMS."

**5.2 CWA Setup**

Improved automatic error handling

**CWMS 5.2 Minor Release: Thurs., January 31, 2019**

Components: 5.2 Cloud Workspace Management Suite  
When: Thursday January 31, 2019 at 10pm – 11pm Eastern  
Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.  
Access to Cloud Workspace Management Suite will remain available.

**5.2 Cloud Workspace Management Suite**

Add the Cloud Workspace client server's connection info to the Cloud Workspace client's Overview section  
Add an editable field in CWMS Account Settings that allows you to enter your Azure AD Tenant ID  
Use the most modern version of Microsoft Standard Storage in new Azure deployments  
Improved Azure integration, requiring Integrated Backups in Azure deployments to be retained for at least 1 day  
Improved handling in Dynamic Provisioning for App Services deployments  
Add the date at which server storage is inventoried to that section of the Servers module

Display that an app is provisioned to a User while the User's status is still Pending Cloud Workspace  
If a User is a VDI User, display the VDI Server on the User page  
If a server is for a VDI User, display the User on the Server page  
Resolve an issue in certain scenarios where if a User has an open Service Board task associated with their username, remote access to the VM fails from CWMS

## **5.2 Cloud Workspace tools and services**

Improved handling of Live Scaling as Users log in throughout the day  
Add automation prerequisites for future Wake on Demand improvements  
Add automation prerequisites for future Workload Scheduling improvements  
Resolve an issue where using Windows 10 for VDI servers was not properly enabling the remote registry service in Azure Active Directory Domain Services deployments  
Resolve an issue where using Windows 10 for VDI servers was not properly setting the security group for the local Remote Desktop Users group in Azure Active Directory Domain Services deployments  
Modify PCI compliance setting feature to take no action when not enabled instead of enforcing default configuration settings  
Resolve a issue in Workload Scheduling so that Users with Wake on Demand enabled that log out can power down servers if they are scheduled to be powered down  
Fix a bug when cloning a server in ProfitBricks public cloud  
Fix a bug where cloning servers checks server prefixes to that server names aren't duplicated in VDI User scenarios  
Add a check in nightly reports for cached customer codes that are not using a valid provisioning collection  
Improved handling of exceptions when both the VM is not in the hypervisor and CWAgent requires an update  
Resolve issue resetting passwords via Password Expiration Notification to correctly enforce password history

## **CWA Setup**

Implement option to automatically configure SMTP settings  
Adding validation options for the location list to checks if the subscription has enough quota and enough permissions to create VMs in the selected Azure region  
Added feature to remove unneeded Cloudworkspace and other service accounts with administrative permissions at the end of the provisioning process in Azure  
Notify Users that manual DNS certificate uploads have been verified  
Resolved an issue where ThinPrint installations don't install as intended in certain scenarios

## **CWMS 5.2 Minor Release: Thurs., January 17, 2019**

Components: 5.2 Cloud Workspace Management Suite  
When: Thursday January 17, 2019 at 10pm – 11pm Eastern  
Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## **5.2 Cloud Workspace Management Suite**

The Workload Scheduling interface will now display Description as the first column and change the name of Scheduling to Custom Scheduling  
Bug fix for displaying backups of platform servers in Azure deployments  
Bug fix for scenarios where End User self-administration for App Services use cases where the organization does not have any Cloud Workspace services set up

## **5.2 Cloud Workspace tools and services**

Add Support for PCI v3 compliance

Security enhancement: new CWMS deployments will use a local admin vs. a domain admin to run the CWAgent processes.

Support for Windows Server 2019 in AzureRM deployments

\* Note: Microsoft does not support Microsoft Office in this version yet

Improved handling of Wake on Demand Users – if their organization is scheduled to power VMs down but a User with Wake on Demand is still actively working, do not power down the organization's VMs

Stability improvement when cloning VMs – remove roles like Connection Broker from the newly created VM coming from the cloned VM.

Improved process for installing the ThinPrint license server role

Improved AzureRM template handling – return all templates available for a VM in Azure based on the hardware it runs on, not just templates available in the tenant's Azure region

Improved automated testing for vSphere deployments

Include a check in nightly email reports to see if ThinPrint license server is installed

Bug fix for Live Scaling in a limited subset of scenarios

Bug fix for cloning servers in certain scenarios in vCloud deployments

Bug fix for VM name prefixes in AzureRM deployments

Bug fix for reporting error when using custom machine sizes in Google Cloud Platform

Bug fix for reporting Users with ThinPrint functionality enabled

Excluded Chinese version of Windows from the list of templates available in AzureRM

## **CWA Setup**

Fix a scenario where passwords that meet the minimum number of characters required were not accepted

Change the ID column to Customer Domain during the tenant selection process for CSPs

Update to the sign up process that streamlines credit card entry

### **CWMS 5.2 Minor Release: Thurs., December 20, 2018**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday December 20, 2018 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.

Access to Cloud Workspace Management Suite will remain available.

## **5.2 Cloud Workspace Setup**

Added a feature of FTP DNS Registration in the event of a single-server deployment and Automatic SSL is selected during the deployment process

Automated process for populating Azure AD info. (TenantId, ClientId, Key) into back-end tables

The automated installation process will now install ThinPrint License Server 11 instead of 10

## **5.2 CWA Setup**

Fix an issue where the registration process redirected admins to a sign in page when completed

### **CWMS 5.2 Minor Release: Thurs., December 6, 2018**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday December 6, 2018 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.

Access to Cloud Workspace Management Suite will remain available.

## **5.2 Cloud Workspace Tools and Service**

Support for creating servers with Win10 OS

Improved speeds when loading a VM from the hypervisor  
Return correct storage types available when creating servers in Azure  
Add logging of daily reports to the back end of the control plane  
Avoid a scenario where temp drives could expand automatically in Azure  
Lay the foundation for a future change to display server OS when selecting a template for provisioning  
Bug fix for not automatically expanding a drive in GCP  
Bug fix for deployment automation when using Azure Active Directory Domain Services  
If multiple MGR servers are configured, note an error in the nightly report  
Bug fix for automated tests for public cloud (Azure, GCP) backups in VMware deployments  
Bug fix for determining disk space on a new VM created via HyperV deployments  
Bug fix for collecting server data when AD root OU is blank  
Stability improvement when cloning servers based off of a mis-configured hypervisor

## **5.2 REST API**

Enable support for machine series in public cloud deployments  
Allow the Default Resource Allocation to be Disabled for an SDDC  
Added DataCollectedDateUTC to storage details for a server  
Add the ability to Compute resource values  
Add a new method to get detailed user connection statuses  
Display an error in CWMS when deleting a user that also had admin rights  
Fixed issue with drive mapping for a data enabled app service not always appearing  
Fixed issue updating a client and/or user via CWMS that was imported via CWA  
Fixed issue when a new user was created and applications were assigned to the all users group, the new user would not receive the application shortcuts.

### **CWMS 5.2 Minor Release: Thurs., November 1, 2018**

Components: 5.2 Cloud Workspace Management Suite  
When: Thursday November 1, 2018 at 10pm – 11pm Eastern  
Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.  
Access to Cloud Workspace Management Suite will remain available.

## **5.2 Cloud Workspace Management Suite**

Bug fix for integrated backups  
Bug fix for a specific use case in a CRA deployment

## **5.2 Cloud Workspace tools and services**

Enable the ability to return storage types available in Azure ARM deployments when creating servers  
Support for multi-site Active Directory topology  
Fix an issue with TestVDCTools when using Azure Active Directory Domain Service  
Bug fix for nightly email reports when AD root OU is blank

## **5.2 REST API**

Support unlocking Users when Azure Active Directory Domain Services. Note: please be aware that there may be a delay of up to 20 minutes due to replication.

### **CWMS 5.2 Minor Release: Thurs., October 18, 2018**

Components: 5.2 Cloud Workspace Management Suite  
When: Thursday October 18th, 2018 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## **5.2 Cloud Workspace Management Suite**

in the Data Center wizard, enable validation of wildcard certificates

General behind-the-scenes improvements and bug fixes

Add a search function in the applications table

Improved sorting in the applications table

Add details for completing DNS registration in the Data Center provisioning process

Include all Sub Partner Users and groups in API call responses for Dynamic App Services

Fix a bug where migration mode didn't persist for a tenant in a specific instance

Add Extra Powered On Servers, Shared Users per Servers and Max Shared Users per Server to live scaling details

Add DNS validation to the wildcard certificate testing when provisioning via the new Data Center wizard

## **5.2 Cloud Workspace Tools and Service**

Enable an option to return all VM sizes grouped by VM series

Return all VM sizes available from the hypervisor

Fix to Resource Allocation when calculating App Service Users

Enable option for automatic resource update for CWMGR1

Include wildcard cert status DataCenterResources Report

Enable future DNS enhancements

Bug fix – fix to automatic drive expansions in GCP deployments

## **5.2 REST API**

Performance improvements when listing Clients/Users

Allow support for new Live Scaling features – configuring ExtraPoweredOnServers, SharedUsersPerServer and MaxSharedUsersPerServer

API now supports the ability to validate wildcard certificate domain when creating new Platform deployments

New API method available to get User activity data for all Partner Clients

Known issue: When using a the “Active Users” or “User Count” dynamic allocation method for resource pool sizing inside an Azure ARM deployment, the “Computed Resource Per Server” summary incorrectly displays the Machine Size as Basic A series type instead of the correct Standard D series type.

## **CWMS 5.2 Minor Release: Thurs., September 27, 2018**

Components: 5.2 Cloud Workspace Management Suite

When: Thursday September 27th, 2018 at 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

## **5.2 Cloud Workspace Management Suite**

Simplify the display of provisioning collection VMs in cache

Fix a display quirk when managing App Services

## **5.2 Cloud Workspace tools and services**

Bug fix for an obscure use case for End User MFA

Update API to interface with the latest in Azure RM



Update Testing for Azure RM to use the latest API  
Replace Power User terminology with VDI User  
Update email report to include additional CPU and RAM for a server  
Update the address reports come from – instead of [dcnotifications@independenceit.com](mailto:dcnotifications@independenceit.com) messages will come from [dcnotifications@cloudjumper.com](mailto:dcnotifications@cloudjumper.com)  
Allow definition of Users per server and additional VMs to remain on via Live Scaling  
Performance improvements when starting a stopped SDDC/deployment  
Security enhancement – disallow Partners with multiple SDDCs/deployments from connecting from one to another  
Stability improvement – in the event automation cannot return User count, do not make any changes to resource count  
Minor cosmetic enhancements

#### **CWMS 5.2 Minor Release: Thurs., September 6, 2018**

Components: 5.2 Cloud Workspace Management Suite  
When: Thursday September 6th, 2018 at 10pm – 11pm Eastern  
Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.  
Access to Cloud Workspace Management Suite will remain available.

#### **5.2 Cloud Workspace Management Suite**

Added the ability to search for Sub Partners in the Custom App Catalog  
Fixed a bug where refreshing the screen in the Data Centers module causes an error prompt  
Removing the restriction on max folder name size and making it easier to browse folders  
Ensure that resource counts on VMs are never lower than the minimum specified CPU and RAM values  
Rephrase Power User terminology to VDI User  
Fixed an error where a generic error was displayed despite the back-end process completing successfully  
Improved server name display in Data Center creation wizard  
Fix account expiration not displaying saved expiration date in CWMS

#### **5.2 Cloud Workspace tools and services**

Fixed a bug with MFA where Users who selected Email sometimes didn't receive a code  
Allow additional CPU and RAM to be entered for User Count resource allocation type  
Fix a bug where the automation engine didn't power all machine types on  
Fixed a timing issue that sometimes would cause cloning servers to err out  
Automate the previously manual installation of a wildcard certificate on FTP server  
Added a process to purge old certificates after updating wildcard certificates  
Resolve an issue where when using Data Enabled Application Services, the X: drive would not always map for an end user.

#### **CWMS 5.2 General Availability Release: Thurs., August 10, 2018**

Components: 5.2 Cloud Workspace Management Suite  
When: Thursday August 10th, 2018 at 10pm Eastern  
Impact: Access to Cloud Workspace desktops and application services for End Users will remain uninterrupted.  
Access to Cloud Workspace Management Suite will remain available.

#### **5.2 Cloud Workspace Management Suite**

Release web interface components to enable the features found in the overview above

## 5.2 Cloud Workspace tools and services

Release back-end tools to enable the features found in the overview above

### 5.2 REST API

Release API to production to enable the features found in the overview above

### Cloud Workspace Suite – Version 5.1



There will be no further recurring releases for v5.1 of CWMS – all releases will be considered hotfixes.

#### CWMS 5.1 minor release: Thursday, October 18th, 2018

Components: 5.1 Cloud Workspace Management Suite

When: Thursday October 18th, 2018 @ 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for end-users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

#### Workspace Management Suite

- Add a search function in the applications table
- Improved sorting in the applications table

#### CWMS 5.1 minor release: Thurs., September 6th, 2018

Components: 5.1 Cloud Workspace Management Suite

When: Thurs., September 6, 2018 @ 10pm – 11pm Eastern

Impact: Access to Cloud Workspace desktops and application services for end-users will remain uninterrupted. Access to Cloud Workspace Management Suite will remain available.

### 5.1 Cloud Workspace Management Suite

- Added the ability to search for Sub Partners in the Custom App Catalog
- Fixed a bug where refreshing the screen in the Data Centers module causes an error prompt
- Removing the restriction on max folder name size and making it easier to browse folders
- Ensure that resource counts on VMs are never lower than the minimum specified CPU and RAM values

### 5.1 Cloud Workspace tools and services

- Fixed a bug with MFA where Users who selected Email sometimes didn't receive a code
- Allow additional CPU and RAM to be entered for User Count resource allocation type
- Fixed a bug for Resource Allocation for Server Load allocation type where in some cases the number of servers required was off
- Add safeguard when automatically rebooting a server – if CwVmAutomationService is busy, retry in 20 minutes

- Improved handling of wildcard certificate installs on CWMGR1
- Fixed data in the Data Center Resource Report
- Improved handling of updating RAM resources
- Improved calculations on the available Hard Drive Resources
- Introduces support of v4 of ProfitBricks' API, allowing for setting of CPU family
- Fixed deleting old temporary templates in ProfitBricks used when creating a provisioning collection
- Increased the timeout when waiting for ProfitBricks' hypervisor to create a VM
- When installing new versions of VdcTools, Update VdcToolsVersionRunningAtVdc as soon as it is in process so that automation will run sooner
- Fixed a bug that would surface when installing wildcard certificates on RDP Gateway servers
- Automate the previously manual installation of a wildcard certificate on FTP server
- Fixed a bug where password expiration notices were not forcing Users to update their password
- Improved the File Audit process to reduce the frequency of the Unknown user error appearing
- Fixed a bug where the File Audit Report was not properly excluding folders
- Added a feature to install the wildcard certificate if the certificate on the connection broker is expired
- Fixed a bug where password expiration notices wouldn't appear if the password expiration notification shortcut is removed from the startup folder (it will be reinstalled)
- Fixed a bug where wildcard certificate didn't delay an update on HTML5 portal servers if a User was logged in
- Fixed a bug where wildcard certificate would show needing an update HTML5 portal servers when it was already current
- Fixed a bug found when installing wildcard certificates on on connection broker servers
- Fixed a cloning issue where Local VM accounts have been removed
- Fixed an issue where cloning servers put the tenant in Migration Mode
- Fixed an error with cloning VMs in vCloud where the hypervisor took long than expected to create the VM
- Fixed a bug where deleting a VM in AzureRM would also always delete the associated managed disks
- Fixed a rare timing issue creating VMs in AzureRM to prevent two build operations from overlapping
- Updated list of machine sizes and types in AzureRM
- Fixed an error when configuring the subnet in the hypervisor for GCP during deployment
- Fixed an error storing monitoring data re: platform health by removing a timeout that caused data to not be written when a server is busy
- Added a feature to allow each server to have its time zone set individually, or not controlled by platform automation
- Fixed a bug when creating VMs at a secondary site would return static IP addresses from the primary site
- Fixed an error in capturing Username for the User Login Report
- Fixed a bug that failed to delete old monitoring data by making the call asynchronous so that it would not time out
- Automatically install wildcard certificates on all infrastructure servers

## **CWMS 5.1 minor release: Thurs., July 12, 2018**

Components: 5.1 CWMS Tools and Services

When: Thursday July 12, 2018 @ 10-10:30 pm Eastern

Impact: Access to Cloud Workspace desktops and application services for end-users will remain uninterrupted.

### **5.1 CWMS web app**

- Fix an issue regarding Global App Catalog settings persistence

## **CWMS 5.1 minor release: Thurs., May 17, 2018**

Components: 5.1 CWMS Tools and Services

When: Thursday May 17, 2018 @ 10-11 pm EST

Impact: Access to Cloud Workspace desktops and application services for end-users will remain uninterrupted.

### **5.1 CWMS web app**

- Fix an issue regarding summaries of Users for App Services groups
- Fix an issue with the Data Center wizard pre-populating Username and password
- Add Username validation for local VM Admins and Level 3 technicians in the Data Center wizard
- Improved session handling, including auto-logout of Users after a session timeout
- Fix an issue when deleting Admins if a primary Admin couldn't be detected
- Change placeholder in Data Center → Profile Server Changes from Enter Profile Name to Enter Profile and change Label from Profile Name to Server Name
- Fix enabling AD admin not working for non-Cloud Workspace Users
- Fix JavaScript error preventing adding new Users/Groups for a non-Cloud Workspace Customer
- Allow Master Partners to create Active Directory User Admins for Sub Partners
- Fix bug causing password resets of a Sub Partner's Primary Admin to err out

## **CWS 5.1 minor release: Wed., Feb. 21, 2018**

Components: 5.1 CW Tools and Services

When: Wed., Feb. 21, 2018 @ 10-11 pm EST

Impact: Access to Cloud Workspace desktops and application services for end-users will remain uninterrupted.

### **5.1 CW web app**

- Fix issue managing user folders via Admin Access role

### **5.1 CW tools and services**

- Ensure failed server is not automatically deleted when upgrading a "no services" client with a Workspace
- Handle W2016 GPO updates to prevent notification pop-up from being briefly visible to user(s) logged into their RDS sessions on W2016 VMs

### **5.1 REST API**

- Add new attributes (modify CWS' SPLA Report to consume new attributes) to better handle core licensing-based apps (specifically, SQL)

**CWS 5.1 minor release: Wed., Feb. 7, 2018**

Components: 5.1 CW Tools and Services

When: Wed., Feb. 7, 2018 @ 10-11 pm EST

Impact: Access to Cloud Workspace desktops and application services for end-users will remain uninterrupted.

**5.1 CW web app**

- None

**5.1 CW tools and services**

- Fix issue disabling App Locker on Windows 2016 (due to newly discovered internal Windows 2016 issue)
- Fix bug when IP incorrectly being reassigned based-on clone failure event

**5.1 REST API**

- Fix saving Storage Type when modifying a server in a Provisioning Collection
- When creating a Provisioning Collection with two Terminal Server (TS) servers, only one TS server should be built to validate collection

**CWS 5.1 minor release: Wed., Jan. 31, 2018**

Components: 5.1 CW Tools and Services

When: Wed., Jan. 31, 2018 @ 10-11 pm EST

Impact: Access to Cloud Workspace desktops and application services for end-users will remain uninterrupted.

**5.1 CW web app**

- Increase number of rows per table on top-level CWS Modules from 10 to 20
- Fix User Support Only Admin being unable delve into a client

**5.1 CW tools and services**

- Fix bug when template doesn't have .Net Framework v4.5.2 incorrectly fails the server creation
- Fix issue when cloning VMs in Hyper-V

**CWS 5.1 minor release: Wed., Jan. 10, 2018**

Components: 5.1 CW Tools and Services

When: Wed., Jan. 10, 2018 @ 10-11 pm EST

Impact: Access to Cloud Workspace desktops and application services for end-users will remain uninterrupted.

**5.1 CW tools and services**

CWS version 5.1 Tools and Services (including the CW Automation Service, VM Automation Service and the CWAgent service) will be updated to eliminate any authorization error that occurs for specific RemoteApp application delivery scenarios. Specifically, the services will be modified to:

- Change automatic deployment of the SSL Wildcard Certificate for session servers to only deploy to Remote Desktop (RD) Connection Broker servers and Power User servers. Non-Broker session servers will utilize the default certificate generated by Remote Desktop Services (RDS).

- Change the external DNS Forward Lookup Zone on Active Directory at the SDDC to only create one DNS record for client shared session servers. That record will point to the client's RDS Broker server (VM), which will in turn handle the load balancing between shared session servers. Power user servers will continue to have a separate DNS entries.

Note: Only end client configurations that utilize multiple shared session servers were impacted by this issue, but new and modified client configurations will be deployed using this configuration.

**CWS 5.1 minor release: Wed., Jan. 3, 2018**

Components: 5.1 CW Web App

When: Wed., Jan. 3, 2018 @ 10-10:30 pm EST

Impact: Access to Cloud Workspace desktops and application services for end-users will remain uninterrupted.

### 5.1 CW web app

- Fix sorting by company code in CWS' Workspaces module
- Fix Cloud Workspace Users → Force Password reset not reflecting changes (when navigating to another module and then back to the user)
- SDDC Self-Deploy Wizard: Add confirmation alert modal when unchecking ThinPrint installation (Licensing section)

**CWS 5.1 minor release: Tues., Dec. 5, 2017**

Components: 5.1 CW Web App

When: Tues., Dec. 5, 2017 @ 10-10:30 pm EST

Impact: Access to Cloud Workspace desktops and application services for end-users will remain uninterrupted.

### 5.1 CW web app

- Fix CWS Admin MFA error on Internet Explorer (IE) 11
- Fix CWS Groups → Local Drive Access returning 'not found'
- Data Center Self Deploy Wizard: add support for AzureRM (ARM) Azure Active Directory
- Applications Catalog: ensure Subscription option always available/propagates
- CWS Scripted Events Module > Script Activity → Add Application: fix incorrect application icon path
- Improve efficiency of Admin Access request to prevent error when redirecting to CWS v5.0
- Fix various errors when updating AppService details and/or managing application licenses for an AppService
- CWS Workspace Module > Add Workspace Wizard → fix AppServices incorrect format being sent to Global Control Plane
- CWS Workspace Module > Add Workspace Wizard → New Client → Step 3, fix Update Group to address JavaScript error to ensure update is processed

**CWS 5.1 minor release: Sat., Nov. 11, 2017**

Components: 5.1 CW Web App

When: Sat., Nov. 11, 2017 @ 10-11pm EST

Impact: Access to Cloud Workspace desktops and application services for end-users will remain uninterrupted.

## 5.1 CW web app

- As of 10pm EST on Nov. 11, all CWS 5.1 partners must use <https://iit.hostwindow.net>. This URL is being retrofitted to support CWS 5.1 (as well as CWS 5.0). Partners are responsible for ensuring their CWS Admin and end-users with CWS Admin Access are aware of this change.

**CWS 5.1 minor release: Mon., Oct. 30, 2017**

Components: 5.1 CW Web App and 5.1 CW Tools & Services

When: Mon., Oct. 30, 2017 @ 10-11pm EST

Impact: Access to Cloud Workspace desktops and application services for end-users will remain uninterrupted

## 5.1 CW web app

- CWS Admin MFA: pressing Enter submit code for MFA and fix bug which prevents re-sending MFA code
- SDDC Self Deploy Wizard: for GCP, have Administrator for Local VM name instead of just being disabled
- SDDC Self Deploy Wizard: increase width of drop-down for time zones
- Scripted Events: add Arguments field to script activity
- Scripted Events: add %applicationname% as an runtime variable for scripted events scripts

## 5.1 CW tools & services

- End-user email address: fix issue with email addresses not being saved to DB for existing end-users
- End-user logon status: fix issue getting UPN of end-user logged-in
- End-user logon status in AzureRM: support Azure Managed Disks
- Templates: fix workflow when templates not being deleted properly
- Resources: fix issue converting old Resource Pools to new allocation types
- File Audit Report: fix bug that causes user to be unknown
- Windows 2016: fix to ensure GPO to remove PowerShell icons from end-user Workspaces is applied properly
- Change Resources/Resource Allocation Report: fix error being incorrectly displayed
- Data Center Resources Report: if hypervisor not configured to return available Hard Drive Space or VM Quote, prevent report from showing error
- Infrastructure Server Monthly Reboots: address scenario when infrastructure servers not rebooting monthly as scheduled because they couldn't communicate to the CWMGR1 server due to this server being busy rebooting

**5.1 minor release: Tues., Oct. 3, 2017**

Components: 5.1 CW Web App and 5.1 CW Tools & Services

When: Tues., Oct. 3, 2017 @ 10-11pm EST

Impact: Access to Cloud Workspace desktops and application services for end-users will remain uninterrupted

## 5.1 CW web app

- AppServices: fix issue blocking add licenses functionality for AppService applications
- AppServices: ensure "Add New Instance" functionality always available for AppService applications

- Resource Pool Terminology: update terminology while always allowing applying resource pool configuration to servers even when there are no changes – “Update” changed to “Apply to Servers” and “Edit” has been changed to “Manage”
- Workload Schedule: ensure Edit modal always opens
- Workload Schedule: ensure arrows for selecting time always appear
- Scripted Events: allow for more granular time selection
- CWS Report ‘Admin Access’: fix issue causing IP column to have multiple IP addresses listed instead of just the client IP

## 5.1 CW tools & services

- File Audit Service: now disabled consistently
- Automation Service and new SSL Wildcard Certificate (RDP connections): update order of commands to ensure updated RDP certificate on RDS Gateway is always refreshed (i.e. not cached)

### CWS® 5.1 initial release overview

Cloud Workspace Suite 5.1 is currently in Public Beta starting in Q3 2017. This release includes an update of both the CWS APIs and the Admin Control interface. The release is an update to CWS 5.0 (released Q4 2016) and is not “backward compatible” to version 4.x entities.

Once officially released in Q4 2017, there’s no upgrade fee or implementation cost to transition to CWS 5.1. The upgrades will be completed by CloudJumper in coordination with each Partner and will not interrupt existing services. CWS 5.1 continues to support all of the previous versions’ functionality, and extends new features that enhance both Administrator and End-User experience, and further improve the award winning automation and orchestration introduced with previous releases of Cloud Workspace Suite.

The CWS 5.1 upgrade is the fastest and easiest yet by extending and leveraging the updated architecture and REST API platform introduced in CWS 5.0. CWS 5.1 continues CloudJumper’s commitment for a friendlier environment to allow external developers to extend their services and products based on Cloud Workspace.



CWS 4.x will reach official end-of-life on 12.31.2017. Partners who remain on the CWS 4.x platform will no longer receive direct support for 4.x deployments and no further 4.x updates or bug fixes will be provided.

### 5.1 Highlights:

- Support for Windows 2016 Server
- Full Stack Support for Microsoft Azure Resource Manager
- Support for Office 365 Single Authentication
- MFA for CWS Portal Administrators
- Improved Provisioning Collection Management
- Administrator Defined Automation and Scripting
- Resource Sizing Management Schemes

### Support for Windows 2016 Server

- Support Windows Server 2016 server versions for all supported platforms.



- Windows 2016 Server provides the “Windows 10” desktop experience for shared RDS session users and enables configuration options such as GPU assignment for graphics intensive applications\*.

### **Full stack support for Microsoft Azure Resource Manager**

- Microsoft requires migration from the traditional encryption key/delegated account user entitlement model to the Azure Resource Manager model.
- Microsoft Azure Resource Manager is a framework that enables users to work with the resources within a solution as a group.
- The required authentication attributes are collected once during software defined data center (SDDC) deployment and then reused for other Microsoft Azure activities without the need for re-entry or re-authentication.

### **Support for Office 365 single authentication**

- Microsoft Office 365 utilizes an authentication model that requires end-users to enter credentials every time they use the office productivity suite on a new computer or device.
- CWS 5.1 Manages these credentials across the server farm so that end-users require authentication only on their first use of a new office 365 subscription.

### **Improved provisioning collection management**

- Configuration and management of hypervisor templates for pre-defined workloads can be confusing, especially when working across multiple hypervisor platforms.
- CWS 5.1 introduces Automated hypervisor management functions that include the creation of server instances based on an existing template or Cloud Provider VM image; direct connection/login to the created server for installation of applications from CWS Web App; automatic template creation/Windows sysprep from the configured server instance, and validation of application paths and installs from within CWS to eliminate the need for accessing the hypervisor or cloud service dashboard directly.

### **MFA for CWS portal administrators**

- CWS 5.1 includes a built-in multi-factor authentication (MFA) solution for CWS Administrators only
- Partners can implement their own MFA solution for end-users. Popular options include Duo, Auth-Anvil & Azure MF. CloudJumper will be releasing own built-in MFA for end-users in Q1 2018

### **Administrator defined automation**

- CWS provides improved deployment/management automation for service providers with Administrator Defined Automation of tasks/script execution.
- With this enhancement, CWS 5.1 will significantly speed deployments, simplify management, and reduce overhead costs.
- CWS Administrator Defined Automation will allow for the installation or upgrading of applications based on events, allowing partners to trigger automated application installations/maintenance using this method.

### **Resource sizing management schemes**

- CWS 5.1 resource functionality enhances ability to scale resources dynamically by adding three more resource schemas
- The existing Total Users schemas is now augmented by three more resource sizing schemes: Fixed, Active User & Activity-based

- Example: Fixed method supports exact specification of the CPU and RAM.
- All resource sizing schemes continue to allow for immediate/force change or nightly automated resource check/modification.

## CWS – v5.0 Release Notes



There will be no further recurring releases for v5.0 of CWS – all releases will be considered hotfixes.

### Overview

CloudJumper has released Cloud Workspace Suite 5.0 for general implementation starting in Q4 2016. This release includes an update of both the CWS APIs and the Admin Control interface. The release is a significant change and is not “backward compatible” to version 4.x entities.

Version 4.x will continue to be supported until all partner Software Defined Data Centers (SDDCs) have been upgraded to the 5.0 platform, upgrades will be completed by CloudJumper in coordination with each Partner and will not interrupt existing services. There is no upgrade fee or implementation cost to transition. CWS 5 continues to support all of the previous versions’ functionality, and extends new features that enhance both Administrator and End-User experience, and further improve the award winning automation and orchestration introduced with previous releases of Cloud Workspace Suite.

With CWS 5.0, CloudJumper has re-written all of the platforms APIs into REST API format and completely retired the earlier SOAP APIs. This updated architecture will make further enhancement by CloudJumper easier and faster, and creates an even friendlier environment for external developers to extend their services and products based on Cloud Workspace.

### Highlights

- Complete UI/UX Rewrite
- Azure AD Integration
- Azure SDDC self service deploy
- App Services
- Resource Scheduling
- Live Server Scaling – Cross Platform
- Automated Server Cloning – Cross Platform
- Customize Drive Shares on a per client basis

### Key features

#### Azure Active Directory (AD) Integration

- Build SDDC as Private Cloud Active Directory or use Microsoft Azure-AD-as-a-Service
- Combine CWS with Office365
- Support Azure-based SSO & MFA

#### Azure SDDC self service deploy

- Complete integration with Azure

- Rapidly deploy new SDDCs
- Deploy private enterprise Clouds within Azure for any workload including Cloud Workspace managed: WaaS, App Services, Private Web App & SharePoint

### **App services**

- Deploy application silos for publishing applications as isolated service building blocks
- Apps delivered from 'public' app servers to many custom entities
- Apps installed in single app dedicated server pools
- Apps decoupled from user profile and data layer requirements
- Build hyper-scalable app services
- Multiple app services can be combined into user collections
- CWS license tracking and usage reporting

### **Live server scaling – cross platform**

- Intelligent automated scaling of server resources/active servers
- Tightly manage server resources with dynamic increase/decrease while user load changes
- Automatically scale server resources up & down as workload varies

### **Automated server cloning – cross platform**

- Automatically increase server until count availability as defined user count grows
- Adds additional servers to the available resource pools
- Combine with CWS Live Server Scaling capability to create fully automated solution

### **Resource scheduling**

- Schedule service times on a per-customer basis
- Cost containment for Public Cloud
- Shut systems down when not in use and re-activate on pre-defined schedule

## **End User Requirements**

### **Overview**

NetApp VDS does not track or recommend different user endpoint devices. We do recommend some basics, but this does not exclude other possible endpoint choices.

Remote Desktop environments can be access from a variety of endpoint devices. Clients are available directly from Microsoft and 3rd party vendors. NetApp VDS offers a custom connection client for Windows devices (*NetApp VDS Client for Windows*) as well as a Web client compatible with HTML 5 browsers.

Azure Virtual Desktop environments can be accessed from a variety of endpoint devices. Unlike RDS, AVD environments can only be accessed by Microsoft native clients. Microsoft has published clients for Windows, MacOS, Android, iOS as well as a web client. Additionally they have partnered with IGEL to offer a Linux-based thin client offering.

## End user connection options

### Remote Desktop Services

#### NetApp VDS Client for Windows

The NetApp VDS Client for Windows is the best way for users to connect to their RDS environment. This simple installer allows the users to connect with just their user name and password. No server or gateway configuration is required. Printing and Local drive mapping are automatically enabled and this method has the highest performance.

#### VDS client url safelisting

In the event that outbound network connections are controller and in order to guarantee that they can continue to use the NetApp VDS Client for Windows for Windows, we recommend adding the following to the safelist:

- \* api.cloudworkspace.com
- \* vdsclient.app
- \* api.vdsclient.app
- \* bin.vdsclient.app

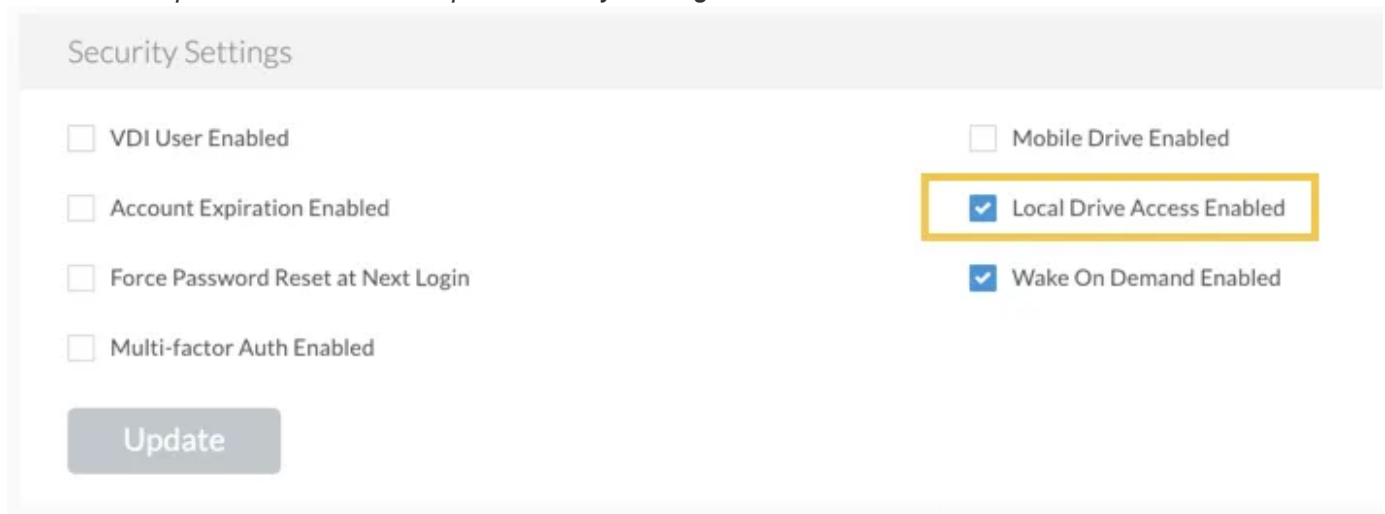
Upon request, a branded version of this application can be created with the Partner's logos and contact information. Please contact support to request this.

The NetApp VDS Client can be downloaded from here: <https://cwc.cloudworkspace.com/download/cwc-win-setup.exe>

**Printing:** When connecting with the NetApp VDS Client for Windows, printing is automatically setup using ThinPrint.

**Local File Access:** By default, the NetApp VDS Client for Windows shares the Local device drives (HDD, USB & Network) with the cloud user session. The user can browse and transfer data back and forth from the "This PC" location in Windows Explorer. This functionality can be disabled by editing the workspace or user in VDS.

*VDS > Workspaces > Users & Groups > Security Settings*



Security Settings

<input type="checkbox"/> VDI User Enabled	<input type="checkbox"/> Mobile Drive Enabled
<input type="checkbox"/> Account Expiration Enabled	<input checked="" type="checkbox"/> Local Drive Access Enabled
<input type="checkbox"/> Force Password Reset at Next Login	<input checked="" type="checkbox"/> Wake On Demand Enabled
<input type="checkbox"/> Multi-factor Auth Enabled	

Update

#### NetApp VDS web client

The NetApp VDS Web client can be accessed at <https://login.cloudworkspace.com/>

End users can also access their desktop via a webpage, as long as their browser supports HTML5. Browser

compatibility for HTML5 can be checked at <https://html5test.com/>

A fully branded version of this page can be created for NetApp VDS Partners. The partner is required to provide an SSL cert and there is a small professional services fee to implement. Please contact support to begin the process.

**Printing:** When connecting via HTML5, printing from the Virtual Desktop generates a PDF that is downloaded in the browser and can then be printed locally.

**Local File Access:** When connecting via HTML5, the user can upload files to the Cloud Drive. To do this the user will click the floating cloud icon, upload the file and then navigate to the “This PC > Cloud on...” location in Windows Explorer to access that file in the Virtual Desktop user session.

### Manually configured RDS client

The second best connection method is to manually configure the Microsoft Remote Desktop application. This is ideal for MacOS, Linux, iOS, Android and ThinClients. The only requirement is that the device/software be able to connect via RDP and to configure an RDS Gateway.

The information needed to manually configure an RDP client is (Links go to where that information can be located):

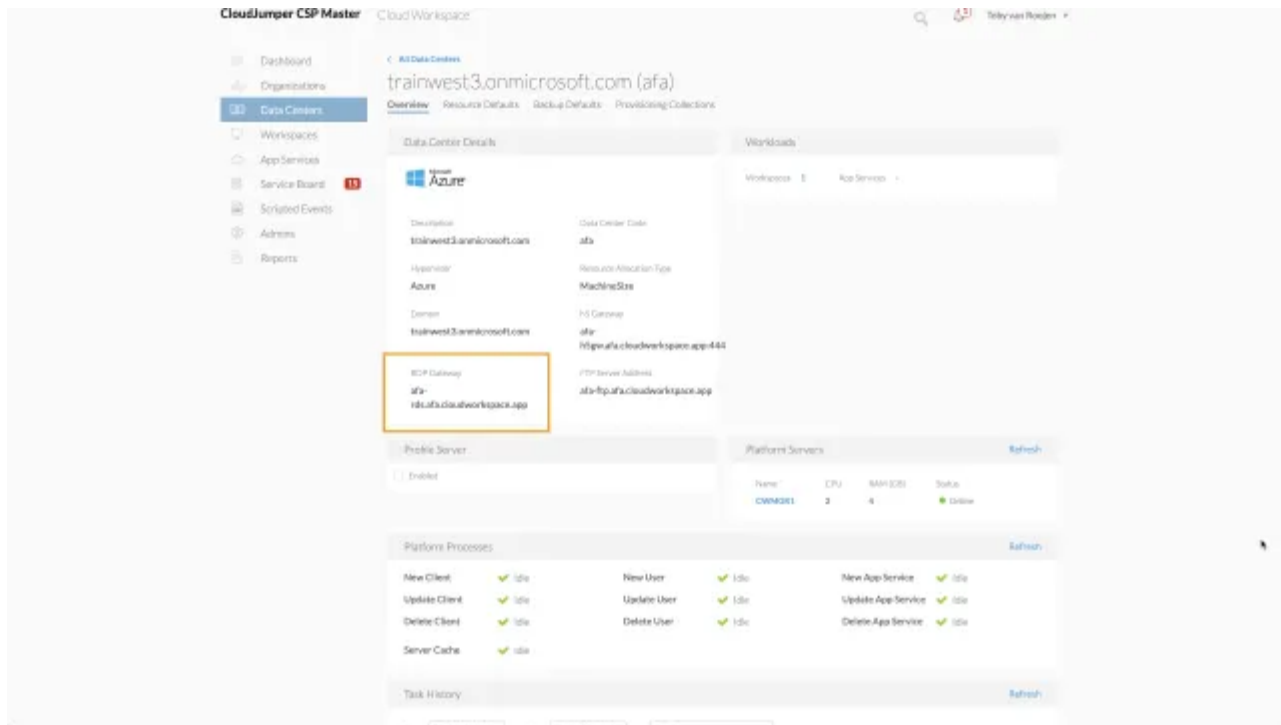
- Username
- Password
- Server Address (a.k.a. PC Name)
- Gateway Address

**Printing:** When configuring a local RDP client, the user can optionally forward their printer to the cloud environment for printing.

**Local File Access:** When manually configuring an RDP client, the user can choose to share specific folders with the Virtual Desktop user session.

### Locating the RDS gateway address

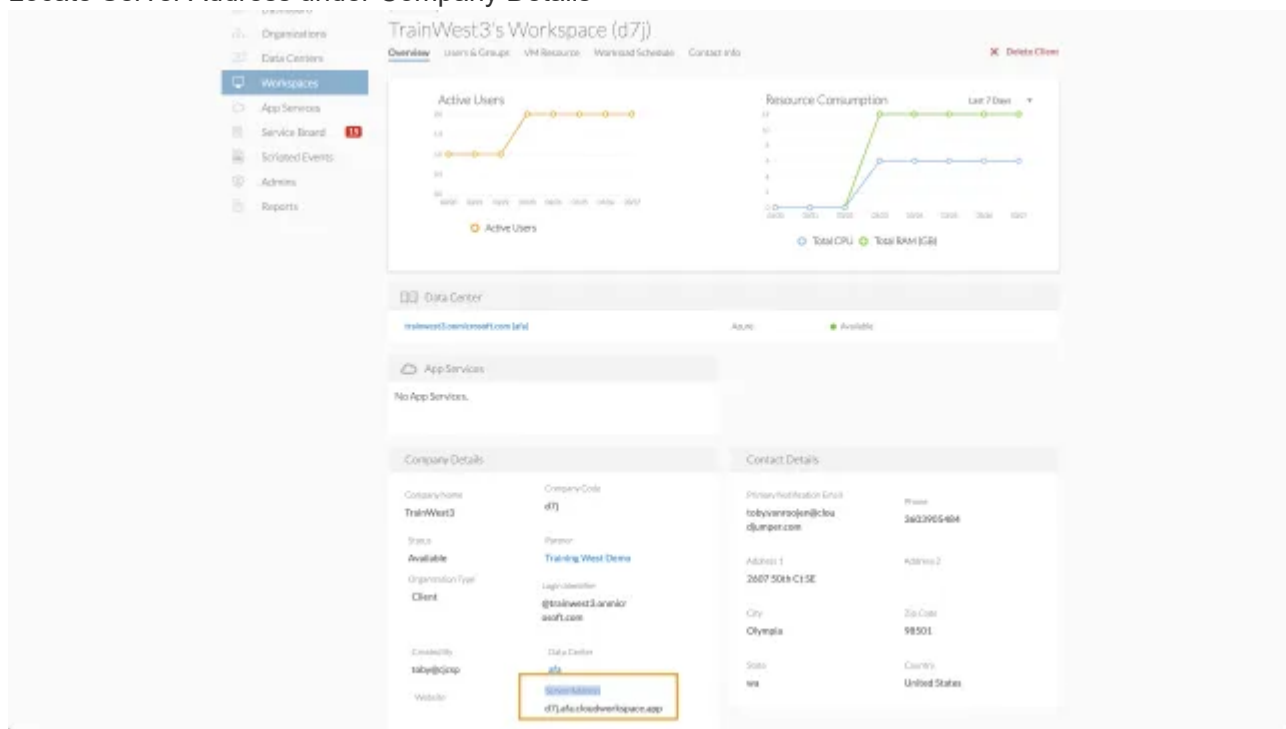
1. Navigate to VDS (<https://manage.cloudworkspace.com>)
2. Click Deployments
3. Click the name of the deployment
4. Locate RDP Gateway under Deployment Details



## Locating the server address for users on a shared session host

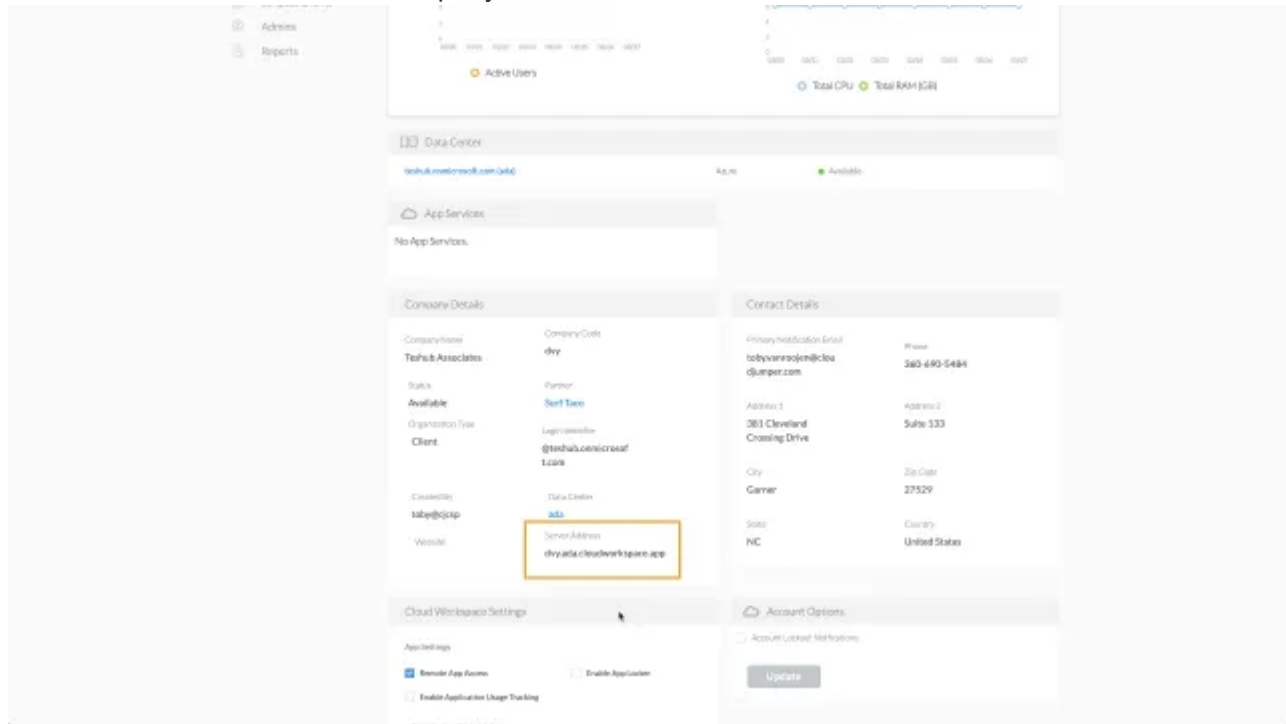
Navigate to VDS (<https://manage.cloudworkspace.com>)

1. Click Workspaces
2. Click the name of the workspace
3. Locate Server Address under Company Details

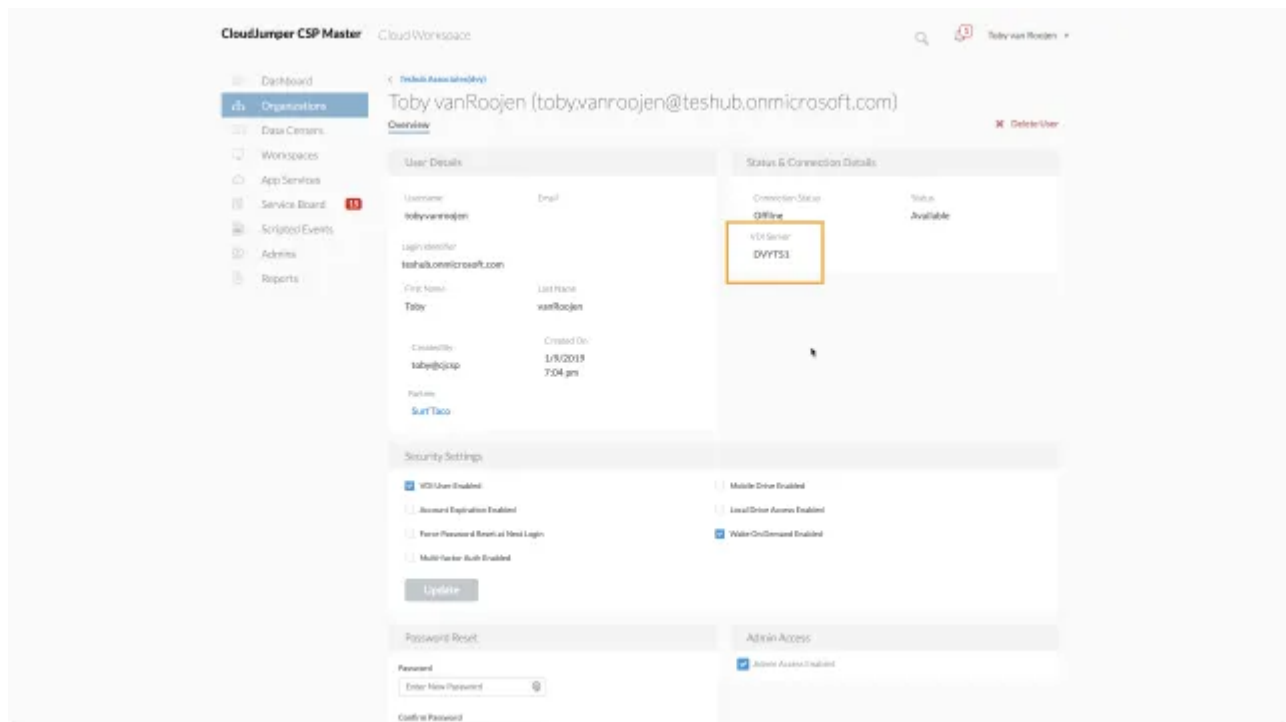


## Locating the server address for VDI users

1. Navigate to VDS (<https://manage.cloudworkspace.com>)
2. Click Workspaces
3. Click the name of the workspace
4. Locate Server Address under Company Details



5. Click on the Users & Groups tab
6. Click on the user name
7. Locate the VDI Server address



8. The server address for this vdi user is the Server address: `dvy.ada.cloudworkspace.app` but with the company code (e.g. `dvy`) replaced with the VDI Server value (e.g. `DVYTS1`)...

e.g. `DVYTS1.ada.cloudworkspace.app`

#### RDS requirements matrix

Type	Operating System	RDS Client Access Method(s)	RDS Web Client
Windows PC	Windows 7 or later with Microsoft RDP 8 App	NetApp VDS Clients Manually Configure Client	<a href="https://login.cloudworkspace.com/">https://login.cloudworkspace.com/</a>
MacOS	MacOS 10.10 or later and Microsoft Remote Desktop 8 App	Manually Configure Client	<a href="https://login.cloudworkspace.com/">https://login.cloudworkspace.com/</a>
iOS	iOS 8.0 or Later and any <a href="#">Remote Desktop App</a> that supports RD Gateways	Manually Configure Client	<a href="https://login.cloudworkspace.com/">https://login.cloudworkspace.com/</a>
Android	Android version capable of running <a href="#">Microsoft Remote Desktop app</a>	Manually Configure Client	<a href="https://login.cloudworkspace.com/">https://login.cloudworkspace.com/</a>
Linux	Virtually all versions with any RDS application that supports RD Gateways	Manually Configure Client	<a href="https://login.cloudworkspace.com/">https://login.cloudworkspace.com/</a>
Thin Client	A wide variety of Thin Clients work, provided they support RD Gateways. Windows-based thin clients are recommended	Manually Configure Client	<a href="https://login.cloudworkspace.com/">https://login.cloudworkspace.com/</a>

#### Comparison matrix

Elements/Features	HTML5 Browser	VDS Client for Windows	MacOS RDP Client	RDP Client on mobile devices	HTML5 Client on mobile devices
Local Drive Access	Click the background, then the cloud icon that appears in the center of the top of the screen	Available in Windows Explorer	Right click edit the RDP. Go to the redirection tab. Then pick a folder that you would like to map. Log into the desktop and it will be displayed as a mapped drive.	N/A	N/A



Elements/Features	HTML5 Browser	VDS Client for Windows	MacOS RDP Client	RDP Client on mobile devices	HTML5 Client on mobile devices
Display Scaling	Can be resized, and will change based on how large the browser window is. This can never be larger than the resolution of the endpoint (primary, endpoint monitor in the event of multiple monitors)	Can be re-scaled, but will always be equal to the screen resolution of the endpoint (primary, endpoint monitor in the event of multiple monitors)	Can be re-scaled, but will always be equal to the screen resolution of the endpoint (primary, endpoint monitor in the event of multiple monitors)	N/A	N/A
Copy/Paste	Enabled through clipboard redirection.	Enabled through clipboard redirection.	Enabled through clipboard redirection. Inside virtual desktop, use control + C or V instead of command + C or V.	Enabled through clipboard redirection.	Enabled through clipboard redirection.
Printer Mapping	Printing handled via a PDF print driver that browsers are using to detect local and network printers	All local and network printers mapped via ThinPrint utility	All local and network printers mapped via ThinPrint utility	All local and network printers mapped via ThinPrint utility	Printing handled via a PDF print driver that browsers are using to detect local and network printers
Performance	RemoteFX (enhancement of audio and video) not enabled	RemoteFX enabled via RDP, enhancing audio/video performance	RemoteFX enabled via RDP, enhancing audio/video performance	RemoteFX enabled, enhancing audio/video performance	RemoteFX (enhancement of audio/video) not enabled
Use of mouse on mobile device	N/A	N/A	N/A	Tap the screen to move the mouse, click	Press and hold the screen and drag to move the mouse, tap to click

## Peripheral devices

### Printing

- The Virtual Desktop Client includes ThinPrint which passes local printers to the cloud desktop seamlessly.
- The HTML5 connection method downloads a PDF in the browser for local printing.
- The Microsoft Remote Desktop 8 App on MacOS allows the user to share printers into the cloud desktop

## USB peripherals

Items such as scanners, cameras, card readers, audio devices have mix results. There is nothing unique about a Virtual Desktop deployment that will prevent this but the best choice is to test any devices that are required. Your Sales Rep can help setup test accounts if required.

## Bandwidth

- NetApp recommends a minimum of 150kb bandwidth per user. Higher capacity will improve the user experience.
- Internet Latency under 100ms and very low Jitter are just as important. KB Article
- Additional bandwidth needs will be introduced by your company's use of VOIP, video streaming, audio streaming, and general Internet browsing.
- The amount of bandwidth consumed by the Virtual Desktop itself will be one of the smallest components when calculating user bandwidth requirements.

## Microsoft bandwidth recommendations

<https://docs.microsoft.com/en-us/azure/virtual-desktop/bandwidth-recommendations>

## App recommendations

Workload	Sample Applications	Recommended Bandwidth
Task worker	Microsoft Word, Outlook, Excel, Adobe Reader	1.5 Mbps
Office worker	Microsoft Word, Outlook, Excel, Adobe Reader, PowerPoint, Photo Viewer	3 Mbps
Knowledge worker	Microsoft Word, Outlook, Excel, Adobe Reader, PowerPoint, Photo Viewer, Java	5 Mbps
Power worker	Microsoft Word, Outlook, Excel, Adobe Reader, PowerPoint, Photo Viewer, Java, CAD/CAM, illustration/publishing	15 Mbps



These recommendations apply regardless of how many users are in the session.

## Display resolution recommendations

Typical display resolutions at 30 fps	Recommended Bandwidth
About 1024 × 768 px	1.5 Mbps
About 1280 × 720 px	3 Mbps
About 1920 × 1080 px	5 Mbps
About 3840 × 2160 px (4K)	15 Mbps

## Local device system resources

- Local system resources like RAM, CPU, Network Cards and Graphics capabilities will cause variation in the user experience.

- This is MOST true of network and Graphics capability.
- 1 GB of RAM and a low-power processor on an inexpensive Windows device. 2-4 GB RAM is a recommended minimum.

## Azure Virtual Desktop

### AVD Windows client

Download the Windows 7/10 client from <https://docs.microsoft.com/en-us/azure/virtual-desktop/connect-windows-7-10> and log in using the end user username and password. Note that Remote App and Desktop Connections (RADC), Remote Desktop Connection (mstsc), and the NetApp VDS Client for Windows application does not currently support the ability to log in to AVD instances.

### AVD web client

In a browser, navigate to the Azure Resource Manager-integrated version of the Azure Virtual Desktop web client at <https://rdweb.AVD.microsoft.com/arm/webclient> and sign in with your user account.



If you're using Azure Virtual Desktop (classic) without Azure Resource Manager integration, connect to your resources at <https://rdweb.AVD.microsoft.com/webclient> instead.

## VDS Change Environments

### Overview

NetApp's Virtual Desktop Service allows organizations to manage deployments on prior releases, to preview future releases and to manage environments running one version prior (N -1 methodology).

### Virtual Desktop Service URLs

Virtual Desktop Service is the management console that administrators can use to manage VDS deployments on an ongoing basis.

Environment	Description	URL	Codebase	API Documentation
Preview	Preview version of the upcoming release	<a href="https://preview.manage.cloudworkspace.com/">https://preview.manage.cloudworkspace.com/</a>	5.4	<a href="https://api.cloudworkspace.com/5.4/swagger/ui/index">https://api.cloudworkspace.com/5.4/swagger/ui/index</a>
Current	Current release	<a href="https://manage.vds.netapp.com/">https://manage.vds.netapp.com/</a>	6.0	<a href="https://api.cloudworkspace.com/6.0/swagger/ui/index">https://api.cloudworkspace.com/6.0/swagger/ui/index</a>
Previous	Previous release	<a href="https://manage.cloudworkspace.com/">https://manage.cloudworkspace.com/</a>	5.4	<a href="https://api.cloudworkspace.com/5.4/swagger/ui/index">https://api.cloudworkspace.com/5.4/swagger/ui/index</a>

### Virtual Desktop Service Deployment

VDS offers a wizard-driven deployment process that allows process allows Administrators to drastically streamline the process of provisioning a AVD and/or virtual desktop environment.

Administrators cannot provision deployments to a Legacy environment – only into a Current or Preview

environment.

Environment	Description	URL	Codebase	Deployment Guide
Current	Current release	<a href="https://manage.vds.netapp.com/deployments/add">https://manage.vds.netapp.com/deployments/add</a>	5.4	<a href="#">VDS v6.0 Deployment Guide</a>
Previous	Previous release	<a href="https://cwasetup.cloudworkspace.com">https://cwasetup.cloudworkspace.com</a>	5.4	Contact Support

## VDS Cost Estimator

The VDS Cost Estimator is a purpose-built, value-added tool that allows organizations to estimate what their public cloud costs will be in either Azure or Google Cloud. The tool includes ways to vary and optimize budgets to deliver the solution needed within an organization's budget.

Environment	Description	URL
Validation	Preview of the upcoming release	<a href="https://val.manage.vds.netapp.com/cost-estimator">https://val.manage.vds.netapp.com/cost-estimator</a>
Current	Current release	<a href="https://manage.vds.netapp.com/cost-estimator">https://manage.vds.netapp.com/cost-estimator</a>

# Script Library Documentation

## Scripted Event Documentation - Adobe Reader DC

### Global Scripts Overview

NetApp VDS includes a library of pre-defined scripted events that can be used directly in VDS environments and/or duplicated and used as the building blocks for custom scripted events.

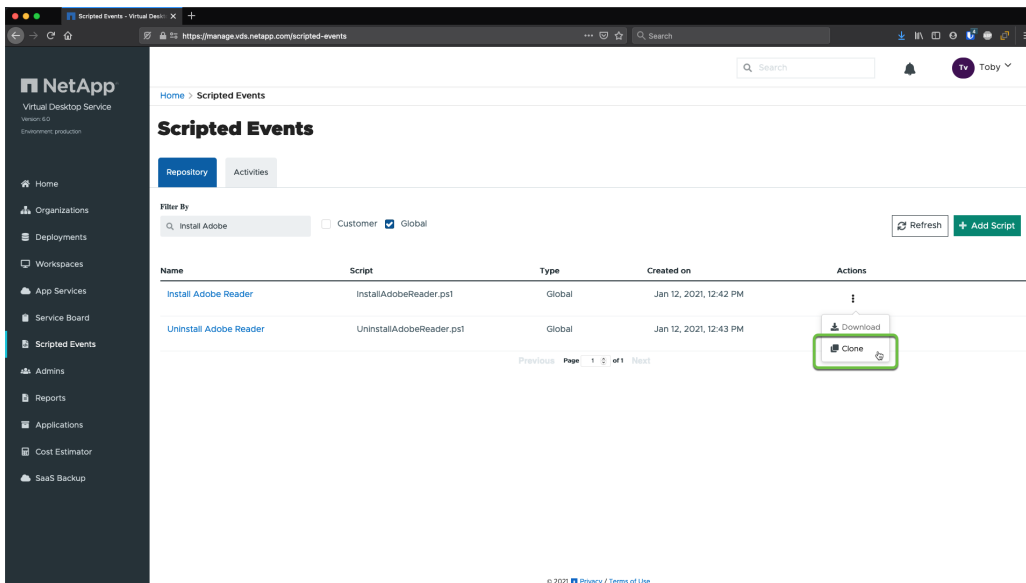
For this application, this article covers both the install/enable and uninstall/disable action.

### Global Script Use

Built-in scripted events such as this one are pre-populated, checking the "global" filter checkbox will display them.

Global Scripted Events such as this one are read-only. They can be used as-is or the "Clone" function can be used to create a customer copy for editing and use.

The Clone button is found in the action menu on the Scripted Events page.



## Adobe Reader DC overview

This script package installs/uninstalls *Adobe Reader DC* using the Chocolatey package manager (<https://chocolatey.org/>) to do the deployment. Chocolatey is deployed by VDS when VMs are created but this script will also check and install Chocolatey as a prerequisite if it is missing.

## Default shortcut path

The default shortcut path will be entered below, for this application the shortcut is: \\shortcuts\Acrobat Reader DC.lnk

## Add activity dialog window screenshot

## Add application install/uninstall activity

In order for a script in the repository to take any action, an activity must be created to associate that script with a selected trigger. In this example activity will install/uninstall this application when the app is added to or

removed from the workspace (from the *Workspace > Applications* page in VDS).

VDS scripted events offers many other types of activity triggers such as *Create Server* which could be used as an alternative to the *Application Install* (or *Application Uninstall*) event type. Using *Create Server* would simply run this app install against all newly created VMs in VDS. *Create Server* and other triggers are documented and can be explored [here](#).



This application will need to be present in the VDS application library. This [section](#) of the app entitlement for RDS article covers adding apps to the library.

#### To create an activity and link this script to an action:

1. Navigate to the *Scripted Events* section in VDS
2. Under *Activities* click + *Add Activity*
3. In the opened dialog window enter the following information:
  - **Name:** Name this activity
  - **Description:** Optionally enter a description
  - **Deployment** Select the desired deployment from dropdown
  - **Script:** Select the install (or uninstall) script from the dropdown. This could be the global script or customer script you've cloned and customized.
  - **Arguments:** Leave blank
  - **Enabled checkbox:** Check the box
  - **Event Type:** Select *Application Install* (or *Application Uninstall*) from dropdown
  - **Application:** Select this application from dropdown
  - **Shortcut Path:** Enter the default shortcut path for this application (noted above)

## Scripted Event Documentation - AMD Radeon Instinct Drivers

### Global Scripts Overview

NetApp VDS includes a library of pre-defined scripted events that can be used directly in VDS environments and/or duplicated and used as the building blocks for custom scripted events.

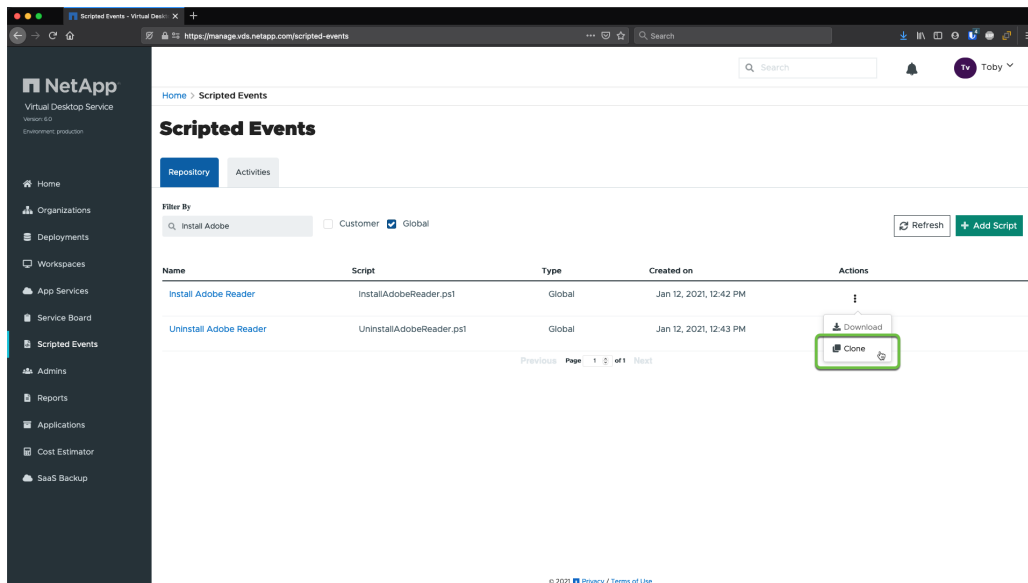
For this application, this article covers both the install/enable and uninstall/disable action.

### Global Script Use

Built-in scripted events such as this one are pre-populated, checking the "global" filter checkbox will display them.

Global Scripted Events such as this one are read-only. They can be used as-is or the "Clone" function can be used to create a customer copy for editing and use.

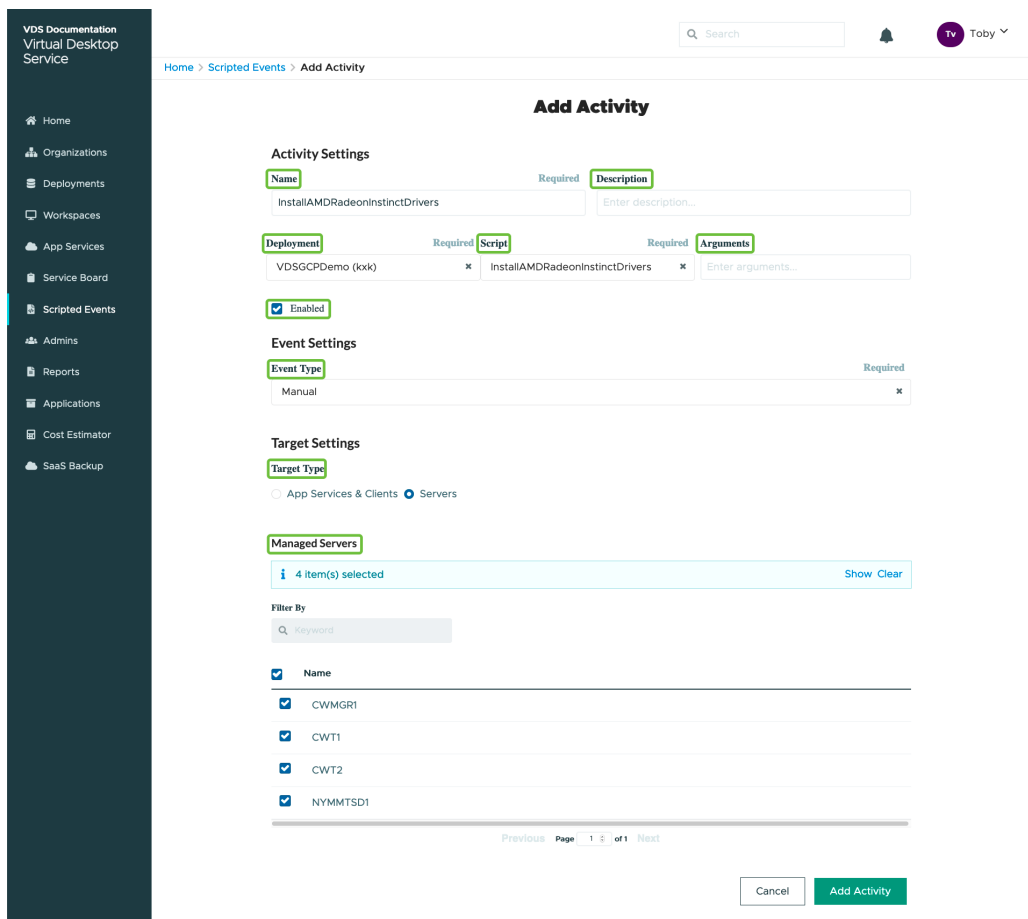
The Clone button is found in the action menu on the Scripted Events page.



## AMD Radeon Instinct Drivers overview

This script package installs/uninstalls *AMD Radeon Instinct Drivers* using the Chocolatey package manager (<https://chocolatey.org/>) to do the deployment. Chocolatey is deployed by VDS when VMs are created but this script will also check and install Chocolatey as a prerequisite if it is missing.

## Add activity dialog window screenshot



## Add Manual activity

In order for a script in the repository to take any action, an activity must be created to associate that script with a selected trigger. In this example activity runs when the VDS admin manually triggers the script.

VDS scripted events offers many other types of activity triggers such as *Create Server* which could be used as an alternative to the *Manual* event type. Using *Create Server* would simply execute this script on all newly created VMs in VDS. *Create Server* and other triggers are documented and can be explored [here](#).

### To create an Activity and link this script to an action:

1. Navigate to the Scripted Events section in VDS
2. Under *Activities* click + *Add Activity*
3. In the opened dialog window enter the following information:
  - **Name:** Name this activity
  - **Description:** Optionally enter a description
  - **Deployment** Select the desired deployment from dropdown
  - **Script:** Select the install (or uninstall) script from the dropdown. This could be the global script or customer script you've cloned and customized.
  - **Arguments:** Leave blank
  - **Enabled checkbox:** Check the box
  - **Event Type:** Select `Manual` from dropdown
  - **Target Type:** Select the `Servers` radio button
  - **Managed Servers:** Check the box for each VM that should receive this uninstall.

## Scripted Event Documentation - Ezeep Print App

### Global Scripts Overview

NetApp VDS includes a library of pre-defined scripted events that can be used directly in VDS environments and/or duplicated and used as the building blocks for custom scripted events.

For this application, this article covers both the install/enable and uninstall/disable action.

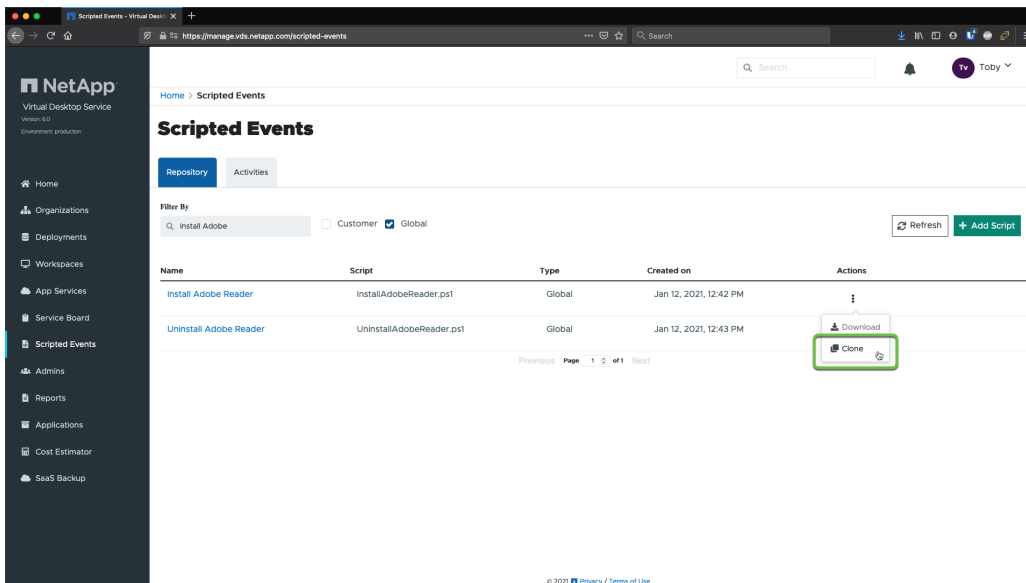
### Global Script Use

Built-in scripted events such as this one are pre-populated, checking the "global" filter checkbox will display them.

Global Scripted Events such as this one are read-only. They can be used as-is or the "Clone" function can be used to create a customer copy for editing and use.

The Clone button is found in the action menu on the Scripted Events page.





## Ezeep Print App overview

This script package installs/uninstalls *Ezeep Print App* using the Chocolatey package manager (<https://chocolatey.org/>) to do the deployment. Chocolatey is deployed by VDS when VMs are created but this script will also check and install Chocolatey as a prerequisite if it is missing.

### Default shortcut path

The default shortcut path will be entered below, for this application the shortcut is: \\shortcuts\Printer Self Service.lnk

### Add activity dialog window screenshot

### Add application install/uninstall activity

In order for a script in the repository to take any action, an activity must be created to associate that script with a selected trigger. In this example activity will install/uninstall this application when the app is added to or

removed from the workspace (from the *Workspace > Applications* page in VDS).

VDS scripted events offers many other types of activity triggers such as *Create Server* which could be used as an alternative to the *Application Install* (or *Application Uninstall*) event type. Using *Create Server* would simply run this app install against all newly created VMs in VDS. *Create Server* and other triggers are documented and can be explored [here](#).



This application will need to be present in the VDS application library. This [section](#) of the app entitlementment for RDS article covers adding apps to the library.

#### To create an activity and link this script to an action:

1. Navigate to the *Scripted Events* section in VDS
2. Under *Activities* click + *Add Activity*
3. In the opened dialog window enter the following information:
  - **Name:** Name this activity
  - **Description:** Optionally enter a description
  - **Deployment** Select the desired deployment from dropdown
  - **Script:** Select the install (or uninstall) script from the dropdown. This could be the global script or customer script you've cloned and customized.
  - **Arguments:** Leave blank
  - **Enabled checkbox:** Check the box
  - **Event Type:** Select *Application Install* (or *Application Uninstall*) from dropdown
  - **Application:** Select this application from dropdown
  - **Shortcut Path:** Enter the default shortcut path for this application (noted above)

## Scripted Event Documentation - Google Chrome

### Global Scripts Overview

NetApp VDS includes a library of pre-defined scripted events that can be used directly in VDS environments and/or duplicated and used as the building blocks for custom scripted events.

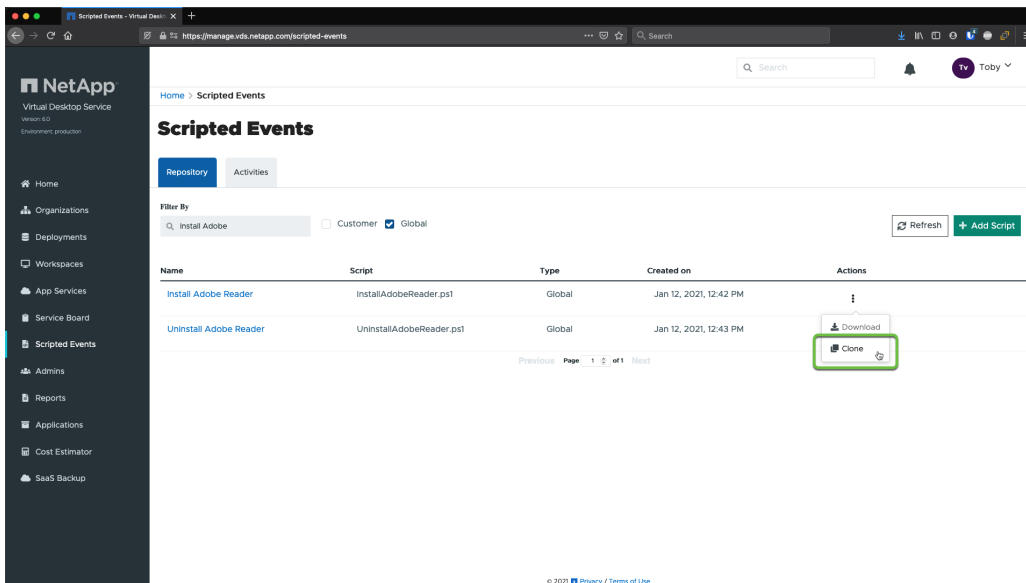
For this application, this article covers both the install/enable and uninstall/disable action.

### Global Script Use

Built-in scripted events such as this one are pre-populated, checking the "global" filter checkbox will display them.

Global Scripted Events such as this one are read-only. They can be used as-is or the "Clone" function can be used to create a customer copy for editing and use.

The Clone button is found in the action menu on the Scripted Events page.



## Google Chrome overview

This script package installs/uninstalls *Google Chrome* using the Chocolatey package manager (<https://chocolatey.org/>) to do the deployment. Chocolatey is deployed by VDS when VMs are created but this script will also check and install Chocolatey as a prerequisite if it is missing.

## Default shortcut path

The default shortcut path will be entered below, for this application the shortcut is: `\\shortcuts\Google Chrome.lnk`

## Add activity dialog window screenshot

## Add application install/uninstall activity

In order for a script in the repository to take any action, an activity must be created to associate that script with a selected trigger. In this example activity will install/uninstall this application when the app is added to or

removed from the workspace (from the *Workspace > Applications* page in VDS).

VDS scripted events offers many other types of activity triggers such as *Create Server* which could be used as an alternative to the *Application Install* (or *Application Uninstall*) event type. Using *Create Server* would simply run this app install against all newly created VMs in VDS. *Create Server* and other triggers are documented and can be explored [here](#).



This application will need to be present in the VDS application library. This [section](#) of the app entitlement for RDS article covers adding apps to the library.

#### To create an activity and link this script to an action:

1. Navigate to the *Scripted Events* section in VDS
2. Under *Activities* click + *Add Activity*
3. In the opened dialog window enter the following information:
  - **Name:** Name this activity
  - **Description:** Optionally enter a description
  - **Deployment** Select the desired deployment from dropdown
  - **Script:** Select the install (or uninstall) script from the dropdown. This could be the global script or customer script you've cloned and customized.
  - **Arguments:** Leave blank
  - **Enabled checkbox:** Check the box
  - **Event Type:** Select *Application Install* (or *Application Uninstall*) from dropdown
  - **Application:** Select this application from dropdown
  - **Shortcut Path:** Enter the default shortcut path for this application (noted above)

## Scripted Event Documentation - Microsoft Edge Chromium

### Global Scripts Overview

NetApp VDS includes a library of pre-defined scripted events that can be used directly in VDS environments and/or duplicated and used as the building blocks for custom scripted events.

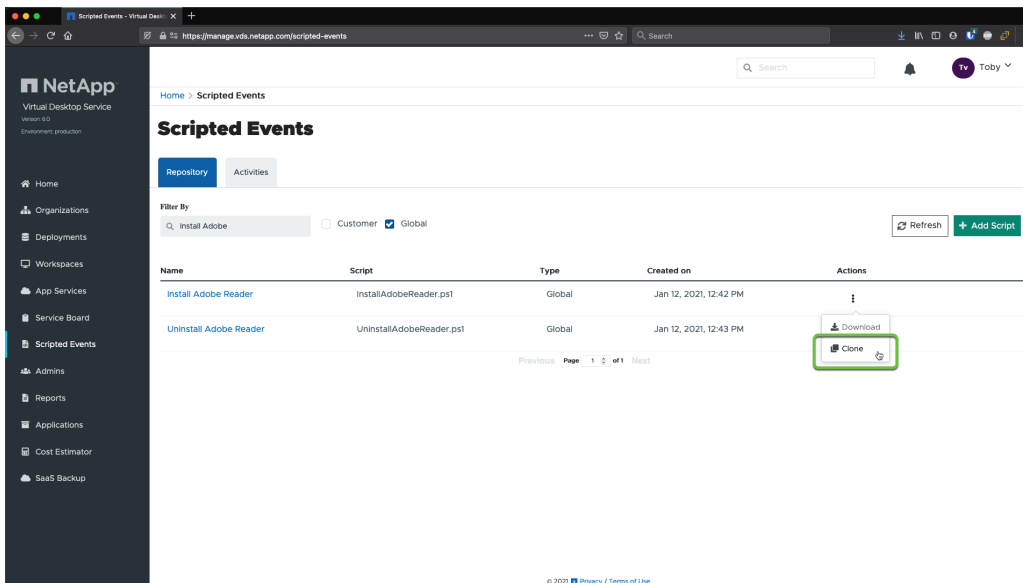
For this application, this article covers both the install/enable and uninstall/disable action.

### Global Script Use

Built-in scripted events such as this one are pre-populated, checking the "global" filter checkbox will display them.

Global Scripted Events such as this one are read-only. They can be used as-is or the "Clone" function can be used to create a customer copy for editing and use.

The Clone button is found in the action menu on the Scripted Events page.



## Microsoft Edge Chromium overview

This script package installs/uninstalls *Microsoft Edge Chromium* using the Chocolatey package manager (<https://chocolatey.org/>) to do the deployment. Chocolatey is deployed by VDS when VMs are created but this script will also check and install Chocolatey as a prerequisite if it is missing.

### Default shortcut path

The default shortcut path will be entered below, for this application the shortcut is: \\shortcuts\Microsoft Edge.lnk

### Add activity dialog window screenshot

### Add application install/uninstall activity

In order for a script in the repository to take any action, an activity must be created to associate that script with a selected trigger. In this example activity will install/uninstall this application when the app is added to or

removed from the workspace (from the *Workspace > Applications* page in VDS).

VDS scripted events offers many other types of activity triggers such as *Create Server* which could be used as an alternative to the *Application Install* (or *Application Uninstall*) event type. Using *Create Server* would simply run this app install against all newly created VMs in VDS. *Create Server* and other triggers are documented and can be explored [here](#).



This application will need to be present in the VDS application library. This [section](#) of the app entitlement for RDS article covers adding apps to the library.

#### To create an activity and link this script to an action:

1. Navigate to the *Scripted Events* section in VDS
2. Under *Activities* click + *Add Activity*
3. In the opened dialog window enter the following information:
  - **Name:** Name this activity
  - **Description:** Optionally enter a description
  - **Deployment** Select the desired deployment from dropdown
  - **Script:** Select the install (or uninstall) script from the dropdown. This could be the global script or customer script you've cloned and customized.
  - **Arguments:** Leave blank
  - **Enabled checkbox:** Check the box
  - **Event Type:** Select *Application Install* (or *Application Uninstall*) from dropdown
  - **Application:** Select this application from dropdown
  - **Shortcut Path:** Enter the default shortcut path for this application (noted above)

## Scripted Event Documentation - Microsoft Office 365

### Global Scripts Overview

NetApp VDS includes a library of pre-defined scripted events that can be used directly in VDS environments and/or duplicated and used as the building blocks for custom scripted events.

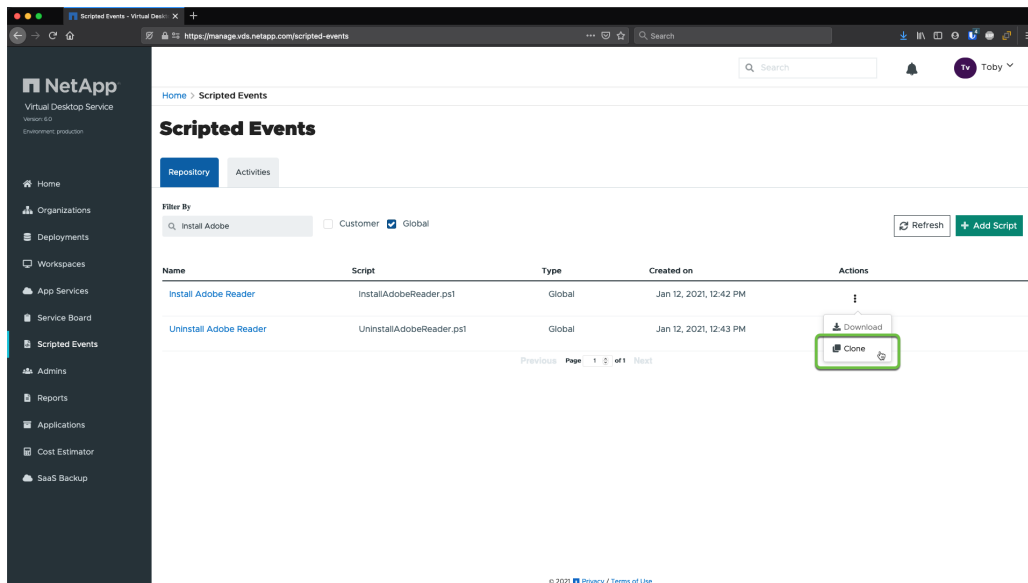
For this application, this article covers both the install/enable and uninstall/disable action.

### Global Script Use

Built-in scripted events such as this one are pre-populated, checking the "global" filter checkbox will display them.

Global Scripted Events such as this one are read-only. They can be used as-is or the "Clone" function can be used to create a customer copy for editing and use.

The Clone button is found in the action menu on the Scripted Events page.



## Microsoft Office 365 overview

This script package installs/uninstalls *Microsoft Office* using the Chocolatey package manager (<https://chocolatey.org/>) to do the deployment. Chocolatey is deployed by VDS when VMs are created but this script will also check and install Chocolatey as a prerequisite if it is missing.



This Microsoft Office 365 install script does not include Microsoft Teams or Microsoft One Drive. These are included as stand-alone automated scripts to allow for greater flexibility as some deployments do not require these applications. This deployment can be copied and edited to include them (or to change any other [Office Deployment Tool](#) settings) by cloning the Script from VDS and editing the InstallMicrosoftOffice365.ps1 to input different values into the xml config file.

### Default shortcut path

The default shortcut path will be entered below, for this application the shortcut is: `\\folders\Microsoft Office`

### Add activity dialog window screenshot

### Add application install/uninstall activity

In order for a script in the repository to take any action, an activity must be created to associate that script with a selected trigger. In this example activity will install/uninstall this application when the app is added to or removed from the workspace (from the *Workspace > Applications* page in VDS).

VDS scripted events offers many other types of activity triggers such as *Create Server* which could be used as an alternative to the *Application Install* (or *Application Uninstall*) event type. Using *Create Server* would simply run this app install against all newly created VMs in VDS. *Create Server* and other triggers are documented and can be explored [here](#).



This application will need to be present in the VDS application library. This [section](#) of the app entitlement for RDS article covers adding apps to the library.

#### To create an activity and link this script to an action:

1. Navigate to the *Scripted Events* section in VDS
2. Under *Activities* click + *Add Activity*
3. In the opened dialog window enter the following information:
  - **Name:** Name this activity
  - **Description:** Optionally enter a description
  - **Deployment** Select the desired deployment from dropdown
  - **Script:** Select the install (or uninstall) script from the dropdown. This could be the global script or customer script you've cloned and customized.
  - **Arguments:** Leave blank
  - **Enabled checkbox:** Check the box
  - **Event Type:** Select *Application Install* (or *Application Uninstall*) from dropdown
  - **Application:** Select this application from dropdown
  - **Shortcut Path:** Enter the default shortcut path for this application (noted above)



# Scripted Event Documentation - Microsoft OneDrive

## Global Scripts Overview

NetApp VDS includes a library of pre-defined scripted events that can be used directly in VDS environments and/or duplicated and used as the building blocks for custom scripted events.

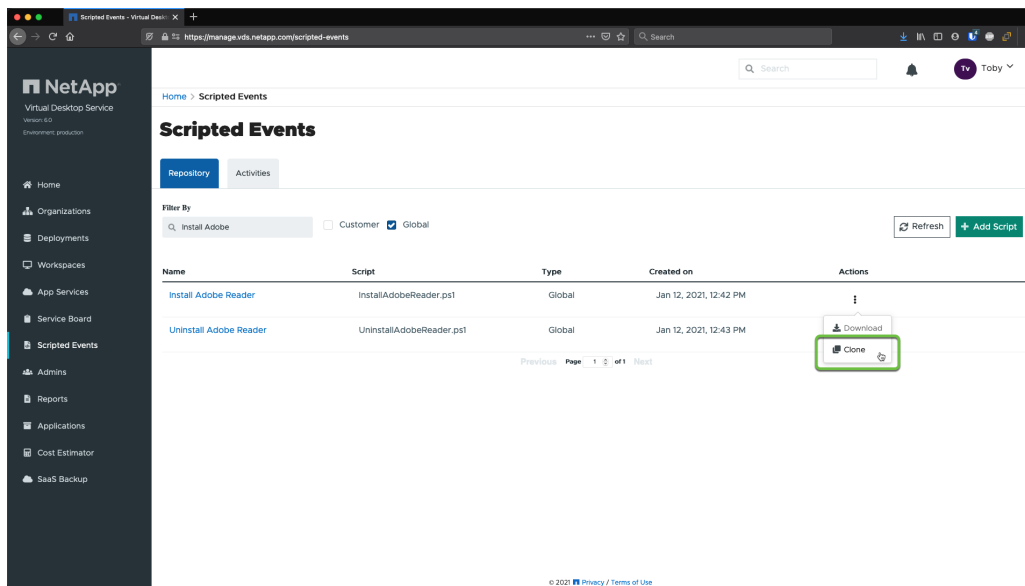
For this application, this article covers both the install/enable and uninstall/disable action.

## Global Script Use

Built-in scripted events such as this one are pre-populated, checking the "global" filter checkbox will display them.

Global Scripted Events such as this one are read-only. They can be used as-is or the "Clone" function can be used to create a customer copy for editing and use.

The Clone button is found in the action menu on the Scripted Events page.



## Microsoft OneDrive overview

This script package installs/uninstalls *Microsoft OneDrive* using the Chocolatey package manager (<https://chocolatey.org/>) to do the deployment. Chocolatey is deployed by VDS when VMs are created but this script will also check and install Chocolatey as a prerequisite if it is missing.

## Default shortcut path

The default shortcut path will be entered below, for this application the shortcut is:

```
\\shortcuts\OneDrive.lnk
```

## Add activity dialog window screenshot

**Add Activity**

**Activity Settings**

**Name** Required **Description**  
 InstallMicrosoftOneDrive

**Deployment** Required **Script** Required **Arguments**  
 VDSGCPDemo (kok) × InstallMicrosoftOneDrive ×

☒ **Enabled**

**Event Settings**

**Event Type** Required  
 Application Install ×

**Target Settings**

**Application** Required  
 Microsoft OneDrive ×

**Shortcut Path** Required

### Add application install/uninstall activity

In order for a script in the repository to take any action, an activity must be created to associate that script with a selected trigger. In this example activity will install/uninstall this application when the app is added to or removed from the workspace (from the *Workspace > Applications* page in VDS).

VDS scripted events offers many other types of activity triggers such as *Create Server* which could be used as an alternative to the *Application Install* (or *Application Uninstall*) event type. Using *Create Server* would simply run this app install against all newly created VMs in VDS. *Create Server* and other triggers are documented and can be explored [here](#).



This application will need to be present in the VDS application library. This [section](#) of the app entitlement for RDS article covers adding apps to the library.

#### To create an activity and link this script to an action:

1. Navigate to the *Scripted Events* section in VDS
2. Under *Activities* click + *Add Activity*
3. In the opened dialog window enter the following information:
  - **Name:** Name this activity
  - **Description:** Optionally enter a description
  - **Deployment** Select the desired deployment from dropdown
  - **Script:** Select the install (or uninstall) script from the dropdown. This could be the global script or customer script you've cloned and customized.
  - **Arguments:** Leave blank
  - **Enabled checkbox:** Check the box
  - **Event Type:** Select *Application Install* (or *Application Uninstall*) from dropdown
  - **Application:** Select this application from dropdown
  - **Shortcut Path:** Enter the default shortcut path for this application (noted above)

# Scripted Event Documentation - Microsoft Teams

## Global Scripts Overview

NetApp VDS includes a library of pre-defined scripted events that can be used directly in VDS environments and/or duplicated and used as the building blocks for custom scripted events.

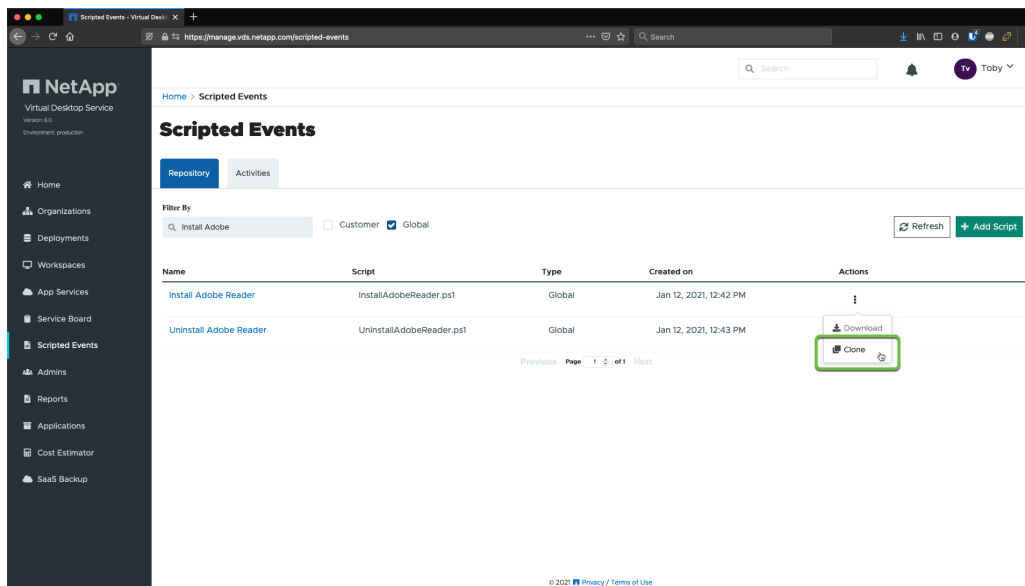
For this application, this article covers both the install/enable and uninstall/disable action.

## Global Script Use

Built-in scripted events such as this one are pre-populated, checking the "global" filter checkbox will display them.

Global Scripted Events such as this one are read-only. They can be used as-is or the "Clone" function can be used to create a customer copy for editing and use.

The Clone button is found in the action menu on the Scripted Events page.



## Microsoft Teams overview

This script package installs/uninstalls *Microsoft Teams* using the Chocolatey package manager (<https://chocolatey.org/>) to do the deployment. Chocolatey is deployed by VDS when VMs are created but this script will also check and install Chocolatey as a prerequisite if it is missing.



This Microsoft Teams install is specifically configured for deployments into an RDS environment. A different Microsoft Teams script is provided for AVD deployments.

## Default shortcut path

The default shortcut path will be entered below, for this application the shortcut is: \\shortcut\Microsoft Teams.lnk

## Add application install/uninstall activity

In order for a script in the repository to take any action, an activity must be created to associate that script with

a selected trigger. In this example activity will install/uninstall this application when the app is added to or removed from the workspace (from the *Workspace > Applications* page in VDS).

VDS scripted events offers many other types of activity triggers such as *Create Server* which could be used as an alternative to the *Application Install* (or *Application Uninstall*) event type. Using *Create Server* would simply run this app install against all newly created VMs in VDS. *Create Server* and other triggers are documented and can be explored [here](#).



This application will need to be present in the VDS application library. This [section](#) of the app entitlement for RDS article covers adding apps to the library.

#### To create an activity and link this script to an action:

1. Navigate to the *Scripted Events* section in VDS
2. Under *Activities* click + *Add Activity*
3. In the opened dialog window enter the following information:
  - **Name:** Name this activity
  - **Description:** Optionally enter a description
  - **Deployment** Select the desired deployment from dropdown
  - **Script:** Select the install (or uninstall) script from the dropdown. This could be the global script or customer script you've cloned and customized.
  - **Arguments:** Leave blank
  - **Enabled checkbox:** Check the box
  - **Event Type:** Select *Application Install* (or *Application Uninstall*) from dropdown
  - **Application:** Select this application from dropdown
  - **Shortcut Path:** Enter the default shortcut path for this application (noted above)

## Scripted Event Documentation - Microsoft Teams for AVD

### Global Scripts Overview

NetApp VDS includes a library of pre-defined scripted events that can be used directly in VDS environments and/or duplicated and used as the building blocks for custom scripted events.

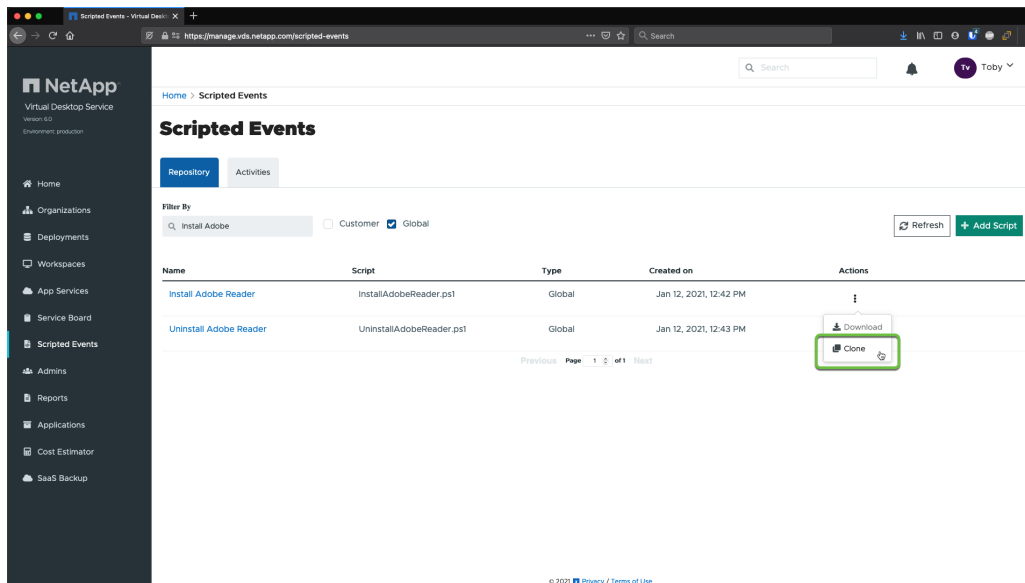
For this application, this article covers both the install/enable and uninstall/disable action.

### Global Script Use

Built-in scripted events such as this one are pre-populated, checking the "global" filter checkbox will display them.

Global Scripted Events such as this one are read-only. They can be used as-is or the "Clone" function can be used to create a customer copy for editing and use.

The Clone button is found in the action menu on the Scripted Events page.



## Microsoft Teams for AVD overview

This script package installs/uninstalls *Microsoft Teams AVD* using the Chocolatey package manager (<https://chocolatey.org/>) to do the deployment. Chocolatey is deployed by VDS when VMs are created but this script will also check and install Chocolatey as a prerequisite if it is missing.



This Microsoft Teams install is specifically configured for deployments into a AVD environment with customizations and components specific to AVD in Azure. [A different Microsoft Teams script](#) is provided for RDS deployments.

### Default shortcut path

The default shortcut path will be entered below, for this application the shortcut is: \\shortcut\Microsoft Teams AVD.lnk

### Add activity dialog window screenshot

[scriptlibrary.activity.InstallMicrosoftTeamsAVD] | *scriptlibrary.activity.InstallMicrosoftTeamsAVD.png*

### Add application install/uninstall activity

In order for a script in the repository to take any action, an activity must be created to associate that script with a selected trigger. In this example activity will install/uninstall this application when the app is added to or removed from the workspace (from the *Workspace > Applications* page in VDS).

VDS scripted events offers many other types of activity triggers such as *Create Server* which could be used as an alternative to the *Application Install* (or *Application Uninstall*) event type. Using *Create Server* would simply run this app install against all newly created VMs in VDS. *Create Server* and other triggers are documented and can be explored [here](#).



This application will need to be present in the VDS application library. This [section](#) of the app entitlementment for RDS article covers adding apps to the library.

### To create an activity and link this script to an action:

1. Navigate to the *Scripted Events* section in VDS

2. Under *Activities* click *+ Add Activity*

3. In the opened dialog window enter the following information:

- **Name:** Name this activity
- **Description:** Optionally enter a description
- **Deployment** Select the desired deployment from dropdown
- **Script:** Select the install (or uninstall) script from the dropdown. This could be the global script or customer script you've cloned and customized.
- **Arguments:** Leave blank
- **Enabled checkbox:** Check the box
- **Event Type:** Select *Application Install* (or *Application Uninstall*) from dropdown
- **Application:** Select this application from dropdown
- **Shortcut Path:** Enter the default shortcut path for this application (noted above)

## Scripted Event Documentation - Nvidia Cuda Drivers

### Global Scripts Overview

NetApp VDS includes a library of pre-defined scripted events that can be used directly in VDS environments and/or duplicated and used as the building blocks for custom scripted events.

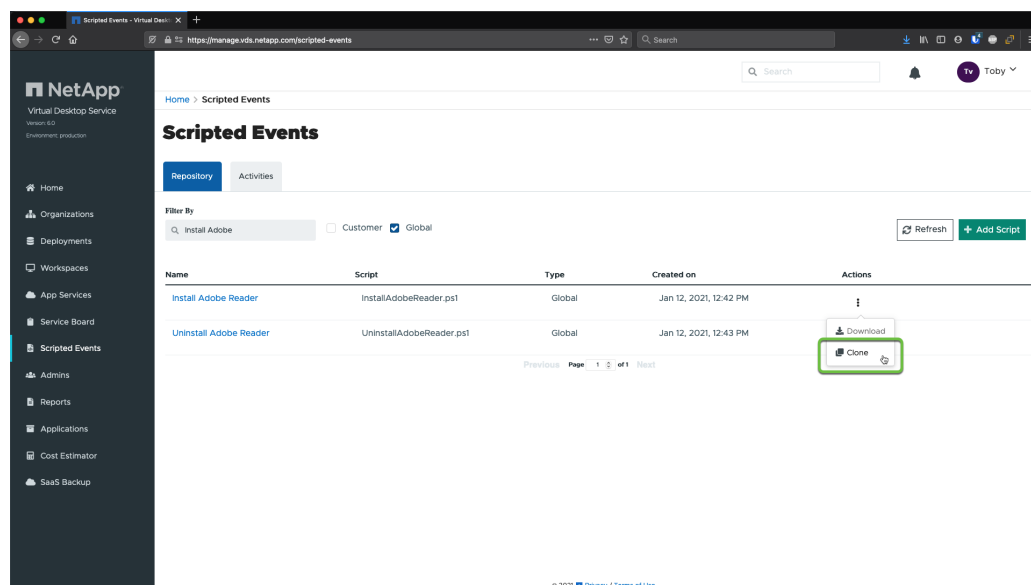
For this application, this article covers both the install/enable and uninstall/disable action.

### Global Script Use

Built-in scripted events such as this one are pre-populated, checking the "global" filter checkbox will display them.

Global Scripted Events such as this one are read-only. They can be used as-is or the "Clone" function can be used to create a customer copy for editing and use.

The Clone button is found in the action menu on the Scripted Events page.



## Nvidia Cuda drivers overview

This script package installs/uninstalls *Nvidia Cuda Drivers* using the Chocolatey package manager (<https://chocolatey.org/>) to do the deployment. Chocolatey is deployed by VDS when VMs are created but this script will also check and install Chocolatey as a prerequisite if it is missing.

### Add activity dialog window screenshot

The screenshot shows the 'Add Activity' dialog window in the VDS interface. The window is titled 'Add Activity' and contains several sections:

- Activity Settings:** Includes fields for Name (InstallNvidiaCudaDrivers), Description (empty), Deployment (VDSGCPDemo (xxx)), Script (InstallNvidiaCudaDrivers), and Arguments (empty).
- Event Settings:** Includes a field for Event Type (Manual).
- Target Settings:** Includes a field for Target Type (Servers).
- Managed Servers:** Shows a list of 4 selected servers: CWMGR1, CWT1, CWT2, and NYMMTSD1.

The 'Add Activity' button is highlighted in green.

### Add Manual activity

In order for a script in the repository to take any action, an activity must be created to associate that script with a selected trigger. In this example activity runs when the VDS admin manually triggers the script.

VDS scripted events offers many other types of activity triggers such as *Create Server* which could be used as an alternative to the *Manual* event type. Using *Create Server* would simply execute this script on all newly created VMs in VDS. *Create Server* and other triggers are documented and can be explored [here](#).

### To create an Activity and link this script to an action:

1. Navigate to the Scripted Events section in VDS
2. Under *Activities* click + *Add Activity*
3. In the opened dialog window enter the following information:
  - **Name:** Name this activity
  - **Description:** Optionally enter a description
  - **Deployment** Select the desired deployment from dropdown
  - **Script:** Select the install (or uninstall) script from the dropdown. This could be the global script or customer script you've cloned and customized.
  - **Arguments:** Leave blank

- **Enabled checkbox:** Check the box
- **Event Type:** Select Manual from dropdown
- **Target Type:** Select the Servers radio button
- **Managed Servers:** Check the box for each VM that should receive this uninstall.

## Scripted Event Documentation - Nvidia GRID Drivers

### Global Scripts Overview

NetApp VDS includes a library of pre-defined scripted events that can be used directly in VDS environments and/or duplicated and used as the building blocks for custom scripted events.

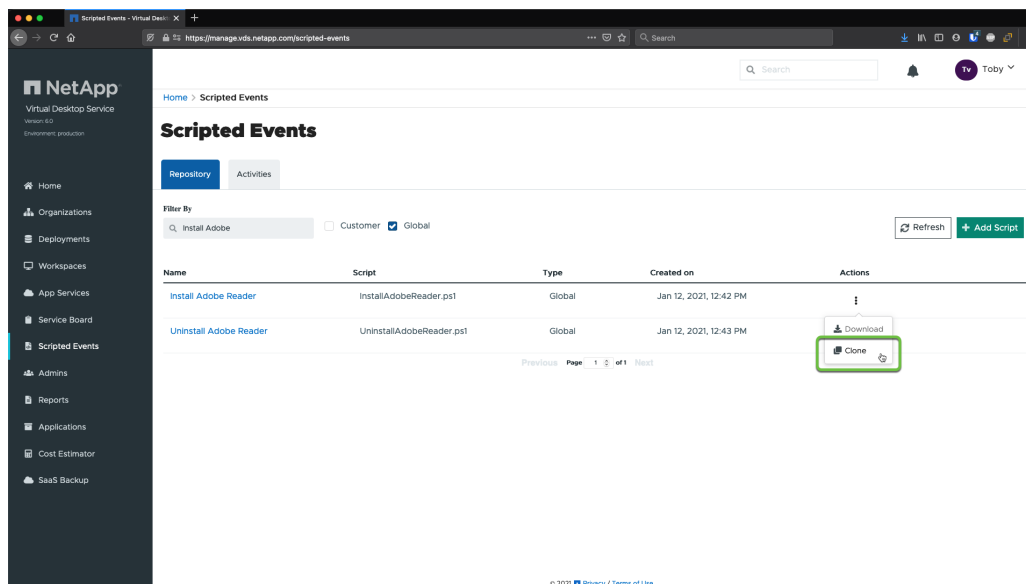
For this application, this article covers both the install/enable and uninstall/disable action.

### Global Script Use

Built-in scripted events such as this one are pre-populated, checking the "global" filter checkbox will display them.

Global Scripted Events such as this one are read-only. They can be used as-is or the "Clone" function can be used to create a customer copy for editing and use.

The Clone button is found in the action menu on the Scripted Events page.



### Nvidia GRID drivers overview

This script package installs/uninstalls *Nvidia GRID Drivers* using the Chocolatey package manager (<https://chocolatey.org/>) to do the deployment. Chocolatey is deployed by VDS when VMs are created but this script will also check and install Chocolatey as a prerequisite if it is missing.

### Add activity dialog window screenshot



**Add Activity**

**Activity Settings**

**Name** (Required): InstallNvidiaGridDrivers

**Description** (Required): Enter description...

**Deployment** (Required): VDSGCPDemo (xxx)

**Script** (Required): InstallNvidiaGridDrivers

**Arguments** (Required): Enter arguments...

☒ **Enabled**

**Event Settings**

**Event Type** (Required): Manual

**Target Settings**

**Target Type**: ☐ App Services & Clients ☒ Servers

**Managed Servers**

4 item(s) selected [Show](#) [Clear](#)

**Filter By**

☒ **Name**

- ☒ CWMGR1
- ☒ CWT1
- ☒ CWT2
- ☒ NYMMTSD1

Previous Page 1 of 1 Next

[Cancel](#) [Add Activity](#)

## Add Manual activity

In order for a script in the repository to take any action, an activity must be created to associate that script with a selected trigger. In this example activity runs when the VDS admin manually triggers the script.

VDS scripted events offers many other types of activity triggers such as *Create Server* which could be used as an alternative to the *Manual* event type. Using *Create Server* would simply execute this script on all newly created VMs in VDS. *Create Server* and other triggers are documented and can be explored [here](#).

### To create an Activity and link this script to an action:

1. Navigate to the Scripted Events section in VDS
2. Under *Activities* click + *Add Activity*
3. In the opened dialog window enter the following information:
  - **Name:** Name this activity
  - **Description:** Optionally enter a description
  - **Deployment** Select the desired deployment from dropdown
  - **Script:** Select the install (or uninstall) script from the dropdown. This could be the global script or customer script you've cloned and customized.
  - **Arguments:** Leave blank
  - **Enabled checkbox:** Check the box
  - **Event Type:** Select *Manual* from dropdown
  - **Target Type:** Select the *Servers* radio button
  - **Managed Servers:** Check the box for each VM that should receive this uninstall.

# Scripted Event Documentation - AVD Screen Capture Protection

## Global Scripts Overview

NetApp VDS includes a library of pre-defined scripted events that can be used directly in VDS environments and/or duplicated and used as the building blocks for custom scripted events.

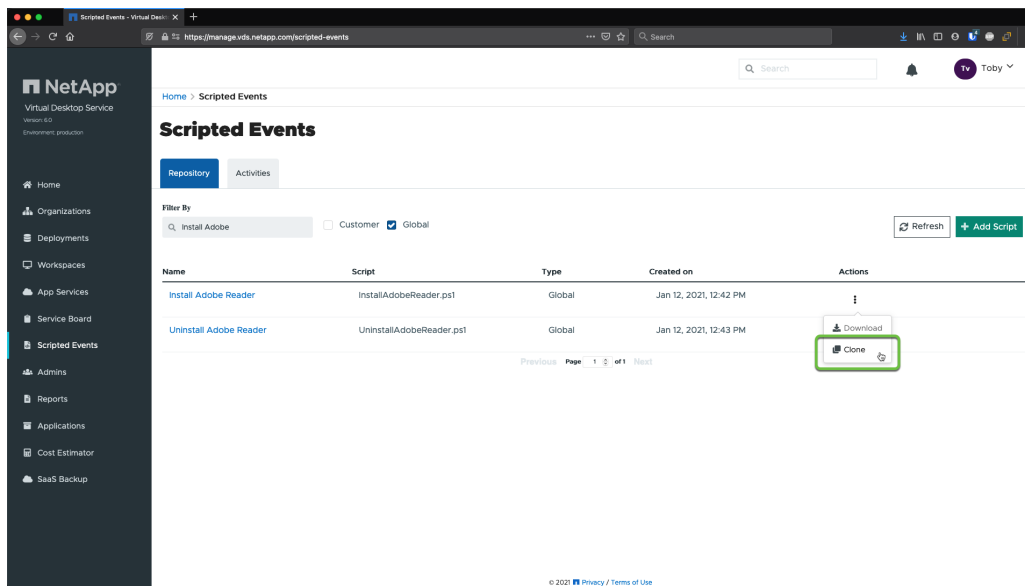
For this application, this article covers both the install/enable and uninstall/disable action.

## Global Script Use

Built-in scripted events such as this one are pre-populated, checking the "global" filter checkbox will display them.

Global Scripted Events such as this one are read-only. They can be used as-is or the "Clone" function can be used to create a customer copy for editing and use.

The Clone button is found in the action menu on the Scripted Events page.



## AVD Screen Capture Protection overview

This script package enables/disables the native AVD feature *screen capture protection* by executing the (relevant) command with Powershell:

Enable:

```
reg add "HKLM\SOFTWARE\Policies\Microsoft\Windows NT\Terminal Services" /v fEnableScreenCaptureProtection /t REG_DWORD /d 1
```

Disable:

```
reg delete "HKLM\SOFTWARE\Policies\Microsoft\Windows NT\Terminal Services" /v fEnableScreenCaptureProtection /f
```

Microsoft documentation on this AVD feature can be found here:

<https://docs.microsoft.com/en-us/azure/virtual-desktop/security-guide#session-host-security-best-practices>

## Add activity dialog window screenshot

**Add Activity**

**Activity Settings**

Name Required  Description

Deployment Required  Script Required  Arguments

☒ Enabled

**Event Settings**

Event Type Required

**Target Settings**

Target Type ☐ App Services & Clients ☒ Servers

**Managed Servers**

3 item(s) selected [Show](#) [Clear](#)

Filter By

☐ Name

☐ UXV

☐ CWMGR1

☐ TCSNTSD1

☒ TCSNTS1

☒ TCSNTS2

[Previous](#) [Page 1 of 2](#) [Next](#)

[Cancel](#) [Add Activity](#)

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### Add Manual activity

In order for a script in the repository to take any action, an activity must be created to associate that script with a selected trigger. In this example activity runs when the VDS admin manually triggers the script.

VDS scripted events offers many other types of activity triggers such as *Create Server* which could be used as an alternative to the *Manual* event type. Using *Create Server* would simply execute this script on all newly created VMs in VDS. *Create Server* and other triggers are documented and can be explored [here](#).

### To create an Activity and link this script to an action:

1. Navigate to the Scripted Events section in VDS
2. Under *Activities* click + *Add Activity*
3. In the opened dialog window enter the following information:
  - **Name:** Name this activity
  - **Description:** Optionally enter a description
  - **Deployment** Select the desired deployment from dropdown
  - **Script:** Select the install (or uninstall) script from the dropdown. This could be the global script or customer script you've cloned and customized.
  - **Arguments:** Leave blank
  - **Enabled checkbox:** Check the box
  - **Event Type:** Select `Manual` from dropdown

- **Target Type:** Select the `Servers` radio button
- **Managed Servers:** Check the box for each VM that should receive this uninstall.

## Scripted Event Documentation - Zoom VDI AVD

### Global Scripts Overview

NetApp VDS includes a library of pre-defined scripted events that can be used directly in VDS environments and/or duplicated and used as the building blocks for custom scripted events.

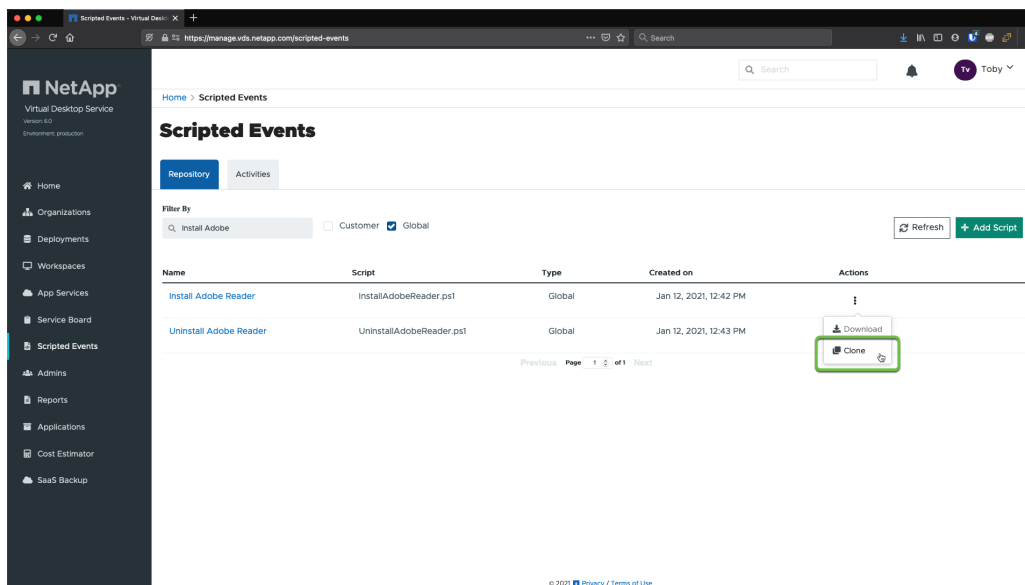
For this application, this article covers both the install/enable and uninstall/disable action.

### Global Script Use

Built-in scripted events such as this one are pre-populated, checking the "global" filter checkbox will display them.

Global Scripted Events such as this one are read-only. They can be used as-is or the "Clone" function can be used to create a customer copy for editing and use.

The Clone button is found in the action menu on the Scripted Events page.



### Zoom for VDI/AVD overview

This script package installs/uninstalls *Zoom VDI-AVD* using PowerShell to do the deployment.



Zoom performance is improved if audio redirection is also enabled for the VDI/AVD environment.

### Default shortcut path

The default shortcut path will be entered below, for this application the shortcut is: `\\shortcuts\Zoom VDI.lnk`

## Add activity dialog window screenshot

The screenshot shows the 'Add Activity' dialog in the NetApp VDS interface. The left sidebar contains navigation links: Home, Organizations, Deployments, Workspaces, App Services, Service Board, Scripted Events (selected), Admins, Reports, Applications, Cost Estimator, and SaaS Backup. The main content area is titled 'Add Activity' and contains the following sections:

- Activity Settings:**
  - Name:** Required field with value 'InstallZoomVdi-WVD'.
  - Description:** Optional field with placeholder 'Enter description...'.
  - Deployment:** Required dropdown menu with value 'NAI (nat)'.
  - Script:** Required dropdown menu with value 'Install Zoom VDI-WVD (Customer)'.
  - Arguments:** Optional field with placeholder 'Enter arguments...'.
- Enabled:** A checked checkbox.
- Event Settings:**
  - Event Type:** Required dropdown menu with value 'Application Install'.
- Target Settings:**
  - Application:** Required dropdown menu with value 'Zoom VDI'.
  - Shortcut Path:** Required field with value '%Shortcut%Zoom VDIlink'.

At the bottom right, there are 'Cancel' and 'Add Activity' buttons. The 'Add Activity' button is green and highlighted.

## Add application install/uninstall activity

In order for a script in the repository to take any action, an activity must be created to associate that script with a selected trigger. In this example activity will install/uninstall this application when the app is added to or removed from the workspace (from the *Workspace > Applications* page in VDS).

VDS scripted events offers many other types of activity triggers such as *Create Server* which could be used as an alternative to the *Application Install* (or *Application Uninstall*) event type. Using *Create Server* would simply run this app install against all newly created VMs in VDS. *Create Server* and other triggers are documented and can be explored [here](#).



This application will need to be present in the VDS application library. This [section](#) of the app entitlement for RDS article covers adding apps to the library.

### To create an activity and link this script to an action:

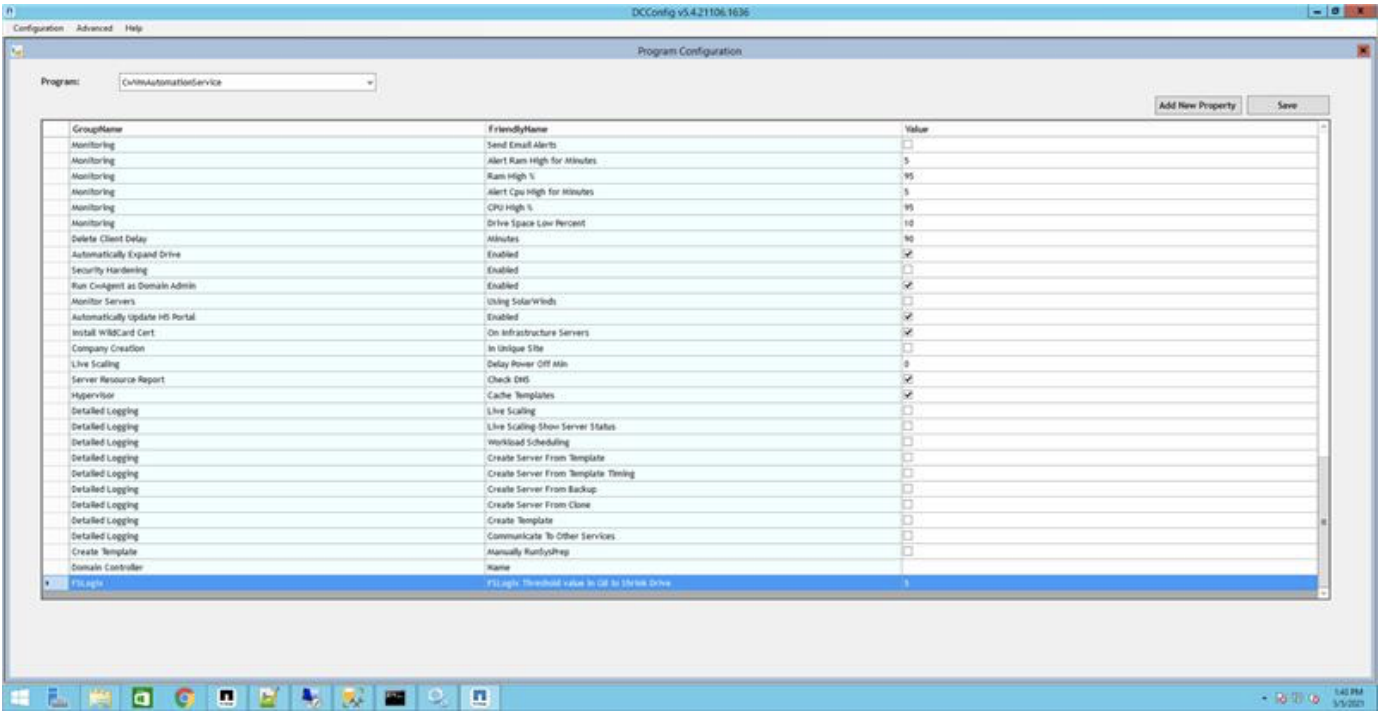
1. Navigate to the *Scripted Events* section in VDS
2. Under *Activities* click + *Add Activity*
3. In the opened dialog window enter the following information:
  - **Name:** Name this activity
  - **Description:** Optionally enter a description
  - **Deployment:** Select the desired deployment from dropdown
  - **Script:** Select the install (or uninstall) script from the dropdown. This could be the global script or customer script you've cloned and customized.
  - **Arguments:** Leave blank
  - **Enabled checkbox:** Check the box
  - **Event Type:** Select *Application Install* (or *Application Uninstall*) from dropdown
  - **Application:** Select this application from dropdown
  - **Shortcut Path:** Enter the default shortcut path for this application (noted above)

# Advanced

## FSLogix Profile Shrink

### Overview

VDS has a built-in profile shrink operation that runs nightly. This automation will automatically shrink the FSLogix container of a user's profile if 5GB or more can be saved. This automation runs nightly at 12:01am. The 5GB threshold is configurable in DCConfig, found on the CWMGR1 server.



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