



# Cloning Virtual Machines

## Virtual Desktop Service

Toby vanRoojen  
December 04, 2020

# Table of Contents

- Cloning Virtual Machines ..... 1
  - Overview ..... 1
  - Cloning to add additional shared servers ..... 1
  - VDS cloning process definition ..... 4
  - Automated creation of new server(s) ..... 4
  - “On demand” automated creation of new server ..... 5

# Cloning Virtual Machines

## Overview

Virtual Desktop Service (VDS) provides the ability to clone an existing virtual machine (VM). This functionality designed to automatically increase server unit count availability as defined user count grows OR additional servers to available resource pools.

Admins use cloning in VDS in two ways:

1. On demand automated creation of new server from an existing client server
2. Proactive automated creation of new client server(s) for auto-scaling of resources based-on rules defined and controlled by partners

## Cloning to add additional shared servers

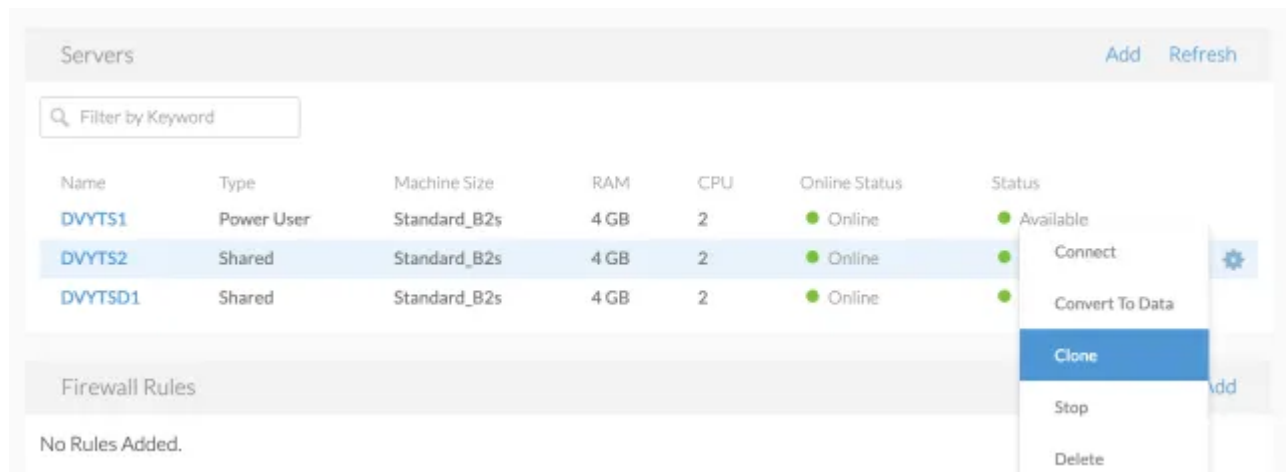
A clone is a copy of an existing virtual machine. Cloning functionality saves time and helps admins scale because Installing a guest operating system and applications can be time consuming. With clones, you can make many copies of a virtual machine from a single installation and configuration process. This typically looks like:

1. Install all desired applications and settings onto a TS or TSD server
2. Navigate to: Workspaces > Servers Section > Gear Icon for the Source Server > Click Clone
3. Allow the clone process to run (typically 45-90 minutes)
4. The final step activate the cloned server, putting it into the RDS pool to accept new connections. Cloned servers may require individual configuration after being cloned so VDS waits for the Administrator to manually put the server into rotation.

Repeat as many times as necessary.

To increase the capacity for users in a shared session host environment, cloning a session host is an easy process requiring only a few steps.

1. Select a session host to clone, verify no users are currently logged in to the machine.
2. In VDS, navigate to the Workspace of the target client. Scroll to the Servers section, click the Gear Icon and select Clone. This process takes significant time and will take the source machine offline. Expect 30+ minutes to complete.



The screenshot displays the 'Servers' section of a management console. At the top right, there are 'Add' and 'Refresh' buttons. Below this is a search bar labeled 'Filter by Keyword'. The main area contains a table with the following columns: Name, Type, Machine Size, RAM, CPU, Online Status, and Status. Three servers are listed: DVYTS1 (Power User), DVYTS2 (Shared), and DVYTSD1 (Shared). A context menu is open over DVYTS2, showing options: Connect, Convert To Data, Clone (highlighted), Stop, and Delete. Below the table, there is a section for 'Firewall Rules' with the text 'No Rules Added.'

Name	Type	Machine Size	RAM	CPU	Online Status	Status
DVYTS1	Power User	Standard_B2s	4 GB	2	Online	Available
DVYTS2	Shared	Standard_B2s	4 GB	2	Online	Connect
DVYTSD1	Shared	Standard_B2s	4 GB	2	Online	Convert To Data

Firewall Rules  
No Rules Added.

Servers							Add	Refresh
Filter by Keyword								
Name	Type	Machine Size	RAM	CPU	Online Status	Status		
DVYTS1	Power User	Standard_B2s	4 GB	2	Online	Available		
DVYTS2	Shared	Standard_B2s	0 GB	0	Offline	In Progress (Cloning)		
DVYTS1	Shared	Standard_B2s	4 GB	2	Online	Available		

Firewall Rules		Add
No Rules Added.		

3. The process will shut down the server, clone the server to another image and SysPrep the image to the next TS# for the customer. The server shows as *Type=staged* and *Status=Activation Required* in the Servers list.

Servers							Add	Refresh
Filter by Keyword								
Name	Type	Machine Size	RAM	CPU	Online Status	Status		
DVYTS1	Power User	Standard_B2s	4 GB	2	Online	Available		
DVYTS2	Shared	Standard_B2s	4 GB	2	Online	Available		
DVYTS3	Staged	Standard_DS2_v2	7 GB	2	Online	Activation Required		
DVYTS1	Shared	Standard_B2s	4 GB	2	Online	Available		

Firewall Rules		Add
No Rules Added.		

4. Logon to the server and verify that the server is ready for production.

Servers							Add	Refresh
Filter by Keyword								
Name	Type	Machine Size	RAM	CPU	Online Status	Status		
DVYTS1	Power User	Standard_B2s	4 GB	2	Online	Available		
DVYTS2	Shared	Standard_B2s	4 GB	2	Online	Available		
DVYTS3	Staged	Standard_DS2_v2	7 GB	2	Online	Activation Required	Connect	⚙️
DVYTS1	Shared	Standard_B2s	4 GB	2	Online	Available	Activate	
							Clone	
							Stop	
							Delete	

Firewall Rules		Add
No Rules Added.		

5. When ready, click Activate to add the server into the session-host pool to start accepting user connections.

Servers							Add	Refresh
Filter by Keyword								
Name	Type	Machine Size	RAM	CPU	Online Status	Status		
DVYTS1	Power User	Standard_B2s	4 GB	2	Online	Available		
DVYTS2	Shared	Standard_B2s	4 GB	2	Online	Available		
DVYTS3	Staged	Standard_DS2_v2	7 GB	2	Online	Activation Required	Connect	⚙️
DVYTS1	Shared	Standard_B2s	4 GB	2	Online	Available	Activate	
Firewall Rules							Clone	Add
No Rules Added.							Stop	
							Delete	

## VDS cloning process definition

The step-by-step process is detailed in VDS > Deployment > Task History under any Clone Server operations. The process has 20+ steps, which start with accessing the hypervisor to start the clone process & ends with activating the cloned server. The cloning process includes key steps such as:

- Configure DNS & set server name
- Assign StaticIP
- Add to Domain
- Update Active Directory
- Update VDS DB (SQL instance on CWMGR1)
- Create Firewall rules for the clone

As well as Task History, the detail steps for any cloning process can be viewed in CwVmAutomationService log on CWMGR1 in each partner's Virtual Desktop Deployment. Reviewing these log files is documented [here](#).

## Automated creation of new server(s)

This VDS functionality designed to automatically increase server unit count availability as defined user count grows.

The partner defines and manages via VDS (<https://manage.cloudworkspace.com>) > Client > Overview – VM Resources > Auto-Scaling. Several controls are exposed to allow partners to Enable/Disable Auto Scaling as well as create custom rules for each client such as: number/users/server, additional RAM per user & number of users per CPU.



Above assumes automated cloning is enabled for the entire Virtual Desktop Deployment. For example, to stop all automated cloning, use DCConfig, in the Advanced window, uncheck the Server Creation→Automated Cloning Enabled.

### When does the automated clone process run?

The automated clone process executes when the daily maintenance is configured to run. The default is midnight, but this can be edited. Part of the daily maintenance is to run the Change Resources thread for each resource pool. The Change Resources thread determines the number of shared servers required based-on the

number of users the pool's configuration (customizable; can be 10, 21, 30, etc users per server).

## **“On demand” automated creation of new server**

This VDS functionality allows automated “on demand” cloning of additional servers to available resource pools.

The VDS Admin logs into VDS and under the Organizations or Workspaces Modules, finds the specific Client & opens the Overview tab. The Servers Tile lists all servers (TSD1, TS1, D1, etc). To clone any individual server, simply click on the cog to far-right of server name & select Clone option.

Typically, the process should take about an hour. However, the duration depends on the size of VM and the available resources of the underlying hypervisor. Please note the server being cloned will need to be rebooted, so partners typically perform after hours or during a scheduled maintenance window.

When cloning a TSData server, one of the steps is deleting the c:\Home, c:\Data, and c:\Pro folders so they're aren't any duplicate files. In this case, the clone process failed there were problems deleting these files. This error is vague. Typically, this means the clone event failed because there was an open file or process. Next attempt, please disable any AV (because that might explain this error).

## Copyright Information

Copyright © 2021 NetApp, Inc. All rights reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means-graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system-without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

RESTRICTED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.277-7103 (October 1988) and FAR 52-227-19 (June 1987).

## Trademark Information

NETAPP, the NETAPP logo, and the marks listed at <http://www.netapp.com/TM> are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.