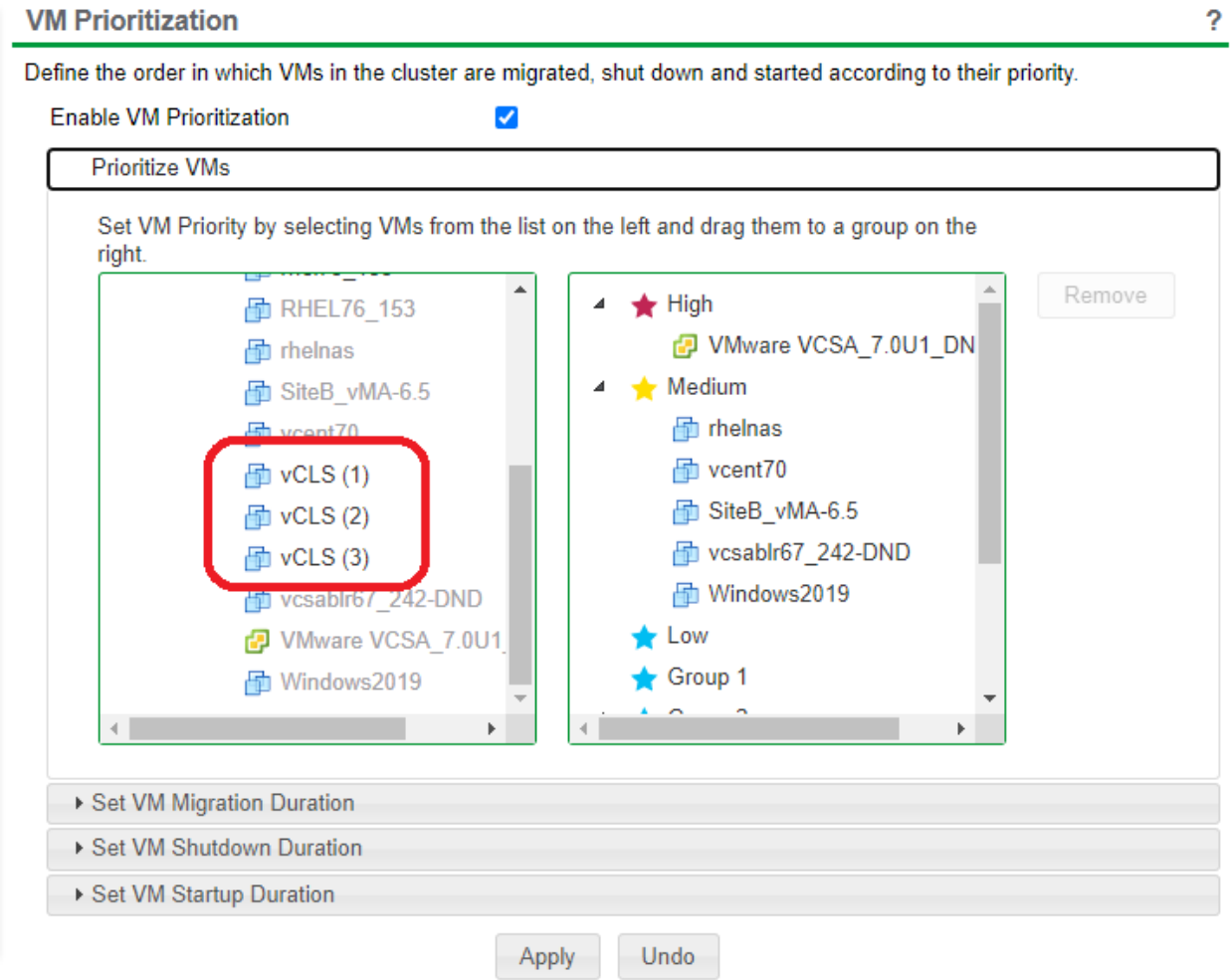
Enabling Retreat Mode on a vSphere Cluster

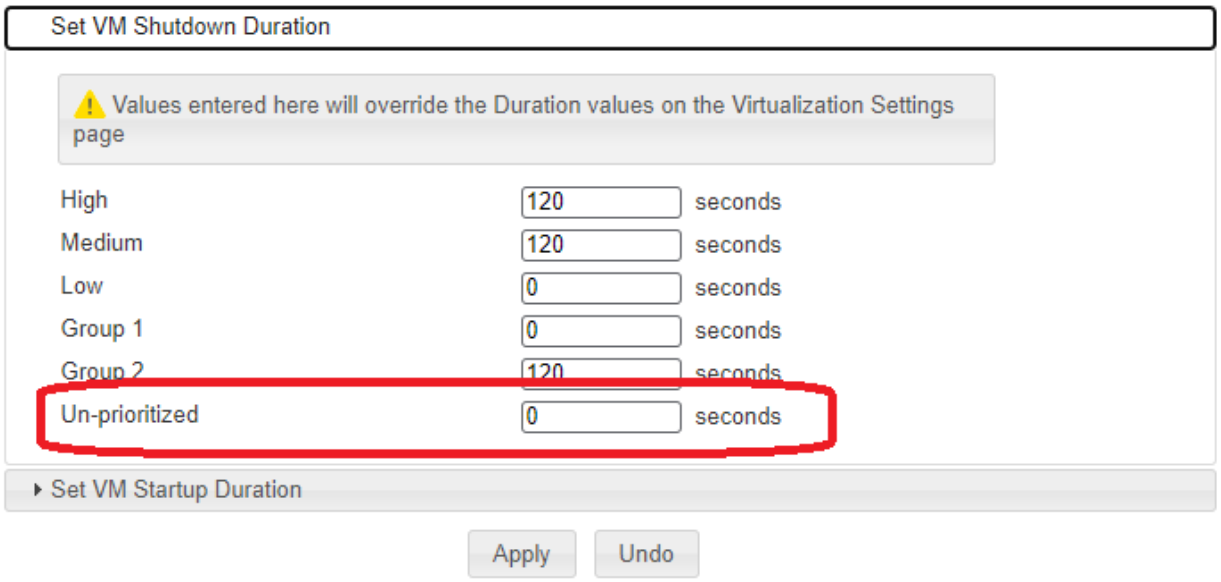
In order to place hosts that are in a cluster with vCLS enabled into Maintenance mode prior to shutdown when vCenter Server is not available the cluster can be placed into Retreat Mode. For more information on Retreat Mode, please refer to the following Kbase - https://kb.vmware.com/s/article/80472

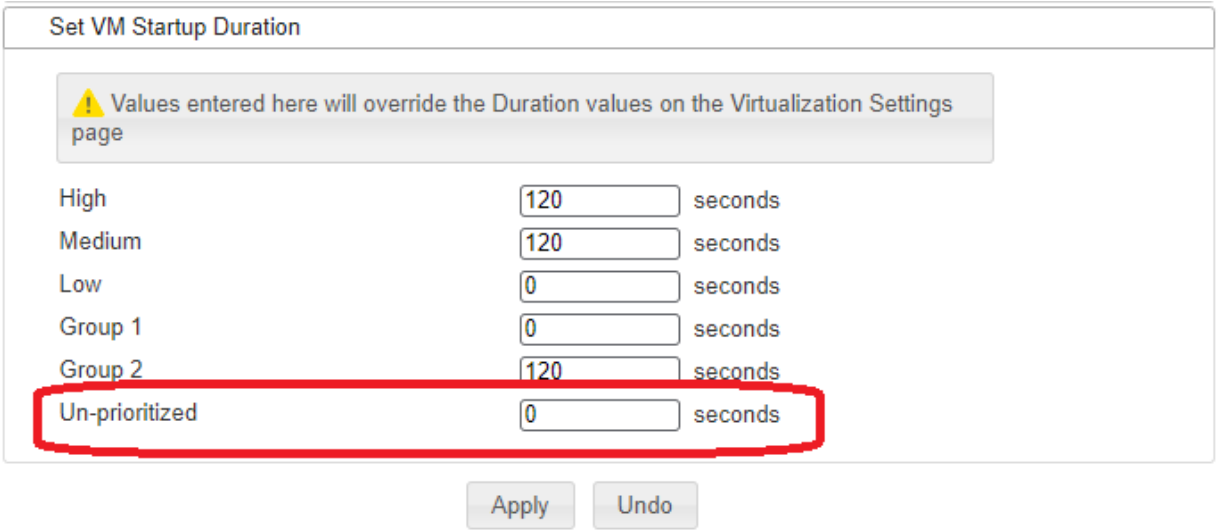
PowerChute can execute powershell scripts via the Command File feature to enable Retreat Mode prior to placing the hosts into maintenance mode. When PowerChute re-starts, a separate script file is executed to disable Retreat Mode, which will re-instate the vCLS VMs.

There are 2 sets of scripts provided depending on whether PowerChute is installed on a Windows machine or you have deployed the PowerChute Linux based Virtual Appliance to an ESXi host.

Please enable VM Prioritization and add all VMs except the vCLS VMs to priority groups. Configure the Un-prioritized group with a zero second duration for VM Shutdown and VM Startup:



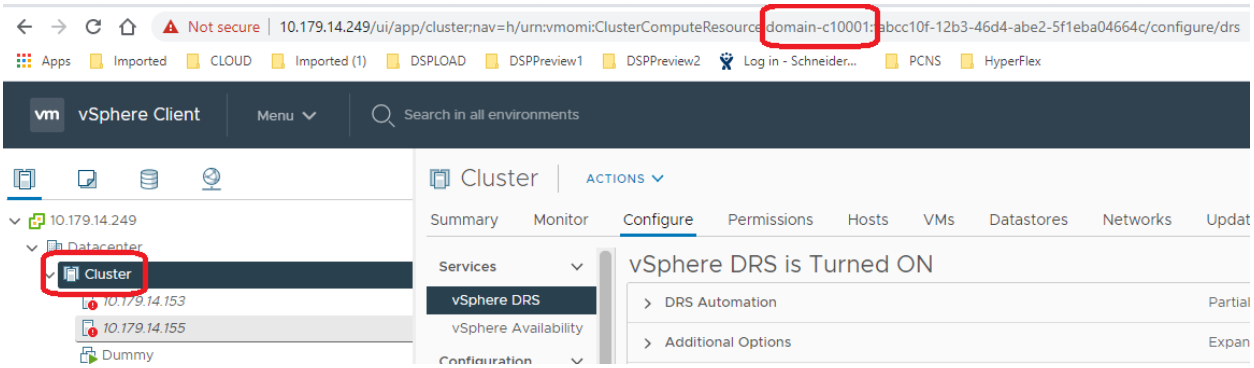




In vCenter Server Advanced settings, add the a new entry with the name **config.vcls.clusters.domain-c<number>.enabled** and value = **True.**

To obtain a value for domain-c<number> navigate to the Cluster which has vCLS running on it in the vSphere Web UI and copy the domain-c<number> from the URL e.g. the URL will be something like: https://<fqdn-of-vCenter-server>/ui/app/cluster;nav=h/urn:vmomi:ClusterComputeResource:**domain-c10001**:eef257af-fa50-455a-af7a-6899324fabe6/summary.

Copy the part in bold – in this case **domain-c10001**



Edit Advanced vCenter Server Settings

Adding or modifying configuration parameters is unsupported and can cause instability. Configuration parameters cannot be removed once they are added. Continue only if you know what you are doing.

Name	Value	Summary
alarms.version	-1	Default alarm upgrade version
alarms.versionEx	111.0.18	Default alarm extended version
config.alarms.vim.version	vim.version.v7_0_1_1	--
config.drs.kvstore.local	False	--
config.license.client.lsNotificationsSyncSeconds	30	--
config.license.client.oldServerLsNotificationsSyncSeconds	600	--
config.log.compressOnRoll	true	--
config.log.level	info	--
config.log.maxFileNum	30	--
config.log.maxFileSize	52428800	--

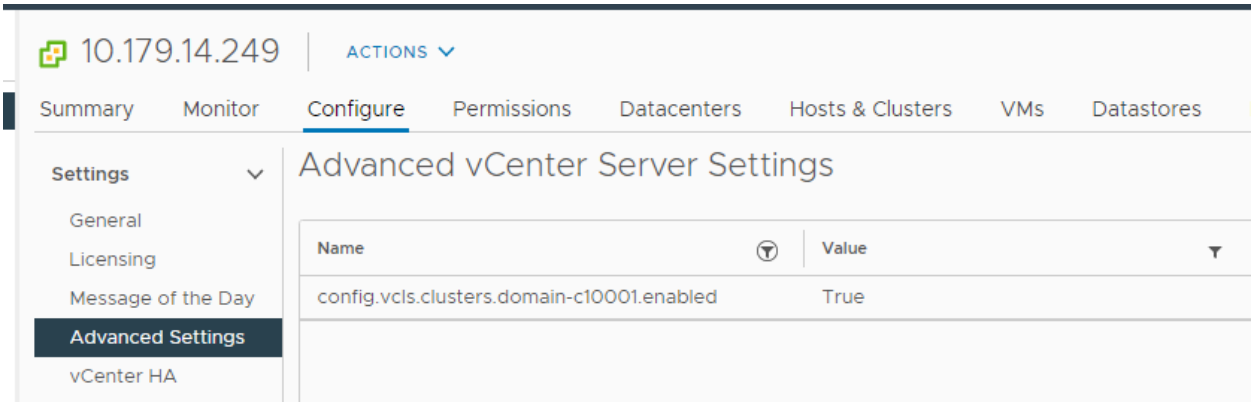
1 - 10 of 900 settings | 1 / 90

Name * : config.vcls.clusters.domain-c1 Value : True

ADD

Name must start with 'config.' For example: config.log

CANCEL SAVE

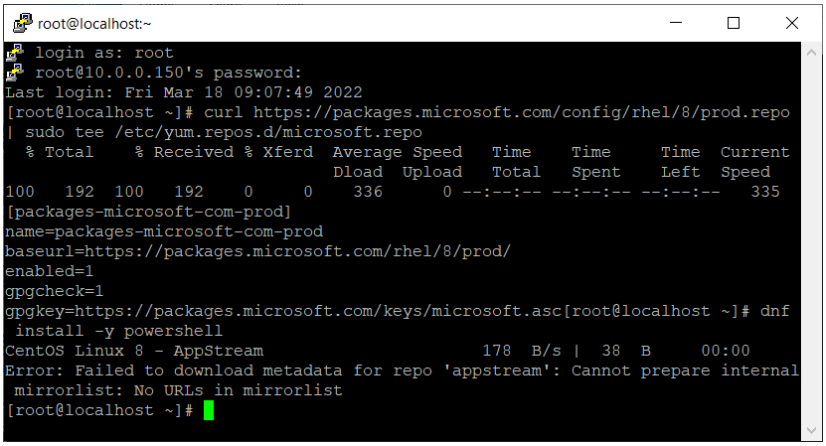


The following sections outline the steps required for configuring PowerChute to execute the scripts for the PowerChute Virtual Appliance (Linux CentOS 8) or for a Windows Installation.

PowerChute Virtual Appliance

Login to the PowerChute appliance via SSH or using VMware Remote Console and install Powershell per the intstructions in the following link - https://docs.microsoft.com/en-us/powershell/scripting/install/installing-powershell-core-on-linux?view=powershell-7.1

NOTE: If the error appears “No URLs in mirrorlist” appears while installing Powershell



run the commands

sed -i 's/mirrorlist/#mirrorlist/g' /etc/yum.repos.d/CentOS-*

sed -i 's|#baseurl=http://mirror.centos.org|baseurl=http://vault.centos.org|g' /etc/yum.repos.d/CentOS-*

Then run yum install -y powershell and the Powershell installer will run

To launch Powershell enter the command

pwsh

See section Cent OS7.

Next you need to install VMware PowerCLI – in the terminal type “pwsh” and then –

Install-Module -Name VMware.PowerCLI

To carry out an offline installation – on a machine with internet access run the command “Save-Module -Name VMware.PowerCLI -Path <path to download files>”. Transfer the downloaded Module folders to the PowerChute appliance via SCP and copy to the following path -
/opt/microsoft/powershell/7/Modules/

Edit the .ps1 files using a text editor like vi and change the variables below to match your setup details:

$server = "<vCenter Server IP address>”

$user = "<vCenter Server username"

$password = "<vCenter Server password"

$cluster = “<Name of the Cluster as it appears in vSphere Web Client UI>”

Save the changes and then make the scripts executable by running the command –

chmod +x <filename.ps1

Launch the PowerChute UI, open the Shutdown Settings page and click on Run Command File. If using an Advanced configuration open the Shutdown Settings page for the UPS Setup that is protecting the cluster with vCLS enabled and configure the command file there.

Enter the full path to the powershell script and set a duration for the command file e.g. 300 seconds.

NOTE: This duration must allow time for the 3 vCLS VMs to be shut down and then removed from the inventory when Retreat Mode is enabled before PowerChute starts the Maintenance mode tasks on each host.

NOTE: From PowerChute Network Shutdown v4.4 the script files must be placed in the /opt/APC/PowerChute/user_files folder.

After the UPS Critical event has been resolved, an event driven command file can be used to disable retreat mode and re-instate the vCLS VMs on the cluster. It is recommended to use the following event in the pcnsconfig.ini file for this:

event_MonitoringStarted_enableCommandFile = true

event_MonitoringStarted_commandFilePath = /opt/APC/PowerChute/user_files/enableRetreatAppliance.ps1

event_MonitoringStarted_commandFileDelay = X

event_MonitoringStarted_commandFileDuration = 300

This event will be triggered when the PowerChute Appliance starts up.

You can also the event below for an advanced configuration where the PowerChute Appliance is running on a Host outside the cluster:

event_CriticalEventResolved_commandFileDelay = X

event_CriticalEventResolved_commandFilePath = /opt/APC/PowerChute/user_files/enableRetreatAppliance.ps1

event_CriticalEventResolved_commandFileDuration = 300

For example, you might have PowerChute deployed on a Management Host running the vSAN Witness Appliance with an Advanced UPS Configuration – in this scenario only the UPS protecting the Cluster Host switches to battery power so the PowerChute VM will not get re-started. In this case, the 2nd event type (CriticalEventResolved) can be used to disable retreat mode.

NOTE: In both cases, vCenter Server must be available before the powershell script can be used so the commandFileDelay value needs to allow enough time for the vCenter Server VM to power back up fully before the script is executed.

PowerChute on Windows

Install VMware PowerCLI on the windows machine where PowerChute is installed. Open powershell and type the command – ***Install-Module -Name VMware.PowerCLI***.

Alternatively, use the instructions in the following Kbase for an offline installation - https://blogs.vmware.com/PowerCLI/2018/01/powercli-offline-installation-walkthrough.html

Edit the powershell files (.ps1) using a text editor like notepad to set the following variables for your environment:

$server = "<vCenter Server IP address>"

$user = "<vCenter Server username"

$password = "<vCenter Server password"

$cluster = "<Name of the Cluster as it appears in vSphere Web Client UI>"

Save both powershell script files.

Launch the PowerChute UI, open the Shutdown Settings page and click on Run Command File. If using an advanced UPS configuration, open the shutdown settings page for the UPS setup that is protecting the cluster with vCLS running and configure the command file there.

Enter the full path to the enable.cmd file and set a duration for the command file e.g. 300 seconds.

NOTE: This duration must allow time for the 3 vCLS VMs to be shut down and then removed from the inventory when Retreat Mode is enabled before PowerChute starts the Maintenance mode tasks on each host.

NOTE: From PowerChute v4.4 the command files must be saved to C:\Program Files\APC\PowerChute\user_files folder.

The powershell scripts (.ps1 files) should be saved to the C:\ drive. Alternatively, you can edit the cmd file to point to a different location.

After the UPS Critical event has been resolved, an event driven command file can be used to disable retreat mode and re-instate the vCLS VMs on the cluster. It is recommended to use the following event in the pcnsconfig.ini file for this:

event_MonitoringStarted_enableCommandFile = true

event_MonitoringStarted_commandFilePath = C:\Program Files\APC\PowerChute\user_files\disable.cmd

event_MonitoringStarted_commandFileDelay = X

event_MonitoringStarted_commandFileDuration = 300

This event will be triggered when the PowerChute Appliance starts up.

You can also the event below for an advanced configuration where the PowerChute Appliance is running on a Host outside the cluster:

event_CriticalEventResolved_commandFileDelay = X

event_CriticalEventResolved_commandFilePath = C:\Program Files\APC\PowerChute\user_files\disable.cmd

event_CriticalEventResolved_commandFileDuration = 300

For example, you might have PowerChute being protected by a separate UPS using an Advanced UPS Configuration – in this scenario only the UPS protecting the Cluster Host switches to battery power, so the PowerChute machine will not get re-started. In this case, the 2nd event type (CriticalEventResolved) can be used to disable retreat mode.

NOTE: In both cases, vCenter Server must be available before the powershell script can be used so the **commandFileDelay** value needs to allow enough time for the vCenter Server VM to power back up fully, before it is executed.