HyperCore Snapshot Scheduling

Feature Note

This document provides information around the native Snapshot Scheduling feature of the Scale HC3 cluster. Check for additional information on this topic in the support Knowledge base available at http://www.scalecomputing.com/support/login/.

You can find the most up-to-date technical documentation on the Scale Computing Portal at:
http://www.scalecomputing.com/support/login/

The Scale Computing site also provides the latest product updates and information:
http://www.scalecomputing.com/

Provide feedback on this document at:
documentation@scalecomputing.com

Contact support at:
support@scalecomputing.com
http://www.scalecomputing.com/support/login/
US: +1-877-SCALE-59 (877-722-5359)
Europe: 0808 234 0699

Document Version 1.3: 03/2017

Corporate Headquarters
5225 Exploration Drive
Indianapolis, IN 46241
P. +1 877-722-5359

West Coast Office
360 Ritch Street
Suite 300
San Francisco, CA 94107

EMEA Office
Saunders House
52-53 The Mall
London
W5 3TA
United Kingdom

www.scalecomputing.com 1-877-SCALE-59 (877-722-5359)

Contents

About this Document

Audience, feedback, and support

Intended Audience

This guide is intended for HC3 users to better understand the SCRIBE architecture, the HyperCore Operating System (HCOS), and the specified feature. It is assumed that the user has a general understanding of virtualization and is looking to better operate and manage HC3.

Document Feedback

Scale Computing welcomes your suggestions for improving our documentation. If you have any comments or suggestions please send your feedback to documentation@scalecomputing.com.

Technical Support and Resources

There are many technical support resources available for use. Access this document, and many others, at http://www.scalecomputing.com/documentation.

Online Support	You can submit support cases and view account information online through the Portal at http://www.scalecomputing.com/support/login/. You can also Live Chat with support through www.scalecomputing.com during standard hours Monday-Friday 8 AM to 6 PM ET.
Telephone Support	Support is available for critical issues 24/7 by phone at 1-877-SCALE-59 (877-722-5359) in the US and at 0808 234 0699 in Europe. Telephone support is recommended for the fastest response on priority issues.
Professional Resources	Scale Computing offers many professional service options for both remote and on-site assistance in getting your cluster up and running quickly and knowledgeably. Contact your Scale Computing sales representative today to discuss our service offerings. Find additional information at http://www.scalecomputing.com/products/support/.

Introduction

This note provides details on the snapshot scheduling feature introduced with HCOS version 6.5 and up.

Assumptions

When implementing snapshot scheduling, it is assumed that you are familiar with the layout of the HyperCore web interface, the layout of the HC3 VM card, and the functionality of the HC3 VM snapshot. If any assistance with the web interface, VM card navigation, or HC3 VM snapshot capabilities is needed, review the **HyperCore User Guide v7** and/or the **HyperCore HC3 Capacity, Clone, and Snapshot Management** guide under **Resources**.

Considerations for Scheduling

There are a few considerations to keep in mind when implementing a snapshot schedule for a VM.

- Keep the overall available capacity on the cluster in mind when determining how many snapshots to retain; snapshots may be thin provisioned, but a large number can still consume considerable space, especially on very active VMs.
- Keep the recurrences of the snapshot schedule in mind; one schedule can hold multiple recurrences from minutely to monthly configurations. As a best practice, separate different recurrences that may clash in different schedules.
- The shortest interval a snapshot recurrence should use is 5 minutes. Any less and it could cause unexpected behavior in the snapshot scheduling functionality--missing some snapshots or potentially causing performance issues on the cluster due to the necessary locks and I/O acquiescence when taking a snapshot if the recurrence interval is excessive.
- A VM can only have one snapshot schedule assigned to it at a time. You may have to create customized schedules for specific VMs depending on your backup needs.

Snapshot Scheduling and Replication

Snapshot schedules are utilized for VM replication. A VM that is set up for replication between Scale HC3 clusters will default to the **Replication Default** snapshot schedule if a custom snapshot schedule is not already assigned to the VM. The **Replication Default** schedule will take a snapshot every 15 minutes and keep 1 snapshot.

WARNING

1. **If a custom snapshot schedule is already assigned to a VM when replication is initiated on the VM, the replication schedule will follow the custom snapshot schedule, NOT the default schedule.**
2. **Due to the relationship between snapshot scheduling and replication, when replication is paused, the snapshot schedule will be paused as well. *No snapshots will be taken while replication is paused.***
3. **If a snapshot schedule is completely removed from an actively replicating VM, even if replication has not been paused on the VM, the VM will STOP replicating until a snapshot schedule is defined.**
4. **Always keep the assigned snapshot schedule in mind to ensure the VM is meeting your expected recovery point objectives when using HC3 VM replication.**

If a custom snapshot schedule is assigned to a VM after replication has already been running, the VM will continue forward with the custom snapshot settings and will no longer use the **Replication Default** schedule. With this in mind, the retention setting of a snapshot is created at the time that the snapshot

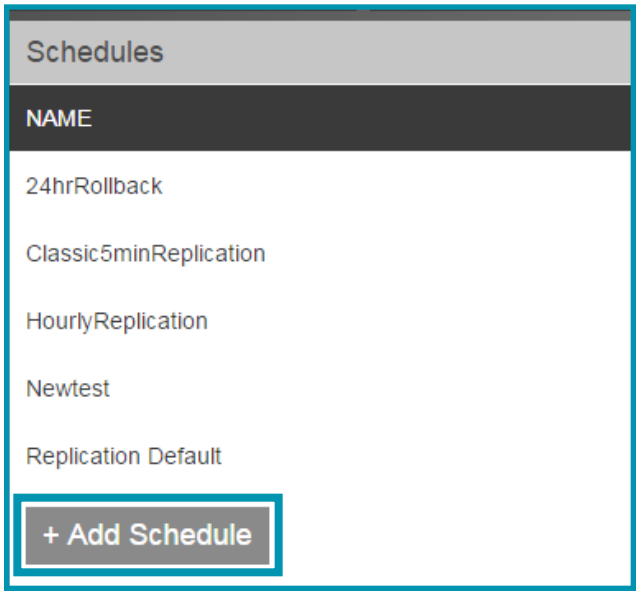
is taken. If the snapshot schedule is changed on a particular VM, the system will not go back to prior snapshots and change their retention settings to match the new snapshot schedule. Only new snapshots will fall under the new snapshot schedule's retention period. Existing snapshots will adhere to their original retention rule.

This same idea applies for any recurrence rule changes on an existing snapshot schedule. If a change is made to a snapshot schedule rule it will only apply to new snapshots taken for the VM; existing snapshots under the snapshot schedule will not be updated.

Create a Snapshot Schedule

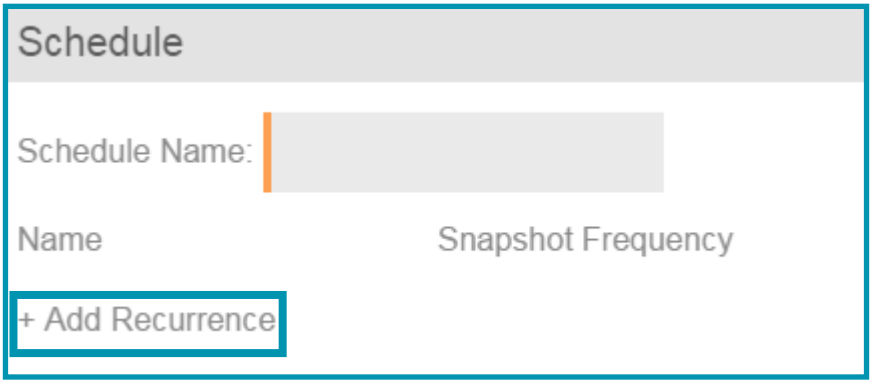
Creating a snapshot schedule is quick and easy. You'll need to create the schedule from the **Control Center Panel** before you can assign the schedule to a VM.

1. Open the **Control Center Panel** and select the **Schedules** tab.
2. Click the **+ Add Schedule** button. A pop up dialog will appear.

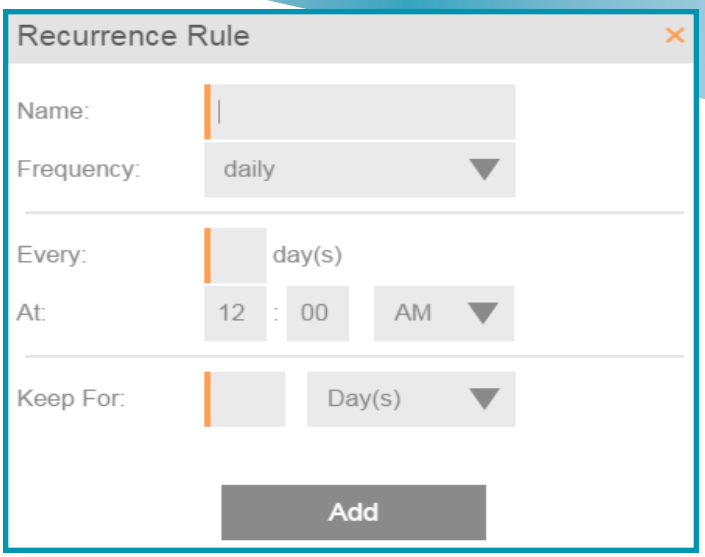


3. Enter a **Name** for the schedule.

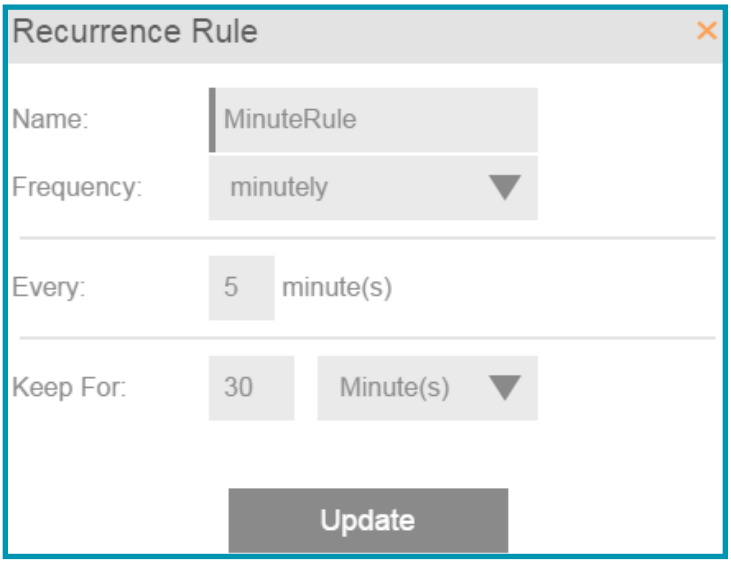
4. Click the **+ Add Recurrence** button.



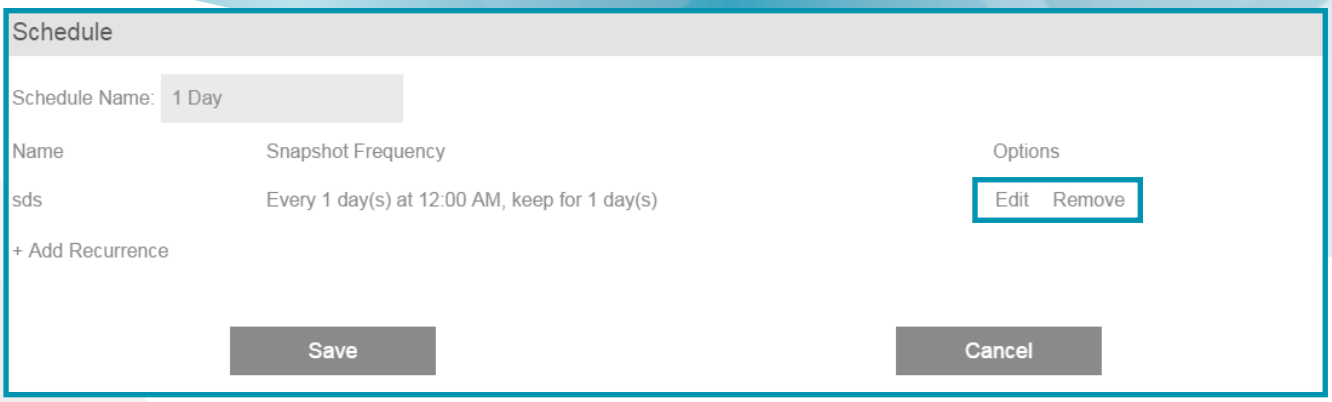
5. A **Recurrence Rule** pop up dialog will appear. Each recurrence will define how snapshots are handled for the given schedule.



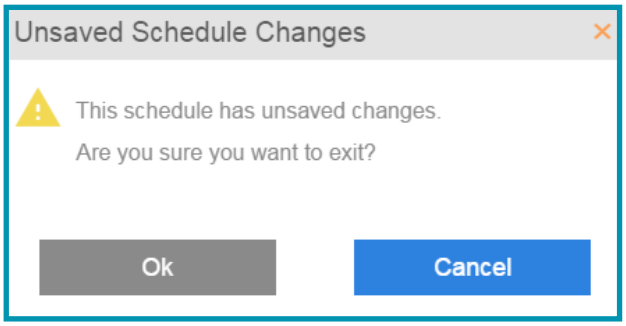
6. Enter a **Name** for the recurrence.
7. Select a **Frequency** for the recurrence. The options are minutely to monthly.
8. Enter a recurrence period in the **Every** and **At** boxes.
9. Select the length of time to keep the snapshots for the recurrence in the **Keep For** box. Once the **Keep For** period expires, the snapshot will be deleted. An example recurrence is shown below.



10. Click **Add** to confirm the rule and add it to the schedule.
11. Repeat Step 4 through Step 10 for any additional recurrences in the schedule.
12. Under **Options**, use **Edit** to make any changes to existing recurrences or use **Remove** to delete any existing recurrences.



13. Click **Cancel** on the **Schedule** dialog if you wish to exit without creating the snapshot schedule. A confirmation dialog will appear. Click **Ok** to exit without saving or **Cancel** to continue creating the schedule.



14. Click **Save** on the **Schedule** dialog to save and create the snapshot schedule.

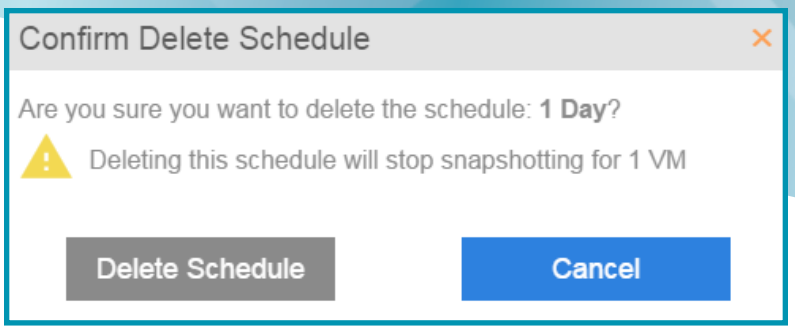
At this time there are no limitations on how many recurrences can be assigned to a single schedule. It is important to keep in mind not to create contradicting recurrence rules on a single schedule, however.

Delete a Snapshot Schedule

It is easy to delete a snapshot schedule from the HC3 web interface.

1. Open the **Control Center Panel** and select the **Schedules** tab.
2. Click **Delete** next to the snapshot schedule to be removed.

3. A confirmation dialog will appear. If the schedule is already in use on one or more VMs an additional warning within the dialog will notify the user of the number of VMs that will stop snapshotting if the schedule is deleted, as shown below.



4. Click **Delete Schedule** to confirm and delete the snapshot schedule.

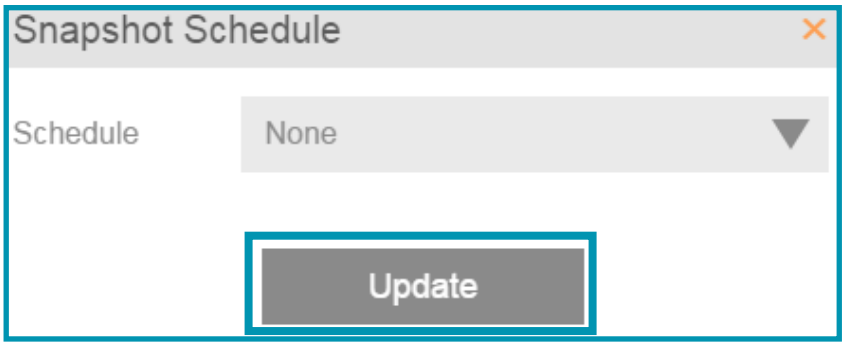
Implement a Snapshot Schedule on a VM

Once a snapshot schedule has been created it can be assigned to a VM.

1. Navigate to the **VM Management Panel**.
2. Open the **Snapshots & Replication** screen on the VM card you would like to add the snapshot schedule to.
3. Click **Select a Schedule**. If replication is already configured on the VM click **Replication Default**. A pop up dialog will appear.

4. Use the **Schedule** drop down list to select a schedule.

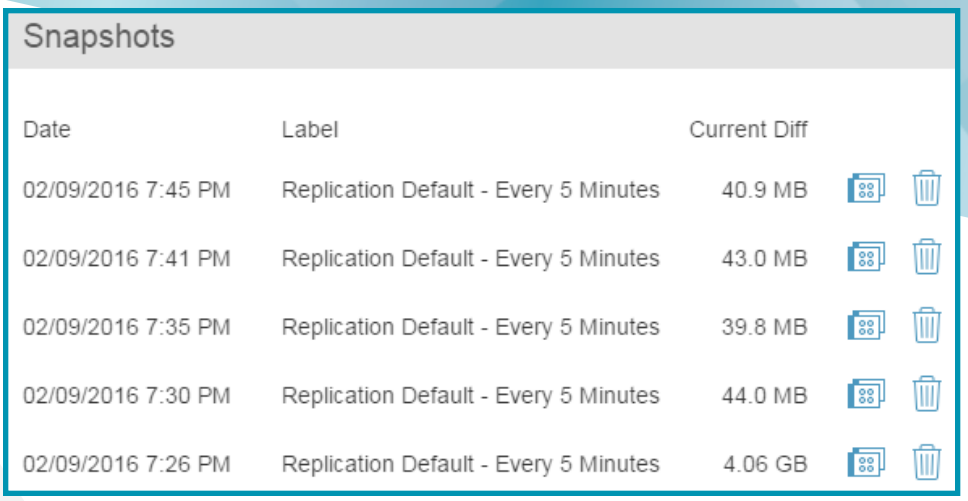
5. Click **Update** to confirm the selected schedule.



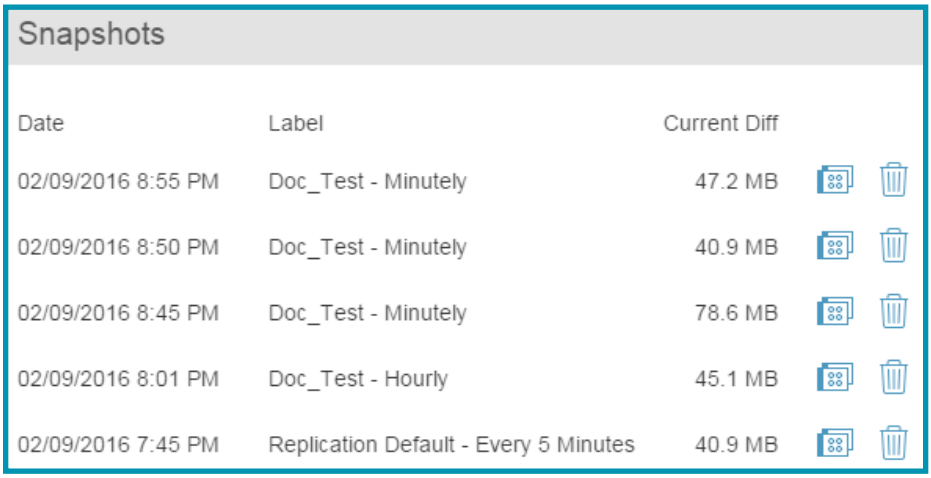
6. The selected snapshot schedule will be immediately implemented on the VM.

Once a snapshot schedule has been implemented for a VM you will notice the name of the snapshot schedule appear next to the "calendar" icon in the **Snapshots & Replication** screen of the VM card.

As a snapshot schedule moves forward, you may notice that snapshots are not taken at the exact specified intervals--they may be a minute or two before or after an expected interval, as shown below. This is due to a delay in transmitting the changed blocks for the previous snapshot if it is replicating or another feature or process having a lock on the VM at that given time, all of which is expected and within normal operation for the scheduling feature.



Also take note of the given snapshot **Label** of "Replication Default - Every 5 Minutes." Each snapshot will be labeled by it's given snapshot schedule name and the relevant recurrence name. A VM with a custom snapshot schedule would look like the "Doc_Test - Minutely" and "Doc_Test - Hourly" **Labels** shown below where the snapshot schedule is using two recurrences--the "Minutely" recurrence and the "Hourly" recurrence.



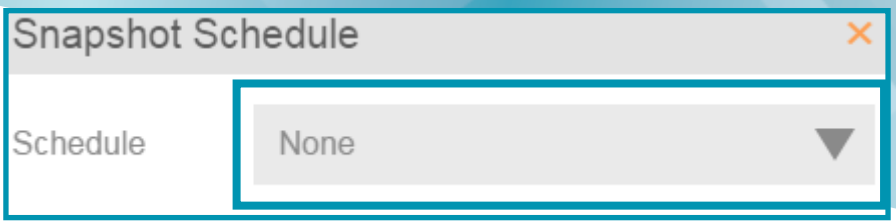
Finally, when a VM is shut down while a snapshot schedule is configured the VM will cease taking snapshots but will retain the memory of the schedule. This means that when the VM is powered on again it will assess the snapshots and remove any that have passed their set retention levels and resume taking new snapshots at the appropriate recurrence levels for the snapshot schedule.

Remove a Snapshot Schedule From a VM

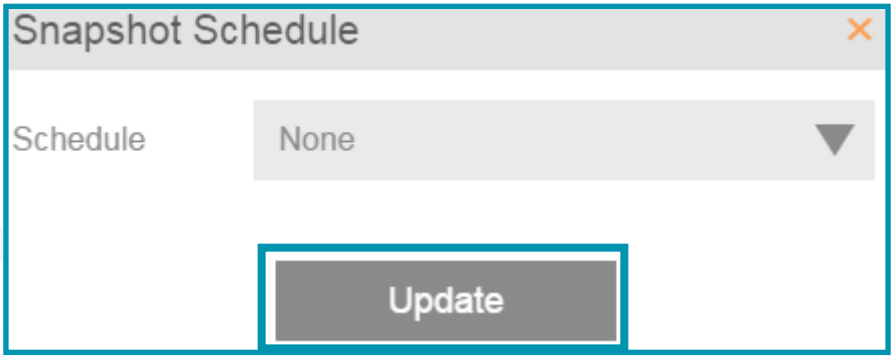
A snapshot schedule can be removed from a VM in the same way it was added to a VM.

1. Navigate to the **VM Management Panel**.
2. Open the **Snapshots & Replication** screen on the VM card you would like to remove the snapshot schedule from.
3. Click the **name of the snapshot schedule**. A pop up dialog will appear.

4. Use the **Schedule** drop down list to select **None** from the schedule options.



5. Click **Update** to confirm the change.



6. The selected snapshot schedule will be immediately removed from the VM.

Resources

Additional informational and technical resources from Scale:

- ***HyperCore HC3 Capacity, Clone, and Snapshot Management***
- ***HyperCore HC3 Native Replication Feature Note***
- ***HyperCore Enhanced Automated Tiering (HEAT) Feature Note***
- ***HC3, SCRIBE, and HyperCore Theory of Operations***
- ***HyperCore User Guide v7***

Provide Feedback or Contact Support

If you have comments or suggestions regarding this document or other Scale Computing documentation, you can send them to **documentation@scalecomputing.com**.

If you need help, call +1-877-SCALE-59 (877-722-5359), and someone from the Scale Computing Technical Support Team will be happy to help you. You can also email Scale Computing Technical Support at **support@scalecomputing.com** or find them on the web at **www.scalecomputing.com**.

Disclaimer

Any information listed here is supplement to the HC3 User Guide, product information, and Knowledge base. Scale Computing is not responsible for any issues or damages arising out of the use of this feature note.