Falcon 5208

NVMe Namespace Management

Create, Attach, Delete and Modify

Version 1.0
October 1st, 2021

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Notes, Cautions, and Warning

Note A NOTE indicates important information that helps you make better use of your product.

Caution **A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.**

Warning **A WARNING indicates a potential for property damage, personal injury, or death.**

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1. Considerations before creating a namespace

Falcon Multi-host NVMe SR-IOV solution integrates the 8 Samsung PM1735 PCIe SSDs, users can create a maximum of 32 namespaces under each SSD. Under Falcon NVMe SR-IOV management mechanism, users can define the storage capacity and multi-path I/O and sharing capability (NMIC) when creating a namespace. There are certain considerations before creating a namespace.

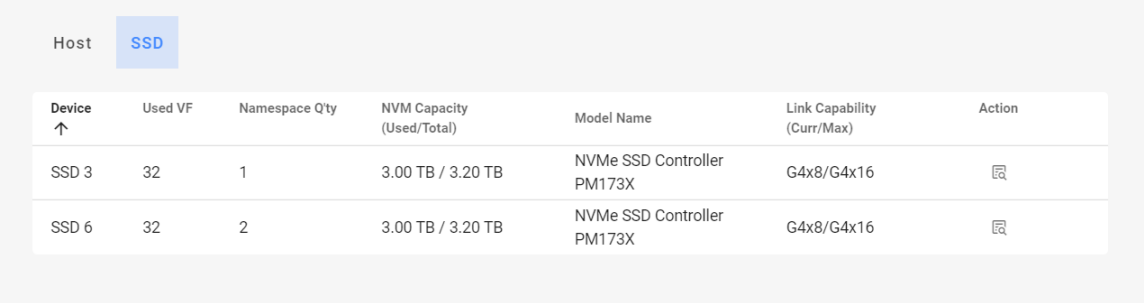
There is physical limitation that prevents users from attaching the namespaces of an SSD to the virtual functions of another SSD, therefore, device could limit the I/O performance when the distribution of resources is not well planned. To secure SSD I/O performance, it is recommended to avoid creating namespaces on the SSDs which the capacity and throughput are near saturation. Users can get the usage and performance data of each SSD from the overview page, or from resource management page and the monitor page. Aside from the application requirement, users can select a suitable SSD based on monitor information including availability of storage capacity, availability of virtual functions, and throughput utilization.

As the namespace capacity cannot be modified after the namespace is created, users should know clearly what purpose this namespace is serving for and set the storage capacity according to application requirements.

NMIC property defines the sharing capability of the namespace. A private namespace can only be attached to single virtual function while a shared namespace can be attached to multiple virtual functions. The NMIC property can be modified later. Set the NMIC depending on the purpose that the namespace is serving.

Users can find SSD information from different pages on the Falcon 5208 graphical user interface (GUI).

Falcon 5208 GUI- Resource management-SSD

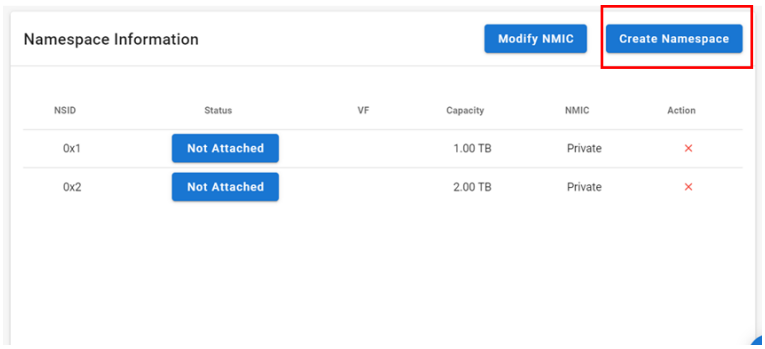


Falcon 5208 GUI- Overview

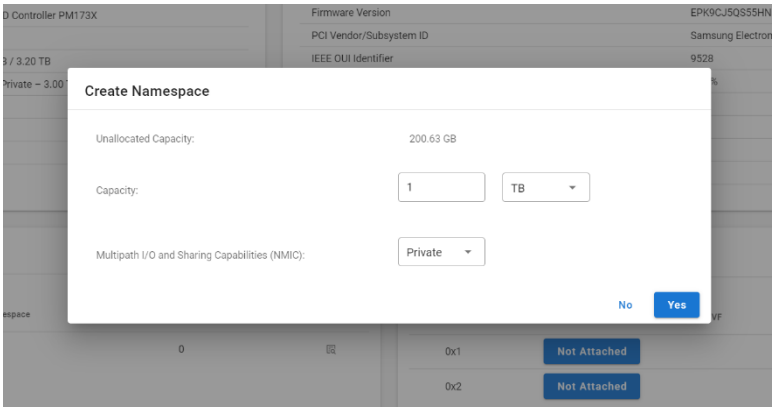
Check the NVMe SSD throughput to see which NVMe SSD still have bandwidth for new namespace (image N/A)

2. Create namespace

After users have select an SSD, click the action button to enter its management page.
Find the namespace panel, click “Create namespace”.



Set the capacity and NMIC for the namespace, click yes to create.

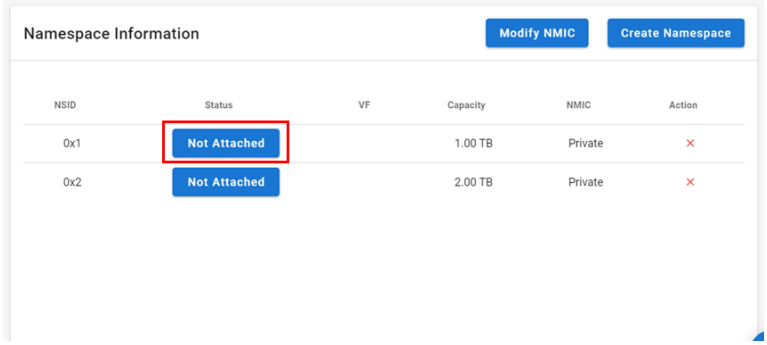


The capacity of the namespace **cannot** be modified after the namespace is created.

3. Attach namespace to VF(s)

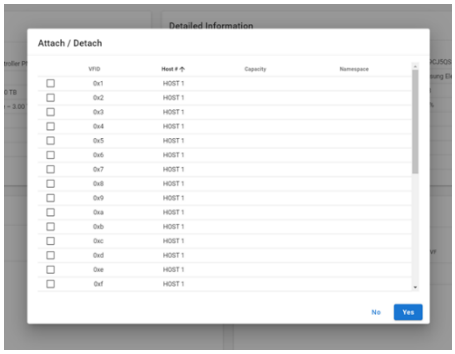
Users can attach the namespace to any virtual function(s) that belongs to the same physical SSD. A private namespace can be attached to only one virtual function. A shared names space can be attached to multiple virtual functions.

Click the status of the namespace



Namespaces that have been attached to a virtual function would show “Attached”. However, if the namespace is a shared namespace, users can still click the “attached” button and attach the namespace to more virtual functions.

Select a VF(s) from the list, click yes to attach



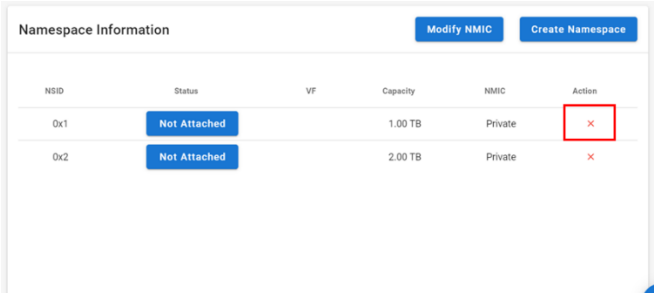
When attaching namespaces, find the virtual functions that are assigned to the desired host machine(s).

4. Delete namespace

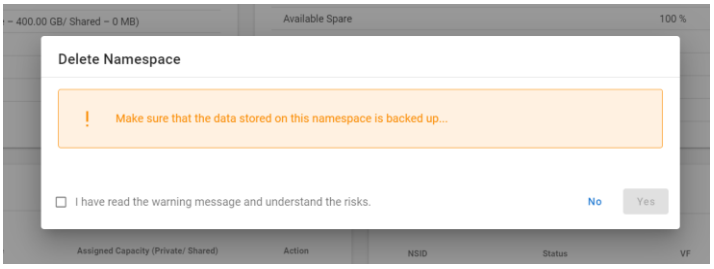
When a namespace is deleted, the data stored on it will be erased and the capacity that it originally holds will be freed.

Please make sure the data is no longer needed or is backed up properly.

Find the namespace to be deleted, click “x”

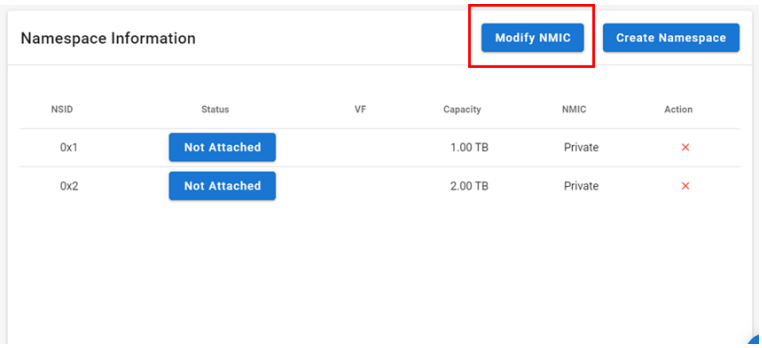


Confirm deletion



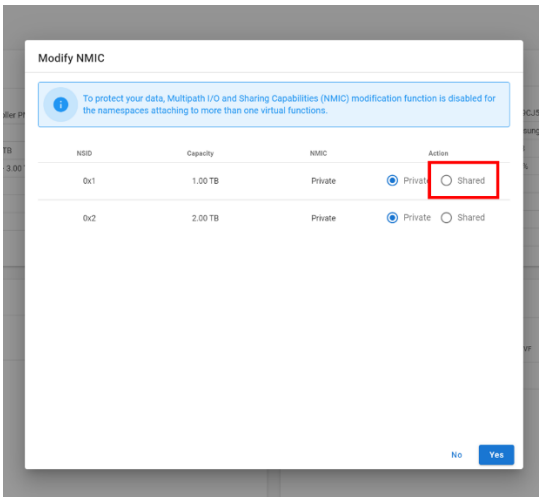
5. Modify NVMe multi-path I/O and sharing capability (NMIC)

Click “Modify NMIC”



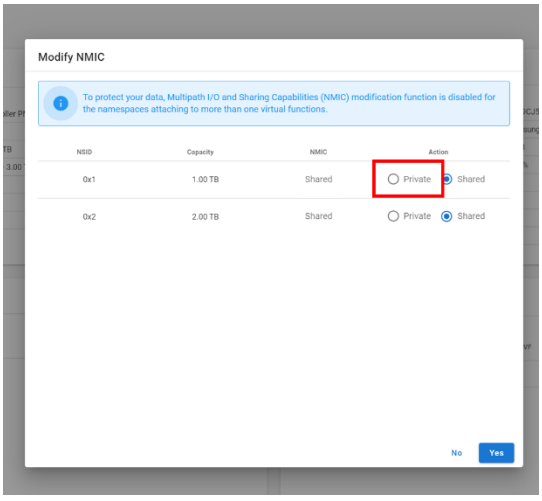
Changing a private namespace into a shared namespace

Select “Shared” instead of “Private”, click yes to apply.



Changing a shared namespace into a private namespace

Select “Shared” instead of “Private”, click yes to apply.



To prevent data loss on the host side, the NMIC modification function is disabled for namespaces that have been attached to more than one virtual function.