Configuring Persistent Memory Using Cisco UCS Manager CLI

Creating a Persistent Memory Policy

SUMMARY STEPS

1. UCS-A# **scope org**
2. UCS-A /org # **create persistent-memory-policy** *policy-name*
3. UCS-A /org/persistent-memory-policy* # **set descr** *policy-description*
4. UCS-A /org/persistent-memory-policy* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org**	Enters the root organization mode
Step 2	UCS-A /org # **create persistent-memory-policy** *policy-name*	Creates a persistent memory policy with the specified policy name, and enters the persistent memory policy mode.
Step 3	UCS-A /org/persistent-memory-policy* # **set descr** *policy-description*	Adds a short description of the policy.
Step 4	UCS-A /org/persistent-memory-policy* # **commit-buffer**	Commits the transaction to the system configuration.

Example

This example shows how to create a persistent memory policy:

```
UCS-A# scope org
UCS-A /org # create persistent-memory-policy sample
UCS-A /org/persistent-memory-policy* # set descr "This is a persistent memory policy"
UCS-A /org/persistent-memory-policy* # commit-buffer
UCS-A /org/persistent-memory-policy
```

What to do next

- Create a goal
- Create a namespace

Including a Persistent Memory Policy in a Service Profile

Before you can use a persistent memory policy to manage persistent memory in Cisco UCS Manager, you must include the persistent memory policy in a service profile. After a persistent memory policy is included in a service profile, you can associate the service profile with a Cisco UCS server.

If you include a persistent memory policy in a service profile associated to a server, the persistent memory configuration on the server is **UCS-managed**. In the **UCS-managed** mode, you can use Cisco UCS Manager and host tools to configure and manage persistent memory modules.

If a persistent memory policy is not included in the service profile associated to a server, the persistent memory configuration on the server is **host-managed**. In the **host-managed** mode, you can use the host tools to configure and manage persistent memory modules.

The following procedure describes how to include a persistent memory policy in a service profile.

Before you begin

Create the persistent memory policy that you want to include in a service profile.

SUMMARY STEPS

1. UCS-A# **scope org** *org-name*
2. UCS-A /org # **scope service-profile** *service-profile-name*
3. UCS-A /org/service-profile # **set persistent-memory-policy** *persistent-memory-policy-name*
4. UCS-A /org/service-profile* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org** *org-name*	Enters organization mode for the specified organization. To enter the root organization mode, type / as the org-name .
Step 2	UCS-A /org # **scope service-profile** *service-profile-name*	Enters organization service profile mode for the specified service profile.
Step 3	UCS-A /org/service-profile # **set persistent-memory-policy** *persistent-memory-policy-name*	Sets the persistent memory policy that you want to include in this service profile.
Step 4	UCS-A /org/service-profile* # **commit-buffer**	Commits the transaction to the system configuration.

The persistent memory policy is applied on the server to which the service profile is associated.

Example

This example shows how to include a persistent memory policy in a service profile:

```
UCS-A# scope org
UCS-A /org # scope service-profile sample
UCS-A /org/service-profile # set persistent-memory-policy policy1
UCS-A /org/service-profile* # commit-buffer
```

```
UCS-A /org/service-profile #
```

Removing a Persistent Memory Policy from a Service Profile

Removing a persistent memory policy from a service profile does not change any region or namespace configuration. It changes persistent memory from UCS-managed to host-managed. The following procedure describes how to remove a persistent memory policy from a service profile.

After you remove the persistent memory policy from the service profile that is associated to a server, the server is considered host-managed with respect to persistent memory configuration.

SUMMARY STEPS

1. UCS-A# **scope org** *org-name*
2. UCS-A /org # **scope service-profile** *service-profile-name*
3. UCS-A /org/service-profile # **set persistent-memory-policy noset**
4. UCS-A /org/service-profile* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org** *org-name*	Enters organization mode for the specified organization. To enter the root organization mode, type / as the org-name .
Step 2	UCS-A /org # **scope service-profile** *service-profile-name*	Enters organization service profile mode for the specified service profile.
Step 3	UCS-A /org/service-profile # **set persistent-memory-policy noset**	Removes the persistent memory policy that was included in this service profile.
Step 4	UCS-A /org/service-profile* # **commit-buffer**	Commits the transaction to the system configuration.

The persistent memory policy is removed from the service profile and its associated server.

Example

This example shows how to remove a persistent memory policy from a service profile:

```
UCS-A# scope org
UCS-A /org # scope service-profile sample
UCS-A /org/service-profile # set persistent-memory-policy noset
UCS-A /org/service-profile* # commit-buffer
UCS-A /org/service-profile #
```

Creating a Goal

SUMMARY STEPS

1. UCS-A# **scope org**
2. UCS-A /org # **scope persistent-memory-policy** *policy-name*
3. UCS-A /org/persistent-memory-policy # **create goal all-sockets**
4. UCS-A /org/persistent-memory-policy/goal* # **set persistent-memory-type** {app-direct | app-direct-non-interleaved}
5. UCS-A /org/persistent-memory-policy/goal* # **set memory-mode-percentage** *percentage*
6. UCS-A /org/persistent-memory-policy/goal* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org**	Enters the root organization mode
Step 2	UCS-A /org # **scope persistent-memory-policy** *policy-name*	Enters the specified persistent memory policy, and the persistent memory policy mode.
Step 3	UCS-A /org/persistent-memory-policy # **create goal all-sockets**	Creates a goal for all sockets. The default option is **all-sockets**.
Step 4	UCS-A /org/persistent-memory-policy/goal* # **set persistent-memory-type** {app-direct | app-direct-non-interleaved}	Configures the type of persistent memory. This can be one of the following: • **app-direct**—Configures one region for all the persistent memory modules connected to a socket. • **app-direct-non-interleaved**—Configures one region for each persistent memory module.
Step 5	UCS-A /org/persistent-memory-policy/goal* # **set memory-mode-percentage** *percentage*	Sets percentage of memory on the persistent memory module that is configured as volatile memory.

	Command or Action	Purpose

		Note
		• The default memory mode percentage for:
		  • UCS M5 B-Series and C-Series servers is 100%.
		  • UCS M5 S-Series servers is 0%.
		• For UCS M6 B-Series and C-Series servers:
		  • The **Mixed Mode** is not supported. For 8+1 POR, the **App Direct Non Interleaved Mode** is the only supported configuration.
		  • The default memory mode percentage is 0%.
		• For UCS M5 and M6 servers, the Near Memory (NM) : Far Memory ratio (FM) (DRAM + PMEM) is supported between 1:4 - 1:16 in 100% memory mode.

Step 6	UCS-A /org/persistent-memory-policy/goal* # **commit-buffer**	Commits the transaction to the system configuration.

Example

This example shows how to create a goal:

```
UCS-A# scope org
UCS-A /org # scope persistent-memory-policy sample
UCS-A /org/persistent-memory-policy # create goal all-sockets
UCS-A /org/persistent-memory-policy/goal* # set persistent-memory-type app-direct
UCS-A /org/persistent-memory-policy/goal* # set memory-mode-percentage 10
UCS-A /org/persistent-memory-policy/goal* # commit-buffer
UCS-A /org/persistent-memory-policy/goal #
```

Creating a Namespace

SUMMARY STEPS

1. UCS-A# **scope org**
2. UCS-A /org # **scope persistent-memory-policy** *policy-name*
3. UCS-A /org/persistent-memory-policy # **create logical-namespace** *namespace-name*
4. UCS-A /org/persistent-memory-policy/logical-namespace* # **set capacity** *memory-capacity*

5. UCS-A /org/persistent-memory-policy/logical-namespace* # **set mode** {block | raw}
6. UCS-A /org/persistent-memory-policy/logical-namespace* # **set socket-id** {socket-1 | socket-2 | socket-3 | socket-4
7. UCS-A /org/persistent-memory-policy/logical-namespace* # **set socket-local-dimm-number** {not-applicable | socket-local-dimm-no-2 | socket-local-dimm-no-3 | socket-local-dimm-no-4 | socket-local-dimm-no-6 | socket-local-dimm-no-7 | socket-local-dimm-no-8 | socket-local-dimm-no-10 | socket-local-dimm-no-11 | socket-local-dimm-no-12 | socket-local-dimm-no-14 | socket-local-dimm-no-15 | socket-local-dimm-no-16
8. UCS-A /org/persistent-memory-policy/logical-namespace* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org**	Enters the root organization mode
Step 2	UCS-A /org # **scope persistent-memory-policy** *policy-name*	Enters the specified persistent memory policy, and the persistent memory policy mode.
Step 3	UCS-A /org/persistent-memory-policy # **create logical-namespace** *namespace-name*	Creates a namespace with the specified name. The namespace name has the following constraints: • Must be between 1 and 63 characters in length. • The first character must be a letter (A-Z or a-z), a number(0-9), or a special character(#, -, or _) • The remaining characters can be a combination of letters (A-Z or a-z), numbers (0-9), and special characters (#, -, _, space)
Step 4	UCS-A /org/persistent-memory-policy/logical-namespace* # **set capacity** *memory-capacity*	Sets the memory capacity of the namespace in GiBs.
Step 5	UCS-A /org/persistent-memory-policy/logical-namespace* # **set mode** {block | raw}	Sets the mode in which the namespace is created. This can be: • **raw** • **block**
Step 6	UCS-A /org/persistent-memory-policy/logical-namespace* # **set socket-id** {socket-1 | socket-2 | socket-3 | socket-4	Sets the socket ID for the region to which this namespace belongs. This can be: • **socket-1** • **socket-2** • **socket-3** • **socket-4** **Note** For UCS M6 B-Series and C-Series servers, only **socket-1**and **socket-2** are supported.

	Command or Action	Purpose
Step 7	UCS-A /org/persistent-memory-policy/logical-namespace* # **set socket-local-dimm-number** {not-applicable | socket-local-dimm-no-2 | socket-local-dimm-no-3 | socket-local-dimm-no-4 | socket-local-dimm-no-6 | socket-local-dimm-no-7 | socket-local-dimm-no-8 | socket-local-dimm-no-10 | socket-local-dimm-no-11 | socket-local-dimm-no-12 | socket-local-dimm-no-14 | socket-local-dimm-no-15 | socket-local-dimm-no-16	Sets the local DIMM number for the region to which this namespace belongs. This can be: • The only option avilable for **app-direct** persistent memory type—**not-applicable** • The options available for the **app-direct-non-interleaved** persistent memory type include: • **socket-local-dimm-no-2** • **socket-local-dimm-no-3** • **socket-local-dimm-no-4** • **socket-local-dimm-no-6** • **socket-local-dimm-no-7** • **socket-local-dimm-no-8** • **socket-local-dimm-no-10** • **socket-local-dimm-no-11** • **socket-local-dimm-no-12** • **socket-local-dimm-no-14** • **socket-local-dimm-no-15** • **socket-local-dimm-no-16** **Note** The socket-local-dimm-no-3, 7, 11, 14, 15, and 16 are applicable only for UCS B-Series and C-Series M6 servers.
Step 8	UCS-A /org/persistent-memory-policy/logical-namespace* # **commit-buffer**	Commits the transaction to the system configuration.

Example

This example shows how to create a namespace:

```
UCS-A# scope org
UCS-A /org # scope persistent-memory-policy sample
UCS-A /org/persistent-memory-policy # create logical-namespace space1
UCS-A /org/persistent-memory-policy/logical-namespace* # set capacity 10
UCS-A /org/persistent-memory-policy/logical-namespace* # set mode block
UCS-A /org/persistent-memory-policy/logical-namespace* # set socket-id socket-1
UCS-A /org/persistent-memory-policy/logical-namespace* # set socket-local-dimm-number
socket-local-dimm-no-2
UCS-A /org/persistent-memory-policy/logical-namespace* # commit-buffer
UCS-A /org/persistent-memory-policy/logical-namespace #
```

Creating Local Security Configuration

SUMMARY STEPS

1. UCS-A# **scope org**
2. UCS-A /org # **scope persistent-memory-policy** *policy-name*
3. UCS-A /org/persistent-memory-policy # **create security**
4. UCS-A /org/persistent-memory-policy/security* # **create local-security**
5. UCS-A /org/persistent-memory-policy/security/local-security* # **set secure-passphrase** *secure-passphrase*
6. (Optional) UCS-A /org/persistent-memory-policy/security/local-security* # **set deployed-secure-passphrase** *deployed-secure-passphrase*
7. UCS-A /org/persistent-memory-policy/security/local-security* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org**	Enters the root organization mode
Step 2	UCS-A /org # **scope persistent-memory-policy** *policy-name*	Enters the specified persistent memory policy, and the persistent memory policy mode.
Step 3	UCS-A /org/persistent-memory-policy # **create security**	Creates a security policy policy and enters the persistent memory security mode.
Step 4	UCS-A /org/persistent-memory-policy/security* # **create local-security**	Creates a local security policy and enters persistent memory local security mode.
Step 5	UCS-A /org/persistent-memory-policy/security/local-security* # **set secure-passphrase** *secure-passphrase*	Configures the secure passphrase to be set for the persistent memory policy. The secure passphrase has the following constraints: • Must be between 8 and 32 characters in length. • These characters can be a combination of letters (A-Z or a-z), numbers (0-9), and special characters (!, @, #, $, %, ^, &, *, -, _, +, =).
Step 6	(Optional) UCS-A /org/persistent-memory-policy/security/local-security* # **set deployed-secure-passphrase** *deployed-secure-passphrase*	Configures the currently deployed secure passphrase for the persistent memory policy. The deployed secure passphrase is required when the server that you are configuring has a secure passphrase from a previous deployment. This is required only for secure passphrase modification.

	Command or Action	Purpose
Step 7	UCS-A /org/persistent-memory-policy/security/local-security* # **commit-buffer**	Commits the transaction to the system configuration.

Example

This example shows how to create a local security policy for a persistent memory policy:

```
UCS-A# scope org
UCS-A /org # scope persistent-memory-policy sample
UCS-A /org/persistent-memory-policy # create security
UCS-A /org/persistent-memory-policy/security* # create local-security
UCS-A /org/persistent-memory-policy/security/local-security* # set secure-passphrase
a1b2c3d4e5f6
UCS-A /org/persistent-memory-policy/security/local-security* # set deployed-secure-passphrase
 a1b2c3d4e5f6
UCS-A /org/persistent-memory-policy/security/local-security* # commit-buffer
UCS-A /org/persistent-memory-policy/security/local-security #
```

Modifying a Persistent Memory Policy

SUMMARY STEPS

1. UCS-A# **scope org**
2. UCS-A /org # **scope persistent-memory-policy** *policy-name*
3. UCS-A /org/persistent-memory-policy # **set descr** *policy-description*
4. UCS-A /org/persistent-memory-policy* # **set force-configuration** {no | yes}
5. UCS-A /org/persistent-memory-policy* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org**	Enters the root organization mode
Step 2	UCS-A /org # **scope persistent-memory-policy** *policy-name*	Enters the persistent memory policy mode for the specified policy.
Step 3	UCS-A /org/persistent-memory-policy # **set descr** *policy-description*	Modifies the short description of the policy.
Step 4	UCS-A /org/persistent-memory-policy* # **set force-configuration** {no | yes}	Configures whether **Force Configuration** has been selected or not. This can be one of the following: • **no**—**Force Configuration** is not selected. This is the default value.

	Command or Action	Purpose
		When **Force Configuration** is not selected, the persistent memory policy is not forcibly applied on associated servers. • **yes**—**Force Configuration** is selected. When this is done, the persistent memory policy is forcibly applied on all the associated servers. This will not have any effect if the existing configuration on the server matches the policy configuration. This will also apply the policy on recommissioned servers. Certain operations can lead to data loss due to goal or namespace modification, and hence result in errors. To successfully perform these operations, you must forcefully apply the new configuration on the server. You can do this by setting the **Force Configuration** option to **yes** in the persistent memory policy. **Force Configuration** autiomatically gets set to **no** after each operation. You must select this option everytime you perform one of these operations.
Step 5	UCS-A /org/persistent-memory-policy* # **commit-buffer**	Commits the transaction to the system configuration.

Example

This example shows how to modify a persistent memory policy:

```
UCS-A# scope org
UCS-A /org # scope persistent-memory-policy sample
UCS-A /org/persistent-memory-policy # set descr "This is a modified memory policy description"
UCS-A /org/persistent-memory-policy* # set force-configuration yes
UCS-A /org/persistent-memory-policy* # commit-buffer
UCS-A /org/persistent-memory-policy
```

Modifying a Goal

Modifying a goal will result in the loss of data currently stored in the persistent memory.

Because goal modification is a destructive operation, you must set **Force Configuration** to **yes** before modifying the goal.

Before modifying the **Persistent Memory Type**, delete the existing namespaces. This is because, in the **App Direct** persistent memory type you do not specify a DIMM number for each namespace. In the **App Direct Non Interleaved** persistent memory type, each namespace has a DIMM number specified.

SUMMARY STEPS

1. UCS-A# **scope org**

2. UCS-A /org # **scope persistent-memory-policy** *policy-name*
3. UCS-A /org/persistent-memory-policy # **set force-configuration** {no | yes}
4. UCS-A /org/persistent-memory-policy* # **commit-buffer**
5. UCS-A /org/persistent-memory-policy # **scope goal all-sockets**
6. UCS-A /org/persistent-memory-policy/goal # **set persistent-memory-type** {app-direct | app-direct-non-interleaved}
7. UCS-A /org/persistent-memory-policy/goal* # **set memory-mode-percentage** *percentage*
8. UCS-A /org/persistent-memory-policy/goal* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org**	Enters the root organization mode
Step 2	UCS-A /org # **scope persistent-memory-policy** *policy-name*	Enters the persistent memory policy mode for the specified policy.
Step 3	UCS-A /org/persistent-memory-policy # **set force-configuration** {no | yes}	Configures whether **force-configuration** has been selected or not. This can be one of the following: • **no**—**Force Configuration** is not selected. This is the default value. When **Force Configuration** is not selected, the persistent memory policy is not forcibly applied on associated servers. • **yes**—**Force Configuration** is selected. When this is done, the persistent memory policy is forcibly applied on all the associated servers. This will not have any effect if the existing configuration on the server matches the policy configuration. This will also apply the policy on recommissioned servers. Goal modification is a destructive operation.To successfully modify a goal, you must set **force-configuration** to **yes**.
Step 4	UCS-A /org/persistent-memory-policy* # **commit-buffer**	Commits the transaction to the system configuration.
Step 5	UCS-A /org/persistent-memory-policy # **scope goal all-sockets**	Enters the goal.
Step 6	UCS-A /org/persistent-memory-policy/goal # **set persistent-memory-type** {app-direct | app-direct-non-interleaved}	Configures the type of persistent memory. This can be one of the following: • **app-direct**—Configures one region for all the persistent memory modules connected to a socket. • **app-direct-non-interleaved**—Configures one region for each persistent memory module. Ensure that you delete the namespaces before changing the persistent memory type.

	Command or Action	Purpose

Step 7	UCS-A /org/persistent-memory-policy/goal* # **set memory-mode-percentage** *percentage*	Sets the percentage of memory on the persistent memory module that is configured as volatile memory.
		Note
		• The default memory mode percentage for:
		  • UCS M5 B-Series and C-Series servers is 100%.
		  • UCS M5 S-Series servers is 0%.
		• For UCS M6 B-Series and C-Series servers:
		  • The **Mixed Mode** is not supported. For 8+1 POR, the **App Direct Non Interleaved Mode** is the only supported configuration.
		  • The default memory mode percentage is 0%.
		• For UCS M5 and M6 servers, the Near Memory (NM) : Far Memory ratio (FM) (DRAM + PMEM) is supported between 1:4 - 1:16 in 100% memory mode.

Step 8	UCS-A /org/persistent-memory-policy/goal* # **commit-buffer**	Commits the transaction to the system configuration.

Example

This example shows how to modify a goal:

```
UCS-A# scope org
UCS-A /org # scope persistent-memory-policy sample
UCS-A /org/persistent-memory-policy # set force-configuration yes
UCS-A /org/persistent-memory-policy* # commit-buffer
UCS-A /org/persistent-memory-policy # scope goal all-sockets
UCS-A /org/persistent-memory-policy/goal # set persistent-memory-type app-direct
UCS-A /org/persistent-memory-policy/goal* # set memory-mode-percentage 10
UCS-A /org/persistent-memory-policy/goal* # commit-buffer
UCS-A /org/persistent-memory-policy/goal
```

Modifying a Namespace

You can modify a namespace only if the persistent memory policy that contains the namespace is not referred to by a server. Modifying a namespace is not an allowed operation if the persistent memory policy that contains the namespace is referred to by a server.

The following steps are applicable only when the persistent memory policy that contains the namespace is not referred to by a server.

SUMMARY STEPS

1. UCS-A# **scope org**
2. UCS-A /org # **scope persistent-memory-policy** *policy-name*
3. UCS-A /org/persistent-memory-policy # **scope logical-namespace** *namespace-name*
4. UCS-A /org/persistent-memory-policy/logical-namespace # **set capacity** *memory-capacity*
5. UCS-A /org/persistent-memory-policy/logical-namespace* # **set mode** {block | raw}
6. UCS-A /org/persistent-memory-policy/logical-namespace* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org**	Enters the root organization mode
Step 2	UCS-A /org # **scope persistent-memory-policy** *policy-name*	Enters the persistent memory policy mode for the specified policy.
Step 3	UCS-A /org/persistent-memory-policy # **scope logical-namespace** *namespace-name*	Enters the namespace mode for the specified namespace.
Step 4	UCS-A /org/persistent-memory-policy/logical-namespace # **set capacity** *memory-capacity*	Sets the memory capacity of the namespace in GiBs.
Step 5	UCS-A /org/persistent-memory-policy/logical-namespace* # **set mode** {block | raw}	Sets the mode in which the namespace is created. This can be: • **raw** • **block**
Step 6	UCS-A /org/persistent-memory-policy/logical-namespace* # **commit-buffer**	Commits the transaction to the system configuration.

Example

This example shows how to modify a namespace:

```
UCS-A# scope org
UCS-A /org # scope persistent-memory-policy sample
UCS-A /org/persistent-memory-policy # scope logical-namespace NS1
UCS-A /org/persistent-memory-policy/logical-namespace # set capacity 10
UCS-A /org/persistent-memory-policy/logical-namespace* # set mode block
UCS-A /org/persistent-memory-policy/logical-namespace* # commit-buffer
```

```
UCS-A /org/persistent-memory-policy/logical-namespace #
```

Modifying Local Security Configuration

SUMMARY STEPS

1. UCS-A# **scope org**
2. UCS-A /org # **scope persistent-memory-policy** *policy-name*
3. UCS-A /org/persistent-memory-policy # **scope security**
4. UCS-A /org/persistent-memory-policy/security # **scope local-security**
5. UCS-A /org/persistent-memory-policy/security/local-security* # **set deployed-secure-passphrase** *deployed-secure-passphrase*
6. UCS-A /org/persistent-memory-policy/security/local-security* # **set secure-passphrase** *secure-passphrase*
7. UCS-A /org/persistent-memory-policy/security/local-security* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org**	Enters the root organization mode
Step 2	UCS-A /org # **scope persistent-memory-policy** *policy-name*	Enters the specified persistent memory policy, and the persistent memory policy mode.
Step 3	UCS-A /org/persistent-memory-policy # **scope security**	Enters the persistent memory security mode.
Step 4	UCS-A /org/persistent-memory-policy/security # **scope local-security**	Enters persistent memory local security mode.
Step 5	UCS-A /org/persistent-memory-policy/security/local-security* # **set deployed-secure-passphrase** *deployed-secure-passphrase*	Configures the deployed secure passphrase for the persistent memory policy. The secure passphrase entered here must match the currently deployed secure passphrase.
Step 6	UCS-A /org/persistent-memory-policy/security/local-security* # **set secure-passphrase** *secure-passphrase*	Sets the new secure passphrase for the persistent memory policy. The new secure passphrase can be set only if the deployed secure passphrase is authenticated.
Step 7	UCS-A /org/persistent-memory-policy/security/local-security* # **commit-buffer**	Commits the transaction to the system configuration.

Example

This example shows how to modify the secure passphrase of a local security policy for a persistent memory policy:

```
UCS-A# scope org
UCS-A /org # scope persistent-memory-policy sample
UCS-A /org/persistent-memory-policy # scope security
UCS-A /org/persistent-memory-policy/security # scope local-security
UCS-A /org/persistent-memory-policy/security/local-security # set deployed-secure-passphrase
 a1b2c3d4e5f6
UCS-A /org/persistent-memory-policy/security/local-security* # set secure-passphrase
g7h8i9j0k1l2
UCS-A /org/persistent-memory-policy/security/local-security* # commit-buffer
UCS-A /org/persistent-memory-policy/security/local-security #
```

Viewing Properties of a Persistent Memory Policy

SUMMARY STEPS

1. UCS-A# **scope org**
2. UCS-A /org # **show persistent-memory-policy** *policy-name* [detail]

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org**	Enters the root organization mode
Step 2	UCS-A /org # **show persistent-memory-policy** *policy-name* [detail]	Displays the properties of the policy.

Example

This example shows how to view the properties of a persistent memory policy:

```
UCS-A# scope org
UCS-A /org # show persistent-memory-policy sample detail

Persistent Memory Policy:
    Name: sample
    Description:
    Policy Owner: Local
    Force Configuration: No
UCS-A /org #
```

Viewing Properties of a Goal

SUMMARY STEPS

1. UCS-A# **scope org**
2. UCS-A /org # **scope persistent-memory-policy** *policy-name*
3. UCS-A /org/persistent-memory-policy # **show goal** [detail]

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org**	Enters the root organization mode
Step 2	UCS-A /org # **scope persistent-memory-policy** *policy-name*	Enters the persistent memory policy mode for the specified policy.
Step 3	UCS-A /org/persistent-memory-policy # **show goal** [detail]	Displays the properties of the goal.

Example

This example shows how to view the properties of a goal:

```
UCS-A# scope org
UCS-A /org # scope persistent-memory-policy sample
UCS-A /org/persistent-memory-policy # show goal detail

Persistent Memory Goal:
    Socket ID: All Sockets
    Memory Mode Percentage: 0
    Persistent Memory Type: App Direct
UCS-A /org/persistent-memory-policy/goal #
```

Viewing Properties of a Namespace

SUMMARY STEPS

1. UCS-A# **scope org**
2. UCS-A /org # **enter persistent-memory-policy** *policy-name*
3. UCS-A /org/persistent-memory-policy # **show logical-namespace** *namespace-name* [detail]
4. (Optional) UCS-A /org/persistent-memory-policy # **show logical-namespace** [detail]

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org**	Enters the root organization mode
Step 2	UCS-A /org # **enter persistent-memory-policy** *policy-name*	Enters the persistent memory policy mode for the specified policy.
Step 3	UCS-A /org/persistent-memory-policy # **show logical-namespace** *namespace-name* [detail]	Displays the properties of the specified namespace.
Step 4	(Optional) UCS-A /org/persistent-memory-policy # **show logical-namespace** [detail]	Displays the properties of all namespaces in the persistent memory policy.

Example

This example shows how to view the properties of a specific namespace:

```
UCS-A# scope org
UCS-A /org # enter persistent-memory-policy sample
UCS-A /org/persistent-memory-policy # show logical-namespace NS1 detail

Persistent Memory Logical Namespace:
    Name: NS1
    Capacity (GiB): 10
    Socket ID: Socket 1
    Socket Local Dimm Number: Not Applicable
    Mode: Raw
UCS-A /org/persistent-memory-policy #
```

This example shows how to display the properties of all namespaces in the persistent memory policy:

```
UCS-A# scope org
UCS-A /org # enter persistent-memory-policy sample
UCS-A /org/persistent-memory-policy # show logical-namespace detail

Persistent Memory Logical Namespace:
    Name: NS1
    Capacity (GiB): 10
    Socket ID: Socket 1
    Socket Local Dimm Number: Not Applicable
    Mode: Raw

    Name: NS2
    Capacity (GiB): 20
    Socket ID: Socket 2
    Socket Local Dimm Number: Not Applicable
    Mode: Raw

    Name: NS3
    Capacity (GiB): 15
    Socket ID: Socket 2
    Socket Local Dimm Number: Not Applicable
    Mode: Raw

UCS-A /org/persistent-memory-policy #
```

Viewing Local Security Configuration Properties

SUMMARY STEPS

1. UCS-A# **scope org**
2. UCS-A /org # **scope persistent-memory-policy** *policy-name*
3. UCS-A /org/persistent-memory-policy # **scope security**
4. UCS-A /org/persistent-memory-policy/security # **scope local-security**
5. UCS-A /org/persistent-memory-policy/security/local-security # **show detail**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org**	Enters the root organization mode
Step 2	UCS-A /org # **scope persistent-memory-policy** *policy-name*	Enters the persistent memory policy mode for the specified policy.
Step 3	UCS-A /org/persistent-memory-policy # **scope security**	Enters the persistent memory security mode.
Step 4	UCS-A /org/persistent-memory-policy/security # **scope local-security**	Enters the local security mode.
Step 5	UCS-A /org/persistent-memory-policy/security/local-security # **show detail**	Displays details of the local security configuration.

Example

This example shows how to view details of a local security policy:

```
UCS-A# scope org
UCS-A /org # scope persistent-memory-policy PMemP_1
UCS-A /org/persistent-memory-policy # scope security
UCS-A /org/persistent-memory-policy/security # scope local-security
UCS-A /org/persistent-memory-policy/security/local-security # show detail

Persistent Memory Local Security:
Secure Passphrase: ****
Deployed Secure Passphrase: ****
UCS-A /org/persistent-memory-policy/security/local-security #
```

Deleting a Persistent Memory Policy

You cannot delete a persistent memory policy when the policy is referred to by a server. To delete a persistent memory policy when it is not referred to by a server, follow these steps:

SUMMARY STEPS

1. UCS-A# **scope org**
2. UCS-A /org # **delete persistent-memory-policy** *policy-name*
3. UCS-A /org* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org**	Enters the root organization mode
Step 2	UCS-A /org # **delete persistent-memory-policy** *policy-name*	Deletes the specified persistent memory policy.

	Command or Action	Purpose
Step 3	UCS-A /org* # **commit-buffer**	Commits the transaction to the system configuration.

Example

This example shows how to delete a persistent memory policy when it is not referred to by a server:

```
UCS-A# scope org
UCS-A /org # show persistent-memory-policy

Persistent Memory Policy:
    Name                 Force Configuration
    -------------------- -------------------
    PMemP_1              No
    PMemP_2              No
    PMemP_3              No
    PMemP_4              No
    PMemP_5              No
    PMemP_6              No

UCS-A /org # delete persistent-memory-policy PMemP_4
UCS-A /org* # commit-buffer
UCS-A /org # show persistent-memory-policy

Persistent Memory Policy:
    Name                 Force Configuration
    -------------------- -------------------
    PMemP_1              No
    PMemP_2              No
    PMemP_3              No
    PMemP_5              No
    PMemP_6              No


UCS-A /org #
```

Deleting a Goal

For UCS M5 , M6 B-Series and C-Series servers, deleting a goal deletes all related regions and namespaces on the associated servers, and disables security. For UCS M5 S-Series servers, deleting a goal deletes all namespaces on the associated servers, and disables security. Goal deletion also returns the persistent memory module to its default state. The default state of a persistent memory module is:

- UCS M5 ,M6 B-Series and C-Series servers—100% **Memory Mode** and **App Direct** persistent memory type
- UCS M5 S-Series servers—0% **Memory Mode** and **App Direct Non Interleaved** persistent memory type

Because goal deletion is a destructive operation, you must set **Force Configuration** to **yes** before deleting the goal.

SUMMARY STEPS

1. UCS-A# **scope org**
2. UCS-A /org # **scope persistent-memory-policy** *policy-name*
3. UCS-A /org/persistent-memory-policy # **set force-configuration** {no | yes}
4. UCS-A /org/persistent-memory-policy* # **delete goal all-sockets**
5. UCS-A /org/persistent-memory-policy* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org**	Enters the root organization mode
Step 2	UCS-A /org # **scope persistent-memory-policy** *policy-name*	Enters the persistent memory policy mode for the specified policy.
Step 3	UCS-A /org/persistent-memory-policy # **set force-configuration** {no | yes}	Configures whether **force-configuration** has been selected or not. This can be one of the following: • **no**—**Force Configuration** is not selected. This is the default value. When **Force Configuration** is not selected, the persistent memory policy is not forcibly applied on associated servers. • **yes**—**Force Configuration** is selected. When this is done, the persistent memory policy is forcibly applied on all the associated servers. This will not have any effect if the existing configuration on the server matches the policy configuration. This will also apply the policy on recommissioned servers. Goal deletion is a destructive operation.To successfully delete a goal, you must set **force-configuration** to **Yes**.
Step 4	UCS-A /org/persistent-memory-policy* # **delete goal all-sockets**	Deletes the goal.
Step 5	UCS-A /org/persistent-memory-policy* # **commit-buffer**	Commits the transaction to the system configuration.

Example

This example shows how to delete a goal:

```
UCS-A# scope org
UCS-A /org # scope persistent-memory-policy PMemP_1
UCS-A /org/persistent-memory-policy # set force-configuration yes
UCS-A /org/persistent-memory-policy* # delete goal all-sockets
UCS-A /org/persistent-memory-policy* # commit-buffer
UCS-A /org/persistent-memory-policy #
```

Deleting a Namespace

Deleting a namespace will result in the loss of data currently stored in the namespace.

Because namespace deletion is a destructive operation, you must set **Force Configuration** to **yes** before deleting the namespace.

SUMMARY STEPS

1. UCS-A# **scope org**
2. UCS-A /org # **scope persistent-memory-policy** *policy-name*
3. UCS-A /org/persistent-memory-policy # **set force-configuration** {no | yes}
4. UCS-A /org/persistent-memory-policy* # **delete logical-namespace** *namespace-name*
5. UCS-A /org/persistent-memory-policy* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org**	Enters the root organization mode
Step 2	UCS-A /org # **scope persistent-memory-policy** *policy-name*	Enters the persistent memory policy mode for the specified policy.
Step 3	UCS-A /org/persistent-memory-policy # **set force-configuration** {no | yes}	Configures whether **Force Configurationforce-configuration** has been selected or not. This can be one of the following: • **Nono**—**Force Configuration** is not selected. This is the default value. When **Force Configuration** is not selected, the persistent memory policy is not forcibly applied on associated servers. • **Yesyes**—**Force Configuration** is selected. When this is done, the persistent memory policy is forcibly applied on all the associated servers. This will not have any effect if the existing configuration on the server matches the policy configuration. This will also apply the policy on recommissioned servers. Namespace modification is a destructive operation.To successfully modify a namespace, you must set **Force Configurationforce-configuration** to **Yes**.
Step 4	UCS-A /org/persistent-memory-policy* # **delete logical-namespace** *namespace-name*	Deletes the specified namespace.
Step 5	UCS-A /org/persistent-memory-policy* # **commit-buffer**	Commits the transaction to the system configuration.

Example

This example shows how to delete a namespace:

```
UCS-A# scope org
UCS-A /org # scope persistent-memory-policy PMemP_2
UCS-A /org/persistent-memory-policy # set force-configuration yes
UCS-A /org/persistent-memory-policy* # delete logical-namespace NSP1
UCS-A /org/persistent-memory-policy* # commit-buffer
UCS-A /org/persistent-memory-policy #
```

Deleting Local Security Configuration

Deleting the security configuration will disable security.

SUMMARY STEPS

1. UCS-A# **scope org**
2. UCS-A /org # **scope persistent-memory-policy** *policy-name*
3. UCS-A /org/persistent-memory-policy # **scope security**
4. UCS-A /org/persistent-memory-policy/security # **delete local-security**
5. UCS-A /org/persistent-memory-policy/security* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org**	Enters the root organization mode
Step 2	UCS-A /org # **scope persistent-memory-policy** *policy-name*	Enters the persistent memory policy mode for the specified policy.
Step 3	UCS-A /org/persistent-memory-policy # **scope security**	Enters the persistent memory security mode.
Step 4	UCS-A /org/persistent-memory-policy/security # **delete local-security**	Deletes the local security policy.
Step 5	UCS-A /org/persistent-memory-policy/security* # **commit-buffer**	Commits the transaction to the system configuration.

Example

This example shows how to delete a local security policy:

```
UCS-A# scope org
UCS-A /org # scope persistent-memory-policy PMemP_1
UCS-A /org/persistent-memory-policy # scope security
UCS-A /org/persistent-memory-policy/security # delete local-security
UCS-A /org/persistent-memory-policy/security* # commit-buffer
UCS-A /org/persistent-memory-policy/security #
```

Physical Configuration and Inventory for Persistent Memory

You can view the physical inventory and configuration of all the persistent memory modules on a B-Series, C-Series, or S-Series server. The following parameters are detailed:

- DIMMs—Properties of persistent memory modules.

  Persistent memory modules on the same server are locked by using a single secure passphrase. If locked persistent memory modules are brought over from a different server, they need to be unlocked before they can be managed from the new server.

- Configuration—Overall server-level persistent memory configuration.
- Region—Properties of all the regions on the server.

  A region is a grouping of one or more persistent memory modules that can be divided up into one or more namespaces. A region is created based on the persistent memory type selected during goal creation.

  The **App Direct** persistent memory type configures one region for all the memory modules connected to a socket. The **App Direct Non Interleaved** persistent memory type configures one region for each memory module.

- Namespace—Properties of all the logical namespaces available on the server.

  These namespaces are seen by the host OS as block devices or raw devices.

Secure Erase

You can perform secure erase on a specific persistent memory module or all the persistent memory modules on a server. This operation deletes the region data and namespaces.

For the secure erase operation, you must provide a secure passphrase when security is enabled. When security is disabled, a secure passphrase in not required for the secure erase operation.

Viewing the Persistent Memory Modules on a Server

You can view the inventory of all the persistent memory modules on a B-Series, C-Series, or S-Series server.

SUMMARY STEPS

1. UCS-A# **scope server** *chassis-num* / *server-num*
2. UCS-A /chassis/server # **show persistent-memory**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope server** *chassis-num* / *server-num*	Enters server mode for the specified chassis and server.
Step 2	UCS-A /chassis/server # **show persistent-memory**	Displays the list of all persistent memory modules on the specified server.

Example

This example shows how to view all the persistent memory modules on a server:

```
UCS-A# scope server 1/5
UCS-A /chassis/server # show persistent-memory
DIMM Location   Presence         Overall Status           Type
Capacity (MB) Clock
---- ---------- ---------------- ------------------------ --------------------------
------------- -----
   2 DIMM_A2    Equipped         Operable                 Logical Non Volatile Device 129408
         2666
   8 DIMM_D2    Equipped         Operable                 Logical Non Volatile Device 129408
         2666
  14 DIMM_G2    Equipped         Operable                 Logical Non Volatile Device 129408
         2666
  20 DIMM_K2    Equipped         Operable                 Logical Non Volatile Device 129408
         2666
  26 DIMM_N2    Equipped         Operable                 Logical Non Volatile Device 129408
         2666
  32 DIMM_R2    Equipped         Operable                 Logical Non Volatile Device 129408
         2666
  38 DIMM_U2    Equipped         Operable                 Logical Non Volatile Device 129408
         2666
  44 DIMM_X2    Equipped         Operable                 Logical Non Volatile Device 129408
         2666
```

Viewing Persistent Memory Module Properties

SUMMARY STEPS

1. UCS-A# **scope server** *chassis-num* / *server-num*
2. UCS-A /chassis/server # **scope memory-array** *ID*
3. UCS-A /chassis/server/memory-array # **scope persistent-memory-dimm** *dimm-ID*
4. UCS-A /chassis/server/memory-array/persistent-memory-dimm # **show detail**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope server** *chassis-num* / *server-num*	Enters server mode for the specified chassis and server.
Step 2	UCS-A /chassis/server # **scope memory-array** *ID*	Enters memory-array configuration mode for the selected memory array.
Step 3	UCS-A /chassis/server/memory-array # **scope persistent-memory-dimm** *dimm-ID*	Enters persistent-memory-dimm mode within the memory array for the selected persistent memory module.
Step 4	UCS-A /chassis/server/memory-array/persistent-memory-dimm # **show detail**	Displays properties of the selected persistent memory module.

Example

This example shows how to view the properties of a specific persistent memory module on a server:

```
UCS-A# scope server 1/5
UCS-A /chassis/server # scope memory-array 1
UCS-A /chassis/server/memory-array # scope persistent-memory-dimm 2
UCS-A /chassis/server/memory-array/persistent-memory-dimm # show detail

Persistent Memory Unit:
    ID: 2
    Location: DIMM_A2
    Presence: Equipped
    Operability: Operable
    Visibility: Yes
    Overall Status: Operable
    Admin State: Policy
    Oper Qualifier: N/A
    Product Name: Intel Optane DC Persistent Memory, 128GB, 2666MHz
    PID: UCS-MP-128GS-A0
    VID: V01
    Vendor: 0x8900
    Vendor Description: Intel
    Vendor Part Number: NMA1XBD128GQS
    Vendor Serial (SN): 000003B8
    HW Revision: 0
    Form Factor: DIMM
    Type: Logical Non Volatile Device
    Capacity (MB): 129408
    Clock: 2666
    Latency: 0.400000
    Width: 64
    Threshold Status: N/A
    Power State: N/A
    Thermal Status: OK
    Voltage Status: N/A
    Socket Id: Socket 1
    Socket Local Dimm Number: Socket Local Dimm No 2
    Total Capacity (GiB): 126
    Persistent Memory Capacity (GiB): 126
    Memory Capacity (GiB): 0
    App Direct Capacity (GiB): 126
    Reserved Capacity (GiB): 0
    Firmware Version: 1.2.0.5355
    Health State: Healthy
    Security Status: Disabled, UnLocked, Frozen, Count not expired
    Uid: 8089-A2-1847-000003B8
    Selected: No
```

Performing Secure Erase on a Persistent Memory Module

For the secure erase operation, you must provide a secure passphrase when security is enabled. When security is disabled, a secure passphrase in not required for the secure erase operation. Press the **Enter** key (empty passphrase) at the **Enter Secure Passphrase** prompt.

SUMMARY STEPS

1. UCS-A# **scope server** *chassis-num* / *server-num*
2. UCS-A /chassis/server # **scope memory-array** *ID*
3. UCS-A /chassis/server/memory-array # **scope persistent-memory-dimm** *dimm-ID*
4. UCS-A /chassis/server/memory-array/persistent-memory-dimm # **set selected** {yes | no}
5. UCS-A /chassis/server/memory-array/persistent-memory-dimm* # **exit**
6. UCS-A /chassis/server/memory-array* # **secure-erase persistent-memory-dimms**
7. UCS-A /chassis/server/memory-array* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope server** *chassis-num* / *server-num*	Enters server mode for the specified chassis and server.
Step 2	UCS-A /chassis/server # **scope memory-array** *ID*	Enters memory-array configuration mode for the selected memory array.
Step 3	UCS-A /chassis/server/memory-array # **scope persistent-memory-dimm** *dimm-ID*	Enters persistent-memory-dimm mode within the memory array.
Step 4	UCS-A /chassis/server/memory-array/persistent-memory-dimm # **set selected** {yes | no}	Configures whether the persistent memory module is selected or not.
Step 5	UCS-A /chassis/server/memory-array/persistent-memory-dimm* # **exit**	Exits to the memory-array configuration mode.
Step 6	UCS-A /chassis/server/memory-array* # **secure-erase persistent-memory-dimms**	Performs secure erase on the selected persistent memory modules. If security is enabled, enter the secure passphrase in the prompt. If security is not enabled, press the **Enter** key (empty passphrase) at the prompt. Securely erasing persistent memory modules is a destructive operation, and will result in deletion of region data and namespaces.
Step 7	UCS-A /chassis/server/memory-array* # **commit-buffer**	Commits the transaction to the system configuration.

Example

This example shows how to perform secure erase on a persistent memory module on a server:

```
UCS-A# scope server 1/5
UCS-A /chassis/server # scope memory-array 1
UCS-A /chassis/server/memory-array # scope persistent-memory-dimm 2
UCS-A /chassis/server/memory-array/persistent-memory-dimm # set selected yes
UCS-A /chassis/server/memory-array/persistent-memory-dimm* # exit
UCS-A /chassis/server/memory-array* # secure-erase persistent-memory-dimms
Enter Secure Passphrase:************
UCS-A /chassis/server/memory-array* # commit-buffer
```

```
UCS-A /chassis/server/memory-array #
```

Unlocking Foreign Persistent Memory Modules

Before you begin

Before you use the following procedure to select the persistent memory modules to be unlocked, and perform the unlock foreign DIMMs operation, ensure that you do the following:

1. Decommission the server.
2. Change the persistent memory modules.
3. Recommission the server.
4. Associate the server to a service-profile without a persistent memory policy.
5. Ensure that the server is in the powered-on state, and BIOS POST is completed.

SUMMARY STEPS

1. UCS-A# **scope server** *chassis-num* / *server-num*
2. UCS-A /chassis/server # **scope memory-array** *ID*
3. UCS-A /chassis/server/memory-array # **scope persistent-memory-dimm** *foreign-dimm-ID*
4. UCS-A /chassis/server/memory-array/persistent-memory-dimm # **set selected** {yes | no}
5. UCS-A /chassis/server/memory-array/persistent-memory-dimm* # **exit**
6. UCS-A /chassis/server/memory-array* # **unlock foreign persistent-memory-dimms**
7. UCS-A /chassis/server/memory-array* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope server** *chassis-num* / *server-num*	Enters server mode for the specified chassis and server.
Step 2	UCS-A /chassis/server # **scope memory-array** *ID*	Enters memory-array configuration mode for the selected memory array.
Step 3	UCS-A /chassis/server/memory-array # **scope persistent-memory-dimm** *foreign-dimm-ID*	Enters persistent-memory-dimm mode for the selected foreign persistent memory module within the memory array.
Step 4	UCS-A /chassis/server/memory-array/persistent-memory-dimm # **set selected** {yes | no}	Configures whether the specified foreign persistent memory module is selected or not.
Step 5	UCS-A /chassis/server/memory-array/persistent-memory-dimm* # **exit**	Exits to the memory-array configuration mode.
Step 6	UCS-A /chassis/server/memory-array* # **unlock foreign persistent-memory-dimms**	Unlocks the selected foreign persistent memory modules. Enter the secure passphrase in the prompt.

	Command or Action	Purpose
		You must provide the same passphrase that is already deployed on the foreign persistent memory module taken from a different server.
Step 7	UCS-A /chassis/server/memory-array* # **commit-buffer**	Commits the transaction to the system configuration.

Example

This example shows how to unlock a foreign persistent memory module on a server:

```
UCS-A# scope server 1/5
UCS-A /chassis/server # scope memory-array 1
UCS-A /chassis/server/memory-array # scope persistent-memory-dimm 4
UCS-A /chassis/server/memory-array/persistent-memory-dimm # set selected yes
UCS-A /chassis/server/memory-array/persistent-memory-dimm* # exit
UCS-A /chassis/server/memory-array* # unlock foreign persistent-memory-dimms
Enter Secure Passphrase:************
UCS-A /chassis/server/memory-array* # commit-buffer
UCS-A /chassis/server/memory-array #
```

What to do next

1. Check whether the persistent memory modules get unlocked after the ExecuteActions FSM completes. Now, the persistent memory modules are ready to be used.
2. Attach a persistent memory policy.
3. Check whether the associate FSM completes.

Cancelling the ExecuteActions FSM for Secure Erase and Unlock Foreign DIMM Operations

If the Secure Erase or Unlock Foreign DIMM operation fails, you can cancel the ExecuteActions FSM to proceed with other operations. For example, if you try to unlock a foreign persistent memory module with an incorrect secure passphrase, the FSM will fail. You can use the following commands to cancel the ExecuteActions FSM.

SUMMARY STEPS

1. UCS-A# **scope server** *chassis-num* / *server-num*
2. UCS-A /chassis/server # **scope persistent-memory-config**
3. UCS-A /chassis/server/persistent-memory-config # **cancel execute-actions-fsm**
4. UCS-A /chassis/server/persistent-memory-config* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope server** *chassis-num* / *server-num*	Enters server mode for the specified chassis and server.
Step 2	UCS-A /chassis/server # **scope persistent-memory-config**	Enters persistent-memory configuration mode for the server.
Step 3	UCS-A /chassis/server/persistent-memory-config # **cancel execute-actions-fsm**	Cancels the ExecuteActions FSM.
Step 4	UCS-A /chassis/server/persistent-memory-config* # **commit-buffer**	Commits the transaction to the system configuration.

Example

This example shows how to cancel the ExecuteActions FSM after performing secure erase or unlock foreign DIMM operations:

```
UCS-A# scope server 1/5
UCS-A /chassis/server # scope persistent-memory-config
UCS-A /chassis/server/persistent-memory-config # cancel execute-actions-fsm
UCS-A /chassis/server/persistent-memory-config* # commit-buffer
```

Viewing the Persistent Memory Configuration of a Server

You can view the configuration of persistent memory modules on a B-Series, C-Series, or S-Series server.

SUMMARY STEPS

1. UCS-A# **scope server** *chassis-num* / *server-num*
2. UCS-A /chassis/server # **scope persistent-memory-config**
3. UCS-A /chassis/server/persistent-memory-config # **show detail**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope server** *chassis-num* / *server-num*	Enters server mode for the specified chassis and server.
Step 2	UCS-A /chassis/server # **scope persistent-memory-config**	Enters persistent-memory configuration mode for the server.
Step 3	UCS-A /chassis/server/persistent-memory-config # **show detail**	Displays the overall configuration of all persistent memory modules on the specified server.

Example

This example shows how to view all the persistent memory modules on a server:

```
UCS-A# scope server 1/5
UCS-A /chassis/server # scope persistent-memory-config
```

```
UCS-A /chassis/server/persistent-memory-config # show detail

Persistent Memory Configuration:
    Total Capacity (GiB): 1011
    Persistent Memory Capacity (GiB): 1008
    Memory Capacity (GiB): 0
    Reserved Capacity (GiB): 0
    Number Of Regions: 4
    Number Of Dimms: 8
    Security State: Disabled-Frozen
```

Performing Secure Erase on All Persistent Memory Modules on a Server

For the secure erase operation, you must provide a secure passphrase when security is enabled. When security is disabled, a secure passphrase in not required for the secure erase operation. Press the **Enter** key (empty passphrase) at the **Enter Secure Passphrase** prompt.

SUMMARY STEPS

1. UCS-A# **scope server** *chassis-num* / *server-num*
2. UCS-A /chassis/server # **scope persistent-memory-config**
3. UCS-A /chassis/server/persistent-memory-config # **secure-erase persistent memory configuration**
4. UCS-A /chassis/server/persistent-memory-config* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope server** *chassis-num* / *server-num*	Enters server mode for the specified chassis and server.
Step 2	UCS-A /chassis/server # **scope persistent-memory-config**	Enters persistent-memory configuration mode for the server.
Step 3	UCS-A /chassis/server/persistent-memory-config # **secure-erase persistent memory configuration**	Securely erases all the persistent memory module configuration on the server. If security is enabled, enter the secure passphrase in the prompt. If security is not enabled, press the **Enter** key (empty passphrase) at the prompt. Securely erasing persistent memory modules is a destructive operation, and will result in deletion of all the region data and namespaces on the server.
Step 4	UCS-A /chassis/server/persistent-memory-config* # **commit-buffer**	Commits the transaction to the system configuration.

Example

This example shows how to securely erase all persistent memory module configuration on a server:

```
UCS-A# scope server 1/5
UCS-A /chassis/server # scope persistent-memory-config
UCS-A /chassis/server/persistent-memory-config # secure-erase persistent memory configuration

Enter Secure Passphrase:************
UCS-A /chassis/server/persistent-memory-config* # commit-buffer
UCS-A /chassis/server/persistent-memory-config #
```

Viewing the Regions on a Server

You can view the inventory of the regions on a B-Series, C-Series, or S-Series server.

SUMMARY STEPS

1. UCS-A# **scope server** *chassis-num* / *server-num*
2. UCS-A /chassis/server # **scope persistent-memory-config**
3. UCS-A /chassis/server/persistent-memory-config # **show region**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope server** *chassis-num* / *server-num*	Enters server mode for the specified chassis and server.
Step 2	UCS-A /chassis/server # **scope persistent-memory-config**	Enters the persistent memory configuration mode.
Step 3	UCS-A /chassis/server/persistent-memory-config # **show region**	Displays details of all regions across persistent memory modules on the specified server.

Example

This example shows how to view all the regions on a server:

```
UCS-A# scope server 1/5
UCS-A /chassis/server # scope persistent-memory-config
UCS-A /chassis/server/persistent-memory-config # show region

Pmemory Region:
    Id         Socket Id Socket Local Dimm Number Interleaved Set Id
    ---------- --------- ----------------------- ------------------
             1 Socket 1  Not Applicable           5d54eeb8b2392444
             2 Socket 2  Not Applicable           d380eeb8af3b2444
             3 Socket 3  Not Applicable           9bb4eeb8573f2444
             4 Socket 4  Not Applicable           8d78eeb8e6392444
```

Note For UCS M6 B-Series and C-Series servers, only **socket-1**and **socket-2** are supported.

Viewing Region Properties

SUMMARY STEPS

1. UCS-A# **scope server** *chassis-num* / *server-num*
2. UCS-A /chassis/server # **scope persistent-memory-config**
3. UCS-A /chassis/server/persistent-memory-config # **scope region** *region-ID*
4. UCS-A /chassis/server/persistent-memory-config/region #**show detail**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope server** *chassis-num* / *server-num*	Enters server mode for the specified chassis and server.
Step 2	UCS-A /chassis/server # **scope persistent-memory-config**	Enters the persistent memory configuration mode.
Step 3	UCS-A /chassis/server/persistent-memory-config # **scope region** *region-ID*	Enters the configuration mode for the selected region.
Step 4	UCS-A /chassis/server/persistent-memory-config/region #**show detail**	Displays properties of the selected region.

Example

This example shows how to view the properties of a specific region on a server:

```
UCS-A# scope server 1/5
UCS-A /chassis/server # scope persistent-memory-config
UCS-A /chassis/server/persistent-memory-config # scope region 2
UCS-A /chassis/server/persistent-memory-config/region # show detail

Persistent Memory Region:
    Id: 2
    Socket Id: Socket 2
    Socket Local Dimm Number: Not Applicable
    Interleaved Set Id: 1796eeb8553c2444
    Persistent Memory Type: AppDirect
    Dimm Locater Ids: DIMM_G2,DIMM_K2
    Health State: Healthy
    Total Capacity (GiB): 252
    Free Capacity (GiB): 252
```

Viewing Namespaces in a Region

You can view the inventory of the namespaces on a B-Series, C-Series, or S-Series server.

SUMMARY STEPS

1. UCS-A# **scope server** *chassis-num* / *server-num*
2. UCS-A /chassis/server # **scope persistent-memory-config**
3. UCS-A /chassis/server/persistent-memory-config # **scope region** *region-id*
4. UCS-A /chassis/server/persistent-memory-config/region # **show namespace** [detail]

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope server** *chassis-num* / *server-num*	Enters server mode for the specified chassis and server.
Step 2	UCS-A /chassis/server # **scope persistent-memory-config**	Enters the persistent memory configuration mode.
Step 3	UCS-A /chassis/server/persistent-memory-config # **scope region** *region-id*	Enters the region configuration mode.
Step 4	UCS-A /chassis/server/persistent-memory-config/region # **show namespace** [detail]	Displays details of all namespaces in the specified region.

Example

This example shows how to view all the namespaces in a region:

```
UCS-A# scope server 1/5
UCS-A /chassis/server # scope persistent-memory-config
UCS-A /chassis/server/persistent-memory-config # scope region 1
UCS-A /chassis/server/persistent-memory-config/region # show namespace detail

Pmemory Namespace:
    Name: NS1
    Capacity (GiB): 100
    Uuid: 7286246-48cf-4750-b066-647f6684ac28
    Oper Mode: Raw
    Health State: Healthy
    Label Version: 1.2

    Name: NS2
    Capacity (GiB): 10
    Uuid: 7312f895-7f70-4646-b08d-8d5ef5b98577
    Oper Mode: Raw
    Health State: Healthy
    Label Version: 1.2
```

Viewing Namespace Properties

SUMMARY STEPS

1. UCS-A# **scope server** *chassis-num* / *server-num*
2. UCS-A /chassis/server # **scope persistent-memory-config**
3. UCS-A /chassis/server/persistent-memory-config # **scope region** *region-ID*
4. UCS-A /chassis/server/persistent-memory-config/region # scope namespace *namespace-Uuid*
5. UCS-A /chassis/server/persistent-memory-config/region/namespace #**show detail**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope server** *chassis-num* / *server-num*	Enters server mode for the specified chassis and server.
Step 2	UCS-A /chassis/server # **scope persistent-memory-config**	Enters the persistent memory configuration mode.
Step 3	UCS-A /chassis/server/persistent-memory-config # **scope region** *region-ID*	Enters the configuration mode for the selected region.
Step 4	UCS-A /chassis/server/persistent-memory-config/region # scope namespace *namespace-Uuid*	Enters the configuration mode for the selected namespace.
Step 5	UCS-A /chassis/server/persistent-memory-config/region/namespace #**show detail**	Displays properties of the selected namespace.

Example

This example shows how to view the properties of a specific namespace in a specific region:

```
UCS-A# scope server 1/5
UCS-A /chassis/server # scope persistent-memory-config
UCS-A /chassis/server/persistent-memory-config # scope region 2
UCS-A /chassis/server/persistent-memory-config/region # scope namespace
e09a549d-3ed7-44cb-b086-c54321c12345
UCS-A /chassis/server/persistent-memory-config/region/namespace # show detail

Persistent Memory Namespace:
    Name: NS1
    Uuid: e09a549d-3ed7-44cb-b086-c54321c12345
    Capacity (GiB) (MB): 30
    Mode: Raw
    Health State: Healthy
    Label Version: 1.2
```

Performing Persistent Memory Scrub

In Cisco UCS Manager, you can scrub persistent memory by using one of the following methods:

- Disassociating the Service Profile and the Scrub Policy with Persistent Memory Scrub Selected
- Resetting a Server to Factory Defaults With Persistent Memory Scrub Selected
- Deleting a Goal

Disassociating the Service Profile and the Scrub Policy with Persistent Memory Scrub Selected

Disassociating the service profile and the scrub policy, which has the persistent memory scrub option selected will result in deletion of all regions and namespaces and its data in all the persistent memory modules. Security will be disabled, if it is already enabled. The following procedure describes how to disassociate a service profile and a scrub policy.

SUMMARY STEPS

1. UCS-A# **scope org** *org-name*
2. UCS-A /org # **scope service-profile** *service-profile-name*
3. UCS-A /org/service-profile # **set scrub-policy scrub-policy-name**
4. UCS-A /org/service-profile* # **commit-buffer**
5. UCS-A /org/service-profile # **disassociate**
6. UCS-A /org/service-profile* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope org** *org-name*	Enters organization mode for the specified organization. To enter the root organization mode, type / as the org-name .
Step 2	UCS-A /org # **scope service-profile** *service-profile-name*	Enters organization service profile mode for the specified service profile.
Step 3	UCS-A /org/service-profile # **set scrub-policy scrub-policy-name**	Assigns scrub policy to this service profile. Select a scrub policy with the persistent memory scrub option set to **yes**.
Step 4	UCS-A /org/service-profile* # **commit-buffer**	Commits the transaction to the system configuration. Association of the scrub policy to the service profile is completed.
Step 5	UCS-A /org/service-profile # **disassociate**	Disassociates the service profile from the server.
Step 6	UCS-A /org/service-profile* # **commit-buffer**	Commits the transaction to the system configuration.

On UCS M5, M6 B-Series and C-Series servers: Regions and namespaces will be deleted after successful disassociation.

On UCS M5 S-Series servers: Namespaces will be deleted after successful disassociation.

Example

This example shows how to disassociate the service profile and the scrub policy with persistent memory scrub selected:

```
UCS-A# scope org
UCS-A /org # scope service-profile sample
UCS-A /org/service-profile # set scrub-policy pmemscrub
UCS-A /org/service-profile* # commit-buffer
UCS-A /org/service-profile disassociate
UCS-A /org/service-profile* # commit-buffer
UCS-A /org/service-profile #
```

Resetting a Server to Factory Defaults With Persistent Memory Scrub Selected

You can reset a server to its factory settings. By default, the factory reset operation does not affect storage drives, persistent memory modules, and flexflash drives. This is to prevent any loss of data. However, you can choose to reset these devices to a known state as well.

Important Resetting storage devices will result in loss of data.

Perform the following procedure to reset the server to factory default settings, and delete persistent memory configuration and data.

SUMMARY STEPS

1. UCS-A# **scope server** [*chassis-num*/*server-num* | *dynamic-uuid*]
2. UCS-A /chassis/server # **reset factory-default** [**delete-persistent-memory** | **delete-flexflash-storage** | **delete-storage** [**create-initial-storage-volumes**]]
3. UCS-A /chassis/server* # **commit-buffer**

DETAILED STEPS

	Command or Action	Purpose
Step 1	UCS-A# **scope server** [*chassis-num*/*server-num* | *dynamic-uuid*]	Enters server mode for the specified server.
Step 2	UCS-A /chassis/server # **reset factory-default** [**delete-persistent-memory** | **delete-flexflash-storage** | **delete-storage** [**create-initial-storage-volumes**]]	Resets server settings to factory default using the following command options:

	Command or Action	Purpose
		• **factory-default**—Resets the server to factory defaults without deleting storage • **delete-persistent-memory**—Resets the server to factory defaults and deletes persistent memory configuration and data • **delete-flexflash-storage**—Resets the server to factory defaults and deletes flexflash storage • **delete-storage**—Resets the server to factory defaults and deletes all storage • **create-initial-storage-volumes**—Resets the server to factory defaults, deletes all storage, sets all disks to their initial state **Important** Do not use the **create-initial-storage-volumes** command option if you want to use storage profiles. Creating initial volumes when you are using storage profiles may result in configuration errors.
Step 3	UCS-A /chassis/server* # **commit-buffer**	Commits any pending transactions.

Example

The following example resets the server settings to factory default, deletes persistent memory configuration and data, and commits the transaction:

```
UCS-A# scope server 2/4
UCS-A /chassis/server # reset factory-default delete-persistent-memory

UCS-A /chassis/server* # commit-buffer
```