



Physical Resources

- [Physical Resources, page 1](#)
- [Volume Groups, page 2](#)
- [vFilers, page 2](#)
- [Storage Virtual Machines, page 5](#)
- [Servers, page 11](#)
- [Service Profiles, page 12](#)
- [VNX LUNs, page 13](#)
- [VNX Volumes, page 13](#)
- [Block Storage Pools, page 14](#)
- [RAID Groups, page 14](#)
- [File Storage Pools, page 15](#)
- [Rack Servers, page 15](#)
- [CloudSense Reports, page 16](#)

Physical Resources

The **Physical Resources** menu option displays a summary of your physical resources and customizable reports.

You can view or manage the following physical resources:

- Volume Groups
- vFilers
- SVMs
- VLANs
- Servers
- Service Profiles

- VNX LUNs
- Block Storage Pools
- RAID Groups
- File Storage Pools
- VNX Volumes
- Rack Servers
- CloudSense Reports

Volume Groups

Invicta volume groups combine the physical disks or drives that are mounted on your system into a single administrative unit. Logical volumes are created on top of the volume groups to provide flexibility for managing physical resources. You can view the Volume Groups report by choosing **Volume Groups** under **Physical Resources**.

The Volume Groups report displays all available volume groups, as well as following information:

- Account Name
- Volume Group Name
- Size (GB)
- Size Available (GB)
- Status
- SSNs
- Group/User

vFilers

vFilers are NetApp ONTAP 7-mode virtual containers that are deployed on physical storage arrays, creating multiple instances within controllers. They are used to partition the storage and network resources of a single storage system, providing the appearance of multiple storage systems on the network. You can view the vFilers report by choosing **vFilers** under **Physical Resources**.

The vFiler report displays all available vFilers, as well as the following information:

- Account Name
- Filer
- Name
- IP Space
- IP Address
- Subnet mask

- DNS Name
- DNS Server
- Admin Host
- UUID
- Group/User

You can view additional details about a vFiler by clicking the row with the vFiler and clicking **View Details**.

vFiler Volumes

You can view the details and manage the volumes associated with a vFiler. You can view the vFiler Volumes report by choosing **vFiler Volumes** from the vFilers details page.

The vFiler Volumes report displays all the volumes associated with a vFiler, as well as the following information:

- Account Name
- Filer Name
- vFiler Name
- Name
- Type
- Containing Aggregate
- Available, Used, and Total space (GB)
- Percentage Used
- Space Guarantee
- Snapshot Reserved
- Dedup Enabled
- Storage Savings and Storage Efficiency
- Blocks Reserved
- Export Path
- CIFS Share Name
- Security Style
- Mirror Status

You can view additional details about a vFiler volume by clicking the row with the vFiler volume and clicking **View Details**.

vFiler Volume LUNs

You can view the logical unit numbers (LUNs) that are associated with an vFiler volume by selecting a volume and viewing the details for the volume.

The LUNs report displays information about the vFiler LUN:

- Account Name
- Filer Name
- Name
- Type
- Containing Aggregate
- State
- Available (GB)
- Used (GB)
- Total (GB)
- Percentage Used
- Space Guarantee
- Snapshot Reserved
- Dedup Enabled
- Storage Savings
- Storage Efficiency

SnapMirrors

NetApp SnapMirror software is an enterprise-level disaster recovery and data distribution solution. SnapMirror is a data replication feature of Data ONTAP that mirrors data to one or more network filers at high speed over LAN or WAN connections. You can view the SnapMirrors report by choosing **SnapMirrors** from the vFilers details page.

The SnapMirrors report displays all the SnapMirrors associated with a vFiler, as well as the following information:

- Account Name
- File Name
- Source and Destination Location
- Status
- State
- Last Transfer Type, Size, and Duration
- Transfer Progress

- Current Transfer Type and Error
- Lag Time
- Mirror Time Stamp
- Contents
- Base Snapshot

You can view scheduled SnapMirror relationships and status history by clicking on the row with the SnapMirror and clicking **View Details**.

Storage Virtual Machines

Storage Virtual Machines (SVMs), formerly known as NetApp virtual storage servers (Vservers), are virtualized servers that support multiple protocols and unified storage. SVMs securely isolate the shared virtualized data storage and network, and each SVM appears as a single dedicated server to the clients.

SVMs provide data access to clients without regard to physical storage or controller, similar to any storage system. SVMs use the storage and network resources of the cluster, but they contain volumes and logical interfaces (LIFs) that are exclusive to each SVM.

Each SVM contains at least one volume and one logical interface, and each SVM has a separate administrator authentication domain and can be managed independently by an SVM administrator. An SVM administrator can manage an SVM and its resources, such as volumes, protocols, and services, depending on the capabilities assigned by the cluster administrator.

Each cluster must have at least one SVM to serve data. Multiple SVMs can coexist in a single cluster without being bound to any single node in a cluster, but they must be bound to the physical cluster on which they exist.

You can view the SVMs report by choosing **SVMs** under **Physical Resources**. The SVMs report displays all available SVMs, as well as the following information:

- Account Name
- Cluster Name
- Name
- Type
- State
- NFS Service Status
- Root Volume
- Aggregate
- LIFs
- Max Volumes
- Allowed Protocols
- Antivirus On Access Policy
- Quota Policy

- Name Service Switch
- Name Mapping Switch
- Node Name
- Group/User
- Tag

You can view additional details about an SVM by clicking the row with the SVM and clicking **View Details**.

SVM Volumes

You can view the details of the volumes associated with an SVM by choosing **Volumes** on the SVM details page. The Volumes report displays all the volumes associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- SVM
- Name
- Type
- Is SVM Root
- Containing Aggregate
- Node Name
- Status
- Available, Used, and Total space (GB)
- Space Saved by Compression
- Space Saved by Deduplication
- Security Style
- Snapshot Policy
- Export Policy
- Percentage Used
- Space Guarantee
- Snapshot Reserved
- Junction Path
- CIFS Share Name
- Dedupe Enabled
- Group/User

You can view additional details about a volume associated with an SVM by clicking on the row with the volume and clicking **View Details**.

SVM LUNs

You can view the details of the LUNs associated with an SVM by choosing **LUNs** from the SVM details page. The LUNs report displays all the LUNs associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- SVM
- Volume
- Name
- LUN ID
- Datastore
- Hostnode
- Path
- State
- Read Only
- Size and Sized Used (GB)
- Mapped To
- Space Reservation Enabled
- Share State
- OS Type

You can view additional details about a LUN associated with an SVM by clicking on the row with the LUN and clicking **View Details**.

SVM Initiator Groups

An initiator group (igroup) specifies which initiators can have access to a LUN. You can view the details of the initiator groups associated with an SVM by choosing **Initiator Groups** from the SVMs details page. The Initiator Groups report displays all the initiator groups associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- SVM
- Name
- Group Type

- OS Type
- Portset Name

SVM Initiators

An initiator is a host that can access specified LUNs on the storage system. Each initiator is identified by a World Wide Port Name (WWPN). All initiators in the same initiator group must run the same operating system. An initiator cannot be a member of two initiator groups with different operating system types. An initiator also cannot be in multiple initiator groups that are mapped to the same LUN. You can view the Initiators report by choosing **Initiators** from the SVMs details page.

The Initiators report displays all the initiators associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- Name
- Initiator Group
- Group Type
- OS Type

SVM CIFS Shares

A CIFS share is a named access point on a volume that enables CIFS clients to access files on a file server. You can view the CIFS Shares report by choosing **CIFS Shares** from the SVMs details page. The CIFS Shares report displays all the CIFS shares associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- Share Name
- Mount Point
- User/Group
- Access Control
- Description

SVM SIS Policies

You can define a Single Instance Storage (SIS) policy to perform SIS operations that include compression and deduplication. Data compression can be used on demand, or as a scheduled background operation. The policy can include deduplication, which is a method of reducing disk space usage by eliminating duplicate data blocks on a FlexVol volume, where only a single instance of each unique data block is stored. You can view the SIS Policies report by choosing **SIS Policies** from the SVMs details page.

The SIS Policies report displays all the SIS policies associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- SVM
- Policy Name
- QoS Policy
- Scheduled
- Enabled
- Duration
- Comment

SVM Export Policies

An export policy includes export rules to control client access to volumes. An export policy must exist on an SVM for clients to access data. An export policy must be associated with each volume to configure client access to the volume.

A single SVM can contain multiple export policies. An SVM with multiple volumes can have the following::

- Different export policies assigned to each volume of the SVM for individual client access control to each volume.
- The same export policy assigned to multiple volumes of the SVM for identical client access control without having to create a new export policy for each volume.

You can view the Export Policies report by choosing **Export Policies** from the SVMs details page.

The Export Policies report displays all the export policies associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- SVM
- Policy Name

SVM Export Rules

Export rules determine how to handle the client access requests to volumes. At least one export rule needs to be added to an export policy to allow access to clients. If an export policy contains more than one rule, the rules are processed based on a rule index. You can specify the rule's index number when creating the rule. You can rearrange the order in which the export rules are processed.

The permissions defined in a rule are applied to the clients that match criteria specified in the export rule. You can view the Export Rules report by choosing **Export Rules** from the SVMs details page.

The Export Rules report displays all the export rules associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- Policy Name
- Client Match
- Rule Index
- RO Access Rule
- RW Access Rule
- Access Protocol
- NTFS Unix Secure Ops
- Chown Mode

SVM Snapshot Policies

A snapshot policy automatically manages snapshot policy schedules on the SVM. A snapshot policy can have up to five snapshot policy schedules, and specifies the frequency and the maximum number of automatically created snapshot copies.

A snapshot policy can be used to specify a NetApp SnapMirror label that identifies the snapshots made according to a designated schedule. SnapMirror labels are used to identify snapshots to transfer to SnapVault. If a prefix is specified in the snapshot policy, snapshots are created with the prefix in the snapshot name. Using prefixes in snapshot names provides more flexibility than using schedule names in naming the automatic snapshots.

You can view the Snapshot Policies report by choosing **Snapshot Policies** from the SVMs details page.

The Snapshot Policies report displays all the snapshot policies associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- SVM
- Name
- Policy Owner
- Enabled
- Total Schedules
- Comment

You can view additional details about a snapshot policy by clicking the row with the snapshot policy and clicking **View Details**.

SVM Port Sets

A port set consists of a group of Fibre Channel (FC) target ports. You bind a port set to an igroup, to make the LUN available only on a subset of the storage system's target ports. Any host in the igroup can access the LUNs only by connecting to the target ports in the port set.

If an igroup is not bound to a port set, the LUNs mapped to the igroup are available on all of the storage system FC target ports. The igroup controls which initiators LUNs are exported to. The port set limits the target ports on which those initiators have access.

You can view the Portsets report by choosing **Portsets** from the SVMs details page.

The Portsets report displays all the port sets associated with an SVM, as well as following details:

- Account Name
- Cluster Name
- SVM
- Name
- Portset Type
- Total Ports
- Ports

SVM WWPN Aliases

A WWPN is a unique, 64-bit identifier displayed as a 16-character hexadecimal value in Data ONTAP. Your administrators may find it easier to identify FC ports using an alias instead. You can view the details of WWPN aliases associated with an SVM. You can view the WWPN Aliases report by choosing **WWPN Aliases** from the SVMs details page.

The WWPN Aliases report displays all the WWPN aliases associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- SVM
- WWPN Alias
- WWPN

Servers

You can monitor and view the details for all available physical servers. You can view the Servers report by choosing **Servers** under **Physical Resources**.

The Servers report displays all available physical servers, as well as the following information:

- Name
- Model
- Total Memory (MB)
- Associated Status
- Operation Status
- Service Profile
- Power State
- IP Address

Service Profiles

A service profile ensures that the associated server hardware has the configuration required to support the applications it hosts. The service profile maintains configuration information about the server hardware, interfaces, fabric connectivity, and server and network identity.

Every active server must be associated with a service profile.



Note

At any given time, each server can be associated with only one service profile. Similarly, each service profile can be associated with only one server at a time.

After a service profile is associated with a server, the server is ready to have an operating system and applications installed, and you can use the service profile to review the configuration of the server. If the server associated with a service profile fails, the service profile does not automatically fail over to another server.

When a service profile is disassociated from a server, the identity and connectivity information for the server is reset to factory defaults.

You can view the Service Profiles report by choosing **Service Profiles** under **Physical Resources**.

The Service Profiles report displays the following information for each available service profile:

- DN
- Name
- Associated Status
- Type
- FSM Status
- Assigned Server/Server Pool
- Operation State
- Config State
- Assign State
- Group/User

- Template Instance
- Policy Owner
- Maintenance Policy
- Storage Profile
- vMedia Policy

You can view additional details about a service profile by clicking the row with the service profile and clicking **View Details**.

VNX LUNs

EMC VNX LUNs are logical unit numbers (LUNs) that are used to identify storage entities in volumes on block or file storage arrays. You can view the VNX LUNs report by choosing **VNX LUNs** under **Physical Resources**.

The VNX LUNs report displays all available VNX LUNs, as well as the following information:

- Account Name
- Name
- ID
- Storage Pool
- RAID Group ID
- User Capacity (GB)
- Current Owner
- Default Owner
- Read Cache Enabled
- Write Cache Enabled
- Group/User

VNX Volumes

EMC VNX volumes reside in the block or file storage pools that distribute storage space to file systems. You can view the VNX Volumes report by choosing **VNX Volumes** under **Physical Resources**.

The VNX Volumes report displays all available VNX volume groups, as well as the following information:

- Volume Name
- Type
- Storage Capacity (GB)
- Free Capacity (GB)

- Storage Pool
- Data Movers

Block Storage Pools

Block storage pools are groups of available disk volumes on collections of storage-area network (SAN) disks. They are used to allocate available storage to file systems. You can view the Block Storage Pools report by choosing **Block Storage Pools** under **Physical Resources**.

The Block Storage Pool report displays all available block storage pools, as well as the following information:

- Account Name
- Name
- Description
- Total Capacity (GB)
- Used Capacity (GB)
- Free Capacity (GB)
- Physical Capacity (GB)
- RAID Type
- Storage Pool ID
- Number of LUNs
- Group/User

RAID Groups

RAID (Redundant Array of Independent Disks) provides a way of storing the same data in different places on multiple hard disks. By placing data on multiple disks, input/output operations can overlap in a balanced way, improving performance. You can view the RAID Groups report by choosing **RAID Groups** under **Physical Resources**.

The RAID Groups report displays all available RAID groups, as well as the following information:

- Account Name
- RAID Group ID
- RAID ID
- Drive Type
- Raw Capacity (GB)
- Logical Capacity (GB)
- Free Capacity (GB)
- Power Savings Setting

- Number of LUNs
- Number of Disks
- Percent Expanded
- Group/User

File Storage Pools

File storage pools are groups of available disk volumes on collections of network file system (NFS) disks that are used to allocate available storage to file systems. You can view the File Storage Pools report by choosing **File Storage Pools** under **Physical Resources**.

The File Storage Pools report displays all available file storage pools, as well as following information:

- Name
- Description
- Storage Capacity (GB)
- Storage Used (GB)
- Type
- Disk Type
- Uses Volumes
- Used By
- Group/User

Rack Servers

You can view the Rack Servers report by choosing **Rack Servers** under **Physical Resources**.

The Rack Servers report displays all available rack servers, as well as the following information:

- Account Name
- Model
- Operation Status
- UUID
- Power State
- IP Address

CloudSense Reports

CloudSense analytics provide visibility into the infrastructure resources utilization, critical performance metrics across the IT infrastructure stack, and capacity in real time. CloudSense reports can show significant improvements in capacity trending, forecasting, reporting, and planning of virtual and cloud infrastructures.

The following reports are available from CloudSense, but the number of reports available in the system for a user depends on your user role:

- Billing Report for a Customer
- ENC Storage Inventory Report
- NetApp Storage Inventory Report
- NetApp Storage Savings Per Group
- NetApp Storage Savings Report
- Network Impact Assessment Report
- Organizational Usage of Virtual Computing Infrastructure
- PNSC Account Summary Report
- Physical Infrastructure Inventory Report for a Group
- Storage Dedupe Status Report
- Storage Inventory Report for a Group
- Thin Provisioned Space Report
- UCS Data Center Inventory Report
- VM Activity Report by Group
- VMware Host Performance Summary
- Virtual Infrastructure and Assets Report

**Note**

If the CloudSense option is enabled for MSP administrators, only reports relevant to their customer organizations are displayed.

Generating a CloudSense Report

- Step 1** Choose **Physical Resources**.
 - Step 2** On the **Physical Resources** page, click **CloudSense**.
 - Step 3** Click **Generate Report**.
 - Step 4** On the **Generate Report** screen, choose the type of report that you want to generate from the **Report Type** drop-down list.
 - Step 5** Click **Submit**.
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