



Deployment-specific networking considerations

StorageGRID

NetApp

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Table of Contents

Deployment-specific networking considerations	1
Linux deployments	1
Host network configuration for Docker deployments	1
Physical hosts	1
Minimum bandwidth recommendations	2
Networking and ports for platform services and Cloud Storage Pools	3
Appliance nodes	4

Deployment-specific networking considerations

Depending on the deployment platforms you use, you might have additional considerations for your StorageGRID network design.

Grid nodes can be deployed as:

- Software-based grid nodes deployed as virtual machines in VMware vSphere Web Client
- Software-based grid nodes deployed within Docker containers on Linux hosts
- Appliance-based nodes

For additional information about grid nodes, see the *Grid primer*.

Related information

[Grid primer](#)

Linux deployments

For efficiency, reliability, and security, the StorageGRID system runs on Linux as a collection of Docker containers. Docker-related network configuration is not required in a StorageGRID system.

Use a non-bond device, such as a VLAN or virtual Ethernet (veth) pair, for the container network interface. Specify this device as the network interface in the node configuration file.



Do not use bond or bridge devices directly as the container network interface. Doing so could prevent node start-up because of a kernel issue with the use of macvlan with bond and bridge devices in the container namespace.

See the installation instructions for Red Hat Enterprise Linux/CentOS or Ubuntu/Debian deployments.

Related information

[Install Red Hat Enterprise Linux or CentOS](#)

[Install Ubuntu or Debian](#)

Host network configuration for Docker deployments

Before starting your StorageGRID deployment on a Docker container platform, determine which networks (Grid, Admin, Client) each node will use. You must ensure that each node's network interface is configured on the correct virtual or physical host interface, and that each network has sufficient bandwidth.

Physical hosts

If you are using physical hosts to support grid nodes:

- Make sure all hosts use the same host interface for each node interface. This strategy simplifies host configuration and enables future node migration.

- Obtain an IP address for the physical host itself.



A physical interface on the host can be used by the host itself and one or more nodes running on the host. Any IP addresses assigned to the host or nodes using this interface must be unique. The host and the node cannot share IP addresses.

- Open the required ports to the host.

Minimum bandwidth recommendations

The following table provides the minimum bandwidth recommendations for each type of StorageGRID node and each type of network. You must provision each physical or virtual host with sufficient network bandwidth to meet the aggregate minimum bandwidth requirements for the total number and type of StorageGRID nodes you plan to run on that host.

Type of node	Type of network	Grid	Admin	Client
Admin	10 Gbps	1 Gbps	1 Gbps	
Gateway	10 Gbps	1 Gbps	10 Gbps	
Storage	10 Gbps	1 Gbps	10 Gbps	
Archive	10 Gbps	1 Gbps	10 Gbps	

This table does not include SAN bandwidth, which is required for access to shared storage. If you are using shared storage accessed over Ethernet (iSCSI or FCoE), you should provision separate physical interfaces on each host to provide sufficient SAN bandwidth. To avoid introducing a bottleneck, SAN bandwidth for a given host should roughly match the aggregate Storage Node network bandwidth for all Storage Nodes running on that host.

Use the table to determine the minimum number of network interfaces to provision on each host, based on the number and type of StorageGRID nodes you plan to run on that host.

For example, to run one Admin Node, one Gateway Node, and one Storage Node on a single host:

- Connect the Grid and Admin Networks on the Admin Node (requires $10 + 1 = 11$ Gbps)
- Connect the Grid and Client Networks on the Gateway Node (requires $10 + 10 = 20$ Gbps)
- Connect the Grid Network on the Storage Node (requires 10 Gbps)

In this scenario, you should provide a minimum of $11 + 20 + 10 = 41$ Gbps of network bandwidth, which could be met by two 40 Gbps interfaces or five 10 Gbps interfaces, potentially aggregated into trunks and then shared by the three or more VLANs carrying the Grid, Admin, and Client subnets local to the physical data center containing the host.

For some recommended ways of configuring physical and network resources on the hosts in your StorageGRID cluster to prepare for your StorageGRID deployment, see the information about configuring the host network in the installation instructions for your Linux platform.

Related information

[Install Red Hat Enterprise Linux or CentOS](#)

[Install Ubuntu or Debian](#)

Networking and ports for platform services and Cloud Storage Pools

If you plan to use StorageGRID platform services or Cloud Storage Pools, you must configure grid networking and firewalls to ensure that the destination endpoints can be reached. Platform services include external services that provide search integration, event notification, and CloudMirror replication.

Platform services require access from Storage Nodes that host the StorageGRID ADC service to the external service endpoints. Examples for providing access include:

- On the Storage Nodes with ADC services, configure unique Admin Networks with AESL entries that route to the target endpoints.
- Rely on the default route provided by a Client Network. In this example, the Untrusted Client Network feature can be used to restrict inbound connections.

Cloud Storage Pools also require access from Storage Nodes to the endpoints provided by the external service used, such as Amazon S3 Glacier or Microsoft Azure Blob storage.

By default, platform services and Cloud Storage Pool communications use the following ports:

- **80**: For endpoint URIs that begin with `http`
- **443**: For endpoint URIs that begin with `https`

A different port can be specified when the endpoint is created or edited.

If you use a non-transparent proxy server, you must also configure proxy settings to allow messages to be sent to external endpoints, such as an endpoint on the internet. See [administering StorageGRID](#) to learn how to configure proxy settings.

For more information about untrusted Client Networks, see the instructions for [administering StorageGRID](#). For more information about platform services, see the instructions for [using tenant accounts](#). For more information about Cloud Storage Pools, see the instructions for [managing objects with information lifecycle management](#).

Related information

[Network port reference](#)

[Grid primer](#)

[Administer StorageGRID](#)

[Use a tenant account](#)

[Manage objects with ILM](#)

Appliance nodes

You can configure the network ports on StorageGRID appliances to use the port bond modes that meet your requirements for throughput, redundancy, and failover.

The 10/25-GbE ports on the StorageGRID appliances can be configured in Fixed or Aggregate bond mode for connections to the Grid Network and Client Network.

The 1-GbE Admin Network ports can be configured in Independent or Active-Backup mode for connections to the Admin Network.

See the information about port bond modes in the installation and maintenance instructions for your appliance.

Related information

[SG100 & SG1000 services appliances](#)

[SG6000 storage appliances](#)

[SG5700 storage appliances](#)

[SG5600 storage appliances](#)

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