## Veritas NetBackup™ Network Ports Reference Guide

Release 9.1



### Veritas NetBackup<sup>™</sup> Network Ports Reference Guide

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## Chapter

## About the NetBackup network ports

This chapter includes the following topics:

- TCP ports used by NetBackup
- Compatibility with back-level hosts

## TCP ports used by NetBackup

NetBackup primarily uses the TCP protocol to communicate between processes. The processes can run on the same host or on different hosts. This distributed client-server architecture requires that the destination TCP ports specific to the NetBackup processes be open through any firewalls within the networking infrastructure.

Firewalls may also be configured to filter connections based on the source port. NetBackup typically uses non-reserved source ports for outbound connections.

The sections that follow describe the TCP ports used by NetBackup in the default configuration. The network layers on the hosts and the networking devices between the hosts must be configured to allow these connections. NetBackup requires the proper connections to be configured or it cannot operate.

## **Compatibility with back-level hosts**

- Use the operating system commands (netstat, pfiles, lsof, process monitor) to make sure that the expected processes are running and listening for connections.
- The **bptestbpcd** command resides only on NetBackup servers.

## Chapter

## **NetBackup Ports**

This chapter includes the following topics:

- NetBackup default ports
- NetBackup master server ports
- NetBackup media server ports
- NetBackup client ports
- Web UI ports
- Java Console ports
- NDMP server ports
- DataDomain OpenStorage ports
- NetBackup Granular Restore Technology (GRT) ports
- Network and port address translation
- Configuring ports for the NetBackup legacy Web Services

## NetBackup default ports

NetBackup primarily uses the ports as destination ports when connecting to the various services.

See Table 2-1 on page 7.

Veritas has registered these ports with Internet Assigned Number Authority (IANA) and they are not to be used by any other applications.

A few features and services of NetBackup require additional ports to be open. Those requirements are detailed in later sections.

By default, NetBackup uses ports from the ephemeral range for the source port. Those ports are selected randomly from the range provided by the operating system.

**Note:** Configuring the **Connect Options** and other settings may change how source and destination ports are selected. These settings and other non-default configurations, are not discussed here. For details, see the NetBackup Administrator's Guides, volume 1 and volume 2.

The following table lists the ports required by NetBackup to connect to various services.

Table 2-1 NetBackup ports

Service	Port	Description
VERITAS_PBX	1556	Veritas Private Branch Exchange Service
VNETD	13724	NetBackup Network service

## NetBackup master server ports

The master server must be able to communicate with the media servers, clients, as well as servers where the Java or the Windows Administration Console is running.

The following table lists the minimum ports required by the master server:

Source	Destination	Service	Port		
Master server	Media server	VERITAS_PBX	1556		
Master server			13724 <sup>1</sup> 1556		
Master server					
Master server	Client	VNETD	13724 <sub>1</sub>		
Master server Media server		NBSSC	5637 <sup>2</sup>		

 Table 2-2
 NetBackup master server ports

1 - It applies while you use the Resilient Network feature or when NetBackup 8.0 or earlier master server cannot reach a legacy service via PBX.

2 - This port is used to provide back-level media server support for the media servers that are configured for cloud storage. Only media server versions 7.7.x to 8.1.2 are supported.

Ensure that the older media servers use this port. Communication with the master server fails if the older media servers use a different port.

### NetBackup media server ports

The media server must be able to communicate with the master server, and the clients.

The following table lists the ports required by the media server:

Source	Destination	Service	Port		
Media server	Master server	VERITAS_PBX	1556		
Media server	Master server	VNETD	13724 **		
Media server	Media server	VERITAS_PBX	1556		
Media server	Media server	VNETD	13724 **		
Media server	Client	VERITAS_PBX	1556		
Media server	Client	VNETD	13724 **		
Media server	Manager (spad)		10102		
Media server			10082		
Media server	Master server	NBWMC	5637+		

 Table 2-3
 NetBackup media server ports

\*\* It applies while you use the Resilient Network feature or when a NetBackup 8.0 or earlier media server cannot reach a legacy service via PBX.

<sup>+</sup> This port is used to provide back-level media server support for the media servers that are configured for cloud storage. Only media server versions 7.7.x to 8.1.2 are supported.

Ensure that the older media servers use this port. Communication with the master server fails if the older media servers use a different port.

### NetBackup client ports

The client requires access to the master server to initiate user and client-initiated operations such as application backups for Oracle and SQL Server.

When using the client-side deduplication, the client must also be able to communicate with the MSDP media servers.

The following table lists the ports required by the client:

Destination	Service	Port			
Master server	VERITAS_PBX	1556			
Master server	VNETD	13724 *			
Media server	VERITAS_PBX	1556			
Media server	VNETD	13724 * *			
MSDP server	Deduplication Manager (spad)	10102			
MSDP server	Deduplication Engine (spoold)	10082			
	Master server Master server Media server Media server MSDP server	Master serverVERITAS_PBXMaster serverVNETDMedia serverVERITAS_PBXMedia serverVNETDMSDP serverDeduplication Manager (spad)MSDP serverDeduplication Engine			

 Table 2-4
 NetBackup client ports

\* It applies while you use the Resilient Network feature or when a NetBackup 8.0 or earlier client cannot reach a legacy service via PBX.

\*\* Required while you use the Resilient Network feature.

### Web UI ports

The NetBackup web UI uses the following ports for communication:

Table 2-5 N	etBackup web UI ports
-------------	-----------------------

Source	Destination	Service	Port
Web browser	Master server	NBWMC	443

### Java Console ports

The Java Console (or NetBackup Administration Console) uses the following ports for communication:

Table 2-6Java Console ports

Source	Source Destination		Port	
Java Console	Master server	VERITAS_PBX	1556	
Java Console	Master server	VNETD	13724	

### NDMP server ports

The port requirements to backup and restore an NDMP server are as follows:

- TCP port 10000 must be open from the media server (DMA) to the NDMP filer (tape or disk) for all types of NDMP operations; local, remote, and 3-way.
- The NetBackup SERVER\_PORT\_WINDOW must be open inbound from the filer to the media server for remote NDMP. It must also be open for efficient catalog file (TIR data) movement during local or 3-way NDMP.

## DataDomain OpenStorage ports

The following ports must be open to use a DataDomain OST storage server.

- The TCP ports for 2049 (nfs), 111 (portmapper), and 2052 (mountd) must be open from the media server to the target storage server.
- The UDP port 111 (portmapper) must be open from the media server to the target storage server.
- The TCP port 2051 (replication) must also be open from the media server to the storage server for optimized duplication.

# NetBackup Granular Restore Technology (GRT) ports

The following ports must be open to use the GRT feature of NetBackup.

- TCP port 111 (portmapper) needs to be open from the client to the media server.
- TCP port 7394 (nbfsd) needs to be open from the client to the media server.

## Network and port address translation

NetBackup 8.2 and later versions support NetBackup clients in a private network that are connected to NetBackup servers in a public network through a device that

performs network address translation (NAT). Such NetBackup clients are referred to as NAT clients.

For more details on NAT support, refer to the NetBackup Administrator's Guide Volume I.

The TCP port used by the NetBackup Messaging Broker service (nbmqbroker) must be open from the clients to the master server. The default port is 13781 unless it is updated with the configureMQ command.

Note that the direction of connection initiation between servers and clients is reversed. The TCP port for PBX/1556 must be open from the client to the servers and need not be open from servers to clients.

For additional details see the technote NetBackup support for NAT and PAT.

# Configuring ports for the NetBackup legacy Web Services

The NetBackup installation process automatically runs the configurePorts script to configure NetBackup legacy Web Services to run on any of the following sets of ports.

Port set	ort set HTTPS port	
First set	8443	8205
Second set	8553	8305
Third set	8663	8405

 Table 2-7
 Port sets for NetBackup legacy Web Services

**Note:** The shutdown ports are honored only for local intra-host connections. Therefore, they do not need to be open externally.

The HTTPS port (whichever is in use) should be open inbound to the master server.

If the configurePorts script does not find one of the sets free (for example 8443 and 8205), it logs an error to the following file:

#### Windows:

install\_path\NetBackup\wmc\webserver\logs\nbwmc\_configurePorts.log

#### UNIX and Linux:

/usr/openv/wmc/webserver/logs/nbwmc\_configurePorts.log

On UNIX and Linux, the following appears on the NetBackup system console:

configurePorts: WmcPortsUpdater failed with exit status <status\_code>

When this error occurs, use the following procedure on the master server to manually configure the ports. The configurePorts command is in the following location:

Windows:

install\_path\NetBackup\wmc\bin\install\configurePorts

UNIX or Linux:

/usr/openv/wmc/bin/install/configurePorts

**Note:** NetBackup Web Services on the master server require port 1024 or higher. Do not use a port number that is less than 1024. Ports that are less than 1024 are privileged and cannot be used with the NetBackup Web Services.

#### To configure ports for the NetBackup Web Services

**1** On the master server, enter the following to list the currently configured ports:

configurePorts -status

Example output:

Current Https Port: 8443 Current Shutdown Port: 8205

2 Use the configurePorts command in the following format to re-configure a port:

configurePorts -httpsPort https port | -shutdownPort shutdown port

You can configure one or two ports at a time. For example, to configure the HTTPS port to 8553:

configurePorts -httpsPort 8553

Output:

Old Https Port: 8443 New Https Port: 8553

Use this command as needed to configure a set of ports for HTTPS and shutdown.

See Table 2-7 for a list of the port sets.

**3** If the master server is in a clustered environment, do the following:

- Make sure that the same set of ports are free on all the cluster nodes: Do step 1 on each node.
- Reconfigure the ports on each node as required: Do step 2.
- To override the ports that are used across all nodes, enter the following: configurePorts -overrideCluster true
   This command updates the following file on shared disk: Windows: install path/NetBackup/var/global/wsl/portfile

UNIX or Linux:

/usr/openv/netbackup/var/global/wsl/portfile

The NetBackup installer for Web Services uses this file during installation in a clustered mode.

## Chapter

## **Other Network Ports**

This chapter includes the following topics:

- NetBackup deduplication ports
- About communication ports and firewall considerations in OpsCenter
- NetBackup 5200 and 5220 appliance ports (for firewall between master and media server)
- NetBackup VMware ports
- Port usage for the NetBackup vSphere Web Client Plug-in
- Nutanix AHV cluster ports
- NetBackup CloudStore Service Container (nbcssc) port

### NetBackup deduplication ports

The following table shows the ports that are used for NetBackup deduplication that includes Media Server Deduplication (MSDP), and optimized deduplication. If firewalls exist between the various deduplication hosts, you must open the required ports.

Deduplication hosts are the media servers, deduplication storage servers, any load balancing servers, and any clients that deduplicate their own data.

**Note:** MSDP with Client-Direct (client deduplication) and optimized duplication need some ports to be opened.

During Client Direct restores, TCP port 1556 must be open between the NetBackup client and the master server.

Port	Usage
10082	This is the NetBackup Deduplication Engine (spoold) port that is used by MSDP. Open this port between:
	<ul><li>The deduplication client and the storage servers.</li><li>The MSDP and the storage servers.</li></ul>
10102	This is the NetBackup Deduplication Manager (spad) port that is used by MSDP. Open this port between:
	<ul><li>The deduplication client and the MSDP servers.</li><li>The MSDP server and any Additional servers that handle finger printing.</li></ul>

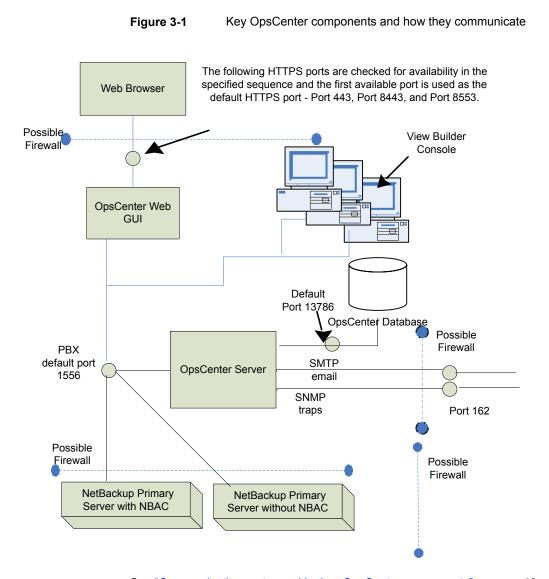
 Table 3-1
 NetBackup deduplication port usage

Ports 10082 and 10102 (MSDP) must also be open between the media server and any storage servers that perform optimized duplications.

**Note:** If using Auto Image Replication (AIR) for optimized duplication, TCP ports 1556, 10082, and 10102 (MSDP) must be open between the NetBackup domains.

# About communication ports and firewall considerations in OpsCenter

Figure 3-1 shows the key OpsCenter components and the communication ports that are used.



See "Communication ports used by key OpsCenter components" on page 16.

#### Communication ports used by key OpsCenter components

The following table shows the default port settings for OpsCenter.

SMTP recipient ports can be configured from the OpsCenter console (using **Settings** > **Configuration** > **SMTP Server**). The SNMP trap recipient ports can also be configured from the OpsCenter console (using **Settings** > **Recipients** > **SNMP**).

If these ports are changed then the appropriate hardware ports have to be opened. Table 3-2 lists the communication ports that are used by key OpsCenter components.

 Table 3-2
 Communication ports used by key OpsCenter components

Source Host	Destination Host	Port Number	Usage (Process Name)	Port Configuration
OpsCenter Server	Mail server	25	SMTP	Allow from source to destination.
OpsCenter Server	SNMP Server	162	SNMP trap recipient	Allow from source to destination.
OpsCenter Server	NetBackup Primary Server(s)	1556	PBX (pbx_exchange)	Allow between source and destination (bi-directional). PBX port number configuration is not supported.
OpsCenter Client	OpsCenter Server	1556	PBX (pbx_exchange)	Allow between source and destination. Some hardened servers and firewall configurations may block this port. PBX port number configuration is not supported.
Web browser	OpsCenter Server	<ul> <li>The following HTTPS ports are checked for availability in the specified sequence and the first available port is used by default:</li> <li><b>1</b> 443 (HTTPS)</li> <li><b>2</b> 8443 (HTTPS)</li> <li><b>3</b> 8553 (HTTPS)</li> </ul>	HTTPS	Allow from all hosts on network.
OpsCenter Server	OpsCenter Server	13786	Sybase database (dbsrv16)	Allow between source and destination. Some hardened servers and firewall configurations may block this port.

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Table 3-2	ontinued)	ons used	а бу кеу Ор	oscen	ter c	compor	ients	
	Í							

Source Host	Destination Host	Port Number	Usage (Process Name)	Port Configuration
OpsCenter Server	OpsCenter Server	1556	Authentication	Allow between source and destination in case NBAC is enabled on NetBackup primary server.

# NetBackup 5200 and 5220 appliance ports (for firewall between master and media server)

In addition to the ports used by NetBackup, the 52xx appliances also provide for both in-band and out-of-band management. The out-of-band management is through a separate network connection, the Remote Management Module (RMM), and the Intelligent Platform Management Interface (IPMI). Open these ports through the firewall as appropriate to allow access to the management services from a remote laptop or KVM (keyboard, video monitor, mouse).

The following table describes the ports to open inbound to the NetBackup appliance.

Source	Destination	Port	Service	Description
Command line	Appliance	22	ssh	In-band management CLI
Web browser	Appliance	80	http	In-band management GUI
Web browser	Appliance	443	https	In-band management GUI
Web browser	Appliance IPMI	80	http	Out-of-band mgmt (ISM+ or RM*)
Web browser	Appliance IPMI (firmware > 2.13)	443	https	Out-of-band management (ISM+ or RM*)
NetBackup ISM+	5020/5200 Appliance IPMI	5900	К∨М	CLI access, ISO & CDROM redirection

Table 3-3Inbound ports

T-1-1- 0 0

Source	Destination	Port	Service	Description
NetBackup ISM+	5020/5200 Appliance IPMI	623	KVM	(optional, utilized if open)
Symantec RM*	5220/5x30 Appliance IPMI	7578	RMM	CLI access
Symantec RM*	5220/5x30 Appliance IPMI	5120	RMM	ISO & CD-ROM redirection
Symantec RM*	5220/5x30 Appliance IPMI	5123	RMM	Floppy redirection
Symantec RM*	5220/5x30 Appliance IPMI	7582	RMM	KVM
Symantec RM*	5220/5x30 Appliance IPMI	5124		CDROM
Symantec RM*	5220/5x30 Appliance IPMI	5127		USB or Floppy

 Table 3-3
 Inbound ports (continued)

+ NetBackup Integrated Storage Manager

\* Symantec Remote Management – Remote Console.

**Note:** Ports 7578, 5120, and 5123 are for the unencrypted mode. Ports 7528, 5124, and 5127 are for the encrypted mode.

Open these ports outbound from the appliance to allow alerts and notifications to the indicated servers.

Table 3-4Outbound ports

Source	Destination	Port	Service	Description
Appliance	Call Home server	443	https	Call Home notifications to Veritas
Appliance	SNMP Server	162*	SNMP	Outbound traps and alerts
Appliance	SCSP host	443	https	Download SCSP certificates

\* This port number can be changed within the appliance configuration to match the remote server.

## **NetBackup VMware ports**

The TCP ports 443 and 902 are required to access the VMware infrastructure, as follows:

- 443 NetBackup connects to TCP port 443 on the following VMware components:
  - On the vCenter server for VM discovery requests, snapshot creation and deletion, vSphere Tag associations, and so on.
  - On the vSphere Platform Services Controller (PSC) to discover, back up and restore vSphere Tag associations.
     NetBackup connects to the vSphere Platform Services Controller (PSC) in vSphere 6.0 and later.
- 902 TCP port 902 is required when:
  - You use HotAdd/NBD/NBDSSL transport for backups and restore.
  - Restores are done through Restore ESX server bypassing the vCenter server.

## Port usage for the NetBackup vSphere Web Client Plug-in

Table 3-5 shows the standard ports to be used in a NetBackup vSphere Web Client Plug-in environment.

Source	Port number	Destination
Browser	9443	vSphere Web Client
For VM recovery: vCenter server (or vSphere Web Client server if deployed independently)	RESTful interface at port 8443 (https) or as configured on the master server	Master server
Master server	443	vCenter server
Backup host	443	vCenter server
Backup host	902 (for nbd or nbdssl)	ESXi

 Table 3-5
 Ports used in NetBackup and the vSphere Web Client Plug-in environment

## Nutanix AHV cluster ports

Table 3-6

The following table shows the ports that are used between the NetBackup hosts and the Nutanix AHV cluster hosts. If firewalls exist between the various hosts, you must open the required ports.

Ports that must be open in a NetBackup Nutanix AHV cluster

environment				
Source	Port number	Destination		
Backup host	TCP port 9440	Nutanix AHV cluster		
Backup host	TCP port 111 (port mapper)	Nutanix AHV cluster		
Backup host	TCP port 2049 (NFS)	Nutanix AHV cluster		
Nutanix AHV cluster	TCP port 111 (port mapper)	Backup host		
Nutanix AHV cluster	TCP port 2049 (NFS)	Backup host		

## NetBackup CloudStore Service Container (nbcssc) port

This is applicable to media server versions 7.7.x to 8.1.2 only.

The CloudStore Service Container (nbcssc) is a web-based service container that runs on older media servers that are configured for cloud storage. This container runs the throttling service and the metering data collector service. NetBackup OpsCenter uses the metering data for monitoring and reporting.

Port	Source	Destination	Process	Description
5637	Media server 7.7.x to 8.1.2 only	Master server	NBWMC	Allow communication between master server and all media servers that are configured for cloud storage.
				This port is used to provide back-level media server support. Only media server versions 7.7.x to 8.1.2 are supported.
				Ensure that the older media servers use this port. Communication with the master server fails if the older media servers use a different port.
5637	Master server	Media server 7.7.x to 8.1.2 only	NBCSSC	Allow communication between master server and all media servers that are configured for cloud storage.
				This port is used to provide back-level media server support. Only media server versions 7.7.x to 8.1.2 are supported.
				Ensure that the older media servers use this port. Communication with the master server fails if the older media servers use a different port.

 Table 3-7
 NetBackup CloudStore Service Container (nbcssc) port

The port number is defined in the CloudStore Service Container configuration file (cloudstore.conf) as follows:

CSSC\_PORT=5637

The configuration file resides in the following directory on the older media servers:

- UNIX: /usr/openv/netbackup/db/cloud
- Windows: install\_pathVeritas\NetBackup\db\cloud

See the NetBackup Cloud Administrator's Guide for more details.

http://www.veritas.com/docs/DOC5332

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