



Monitor SMB activity

ONTAP 9

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Monitor SMB activity

Display ONTAP SMB session information

You can display information about established SMB sessions, including the SMB connection and session ID and the IP address of the workstation using the session. You can display information about the session's SMB protocol version and continuously available protection level, which helps you identify whether the session supports nondisruptive operations.

About this task

You can display information for all of the sessions on your SVM in summary form. However, in many cases, the amount of output that is returned is large. You can customize what information is displayed in the output by specifying optional parameters:

- You can use the optional `-fields` parameter to display output about the fields you choose.

You can enter `-fields ?` to determine what fields you can use.

- You can use the `-instance` parameter to display detailed information about established SMB sessions.
- You can use the `-fields` parameter or the `-instance` parameter either alone or in combination with other optional parameters.

Step

1. Perform one of the following actions:

If you want to display SMB session information...	Enter the following command...
For all sessions on the SVM in summary form	<pre>vserver cifs session show -vserver vserver_name</pre>
On a specified connection ID	<pre>vserver cifs session show -vserver vserver_name -connection-id integer</pre>
From a specified workstation IP address	<pre>vserver cifs session show -vserver vserver_name -address workstation_IP_address</pre>
On a specified LIF IP address	<pre>vserver cifs session show -vserver vserver_name -lif-address LIF_IP_address</pre>
On a specified node	<pre>vserver cifs session show -vserver vserver_name -node {node_name local}</pre>

If you want to display SMB session information...	Enter the following command...
From a specified Windows user	<pre>vserver cifs session show -vserver vserver_name -windows-user domain_name\\user_name</pre>
With a specified authentication mechanism	<pre>vserver cifs session show -vserver vserver_name -auth-mechanism {NTLMv1 NTLMv2 Kerberos Anonymous}</pre>
With a specified protocol version	<pre>vserver cifs session show -vserver vserver_name -protocol-version {SMB1 SMB2 SMB2_1 SMB3 SMB3_1}</pre> <div style="float: left; margin-right: 10px;">  </div> <div style="border: 1px solid #ccc; padding: 10px; margin-left: 20px;"> <p>Continuously available protection and SMB Multichannel are available only on SMB 3.0 and later sessions. To view their status on all qualifying sessions, you should specify this parameter with the value set to SMB3 or later.</p> </div>
With a specified level of continuously available protection	<pre>vserver cifs session show -vserver vserver_name -continuously-available {No Yes Partial}</pre> <div style="float: left; margin-right: 10px;">  </div> <div style="border: 1px solid #ccc; padding: 10px; margin-left: 20px;"> <p>If the continuously available status is Partial, this means that the session contains at least one open continuously available file, but the session has some files that are not open with continuously available protection. You can use the <code>vserver cifs sessions file show</code> command to determine which files on the established session are not open with continuously available protection.</p> </div>
With a specified SMB signing session status	<pre>vserver cifs session show -vserver vserver_name -is-session-signed {true false}</pre>

Examples

The following command displays session information for the sessions on SVM vs1 established from a workstation with IP address 10.1.1.1:

```

cluster1::> vserver cifs session show -address 10.1.1.1
Node:    node1
Vserver: vs1
Connection Session
ID       ID       Workstation      Windows User      Open      Idle
-----  -
3151272279,
3151272280,
3151272281  1       10.1.1.1        DOMAIN\joe        2         23s

```

The following command displays detailed session information for sessions with continuously available protection on SVM vs1. The connection was made by using the domain account.

```

cluster1::> vserver cifs session show -instance -continuously-available
Yes

                Node: node1
                Vserver: vs1
                Session ID: 1
                Connection ID: 3151274158
Incoming Data LIF IP Address: 10.2.1.1
                Workstation IP address: 10.1.1.2
                Authentication Mechanism: Kerberos
                Windows User: DOMAIN\SERVER1$
                UNIX User: pcuser
                Open Shares: 1
                Open Files: 1
                Open Other: 0
                Connected Time: 10m 43s
                Idle Time: 1m 19s
                Protocol Version: SMB3
                Continuously Available: Yes
                Is Session Signed: false
                User Authenticated as: domain-user
                NetBIOS Name: -
                SMB Encryption Status: Unencrypted

```

The following command displays session information on a session using SMB 3.0 and SMB Multichannel on SVM vs1. In the example, the user connected to this share from an SMB 3.0 capable client by using the LIF IP address; therefore, the authentication mechanism defaulted to NTLMv2. The connection must be made by using Kerberos authentication to connect with continuously available protection.

```
cluster1::> vserver cifs session show -instance -protocol-version SMB3

Node: node1
Vserver: vs1
Session ID: 1
**Connection IDs: 3151272607,31512726078,3151272609
Connection Count: 3**
Incoming Data LIF IP Address: 10.2.1.2
Workstation IP address: 10.1.1.3
Authentication Mechanism: NTLMv2
Windows User: DOMAIN\administrator
UNIX User: pcuser
Open Shares: 1
Open Files: 0
Open Other: 0
Connected Time: 6m 22s
Idle Time: 5m 42s
Protocol Version: SMB3
Continuously Available: No
Is Session Signed: false
User Authenticated as: domain-user
NetBIOS Name: -
SMB Encryption Status: Unencrypted
```

Related information

[Displaying information about open SMB files](#)

Display information about open ONTAP SMB files

You can display information about open SMB files, including the SMB connection and session ID, the hosting volume, the share name, and the share path. You can display information about a file's continuously available protection level, which is helpful in determining whether an open file is in a state that supports nondisruptive operations.

About this task

You can display information about open files on an established SMB session. The displayed information is useful when you need to determine SMB session information for particular files within an SMB session.

For example, if you have an SMB session where some of the open files are open with continuously available protection and some are not open with continuously available protection (the value for the `-continuously-available` field in `vserver cifs session show` command output is `Partial`), you can determine which files are not continuously available by using this command.

You can display information for all open files on established SMB sessions on storage virtual machines (SVMs) in summary form by using the `vserver cifs session file show` command without any optional parameters.

However, in many cases, the amount of output returned is large. You can customize what information is displayed in the output by specifying optional parameters. This can be helpful when you want to view information for only a small subset of open files.

- You can use the optional `-fields` parameter to display output on the fields you choose.

You can use this parameter either alone or in combination with other optional parameters.

- You can use the `-instance` parameter to display detailed information about open SMB files.

You can use this parameter either alone or in combination with other optional parameters.

Step

1. Perform one of the following actions:

If you want to display open SMB files...	Enter the following command...
On the SVM in summary form	<pre>vserver cifs session file show -vserver vserver_name</pre>
On a specified node	<pre>vserver cifs session file show -vserver vserver_name -node {node_name local}</pre>
On a specified file ID	<pre>vserver cifs session file show -vserver vserver_name -file-id integer</pre>
On a specified SMB connection ID	<pre>vserver cifs session file show -vserver vserver_name -connection-id integer</pre>
On a specified SMB session ID	<pre>vserver cifs session file show -vserver vserver_name -session-id integer</pre>
On the specified hosting aggregate	<pre>vserver cifs session file show -vserver vserver_name -hosting -aggregate aggregate_name</pre>
On the specified volume	<pre>vserver cifs session file show -vserver vserver_name -hosting-volume volume_name</pre>
On the specified SMB share	<pre>vserver cifs session file show -vserver vserver_name -share share_name</pre>

If you want to display open SMB files...	Enter the following command...
On the specified SMB path	<pre>vserver cifs session file show -vserver vserver_name -path path</pre>
With the specified level of continuously available protection	<pre>vserver cifs session file show -vserver vserver_name -continuously -available {No Yes}</pre> <div style="float: left; margin-right: 10px;">  </div> <div style="border-left: 1px solid #ccc; padding-left: 10px;"> <p>If the continuously available status is No, this means that these open files are not capable of nondisruptively recovering from takeover and giveback. They also cannot recover from general aggregate relocation between partners in a high-availability relationship.</p> </div>
With the specified reconnected state	<pre>vserver cifs session file show -vserver vserver_name -reconnected {No Yes}</pre> <div style="float: left; margin-right: 10px;">  </div> <div style="border-left: 1px solid #ccc; padding-left: 10px;"> <p>If the reconnected state is No, the open file is not reconnected after a disconnection event. This can mean that the file was never disconnected, or that the file was disconnected and is not successfully reconnected. If the reconnected state is Yes, this means that the open file is successfully reconnected after a disconnection event.</p> </div>

There are additional optional parameters that you can use to refine the output results. Learn more about `vserver cifs session file show` in the [ONTAP command reference](#).

Examples

The following example displays information about open files on SVM vs1:

```

cluster1::> vserver cifs session file show -vserver vs1
Node:          node1
Vserver:      vs1
Connection:   3151274158
Session:      1
File          File          Open Hosting          Continuously
ID           Type           Mode Volume          Share          Available
-----
41          Regular      r    data              data          Yes
Path: \mytest.rtf

```

The following example displays detailed information about open SMB files with file ID 82 on SVM vs1:

```

cluster1::> vserver cifs session file show -vserver vs1 -file-id 82
-instance

                Node: node1
                Vserver: vs1
                File ID: 82
                Connection ID: 104617
                Session ID: 1
                File Type: Regular
                Open Mode: rw
Aggregate Hosting File: aggr1
  Volume Hosting File: data1
                CIFS Share: data1
  Path from CIFS Share: windows\win8\test\test.txt
                Share Mode: rw
                Range Locks: 1
Continuously Available: Yes
                Reconnected: No

```

Related information

[Display session information](#)

Determine which statistics, objects, and counters are available on ONTAP SMB servers

Before you can obtain information about CIFS, SMB, auditing, and BranchCache hash statistics and monitor performance, you must know which objects and counters are available from which you can obtain data.

Steps

1. Set the privilege level to advanced: `set -privilege advanced`

2. Perform one of the following actions:

If you want to determine...	Enter...
Which objects are available	<code>statistics catalog object show</code>
Specific objects that are available	<code>statistics catalog object show -object object_name</code>
Which counters are available	<code>statistics catalog counter show -object object_name</code>

Learn more about `statistics catalog object show`, including which objects and counters are available, in the [ONTAP command reference](#).

3. Return to the admin privilege level: `set -privilege admin`

Examples

The following command displays descriptions of selected statistic objects related to CIFS and SMB access in the cluster as seen at the advanced privilege level:

```
cluster1::> set -privilege advanced
```

Warning: These advanced commands are potentially dangerous; use them only when directed to do so by support personnel.

```
Do you want to continue? {y|n}: y
```

```
cluster1::*> statistics catalog object show -object audit
audit_ng          CM object for exporting audit_ng
performance counters
```

```
cluster1::*> statistics catalog object show -object cifs
cifs              The CIFS object reports activity of the
                  Common Internet File System protocol
                  ...
```

```
cluster1::*> statistics catalog object show -object nblade_cifs
nblade_cifs      The Common Internet File System (CIFS)
                  protocol is an implementation of the
Server
                  ...
```

```
cluster1::*> statistics catalog object show -object smb1
smb1             These counters report activity from the
SMB              revision of the protocol. For information
                  ...
```

```
cluster1::*> statistics catalog object show -object smb2
smb2            These counters report activity from the
                  SMB2/SMB3 revision of the protocol. For
                  ...
```

```
cluster1::*> statistics catalog object show -object hashd
hashd           The hashd object provides counters to
measure         the performance of the BranchCache hash
daemon.
```

```
cluster1::*> set -privilege admin
```

The following command displays information about some of the counters for the `cifs` object as seen at the advanced privilege level:



This example does not display all of the available counters for the `cifs` object; output is truncated.

```
cluster1::> set -privilege advanced
```

Warning: These advanced commands are potentially dangerous; use them only when directed to do so by support personnel.

```
Do you want to continue? {y|n}: y
```

```
cluster1::*> statistics catalog counter show -object cifs
```

```
Object: cifs
```

Counter	Description
active_searches	Number of active searches over SMB and SMB2
auth_reject_too_many	Authentication refused after too many requests were made in rapid succession
avg_directory_depth	Average number of directories crossed by SMB and SMB2 path-based commands
...	...

```
cluster2::> statistics start -object client -sample-id
```

```
Object: client
```

Counter	Value
cifs_ops	0
cifs_read_ops	0
cifs_read_recv_ops	0
cifs_read_recv_size	0B
cifs_read_size	0B
cifs_write_ops	0
cifs_write_recv_ops	0
cifs_write_recv_size	0B
cifs_write_size	0B
instance_name	vserver_1:10.72.205.179
instance_uuid	2:10.72.205.179
local_ops	0
mount_ops	0

```
[...]
```

Related information

- [Display statistics](#)
- [statistics catalog counter show object](#)

- [statistics start](#)

Display ONTAP SMB statistics

You can display various statistics, including statistics about CIFS and SMB, auditing, and BranchCache hashes, to monitor performance and diagnose issues.

Before you begin

You must have collected data samples by using the `statistics start` and `statistics stop` commands before you can display information about objects.

Learn more about `statistics start` and `statistics stop` in the [ONTAP command reference](#).

Steps

1. Set the privilege level to advanced: `set -privilege advanced`
2. Perform one of the following actions:

If you want to display statistics for...	Enter...
All versions of SMB	<code>statistics show -object cifs</code>
SMB 1.0	<code>statistics show -object smb1</code>
SMB 2.x and SMB 3.0	<code>statistics show -object smb2</code>
CIFS subsystem of the node	<code>statistics show -object nblade_cifs</code>
Multiprotocol audit	<code>statistics show -object audit_ng</code>
BranchCache hash service	<code>statistics show -object hashd</code>
Dynamic DNS	<code>statistics show -object ddns_update</code>

Learn more about `statistics show` in the [ONTAP command reference](#).

3. Return to the admin privilege level: `set -privilege admin`

Related information

- [Determine which statistics, objects, and counters are available on servers](#)
- [Monitoring SMB signed session statistics](#)
- [Display BranchCache statistics](#)
- [Use statistics to monitor automatic node referral activity](#)
- [SMB configuration for Microsoft Hyper-V and SQL Server](#)
- [Performance monitoring setup](#)

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