
## *Windows PowerShell Get-Help on Cmdlet 'Test-Connection'*

***PS:\>Get-HELP Test-Connection -Full***

NAME

Test-Connection

SYNOPSIS

Sends ICMP echo request packets, or pings, to one or more computers.

SYNTAX

Test-Connection [-ComputerName] <System.String[]> [-AsJob] [-BufferSize <System.Int32>] [-Count <System.Int32>] [-DcomAuthentication {Default | None | Connect | Call

| Packet | PacketIntegrity | PacketPrivacy | Unchanged}] [-Delay <System.Int32>] [-Impersonation {Default | Anonymous | Identify | Impersonate | Delegate}] [-Protocol

{DCOM | WSMan}] [-ThrottleLimit <System.Int32>] [-TimeToLive <System.Int32>] [-WsmanAuthentication {Default | Basic | Negotiate | CredSSP | Digest | Kerberos}]

[<CommonParameters>]

Test-Connection [-ComputerName] <System.String[]> [-Source] <System.String[]> [-AsJob] [-BufferSize <System.Int32>] [-Count <System.Int32>] [-Credential

<System.Management.Automation.PSCredential>] [-DcomAuthentication {Default | None | Connect | Call | Packet | PacketIntegrity | PacketPrivacy | Unchanged}] [-Delay

<System.Int32>] [-Impersonation {Default | Anonymous | Identify | Impersonate | Delegate}] [-Protocol {DCOM | WSMan}] [-ThrottleLimit <System.Int32>] [-TimeToLive

<System.Int32>] [-WsmanAuthentication {Default | Basic | Negotiate | CredSSP | Digest | Kerberos}] [<CommonParameters>]

Test-Connection [-ComputerName] <System.String[]> [-BufferSize <System.Int32>] [-Count <System.Int32>] [-DcomAuthentication {Default | None | Connect | Call | Packet

| PacketIntegrity | PacketPrivacy | Unchanged}] [-Delay <System.Int32>] [-Impersonation {Default | Anonymous | Identify | Impersonate | Delegate}] [-Protocol {DCOM |

WSMan}] [-Quiet] [-TimeToLive <System.Int32>] [-WsmanAuthentication {Default | Basic | Negotiate | CredSSP | Digest | Kerberos}] [<CommonParameters>]

DESCRIPTION

The `Test-Connection` cmdlet sends Internet Control Message Protocol (ICMP) echo request packets, or pings, to one or more remote computers and returns the echo

response replies. You can use this cmdlet to determine whether a particular computer can be contacted across an IP network.

You can use the parameters of `Test-Connection` to specify both the sending and receiving computers, to run the command as a background job, to set a time-out and

number of pings, and to configure the connection and authentication.

Unlike the familiar ping command, `Test-Connection` returns a Win32_PingStatus object that you can investigate in PowerShell. The Quiet parameter returns a Boolean

value in a System.Boolean object for each tested connection. If multiple connections are tested, an array of Boolean values is returned.

PARAMETERS

-AsJob <System.Management.Automation.SwitchParameter>

Indicates that this cmdlet runs as a background job.

To use this parameter, the local and remote computers must be configured for remoting and, on Windows Vista and later versions of the Windows operating system,

you must open PowerShell by using the Run as administrator option. For more information, see about_Remote_Requirements

(../microsoft.powershell.core/about/about_remote_requirements.md).

When you specify the AsJob parameter, the command immediately returns an object that represents the background job. You can continue to work in the session while

the job finishes. The job is created on the local computer and the results from remote computers are automatically returned to the local computer. To get the job

results, use the `Receive-Job` cmdlet.

For more information about PowerShell background jobs, see about_Jobs (../Microsoft.PowerShell.Core/About/about_jobs.md)and about_Remote_Jobs

(../Microsoft.PowerShell.Core/About/about_remote_jobs.md).

Required? false

Position? named

Default value False

Accept pipeline input? False

Accept wildcard characters? false

-BufferSize <System.Int32>

Specifies the size, in bytes, of the buffer sent with this command. The default value is 32.

Required? false

Position? named

Default value 32

Accept pipeline input? False

Accept wildcard characters? false

-ComputerName <System.String[]>

Specifies the computers to ping. Type the computer names or type IP addresses in IPv4 or IPv6 format. Wildcard

characters are not permitted. This parameter is

required.

This parameter doesn't rely on PowerShell remoting. You can use the ComputerName parameter even if your computer isn't configured to run remote commands.

> [!NOTE] > The ComputerName parameter is renamed to TargetName in PowerShell 6.0 and above.

Required? true

Position? 0

Default value None

Accept pipeline input? True (ByPropertyName)

Accept wildcard characters? false

-Count <System.Int32>

Specifies the number of echo requests to send. The default value is 4.

Required? false

Position? named

Default value 4

Accept pipeline input? False

Accept wildcard characters? false

-Credential <System.Management.Automation.PSCredential>

Specifies a user account that has permission to send a ping request from the source computer. Type a user name, such as User01 or Domain01\User01, or enter a

PSCredential object, such as one from the `Get-Credential` cmdlet.

The Credential parameter is valid only when the Source parameter is used in the command. The credentials don't affect the destination computer.

Required? false

Position? named

Default value Current user

Accept pipeline input? False

Accept wildcard characters? false

-DcomAuthentication <System.Management.AuthenticationLevel>

Specifies the authentication level that this cmdlet uses with WMI. `Test-Connection` uses WMI. The acceptable values for this parameter are:

- Default . Windows Authentication - None . No COM authentication - Connect . Connect-level COM authentication - Call . Call-level COM authentication - Packet .

Packet-level COM authentication - PacketIntegrity . Packet Integrity-level COM authentication - PacketPrivacy . Packet Privacy-level COM authentication -

Unchanged . Same as the previous command

The default value is Packet that has an enumerated value of 4 . For more information about the values of this parameter, see AuthenticationLevel

(/dotnet/api/system.management.authenticationlevel)enumeration.

Required? false

Position? named

Default value Packet (enumerated value of 4)

Accept pipeline input? False

Accept wildcard characters? false

-Delay <System.Int32>

Specifies the interval between pings, in seconds.

Required? false

Position? named

Default value 1 (second)

Accept pipeline input? False

Accept wildcard characters? false

-Impersonation <System.Management.ImpersonationLevel>

Specifies the impersonation level to use when this cmdlet calls WMI. `Test-Connection` uses WMI.

The acceptable values for this parameter are as follows:

- Default . Default impersonation. - Anonymous . Hides the identity of the caller. - Identify . Allows objects to query the credentials of the caller. -

Impersonate . Allows objects to use the credentials of the caller.

The default value is Impersonate .

Required? false

Position? named

Default value Impersonate

Accept pipeline input? False

Accept wildcard characters? false

-Protocol <System.String>

Specifies a protocol. The acceptable values for this parameter are DCOM and WSMan.

Required? false

Position? named

Default value None

Accept pipeline input? False

Accept wildcard characters? false

-Quiet <System.Management.Automation.SwitchParameter>

The Quiet parameter returns a Boolean value in a System.Boolean object. Using this parameter suppresses all errors.

Each connection that's tested returns a Boolean value. If the ComputerName parameter specifies multiple computers, an array of Boolean values is returned.

If any ping succeeds, `$True` is returned.

If all pings fail, `$False` is returned.

Required? false

Position? named

Default value False

Accept pipeline input? False

Accept wildcard characters? false

-Source <System.String[]>

Specifies the names of the computers where the ping originates. Enter a comma-separated list of computer names. The default is the local computer.

Required? true

Position? 1

Default value Local computer

Accept pipeline input? False

Accept wildcard characters? false

-ThrottleLimit <System.Int32>

Specifies the maximum number of concurrent connections that can be established to run this command. If you omit this parameter or enter a value of 0, the default

value, 32, is used.

The throttle limit applies only to the current command, not to the session or to the computer.

Required? false

Position? named

Default value 32

Accept pipeline input? False

Accept wildcard characters? false

-TimeToLive <System.Int32>

Specifies the maximum times a packet can be forwarded. For every hop in gateways, routers etc. the TimeToLive value is decreased by one. At zero the packet is

discarded and an error is returned. In Windows , The default value is 128 . The alias of the TimeToLive parameter is TTL .

Required? false

Position? named

Default value 128 in Windows

Accept pipeline input? False

Accept wildcard characters? false

-WsmanAuthentication <System.String>

Specifies the mechanism that is used to authenticate the user credentials when this cmdlet uses the WSMan protocol. The acceptable values for this parameter are:

- Basic

- CredSSP

- Default

- Digest

- Kerberos

- Negotiate.

The default value is Default.

For more information about the values of this parameter, see AuthenticationMechanism Enumeration (/dotnet/api/system.management.automation.runspaces.authenticationmechanism?view=powershellsdk-1.1.0).

Caution: Credential Security Service Provider (CredSSP) authentication, in which the user credentials are passed to a remote computer to be authenticated, is

designed for commands that require authentication on more than one resource, such as accessing a remote network share. This mechanism increases the security risk

of the remote operation. If the remote computer is compromised, the credentials that are passed to it can be used to control the network session.

This parameter was introduced in Windows PowerShell 3.0.

Required? false

Position? named

Default value Default

Accept pipeline input? False

Accept wildcard characters? false

<CommonParameters>

This cmdlet supports the common parameters: Verbose, Debug,

ErrorAction, ErrorVariable, WarningAction, WarningVariable,

OutBuffer, PipelineVariable, and OutVariable. For more information, see

about_CommonParameters (https:/go.microsoft.com/fwlink/?LinkID=113216).

INPUTS

None

You can't pipe objects to this cmdlet.

OUTPUTS

System.Management.ManagementObject#root\cimv2\Win32_PingStatus

By default, this cmdlet returns a Win32_PingStatus object for each ping reply.

System.Management.Automation.RemotingJob

This cmdlet returns a job object, if you specify the AsJob parameter.

System.Boolean

When you use the Quiet parameter, this returns a Boolean value. If the cmdlet tests multiple connections, it returns an array of Boolean values.

NOTES

This cmdlet uses the Win32_PingStatus class. A `Get-WMIObject Win32_PingStatus` command is equivalent to a `Test-Connection` command.

The Source parameter set was introduced in PowerShell 3.0.

------ Example 1: Send echo requests to a remote computer ------

```
Test-Connection -ComputerName Server01

Source        Destination     IPV4Address      IPV6Address  Bytes    Time(ms)
------        -----------     -----------      -----------  -----    --------
ADMIN1        Server01        10.59.137.44                  32       0
ADMIN1        Server01        10.59.137.44                  32       0
ADMIN1        Server01        10.59.137.44                  32       0
ADMIN1        Server01        10.59.137.44                  32       1
```

`Test-Connection` uses the ComputerName parameter to specify the Server01 computer.

------ Example 2: Send echo requests to several computers ------

```
Test-Connection -ComputerName Server01, Server02, Server12
```

Example 3: Send echo requests from several computers to a computer

```
Test-Connection -Source Server02, Server12, localhost -ComputerName Server01 -Credential Domain01\Admin01
```

`Test-Connection` uses the Credential parameter to specify the credentials of a user who has permission to send a ping request from the source computers. Use this

command format to test the latency of connections from multiple points.

--- Example 4: Use parameters to customize the test command ---

```
Test-Connection -ComputerName Server01 -Count 3 -Delay 2 -TTL 255 -BufferSize 256 -ThrottleLimit 32
```

`Test-Connection` uses the ComputerName parameter to specify Server01. The Count parameter specifies three pings are sent to the Server01 computer with a Delay of

2-second intervals.

You might use these options when the ping response is expected to take longer than usual, either because of an extended number of hops or a high-traffic network

condition.

---------- Example 5: Run a test as a background job ----------

```
$job = Test-Connection -ComputerName (Get-Content Servers.txt) -AsJob
if ($job.JobStateInfo.State -ne "Running") {$Results = Receive-Job $job}
```

The `Test-Connection` command pings many computers in an enterprise. The value of the ComputerName parameter is a `Get-Content` command that reads a list of computer

names from the `Servers.txt file`. The command uses the AsJob parameter to run the command as a background job and it saves the job in the `$job` variable.

The `if` command checks to see that the job isn't still running. If the job isn't running, `Receive-Job` gets the results and stores them in the `$Results` variable.

------ Example 6: Ping a remote computer with credentials ------

```
Test-Connection Server55 -Credential Domain55\User01 -Impersonation Identify
```

The command uses the Credential parameter to specify a user account that has permission to ping the remote computer and the Impersonation parameter to change the

impersonation level to Identify .

Example 7: Create a session only if a connection test succeeds

```
if (Test-Connection -ComputerName Server01 -Quiet) {New-PSSession Server01}
```

The `if` command uses the `Test-Connection` cmdlet to ping the Server01 computer. The command uses the Quiet parameter, which returns a Boolean value, instead of a

Win32_PingStatus object. The value is `$True` if any of the four pings succeed and is, otherwise, `$False`.

If the `Test-Connection` command returns a value of `$True`, the command uses the `New-PSSession` cmdlet to create the PSSession .

RELATED LINKS

Online Version: https://learn.microsoft.com/powershell/module/microsoft.powershell.management/test-connection?view=powershell-5.1&WT.mc_id=ps-gethelp

Add-Computer

Restart-Computer

Stop-Computer