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# Get started with OpenSSH for Windows

Article • 08/17/2024 • 23 contributors

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Applies to: Windows Server 2025, Windows Server 2022, Windows Server 2019, Windows 11, Windows 10

OpenSSH is a connectivity tool for remote sign-in that uses the SSH protocol. It encrypts all traffic between client and server to eliminate eavesdropping, connection hijacking, and other attacks.

An OpenSSH-compatible client can be used to connect to Windows Server and Windows client devices.

### Important

If you downloaded the OpenSSH beta from the GitHub repo at [PowerShell/Win32-OpenSSH](#), follow the instructions listed there, not the ones in this article. Some information in the Win32-OpenSSH repository relates

to prerelease product that may be substantially modified before it's released. Microsoft makes no warranties, express or implied, with respect to the information provided there.

# Prerequisites

Before you start, your computer must meet the following requirements:

- A device running at least Windows Server 2019 or Windows 10 (build 1809).
- PowerShell 5.1 or later.
- An account that is a member of the built-in Administrators group.

## Prerequisites check

To validate your environment, open an elevated PowerShell session and do the following:

- Enter *winver.exe* and press enter to see the version details for your Windows device.
- Run `$PSVersionTable.PSVersion`. Verify your major version is at least 5, and your minor version at least 1. Learn more about [installing PowerShell on Windows](#).
- Run the following command. The output shows `True` when you're a member of the built-in Administrators group.

```
(New-Object Security.Principal.WindowsPrincipal([Security.Principa
```

# Enable OpenSSH for Windows Server 2025

Starting with Windows Server 2025, OpenSSH is now installed by default. You can also enable or disable the `sshd` service in Server Manager.

GUI

PowerShell

To enable SSHD using PowerShell:

1. Open PowerShell as an administrator and run the following cmdlet to start the SSHD service:

```
# Start the sshd service
Start-Service sshd
```

2. You can also run the following optional but recommended cmdlet to automatically start SSHD to make sure it stays enabled:

```
Set-Service -Name sshd -StartupType 'Automatic'
```

3. Finally, run the following command to verify that the SSHD setup process automatically configured the firewall rule:

```
if (!(Get-NetFirewallRule -Name "OpenSSH-Server-In-TCP" -ErrorAction SilentlyContinue)) {
    Write-Output "Firewall Rule 'OpenSSH-Server-In-TCP' does not exist"
    New-NetFirewallRule -Name 'OpenSSH-Server-In-TCP' -Displayname 'OpenSSH-Server-In-TCP' -Direction In -Action Allow -Protocol TCP -LocalPort 22 -RemotePort *
} else {
    Write-Output "Firewall rule 'OpenSSH-Server-In-TCP' has been configured"
}
```

## Install OpenSSH for Windows Server

GUI

PowerShell

To install OpenSSH using PowerShell:

1. Run PowerShell as an Administrator.
2. Run the following cmdlet to make sure that OpenSSH is available:

```
Get-WindowsCapability -Online | Where-Object Name -like 'OpenSSH'
```

The command should return the following output if neither are already installed:

```
Name : OpenSSH.Client~~~~0.0.1.0
State : NotPresent

Name : OpenSSH.Server~~~~0.0.1.0
State : NotPresent
```

3. After that, run the following cmdlets to install the server or client components as needed:

```
# Install the OpenSSH Client
Add-WindowsCapability -Online -Name OpenSSH.Client~~~~0.0.1.0

# Install the OpenSSH Server
Add-WindowsCapability -Online -Name OpenSSH.Server~~~~0.0.1.0
```

Both commands should return the following output:

```
Path :
Online : True
RestartNeeded : False
```

4. To start and configure OpenSSH Server for initial use, open an elevated PowerShell prompt (right-click, then select **Run as an administrator**), then run the following commands to start the `sshd` service:

```
# Start the sshd service
Start-Service sshd

# OPTIONAL but recommended:
Set-Service -Name sshd -StartupType 'Automatic'

# Confirm the Firewall rule is configured. It should be created
if (!(Get-NetFirewallRule -Name "OpenSSH-Server-In-TCP" -ErrorAction SilentlyContinue)) {
    Write-Output "Firewall Rule 'OpenSSH-Server-In-TCP' does not exist"
    New-NetFirewallRule -Name 'OpenSSH-Server-In-TCP' -Displayname 'OpenSSH-Server-In-TCP' -Direction In -Action Allow -Enabled True
} else {
```

```
Write-Output "Firewall rule 'OpenSSH-Server-In-TCP' has been created"
}
```

## Connect to OpenSSH Server

Once installed, you can connect to OpenSSH Server from a Windows or Windows Server device with the OpenSSH client installed. From a PowerShell prompt, run the following command.

```
ssh domain\username@servername
```

Once connected, you get a message similar to the following output.

```
The authenticity of host 'servername (10.00.00.001)' can't be establish
ECDSA key fingerprint is SHA256:(<a large string>).
Are you sure you want to continue connecting (yes/no)?
```

Entering *yes* adds that server to the list of known SSH hosts on your Windows client.

At this point, the service prompts you for your password. As a security precaution, the characters of your password aren't displayed as you enter them.

Once connected, you should see the following Windows command shell prompt:

```
domain\username@SERVERNAME C:\Users\username>
```

# Uninstall OpenSSH for Windows

GUI	PowerShell
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To uninstall the OpenSSH components using PowerShell, use the following commands:

```
# Uninstall the OpenSSH Client
Remove-WindowsCapability -Online -Name OpenSSH.Client~~~~0.0.1.0

# Uninstall the OpenSSH Server
Remove-WindowsCapability -Online -Name OpenSSH.Server~~~~0.0.1.0
```

If the service was in use when you uninstalled it, you should restart Windows.

## Next steps

Now that you're done installing OpenSSH Server for Windows, here are some articles that can help you learn how to use it:

- Learn more about using key pairs for authentication in [OpenSSH key management](#)
- Learn more about the [OpenSSH Server configuration for Windows](#)


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
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
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