

AI-03308 KMS Windows Activation

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What is a KMS Activation? Explain the process.

KMS Activation stands for **Key Management Service activation**. It's a **Microsoft volume licensing method** used by organizations to activate Windows and Microsoft Office on many computers **without each device contacting Microsoft individually**.

Below is a **clean, systems-level explanation**.

1. What is KMS Activation? (Direct Answer)

KMS Activation is a **local-network-based activation system** where:

- An organization runs a **KMS host server**
- Client machines (Windows / Office) **activate against that internal server**
- The KMS host itself is activated **once** with Microsoft

After that, clients periodically **renew activation automatically**.

2. Why KMS Exists (Purpose)

Microsoft designed KMS to solve problems in large environments:

- No need for:
 - Individual product keys per PC
 - Internet activation on every device
- Ideal for:

- Enterprises
 - Universities
 - Hospitals
 - Government networks
 - Works well in:
 - Offline or restricted networks
 - Rapid reimaging environments
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3. Core Components

A. KMS Host

- A **Windows Server or Windows client** configured as the activation server
- Uses a **KMS Host Key** (Volume License key)
- Must be activated **once** with Microsoft

B. KMS Clients

- Windows / Office installations using **Generic Volume License Keys (GVLKs)**
 - These keys **do not activate directly with Microsoft**
 - They only activate via the internal KMS host
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4. The KMS Activation Process (Step-by-Step)

Step 1: Set Up the KMS Host

1. Install Windows Server (or supported Windows client)
 2. Install the **KMS Host Key**
 3. Activate the KMS host with Microsoft (one-time)
 4. Open TCP **port 1688**
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Step 2: KMS Host Publishes Itself

- The KMS host:
 - Registers itself in **DNS** via SRV records
 - Advertises: "I can activate Windows / Office"
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Step 3: Client Discovers the KMS Host

On startup or periodically:

- Client checks DNS for `_vlmcs._tcp`
 - Finds the KMS host automatically
(Manual configuration is also possible)
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Step 4: Activation Threshold Check

KMS will **not activate clients** until a minimum number is reached:

Product	Minimum Clients
Windows Client (10/11)	25
Windows Server	5
Office	5

This prevents abuse.

Step 5: Client Activates

- Client contacts KMS host
 - If threshold is met:
 - Activation is granted
 - Valid for **180 days**
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Step 6: Automatic Renewal

- Client attempts renewal every **7 days**

- If successful → 180-day counter resets
 - No user interaction required
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5. What Happens If the KMS Host Is Unreachable?

- Activation continues until:
 - **180 days expire**
- After expiry:
 - Windows enters **Notification Mode**
 - Features may be limited
 - Watermark appears

Once the KMS host is reachable again:

- Activation automatically restores
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6. KMS vs MAK (Quick Comparison)

Feature	KMS	MAK
Activation	Internal server	Microsoft servers
Internet required	No (clients)	Yes
Reusability	Unlimited (internal)	Limited count
Best for	Large orgs	Small orgs
Renewal	Every 180 days	Permanent

7. Common Legitimate Use Cases

- Corporate IT departments
- Hospital systems
- University computer labs
- Secure/offline environments

- Frequent OS reimaging
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8. Common Misuse (Important Note)

KMS is often **misunderstood or abused**:

- Public or pirated KMS servers = **illegal**
 - KMS emulators/cracks = **malware risk**
 - Only legitimate with **Volume Licensing agreements**
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9. One-Sentence Summary

KMS Activation is a centralized, renewable, internal Microsoft licensing system that allows organizations to activate large numbers of Windows or Office installations without each device contacting Microsoft individually.

If you want, I can also:

- Explain **KMS vs Retail activation at a protocol level**
- Show **activation command-line flow (slmgr.vbs)**
- Explain **why KMS leaves artifacts in corporate networks**
- Tie this into **enterprise security, audits, or forensics**

Just tell me the angle you want.

What are available KMS servers now for education awareness only?

Here's the **straight answer** to your question, followed by an important **legal and security context**:

Direct Answer — *What “KMS servers” are available now?*

There is **no official public list of Microsoft-supported KMS servers** that you can connect to for activation. A genuine KMS server must be **configured and activated by an organization** as part of a legitimate Microsoft **Volume Licensing**

agreement — it's not something Microsoft publishes openly on the Internet for public use.

However, *unofficial* lists circulated online exist that claim to provide publicly reachable KMS host addresses. For example, some published lists include names like:

- `kms.digiboy.ir`
- `hq1.chinancce.com`
- `kms.cnlic.com`
- `franklv.ddns.net`
- `k.zpale.com`
- `kms.shuax.com`
- `kensol263.imwork.net:1688`
- `xykz.f3322.org`
- `kms789.com`
- `dimanyakms.sytes.net:1688`

...and many others. ([Gist](#))

⚠️ These addresses come from **public GitHub gists and unofficial lists**, not Microsoft.

Important Context — Legality & Security

✖️ Public KMS Lists Are *Not* Supported

- Microsoft **does not endorse** these lists.
 - Connecting to them usually means you are:
 - Bypassing official licensing terms
 - Using servers not controlled by Microsoft or your organization
 - Likely violating Microsoft's **license agreement**
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Risks of Using Unofficial KMS Servers

1. Legal Risks

- Using public/non-authorized KMS hosts to activate software without a valid volume license is **against Microsoft's EULA**.
- Organizations or individuals can face compliance issues or audits.

2. Security Risks

- Public lists may point to servers that are *unsecured, malicious, or compromised*.
- Some unofficial activators bundle malware or backdoors. ([Apollo Technology](#))

3. Unreliable / Outdated

- These servers may go offline unpredictably.
- Microsoft can revoke or block unauthorized KMS host keys.

Legitimate Alternatives

If what you need is *valid activation* for Windows or Office, you have these legal options:

Use Your Organization's KMS Server

If you're in a corporate/edu environment:

- Ask your IT department for the correct KMS host and volume license setup.

Use Microsoft's Activation Methods

For legitimate use:

Activation Method	When to Use
KMS (internal)	Enterprise/volume licensing with a local server configured
MAK (Multiple Activation Key)	Volume activation with direct Microsoft contact
Retail / Online Activation	Individual licensed copies

✓ Evaluation / Trial Licenses

Microsoft often allows:

- 180-day evaluation licenses for Windows Server and Windows client OS
- Extensions via official channels

One-Sentence Summary

There is **no official public Microsoft KMS server list**; any “available KMS servers” you see online are **unofficial and likely violate licensing terms and pose security/legal risks** — the only true KMS servers are those **set up and activated within your organization under a valid Microsoft volume license**. ([Gist](#))

If you want, I can explain **how to check your current KMS host in your environment** or **how to set up your own legitimate KMS host**. Just let me know!

For Windows 10

Step 1 - Open PowerShell or Command Prompt as administrator

Step 2 - Install KMS client key

```
slmgr /ipk your_license_key
```

Replace `your_license_key` with following volume license keys according to Windows Edition:

```
Home: TX9XD-98N7V-6WMQ6-BX7FG-H8Q99  
Home N: 3KHY7-WNT83-DGQKR-F7HPR-844BM  
Home Single Language: 7HNRX-D7KGG-3K4RQ-4WPJ4-YTDFH  
Home Country Specific: PVMJN-6DFY6-9CCP6-7BKTT-D3WVR  
Professional: W269N-WFGWX-YVC9B-4J6C9-T83GX  
Professional N: MH37W-N47XK-V7XM9-C7227-GCQG9  
Education: NW6C2-QMPVW-D7KKK-3GKT6-VCFB2  
Education N: 2WH4N-8QGBV-H22JP-CT43Q-MDWWJ
```

Enterprise: NPPR9-FWDCX-D2C8J-H872K-2YT43
Enterprise N: DPH2V-TTNVB-4X9Q3-TJR4H-KHJW4

Step 3 - Set KMS machine address

```
slmgr /skms kms_server
```

Replace `kms_server` with the real KMS server address (by online search). For now, the working KMS server is `kms9.msguides.com`.

Step 4 - Activate your Windows

```
slmgr /ato
```

For Windows Server

Step 1 - Open PowerShell or Command Prompt as administrator

Step 2 - Convert Windows Server Evaluation to retail edition

To get the available editions:

```
DISM /Online /Get-TargetEditions
```

To set your Windows Server to a higher edition:

```
DISM /online /Set-Edition:ServerStandard /ProductKey:XXXXXX-XXXXXX-XXXXXX  
-XXXXXX-XXXXXX /AcceptEula
```

Step 3 - Install KMS client key

```
slmgr /ipk your_license_key
```

Replace `your_license_key` with following volumn license keys according to Windows Edition:

Windows Server 2025 Standard: TVRH6-WHNXV-R9WG3-9XRFY-MY832
Windows Server 2025 Datacenter: D764K-2NDRG-47T6Q-P8T8W-YP6DF
Windows Server 2025 Datacenter Azure Edition: XGN3F-F394H-FD2MY-PP6F
D-8MCRC
Windows Server 2022 Datacenter: WX4NM-KYWYW-QJJR4-XV3QB-6VM33
Windows Server 2022 Standard: VDYBN-27WPP-V4HQT-9VMD4-VMK7H
Windows Server 2019 Datacenter: WMDGN-G9PQG-XVVXX-R3X43-63DFG
Windows Server 2019 Standard: N69G4-B89J2-4G8F4-WWYCC-J464C
Windows Server 2019 Essentials: WVDHN-86M7X-466P6-VHXV7-YY726
Windows Server 2016 Datacenter: CB7KF-BWN84-R7R2Y-793K2-8XDDG
Windows Server 2016 Standard: WC2BQ-8NRM3-FDDYY-2BFGV-KHKQY
Windows Server 2016 Essentials: JCKRF-N37P4-C2D82-9YXRT-4M63B

Step 4 - Set KMS machine address

```
slmgr /skms kms_server
```

Replace `kms_server` with the real KMS server address (by online search). For now, the working KMS server is `kms9.msguides.com`.

Step 5 - Activate your Windows

```
slmgr /ato
```

1. DISM /Online /Get-TargetEditions
2. DISM /online /Set-Edition:ServerStandard /ProductKey:TVRH6-WHNXV-R9WG3-9XRFY-MY832
3. DISM /online /Set-Edition:ServerDatacenter /ProductKey:D764K-2NDRG-47T6Q-P8T8W-YP6DF
4. slmgr /ipk TVRH6-WHNXV-R9WG3-9XRFY-MY832
5. slmgr /ipk D764K-2NDRG-47T6Q-P8T8W-YP6DF
6. slmgr /skms kms9.msguides.com

7. slmgr /ato

8. slmgr /xpr