

WINDOWS ACTIVATION

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TuCS COMPUTER
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An International
Association of Technology
& Computer User Groups

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WINdows usERS

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SUMMARY

The activation process for "Windows.." has changed dramatically from "Windows XP" to "Windows 10". Here is a comparison of the activation processes for the various versions of "Windows.."

TOPICS

- "Digital Rights Management" Processes
- "Genuine Windows" For Versions "Windows.." Involved Generating and Storing A "Hash Tag" Consisting of 12 Parameters
- "Windows 10" has "Digital License" and "Product Key" Activation

"DIGITAL RIGHTS MANAGEMENT" PROCESSES

- "DRM" protects the intellectual property rights of the creators of something which in this case is an operating system

"DIGITAL RIGHTS MANAGEMENT" PROCESSES (continued)

- Linux:
for most "distros" of Linux there is
no DRM:
please copy and distribute them!
- Mac OS X:
no activation required but Apple
severely limits the availability and
compatibility of installation media

"DIGITAL RIGHTS MANAGEMENT" PROCESSES (continued)

- "Windows XP" and "Windows Vista" have "Windows Genuine Advantage" for an activation process
- "Windows 7" has "Windows Activation Technologies"

"DIGITAL RIGHTS MANAGEMENT" PROCESSES (continued)

- "Windows 10" has
"Product Key Activation" which
results in a "Digital License"

"DIGITAL RIGHTS MANAGEMENT" PROCESSES (continued)

- The activation process for most of Microsoft's software products including "Windows.." depends on their server farms:

"DIGITAL RIGHTS MANAGEMENT" PROCESSES (continued)

- 1+ million servers for Microsoft services such as "OneDrive", "Bing", "Outlook.com", "Skype", "Xbox", according to Steve Ballmer.

See

<http://www.extremetech.com/extreme/161772-microsoft-now-has-one-million-servers-less-than-google-but-more-than-amazon-says-ballmer>

"DIGITAL RIGHTS MANAGEMENT" PROCESSES (continued)

- \$23 billion spent to build server farms worldwide according to <https://storageservers.wordpress.com/2013/07/17/facts-and-stats-of-worlds-largest-data-centers/>

"DIGITAL RIGHTS MANAGEMENT"

PROCESSES (continued)

- Server farms located in
Santa Clara, California
Chicago (Northlake), Illinois
West Des Moines, Iowa (x3)
San Antonio, Texas
Boydton, Virginia
Ashburn, Virginia
Quincy, Washington
Dublin, Ireland

FY10 MS Online Data Centers and Markets

- Data Center location will be based on ship-to address during the purchase process
- Data will reside in 2 Data Centers to provide redundancy

- Current market
- Coming in April 2010



Virginia with backup in Washington+

1. United States
2. Canada
3. Mexico
4. Puerto Rico
5. Brazil+
6. Chile+
7. Colombia

+ In FY11 we will launch a co-lo in Brazil that will serve Brazil, Chile, and some other LATAM countries. Until then Brazil and Chile will use Virginia which has acceptable latency rates

Dublin with backup in Amsterdam

- | | |
|-------------------|-----------------|
| 1. Austria | 13. Israel |
| 2. Belgium | 14. Netherlands |
| 3. Czech Republic | 15. Norway |
| 4. Denmark | 16. Poland |
| 5. Finland | 17. Portugal |
| 6. France | 18. Romania |
| 7. Germany | 19. Spain |
| 8. Greece | 20. Sweden |
| 9. Hungary | 21. Switzerland |
| 10. Ireland | 22. UK |
| 11. Italy | |

Singapore with backup in Hong Kong++

1. Australia
2. Hong Kong
3. India (sales in Nov '09)
4. Japan
5. Malaysia
6. New Zealand
7. Singapore (sales in Nov '09)
8. South Korea (sales July '10)
9. Taiwan (sales July '10)



An aerial view of the Microsoft data center in Quincy, Washington

After years of operating in third-party facilities, **Microsoft** began building its own data centers in 2007 as it ramped up its battle with Google in the online services arena. Its first in-house project was a huge data center in the small Washington town of Quincy, where Microsoft invested \$550 million in building a 470,000 square foot data center supported by hydro-electric power from nearby dams on the Columbia River. A year later it unveiled a



An aerial view of the 470,000 square foot Microsoft data center in San Antonio.

6. MICROSOFT DATA CENTER, DUBLIN, 550,000 SF

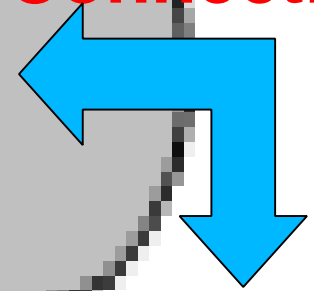


5. MICROSOFT CHICAGO DATA CENTER, Chicago 700,000 SF



**Server Farms
Operated by
Microsoft contain:
Activation Servers
"OneDrive" Servers
Web Servers
Email Servers**

**Internet
Connection**



**"Windows..
"computer**

"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10"

- Activation is based on "Genuine Windows" for versions of "Windows.." prior to "Windows 10.."

"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- The "Genuine Windows" process means that the various information is stored both on the internal hard drive of your computer AND at Microsoft's activation servers:

"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- "Windows XP"
and "Windows Vista" have "Windows
Genuine Advantage"
- "Windows 7" has
"Windows Activation Technologies"
- "Windows 10" has "Digital License"

"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- Computer make and model
- Version information for the operating system and software
- Region and language settings
- A unique number assigned to your computer by the tools (Globally Unique Identifier or GUID)₂₂

"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- Product Key (hashed) and Product ID
- BIOS name, revision number, and revision date
- Hard drive volume serial number (hashed)

"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- Product Key (hashed) and Product ID
- BIOS name, revision number, and revision date
- Hard drive volume serial number (hashed)

"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- Whether the installation was successful if one was performed
- The result of the validation check, including error codes and information about any activation exploits and any related malicious or unauthorized software found or disabled

"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- and

<http://www.microsoft.com/middleeast/Saudi/windows/genuine/validate.aspx?menuItem=menu4>

"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- and

<http://windows.microsoft.com/en-us/windows/activate-windows#1TC=windows-7>

"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- and

<http://windows.microsoft.com/en-us/windows/activate-windows#1TC=windows-7>

"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- and
[http://mobile.osnews.com/comment
.php?news_id=26661](http://mobile.osnews.com/comment.php?news_id=26661)

"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- and

<http://www.wilderssecurity.com/threads/windows-7-validation-up-and-running-now.265585/>

"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- In other words, for "Windows.." prior to "Window 10..", Microsoft does not store the UUID of the motherboard of your computer in its activation servers

"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- For details about this, see <http://www.zdnet.com/article/windows-activation-technologies-an-unauthorized-inside-look/>

ACTIVATION IN "WINDOWS 10"

- For details about activation in "Windows 10..", see http://aztcs.org/meeting_notes/winhardsig/win10/activation/win10-activation.pdf