

# Hardware Recommendations

To ensure effective use of your Autodesk Products

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## Introduction

This document outlines recommendations for workstation hardware necessary to effectively use Autodesk products. These recommendations are general in nature, do not address unique conditions, and may not be applicable to all customers and situations. These recommendations are provided as a service to the customers of CADD Microsystems, Inc. (CADD) in order to assist them in purchasing the most capable workstations at the best price.

This document was written for the 2017 release of Autodesk products, but can be used for older versions as well.

# Installation Requirements

## Operating Systems

There are many choices between operating systems and virtualization as well software that is compatible with both. Hopefully the matrix below will help you make right choices for your organization.

|  | Software Product                                  | 32-bit Support | 64-bit Support | Virtualization |
|--|---|----------------|----------------|----------------|
| <b>Software</b>                                | AutoCAD**   | x              | x              | x              |
|  | AutoCAD LT**                                      | x              | x              | x              |
|  | AutoCAD Architecture                              | x              | x              | x              |
|  | AutoCAD MEP                                       | x              | x              | x              |
|  | AutoCAD Civil 3D                                  |                | x              | x              |
|  | Revit   |                | x              | x              |
|  | Navisworks Simulate                               |                | x              | x              |
|  | Navisworks Manage                                 |                | x              |                |
|  | 3D Max Design                                     |                | x              |                |
|  | Autodesk Showcase*                                |                | x              |                |
|  | Autodesk Recap* ***                               |                | x              |                |
|  | Autodesk Mudbox**                                 |                | x              |                |
|  | Autodesk Infraworks LT & 360 (16+ GB Recommended) |                | x              |                |
|  |   |                |                |                |
|  | AutoCAD Design Suite Standard *                   | x              | x              | x              |
|  | AutoCAD Design Suite Premium*                     |                | x              | x              |
|  | AutoCAD Design Suite Ultimate*                    |                | x              | x              |
|  |   |                |                |                |
|  | Autodesk Building Design Suite Standard*          |                | x              | x              |
|  | Autodesk Building Design Suite Premium*           |                | x              | x              |
| Autodesk Building Design Suite Ultimate*       |   | x              | x              |                |
|  |   |                |                |                |
| Autodesk Infrastructure Design Suite Standard* |   | x              | x              |                |
| Autodesk Infrastructure Design Suite Premium*  |   | x              | x              |                |
| Autodesk Infrastructure Design Suite Ultimate* |   | x              | x              |                |

*\*Not all products in the suite will support virtualization. Refer to the list of exceptions on Autodesk's system requirements for each individual product.*

*\*\* Also available for Mac OS X*

*\*\*\* Not all products in the suite are supported by Windows 7.*

## Hard Disk Requirements

With the introduction of suites in 2012 the hard disk requirements have increased significantly not only for installation but also for the extraction of files associated with the installation process. For example, the Building Design Suite Ultimate 2016 requires 50GB of space just for installation.

Prior to committing to installing a full suite of products ensure you have the disk space required to install the software you need. Some guidelines are listed below.

| Suite Product   | Installed Size | Available Space for Installation |
|-----------------|----------------|----------------------------------|
| Standard Suites | 15 GB Minimum  | 35 GB free disk space            |
| Premium Suites  | 35 GB Minimum  | 35 GB free disk space            |
| Ultimate Suites | 50 GB Minimum  | 35 GB free disk space            |

# 2D Drafting and Design

The recommendations shown here are geared toward those using AutoCAD or an AutoCAD-based product primarily for two-dimensional (2D) drafting and design. This includes lines, polylines, blocks, text, dimensions, etc. Software used would include:

- Autodesk AutoCAD
- Autodesk AutoCAD Architecture
- Autodesk AutoCAD MEP
- Autodesk AutoCAD Map 3D

Note: Many of the products listed here contain robust 3D modeling tools, but these recommendations are geared towards those who don't normally use this set of functionality.

| CATEGORY                     | RECOMMENDATION   |
|------------------------------|--|
| <b>Operating System</b>      | <p>CADD recommends one of the following:</p> <ul style="list-style-type: none"> <li>▪ Windows 8/8.1 64-bit (Professional or Enterprise)</li> <li>▪ Windows 7 64 bit (Professional or Ultimate)</li> </ul> <p>These operating systems come in 32-bit or 64-bit versions. For 2D drafting and design, 32-bit may be sufficient. However, most workstation-class computers can no longer be purchased with a 32-bit operating system. With Microsoft ending support for Windows XP and since 64-bit is now the norm, Autodesk is slowly phasing out support for 32-bit software.</p> <p>Typically the extra cost between operating systems is minimal. However, one issue you may encounter, mostly with Windows 8/8.1 is finding hardware drivers that work with the latest operating system. For more information on the differences between these operating systems, see the section in the Appendix called "<a href="#">32-bit vs. 64-bit Operating Systems</a>".</p> <p>CADD recommends Windows 7 for 2013-2014 Autodesk products and Windows 7 or Windows 8 for 2014-2016 products. CADD does not recommend Windows Vista or Windows XP, since Autodesk has discontinued all product support for Windows Vista. Also Microsoft's support for Windows XP expired on April 8, 2014.</p> |
| <b>Processor / CPU</b>       | <p>When it comes to speed, the fastest processor available is usually not worth the premium price for the incremental gains in speed you will see. It is usually better to get the second or third fastest processor which may be only 5%-10% slower, but 2/3 to 1/2 the price.</p> <p>The number of cores a processor has is also an option when purchasing a new computer. Multi-core processors allow you to take full advantage of processing speed in a 64-bit system, so a quad-core processor is quickly becoming the norm. For Windows 7 and Windows 8 systems, the recommendation is to have, at minimum, a quad-core, 1.6Ghz or higher processor.</p>  |
| <b>RAM</b>                   | 4GB for 32-bit systems      4GB - 8GB for 64-bit systems   |
| <b>Hard Disc Drive (HDD)</b> | Storage space is not usually an issue, but speed is. You will need to get at least a 7,200 rpm drive. If your budget allows, the new solid state HDD's can have substantial speed improvements, but they are still very expensive.   |
| <b>Graphics Card</b>         | Always purchase a separate (discrete) graphics card of at least 256MB of RAM - avoid "integrated" graphics cards. CADD recommends nVidia Quadro cards, but AMD/ATI also have certified graphics cards. It is best to see if Autodesk has tested and certified a particular card before specifying it in a workstation. See the section in the Appendix called " <a href="#">Autodesk Graphics Hardware List</a> " for more information.  |

# 3D Modeling and Visualization

The recommendations shown here are geared toward those modeling in three dimensions (3D) and/or creating visualizations. Software used would include:

- Autodesk Revit (Architecture, MEP, Structure)
- Autodesk AutoCAD/AutoCAD Architecture/AutoCAD MEP
- Autodesk AutoCAD Map 3D
- Autodesk AutoCAD Civil 3D
- Autodesk Navisworks Simulate/Manage
- Autodesk 3ds Max / 3ds Max Design
- Autodesk ReCap\*

All of the products listed here include robust 3D modeling tools (except Navisworks) as well as rendering engines.

| CATEGORY                | RECOMMENDATION   |
|-------------------------|--|
| <b>Operating System</b> | <p>CADD recommends one of the following:</p> <ul style="list-style-type: none"> <li>▪ Windows 8/8.1 64-bit (Professional or Enterprise)</li> <li>▪ Windows 7 64 bit (Professional or Ultimate)</li> <li>▪ Windows 10 (Professional or Enterprise)</li> </ul> <p>Note: Civil 3D is only supported on 64-bit operating systems.</p> <p>Both operating systems come in 32-bit or 64-bit versions. However, most workstation-class computers can no longer be purchased with a 32-bit operating system. Since 64-bit is now the norm, Autodesk is slowly phasing out support for 32-bit software. We recommend that if you plan to work in a true 3D environment you choose a 64-bit operating system.</p> <p>Typically, the extra cost between operating systems is minimal, However, one issue you may encounter, mostly with Windows 10, is finding hardware drivers that work with the latest operating system. For more information on the differences between these operating systems, see the section in the Appendix called "<a href="#">32-bit vs. 64-bit Operating Systems</a>".</p> <p>CADD recommends Windows 7 for 2014 Autodesk products and Windows 7 or Windows 8 for 2014-2016 products. Windows 10 is currently only compatible with 2017 products. CADD does not recommend Windows Vista or Windows XP, or any Home version of windows. Since Autodesk has discontinued all product support for Windows Vista. Also, Microsoft's support for Windows XP expired on April 8, 2014.</p> <p>*Recap 2015 is not supported on Windows 7 , 8, 8.1, 10x32-bit.</p> |
| <b>Processor / CPU</b>  | <p>When it comes to speed, the fastest processor available is usually not worth the premium price for the incremental gains in speed you will see. It is usually better to get the second or third fastest processor which may be only 5%-10% slower, but 2/3 to 1/2 the price.</p> <p>The number of cores a processor has is also an option when purchasing a new computer. Since up to 16 cores can now be utilized for near photorealistic rendering, multi-core processors are recommended for true 3D software such as Revit. For this reason, it is usually worth getting, at minimum, a quad-core processor. For Windows 7 and Windows 8 systems, CADD's recommendation is to have, at minimum, a quad-core, 1.6Ghz or higher processor.</p>  |
| <b>RAM</b>              | <p>You can never have too much RAM. That being said, make sure to have a minimum of 8GB - 16GB (some workstations cannot have 8GB, only 6GB or 12GB) for 64-bit.</p>   |

## Hardware Recommendations

|                              |   |
|------------------------------|---|
| <b>Hard Disc Drive (HDD)</b> | Storage space is not usually an issue, but speed is. You will want to get at least a 7,200rpm drive. If your budget allows, opt for a solid state HDD's you will see a substantial speed improvement. Ensure that with overall you have a minimum of 5 GB free disk space.  |
| <b>Graphics Card</b>         | Always purchase a separate (discrete) graphics card of at least 1GB of RAM - avoid "integrated" graphics cards. CADD recommends nVidia Quadro cards, but AMD/ATI also have certified graphics cards. It is best to see if Autodesk has tested and certified a particular card before specifying it in a workstation. See the section in the Appendix called " <a href="#">Autodesk Graphics Hardware List</a> " for more information. |

# Virtualization

Throughout the industry many firms are opting for a virtualized environment. It allows for flexibility for workers and allows collaboration across firms. Virtualization is becoming more common more affordable and part of our daily lives.

Because of the specific needs that Autodesk products require the requirements for virtualization are just as specific.

## Requirements

|                            |   |
|----------------------------|---|
| <b>Virtualization</b>      | <ul style="list-style-type: none"> <li>• XenApp® 6.5 (FP 1 or 2 (Software Dependent))</li> <li>• XenDesktop™ 5.6</li> <li>• Citrix License Manager</li> <li>• Citrix Profile Manager</li> <li>• VMWare Horizon® 6.1 or Later</li> <li>• VMWare VSphere® 6 or later</li> </ul>   |
| <b>Server OS</b>           | Always purchase a separate (discrete) graphics card of at least 1GB of RAM - avoid “integrated” graphics cards. CADD recommends nVidia Quadro cards, but AMD/ATI also have certified graphics cards. It is best to see if Autodesk has tested and certified a particular card before specifying it in a workstation. See the section in the Appendix called <a href="#">“Autodesk Graphics Hardware List”</a> for more information. |
| <b>Authentication</b>      | Windows Active Directory<br>Roaming profiles may be supported depending on application.   |
| <b>Client OS</b>           | Windows 7 SP1 - 64-bit<br>Windows 8.1 64-bit<br>Windows 10 64-bit   |
| <b>Client Browser</b>      | Internet Explorer 7.0 or higher   |
| <b>User Access</b>         | Client machines should be bound to the network domain   |
| <b>Software Exceptions</b> | Autodesk Showcase, AutoCAD Raster Design, Autodesk ReCap, Autodesk Navisworks Simulate, Autodesk Inventor, 3D Max Design, Autodesk Infracore, Autodesk Robot Structural Analysis Professional,<br><br>Autodesk Navisworks Manage XenApp 6.5 FP1 not supported   |

# Appendix

## 32-bit vs. 64-bit Operating Systems

As mentioned above, Windows operating systems come in either 32-bit or 64-bit configurations. 32-bit has been the standard for almost two decades (since Windows 3.1 in 1992). 64-bit configurations have existed since 2003 and are now the standard for high-end workstations. They have distinct advantages over 32-bit systems, some of which are outlined in the table below:

| FEATURE  | 32-BIT                          | 64-BIT   |
|--|---------------------------------|--|
| <b>Maximum amount of total system RAM</b>                        | 4GB                             | 128GB+   |
| <b>Maximum amount of RAM dedicated to an application running</b> | 2GB<br>(3GB with some tweaking) | No limit, if it's a 64-bit software<br><br>2GB if it's a 32-bit software |
| <b>Computing Speed</b>   | -                               | Significant increase for 64-bit software                                 |

As you can see from this chart, you really need to be running 64-bit applications to take advantage of a 64-bit operating system. Fortunately, since the 2010 release, most Autodesk products come in both 32-bit and 64-bit versions, and they are both included with your purchase (in other words, you don't have to pay extra for the 64-bit version).

With each version year release Autodesk is slowly phasing out compatibility with 32-bit operating systems. This year, most of the 2016 Suites have limited compatibility with 32-bit systems. AutoCAD, AutoCAD LT, AutoCAD Architecture, AutoCAD MEP are the few remaining products with 32-bit compatibility.

Most computers built within the last 4 years are 64-bit capable, but many of them may be running a 32-bit operating system. There is a free utility called CPU-Z ([www.cpuid.com](http://www.cpuid.com)) that can be used to find out whether or not your workstation is 64-bit capable. If it is, it may be much cheaper to simply upgrade your workstation, instead of purchasing a new one, by getting a 64-bit operating system, adding RAM (if possible - check your workstation's user manual), and possibly replacing your graphics card.

## Autodesk Graphics Hardware List

The graphics card on your system is one of the most important resources your software uses. Autodesk is constantly testing graphics card drivers for how well they run with their products. You can use the Graphics Hardware List, found on Autodesk's web site, to look up which driver version is tested, supported, and even certified for use, based on your operating system and the version of your Autodesk product.

Find hardware specifically for AutoCAD and AutoCAD LT with AutoCAD Hardware Advisor:

<http://hardware.autodesk.com/>

For other Autodesk products and suites use: <http://autodesk.com/graphics-hardware>

The link above will take you to a web page that allows you to search for the best driver for your particular graphics card. Simply fill out the form with your information. (Example shown below)

Begin by selecting the type of hardware you want to find. The results of your search will appear beneath the form.

**\* Required Fields**

1. **What type of hardware do you want to find?**  
 System Hardware  Graphics Hardware

2. **\* For which product(s) or suite**  
\* Product(s) (3 maximum) Or a Design Suite Suite Edition  
AutoCAD Select one  
AutoCAD for Mac  
Autodesk 3ds Max  
Autodesk Composite  
Autodesk Flame Assist \* Product or Suite Release  
2017

3. **\* For which operating system and manufacturer?**  
Operating System Graphics Card Manufacturer  
Windows 10 64-bit NVIDIA

Which results would you like to see?  Recommended  Certified  All

Find

Once you hit "Find", a list of all the relevant graphics cards will appear. You can then click on your particular card in the list and even download the driver right from that web page:

NVIDIA Driver Release - Quadro/Tesla Desktop - 331.82 64bit [9.18.13.3182] [Download Driver](#)

Product:  Autodesk Revit 2015

| Capability                            | Device: <input checked="" type="checkbox"/> DirectX 11 |
|---------------------------------------|--|
| Advanced Material                     | <input checked="" type="checkbox"/>                    |
| MEP Hidden Lines and Gaps             | <input checked="" type="checkbox"/>                    |
| Architectural/Structural Hidden lines | <input checked="" type="checkbox"/>                    |
| Transparent Elements                  | <input checked="" type="checkbox"/>                    |
| Color fills                           | <input checked="" type="checkbox"/>                    |
| Shadows                               | <input checked="" type="checkbox"/>                    |
| Wide MEP Hidden Lines and Gaps        | <input checked="" type="checkbox"/>                    |
| Notes                                 |  |
| Comments                              |  |