

This document describes the network and hardware configurations recommended or needed to work with Apex Learning solutions based on the solution and the device being used. Apex Learning solutions include:

- Comprehensive Courses
- Tutorials
- Apex Learning Virtual School (ALVS)
- AP* Exam Review (APER)

Network Configuration

Bandwidth

A suitable Internet connection is required. This connection must have appropriate bandwidth considering:

- The number of concurrent users
- Other network applications (e.g. VOIP)
- Current bandwidth utilization
- Varying usage habits

Access

Firewalls, content filters, and other network infrastructure must allow connections to the following ports and domains:

- *.apexlearning.com
- *.apexvs.com
- correlation.edgate.com
- Port TCP/80 (all listed domains)
- Port TCP/443 (all listed domains)
- A defined set of 3rd party URLs (provided upon request to Support)

HTTP 1.1 Support

Apex Learning supports HTTP 1.1 (RFC 2616). This protocol is optional, but recommended.

Proxies sending HTTP 1.1 requests must be either compliant or conditionally compliant with RFC 2616. If a non-compliant proxy cannot be made compliant, then connections to Apex Learning courses must either:

- Bypass the proxy
- Use only the HTTP 1.0 protocol

HTTPS Support

Apex Learning supports HTTPS (Hypertext Transfer Protocol Secure) to provide encrypted communication and secure identification.

Content Caching

Cache Setting	Comprehensive Courses, ALVS, APER	Tutorials
Domains that may be cached, but should be refreshed weekly	<ul style="list-style-type: none"> • media.apexlearning.com • assets.apexlearning.com • acecontent.apexlearning.com 	<ul style="list-style-type: none"> • Not applicable
Domains that must NOT be cached	<ul style="list-style-type: none"> • apexvs.com • courses.apexlearning.com • course.apexlearning.com • course-api.apexlearning.com 	<ul style="list-style-type: none"> • apexvs.com • tutorials2.apexvs.com

Hardware Configuration

Desktop Operating System

To ensure appropriate security and support Apex Learning aligns supported operating systems to manufacturer support timelines. If an OS is no longer supported by the manufacturer or has not had a security update for a year or more, Apex Learning will not officially support.

Operating System	Comprehensive Courses, ALVS, APER	Tutorials
Microsoft Windows 8.1	Supported	Supported
Microsoft Windows 10	Supported	Supported
Apple Mac OS X 10.12 (Sierra)	Supported	Supported
Apple Mac OS X 10.13 (High Sierra)	Supported	Supported
Apple Mac OS X 10.14 (Mojave)	Supported	Supported
Chrome OS	Supported	Supported

Web Browser

Modern web browsers update automatically to ensure up to date security. Apex Learning strongly suggests taking advantage of this feature or periodically updating to the most recent browser. If a browser has not received an update for a year or more, Apex Learning will not officially support.

Web Browser	Current supported versions (6/2019)	Comprehensive Courses, ALVS, APER	Tutorials
Microsoft Internet Explorer	11	Supported	Supported
Microsoft Edge	44 and above	Supported	Supported
Google Chrome	69 and above	Supported	Supported
Mozilla Firefox	62 and above	Supported	Supported
Apple Safari	12.1 and above	Supported	Supported

Tablet Device Operating System

The following operating systems are supported on tablet devices using native browsers only. To ensure appropriate security and support Apex Learning aligns supported operating systems to manufacturer support timelines. If an OS is no longer supported by the manufacturer or has not had a security update for a year or more, Apex Learning will not officially support.

Operating System	Comprehensive Courses, ALVS, APER	Tutorials
iOS 11 or higher	Not supported	Supported
Android 9 (Pie) or higher	Not supported	Supported
Microsoft Windows 8.1	Supported	Supported
Microsoft Windows 10	Supported	Supported
Chrome OS	Supported	Supported

Additional Recommendations and Requirements

Requirement	Comprehensive Courses, ALVS, APER	Tutorials
Display Resolution & Color Depth	Resolution <ul style="list-style-type: none"> 960 x 768 minimum 1024 x 768 recommended min Color Depth <ul style="list-style-type: none"> 16 bits (Highcolor) recommended 	Resolution <ul style="list-style-type: none"> 960 x 768 minimum 1024 x 768 recommended min Color Depth <ul style="list-style-type: none"> 16 bits (Highcolor) recommended
Required Browser Plug-ins	<ul style="list-style-type: none"> Adobe Reader or equivalent Legacy courses only: Adobe Flash Player 30 or higher 	<ul style="list-style-type: none"> Not applicable
Audio	<ul style="list-style-type: none"> Speakers or headphones Microphone (<i>World languages only</i>) Audio recording support (<i>World languages only</i>) 	<ul style="list-style-type: none"> Speakers or headphones
Print (optional)	<ul style="list-style-type: none"> Printer Scanner Legacy courses only: Fax Multipage TIF Viewer 	<ul style="list-style-type: none"> Printer
Word Processing (optional)	<ul style="list-style-type: none"> Software that can open, modify, and save documents in Rich Text Format (RTF) 	<ul style="list-style-type: none"> Not applicable

Technology Courses

The following requirements outline the minimal requirements to use Technology Courses. The table that follows provides more information and additional requirements by course title.

Minimal Requirements

Hardware requirements

- PC or Mac (not tablet or Chromebook)
- Windows 10, 8, or 7, or Vista, or Mac OS10.8 or higher, 64-bit (after 2008), Note: Mac OS10.15 Catalina is not compatible at this time
- CPU Intel® Pentium® CPU N3530 (or better)
- CPU: SSE2 instruction set support
- 4 GBs RAM
- 7 GBs free disk space

Graphics requirements

- GPU: (Integrated) Intel HD Graphics (Bay Trail) or Radeon HD 6230 (or better)
- GPU: (Discrete) GeForce 710 or Radeon HD 6450 (or better)
- Graphics card must have OpenGL 3.2 compatible graphics with 1 GB RAM
- Monitor that allows for at least a 1280 x 768 resolution

Network requirements

- At least 1mbps

Other

- Headphones
- Mouse with scroll wheel
- Students need access to email to send project files to their teacher and to Apex support.
- Because students must access their saved project files from one session to the next, students need:
 - Access to the same computer each session
 - Ability to save and access saved files on the desktop

Course-Specific Requirements

This table provides an overview of additional requirements for each course. For specifics, please see the Installation Guides.

Title (links to syllabus)	Student Project	Tools	Software Access	Additional Requirements
3D Animation	Create a 3D movie	Blender®		<ul style="list-style-type: none"> • See Installation Guide
3D Character Animation	Create a Minecraft® animated short movie	Blender®		<ul style="list-style-type: none"> • See Installation Guide • Systems should meet minimum hardware requirements of Minecraft found here: https://help.mojang.com/customer/en/portal/articles/325948-minecraft-java-edition-system-requirements • Latest version of Java installed
3D Game Design	Create a basic 3D video game	OWL Game Creator		<ul style="list-style-type: none"> • See Installation Guide Note: This course has stricter OS requirements than general requirements • Windows Vista not applicable • MAC OS 10.9 or above
Mod Design 2	Create an advanced Minecraft® mod using Java™	Eclipse™, GIMP, Tabula	Access to Minecraft (Java edition) is not required therefore not provided by Apex.	<ul style="list-style-type: none"> • See Installation Guide • Systems should meet minimum hardware requirements of Minecraft found here: https://help.mojang.com/customer/en/portal/articles/325948-minecraft-java-edition-system-requirements • Latest version of Java installed

Title (links to syllabus)	Student Project	Tools	Software Access	Additional Requirements
3D Game Development	Design a custom video game using C#	Unity®		<ul style="list-style-type: none"> See Installation Guide Graphics card must have dx10 (shader model 4.0) capabilities (note: most cards produced after 2007 meet this requirement)
3D Printing & Modeling	Design 3D models suitable for printing	Blender®		<ul style="list-style-type: none"> See Installation Guide
App Design	Create a downloadable app for iOS or Android	Clickteam Fusion 2.5	Fusion 2.5 is required. Licenses will be provided based on enrollment in the course but limited by overall seats purchased.	<ul style="list-style-type: none"> See Installation Guide Older graphics cards may be used for this course. Contact Apex Learning Support to gain access to needed licenses
Fashion Design	Design a fashion collection	Inkscape™		<ul style="list-style-type: none"> See Installation Guide Older graphics cards may be used for this course.
Mod Design 1	Create a Minecraft® mod using Java™	Eclipse™, GIMP	Access to Minecraft (Java edition) is not required therefore not provided by Apex.	<ul style="list-style-type: none"> See Installation Guide Systems should meet minimum hardware requirements of Minecraft found here: https://help.mojang.com/customer/en/portal/articles/325948-minecraft-java-edition-system-requirements Latest version of Java installed MAC students may need a legacy version of Java installed which can be found here: http://support.apple.com/kb/DL1572
Mod Design 1 Dimensions	Create a Minecraft® dimension using Java™	Eclipse™, GIMP	Access to Minecraft (Java edition) is not required therefore not provided by Apex.	<ul style="list-style-type: none"> See Installation Guide Systems should meet minimum hardware requirements of Minecraft found here: https://help.mojang.com/customer/en/portal/articles/325948-minecraft-java-edition-system-requirements Latest version of Java installed MAC students may need a legacy version of Java installed which can be found here: http://support.apple.com/kb/DL1572
Adventure Maps	Design a Minecraft® world using command block programming	Minecraft® (Java edition)	Minecraft (Java edition) is required. Licenses will be provided based on enrollment in the course but limited by overall seats purchased.	<ul style="list-style-type: none"> See Installation Guide Systems should meet minimum hardware requirements of Minecraft found here: https://help.mojang.com/customer/en/portal/articles/325948-minecraft-java-edition-system-requirements Latest version of Java installed Contact Apex Learning Support to gain access to needed licenses
Server Design	Code a custom Minecraft® multiplayer server	Eclipse™, Minecraft® (Java edition)	Minecraft (Java edition) is required. Licenses will be provided based on enrollment in the course but limited by overall seats purchased.	<ul style="list-style-type: none"> See Installation Guide Systems should meet minimum hardware requirements of Minecraft found here: https://help.mojang.com/customer/en/portal/articles/325948-minecraft-java-edition-system-requirements Latest version of Java Must allow access to private network for local servers Contact Apex Learning Support to gain access to needed licenses

Apex Learning Technology Courses are not official Minecraft® products. They are not approved by or associated with Mojang®. They are not sponsored by or affiliated with Unity Technologies. Unity® is a registered trademark of Unity Technologies.

Getting Support

For additional help with network or hardware configuration, please contact Apex Learning Support.

- Monday – Friday, 5:00 AM – 7:00 PM Pacific Time
- 1-800-453-1454 option 2
- support@apexlearning.com