



Supported System Requirements

Effective October 2019–February 2020

This document describes the current system requirements for the DRC INSIGHT Online Learning System, including student-testing devices and Central Office Services (COS) Service Devices. These requirements cover the following items:

- Hardware devices
- Accessories and peripherals
- Operating systems and levels
- Processor, disk space, and memory
- Screen size and resolution
- Certain testing accommodations

DRC aggressively seeks out, validates, and adopts new technology to offer the best testing solutions to our customers while keeping pace with constantly changing and evolving technology standards. In general, DRC software applications offer Best Effort Support of new versions of a supported operating system within one month of public availability of the new version and Full Support within three months of public availability of the new version, or by the next release date of the DRC application, whichever duration is greater.

Current Update: October 21, 2019

Next Update: February 2020

DRC INSIGHT Supported System Requirements

Table of Contents

UPDATE: Support Starting and Ending	2
UPDATE: New or Changing DRC Technology	3
COS Service Device CPU Benchmark Ratings	3
Minimum vs. Recommended	4
DRC Device Support Policy	4
DRC INSIGHT Testing Device Requirements	5
Important Notes	6
Additional DRC INSIGHT Device Specifications	7
DRC COS Service Device Requirements	8
Base Hardware Requirements	8
Operating System Requirements	8
Examples of COS Service Device Configurations	8
DRC Software Support Policy	9
DRC INSIGHT Software: Supported Operating System Levels and Support Timeline	10
iOS and iPadOS Releases and DRC Support	12
Chrome OS Support and Chrome Devices	12
Trademarks	14

UPDATE: Support Starting and Ending

The following is a quick overview of upcoming changes to the hardware and software supported for DRC INSIGHT and/or COS Service Devices. For details, see the appropriate section of this document.

Device Support Beginning

DRC does not list specific supported devices for Windows and Chrome OS. DRC will support devices (including touch-screen devices) that meet the minimum system requirements.

Support Ended

Mac OS X 10.11 (July 2019)

Ubuntu 14.04 (July 2019)

iOS 11.x (July 2019)

Testing Site Manager (August 2019)

Software Support Beginning

iPadOS

On September 24, 2019, Apple released the first version of their new operating system designed specifically for iPads, iPadOS 13. As a result of this operating system update, DRC released an updated version of the DRC INSIGHT Secure App for the iPad which was made available in the Apple App Store in late October.

Please note that with the addition of iOS 12 and iPadOS as supported OS levels, the minimum level of memory required for iPads used as testing devices has been increased to 2 GB RAM (see [DRC INSIGHT Testing Device Requirements](#)).

macOS version 10.15 (Catalina)

Catalina, the next major release of macOS for Macintosh computers and the successor to macOS Mojave, was released on October 7, 2019. DRC currently offers Best Effort support for this version and anticipates offering Full Support in the November 2019 timeframe.

Software Support Ending

Windows 7 and Windows Server 2008

Microsoft ended mainstream support for Windows 7 in January of 2015 and switched to extended support. Now, Microsoft is planning to end extended support for Windows 7, as well as support for Windows Server 2008, in January of 2020. DRC will continue to support both Windows 7 software and Windows Server 2008 software throughout the 2019–2020 school year. Look for more information in the June update of the *DRC INSIGHT Supported System Requirements*.

UPDATE: New or Changing DRC Technology

The following is a quick overview of upcoming changes to DRC software and technology components.

COS Service Device CPU Benchmark Ratings

DRC is currently enhancing and simplifying the requirements for COS Service Devices. Starting this fall, DRC is determining system requirements for COS Service Devices in terms of Central Processing Unit (CPU) benchmark ratings (i.e., processor performance) versus other hardware specifications. Typically, CPU benchmark ratings are created by using special software to test and gauge CPU performance in a standardized way. The resulting ratings make it easier to understand differences in CPU performance and to set device processing standards. For details, see the [DRC COS Service Device Requirements](#) and [Examples of COS Service Device Configurations](#).

Minimum vs. Recommended

Throughout this document, the Minimum level of requirements represents a low compliance threshold. DRC advises using the Recommended level or above. The Recommended level is required for testing with accommodations such as Human Voice Audio (HVA), Text-To-Speech (TTS), and Video Sign Language (VSL).

DRC Device Support Policy

Typically, when a hardware vendor, such as Dell or Lenovo, discontinues a hardware device, the software vendor that provides the operating system support for that device continues supporting the device for a period of time. Therefore, for any device that DRC adds to its fully supported device list, DRC will continue to support the device until the software vendor officially discontinues support for the device.

Device Categories

DRC's approach is to test and certify our software on the devices most commonly used in the classroom. As a result of its testing, DRC groups devices into the three categories described in the table below.

Device Category	Description
Fully Supported	DRC has evaluated and tested the device. It is suitable for testing with DRC INSIGHT and COS Service Devices.*
Not Suitable for Online Testing	DRC has evaluated and tested the device. For various reasons, it is unacceptable for testing with DRC INSIGHT and/or COS Service Devices.
Other	<p>Any device that does not fit into the other categories falls into this category. DRC has neither evaluated nor tested the device—it may or may not be suitable for testing with DRC INSIGHT and/or COS Service Devices.</p> <p>Device manufacturers use different methods to implement touch-enabled screens for their devices, with the technology evolving over time. DRC typically tests DRC INSIGHT with touch devices made by the most common manufacturers for educational settings. Generally speaking, DRC INSIGHT will operate effectively on similar touch-screen models and DRC will provide best effort support for these models.</p>

*Certain devices, such as iPad devices or Chrome devices, can be used for DRC INSIGHT, but not for COS Service Devices.

DRC INSIGHT Testing Device Requirements

The table below indicates the current DRC INSIGHT testing device requirements, as well as the testing devices that DRC fully supports and the devices that are known to be unsuitable for online testing.

Fully Supported Devices	Processor	Available Memory	Unused Disk Space	Screen Size	Resolution
<p><u>Windows</u> Both touch-screen and non-touch-screen devices that meet the requirements in this table</p>	<p><u>Minimum</u> Intel 4th Generation Core i3 4005U (or equivalent)</p> <p>Intel 5th Generation Celeron N3050 (or equivalent)</p> <p><u>Recommended</u> Intel 6th generation product family or greater (or equivalent)</p>	<p><u>Minimum</u> 2 GB RAM</p> <p><u>Recommended</u> 4 GB RAM</p>	<p><u>Minimum</u> 10 GB</p> <p><u>Recommended</u> 20 GB or more</p>	<p><u>Minimum</u> 9.5"</p>	<p><u>Minimum</u> 1024 x 768</p>
<p><u>Mac (OS X and macOS) and Linux</u> Non-touch-screen devices only</p>	<p><u>Recommended</u> Intel 6th generation product family or greater (or equivalent)</p>				
<p><u>Chrome OS</u> Both touch-screen and non-touch-screen devices that meet the requirements in this table</p>	<p><u>Minimum</u> Intel 4th Generation Celeron 2955U (or equivalent)</p> <p><u>Recommended</u> Intel 6th generation product family or greater (or equivalent)</p>	<p><u>Minimum</u> 2 GB RAM or more</p> <p><u>Recommended</u> 4 GB RAM or more</p>	<p>NA—See the Important Notes that follow the table.</p>		
<p><u>Apple iOS</u> iPad 5th Generation iPad 6th Generation iPad Air devices iPad Pro Devices: 9.7", 10.5", and 12.9"</p> <p>Note: iPad mini devices are not supported.</p>	<p>NA</p>	<p><u>Minimum</u> 2 GB RAM or more</p> <p>See the Important Notes that follow the table.</p>	<p>NA—See the Important Notes that follow the table.</p>	<p><u>Minimum</u> 9.7" or greater</p>	
<p><u>Apple iPadOS</u> iPad 5th Generation iPad 6th Generation iPad Pro Devices: 9.7", 10.5", 11", and 12.9"</p>					

Important Notes

PCs and MACs to Chromebooks—Neverware CloudReady and DRC INSIGHT

CloudReady from Neverware is a reduced-feature operating system, built on the same technology as Chrome OS, that runs on hardware with limited resources. DRC and Neverware have tested CloudReady and have confirmed that it meets the requirements for testing. Sites will need to partner with Neverware for this solution.

Neverware and DRC offer full support for CloudReady for testing with DRC INSIGHT on testing devices that meet the DRC Chrome OS system requirements (see [DRC INSIGHT Testing Device Requirements](#) for details). Sites using CloudReady will follow the Chrome OS installation instructions and the Chrome OS system requirements.

Tablet/Netbook/Chromebook Devices

Because tablet/Netbook/Chromebook devices are not easily configurable for memory and storage (disk space) upgrades, DRC recommends that these devices be streamlined for the DRC INSIGHT App when used for testing.

To achieve this goal, all applications and features that are unnecessary for testing should be removed, turned off, or disabled to ensure that the maximum amount of device memory is available for testing. This includes services such as Bluetooth (unless a Bluetooth keyboard or mouse is needed), GPS, and power saving modes that reduce performance to maximize battery life. DRC also recommends rebooting these devices before testing. These activities help free available memory. Devices that lack sufficient memory during testing may experience issues.

IPA Software

Intelligent personal assistant (IPA) software, such as Siri for iOS and macOS, or Cortana for Windows 10, should be disabled during testing for the appropriate devices. In some cases, this functionality can be disabled automatically using administrator controls such as Mobile Device Management (MDM) software. If IPA software is not disabled, the testing site is responsible for ensuring the security and integrity of the test by actively monitoring that students are not using this capability during the test.

Automatic Operating System Updates and Other Background Processes

Operating system vendors such as Google, Microsoft, and Apple are moving to a model where operating system updates occur automatically in the background. Update processes running in the background on testing devices consume CPU and memory and can affect the testing experience—audio playback may be choppy and Speaking test responses may be distorted. To avoid this situation, verify that no background processes are running on testing devices during testing. Also, if a testing device is set to accept operating system updates automatically, verify that it has the most current DRC-supported version of the operating system *before* the test session starts.

Additional DRC INSIGHT Device Specifications

Supported Accessories	
<ul style="list-style-type: none"> ○ Mouse ○ English language keyboard (internal and external, wired and wireless) ○ Touchpad ○ Headphones ○ Microphone 	<ul style="list-style-type: none"> ○ Earphones ○ Earbuds ○ Stylus for touch devices ○ Other input devices as supported for accommodations (determined in conjunction with each state department of education)
<p>The input device must allow students to select and deselect; drag items; highlight text, objects, and areas; enter letters, numbers, and symbols; use the Shift, Tab, Return, Delete, and Backspace keys.</p>	
Other	
<p>Smart Board interfaces are not supported.</p>	
Internet Connectivity	
<p>Devices must be able to connect to the Internet using wired or wireless networks.</p>	
Wi-Fi Recommendations	
<p>The maximum number of devices a Wireless Access Point (WAP) can support varies depending on the manufacturer and model of the WAP device being used for testing. DRC recommends never exceeding 80% of the maximum capacity of the WAP specified by the manufacturer. For example, for a WAP device with a maximum capacity of 20 concurrently connected devices, DRC recommends that no more than 16 devices be connected concurrently. If the number of concurrently connected devices is expected to exceed this threshold, additional WAPs should be implemented. Note that all other networking hardware must be able to accommodate the maximum number of devices that could potentially be connected to the wireless network concurrently.</p> <p>If you plan to test using a wireless network, complete a wireless site survey to ensure that there is sufficient wireless coverage in testing areas. This survey should address coverage and verify that students can take the test in the same area of the building at one time (device density). The survey should account for Internet bandwidth and other traffic in the building at the time of testing, including LAN (wireless and wired) traffic and WAN traffic.</p>	
Power Supply	
<p>Minimum For battery devices, a fully charged battery with a two-hour life.</p>	<p>Recommended A device connected to a plugged-in power supply.</p>
Accommodations	
<p>A COS Service Device is required for HVA, TTS, and VSL, which have increased memory and disk space requirements (see DRC COS Service Device Requirements).</p>	

DRC COS Service Device Requirements

Base Hardware Requirements

Processor	CPU benchmark rating of 3000 or higher (see the footnote at the bottom of the page for a description of benchmark rating)
Available Memory	4 GB RAM or higher
Available Disk Space	20 GB or more recommended; 10 GB minimum
Network	A COS Service Device should be connected to the network through a wired connection.

Operating System Requirements

- COS Service Device software is supported on the following operating systems:
 - 64-bit Windows
 - 64-bit macOS
 - 64-bit Linux
- COS Service Device software **cannot** be installed on an iOS, iPadOS, or ChromeOS device.
Note: iOS, iPadOS, and ChromeOS testing devices that have the DRC INSIGHT Secure App installed on them can be associated with any COS Service Device, regardless of its operating system. For example, an iPad or Chromebook testing device can connect to a Windows, Mac, or Linux COS Service Device.

Examples of COS Service Device Configurations

The table that follows shows examples of device processor and memory configurations required for a COS Service Device based on the number of concurrent testers. Note that testing sites are not limited to these configurations—they are listed to provide guidance regarding the scalability of COS Service Devices. The table also lists the available shared network bandwidth required based on the number of concurrent testers. Shared bandwidth includes the LAN, WAN, and Internet Service Provider (ISP) bandwidth. *Each of these bandwidths* should meet or exceed the minimum bandwidth listed. Shared bandwidth *does not include* the minimum bandwidth from the testing device to the network because that bandwidth is shared by other testing devices. The minimum bandwidth from the testing device to the network is about 3-5 Mbps.

Number of Concurrent Testers	Processor*	Available Memory	Minimum Available Shared Network Bandwidth
Up to 100	A CPU benchmark rating of 3000 or higher	4 GB RAM	100 Mbps
Up to 200	A CPU benchmark rating of 4000 or higher	4 GB RAM	150 Mbps
Up to 300	A CPU benchmark rating of 6000 or higher	4 GB RAM	200 Mbps
Up to 500	A CPU benchmark rating of 8000 or higher	4 GB RAM	400 Mbps
Up to 750	A CPU benchmark rating of 12000 or higher	8 GB RAM	600 Mbps

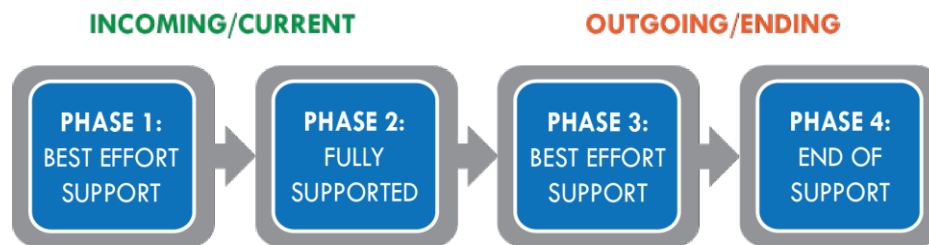
*A processor's CPU benchmark rating is based on a common set of factors used to assess the relative performance of processors. Different processors with the same CPU benchmark rating will perform at relatively the same level.

- Use the link https://www.cpubenchmark.net/cpu_list.php for a searchable list of processors with their benchmark ratings and other information.
- Use the link <https://www.passmark.com/products/performancectest/> to download *PerformanceTest*, a software application that you can use to run a benchmark test on your Windows device.

DRC Software Support Policy

When a software vendor, such as Microsoft or Apple, ends support for an operating system (or level), they discontinue free security updates for that software. This can present large and immediate security and support risks to the software's users. As a result, DRC strongly recommends that all clients affected by the end of support process begin the transition as soon as possible to allow sufficient time for the process.

Support Timeline



To accomplish the dual goals of minimizing security risks to DRC clients while making necessary software changes, DRC has established a multi-phase support timeline for the transition from an unsupported operating system or level to a supported operating system or level.

Note: DRC assumes no responsibility or liability for software transition processes at testing sites.

Phases 1 and 3: Best Effort Support

The DRC Support team will help troubleshoot issues reported concerning the operating system or level and DRC software applications as best we can, but DRC cannot guarantee a resolution.

If a problem is uncovered, DRC Support will report the issue to DRC Development. Again, we cannot guarantee a fix, software update, or resolution timeline for software fixes or updates. If DRC determines that an issue is related to a client's network, hardware, or third-party software, the client must obtain support directly from the software vendor or the hardware manufacturer.

Best Effort Support occurs at both ends of the software lifecycle.

- *Phase 1: After DRC software testing begins and before the software is fully supported by DRC.* DRC offers Best Effort Support for any new version of a supported operating system (OS) product within 30 days of public availability of the OS product version, or by the next planned common or client-specific release date of the DRC application, whichever duration is greater.
- *Phase 3: After the software is no longer supported by the vendor and before the end of DRC support.* Once the OS product version has reached the end of vendor support, DRC offers Best Effort Support until the next planned common or client-specific release date of the DRC application, at which point it is restricted from use unless DRC chooses to extend support.

Phase 2: Fully Supported

When an OS product is on the DRC supported product list, DRC performs application testing for all major versions of the product publicly supported by the product vendor and for all minor versions of the product when DRC deems testing is necessary. Any new version of a supported OS product will be Fully Supported by all DRC applications within 90 days of public availability of the version of the OS product, or by the next planned common or client-specific release date of the DRC application, whichever duration is greater.

Phase 4: End of Support

The next release of DRC software applications will not work with the unsupported operating system or level. It is restricted from use.

The table that follows indicates the current supported operating system levels for DRC INSIGHT. It also provides a timeline for changes in terms of the various support phases.

DRC INSIGHT Software: Supported Operating System Levels and Support Timeline

Operating System	Level	Incoming/Current		Outgoing/Ending	
		Phase 1: Best Effort Support	Phase 2: Fully Supported (1)	Phase 3: Best Effort Support	Phase 4: End of Support (2)
Windows	Windows 7, SP1		X		
	Windows 8.1		X		
	Windows 10 Semi-Annual Channel servicing options (3)(4)		X		
	Windows 10 in S mode		X		
	Windows Server 2008, R2 SP1		X		
	Windows Server 2012		X		
	Windows Server 2012, R2		X		
	Windows Server 2016		X		
	Windows Server 2019		X		
Mac (OS X and macOS) Note: Mac server software is not supported.	macOS 10.12		X		
	macOS 10.13		X		
	macOS 10.14		X		
	macOS 10.15	X	Anticipated November		
Linux Note: Linux server software is not supported.	Ubuntu 16.04, LTS version, with 64-bit Gnome 3.4, Unity Shell		X		
	Ubuntu 18.04, LTS version with Gnome Shell		X		
iOS (5)	12.x latest version		X		
iPadOS (5)	13.x latest version		X		
Chrome (6)	Chrome OS recent stable channel		X	(7)	

Note: See the following page for details regarding the numbered table notes.

Table Notes

(1)DRC recommends using operating system levels that are Fully Supported.

(2)When End of Support occurs during a typical testing cycle, DRC will continue to provide Best Effort Support until the testing cycle ends. DRC recommends that sites upgrade to a fully supported level before the testing cycle begins.

(3)DRC fully supports the most recent version of Windows 10 available for the Semi-Annual Channel servicing options within 90 days of public availability of the new version. DRC will offer Best Effort support for previous versions of Windows 10 available for the Semi-Annual Channel servicing options that Microsoft maintains support for with servicing updates. For details, see the [Microsoft Windows 10 version support website](#) and <https://support.microsoft.com/en-us/help/13853/windows-lifecycle-fact-sheet>.

(4) DRC currently supports the Home, Pro, Enterprise, and Education editions of Windows 10.

(5)) See [iOS and iPadOS Releases and DRC Support](#) on the following page.

(6) See [Chrome OS Support and Chrome Devices](#) on the following page.

(7)DRC offers Best Effort Support for unmanaged Chrome devices (the DRC INSIGHT Secure Chrome App was manually installed) that meet the system device and supported operating system requirements.

iOS and iPadOS Releases and DRC Support

The iOS and iPadOS release strategy provides both major and minor release versions.

- Major release versions are indicated by the number to the left of the decimal point. For example, release 11.x and release 12.x are major release versions.
- Minor release versions are indicated by the number to the right of the decimal point. For example, release 11.1 and release 11.2 are minor release versions of major release version 11.

DRC supports both types of release versions.

- DRC provides **Full Support** for the most recent **major release version** of iOS and iPadOS within 90 days of public availability of the new version. During the 90 days of testing/verification, DRC provides Best Effort Support of the new major release version.
- DRC provides **Best Effort Support** for **minor release versions** of iOS and iPadOS as soon as they are made available to the public and will fully support these versions as soon as DRC completes testing/verification. DRC will attempt to fully support minor release versions within 30 days of their release.

Note: DRC offers Best Effort Support for any previous versions of iOS and iPadOS for which Apple maintains support.

Chrome OS Support and Chrome Devices

- DRC offers the following levels of support for Chrome OS for the 2019–2020 testing season:
 - **Full Support** for the current stable channel level.
 - **Best Effort Support** for stable channel levels between level 74 and the current stable channel level.

Note: DRC also offers Best Effort Support for unmanaged Chrome devices (the DRC INSIGHT Secure Chrome App was manually installed) that meet the system device and supported operating system requirements.

- **End of Support** (no support) for stable channel levels below 74.
- **IMPORTANT: End of Automatic Update Support for Older Chrome Devices**
Each Google Chrome device has an Auto Update Expiration (AUE) date. Before reaching this date, the device receives new software updates from Google automatically. As Google's Auto Update policy for Chrome OS devices states, *Chrome devices receive automatic updates regularly that enhance both the device itself and the software on the device. ...However, end-to-end updates for all our devices to ensure the highest*

levels of security requires dependencies on many third-party hardware and software providers so we cannot indefinitely ensure that older Chrome devices will receive updates to enable new OS and browser features.

Many districts and sites receive operating system updates automatically for their Chrome devices, and older devices may be approaching their AUE date. **When a device reaches its AUE date, Google considers the device obsolete, software updates from Google are no longer guaranteed, the device may not receive necessary security and functionality upgrades, and Google suspends the ability to manage it using the Google Management Console.**

Therefore, DRC recommends replacing any Chrome devices that have reached or will reach their AUE date within the 2019-2020 school year.

To determine the AUE date for a specific Chrome device, use the following link to Google's Auto Update policy and the list of Chrome devices with their AUE dates: <https://support.google.com/chrome/a/answer/6220366>.

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