DRC INSIGHT
System Requirements

Effective June 2023–October 2023

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Hardware Requirements

These hardware requirements apply to all device types and operating systems unless noted.

- **Processor**
  - iPad – N/A
  - Minimum – CPU benchmark rating of 600*
  - Recommended – CPU benchmark rating of 3000* or higher
- **Available Memory**
  - Minimum – 2 GB RAM
  - Recommended – 4 GB RAM or higher
- **Available Disk Space**
  - Minimum/Recommended – 1 GB
- **Screen Size** – Required – 9.5" or larger
- **Actual Screen Resolution** – 1024 x 768 or better
- **Scale/Display Size** – 100%
- **Network Connection** – Wired or wireless network connection – 3 Mbps or better
- **Internet** – Required
- **Power Supply**
  - Minimum – Battery powered devices, a fully charged battery with a two-hour life
  - Recommended – Device plugged into a power supply
- **Headset with Microphone** – See "*DRC INSIGHT Headset Guidance*" found in the DRC INSIGHT Portal, General Information under the Documents section.

COS Service Device

Hardware Requirements

These base hardware requirements apply to all device types and operating systems.

- **Processor**
  - CPU benchmark rating of 3000 or higher*
- **Available Memory**
  - 4 GB RAM or higher
- **Available Disk Space**
  - Minimum – 10 GB
  - Recommended – 20 GB or more
- **Network**
  - Connected to the network through a wired connection

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*A processor's CPU benchmark rating is based on a common set of factors used by PassMark Software to assess relative processor performance. Processors with the same CPU benchmark rating will perform at relatively the same level.
- Use the link **www.cpubenchmark.net/cpu_list.php** for a searchable list of processors with their benchmark ratings and other information.
- To determine processor capability on a macOS device, Open a Terminal Window and run the following command: *sysctl machdep.cpu.brand_string*

DRC INSIGHT Operating System Requirements

Supported Operating System Versions

See DRC's Operating System Support Policy for information on DRC support by phase.

Operating System	Level	Incoming/Current		Outgoing/Ending	
		Phase 1: Best Effort Support	Phase 2: Fully Supported	Phase 3: Best Effort Support	Phase 4: End of Support
Windows (1)(2)(3)(4)	Windows 8.1				X
	Windows 10 - 20H2				X
	Windows 10 - 21H1				X
	Windows 10 - 21H2		X		
	Windows 10 - 22H2		X		
	Windows 10 in S mode		X		
	Windows 11 in S mode	X			
	Windows 11 SE	X			
	Windows 11 – 21H2		X		
	Windows 11 - 22H2		X		
	Windows Server 2012 R2				X
	Windows Server 2016		X		
	Windows Server 2019		X		
	Windows Server 2022		X		
iPadOS (5)	iPadOS 14.x				X
	iPadOS 15.x		X		
	iPadOS 15.4.x				X
	iPadOS 16.x		X		
ChromeOS (6)(7)(8)	ChromeOS current stable channel		X		
	Flex				X
macOS (9)	macOS 10.15				X
	macOS 11.x		X		
	macOS 12.x		X		
	macOS 13.x		X		
Linux (9)	Ubuntu 18.04 LTS version with Gnome Shell				X
	Ubuntu 20.04 LTS version with Gnome Shell		X		
	Ubuntu 22.04 LTS version with Gnome Shell		X		

Operating System Notes

(1) DRC does not offer support for Windows versions under Microsoft's Long-Term Servicing Channel (LTSC), Windows N and Windows KN.

(2) DRC does not support high contrast mode for Windows Devices.

(3) DRC fully supports the most recent version of Windows 10 and Windows 11 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 and Windows 11 available for the Semi-Annual Channel servicing options that Microsoft maintains support for with servicing updates. For details, see the Windows 10 and Windows 11 version support website.

(4) DRC currently supports the Home, Pro, Enterprise, and Education editions of Windows 10 and Windows 11.

(5) See iPadOS Support section below.

(6) See ChromeOS Support section below.
(7) DRC offers Best Effort Support for unmanaged ChromeOS devices that meet the system device and supported operating system requirements.
(8) DRC offers Best Effort Support for version 109 to the current stable channel level.
(9) macOS and Linux server software are not supported.

iPadOS Support

The 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 15.x and release 16.x are major release versions.
- Minor release versions are indicated by the number to the right of the decimal point. For example, release 15.1 and release 15.2 are minor release versions of major release version 15.

DRC offers the following levels of support:

- **Full Support** for the most recent **major release version** of 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.
- **Best Effort Support** for **minor release versions** of 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 iPadOS for which Apple maintains support.

ChromeOS Support

DRC offers the following levels of support:

- **Full Support** for the current stable channel level.
- **Best Effort Support** for stable channel levels between level 109 and the current stable channel level.
  Note: DRC offers Best Effort Support for unmanaged ChromeOS devices that meet the system device and supported operating system requirements.
- **End of Support** (no support) for stable channel levels before 109.

Testing Devices

- Testing Device are supported on the following operating systems:
  - ○ ChromeOS
  - ○ 64-bit Windows
  - ○ 64-bit macOS
  - ○ iPadOS
  - ○ 64-bit Linux

COS Service Device

- 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 iPadOS or ChromeOS device.
  Note: 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 ChromeOS testing device can connect to a Windows, macOS, or Linux COS Service Device.

Testing Device Setup and Configuration Additional Notes

Scale and Display Settings

Operating systems allow for some level of customized display scaling that adjusts the size of what is displayed on the screen. This results in allowing the screen to mimic a different screen resolution. Given that this can result in a large number of screen resolution variations, DRC recommends that display settings be set to the device's default display resolution and that the scaling or display setting be set to 100%. This will reduce the chance of any distortion or mis-rendering of questions during an assessment.

To ensure testing content displays correctly, DRC recommends using the following device scale and/or display settings:

- Windows and ChromeOS – 100%
- macOS – Default
- iPadOS – Standard

Disable Background Processes

The DRC INSIGHT Secure Application secures the device and prevents students from leaving the assessment to access other resources that may give them an unfair advantage. As testing devices may be used for other instruction, the application's ability to alter the device configuration or turn off device software or processes is very limited.

For both **test security** and **device performance,** DRC recommends that unnecessary background processes and software be removed, turned off or disabled. DRC also recommends prior to testing sites review which processes and software are running in the background and have a procedure for disabling them before the assessment and enabling them after the assessment.

Test Security

Testing devices may have applications that could assist students during the assessment, such as typing assistant applications. Others may allow for screen capture or recording that will compromise the test content for future use. To ensure the integrity of the testing content and student responses services like these should be disabled before the assessment.

Test Performance

Software and processing running in the background consume CPU and memory. Managing these services helps ensure the maximum amount of device resources are available for testing. This includes services such as Bluetooth (unless a Bluetooth keyboard or mouse is needed), GPS, and power-saving modes that maximize battery life but results in reduced performance. DRC also recommends sites consider rebooting devices before testing.

Background Services

The following are five (5) types of applications sites should review before devices are used for testing:

- Instructional Software
- Automatic Updates
- Intelligent Personal Assistant (IPA)
- iPadOS, ChromeOS, Netbook Devices
- Collaboration Tools
- Microsoft Game Bar and Other Screen Capture Software

Instructional software

Testing devices that are used during classroom instruction may have software that could compromise student responses and/or affect the performance of the device during the assessment. For example:

- Typing assistant or grammar checking application (e.g., Grammarly, Ginger Software, ProWritingAid)
- Classroom monitoring tools (e.g., Linewize Classwize, Impero Wellbeing, GoGuardian, Securly)
- Remote access/remote control tools (e.g., TeamViewer, AnyDesk, Remote PC, LogMeIn)

Automatic Updates

Both operating systems and software on the device can be configured to automatically update when there are newer versions available. These update processes running in the background on testing devices consume CPU and memory and can affect the testing experience. For example, audio playback may be choppy and speaking test responses may be distorted. At times, these updates can also force an automatic reboot of the device. To avoid these situations during testing, if a testing device is set to accept updates automatically, either verify that it has the most current supported version already installed *before* the test session starts or turn off automatic updates until testing is complete.

Intelligent personal assistant (IPA) Software

Intelligent personal assistant (IPA) software, such as Siri for iPadOS and macOS, or Cortana for Windows 10 and Windows 11, should be disabled during testing for the appropriate devices. In some cases, this functionality can be disabled automatically using administrator controls such as group policies or 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.

iPadOS, ChromeOS, Netbook Devices

iPadOS, ChromeOS, and Netbook Devices are not easily configurable for additional memory and storage upgrades. DRC recommends that these devices be streamlined for the DRC INSIGHT Secure App, and that all unnecessary applications and features be removed or disabled to free up as much memory and CPU as possible for testing.

Collaboration Tools

Microsoft Teams App

The Microsoft Teams App is embedded into Windows 10 and Windows 11. If it is not already disabled as part of the standard image policy, it should be disabled before testing on Windows devices. This functionality can be disabled by managing the deployment/installation of the testing device's Microsoft suite or refer to the "Use Group Policy to prevent Microsoft Teams from starting automatically after installation" section in the "*Deploy Microsoft Teams with Microsoft 365 Apps*" guide to learn more about how Microsoft recommends disabling Microsoft Teams.

If the Microsoft Teams App 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.

Other Collaboration Tools

DRC recommends disabling other collaboration tools like Google Chat, Google Meet, Zoom, and WebEx before testing. If collaboration tools are 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.

Screen Capture Software

Software that allows for the capture of screenshots and video, if not already disabled as part of the standard image or group policy, should be disabled before testing.

Wi-Fi Recommendations

When testing using a wireless network, DRC recommends a wireless site survey be completed to ensure that there is enough unobstructed wireless coverage in testing areas. This survey should address coverage and verify that the anticipated number of testers can take the test in the same area of the building at one time (device density).

The survey should also verify that there is adequate Local Area Network (LAN), Wide Area Network (WAN), and Internet bandwidth to support the number of testers expected to be testing at the same time. It should also account for other traffic in the building that will be occurring at the time of testing.

Neverware CloudReady is now ChromeOS Flex

CloudReady from Neverware is a reduced-feature Chrome operating system that runs on older PC and MAC hardware with limited resources. Google has purchased the company and rebranded the solution as ChromeOS Flex. Sites will need to partner with Google for this solution and should follow the ChromeOS installation instructions.

DRC moved ChromeOS Flex to End of Support at the end of June of 2023.

Online Tools Training/Practice Test

On Windows, macOS, ChromeOS, or Linux devices, Online Tools Training (OTT)/Practice Tests must be taken using either the DRC INSIGHT Secure Application or a Google Chrome browser.

On iPads, they must be taken using either the DRC INSIGHT Secure App for iPad or a Safari browser.

COS Service Device Setup and Configuration Additional Notes

Examples of COS Service Device Configurations

The following table lists **examples** of device processor and memory configurations for a COS Service Device to support various numbers of concurrent testers. 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 Local Area Network (LAN), Wide Area Network (WAN), and Internet Service Provider (ISP) bandwidth. The bandwidth for each network segment should meet or exceed the minimum bandwidth listed in the last column of the table.

Shared bandwidth *does not include* the minimum bandwidth from the testing device to the network because that bandwidth is not 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 for Top End of Concurrent Testers Range
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

Table 1 Listing of examples of device processor and memory configuration for a COS Service Device to support various numbers of concurrent testers.

DRC's Operating System Support Policy

When a software vendor ends support for an operating system (or level), they discontinue free security updates and enhancements for that software. This can present large and immediate security and support risks to the software's users and potentially compromise DRC's ability to create a secure testing environment. As a result, DRC strongly recommends that all clients use fully supported versions of operating systems.

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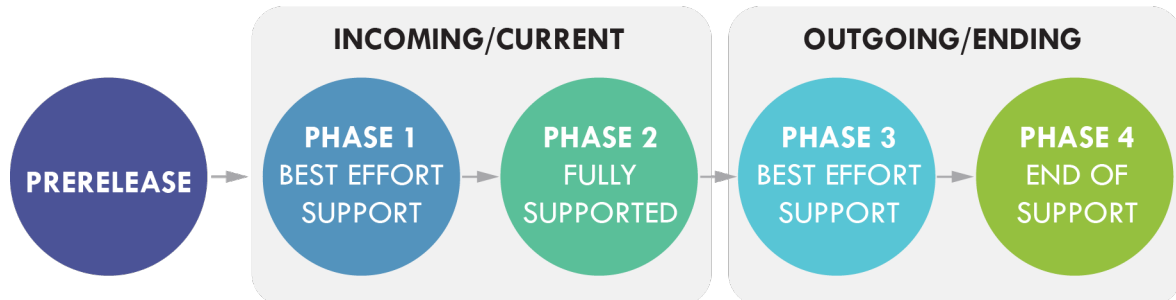
To accomplish the dual goals of minimizing security risks to DRC clients while making necessary software changes, DRC has established a multi-phase support timeline for the transition from an unsupported operating system or level to a supported operating system or level.

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

Prerelease

DRC works with operating system vendors to test our software in each vendor's beta channel as they develop enhancements to the operating systems and before they are released to the public.

Phase 1 and Phase 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

Operating system versions on the DRC Fully Supported operating system list have been verified by DRC. DRC supports major versions that are publicly supported by the product vendor and minor versions of the product when DRC deems 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

Operating system versions on the DRC End of Support list, or that are not listed under Fully Supported or Best Effort Support, are blocked from running DRC software applications.

Device Support Policy

Support Criteria

DRC's approach is to support our software on the devices most commonly used in the classroom. DRC's device support policy for these devices considers three criteria:

1. Does the device's specification meet DRC's system requirements?
2. Is the device running a DRC supported operating system version?
3. Does the vendor support the device? (This question mainly applies to iPads and ChromeOS devices.)

When the answer to all these questions is yes, DRC will provide support for the device. In other words, support is provided for DRC software on vendor-supported devices that meet DRC's device requirements and that are running under a supported operating system.

When a vendor ends support for a device, the device will no longer receive necessary security and functionality upgrades. This can compromise DRC's ability to create a secure testing environment and may impact DRC's software ability to function properly if the device does not support functionality DRC software requires. After the vendor ends support, DRC will provide Best Effort Support for a short period before also ending support.

Currently, vendor device support affects mainly Apple's iPad devices and devices running Google's ChromeOS.

Apple iPad Devices

When an Apple iPad model no longer has an Apple supported operating system version these devices are considered unsupported by Apple. Because Apple no longer supports the device, DRC is unable to offer support and recommends these iPad devices not be used for DRC INSIGHT online testing.

Google ChromeOS Devices

Each Google ChromeOS device has an Auto Update Expiration (AUE) date. Before reaching this date, the device automatically receives new software updates from Google. As Google's Auto Update policy for ChromeOS devices states,

> *ChromeOS 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 ChromeOS devices will receive updates to enable new OS and browser features.*

Google bases ChromeOS device's AUE date on the model's first production date, **not** the date the device was purchased. This is typically 5-6 years after the model's first production release. 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.

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

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

Even if the device still has a supported version of ChromeOS, DRC recommends replacing any ChromeOS devices that have reached or will reach their AUE date within the school year.

Supported Device Types

- **Windows**
  - Both touch-screen and non-touch-screen devices
- **ChromeOS**
  - Both touch-screen and non-touch-screen devices
- **iPadOS**
  - iPads that support iPadOS 15.x or above
- **macOS**
  - Non-touch screen devices only
- **Linux**
  - Non-touch screen devices only

Supported Accessories

- Mouse (Wired, Wireless and Bluetooth)
- English language keyboard (internal and external, wired, wireless and Bluetooth)
- Touchpad
- Headphones (Wired and Bluetooth)
- Microphone earphones (Wired and Bluetooth)
- Earbuds (Wired and Bluetooth)
- Stylus for touch devices
- Other input devices as supported for accommodations (determined in conjunction with each state department of education).

   Note: 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.

Unsupported Accessories

- Smart Board interfaces

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