System Requirements

Effective June 2020–October 2020

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DRC INSIGHT System Requirements

UPDATE: What's New, Ended, Ending and Coming

The following is an overview of upcoming changes to the hardware and software supported for DRC INSIGHT and/or COS Service Devices.

Operating System Support

What's New

Ubuntu 20.04 LTS

Ubuntu 20.04 LTS was released at the end of April 2020. DRC has added it to the list of Best Effort Supported operating systems and anticipates moving it to Fully Supported in July or August 2020.

What's Ended

macOS 10.12

Apple dropped support of macOS 10.12 in 2019. This resulted in DRC moving support for macOS 10.12 to End of Support.

What's Ending

Windows 7 and Windows Server 2008

Microsoft ended support for Windows 7, as well as support for Windows Server 2008, in January of 2020. DRC continued to support both Windows 7 software and Windows Server 2008 software throughout the 2019–2020 school year.

The current versions of DRC's software have not been tested or verified on Windows 7 or Windows Server 2008, therefore DRC will provide Best Effort Support for these OS versions at this time. DRC plans to move these operating system versions to End of Support at the end of September 2020.

What's Coming

Windows 10X

DRC anticipates the launch of Windows 10X in the fall of 2020. Initially this was a unique version of Windows designed specifically for dual-screen devices. In early May 2020, Microsoft announced their intentions to pivot and focus toward delivering Windows 10X on single-screen devices first

and were postponing their plans for dual-screen devices. Microsoft has not yet provided a release date for Windows 10X.

Following DRC's Operating System Support Policy, current plans are to support this operating system on single-screen devices. DRC currently **does not** have plans to support dual-screen devices when they are available.

DRC will continue to monitor Microsoft's plans for releasing Windows 10X and evaluate support as the operating system and device scope evolves.

Windows 10 Fall Release
DRC anticipates Microsoft's semi-annual release with feature update to Windows in September of 2020. Support of this release will follow DRC's Operating System Support Policy. It is not known yet whether this release will require an update to the DRC INSIGHT Secure Browser for Windows and/or the DRC INSIGHT Secure App for Windows 10 in S mode.

macOS 10.13
DRC anticipates Apple will drop support of macOS 10.13 in September with the introduction of macOS 10.16. This would result in DRC moving support for macOS 10.13 to Best Effort Support in September 2020 and to End of Support in November 2020.

macOS 10.16
DRC anticipates Apple's annual release of an upgrade to macOS, likely called macOS 10.16, in the fall of 2020. Support for this release will follow DRC's Operating System Support Policy. It is not known yet whether this release will require an update to the DRC INSIGHT Secure Browser for macOS.

iOS 12
Anticipate Apple will drop support of iOS 12 in September with the introduction of iOS 14 and iPadOS 14. This would result in DRC moving support for iOS 12 to Best Effort Support in September 2020 and to End of Support in November 2020.

iPadOS 14
DRC anticipates Apple's annual release of an upgrade to iPadOS, likely called iPadOS 14, in the fall of 2020. Support for this release will follow DRC's Operating System Support Policy. It is not known yet whether this release will require an update to the DRC INSIGHT Secure App for iPad.

Device Support

What's New
No new device support has been added.

What's Ended
No recent end of life devices.

What's Ending
iPad Air devices
The iPad Air device supports only iOS 12.x. DRC anticipates with the launch of iOS 14 in the fall Apple will drop support for iOS 12.x resulting in this device no longer being supported by Apple and therefore DRC.

What's Coming
No new device support anticipated.

UPDATE: New or Changing DRC Technology
The following is an overview of upcoming planned changes to DRC software and technology components.

64-bit DRC INSIGHT Secure Browser for Windows Now Available
The DRC INSIGHT Secure Browser for Windows installer has been updated to 64-bit. This updated version is available for download from the DRC INSIGHT Portal > General Information > Downloads page. If the 32-bit installer is needed, please contact DRC Customer Service.

If an existing testing device has the 32-bit version installed and auto update is enabled, it will automatically update to the updated 32-bit version. To convert an existing testing device with the 32-bit version to the 64-bit version, the 32-bit version will need to be uninstalled and the 64-bit version would then need to be installed on the testing device.

Testing Device and COS Service Device CPU Benchmark Ratings
DRC recently enhanced and simplified the processor specification for COS Service Devices and for testing devices. DRC now expresses the specifications in terms of a Central Processing Unit (CPU) benchmark rating that assesses overall processor performance. Prior to this the CPU specifications listed a single Intel processor with a comment of "or equivalent" without any context of that processor's performance.

The CPU benchmark ratings used for the CPU specifications are created by an independent third party, PassMark Software, that uses special software to test and gauge CPU performance benchmarks in a standardized way. The resulting ratings make it easier to understand differences in CPU performance and to set device processing standards.

It is important to note that the device specifications for test devices and COS Service Devices have **not changed or increased** through the use of CPU benchmark rating. The processors used in 2019-20 System Requirements were used to determine the CPU benchmark ratings in this document. DRC has not changed the system specification for either the testing devices or the COS Service Devices in the 2020-21 academic year.

Minimum vs. Recommended
Throughout this document, the Minimum level of requirements represents a low compliance threshold. For the best student testing experience, 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 INSIGHT Testing Device Requirements

Base Hardware Requirements

These base 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 **–** 10 GB
    - Recommended **–** 20 GB or more
- **Screen Size –** Required **–** 9.5" or larger
- **Screen Resolution –** 1024 x 768 or better
- **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

Fully Supported Operating Systems and Device Types

- **Windows**
    - Both touch-screen and non-touch-screen devices
- **Chrome OS**
    - Both touch-screen and non-touch-screen devices
- **iOS (anticipated full support through September, then moves to best effort support)**
    - iPad 5th Generation
    - iPad 6th Generation
    - iPad Air devices
    - iPad Pro Devices: 9.7", 10.5", and 12.9"
- **iPadOS**
    - iPad 5th Generation
    - iPad 6th Generation
    - iPad Pro Devices: 9.7", 10.5", and 12.9"
    - **Note:** iPad mini devices **are not** supported.
- **macOS**
    - Non-touch screen devices only
- **Linux**
    - Non-touch screen devices only

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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 of 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 on a Mac Device, Open Terminal Window and run the following command: *sysctl machdep.cpu.brand_string*

Supported Accessories

- Mouse
- English language keyboard (internal and external, wired and wireless)
- Touchpad
- Headphones
- Microphone earphones
- Earbuds
- 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

DRC INSIGHT Testing Device Additional Notes

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 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. Also account for other traffic in the building that will be occurring at the time of testing.

Windows and Chrome OS Touch-Screen Devices

Device manufacturers use different methods to implement touch-enabled screens for their devices. DRC verifies DRC INSIGHT on manufacturers' touch devices commonly used in educational settings.

Neverware CloudReady and DRC INSIGHT—PCs and MACs to Chromebooks

CloudReady from Neverware is a reduced-feature Chrome operating system that runs on older PC and MAC 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. Sites using CloudReady should follow the Chrome OS installation instructions.

Tablet/Netbook/Chrome Devices

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

DRC recommends all applications and features that are unnecessary for testing 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 enough memory 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.

Microsoft Teams App

The Microsoft Teams App should be disabled during testing for the appropriate 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.

Automatic Operating System Updates and Other Background Processes

Some operating system vendors have policies where updates are automatically applied in the background. 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. 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 updates automatically, verify that it has the most current DRC-supported version already installed *before* the test session starts.

Accommodations

Tests with the Text-to-Speech (TTS), Human Voice Audio (HVA) or Video Sign Language (VSL) accommodations are required to be administered with a COS Service Device.

COS Service Device Requirements

Base 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**
  - 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 Chrome OS device.
  Note: iOS, iPadOS, and Chrome OS 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 following table lists **examples** of device processor and memory configurations for a COS Service Device to support various numbers 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 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.

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

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

**A processor's CPU benchmark rating is based on a common set of factors used by PassMark Software to assess relative of 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 on a Mac Device, open Terminal Window and run the following command:
  sysctl machdep.cpu.brand_string

DRC's Device Support Policy

Device Categories

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 factors:

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 Chrome OS devices.)

When the answer to all these questions are yes, DRC will provide Full Support for the device. In other words, Full 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 Chrome OS.

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 Chrome OS Devices

Each Google Chrome OS 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 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.*

Google bases Chrome OS 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 Chrome device, use the following link to Google's Auto Update policy and the list of Chrome devices with their AUE dates: support.google.com/chrome/a/answer/6220366.
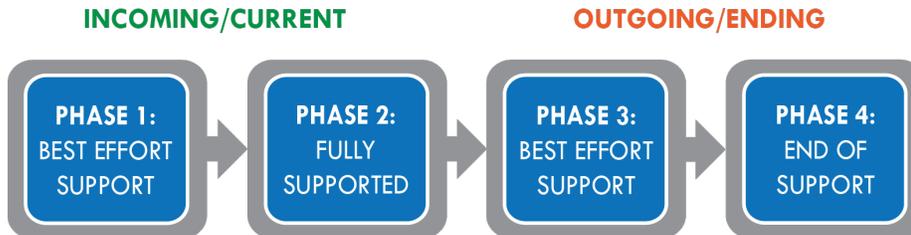
DRC will offer Best Effort Support for unmanaged Chrome devices (the DRC INSIGHT Secure Chrome App was manually installed) that meet the system device and supported operating system requirements.

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

DRC's Operating System Support Policy

When a software vendor 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 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

INCOMING/CURRENT   **OUTGOING/ENDING**

PHASE 1: BEST EFFORT SUPPORT	PHASE 2: FULLY SUPPORTED	PHASE 3: BEST EFFORT SUPPORT	PHASE 4: END OF SUPPORT

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

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

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

DRC's Operating System Version Support

Phase 1 Best Effort Support

The operating systems listed below are included in Phase 1: Best Effort Support.

- Ubuntu 20.04 LTS version with Gnome Shell – Released April 23, 2020
- iPadOS 14.x – anticipated September 2020 release
- macOS 10.16 – anticipated September 2020 release
- Windows 10 fall update – anticipated September 2020 release

Phase 2: Fully Supported

The most **current version** of the operating systems listed below are included in Phase 2: Fully Supported.

Chrome OS

- Chrome OS recent stable channel (4)(5)(6)

Windows

- Windows 8.1
- Windows 10 Semi-Annual Channel servicing options (1)(2)
- Windows 10 in S mode
- Windows Server 2012 R2
- Windows Server 2016
- Windows Server 2019

macOS

- macOS 10.13 – anticipated to move to Best Effort Support in September 2020
- macOS 10.14
- macOS 10.15

iOS

- iOS 12.x latest version (3) – anticipated to move to Best Effort Support in September 2020

iPadOS

- iPadOS 13.x latest version (3)

Linux

- Ubuntu 16.04, LTS version, with 64-bit Gnome 3.4, Unity Shell
- Ubuntu 18.04, LTS version with Gnome Shell
- Ubuntu 20.04 LTS version with Gnome Shell – anticipated July/August 2020

Phase 3: Best Effort Support

The operating systems listed below are included in Phase 3: Best Effort Support.

- Windows 7, SP1 – through the end of September 2020
- Windows Server 2008, R2 SP1 – through the end of September 2020
- macOS 10.13 – anticipated starting in September 2020 with the release of macOS 10.16
- iOS 12.x – anticipated starting in September 2020 with the release of iPadOS 14.x

Phase 4: End of Support

The operating systems listed below have been moved to Phase 4: End of Support.

- iOS 11.x
- iOS 12.x – anticipated in December 2020
- macOS 10.12
- macOS 10.13 – anticipated in December 2020
- Ubuntu 14.04
- Windows 7, SP1 – starting the end of September 2020
- Windows Server 2008, R2 SP1 – starting the end of September 2020

Operating System Notes

Note: Mac and Linux server software are not supported.

Note: DRC recommends using operating system levels that are Fully Supported. 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.

(1) 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 support.microsoft.com/en-us/help/13853/windows-lifecycle-fact-sheet.
(2) DRC currently supports the Home, Pro, Enterprise, and Education editions of Windows 10.
(3) See iOS and iPadOS Support section below
(4) See Chrome OS Support section below.
(5) DRC offers Best Effort Support for unmanaged Chrome devices (the DRC INSIGHT Secure App for Chrome OS was manually installed) that meet the system device and supported operating system requirements
(6) DRC offers Best Effort Support versions from 83 to the stable channel levels.

iOS and iPadOS Support

The iOS and iPadOS release strategy provide 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 offers the following levels of support:

- **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.
- **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

DRC offers the following levels of support for Chrome OS:

- **Full Support** for the current stable channel level.
- **Best Effort Support** for stable channel levels between level 83 and current stable channel level.

  Note: DRC also offers Best Effort Support for unmanaged Chrome devices (the DRC INSIGHT Secure App for Chrome OS was manually installed) that meet the system device and supported operating system requirements.
- **End of Support** (no support) for stable channel levels before 83.

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