



System Requirements

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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

No new operating systems anticipated.

What's Ended

iPadOS 13

Apple discontinued support of iPadOS 13 in the fall of 2021 with the introduction of iPadOS 15.

DRC's latest release of DRC INSIGHT Secure App v12 for iPadOS is not supported on iPadOS 13. DRC INSIGHT Secure App v11 is supported on iPadOS 13 as long as your COS Configuration does not have a COS Service Device, or if you have Content Hosting turned off so that content is delivered from DRC.

DRC moved iPadOS 13 with DRC INSIGHT Secure App v11 to End of Support at the end of November 2021.

Windows 7

As a reminder, Microsoft ended support for Windows 7 in January of 2020. DRC no longer supports or allows Windows 7 for testing.

Ubuntu 16.04

Support for Ubuntu 16.04 ended in April of 2021. DRC moved it to End of Support in June of 2021.

What's Ending

macOS 10.14

Apple discontinued support of macOS 10.14 in the fall of 2021 with the introduction of macOS 12.

MacOS 10.14 was moved to Best Effort Support in November 2021 and will be moved to End of Support in June 2022.

Windows 10 Versions 1507, 1607, 1809 and 2004

Microsoft's support has ended, or will soon end, for Windows 10 versions 1507, 1607, 1809, and 2004. These Windows 10 versions were moved to Best Effort Support at the end of November 2021 and will be moved to End of Support at the end of June 2022.

Note: DRC does not offer support for Windows 10 versions under Microsoft's Long-Term Servicing Channel (LTSC).

Windows 10 Version 1909

Microsoft will discontinue support for Windows 10 version 1909 in May 2022. DRC will provide Best Effort Support for this version starting at the end of May 2022 and will move it to End of Support at the end of June 2022.

What's Coming

No new operating systems anticipated.

Device Support

What's New

No additional new devices are anticipated.

What's Ended

Windows 32-bit Devices

Beginning in June 2021 DRC no longer supports or allows 32-bit versions of the Windows operating system.

What's Ending

No additional end-of-life devices are anticipated.

What's Coming

No additional new devices are anticipated.

UPDATE: New or Changing DRC Technology

The following is an overview of upcoming planned changes to DRC software and technology components.

32-bit DRC INSIGHT Secure Browser for Windows no Longer Supported

Beginning in June of 2021, DRC no longer supports or allows 32-bit versions of the DRC INSIGHT Secure Browser for Windows. Testing devices with the 32-bit version of the application in June of 2021 will not update. Sites will need to **uninstall** the 32-bit version and install the 64-bit version.

DRC INSIGHT Secure Browser for macOS Enhanced Ability to Secure Testing Devices

DRC plans to enable Apple's Automatic Assessment Configuration (AAC) feature that has been delayed to June of 2022. DRC will continue to work with Apple on defining and implementing their AAC capabilities. AAC will give the DRC INSIGHT Secure Browser for macOS access to more system features and provides additional capabilities to secure a testing device.

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/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

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
- **iPadOS**
 - iPad (5th, 6th, 7th, 8th and 9th generation)
 - iPad Air 2
 - iPad Air (3rd and 4th generation)
 - iPad Pro 9.7-inch
 - iPad Pro 10.5-inch
 - iPad Pro 11-inch (1st, 2nd and 3rd generation)
 - iPad Pro 12.9-inch (1st, 2nd, 3rd, 4th and 5th generation)

Note: iPad mini devices are **not** supported.
- **macOS**
 - Non-touch screen devices only
- **Linux**
 - Non-touch screen devices only

*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 Mac Device, Open a 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 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. And, it should 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.

Scale and Display Settings

All 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 the large number of screen resolution variations this can result in, DRC recommends that display setting 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 Chrome OS – 100%
- macOS – Default
- iPadOS – Standard

Windows 10 High Contrast Mode

High contrast mode for Windows 10 devices should be disabled during testing. If high contrast mode is not disabled, function keys may appear invisible in the DRC INSIGHT Secure App.

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.

Online Tools Training/Practice Test

On Windows, macOS, Chrome OS, 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 iPad devices, they must be taken using either the DRC INSIGHT Secure App for iPad or a Safari browser.

IPA Software

Intelligent personal assistant (IPA) software, such as Siri for iPadOS 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.

Collaboration Tools

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

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

DRC strongly recommends that tests with the Text-to-Speech (TTS), Human Voice Audio (HVA) or Video Sign Language (VSL) accommodations 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 iPadOS or Chrome OS device.
Note: 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 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 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 is 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.

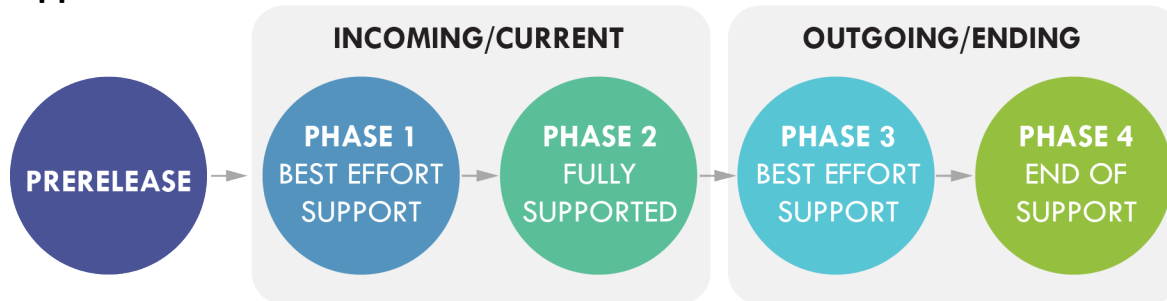
DRC will offer Best Effort Support for unmanaged Chrome devices (the DRC INSIGHT Secure Chrome App was manually installed) that meet the system device and supported operating system requirements.

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



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.

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

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.

DRC's Operating System Version Support

Phase 1 Best Effort Support

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

- No new operating systems anticipated

Phase 2: Fully Supported

Unless otherwise stated, the most **current version** of the operating systems listed below are included in Phase 2: Fully Supported.

Windows (1)(2)

- Windows 8.1
- Windows 10 Semi-Annual Channel servicing options (3)(4)
 - Versions 1909, 20H2, 21H1, and 21H2
- Windows 10 in S mode
- Windows 11
- Windows Server 2012 R2
- Windows Server 2016
- Windows Server 2019
- Windows Server 2022

iPadOS (5)

- iPadOS 14.x
- iPadOS 15.x

Chrome OS

- Chrome OS current stable channel (6)(7)(8)

macOS

- macOS 10.15
- macOS 11.x
- macOS 12

Linux

- Ubuntu 18.04, LTS version with Gnome Shell
- Ubuntu 20.04 LTS version with Gnome Shell

Phase 3: Best Effort Support

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

- Windows 10 version 1507, 1607, 1809 and 2004
- Windows 10 version 1909 effective at the end of May 2022
- macOS 10.14
- Ubuntu 21.1 version with Gnome Shell

Phase 4: End of Support

The operating systems listed below are included in Phase 4: End of Support.

- Ubuntu 16.04, LTS version, with 64-bit Gnome 3.4, Unity Shell
- iPadOS 13.x
- macOS 10.14 effective in June of 2022
- Windows 10
 - Version 1507, 1607, 1809, 1909 and 2004 effective June 2022
 - Versions 1803 and 1903 ended in July of 2021

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 does not offer support for Windows versions under Microsoft's Long-Term Servicing Channel (LTSC).
- (2) DRC does not support high contrast mode for Windows Devices.
- (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 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 iPadOS Support section below
- (6) See Chrome OS Support section below.
- (7) 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
- (8) DRC offers Best Effort Support for version 90 to the current stable channel level.

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 13.x and release 14.x are major release versions.
- Minor release versions are indicated by the number to the right of the decimal point. For example, release 13.1 and release 13.2 are minor release versions of major release version 13.

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.

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 90 and the 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 90.

Trademarks

The following are trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries:

- Internet Explorer
- Microsoft
- Microsoft Edge
- Windows
- Windows Vista
- Windows XP
- Windows 7
- Windows 8
- Windows 10
- Windows 10 in S mode

The following are trademarks or registered trademarks of Apple Corporation in the United States and/or other countries:

- Apple
- iOS*
- iPad
- iPadOS
- Macintosh
- Mac
- macOS
- Safari

*iOS is a trademark or registered trademark of Cisco in the United States and other countries and is used under license.

The following are trademarks or registered trademarks of Google Corporation in the United States and/or other countries:

- Chrome
- Chrome OS
- Chromebook
- Google Play

Firefox is a trademark or registered trademark of Mozilla Corporation in the United States and/or other countries.

Linux is a registered trademark of Linus Torvalds.

Ubuntu and Canonical are registered trademarks of Canonical Ltd.

Gnome is a trademark of the Gnome Foundation.

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- DRC INSIGHT Online Learning System
- DRC INSIGHT